Citizens' Continuous Use of eGovernment Services: The Role of Self-Efficacy, Outcome Expectations and Satisfaction

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1

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ABSTRACT

The continuous use of eGovernment services is a de facto for its prosperity and success. A generalised sense of citizens' self-efficacy, expectations, and satisfaction offer opportunities for governments to further retain needed engagements. This study examines the factors influencing citizens' continuance use of eGovernment services. Through the integration of Social Cognitive Theory, Expectation Confirmation Theory, DeLone and McLean IS success model, and E-S-QUAL, a survey of 471 citizens in the UK, engaging in online public services, found that prior experience, social influence, information quality, and service quality, personal outcome expectation, and satisfaction, are significant predictors of citizens' intention to use eGovernment, when they are regulated, through citizens' self-efficacy. The present study extends the roles of pre-adoption and post-adoption by offering a self-regulating process. Therefore, it demonstrates how critical it is for the government's leaders to understand the patterns of the long-term process for electronic systems continually.

Keywords: eGovernment, service quality, information quality, continuance intention.

1. INTRODUCTION

Continued use is a challenging topic in the Information and Communication Technology (ICT) literature (Jasperson et al., 2005; Stein et al., 2015). Researchers have shown that the success and feasibility of ICT long-term strategies depend on its continued, post-adoption use rather than the initial acceptance of ICT (Venkatesh et al.,

2011). Currently, researchers are investing their attention in examining the factors that influence technology during both the pre-adoption and post-adoption phases (Hsu et al., 2004; Venkatesh et al., 2011). However, it is often claimed that organisations suffer from underutilisation of ICT owing to the low self-efficacy of their website users – for instance, their limited ability to use website features such as public and online business services (Zhou, 2004; Jasperson et al., 2005). Organisations tend to ignore this post-adoption period, which several scholars claim is a probable reason for the underutilisation of some ICT systems (Osman et al., 2014). Hsu et al. (2004: 766) pointed out the need to further develop the essential understanding of the factors that contribute towards affecting customers' intention to use websites. Furthermore, previous studies have suggested that the post-acceptance stage is the most critical, as customers' psychological motivations show continuity in using ICT after the acceptance stage (Bhattacherjee, 2001a; Hsu et al., 2004; Venkatesh et al., 2011).

In the public sector context, online services, some ICT applications and associated innovative technologies have been often underutilised (El-Haddadeh et al., 2013, 2019). This forces organisations to change existing technologies or adopt other strategies by employing a multi-channel approach for the delivery of their online services (Jasperson et al., 2005). This issue has grown in importance in light of recent developments in the quality of information, services and systems in the ICT field. There is a need for appropriate measures to evaluate the success of new ICT initiatives and their links to users' needs, such as satisfaction (DeLone & McLean, 2003). Previous scholars have discussed these notions of cognition and employed similar constructs to explain the acceptance, continued intention, actual use of ICT (e.g. Sten et al., 2015) as well as digital inclusion (Al-Muwil et al., 2019). Although previous studies on eGovernment have provided insights into service quality criteria in general, and e-services in

particular, additional research on this topic is required. Based on Weerakkody and Choudrie (2005), the UK government's services can be accessed by its citizens through the Internet at both levels of government (national and local levels).

Further to this, the UK citizen, as a user, can take part in a two-way interaction with the government (Senyucel, 2005). The website can be considered as the interface of the PSOS, where citizens can obtain information and interact with services (Weerakkody and Choudrie, 2005). Therefore, evaluating the quality of the website (e.g. information quantity, information quality) is crucial because it has the potential to change the way citizens interact with government and thus enhances communication, participation, and the decision-making process (Gil-Garcia, 2006).

There have been limited number of systematic empirical studies that investigate citizens' self-efficacy and mastery combined with personal outcome expectations and satisfaction while using eGovernment systems continuingly concerning social influence, personal experience and eGovernment online services (Alruwaie, 2014). To address this gap, this paper develops and validates a model based on citizens' perceptions. One of the weaknesses of previous works was not addressing service quality in the ICT field related to the public sector (Connolly et al., 2010). To capture the right picture, the focus should not only be on technological aspects (e.g., system or organisational activities) but also on capturing the capacity of the end-users or citizens in any given case. Hence, this study aims to investigate the salient factors influencing citizens' continuance intentions towards continuing use of eGovernment systems. Thus, it attempts to offer some insights on how could we better understand and evaluate the use of eGovernment system in the long-term process rather than first use. In this regard, identifying the factors that influence this use concerning individual's (citizens) level will be required.

Additionally, developing the required understanding of relevant retention schemes for existing users will be expected to offer the needed understanding of this dilemma. The success of any electronic systems depends on the continued use rather than first-time use (Bhattacherjee, 2001). To do so, it is essential to highlight the characteristics of individual technologies and psychological and social issues, which can be combined to explain the overall decisions that individuals make when using technologies (Coiera, 2003, Alruwaie, 2014).

The present study target to provide sufficient explanation to the whole process for continuance behaviours by conceptualising and testing a theoretical model, at the same time, it offers a critical perspective for governments and to understand the patterns of the long-term process for eGovernment systems. To do so, this paper is organised as follows: the next section introduces the theoretical background of this study, followed by the conceptual model and the associated hypotheses. Next, reviews of the study design and the data collection procedure are elaborated. The discussion section presents the results from this study, followed by the research conclusions and limitations, and the implications for research and practice.

2. THEORETICAL BACKGROUND

2.1 Electronic service (e-Service)

Electronic service (e-service) in general is a user experience and how citizen perceives the new e-services or system, in the PSOS is an experience of PSOS (Yang and Jun, 2002) based on adopting new systems as explained by Davis (TAM, 1989). However, communication with end-users establishes self-confidence between the user/citizen and the online service (Yang et al., 2005). As a result, previous experiences and self-efficacy can influence the perception of citizen's satisfaction and expectations towards using PSOS (Chan et al., 2010). In this way, there is a potential to provide citizens and

businesses with better and more efficient services by the use of ICT that the government offers as a facilitator. Nevertheless, there has been criticism regarding the provision of PSOS, which proposes a more user-oriented approach and more focused on users' needs as a centre of focus for the improvement of electronic public services performance and the impact of new services on the public e-services (Verdegem and Verleye, 2009). According to Gilbert and Balestrini (2004), service quality is one of three main approaches that have theoretical and empirical bases for adoption, and they are; 1) diffusion of innovation (DOI), (Rogers, 1995); 2) extension of existing theory to technology such as the Technology Acceptance Model (TAM), (Davis, 1989), and, 3) applying the Theory of Reasoned Action (TRA). Hence, service quality is more of one-way communication to communication among countries all over the world (Layne and Lee, 2001). Based on DOI and TAM, the number of Internet users is increasing; therefore, meeting their expectations is not an easy task with the rapid technological development that requires training. Nevertheless, developed and developing countries have established their official websites that offer different online services such as online transactions and renewing driver licences (Moon, 2002). However, if the provided PSOS service does not match citizens' self-benefit, it would be difficult to continue using it (Wescott, 2002). In this respect, evaluating continuity is vital in order to match the variations of citizens' self-benefit in a changeable environment. Figure 1 depicts the conceptual model used for this research, which reflects the role of pre-adoption and post-adoption process within a continuity concept that relies on self-efficacy, outcome expectations and satisfaction in order to encourage reuse of PSOS system. Figure 1 displays eight constructs, three streams (individual, societal, and organisational), and three phases (acceptance, continuance and action or behaviour).

2.2 Examining ICT adoption: Behavioural Perspective

Studying ICT incorporates behavioural/cognitive factors, technical factors or organisational factors (represented in this study by eGovernment systems – information and service quality), and the social factors that influence both initial adoption and post-adoption, or the continuing use of ICT (Osman et al., 2014; Weerakkody et al., 2014, Alruwaie, 2014). In the theoretical stream and behaviour literature within the ICT context, the Theory of Reasoned Action (TRA) proposed by Ajzen and Fishbein (1980) posits that one's intention to perform a specific behaviour is associated with one's attitude and subjective norms. However, there is an insufficient explanation for the relationship between attitude and behaviour for an individual's level of control (Chan and Lu, 2004), as in the case of self-efficacy. Furthermore, there has been a need for an adequate explanation that specifies how to assure that the targeted behaviour is under an individual's control. Correspondence (communication-related issues) within beliefs, attitudes and behaviour limits the theory based on Ajzen's work (1985). The Theory of Planned Behaviour (TPB) adds controls to regulate behaviour (Ajzen, 1985). Although the TPB considers volitional control as a limitation of TRA (by adding perceived behavioural control), TPB is criticised for not accepting change because the behaviour is already planned based on a specific reason (Mathieson, 1991); hence, the intervention of external factors or even personal factors represents a constraint once the behaviour is planned. In Social Cognitive Theory (SCT), Bandura (1986) stated that there is a mutual interaction or relationship between behaviour, personal factors and environmental factors.

