

# THE MODERATING EFFECTS OF DEMOGRAPHIC FACTORS IN THE USAGE OF E-GOVERNMENT SERVICES AMONG JORDANIAN CITIZEN

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**Abstract:** The primary aim of the study was to investigate the role of E-government services among citizens of Jordan. The proposed model may facilitate the understanding of how certain factors can affect the level of usage of e-government services in Jordan. The main objective of this study is to gauge the possible antecedents of e-government services usage by working on a new model based on UTAUT as well as to answer the research questions posed. This study will apply a quantitative research methodology, which includes a numerical measurement and analysis of the factors which influence acceptance. In this study, a survey questionnaires which will involve 768 respondents will be adopted to aggregate the results. The investigation seeks to identify whether the independent variables – namely Performance Expectancy (PE), Social Influence (SI), Facilitating Condition (FC), Effort Expectancy (EE), Trust factor (TF), Computer self-efficacy (CSE), e-government Usage Behavioural (UB) and continued usage intention of (CUI), Education (EDU), Age (AGE), impacted the usage of E-government services in a significant way. The result of the PLS path model showed that Social Influence (SI), Facilitating Conditions (FC), Effort Expectancy (EE) and Computer Self-Efficacy (CSE) are positively related to the usage behaviour of e-government services. Performance Expectancy and trust factor however were found negatively related to the usage behaviour of e-government services. The study showed that Effort Expectancy imparts a significantly positive impact on Use Behavior to use e-government among citizens, which implies that Effort Expectancy is factor that determines the use behavior to use e-government service.

**Keywords:** EG, Using of EG, Education, Age, Experience, Gender,( Performance Expectancy, Social Influence, Facilitating Condition, Effort Expectancy, Trust factor, Computer self-efficacy) e-government Usage Behavioural in Jordan.

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## 1. INTRODUCTION

For Jordan, the initiative of e-government comprises a national program that His Majesty King Abdullah II had launched in year 2000. Consequently, the portal of e-government began its operation in 2006 during the fourth quarter. The aim of this portal is to improve service delivery of the government, improve service efficiency and accuracy while reducing both the time and cost necessitated upon completing a transaction. Specifically, according to al-shaka'a (2011), in Jordan, the Ministry of Information and Communications Technology (MOICT) has developed an e-government portal where it includes almost 49 services including issuing vocational license, issuing non-criminal record certificate, digitizing national library, income and sales tax. However, Jordanian government is still working on obtaining the rights to the portal.

According to Bélanger and Carter (2008), Colesca (2009) and Dai et al. (2014), when user has come to believe that not only the transaction but also his private data are protected from harm, he or she will demonstrate higher tendency to use the online services. Also, in terms of computer self-efficacy, the experimental results evidence the positive linkage between computer self-efficacy and intention to utilise e-Government services. This discovery is in agreement with

Compeau Higgins (1995), Carter and Belanger (2005), Wangpipatwong et al. (2008) and Chatzoglou et al. (2015). In this regard, officials of the state should work harder in fighting against computer illiteracy such as organizing seminars, creating incentives and so on because as demonstrated, citizens who are self-efficient appear to be the ones that will be adopting e-government. So, one undeniable benefit is that the e-government model could assist its e-government project and facilitate the delivery of information as well as services to public and among government agencies efficiently in a short span of time. E-government is hoped to help mitigate corruptions among government employees as well (Majdalawi et al., 2015).

Despite all the promised benefits of using E-government services and their utilizations in Jordan, the citizen are still reluctant in using E-government services. Among the main causes for this, is poor education among the citizens in Jordan. In fact, Education and knowledge level is the strongest factor that can have an effect on the acceptance level among Jordanian citizens (Mlay, 2013; Abunadi, 2013). The basic curiosity is about why the customers and the public are reluctant to use E-government to secure government services through government website and about the linkage between such reluctance and the percentage of Jordanian society adopting E-government.

Researchers including Wangpipatwong et al. (2008), Abunadi (2013) and McKenna et al. (2014) confirmed that there appears a low level of usage of e-government services within most developing nations, including Jordan. Thus, this fact (Katz, & Halpern, 2013; Arduini et al., 2013) have been tackled the issues of e-government in various countries, there has been missing in these studies, such as the fact that there are other potential variables that have yet to be accounted for. This study found a dearth of literature and research on the usage in fragile environments, as opposed to the steady environments where several studies have been conducted on (Otieno, & Omwenga, 2014).

In regards to the theoretical perspective, the gap analysis for this research illustrated that past studies still do not have absolute comprehensive models to be implemented on e-government services amongst Jordanian citizens. Hence, the present study has to improve the existing models to look into the impact of factors on the utilization of e-government services in the context of developing countries.

Leaning on the study background and the problem statement, the present study intends to find answer to each of the questions of research as presented below:

- 1) What are the effects of Performance expectancy (PE), social influence (SI), Facilitating Conditions (FC), effort expectancy (EE), Trust Factor (TF), and Computer Self-Efficacy (CSE) on the usage behaviour of e-government services?
- 2) What is the effect of usage behaviour on the continued usage intention of e-government services?
- 3) Does demographic factor (education and age) moderate Performance expectancy (PE), social influence (SI), Facilitating Conditions (FC), effort expectancy (EE), Trust Factor (TF), Computer Self-Efficacy (CSE), variables with e-government services moderate in Jordan e- government services?

