The Influence of Perceived Characteristics of eGovernment Transactions

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ABSTRACT

The main purpose of this research is to determine the influence of perceived characteristic of eGovernment (electronic government) on acceptance in a developing nation namely the Kingdom of Saudi Arabia (KSA). A multitude of models and theories were consulted to research context requirements that enable the examination of citizens' interactions with government via the Internet (electronic government or eGovernment). This paper presents the details of research model and hypothesis development and the instrument design and contextualization process. Development of the research instrument is conducted by customizing or contextualizing the instrument to meet the research scope and the design of the research methods appropriate for achieving the objectives and goals of this study. A sample of 671 Saudi citizens was recruited using an online survey. Structural equation modeling (SEM) was used to assess the relationship between intention to use eGovernment transactions and perceptions of eGovernment transactions, trust, preferences for using eGovernment transactions as a communication method with the government and social influence. The findings of this study include theoretical and practical contributions.

KEYWORDS

Perceptions, eGovernment Transactions, Kingdom of Saudi Arabia, Culture, Trust, Contextualization.

1 INTRODUCTION

The United Nations Department of Economic and Social Affairs (UNDESA) eGovernment survey in 2012 ranks Saudi Arabia in the eGovernment development index as 41st out of 190 countries. This progress positions the KSA as a leader in the delivery of eGovernment services within Asia and, according to the report, is also an indicator of the productivity and efficiency of the public sector in the KSA. However, the report states that the acceptance and usage of eGovernment in the KSA and around the world is generally low. For example, only two out of five Australians use the Internet to contact the government, and the average eGovernment usage rate in European countries is only 32%. No specific percentage or details on the number of eGovernment users in the KSA are provided. According to the UNDESA report, 60% of all Saudi government services and transactions can be completed online via eGovernment transactions [1].

Understanding the relevance of perceived characteristics of eGovernment transaction acceptance enabled viewing the phenomenon of acceptance from a perspective lacking in the literature. This perspective also enabled a better understanding of why eGovernment is being accepted or rejected by individuals because of their personal perceptions. The development of the Perceived Characteristics of eGovernment Transactions (PCEGT) model is first discussed, in which the constructs used in previous studies are redefined and contextualised. The research hypotheses are presented. A detailed explanation of the questionnaire development process and the sampling techniques used is provided. The initial test and pilot test on the questionnaire are discussed, as well as the design and approach used to collect data for analysis (full-scale study). The validity of the measured constructs is assessed using confirmatory factor analysis to determine the level to which the items measure the intended concept. All of the previously mentioned steps enabled the assessment of the hypothesised relationships between constructs, thereby facilitating the identification of significant relationships. The theoretical and practical

contributions of this study are also presented. Finally, using the findings as bases, design strategies for the enhancement of the eGovernment programme in the KSA are proposed.

2 RESEARCH MODEL

Whetten's [2] approach of balancing and choosing theoretical factors is used to synthesis different model into the creation of PCEGT. Whetten [2] posited that researchers: "should err in favor of including too many factors, recognizing that over time their ideas will be refined" (p. 490). Whetten [2] emphasized that while comprehensiveness is important when selecting all factors relevant to the context, irrelevant factors need to be eliminated as well. It is therefore important to note that the research model used in this study applies only to the specific context of the KSA, as recommended by Seddon and Scheepers [3] for IS quantitative models.

PCEGT is principally based on Moore and Benbasat's [4] Perceived Characteristics of Innovation (PCI) model, which relevance to eGovernment transaction acceptance in the KSA is argued in this section. Moore and Benbasat's [4] PCI model was originally developed to "tap respondents' reactions in an 'initial adoption' environment where the individual acceptance decision is voluntary" (p. 194), which is also the case in this study. Moreover, PCI was chosen as this study focuses on understanding the differences between adopters and non-adopters. Further justification is that PCI was developed in a theoretically rich approach and was tested rigorously [4, 5].

The PCI model was developed to study individual-level acceptance decisions, which is also the focus of this study; nevertheless, the PCI instrument measures were applied at the organizational setting. Therefore, many procedures were conducted to alter the definitions and measures used in the original study [4]. These procedures are discussed in the 'Instrument Development Process' section. The following table presents a list of constructs borrowed from the relevant research. The constructs were redefined so that they fit better into the present research context. Table 1 describes how each construct is related to the study focus, and indicates the source of the instrument items which were reworded.