Nonetheless, to measure IS success, DeLone and McLean (2003) proposed the intention to use and usage behaviour dimensions; service quality was introduced as an exclusive entity in the revised success model. Given that this study is interested in the information and services aspects of the eGovernment system, "This suggests that pre-usage beliefs

may serve as anchors for post-usage beliefs as people tend to rely on their initial beliefs and early impressions in the formation of future beliefs" (Venkatesh et al., 2011:532). In order to measure service quality, Parasuraman et al. (2005) refined and tested multiple scales for measuring service quality (E-S-QUAL). In this regard, it has been evident how essential to understand users' perceptions, and maintain robust mechanisms to evaluate online services regardless of the type of the website as it will help companies and government agencies to deliver superior service quality (Parasuraman et al., 2005). By using E-S-Qual, it will be possible to measure traditional service quality through the website channel. E-S-Qual has been used extensively in service quality research, including in Public Sector Online Services (PSOS) research (Connolly and Bannister, 2008). E-S-QUAL has also been utilised as a theoretical frame for previous studies in the domain of service quality in which a website facilitates efficient and effective shopping, purchasing and delivery (Tan et al., 2013).

Furthermore, Bhattacherjee's (2001) Expectation Confirmation Theory (ECT) is often criticised for its isolation from social influence/media; external sources such as social media and other societal influences are typically the carriers of pre-use information for any product/service. However, Bhattacherjee (2001) insists that expectation involves many other beliefs. Hence, a citizen's personal outcome expectations can be used to represent these beliefs that inherently represent usefulness in new information.

3. TOWARDS CITIZENS' CONTINUOUS USE OF EGOVERNMENT SERVICES

Jasperson et al. (2005) verified how understanding post-adoption implications is imperative. For the positive or negative results of using ICT, Compeau and Higgins (1995a/b, 1999) emphasised the secure link between self-efficacy and individual use of

information technologies (Internet and computer-related issues). Accordingly, the radical changes in ICT and social development place a premium on the personal capacity for self-development and regulation throughout the life cycle (Bandura, 2001). However, the desire to perform such behaviour is not sufficient unless self-efficacy is present (Bandura, 1997). Thus, citizens with lower self-efficacy are less likely to be involved in using online services (Bandura, 1986). Therefore, new government policies should consider all voices, one of which is the voice and the capability of the continuance users of eGovernment systems. Thus, based on the above discussion of advantages and disadvantages of different theories and models used in IS/IT research, this study applies Social Cognitive Theory (SCT), Expectation Confirmation Theory (ECT), the DeLone and McLean IS success model and E-S-QUAL. Figure 1 depicts the conceptual model used for this research which reflects the role of pre-adoption and post-adoption process within a continuity concept that relies on self-efficacy, outcome expectations and satisfaction in order to encourage reuse of PSOS system. Figure 1 displays eight constructs, three streams (individual, societal, and organisational), and three phases (acceptance, continuance and action or behaviour).
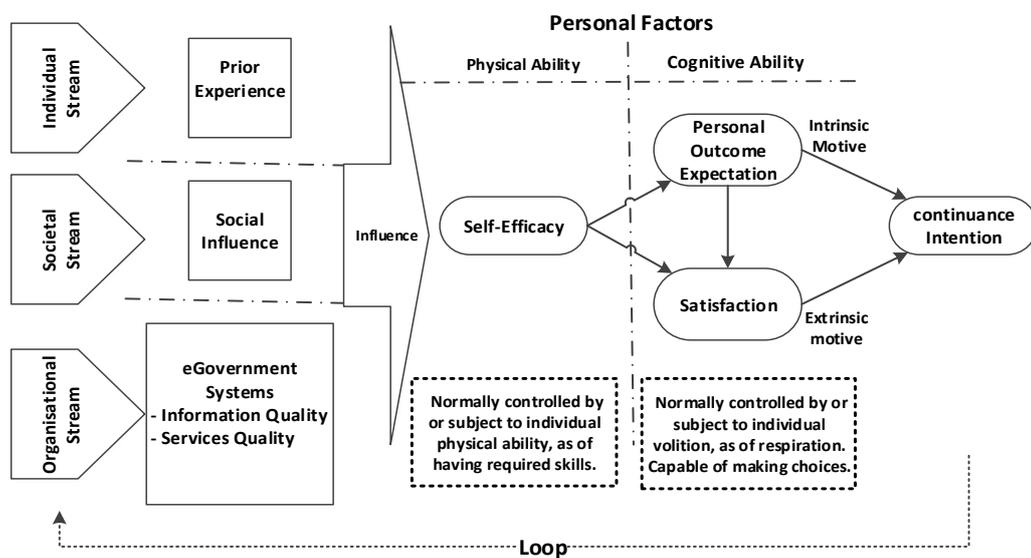

Figure 1. Illustration of key constructs and relationships in the conceptual model

4. RESEARCH MODEL AND HYPOTHESES

The research model, which is presented in Figure 2, is based on synthesising SCT, ECT and the IS success model as well as E-S-QUAL. Eight constructs were measured in this study: Prior Experience (PE); Social Influence (SI); Self-Efficacy (SE); Personal Outcome Expectation (POE); Satisfaction (SAT); Information Quality (IQ); Service Quality (SQ); and Continuance Intention (CI). The proposed model is consistent with the foundations of SCT in which an individual learns new ideas in PSOS by practising the PSOS systems through his or her interaction with information and service quality as well as the social influence (Bandura, 1986).
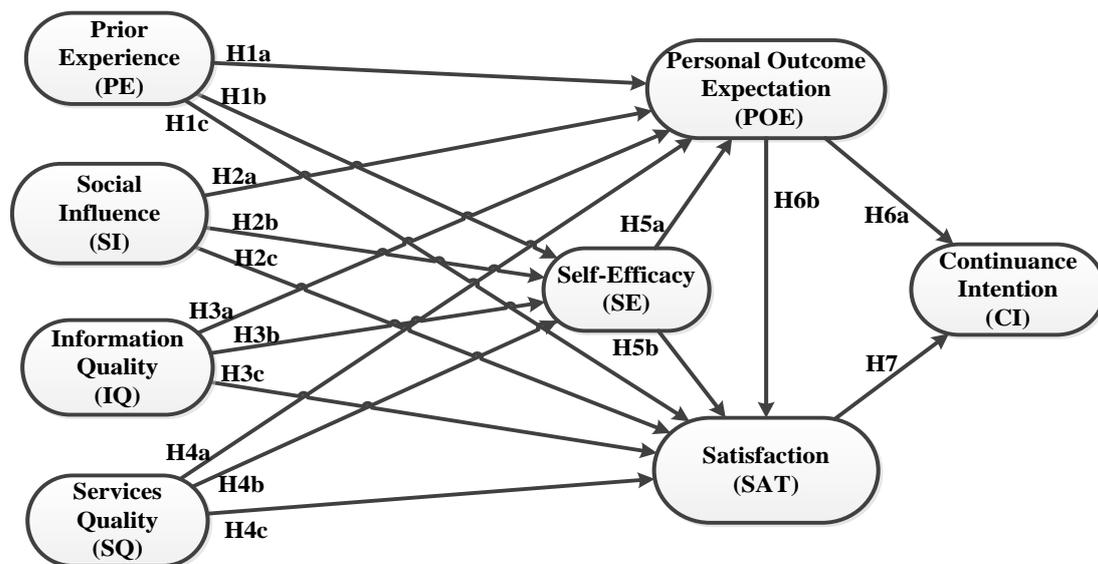

Figure 2. The research model constructs and hypotheses

Prior Experience (PE)

Bandura refers to prior experience as enactive mastery (Bandura, 1986; Johnson and Marakas, 2000). The prior experience reflects one's psychological perceptions of the last experience with online services (Hussein et al., 2011). Bandura (2009) points out that successful past experiences will increase one's confidence in self-efficacy and

functionality. Prior experience is considered a key source of self-efficacy (Compeau and Higgins, 1995b) besides social influence. In SCT, Bandura (1986) associates prior performance, self-efficacy and outcome expectations. Chan et al. (2010) use compatibility, which implicitly indicates prior experience or preferences, as a construct that influences performance expectancy across necessary online services in the public sector. Bhattacherjee (2001) found that performance disconfirmation is an important determinant of user satisfaction with online banking systems. In another study, Hsu et al. (2004) found that there is a positive relationship between users' prior perceived disconfirmation, their satisfaction levels with prior use of the World Wide Web and their outcome expectations of continued use. Further, Kotler et al. (2005) consider ICT as a tool for integrating the environment, citizens and organisations, in which entities can compete by utilising the Internet. They posit that a user cannot be satisfied with a given system if he/she has no prior experience of using the system. In this context, continuity of use can be used as a measure to evaluate user satisfaction based on previous experience. Therefore, the following hypotheses are proposed:

H1a: There is a positive relationship between citizens' prior experience and personal outcome expectations

H1b: There is a positive relationship between citizens' prior experience and self-efficacy

H1c: There is a positive relationship between citizens' prior experience and satisfaction

Social Influence (SI)

Social influence is defined as the degree to which others' beliefs influence an individual in their decision to use a new system (Venkatesh et al., 2003). Different measurements have been used for assessing the effectiveness of social influence on one's behaviour