This study sheds light on the common awareness that the services of e-government for the citizens in Jordan are very little. It also triggers the need for a new study that can dwell into the current e-government services adopted in nations including Jordan. The significance of this study can be stressed from the theoretical and practical points of view:

Considering the significance of E-government services in today's technology era, this study cannot deny that there is insufficient earlier research that uses a UTAUT model in deliberating e-government services with respect to their antecedents. As an important factor, the crucial part of the Electronic-Services Awareness (E-SA) regarding the availability of e-government services is undeniable. Accordingly, considerable amount of attention has been given to that as a fundamental factor for successful E-government system implementation.

Therefore, the current study may well possess a great theoretical value because it supplies new information to the literature as it revises the UTAUT, as a comprehensive model, in such a fragile environment. Furthermore, the developed model has not applied UTAUT with some other variables yet, like Trust Factor (TF), Computer Self-Efficacy (CSE), Performance expectancy (PE), effort expectancy (EE), social influence (SI), Facilitating Conditions (FC), Education and Age, on the Use Behaviour (UB) and the effect of Continued Usage Intention (CUI) within the Middle East region on the whole, and in Jordan specifically.

## 2. LITERATURE REVIEW

### 2.1 E-government

The notion of Electronic government or e-government has been acknowledged as a significant area of study in IS (Al-Hakim, 2007; Almutairi, 2007; Wangpipatwong et al., 2008; Yung et al., 2012). At the end of the 1990s, projects of e-government have been introduced by various governments at all levels and particularly by high ranking officials who had the intention to supply electronic benefits (information and services) to both businesses and citizens (Jait, 2012; Al-Kubaisi, 2014).

Previous works have proven that there is a certain amount of pressure from very fast emergent Internet applications and technologies on citizens (public sector) and business (private sectors) towards the cause of reengineering governments operation to cater to the beneficiaries. To accomplish the best Government Reengineering Process (GPR), governments have decided to adopt e-Government (Wang & Rubin, 2004; Mehta, 2014), and these governments, on a global trend, have started implementing e-government strategies so as to restore public services while further promoting the rapid step of informational technological change.

Also stated is that e-government improves democracy as democracy delivers simplicity to public office holders and the general public. The prominent role of e-government is already realized by several developed and western countries, as evident in e-government literatures in countries like the United States of America and United Kingdom (Jaeger & Thompson, 2003; Rocheleau & Wu, 2005). Similarly, citing Thailand as a role model in Asian countries, (Wangpipatwong et al., 2008; Frenette, 2013) shed light on the influencing fundamental factors found to be impacting the continued usage intention demonstrated by citizens of e-government employing the Davis Model (TAM) as the foregrounding theoretical model.

It was revealed through the outputs that perceived ease of use in addition to perceived usefulness of e-government services and the efficacy of computer usage of citizens directly supported the citizen's ongoing intent of e-government websites usage. Therefore, conclusively, there is a direct impact on the continuous use of e-government websites by perceived ease of use. The promising initiatives brought by e-government have been highlighted by developing nations with the target of improving the accessibility of information and government services by their citizens (Khan et al., 2010a, 2010b, 2012). It is the government's accountability to firstly grasp the issues that leave an impact to their citizens' adoption and acceptance of e-government systems so they can be fully incorporated in the delivery of e-government online initiatives.

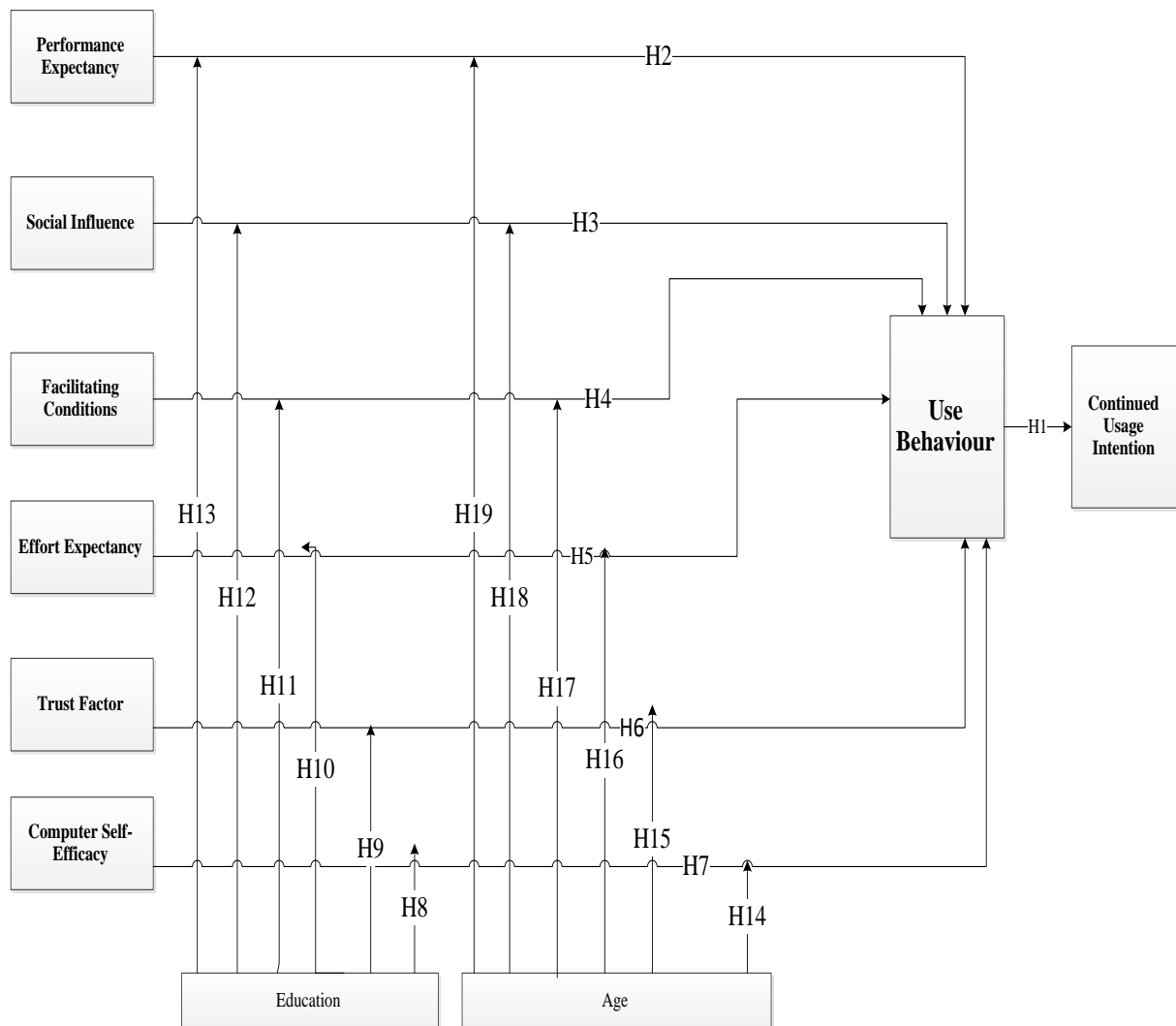
## 3. RESEARCH MODEL AND HYPOTHESIS DEVELOPMENT