Table 1. Constructs and relevancy to research context

PCI Constructs [4]	Original Definition	PCEGT Definition
Relative advantage (RA)	Perceptions that the new eGovernment system accomplishes a task more effectively or efficiently than the current system [6].	The degree to which using eGovernment transactions is perceived to be better than traditional methods.
Compatibility (CT)	The degree to which eGovernment usage is perceived seamless natural and compatible with needs [6].	The degree to which using eGovernment transactions are consistent with the potential adopter's needs, past experiences and cultural values.
Complexity (CMX)	"the degree to which an innovation is perceived as relatively difficulty to understand and use" [7].	The degree to which using eGovernment transactions is perceived as being relatively difficulty to understand and use.
Result demonstrability (RED)	"the tangibility of the results of using the innovation, including their observability and communication" [4]	Communicability of the results of using eGovernment transactions.
Acceptance of eGovernment [6]		
Intention to use eGovernment transactions (USE)	Intention to decide to use eGovernment public services [6].	Intention to decide engagement with SGAs using transactions available on the Internet. Citizen engagement includes usage of service, sharing, acquisition and gathering information.
Trust in government agencies (TG)	"trust in the state government agency providing the service" [8].	The perceptions of trust in the provider of eGovernment transactions, the SGA.
Trust in the Internet (TI)	Reliability and security of the media which	Perceptions of the security and reliability of the means which

	eGovernment services are being provided, the Internet [6].	eGovernment transactions are being delivered (the Internet).
UTAUT [9]		
Social influence (SI)	"the degree to which an individual perceives that important others believe he or she should use the new system" [9].	The degree to which an individual perceives that important others believe eGovernment transactions should be used.
Accounting Information System Acceptance Model [10].		
Perspective on communication (POC)	The degree to which high or low context cultures prefer using Accounting Information Systems to communicate with business stakeholders [10].	The degree to which using eGovernment transactions would enable adequate communication with the government.

Table 1 above also contains definitions of each construct as shown in the column titled "PCEGT definitions". The research hypothesizes are discussed in the following section.

2.1 Relative Advantage, Compatibility and Intention to Use eGovernment Transactions

It might be important to consider the perceived relative advantages for Saudi citizens when intending to use eGovernment transactions where current social traditional methods might be preferred. Additionally, high levels of compatibility with cultural needs, values and previous experiences would promote intention to use eGovernment transactions. Based on this argument the following is hypothesized:

Table 2. Hypotheses 1 and 2

Code	Hypothesis	Supporting references
H1	*Relative advantage has a positive significant influence on intention to use eGovernment transactions.*	[6] [11] [12]
H2	*Compatibility has a positive significant influence on intention to use eGovernment transactions.*	[6] [11]

2.2 Complexity and Intention to Use eGovernment Transactions

Complexity of using novel technologies is a determining factor of acceptance for many people [7]. Usage of eGovernment transactions is perceived as complicated and difficult to use by many citizens around the world [13]. The complexity construct is aimed at measuring how citizens perceive difficulty of using eGovernment transactions. As shown in Table 3 below, usage intention has been linked with how complex eGovernment websites are perceived to be in eGovernment adoption research:

Table 3. Hypotheses 3

Code	Hypothesis	Supporting reference
H3	*Complexity has a negative significant influence on intention to use eGovernment transactions.*	[6]

2.3 Result Demonstrability and Intention to Use eGovernment Transactions

How the benefits of eGovernment transactions are perceived to be sharable, communicable, tangible or observable might influence the actual intention to conduct a transaction [14]. Taking these perceptions further, it is expected that citizens would communicate the results of their transactions, concluding whether the services are useful or not. This is particularly important for the nurturing collective cultures where the sharing of positive experiences by using word of mouth is a constructive factor in determining usage [15]. This research hypothesizes the following, taking into consideration the support from the literature, shown in Table 4 below:

Table 4. Hypothesis 4

Code	Hypothesis	Supporting reference
H4	*Result demonstrability has a positive significant impact on intention to use eGovernment transactions.*	[14]