(Venkatesh et al., 2011). Social influence can be seen as the degree to which peers influence the use of a system, whether positive or negative, based on an individual's internalisation of reference groups (Fishbein and Ajzen, 1975; Bandura, 1986; Chan et al., 2010). Subjective norm is yet another term that has been used in association with technology adoption (Venkatesh et al., 2003). Though there is an overlap in labelling constructs, these cognitive, social influences have significant impacts on self-efficacy, personal outcome expectations and satisfaction, or in other words, personal performance (Compeau and Higgins, 1995b). Furthermore, Bandura (1977) mentioned that enactive mastery, vicarious experience and verbal persuasion, including emotional arousal, could influence self-efficacy. Thus, people are a part of society and are not isolated in this world (Bandura, 1986). Therefore, the following hypotheses are proposed:

H2a: Social influence is positively associated with personal outcome expectations

H2b: Social influence is positively associated with citizens' self-efficacy

H2c: Social influence will positively influence satisfaction

Information Quality (IQ)

According to DeLone and McLean (1992), information quality is concerned with the information that a system produces and delivers. Information quality captures the e-commerce content issue. Several ICT studies have been using IQ as a critical factor (Teo et al., 2008). Previous researchers consider IQ as the salient factor influencing the decision-making process in terms of user behaviour towards the system (DeLone & McLean, 1992, 2003, 2004). Thus, as in SCT, information quality influences self-efficacy and personal outcome expectations as the factors that regulate the future decision-making behaviour of an individual. Previous empirical studies found that information quality is strongly associated with user satisfaction (Seddon, 1997). Hence,

the quality of information has an influence on citizens' ability to access and read this information, forming their outcome expectations towards revisiting the website and defining their overall satisfaction. For instance, a Malaysian e-filing service offers a step-by-step guide for citizens to pay their taxes and to obtain other relevant information from the website (Hussein et al., 2011). Hence, the following hypotheses are proposed:

H3a: There is a positive relationship between information quality and citizens' personal outcome expectations

H3b: There is a positive relationship between information quality and citizens' self-efficacy

H3c: There is a positive relationship between information quality and citizens' user satisfaction

Service Quality (SQ)

Service quality is defined as "the extent to which a Website facilitates efficient and effective shopping, purchasing and delivery" (Parasuraman et al., 2005:217). However, DeLone and McLean (2003:25) updated the IS success model define it as "the overall support delivered by the service provider, applies regardless of whether the IS department delivers this support, a new organizational unit, or outsourced to an Internet service provider (ISP)." Service quality as new construct captures the IS department provided platform services (Tam & Oliveira, 2017) and determines the success of an eGovernment services systems such as e-filing systems (Veeramootoo et al., 2018). Further, E-S-QUAL has been used extensively in service quality research, including in eGovernment research (Connolly and Bannister, 2008). Hence, in this study, service quality is considered to be a citizen's attitude/judgment towards DVLA online services. Furthermore, previous studies recognised service quality as an essential metric of IS success (DeLone & McLean, 1992, 2003; Zeithaml et al., 2006, 1996; Rai et al., 2002).

The quality of online services influences customer satisfaction and individual decisions (DeLone & McLean, 2003). Furthermore, based on SCT, service quality can act as a motivation or as an external stimulus to self-efficacy and personal outcome expectations. Therefore, the following hypotheses are proposed:

H4a: There is a positive relationship between service quality and citizens' personal outcome expectations

H4b: There is a positive relationship between service quality and self-efficacy

H4c: There is a positive relationship between service quality and user satisfaction

Self-Efficacy (SE)

Compeau and Higgins (1995b: 191) define self-efficacy in the ICT context as "an individual's perception of his or her ability to use computers in the accomplishment of a task". Task-specific Computer Self-efficacy (CSE) refers to "an individual's perception of efficacy in performing specific computer-related tasks within the domain of general computing" (Marakas et al., 1998:128). Self-efficacy is a type of self-assessment that influences decisions about undertaking certain behaviours, and it is a measure of the effort put into something during difficult times (Bandura, 1997). Self-efficacy or beliefs about one's ability to perform a particular task or behaviour encompasses a set of expectations (Bandura, 1986; Compeau and Higgins, 1995b). SCT argues that self-efficacy perceptions influence an individual's outcome expectations (Bandura, 1978, Compeau and Higgins, 1995b). According to Social Cognitive Theory (Bandura, 1986), individuals from their perceptions of self-efficacy toward a task (here is eGovernment systems) based on information they receive from past experience (familiarity with similar activities), vicarious learning (modelling others), social support and encouragement, psychological state and attitude toward a task and

judgments on cues they receive from the same source (here is the eGovernment systems). In this manner, individuals interpret and weigh the results based on their self-efficacy beliefs.

Further, a significant positive relationship between self-efficacy and personal outcome expectations has often been reported (Compeau and Higgins, 1991). Thus, the following hypotheses are proposed:

H5a: There is a positive relationship between citizens' perceived self-efficacy and personal outcome expectations

H5b: There is a positive relationship between citizens' perceived self-efficacy and satisfaction with using public sector systems

Personal Outcome Expectation (POE)

Personal outcome expectation is "a person's estimate that a given behaviour will lead to a certain outcome" (Bandura, 1977:193). Outcome expectancies are the consequences of a particular action (Bandura, 1986). There is a link between the required skills such as physical ability (self-efficacy) and psychological ability (personal outcome expectations); physical ability usually arises before psychological ability (Bandura, 1986; 1977). Compeau and Higgins (1995b:122) stated that "individuals expecting positive benefits from using computers will be more highly motivated than those not expecting any benefits, while also being persistent in their attempts to learn more". Hence, favourable consequences are the resultants of self-efficacy and outcome expectations because people typically make action-based decisions that are rooted in their capabilities (Bandura, 1986). Johnson and Marakas (2000) emphasise the power of positive outcomes in motivating people to undertake tasks and after that, looking for complex tasks because they are now satisfied and

confident about handling further development. Behaviour is determined by outcome expectations if there are uncontrolled efficacy beliefs (Bandura, 1997). Therefore, the following hypotheses are proposed:

H6a: Personal outcome expectation is positively related to citizens' intentions to continue using public sector systems

H6b: Personal outcome expectation is positively associated with citizen satisfaction

Satisfaction (SAT)

Seddon (1997:246) defined satisfaction as "subjective evaluation of the various consequences evaluated on a pleasant-unpleasant continuum" which is relevant to service aspects seen as pleasant or unpleasant (Oliver, 1993). Satisfaction reflects mutual feelings based on previous experiences with online services (Oliver, 1980). The word "satisfaction" is derived from the Latin word satis, meaning enough, and facere, meaning to do or make (Oliver, 1997). Previous researchers have recognised that satisfaction would be an appropriate dependent variable in online service studies (Chan et al., 2010) and an appropriate measure of success for online services (Teo et al., 2008). According to ECT, satisfaction with the provided services is a strong predictor of users' continuance intentions (Bhattacherjee, 2001b). Satisfaction may significantly influence system adoption (Bhattacherjee and Premkumar, 2004). Therefore, the following hypothesis is proposed:

H7: There is a positive relationship between citizens' satisfaction with public sector systems and their continuance intentions

5. METHODOLOGY

For the present study, the authors followed a quantitative data-collection method based on a survey approach. Structural Equation Modelling (SEM) was employed for data

analysis, and the Analysis of Moment Structures (AMOS) tool was used for statistical computations. This statistical tool allows the researchers to test the model and the proposed relationships between the constructs. A positivist research paradigm was adopted for this study, as it is concerned with hypothesis testing and generalising results from a sample to a population (Hussey and Hussey, 1997).

5.1. Measures

All eight constructs were measured using multiple items. As also previously mentioned, the SCT and ECT research studies formed the basis of this research. The items were used to represent the Department of Vehicles and Licencing Agency (DVLA) online services. The primary reason behind the decision to use the DVLA as a case study was in order to answer the research question: "What are the salient factors that determine citizens' continuance of using PSOS". Connolly et al. (2010: 650) state, "If such a system is to be successful, it has to be both attractive and trustworthy". DVLA is a widely accepted e-government application made it easier for the researcher to find participants in order to meet the researcher objectives (Agell and Sellers, 2012; Gandhi et al., 2014). Hence, because DVLA is simple and has been successful, the researcher felt motivated to examine it. For each item, a five-point Likert scale was used, where 1 denoted 'strongly disagree' and 5 indicated 'strongly agree'.

5.2. Pre-test and pilot test

Before using the questionnaire for data collection purposes, it should be pilot tested (Saunders *et al.,* 2007). To ensure the reliability and validity of the employed measures, six ICT researchers (professors and PhD students) and four ICT public sector managers were asked to verify the suitability of the content. A pilot study was undertaken next with 73 UK citizens and residents who had used the DVLA online services (for renewal of services through the website). Exploratory factor analysis results showed that all

eight factors had good reliability and validity. Some concerns raised during the pilot study were appropriately addressed: length of the questionnaire, clarity of instructions and questions, the overall layout and other minor comments. All ambiguities were cleared to ensure the readability of the scales.