### 3.1 The Unified Theory of Acceptance and Use Technology (UTAUT)

A study was carried out by Venkatesh et al. (2003) with the purpose of drawing a comparison between the similarities and differences amongst previously established theories in addition to models associated with user acceptance and they came up with Unified Theory of Acceptance and Use Technology (UTAUT). Such comparison involved the technology acceptance model (TAM) established by Davis et al. (1989), theory of planned behaviour (TPB) established by Ajzen (1991), theory of reasoned action (TRA) devised by Ajzen and Fishbein (1975), and several others. In the result of this work is the UTAUT model, which was made to counter the problems faced by researchers in the domain of information technology during the construction of their study framework as an attempt to create understanding towards the usage of technology among users (Venkatesh et al., 2003).

Further, Davis et al. (1989) added that acceptance models established in the past had some successful records in an approximate estimate of 40 percent in their prediction of acceptance in the context of information technology. By contrast, Venkatesh et al. (2003) reported that the UTAUT prediction with respect to the acceptance of information technology is within the region of 70 percent in the study of the variance in users' intention. UTAUT is also suitable to predict equally the individual acceptance of information technology for a large range of groups. Scales that have been adopted in prior technology acceptance models and theories were brought together to develop new scales, and tested for further enhanced improvement (Venkatesh et al., 2003; Marchewka et al., 2007). Accordingly, the adoption model that this study proposes can be referred in Figure 1. As proposed by the present study's research model, the external factors of E-government adoption are performance expectancy, facilitating conditions, effort expectancy, and social influence.

Meanwhile, Compatibility factor moderates performance expectancy, effort expectancy, social influence, and facilitating conditions. External beliefs and hypotheses of this study are discussed in the ensuing section.



**Fig. 1. Research model.**

### 3.2 Continued Usage Intention (Cui) Of E-Government Services

A citizen's intention to continue using e-Government services is parallel with the user's intention in repurchasing or revisiting (Gefen et al., 2003; Xi, 2014). On the other hand, the intention to adopt a given behaviour denotes the motivation factor encapsulating the degree to which an individual is willing to attempt the behaviour (Teo et al., 2009; Jordaan, 2014). During the phase of the post-adoption, the intention of user to keep on employing E-Government services stems (1) from the discussion previously held of using the services, indicating a mechanism of repeating behaviour, and (2) this is affected by the prior utilization of services evaluation which indicates a mechanism of feedback (Teo et al., 2009). Next, different attributes of E-Government services have diverse roles in the persisting intention of the user (Teo et al., 2009; Kim & Park, 2013). Concerning the evidenced impact of continued usage following IT success, it is significant and important to ascertain the primary factors that affect user's post-adoption behaviour, that is, to continue or discontinue IT usage (Hong et al., 2006; Zhou, 2013).

Most of past works in the field of IT adoption did not consider the difference in users' perceptions between the initial acceptance and continued use. This can be seen in the work by Bhattacharjee (2001) and Hong et al. (2006). Typically, an information system, when successful; its success will be reflected by the recurring usage in comparison to first-time usage (Bhattacharjee, 2001; Limayem et al., 2003; Wangpipatwong et al., 2008). Equally, the initial usage of E-Government

services is a noteworthy indicator of the success of E-Government. Somehow, this is not always translated into the sought outcome except if nearly all citizens use E-Government services repeatedly. Likewise, citizens' usage of the services may stop if the system fails to fulfil the citizens' needs however successful the adoption is (Roger, 1995; Limayem et al., 2003; Wangpipatwong et al., 2008; Detlor et al., 2013).