2.4 Trust in the Internet, Government and Intention to Use eGovernment Transactions

In a conservative society such as in Saudi Arabia, trust is an important determinant of usage. Higher levels of trust for the Internet as a medium for eGovernment transactions and the provider of service, namely government agencies could increase acceptance [16]. Even though the Internet is the means where eGovernment transactions are conducted, citizens might not accept the use of eGovernment transaction unless it is trusted. Trust issues with the Internet arise especially as the private information that eGovernment transactions require might be threatened. Additionally, if for example the citizen's file is lost, the SGA employees might incorrectly process the transaction, or other mistakes could occur. Hence, trusting the provider of services (the SGAs) might also be important for acceptance of eGovernment transactions, taking into consideration the distance that occurs due to the impersonal and online nature of eGovernment transactions [6]. This relationship between the intention to use eGovernment transactions and trust in the government and the Internet has been confirmed to be empirically significant by research, as shown in Table 5 below. The following are hypothesized regarding the association between trust in the Internet and the government agencies and usage intentions:

Table 5. Hypotheses 5 and 6

Code	Hypothesis	Supporting references
H5	*Trust in the Internet has a negative significant influence on intention to use eGovernment transactions.*	[6] [12]
H6	*Trust in government agencies has a negative significant influence on intention to use eGovernment transactions.*	[6] [12]

2.5 Social Influence and Intention to Use eGovernment transactions

Loch, et al [17] claimed that: "the closer the affinity of the individuals with their reference group, the more likely the individuals are to perform according to reference group expectations". It would be expected that such social influence would be especially higher in a collective society such as Saudi Arabia [18]. Hence, this relationship between social influence and intention to use eGovernment transactions is shown in Table 6 below, with the references that support this hypothesis.

Table 6. Hypothesis 7

Code	Hypothesis	Supporting reference
H7	*Social influence has a positive significant impact on intention to use eGovernment transactions.*	[19]

2.6 Perspective on Communication and Intention to Use eGovernment transactions

Hakken [20] mentioned that technology is an establishing factor of human communications and networks. Nevertheless, the online eGovernment environment does not allow the natural benefits of face-to-face communications [21]. Since Arabic culture is a "high-context" one where a significant part of meaning and information is implicitly stated within a conversation [22], it is important to study how usage of eGovernment transactions affects its acceptance as a communication tool between the government and citizens. No actual support for this construct in relation to eGovernment has been found in the literature. Thus, this research has introduced perspective on communication construct into the eGovernment adoption research domain. However, Aoun, et al [10] have found that this construct significantly influences intention of usage. Thus, the following is hypothesized:

Table 7. Hypothesis 8

Code	Hypothesis	Supporting reference
H8	*Perspective on communication has a positive significant impact on intention to use eGovernment transactions.*	[10]

3 INSTRUMENT DEVELOPMENT PROCESS

In carrying out this research, the perspective of soft positivism's ontology was adopted; that is, the research procedure was designed to capture pre-

existing phenomena and study the relationships among them, with careful consideration of context [23]. This ontological position facilitates the study's examination of perceptions and trust against e-government acceptance through the comprehensive analysis of the cultural nuances of Saudi society. Five phases were conducted to develop the questionnaire. The first phase included nine interviews, conducted only with Saudi citizens (Arabic native speakers) who have been using eGovernment transactions for at least two years and had at least three years of experience in acquiring services from the government using traditional methods. All those met were between 25 and 45 and highly educated. They were specialists in technology, engineering, and business, which provided a range of perspectives and opinions. These interviewees were particularly chosen as they were highly educated, native Arabic speakers and eGovernment transaction experienced, which would enable them to detect impreciseness in the questions' meaning, technical issues with the online questionnaire or detect any problems with the instrument design. Therefore, the purpose of this phase was to ensure accuracy and understanding of the translated items. Furthermore, the usability and accessibility of online tools were noted during the interviews and any difficulties of usage were recorded. After each interview, suggested changes were directly implemented on the instrument and any difficulty of usage related to the design of the questionnaire was handled. Aggregately, the following changes were applied:

- requiring a response to all questions except for those involving the divulgence of personal information;
- preventing participants from taking the survey more than once by changing ballot options in the Qualtrics.com software;
- placing pictures and examples illustrating eGovernment transactions in the invitation email;
- improving the usability of the online survey;
- and including 10 questions on each page.