5.3. Sample

The study population represented those who had obtained/renewed their vehicle-related services via the DVLA eGovernment system (https://www.gov.uk/browse/driving) on at least a few occasions. Thus, random sampling was employed, where each sampling unit in the clearly defined population had an equal chance of being a part of the sample. It is also important to mention the fact that several improvements were made to the DVLA eGovernment systems during the study period. Of the 853 received questionnaires, only 471 were usable responses (55% response rate). Descriptive statistics relating to the respondents' characteristics are shown in Table 1.

5.4. Data collection

A self-administrated electronic questionnaire was published online on www.monkeysurvey.com. Emails were sent out to target respondents (e.g. university students, faculty members, members of UK societies). Various social media channels such as Twitter, Facebook and LinkedIn were used. Self-administrated paper-based surveys were also distributed in the researchers' social circles (friends and other colleagues). Visits to public places such as coffee shops were also undertaken to distribute paper-based questionnaires. Data was collected from experienced users of the DVLA eGovernment system. All emails were deleted once stored on the personal machine to ensure anonymity and confidentiality. Participation was voluntary, and all of the respondents were above 18 years of age. The validity of the research

methodology depends on the volunteers' willingness to provide valid responses (Gosling *et al.*, 2004).

6. RESULTS

6.1. Sample characteristics

Table 1 presents the respondents' demographic characteristics. The proportion of male respondents was 53.7%, almost 10% higher than the female respondents. The age proportions for most age categories varied between 20% and 27%.

Table 1 Demographics of survey respondents (*N*=471)

Measure	Option	Frequency	Per cent (%)
1. What is your gender?	1) Female	208	44.2
	2) Male	253	53.7
2. How old are you?	1) Under 26	94	20.0
	2) from 26 to 35	128	27.2
	3) from 36 to 45	125	26.5
	4) from 46 to 55	79	16.8
	5) Over 55	32	6.8
3. What is your educational background?	1) Secondary Education	82	17.4
	2) Further Education (A-Levels / GNVQ / BTEC or similar qualification	134	28.5
	3) Higher Education (degree or postgraduate qualification)	232	49.3
4. What is your employment/occupation status?	1) Public sector	115	24.4
	2) Private sector	177	37.6
	3) Unemployed	82	17.4
	4) Self-employed	66	14.0
	5) Other	19	4.0
5. What is your marital status?	1) Married	111	23.6
	2) Single	203	43.1
	3) Divorced	103	21.9
	4) Other	40	8.5
6. What is your ethnicity?	1) White	141	29.9
	2) Mixed	128	27.2
	3) Asian or Asian British	53	11.3
	4) Black or Black British	35	7.4
	5) Other	38	8.1
7. What is your annual household income?	1) Less than £10,000	48	10.2
	2) £10,000 - £24,999	95	20.2
	3) £25,000 - £49,999	202	42.9
	4) £50,000 and above	69	14.6
8. How would you describe your general computer knowledge?	1) I am an Expert User	97	20.6
	2) I am an Intermediate User	242	51.4
	3) I am a Novice User	120	25.5
9. How would you describe your Internet knowledge?	1) I am an Expert User	166	35.2
	2) I am an Intermediate User	191	40.6
	3) I am a Novice User	95	20.2

6.2. Reliability and validity of the instrument

Table 2 presents the results from the Exploratory Factor Analysis (EFA) and the Confirmatory Factor Analysis (CFA). To test the reliability of the employed instrument, Cronbach's alpha (α) and Composite Reliabilities (CR) were used. The alpha and CR values were acceptable, confirming the reliability of all constructs (Table 2). The standardised factor loadings were significant at 0.001, and all AVE values exceeded 0.05, confirming the convergent validity for all constructs (Fornell *et al.*, 1981).

Table 2 Results of EFA and CFA

| Constructs | Items | Exploratory factor analysis (N= 471) | | Confirmatory factor analysis (N= 471) | | |
		Factor loadings	α	Standardised Loadings	**CR**	**AVE**
Service Quality (SQ)*	SQ01	0.73	0.86	0.84	0.87	0.57
	SQ02	0.70		0.81		
	SQ03	0.77		0.83		
	SQ04	0.55		0.64		
	SQ06	0.60		0.61		
Information Quality (IQ)*	IQ1	0.63	0.91	0.76	0.91	0.62
	IQ3	0.68		0.79		
	IQ4	0.72		0.79		
	IQ5	0.72		0.81		
	IQ6	0.70		0.78		
	IQ7	0.66		0.78		
Continuance Intention (CI)	CO1	0.58	0.80	0.76	0.80	0.58
	CO2	0.56		0.77		
	CO3	0.55		0.75		
Satisfaction (SAT)	SA1	0.77	0.88	0.87	0.88	0.72
	SA2	0.73		0.81		
	SA3	0.75		0.86		
Personal Outcome Expectations (POE)*	OE1	0.66	0.86	0.74	0.86	0.55
	OE2	0.64		0.71		
	OE3	0.64		0.72		
	OE4	0.67		0.80		
	OE6	0.61		0.72		
Self-Efficacy (SE)*	SE1	0.65	0.85	0.72	0.85	0.59
	SE2	0.69		0.74		
	SE4	0.72		0.79		
	SE5	0.69		0.82		
Social Influence (SI)	SI1	0.70	0.78	0.80	0.79	0.55
	SI2	0.68		0.77		
	SI3	0.66		0.66		
Prior Experience	PE1	0.78	0.83	0.84	0.84	0.63
	PE2	0.74		0.76		

| (PE) | PE3 | 0.72 | | 0.77 | | | |

Legend: α - Cronbach's Alpha; CR - Composite Reliability; AVE - Average Variance Extracted; *Items SQ05, SQ07, SQ08, SQ09, SQ10, IQ2, OE5, SE3 were deleted while testing the model fit during CFA.

Table 3 features the inter-construct correlations that were used for assessing discriminant validity. The square roots of AVE for all constructs (in Table 2) are higher than the inter-construct correlation coefficients, which confirms the discriminant validity of the used constructs.

Table 3 Inter-construct correlations

	SAT	SI	PE	SE	CI	IQ	POE	SQ
SAT	**0.847**							
SI	0.511	**0.742**						
PE	0.573	0.562	**0.793**					
SE	0.668	0.514	0.546	**0.769**				
CI	0.669	0.580	0.555	0.659	**0.758**			
IQ	0.627	0.470	0.563	0.673	0.701	**0.785**		
POE	0.693	0.461	0.548	0.722	0.671	0.630	**0.738**	
SQ	0.656	0.500	0.529	0.693	0.703	0.749	0.671	**0.752**

6.3. Testing the research model

SEM was used to examine the robustness of the research model. The analysis was conducted using AMOS 20. Table 4 shows the fit indices of the structural model together with the recommended values: $(X^2)/df = 1.786$; RMSEA = 0.041; CFI = 0.96 > 0.95. Overall, the results confirm a good model fit with the data.

Table 4 Overall fit of the research model

Type	Index	SEM Score	Thresholds
X^2 test	Chi-square (X^2)	787.645	NA
	df	441	NA
	$(X^2)/df$	1.786	< 5.00 (Bentler, 1988)
	p-Value	0.000	p < 0.05 (Hair *et al.*, 2006)
Absolute fit index	GFI	0.906	> 0.90 considered good (Hair et al, 2010)
	AGFI	0.888	
	RMR	0.028	the smaller, the better; Hair *et al.*, 2006
	PGFI	0.757	
Comparative fit index	NFI	0.914	> 0.90 (Bentler, 1988)
	RFI	0.903	
	IFI	0.96	
	TLI	0.955	
	CFI	0.96	> 0.90 (Bentler, 1988; Hair *et al.*, 2010)

	RMSEA	0.041	< 0.08 is acceptable (Hair *et al.*, 2006)

Legend: Degree of Freedom (df); Goodness of Fit Index (GFI); Adjusted Goodness of Fit Index (AGFI); Root Mean square Residual (RMR); Comparative Fit Index (CFI); Root mean square error of approximation (RMSEA); Normed Fit Index (NFI); Relative Fit Index (RFI); Incremental Fit Index (IFI); Tucker-Lewis Index (TLI).

Altogether, seventeen hypotheses were tested (Figure 3), and four of these were not supported by the data. Neither social influence ($\gamma=0.02$) nor information quality ($\gamma=0.11$) had significant effects on personal outcome expectations or satisfaction. Prior experience had significant positive effects on personal outcome expectations ($\gamma=0.14$), self-efficacy ($\gamma=0.13$) and satisfaction ($\gamma=0.14$). The social influence had a significant positive effect on self-efficacy ($\gamma=0.14$). Information quality also had a significant positive effect on self-efficacy ($\gamma=0.27$). Service quality significantly and positively influenced personal outcome expectations ($\gamma=0.24$), self-efficacy ($\gamma=0.35$) and satisfaction ($\gamma=0.17$). Self-efficacy significantly and positively influenced both personal outcome expectations ($\gamma=0.41$) and satisfaction ($\gamma=0.17$). Personal outcome expectations had a significant positive effect on both satisfaction ($\gamma=0.25$) and continuance intention ($\gamma=0.43$). Finally, satisfaction significantly and positively influenced continuance intention ($\gamma=0.40$). Overall, the results of this study suggest that organisational factors (specifically, online services and information), social influence and personal factors (prior experience) can be better organised to influence continuance intention eventually only if they are mediated via self-efficacy onto personal outcome expectations and satisfaction. In other words, the adoption process can be successfully translated into continuance intentions only through the indirect effects of self-efficacy via personal outcome expectations and satisfaction. The model explained 58% of variance on continuance intention to use government services.