### **3.3 Performance Expectancy and Usage Behaviour**

Performance Expectancy is associated with the level to which an individual feels sure that certain system or service usage will offer him or her benefits jobs-wise or in life conduct in general. Jordanian citizens are not confident of the notion that technology and E-Government services cause their lives to improve. Interestingly however, Performance Expectancy (PE) impacts the behavioral usage of E-Government services. Accordingly, constructs that were obtained from models of diverse kinds for examining performance expectancy include the following: extrinsic motivation MM, job fit MPCU, outcome expectations obtained from SCT, perceived usefulness obtained from TAM/TAM2 and C-TAM-TPB, as well as relative advantage obtained from IDT. As the relevant literature has documented, the resemblances are determined between several construct pairs. These are: usefulness and extrinsic motivation (Davis et al., 1989, 1992), usefulness and relative advantage (Davis et al., 1989), usefulness and job-fit (Thompson et al., 1991), job-fit and outcome expectation (Compeau & Higgins, 1995; Venkatesh et al., 2003) and usefulness and outcome expectations (Compeau & Higgins, 1995; Davies et al., 1989).

### **3.4 Effort Expectancy and Usage Behaviour**

Effort Expectancy relates to the level of effortlessness linked with the manner in which individuals utilise a given system. As a concept, EE is generated from three constructs from the already available models. The aforesaid constructs are as follows: perceived ease of use (from TAM/TAM2), ease of use (from IDT) and complexity (from MPCU). These constructs share similarities with respect to their definitions and measurement scales, and in fact, such similarities were already highlighted in past studies (Davis et al., 1989; Thompson et al., 1991). With respect to the component models' constructs, the construct of effort expectancy has been viewed as remarkable within both utilisations of context of being voluntary besides also being mandatory, with a documented significance for just the time duration, whereas the extended and sustained utilisations have rendered it irrelevant (Davis et al., 1989; Thompson et al., 1991).

In the context of the initial stage of new behaviour, the effort-oriented constructs demonstrate greater degree of importance. Here, the involved processes include the hurdles that are to be dealt with with the impact of certain related instrumentality, as mentioned in the works by Davis et al. (1989), and Venkatesh et al. (2003). Furthermore, the construct of effort Expectancy (EE) appears to impact behavioural usage of E-Government services, and as reported by Jain and Kesar (2011), the skills possessed by citizens are among the key contributors of E-Government success. Additionally, Khan et al. (2010a, 2010b, 2012) stressed on the fact that for a successful E-Government service, the human resources must be equipped with skills.

### **3.5 Social Influence and Usage Behaviour**

As expressed by Chiu and Wang (2008), the notion of social influence is about the level to which one is aware of other persons' belief about a new system as assurance that he or she needs to employ the given system. Regarded to be a direct determinant of behavioural intention, the construct of social influence is signified with the application of three constructs which are: subjective norm (from TRA, TAM2, TPB/IDTPB, C-TAM-TPB), social factors (from MPCU), and image (from IDT) (Venkatesh et al., 2003). All constructs carry a notion that is either explicit or implicit in nature. Here, behaviour of a person is impacted by how they believe others following their technology usage. As mentioned by Al-Majali (2011), Social Influence (SI) has the potential to significantly cause low usage of E-Services.

Past works appear to have generated inconsistent and conflicting outcomes. For instance, although many have emphasized the significant role of SI (Venkatesh et al., 2003; AlAwadhi & Morris, 2008; Foon & Fah, 2011; Venkatesh et al., 2011), there are some that reported insignificant effect of SI (Chiu & Wang, 2008; Al-Sobhi et al., 2011).

### **3.6 Facilitating Conditions and Usage Behaviour**

Facilitating conditions is the degree of confidence embraced by a person concerning the establishment of organizational as well as technical infrastructure for allowing the system's usage. There are three distinct constructs related to Facilitating Conditions. These are: perceived behavioural control extracted as employed in TPBI, DTPB and C-TAM-

TPB, facilitating conditions as employed in MPCU, and compatibility as employed in IDT. These constructs are operationally conceptualized to consider the technological and organizational environments. Furthermore, there is a lack of Facilitating Conditions (FC) in terms of Infrastructure in Jordan (Al-Dabbagh, 2011), and the teeming challenges so that there would be no obstacles during the use of the systems. The companionable constructs obtained from IDT comprise items that basically fulfil the work of the individual in terms of style as well as the usage of system within the organization. The theoretical overlap via the modelling of facilitating conditions makes up the core constituent of perceived behavioural control within TPB/DTPB. As discovered by Venkatesh et al. (2003) and Taylor and Todd (1995), the construct of facilitating conditions appear to considerably impact innovation user. Facilitating conditions were also significantly predicting the usage of technology. On the other hand, when performance expectancy and effort expectancy were both employed within the same model, the authors reported that facilitating conditions did not predict IT use intention. As for the context of the present study, the measurement of the construct of facilitating conditions was through the perception of having the capacity in accessing the necessary resources in addition to attaining the knowledge and the support required in the utilisation of e-government services.

### **3.7 Trust Factor and Usage Behaviour**

Trust in government had declined drastically in the mid-1960s. Ever since then, although there have been some momentary fluctuations, including a brief break following the September 11 attack, trust has consistently remain low. A survey conducted in 1958 showed that nearly 75% respondents believed that the federal government is “doing what is right” nearly at all times or as frequently as possible. However, in 2002, only 40 percent admitted to have this degree of confidence. However, the trust level towards the federal government was recorded lowest in 1994 at 21%; in fact, the level has been hovering at roughly 40% since the 1970s (Donovan & Bowler 2004, 17-18). According to Al-Gahtani, S. (2011) Trust can be interpreted as letting individuals to utilise e-government services voluntarily and act in a manner that demonstrates socially accountability for the fulfilment of trust following the consideration on the characteristics of the government. Trust as one vital factor with the ability to determine the usage of e-government application in a way that is more trustworthy of e-government application will decrease the fear of using it. To achieve this, important factors that affect Jordanian citizens’ intentions to use technology will need to be examined (Khasawneh et al., 2013).

### **3.8 Computer Self-Efficacy and Usage Behaviour**

Computer self-efficacy, as deliberated in the work carried out by Wangpipatwong et al. (2008), is a key factor which determines e-government adoption. In view of that, the construct of perceived behaviour control impacting the intention of an individual to use is grounded on TPB’s computer self-efficacy and facilitating Conditions. As remarked in a study by Compeau and Higgins (1995), the notion of self-efficacy comprises self-confidence possessed by an individual as well as their own capacity in Demonstrating a given behaviour. The way this concept is defined is connected to the self-efficacy concept that Bandura (1986) has presented. In specific, Bandura’s notion of self-efficacy refers to the judgement of people towards their capacities in organizing and executing courses of action necessitated so that certain kinds of performances can be achieved.

### **3.9 Moderated Factors by Education & Age**

#### **3.9.1 Education (EDU)**

In Wu & Tao (2007) study, education is included to the group of control variable as this construct is thought to be a significant control variable in E-Government. Regarding education in general and to narrow the digital divide, governments could help the citizens by means of providing them particularly the elderly and the young people, with computer education (Reffat, 2003 as cited by Al-Shafi & Weerakkody, 2010). Furthermore, Thomas and Streib (2003) revealed that ethnicity and education can both play a role in discriminating Internet users from their non-user counterparts. They stated that among the above factors, ethnicity and education are significant predictors of internet users of government Websites – with most users have better education. Educational level refers to a wide range of demographic education levels of the citizens (Venkatesh et al., 2000; Al-Shafi & Weerakkody, 2010). Al-Shafi and Weerakkody (2010) added that educated individuals and citizens are more prone to achieve superior professions and employ new, cutting-edge innovations.

### 3.9.2 Age

Age is also among the most significant demographic characteristics and is considered a significant factor in technological adoption in the universities among academic staff (Khasawneh & Ibrahim 2012). Young academic staff may be more or even most familiar with ICT in the education system especially those who use computers during their college studies or those who receive higher education degree from any developed country.

## 4. METHODOLOGY

This study embraces the quantitative study design with the use of questionnaire survey for data gathering. According to Carter and Belanger (2005), the use of quantitative method allows the relationships between the variables recognized inside the model to be tested. This allows the researcher to come up with proofs for supporting or disproving the hypotheses constructed.

In line with the decision to use the entire population, the research distributed questionnaires to 768 respondent's citizen in Jordan who are currently using e-government services. Out of 768 distributed, only 448 questionnaires were returned. In addition, (Hair et al., 2010) argued that it is better for researchers to discard any case of respondents from the collected questionnaires if the missing data are more than 50%. Based on their recommendation, 12 questionnaires were discarded because more than 50% of them were incomplete. This resulted in 436 usable responses for further analysis, yielding an overall response rate of 55.47%. Table 4.1 shows the breakdown.

### 4.1 Data analysis

Having conclude the data screening and preliminary analysis, the result of main PLS path modeling is presented here. It is important to mention here that unlike previous application of PLS, it is argued recently that goodness-of-fit (GoF) index does not demonstrate appropriateness with model validation owing to the fact that it falls short in separating valid and invalid models (Hair, et al., 2013), hence it is not considered in this analysis. Following the recent development in the application of PLS path modelling, a two-stage approach was employed in evaluating and reporting the result of the analysis. The two-step which comprises of two models evaluation: (1) measurement model evaluation, and (2) structural model evaluation as presented in Figure 4.2 (Hair, et al., 2013; Hair et al. 2011; Henseler, Ringle, & Sinkovics, 2009).

#### 4.1.1 PLS-SEM Measurement Model

Recording to researchers Hair et al., (2013) outlined four stages for the evaluation of the measurement models for PLS-SEM. These are: (1) indicator reliability which is evaluated using indicator loadings of .70, (2) internal consistency reliability which is evaluated using composite reliability of .70 and above, (3) convergent validity using Average Variance Extracted (AVE) of .50 and above, and lastly (4) discriminant validity which requires that the square root of AVE of every latent construct to be higher in comparison to its correlation with any other construct within the PLS-SEM model used in a study. While the first two stages are related to reliability, the last two stages are concerned with validity. Reliability comprises a test to see how a measuring instrument measures whatever concept it is measuring, consistently (Sekaran & Bougie, 2010). Validity on the other hand, has been described by Sekaran and Bougie (2010) as comprising a test of how appropriately an established instrument measures a given concept it is supposed to measure. During the evaluation of the reflective measurement items, researcher would generally follow the guidelines that Hair et al. (2011), and Götz et al., (2010) had proposed. Conversely, convergent validity measures the extent of correlation of measures of a construct against the alternative measures of the same construct, whereas discriminant validity comprises the degree to which a particular construct demonstrates differences as opposed to other construct (Hair, et al., 2013). Therefore, the results obtained from the constructs' validity and reliability based on the four criteria used in evaluating the measurement model, are presented.

##### 4.1.1.1 Internal Consistency Reliability and Convergent Validity

Internal consistency reliability evaluates how consistent the items in an instrument of a certain construct measure what they are expected to measure (Sekaran & Bougie, 2010). There are two main statistics used in the evaluation of internal consistency reliability. These are Cronbach's alpha and composite reliability. However, composite reliability is considered more powerful in the evaluation of internal consistency reliability especially for the user of PLS-SEM (Hair, et al., 2013). Hence, the current study uses composite reliability (CR) with threshold values of 0.70 and above (Hair et al., 2011; Valerie, 2012).