22
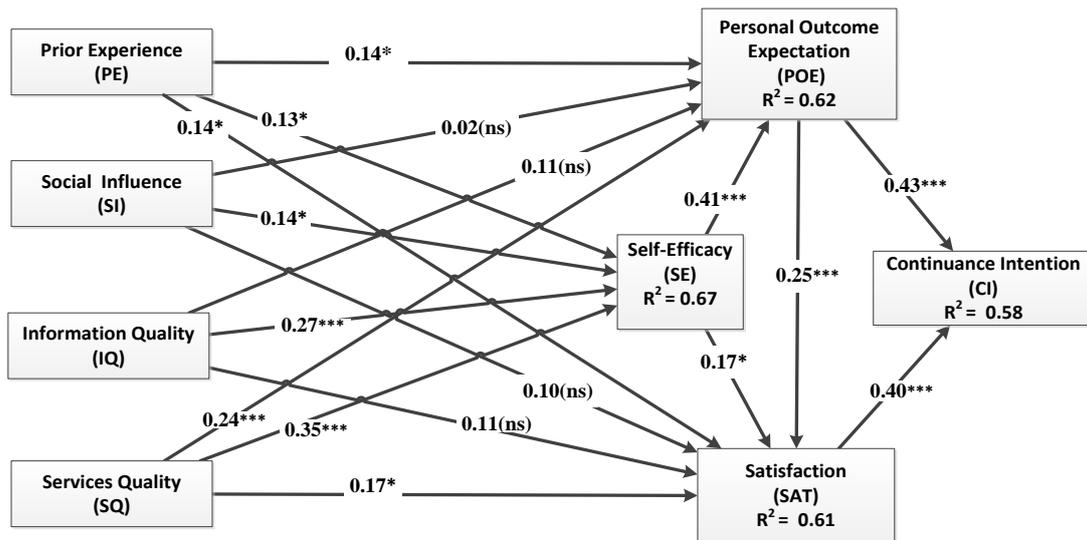
*p<0.05; **p<0.01; ***p<0.001; ns: not significant.

Figure 3. Hypotheses testing results

Further, Table 5 shows the hypothesised dependence relationships of the present study. The examination of hypothesised dependence relationships increases theory validity if they are statistically significant and in the predicted direction.

Table 5 The hypothesised dependence relationships of the present study

Hypothesis	*Direction	Supported?
H1a: There is a positive relationship between citizen' level of prior experience and citizens' personal outcome expectations	*PE → POE	Yes
H1b: There is a positive relationship between citizen' level of prior experience and citizens' self-efficacy	PE → SE	Yes
H1b: There is a positive relationship between citizen' level of prior experience and citizens' satisfaction	PE → SAT	Yes
H2a: social influence is positively associated with personal outcome expectations	SI → POE	No
H2b: social influence is positively associated with citizen's self-efficacy	SI → SE	Yes
H4c: Social influence will positively influence satisfaction	SI → SAT	No
H3a: There would be a positive relationship between information quality and citizen' personal outcome expectation	IQ → POE	No

H3b: *There would be a positive relationship between citizen' information quality and citizen' perceived self- efficacy*	IQ → SE	Yes
H3c: *There would be a positive relationship between citizen' information quality of and satisfaction with online public system.*	IQ → SAT	No
H4a: *There would be a positive relationship between service quality and citizen' personal outcome expectation of continued use public sector systems.*	SQ → POE	Yes
H4b: *There would be a positive relationship between service quality and citizen' perceived internet self- efficacy*	SQ → SE	Yes
H4c: *There would be a positive relationship between service quality and citizens' satisfaction with public sector systems.*	SQ → SAT	Yes
H5a: *There would be a positive relationship between citizen' perceived self- efficacy and their personal outcome expectation*	SE → POE	Yes
H5b: *There would be a positive relationship between citizen' perceived internet self- efficacy and their satisfaction of public sector systems.*	SE → SAT	Yes
H6a: *personal outcome expectation is positively related to citizen continuance intentions in public sector systems.*	POE → CI	Yes
H6b: *personal outcome expectation is positively associated with satisfaction in public sector systems.*	POE → SAT	Yes
H7: *There would be a positive relationship between citizen' satisfaction with public sector systems and their continuance intention.*	SAT → CI	Yes
*notice that the construct that is located at the left side of the arrow are exogenous constructs and those at the right side of the arrow are endogenous constructs (e.g., IQ → POE, IQ is exogenous, and POE is endogenous). In SEM, there is a chance to find one construct as an endogenous and exogenous at the same time.		

Figure 3 and Table 5 show that all but four (H2a, H4c, H3a and H3c) structural estimates are significant and in the expected path. The four unsupported path estimates are social influence (SI) and information quality (IQ) towards personal outcome expectations (POE) and satisfaction (SAT).

7. DISCUSSION

The objective of the present study is to investigate factors that influence the continuous use of eGovernment services. In general, the results indicate that personal factors (self-efficacy, personal outcome expectations and satisfaction) along with eGovernment systems (information and service quality), citizens' prior experience and social

influence (working in collaboration), they are factors that can enhance our understanding of the eGovernment transformation phenomenon continuously.

Based on the result of this study, it was found that prior experience has positive relationships with personal outcome expectation, self-efficacy and satisfaction. The results are in line with previous studies (Oliver, 1980; Basili and Caldiera, 1995; Compeau and Higgins, 1995a). Basili and Caldiera (1995) emphasise the role of collective experience in ensuring software quality for developers; accordingly, collective experience is critical for end-users in order to ensure the evaluative process of software quality in their feedback to ICT providers; hence, self-efficacy is advanced with a positive experience. In the PSOS domain, past experience can be generalised to other domains, such as the private sector domain, as mentioned by Bandura (1997); therefore, the private sector and the public sector can share experiences in ICT-related issues, resulting in higher beliefs in their ability; however, fluctuations in failures and successes in a particular domain may negatively influence personal outcome expectations. Thus, any variation in a citizen's experience between the private sector and the public sector may influence the level of personal expectation and satisfaction; nevertheless, the level of self-efficacy will increase as long as there is an engagement in either sector. Compeau and Higgins (1995a) emphasised the vital role of successful experience in fostering self-efficacy by offering software training. In this respect, training is crucial for sustainable ICT evolution in general, and in PSOS in particular. In summary, the results suggest that the effect of prior experience on satisfaction is substantially higher than the effect of prior experience on self-efficacy and personal outcome expectation.

No effect of social influence on personal outcome expectation or satisfaction was identified. However, self-efficacy mediated the relationship between social influence

and both personal outcome expectation and satisfaction. Social encouragement for using PSOS represents the influence of the social circle on self-efficacy, outcome expectation and satisfaction. Bandura (1986), as well as Compeau and Higgins (1995a), emphasised the role of the individual's perceived similarity with and credibility of the influencing individual in considering the impact of social influence. Thus, in continuation usage of the PSOS course of action, citizens are expert users; they rely on their personal experience. However, if there are sufficient similarity and credibility, they may accept social influence on their usage of PSOS but not on their personal outcome expectation or satisfaction. This supports the SCT explanation of the role of modelling and how people learn from each other; hence, observing others may help in encouraging people to use PSOS, particularly role models and close friends.

Similar to social influence, information quality has no positive influence on personal outcome expectations or satisfaction, but it does have on self-efficacy. It seems that citizens rely heavily on their information, based on their own experience, unless the information imparts changes in how to using the system or in their ability to use the system. An organisation, as a producing unit of information, may be measured in terms of its activities in logically presenting the information. Thus, accuracy, clarity, reliability and updating information is targeted at various types of people while delivering PSOS. Citizens' needs may vary based on their experience with other websites (e.g., private sector e-commerce or e-business websites); hence, the fluctuations in how people receive and perceive information produce the variations in their interpretations. Based on SCT, negative information can be considered as a failure of previous experience. Furthermore, negative information might be a result of variations on a semantic level; the conveyed meaning may be misinterpreted. Therefore,

the meaning of the information on the website should be derived from the citizen's point-of-view and not solely from that of the system users (ICT employees).

The findings demonstrate the vital role of service quality. Service quality as an external stimulus (belief) has the most significant influence among the environmental factors (social influence, information quality) as well as prior experience on personal outcome expectation, self-efficacy and satisfaction. Service quality does not mean only the current online encounter but also the history of citizens and how they perceived the extent to which that particular PSOS has recovered from poor service. Johnston (1995) and Vaerenbergh et al. (2013) emphasised the role of service recovery on outcome expectations, in which weak service recovery decreases the outcome expectation, whereas successful recovery increases the outcome expectation; hence, in terms of PSOS continuity usage, records of previous poor service must be recovered in order to meet citizens' minimum expectations. Adequate service quality should be associated with the ability of the citizens (self-efficacy) in order that they may better utilise their current skills in the systems being offered by the government agencies; thus, different types of website may disrupt the quality of PSOS because it is difficult to maintain a specific format for information quality (see information quality in the previous section). Website design is mostly associated with information quality rather than service quality because it does not interact with the end-user to fulfil their requirements; therefore, personal understanding factors is vital when dealing with service quality in order to understand their abilities and other intellectual features based on each or group of individuals. In summary, the results suggest that the effect of service quality on self-efficacy is substantially higher than the effect of service quality on satisfaction and personal outcome expectation.