Convergent validity is described in the work of Ramayah et al. (2003) as the degree to which many items measuring the exact concept, and they are all in agreement. In light of the theory of classical test, convergent validity has its basis on the correlation between responses obtained via numerous methods of measurement of a given construct (Peter, 1981). As Hair et al. (2010) have suggested, AVE should be used in assessing convergence validity. AVE assesses the variance encapsulated by the indicators corresponding to error of measurement, and this should be higher than 0.50 so that the usage of the construct would be justified (Hair et al., 2011; Valerie, 2012).

The results in Table 4.7 revealed that the CR of all constructs exceeded the recommended value of .70. Hence, for all constructs, their internal consistency reliability was confirmed. The results also showed that the AVEs ranged from .57 to .74, which were all within the recommended range (see Table1). Therefore, the entire latent variables satisfied the threshold value and were considered to have met the standard recommended for both internal consistency reliability as well as convergent validity.

**Table 1: First-order Measurement Model Result for Internal Consistency Reliability and Convergent Validity**

Model Construct	Measurement Item	Loading	Composite Reliability (CR)	Average Variance Extracted (AVE)
Performance Expectancy	PE1	.746	.833439	.625666
	PE2	.835		
	PE3	.790		
Social Influence	SI1	.713	.803705	.577649
	SI2	.768		
	SI3	.797		
Facilitating Conditions	FC1	.868	.784112	.646469
	FC3	.735		
Effort Expectancy	EE2	.704	.864649	.616394
	EE3	.744		
	EE4	.829		
	EE5	.855		
Trust	TR1	.723	.877430	.642445
	TR2	.787		
	TR3	.841		
	TR4	.849		
Computer Efficacy	Self- CSE2	.829	.895239	.740297
	CSE3	.884		
	CSE4	.867		
Use Behavior	UB2	.780	.841741	.639465
	UB3	.799		
	UB4	.828		
Continued Intention	Usage CUI1	.919	.820882	.697709
	CUI2	.742		



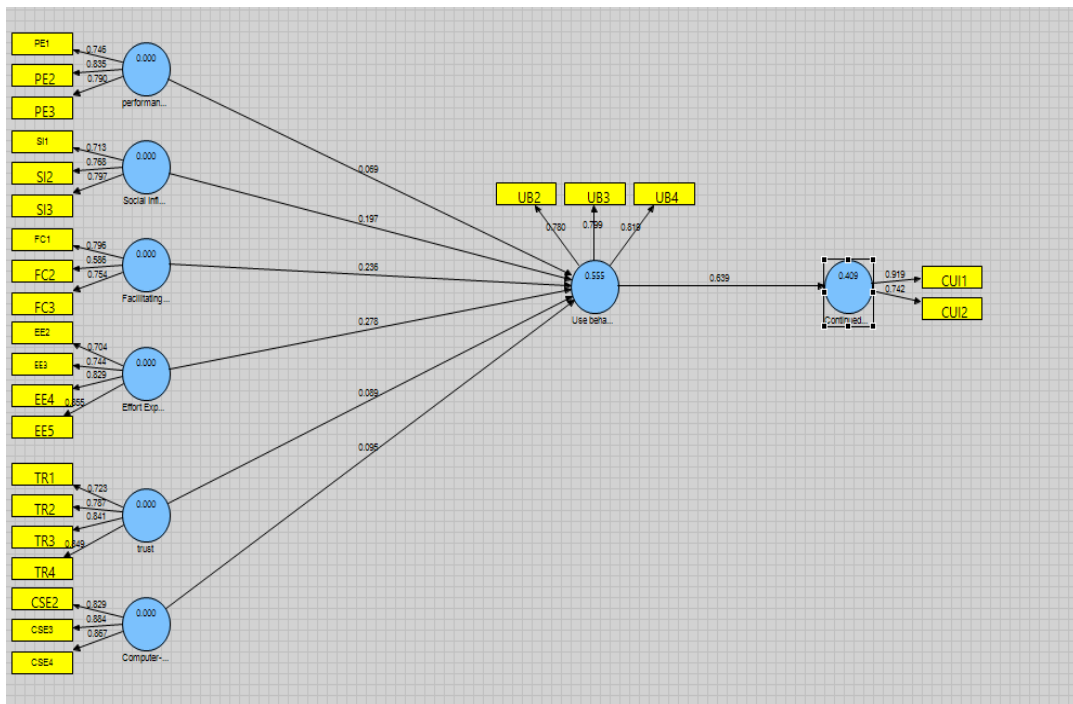


Figure 2: Items Loadings, Path Coefficient, and R<sup>2</sup> Values

4.1.2 Structural model

Following the analysis carried out on the model of measurement, the PLS Analysis which was the ensuing step, was conducted to enable the assessment on the structural model (the inner model was analyzed). For this purpose, the requirements proposed by Chin (2010), Hair et al. (2013), Hair et al. (2011), and Valerie (2012) were followed by the researchers. Here, the R<sup>2</sup> values, effect size (f<sup>2</sup>), predictive relevance of the model, and GoF as well as the assessment of the significance level of the path coefficients using bootstrapping for hypotheses testing, were addressed.