Consistent with previous studies, self-efficacy has a considerable positive influence on personal outcome expectation, satisfaction and new behaviour, as postulated in SCT (e.g., Compeau and Higgins; 1995a/b; Hsu et al., 2004). However, self-efficacy is guided by three streams; prior experience level of expectation, social influence and PSOS level of service; hence, any change in one of these three self-efficacy antecedents may influence the new exposure. It was found that personal outcome expectation positively influences satisfaction and continuance intention. Personal outcome expectation is a motivational construct that reflects the personal goal-setting of the citizen; the aim of using personal outcome expectation is to enhance self-esteem or control of PSOS, as it impacts on personal-related issues. Citizens expect the government to support the PSOS process; furthermore, they expect encouragement from others and enhancement in their ICT skills. The consequences of using PSOS can be evaluated through the citizen's prior experience based on his or her level of expectation, which reflects PSOS, social influence and self-efficacy along with previous experience. Through the PSOS influence on personal outcome expectation, government agencies reflect the formal position of the government and its attitudes toward directing citizens' behaviour. In summary, the results suggest that the effect of personal outcome expectation on satisfaction is substantially higher than the effect of personal outcome expectation on continuance intention.

Perceived PSOS interactivity can be better improved when understanding how the antecedents of satisfaction interact with each other. Understanding satisfaction antecedents and consequences help in producing better satisfaction decisions, based on Oliver (1980); furthermore, it helps in improving the citizen's self-evaluation process in terms of how they perceive PSOS, based on SCT. Satisfaction, therefore, can be considered as additive to expectation level and the new experience (of the new

behaviour); it can be used as a meter of personal factors (e.g., prior experience, self-efficacy, personal outcome expectation) and also a meter of social influence (besides PSOS) as an external factor, as SCT hypothesises together with ECT in the present study. In PSOS, continuance intention is not always mandatory; therefore, there remains the option for citizens to switch to the traditional system. Thus, understanding continuance intention to use PSOS may help in improving PSOS, allowing the government to draw down the face-to-face channels. The present study extends the understanding in the literature on how personal outcome expectation, self-efficacy and satisfaction affect intention in terms of PSOS continuance. Thus, continuance intention is a function of the variation between PSOS and the citizen's willingness toward using PSOS regularly. The present study's results are consistent with those of previous studies, e.g., positively affected by satisfaction, as in Bhattacherjee (2001) and Lin et al. (2005), and outcome expectation and self-efficacy, as in Hsu et al. (2004). Decisions based on adoption or acceptance reveal some uncertainty about consequences relating to beliefs or attitudes, whereas, continuance intention bridges this gap by mitigating risks through learning from previous mistakes. The findings support the role of SCT's reciprocal relationships between external factors and personal factors. ECT's satisfaction is found to be a meter for the whole process when considering a citizen's feelings and his or her selection decision over whether or not to continue using the PSOS. In order to recognise the salient factors that determine citizens' continuance in using PSOS, several studies share similar results, stating that satisfaction, personal outcome expectation and self-efficacy are the salient factors in determining the continuance intention to use ICT in general and PSOS in the present study (e.g., Oliver, 1980; Bandura, 1986; Compeau & Higgins, 1995a/b; Hu et al., 2009; Chan et al., 2010; Venkatesh et al., 2011). However, these constructs (self-efficacy, personal outcome

expectation and satisfaction) are driven by three major themes, based on the proposed model of the present study: the individual theme represented by prior personal experience, the social theme and the organisational theme. The organisational theme is represented by PSOS (information and service quality) in the present study, based on the G2C context.

8. CONCLUSION

The present study highlights several critical theoretical lessons in the field of eGovernment and Management Information Systems in general. The nature of the eGovernment process can be active if the user has a positive experience with the information and service quality, regardless of social influence. However, the social influence might help if the interaction with online services is updated as a consequence of the radical changes in ICT issues – otherwise, the user relies on his or her own experience only. In this matter, prior experience can be calculated as an accumulative sum based on several positive/negative attempts. The user then decides whether to continue using eGovernment systems or not. Personal outcome expectation and satisfaction reflect the fact that there can be a change in the process of use behaviour driven by service quality and self-efficacy. However, we should also consider that self-efficacy is the best representation of self-regularity in the continuity process.

To conclude, citizens are more likely to re-use eGovernment systems if they perceive them to deliver a better outcome compared with their previous experience of traditional systems. The consequences of using eGovernment systems can be evaluated through citizens' prior experience based on his or her level of expectation. The acceptable everyday activity of positive eGovernment practice normalises citizens' behaviour and develops a positive attitude about eGovernment systems. Thus, there is a need for a

continuous evaluation approach in order to enhance the value from existing information and services in eGovernment systems. By experiencing a mastery of self-efficacy, corresponding with quality online information and services, users will possibly continue to be online users of eGovernment systems. In eGovernment systems, the coping behaviour of users, their expectations and experience of mastery influence their continuing use of eGovernment systems. However, some unsatisfied experiences produce constrained mastery expectations.

From the theoretical implication stance, the model brings together three different themes: an individual theme, a social theme and organisational themes. Furthermore, the model explains the difference between acceptance (adoption) and continuing use (post-adoption) by identifying the antecedents of the construct. It also distinguishes between internal (personal outcome expectations) and external (satisfaction) stimuli. The model clarifies the role of physical factors (self-efficacy) for cognitive factors (personal outcome expectations and satisfaction). Additionally, the model considers the concept of emotions (beliefs, attitude, intention and behaviour), which highlights the structure of the psychological process. More specifically, it unites three inter-related factors – self-efficacy, personal outcome expectations and satisfaction. These lie at the core of the process to external factors (prior experience, social influence and organisational services and information). Second, drawing on this model, future empirical studies can customise the online service and information features to fit with each organisational advancement stage in eGovernment. For example, each organisation can introduce new online service and information indicators or manage the existing ones. In this manner, an agenda can be established for future research in the ICT field that emphasises the reciprocal relationship between external factors and internal factors in terms of the desired behaviour. Hence, organisations should increase

their investment in ICT and the embedded skills of their employees by integrating these resources to reflect citizens' needs.

On the other hand, from a practitioner perspective, the study can contribute towards a value-adding and achievable actions that managers can take. For example, managers should consider that an eGovernment system is an ongoing process that may positively/negatively influence users' personal experiences. Hence, ICT managers must shift their focus onto online services to the users' personal expectations and satisfaction after ensuring that they can use the system. There should only be very slight changes in the information on the website. Any radical change in the website's information could negatively influence the citizens' expectations (and hence satisfaction), although not their ability to perform the task at hand. Accordingly, this would establish a negative social influence. It is preferable to keep the website content familiar to people in order to reduce the time needed for them to explore the website's links.

Furthermore, ICT managers should improve their accessibility and speed by aligning themselves with other businesses. For example, physical proof (signs, stickers or labels) should be replaced by electronic confirmation. Managers should also observe private sector progress in order to bridge the gap between government and private sector online systems for the users' expectations. Further, managers should align the organisational system's behaviour with the citizens' behaviour, abilities and needs, exceeding their expectations. In this vein, continual improvement is crucial to face future challenges and to ensure citizens' participation in eGovernment systems.

Although the findings of the present study have important implications for the continuing use of eGovernment systems, the study has certain limitations, as most field surveys do. The technical implementation of eGovernment systems from an organisational or government agency's point of view is beyond the purpose of the

present study. The present study focused on the citizens' perspective. The data collected for the present study were cross-sectional; therefore, longitudinal data will be needed in future to investigate the factors that influence an individual's decision to continue to use eGovernment systems in order to validate the present research model. The data collected are based on a voluntary system; therefore, the findings may not be generalised to mandatory systems. The findings of the present study were obtained from a single case study on eGovernment systems as a subset of the eGovernment umbrella, focused on a DVLA online service and a DVLA user group; thus, any generalisation of the findings should be conducted with care.

Furthermore, the sample frame used in the present study remains a potential source of error; therefore, more revision would be appreciated in future studies. The focus of the present study was on eGovernment systems from the citizens' perspective by investigating citizens' personal factors (e.g. prior experience, self-efficacy, personal outcome expectations, satisfaction and intention to continue to use eGovernment systems). To capture the full range of issues related to citizens and services, all the phases of the present research were focused on one website. Besides, the data were obtained from specific users of the DVLA website system; therefore, the findings may vary based on other services or social influences. Thus, it is recommended to test other systems/applications of eGovernment systems (e.g., mobile systems or the Kiosk system) through user groups. Mobiles, as a resource of information and service quality, may enrich future studies, as mobile users tend to have more interaction with eGovernment systems.