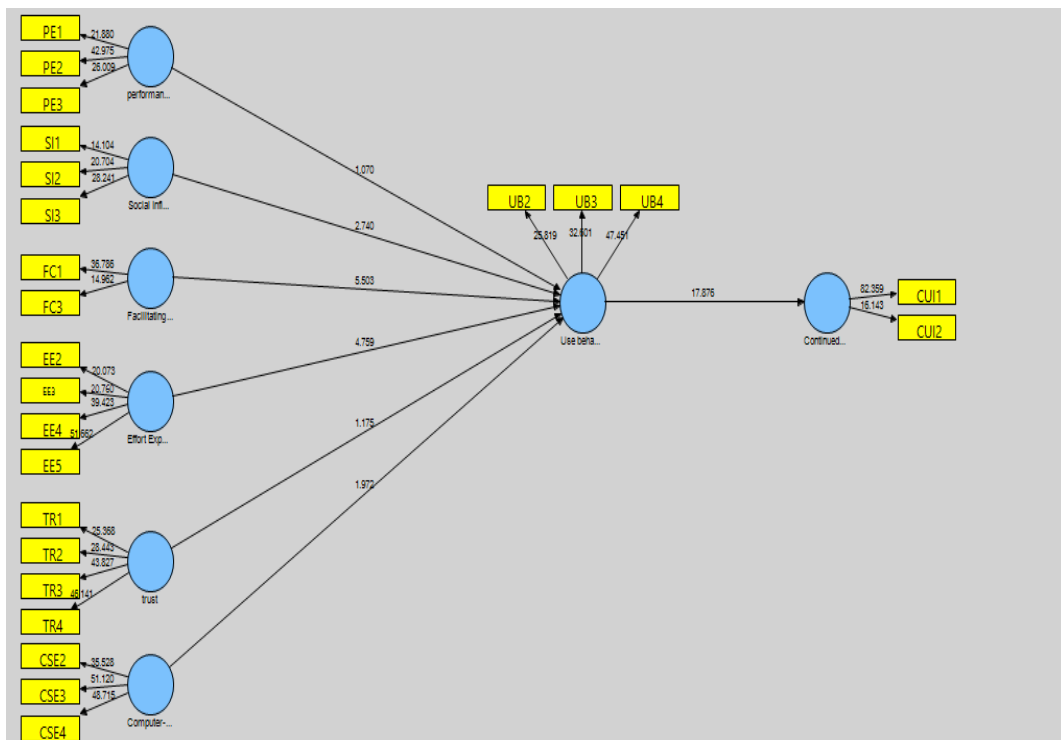


Figure 3: PLS Bootstrapping (t-values) for the Study Model

## 5. RESULTS

### 5.1 Hypothesis testing

**Table 2: Results of Hypothesis Testing**

Hypothesis	Relationship	Beta Path coefficient	t-value	p-value	Supported
Hypothesis 1	The result revealed that the proposed relationship between use behavior and continued usage intention.	.646	17.876	0.0	*** Supported
Hypothesis 2	The result revealed that the proposed linkage between Performance Expectancy and Use Behavior to use e-government services.	.066	1.070	0.285	n.s Not Supported
Hypothesis 3	The Social Influence of e-government services shows association with a direct impact on Use Behavior to utilise e-government services.	.195	2.740	0.006	*** Supported
Hypothesis 4	The result revealed that the proposed relationship between Facilitating Conditions of e-government services has a direct impact on Use Behavior to utilise e-government services	.245	5.503	0.000	*** Supported
Hypothesis 5	Effort Expectancy imparts a direct impact on Use Behavior to utilise e-government services	.284	4.759	0.000	*** Supported
Hypothesis 6	Trust Factor did not show any association with Use Behavior to use e-government services.	.073	1.175	0.240	n.s Not Supported
Hypothesis 7	Computer Self-Efficacy imparts a direct impact on Use Behavior to utilise e-government services	.111	1.972	0.049	** Supported

Note. *t*- Values

\*\*\* specifies that *t*-value is significant at  $p < 0.001$

\*\* specifies that *t*-value is significant at  $p < 0.01$

\* specifies that *t*-value is significant at  $p < 0.05$

n.s. specifies that *t*-value is not significant ( $p > 0.1$ )

**Table 3: Results of Moderation Hypothesis Testing**

Hypothesis	Relationship	Beta Coefficient	P value	t-value	H.	Supported
Hypothesis 8	The influence of Computer Self-Efficacy (CSE) on Use Behavior to use e-government services in Jordan is moderated by Education.	0.182	0.0486	1.9769	**	Supported
Hypothesis 9	The influence of Trust Factor (TF) on Use Behavior to use e-government services in Jordan is moderated by Education.	0.066	0.0350	7	** *	Supported
Hypothesis 10	The influence of Effort Expectancy (EE) on Use Behavior to use e-government services in Jordan is moderated by Education.	0.395	0.0190	9	** *	Supported