REFERENCES

Agell, I. and Sellers, M. 2012, "Driver and vehicle licensing agency regulations and new ways of working: a legal gap?", *European Psychiatry*, vol. 27, *Supplement 1*, pp.1.

Ajzen, I. 1985. From intentions to actions: A theory of planned behavior. In J. Kuhl & J. Beckman (Eds.), *Action-control: From cognition to behavior* (pp. 11-39). Heidelberg: Springer.

Ajzen, I., & Fishbein, M., 1980. Understanding attitudes and predicting social behavior. Englewood Cliffs, NJ: Prentice-Hall.

Al-Muwil, A, Weerakkody, V., El-Haddadeh, R., Dwivedi, Y.K. (2019) Balancing Digital-By-Default with Inclusion: A Study of the Factors Influencing E-Inclusion in the UK. Information Systems Frontiers, 21 (3), 635-659

Alruwaie, M. 2014. "The Role of Social Influence and Prior Experience on Citizens' Intention to Continuing to Use E-government Systems: A Theoretical Framework", *International Journal of Electronic Government Research*, vol. 10, no. 4, pp. 1-20.

Anderson E.W., Sullivan M. W. 1993, "The antecedents and consequences of customer satisfaction for firms", *Market Sci.*, Vol. 12, No. 2, pp. 25–143.

Bandura, A. 1977. "Self-efficacy: Toward a unifying theory of behavioural change", *Psychological Review*, vol. 84, pp. 191-215.

Bandura, A. 1978, "Reflections on self-efficacy", *Behaviour Research and Therapy*, vol. 1, pp. 237-269

Bandura, A. 1986. Social Foundations of Thought and Action: A Social Cognitive Theory. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. 2001. "Social Cognitive theory: An Agentic Perspective", *Annual Review of Psychology*, vol. 52, no. 1, pp. 1-26.

Bandura, A. 2009. Social Cognitive Theory of mass communications. In J. Bryant & M.B. Oliver (Eds.). Media Effects: Advances in theory and research (2nd Ed. pp.94-124). Mahwah, NJ: Lawrence Erlbaum.

Bandura, A., 1997. Self-efficacy: The Exercise of Control. New York, NY: Freeman.

Basili, V.R. and Caldiera, G.1995, "Improve software quality by reusing knowledge and experience", *Sloan Management Review*, vol. 37, pp. 55–64.

Bentler, P.M. 1988. Theory and Implementation of EQS: A structural Equations Program. Newbury Park, CA: Sage.

Bhattacherjee, A., 2001. "Understanding information systems continuance: an expectation confirmation model", *MIS Quarterly*, vol. 25, no. 3, pp. 351–370.

Bhattacherjee, A., & Premkumar, G., 2004. "Understanding changes in belief and attitude toward information technology usage: A theoretical model and longitudinal test", *MIS Quarterly*, vol. 28, no. 2, pp.229–254.

Chan, F.K.Y., Thong, J.Y.L., Venkatesh, V., Brown, S.A., Hu, P.J.H. & Tam, K.Y. 2010. "Modeling Citizen Satisfaction with Mandatory Adoption of an E-Government Technology", *Journal of the Association for Information Systems,* vol. 11, no. 10, pp. 519-549.

Chan, S. and Lu, M., 2004. "Understanding internet banking adoption and use behavior: a Hong Kong perspective", *Journal of Global Information Management*, vol. 12, no. 3, pp. 21-43.

Coiera, E. 2003. "Interaction design theory", *International Journal of Medical Informatics*, vol. 69, no. 2-3, pp. 205-22.

Compeau, D.R. and Higgins, C.A. 1995a, "Computer self-efficacy: development of a measure and initial test", *MIS Quarterly*, vol. 19, no. 2, pp. 189–211.

Compeau, D.R. and Higgins, C.A., 1995b, "Application of social cognitive theory to training for computer skills", *Information Systems Research*, vol. 6, no. 2, pp. 118–143.

Compeau, D.R., and Higgins C.A., 1991. "A Social Cognitive Theory Perspective on Individual Reactions to Computing Technology." in Proceedings of the Twelfth International Conference on Information Systems. New York, NY.

Compeau, D.R., Higgins, C.A. and Huff, S. 1999, "Social cognitive theory and individual reactions to computing technology: a longitudinal study", *MIS Quarterly*, Vol. 23, No. 2, pp. 145–158.

Connolly, R. and Bannister, F. 2008, "Factors influencing Irish consumers' trust in internet shopping", *Management Research News*, vol. 31, no. 5, pp. 339 – 358.

Connolly, R., Bannister, F., and Kearney, A. 2010. "Government website service quality: a study of the Irish revenue online service", *European Journal of Information Systems*, vol. 19, no. 6, pp. 649-667.

Davis, F. D., Bagozzi, R. P. and Warshaw, P. R. 1989, "User acceptance of computer technology: A comparison of two theoretical models", *Management Science*, Vol. 35, No. 8, pp. 982-1003.

Davis, F.D. 1989. "Perceived usefulness, perceived ease of use and user acceptance of information technology2", *MIS Quarterly*, vol, 13, no. 3, pp. 318-339.

DeLone, W. H., & McLean, E. R., 1992. "Information system success: The quest for dependent variable", *Information Systems Research*, vol.3, no.1, pp. 60−95.

DeLone, W.H., & McLean, E.R., 2004. "Measuring eCommerce success: Applying the DeLone and McLean information system success model", *International Journal of Electronic Commerce*, vol. *9,* no. 1, pp. 31−47.

DeLone, W.H., and McLean, E.R., 2003. "The DeLone and McLean Model of Information Systems Success: A Ten-Year Update", *Journal of Management Information Systems*, vol.19, no. 4, pp 9-30.

El-Haddadeh, R., Weerakkody, V. and Al-Shafi, S. (2013), Understanding the Challenges and Complexities Influencing The Implementation and Institutionalisation

of Electronic Services in the Public Sector, *Information and Management*, 50(4), 135–143

El-Haddadeh, R., Weerakkody, V., Osmani, M., Thakker, D., Kapoor, K. (2019) Examining Citizens' Perceived Value of Internet of Things Technologies in Facilitating Public Sector Services Engagement. *Government Information Quarterly*. 36(2), 310-320

Fishbein, M., and Ajzen, I. 1975. Belief, Attitude, Intention and Behaviour: An Introduction to Theory and Research, Reading, MA: Addison-Wesley.

Fornell, C. and Larcker, D.F., 1981. "Evaluating structural equation models with unobservable variables and measurement error", *Journal of Marketing Research*, vol.18, no.1, pp.39–50.

Gandhi, M.J., Freitas, D., Lewis, M., Bolton, L., Bhasin, S., Leonard, D. and Marsh, A. 2014, "Who should answer the question: Can I drive with this plaster cast?", *The Surgeon*, vol. 12, no. 1, pp. 26-31.

Gosling, S.D., Vazire, S., Srivastava, S., John, O.P. 2004. "Should we trust web-based studies? A comparative analysis of six preconceptions about Internet questionnaires", *American Psychologist,* vol.59, no.2, pp.93–104.

Hair, J., Black, W., Babin, B., Anderson, R. and Tatham, R. 2006. Multivariate Data Analysis, 6th ed., New York, NY: Pearson Education.

Hair, J.F. Jr., Black W.C., Babin, B.J., & Anderson R.E. 2010. *Multivariate Data Analysis,* 7th edition. Englewood Cliffs, Prentice-Hall, NJ. Pearson-Prentice Hall.

Hsu, M.H., Chiu, C.M. & Ju, T.L. 2004. "Determinants of continued use of the WWW: an integration of two theoretical models", *Industrial Management & Data Systems,* vol.104, no. 8-9, pp. 766-775.

Hu, P.J.H., Brown, S.A., Thong, J.Y.L., Chan, F.K.Y. and Tam, K.Y. 2009, "Determinants of Service Quality and Continuance Intention of Online Services: The Case of eTax", *Journal of the American Society for Information Science and Technology*, vol. 60, no. 2, pp. 292-306.

Hussein, R., Mohamed, N., Ahlan, A., & Mahmud, M. 2011."E-government application: an integrated model on G2C adoption of online tax", *Transforming Government: People, Process and Policy*, vol. 5, no.3, pp.225-248.

Hussey, J. and Hussey, R., 1997. Business Research: A Practical Guide for Undergraduate and Postgraduate Students, New York: Palgrave.

Jasperson, J., Carter, P.E., and Zmud, R.W. 2005. "A comprehensive conceptualization of postadoptive behaviours associated with information technology enabled work systems", *MIS Quarterly*, vol. 29, no.3, pp. 525-55.

Johnson, R.D. & Marakas, G.M., 2000. "Research report: The role of behavioral modelling in computer skills acquisition - Toward refinement of the model", *Information Systems Research*, vol. 11, no. 4, pp. 402-417.

Johnston, R. 1995, "The determinants of service quality: satisfiers versus dissatisfiers", *International Journal of Service Industry Management*, Vol. 6 No. 5, pp. 53-71.