Hypothesis 11	The influence of Facilitating conditions (FC) on Use Behavior to use e-government services in Jordan is moderated by Education.	0.311	0.3996	0.84315	n.s	Not Supported
Hypothesis 12	The influence of Social Influence (SI) on Use Behavior to use e-government services in Jordan is moderated by Education.	-0.091	0.07334	1.79560	n.s	Not Supported
Hypothesis 13	The influence of Performance Expectancy (PE) on Use Behavior to use e-government services in Jordan is moderated by Education.	0.091	0.8971	0.12938	n.s	Not Supported
Hypothesis 14	The influence of Computer Self-Efficacy (CSE) on Use Behavior to use e-government services in Jordan is moderated by Age.	0.339	0.1857	1.3252	n.s	Not Supported
Hypothesis 15	The influence of Trust Factor (TF) on Use Behavior to use e-government services in Jordan is moderated by Age.	0.467	0.0352	2.1120	**	Supported
Hypothesis 16	The influence of Effort Expectancy (EE) on Use Behavior to use e-government services in Jordan is moderated by Age.	0.211	0.02899	2.19088	**	Supported
Hypothesis 17	The influence of Facilitating Conditions (FC) on Use Behavior to use e-government services in Jordan is moderated by Age.	0.292	0.0007	3.34035	**	Supported
Hypothesis 18	The influence of Social Influence (SI) on Use Behavior to use e-government services in Jordan is moderated by Age.	-0.085	0.9365	.079696	n.s	Not Supported
Hypothesis 19	The influence of Performance Expectancy (PE) on Use Behavior to use e-government services in Jordan is moderated by Age.	0.205	0.03299	2.1389	**	Supported

Note. *t*-values

\*\*\* indicates that *t*-value is significant at  $p < 0.001$

\*\* indicates that *t*-value is significant at  $p < 0.01$

\* indicates that *t*-value is significant at  $p < 0.05$

n.s. specifies that *t*-value is not significant ( $p > 0.1$ )

## 5.2 Discussion

The current paper reported the findings obtained in this study. It also presented findings on the response rate and characteristics, techniques employed in measurement refinements, and analysis run to examine the instrument validity and reliability tests, among others. Descriptive statistics showed that in general, respondents indicated that the respondents of this study have expertise and good experience with using e-government in Jordan. More importantly, this chapter has offered results of PLS-SEM analysis that was obtained from the evaluation of the measurement model, structural model, and hypotheses testing. Lastly, as indicated in the various analysis above, 19 of 11 key hypotheses were supported for being significant. 19 hypotheses were rejected because of insignificant findings This research delves into the critical success factors of the e government in Jordan. The research used a model that has six variables affecting the usage of e-government services, moreover with moderating effect by (education, age) e government. The research studied the hypothesis on the one major citizens in Jordan. In so doing, the hypotheses assumed by the study were tested using statistical approaches and the relationship between the variables identified.

The study was successful in meeting the first objective which was to explore the Factors affect (electronic government services) and its importance to the project success. Human Factors (Performance Expectancy (PE), Social Influence (SI), Social Influence (SI), Facilitating Conditions (FC), Effort Expectancy (EE), Trust Factor (TF), Computer Self-Efficacy (CSE) is an important subject to the usage success. In ensuring the successful of projects is achieved, Jordanian citizens' involvement and the government support should be presented on the way that acts as main function to deliver a usage e government.

## 6. CONCLUSION

Briefly expressed, the study demonstrates in the manner in which the established research objectives have been reached concerning the previously elaborated outcomes. This study examines the antecedents of e-government in Jordan using SEM. There are 5 direct significant relationships and 7 insignificant relationships found in this study.

The direct significant antecedents are SI, FC, EE, UB and CSF, whereas the direct insignificant antecedents are PE and TF, while the Moderate significant ones are EDU, AGE and Gender. Hence, the present research recommended an extension to the model of UTAUT accounting for the application of the united model concerning the online behaviour of usage. The recommended extension of SI, FC, EE, CSF, and UB also moderates as EDU, AGE and were successfully integrated with UTAUT model in the risky environment's context.

## 7. LIMITATIONS

Also, this study focused on the investigations of the usage antecedents and continued usage intention in Jordan. Additionally, other aspects are also included in this study. These aspects include the effects of infrastructure on Jordanian citizens in a vicious environment. A few antecedents of e-government were highlighted in this study. Still, a lot of other antecedents were not addressed. These include the factor of trust, motivations, service quality and features of website, just to name a few. The current study has targeted actual and continued usage intention of users towards e-government. This study also documented the crucial features that stimulate them to choose the use of e-government within the environment of Jordan. It is possible that this approach is applicable to non-users in finding out the domains of design quality requiring enhancement or for increasing interactivity so that non-users' apprehension can be overcome. The literature review points to some moderating factors including cost and image that are usable for the expansion of the model that this study has chosen to adopt so that their influence on e-government usage and acceptance can be analysed.

## 8. RECOMMENDATIONS FOR FUTURE RESEARCH

Future works should explore e-government usage within other Arab nations within the region in particular, those which embrace similar cultural values. Thus would enable the use of the conceptual model that this study employs which in turn would enable the revalidation of these findings. This study examined performance expectancy, effort expectancy, social influence, facilitating conditions, Trust Factor and Computer Self-Efficacy on the continued usage intention of e-government services, in addition to the employees' performance in Jordan ISTD from the employees' perspective. The unit of analysis of this research is the individual employee. Therefore, future studies can further examine this aspect based on another sector likely mobile banking, education and agriculture.

Additionally, future research could conduct more related studies in e-government settings in Jordan since there are only a few past studies investigating e-government in Jordan, or, a comparative study could be conducted to compare between Jordan and other countries using e-government services. Additionally, since this study was based on UTAUT theory, future research could extend this theory and apply it in a new version in e-government, or, other technology acceptance theories could be applied in the Jordanian context, such as TAM3, UTAUT2 and DeLone and McLean's model, just to name a few. The present study employs a single instrument namely a questionnaire survey. Hence, the researcher suggested that the qualitative method of in-depth interview could be of value in finding more factors that could influence e-government services users towards e-government in Jordan.

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