Kotler, P., Wong V., Saunders, J. and Armstrong, A. 2005. Principles of Marketing. Fourth Edition. England: Pearson Education.

Lewis, Robert C. and Booms, B. H. 1983, "The Marketing Aspects of Service Quality", in *Emerging Perspectives on Services Marketing.* L. Berry, G. Shostack, and G, Upah, eds., Chicago: American Marketing, pp. 99-107.

Li, Y.N., Tan, K.C. and Xie, M. 2002, "Measuring web-based service quality", *Total Quality Management*, Vol. 13 No. 5, pp. 685-700.

Lin, C.S., Wu, S. and Tsai, R.J., 2005. "Integrating perceived playfulness into expectation-confirmation model for web portal context". *Information & Management*, Vol. *42* No. 5, pp.683-693.

Marakas, G.M., Yi, M.Y. & Johnson, R.D. 1998. "The multilevel and multifaceted character of computer self-efficacy: Toward clarification of the construct and an integrative framework for research", *Information Systems Research,* vol. 9, no. 2, pp. 126-163.

Mathieson, K. 1991. "Predicting user intentions: comparing the technology acceptance model with the theory of planned behavior", *Information Systems Research*, vol. 2, no. 3, pp. 173-91.

Oliver, R. L. 1980. "A Cognitive Model for the Antecedents and Consequences of Satisfaction," *Journal of Marketing Research,* vol.17, pp.460-469.

Oliver, R. L. 1993."Cognitive, affective, and attribute bases of the satisfaction response", *Journal of Consumer Research,* vol. 20, no. 3, pp. 418–430.

Oliver, R. L. 1997. *Satisfaction: A Behavioral Perspective on the Consumer*. New York: McGraw-Hill Companies, Inc.

Parasuraman, A., Zeithaml, V.A. and Malhotra, A. 2005. "E-S-QUAL: a multiple-item scale for assessing electronic service quality", *Journal of Service Research*, vol. 7 no. 3, pp. 213-3.

Rai, A., Lang, S.S., & Welker, R.B., 2002. "Assessing the validity of IS success models: An empirical test and theoretical analysis", *Information Systems Research*, vol. 13, no.1,pp. 50–69.

Saunders, M., Lewis, P. and Thornhill, A., 2007. Research Methods for Business Students, 4th ed., Harlow: Prentice Hall Financial Times.

Seddon, P. B. 1997. "A respecification and extension of the DeLone and McLean model of IS success", *Information Systems Research*, vol. 8, no.3, pp. 240-53.

Seddon, P.B. and Kiew, M.Y. 1996, "A partial test and development of DeLone and MacLean's model of IS success", *Australian Journal of Information Systems*, Vol. 4 No. 1, pp. 90-109.

Stein, M-K., Newell, S., Wagner, E. L., and Galliers, R. D., 2015. "Coping with information technology: mixed emotions, vacillation, and nonconforming use patterns", *MIS Quarterly*, vol. 39, no. 2, pp. 367-392.

Tam, C., & Oliveira, T. (2017). Understanding mobile banking individual performance: The DeLone & McLean model and the moderating effects of individual culture. Internet Research, 27(3), 538–562.

Tan, Ch-W., Benbasat, I. and Cenfetelli, T.C. 2013. "IT-Mediated Customer Service Content and Delivery in Electronic Governments: An Empirical Investigation of the Antecedents of Service Quality", *MIS Quarterly*, Vol. 37, No. 1, pp. 77-109.

Taylor, S., and Todd, P. A., 1995. "Understanding Information Technology Usage: A Test of Competing Models", *Information Systems Research,* vol. 6, no. 2, pp. 144-176.

Teo, T.S.H., Srivastava, S.C. & Jiang, L. 2008. "Trust and Electronic Government Success: An Empirical Study", *Journal of Management Information Systems,* vol. 25, no. 3, pp. 99-131.

Teo, T.S.H., Srivastava, S.C. and Jiang, L. 2008, "Trust and Electronic Government Success: An Empirical Study", *Journal of Management Information Systems*, Vol. 25, Vo. 3, pp. 99-131

Thompson, R. L., Higgins, C.A. and Howell, J.M. 1991, "Personal Computing: Toward a Conceptual Model of Utilization", *MIS Quarterly. Vol.* 15, pp. 125-143.

Van Vaerenbergh, Y., Vermeir, I. and Larivière, B., 2013. "Service recovery's impact on customers next-in-line", *Managing Service Quality*, Vol. *23* No. 6, pp.495-512.

Veeramootoo, N., Nunkoo, R., and Dwivedi, Y. K., 2018. "What determines success of an e-government service? Validation of an integrative model of e-filing continuance usage", *Government Information Quarterly,* Vol. 35, pp. 161-174.

Venkatesh, V., Morris, M., Davis, G., and Davis, F. 2003. 'User Acceptance of Information Technology: Toward a Unified View,' *MIS Quarterly*, vol. 27, no. 3, pp. 425-478.

Venkatesh, V., Thong, J.Y.L., Chan, F.K.Y., Hu, P.J., and Brown, S.A., 2011. "Extending the two-stage information systems continuance model: incorporating UTAUT predictors and the role of context", *Information Systems Journal,* vol. 21, pp. 527-555.

Wang, Y.S. and Liao, Y.W. 2008, "Assessing eGovernment systems success: a validation of the DeLone and McLean model of information system success", *Government Information Quarterly*, Vol. 25 No. 4, pp. 717-33.

Wang, Y.-S. and Tang, T.-I. 2003, "Assessing customer perceptions of Websites service quality in digital marketing environments", *Journal of End User Computing*, vol. 15, No. 3, pp. 14−31.

Wangpipatwong, S., Chutimaskul, W. and Papasratorn, B. 2009, "Quality enhancing the continued use of e-government web sites: evidence from e-citizens of Thailand", *International Journal of Electronic Government Research*, Vol. 5 No. 1, pp. 19-35.

Zeithaml V.A., Bitner M. J., and Gremler D.D. 2006. *Services Marketing: Integrating Customer Focus across the Firm.* (4th ed.) New York: McGraw-Hill Irwin.

Zeithaml, V.A. 1988, "Consumer perceptions of price, quality, and value: a means end model and synthesis of evidence", *Journal of Marketing*, Vol. 52 No. 3, pp. 2-22.

Zhang, P. and von Dran, G.M. 2000, "Satisfiers and dissatisfiers: A two-factor model for Web site design and evaluation", *Journal of the American Society for Information Science*, vol. 51, no. 14, pp. 1253-1268.

Zhou, X. (2004). E-government in China: A content analysis of national and provincial web sites. *Journal of Computer-Mediated Communication*, 9(4), JCMC948.

APPENDIX: SURVEY ITEMS

Code	Item
SQ_1	The DVLA website makes it easy to find what I need.
SQ_2	The DVLA website makes it easy to get anywhere on the site.
SQ_3	The DVLA website is simple to use.
SQ_4	The DVLA website is always available (24/7).
SQ_5	The DVLA website launches and runs right away.
SQ_6	The DVLA website does not crash
SQ_7	The DVLA website protects information about my Web-shopping behaviour.
SQ_8	The DVLA website has customer service representatives available online.
IQ_1	Through the DVLA website, I get the information I need in time.
IQ_2	Information provided by the DVLA website meets my needs.
IQ_3	Information provided by the DVLA website is in a useful format.
IQ_4	Information provided by the DVLA website is clear.
IQ_5	Information provided by the DVLA website is accurate.
IQ_6	Information provided by the DVLA website is up to date.
IQ_7	Information provided by the DVLA website is reliable.
CI_1	I intend to continue using the DVLA website in the future.
CI_2	I will continue using the DVLA website in the future.
CI_3	I will regularly use the DVLA website in the future.
SAT_1	I am satisfied with the information quality on the DVLA website.
SAT_2	I am satisfied with the service quality of the DVLA website.
SAT_3	Overall, I am satisfied with the quality of the DVLA website.
POE_1	If I use the DVLA website, I will gather complete and timely information, compared with traditional systems.
POE_2	If I use The DVLA's website, I will increase my sense of accomplishment.
POE_3	If I use a computer to access the DVLA website, I will be better organized, compared to traditional systems.
POE_4	If I use the DVLA website, I will spend less time, compared to traditional systems
POE_5	If I use the DVLA website, I will spend less money, compared to traditional systems.
POE_6	I expect the DVLA website to be trustworthy.
SE_1	I feel confident finding my way through the DVLA website.
SE_2	I feel confident looking for information by querying the DVLA website.
SE_3	I feel confident e-mailing the DVLA website.
SE_4	I would find it easy to use the DVLA website to reuse their services
SE_5	Overall, I am confident in my ability to access the DVLA website.
SI_1	People who influence my behaviour would think that I should use the DVLA website to reuse their services
SI_2	People who are important to me would think that I should use the DVLA website to reuse their services
SI_3	People who are in my social circle would think that I should use the DVLA website to reuse their services
PE_1	The information quality of the DVLA website was better than I expected.
PE_2	The service quality of the DVLA website was better than I expected.
PE_3	Overall, the quality of the DVLA website was better than I expected