The second stage included content validity, which was conducted at this phase to ensure that reworded items fitted the definition and context of the research. Content validity was also important to redefine constructs with deleted items. The method used at this stage was as described in Straub et al [24] as "A good example of content validation" (p.387). Originally implemented by Lewis et al [25], where panelists compared the definition of each construct with items and scored using a scale from 1 to 3 (not relevant, important or essential). However, as an addition to Lewis et al [25], panelists were asked to insert any comments or suggestions to improve the wording of each item by making it more relevant to the context. There were very valuable comments on some items and they were implemented for the next stage. All items were within the recommended [see 26] content validity ratio limit, except one item from relative advantage, which had less than 50% of agreement from panelists. The item was reworded as recommended by the panelists.

Thirdly, before sending the questionnaire to a large group of participants, three pre-tests were conducted (200 participated in total). This questionnaire was sent to three Saudi generic topics email groups. The total listed emails were 20,000 (only 1% of the participants fully completed the questionnaire). Generic topic email groups included a wide sector of the society, which enabled provision of different opinions and comments on the survey. This phase was important to assure that the questions were comprehensible to participants and that the Qualtrics.com online tool was easy to use. Participants were provided with a space to comment on questions and questionnaire design and usability. As a summary, these tests enabled identifying any missing options from the demographic questions (e.g. "retiree" was added to the occupation question) and there were some minor changes to questions' wording (in the Arabic version). Another important addition of this phase was identifying how citizens deal with SGAs, and an open-ended question was included in the three pre-tests. Methods identified by participants were listed and included as check boxes, including an open selection for other

suggestions. Collecting all suggested conventional methods from this phase and the pilot study (described in the next paragraph) included the following: face-to-face meetings with government officials; with the help of a relative or friend; mail; phone; fax; and with the services of a paid agent. In general, participants were satisfied with questions' clarity and questionnaire design; however, there were some complaints about the questionnaire length.

Fourthly, before sending the questionnaire to a large group of participants, a pilot study was conducted on 113 participants from mid-December 2010 to mid-January 2011. This questionnaire was sent to one Saudi generic topic email newsgroup. The total listed emails were 20,000; however, only 0.57% of the participants fully completed the questionnaire. The generic topic email newsgroup included a wide sector of the society, which enabled a diversity of opinions and comments on the questionnaire. Conducting a pilot study at this stage provided feedback on the response rate and was an initial test for the reliability of items, test usability, and the comprehensibility on the instrument for a large group of participants. Cronbach's alpha provides this assessment of reliability and is therefore used here [27]. Reliabilities for all the constructs indicated acceptable levels for all constructs, except result demonstrability. The third and fourth items of the construct result demonstrability (RED3 and RED4) were excluded from the instrument, and the reliability of result demonstrability was improved.

For the full-scale study (which took place from late January to February 2011), the improved questionnaire was sent by email to four Saudi generic topic email newsgroups. Only four large newsgroups (each containing about 25,000 emails) were identified by the researcher as generic topic email newsgroups. These emails reached about 100,000 participants whom were considered the sampling frame. These email newsgroups were used because they discuss topics from various areas of interest and should therefore represent a broad cross-section of Saudi society. A second email was sent as reminder after three weeks. This encouraged citizens and non-citizens to participate in the survey to allow identification and exclusion

of non-citizens for the current study. The response rate was 2.31% (2,308 participants), and only 0.78% (775 participants) of the 100,000 contacted respondents completed the questionnaire, including non-Saudis. All participants who were non Saudi were excluded leaving only 671 participants.

4 CFA (CONFIRMATORY FACTOR ANALYSIS)

CFA was conducted to ensure that the PCEGT model was adequately validated. The results revealed that this model showed a good fit and good validity: χ^2/df = 2.18, GFI = 0.92, AFGI = 0.90, CFI = 0.96, IFI = 0.96, SRMR = 0.04 and RMSEA = 0.04. In addition to the fit indices, to further assess the convergent and discriminant validity, standardized factor loadings and correlations between the constructs were used. As shown in Figure 1, all of the correlations were less than the threshold (0.85), indicating acceptable discriminant validity. Although less than the threshold, the close correlation (0.83) between RA and CT is acceptable, taking into consideration the conceptual closeness between the two constructs. The CMX items were negatively worded; therefore, CMX was negatively correlated with all other constructs. The negative correlations of CMX can be considered as indication that the CFA model's parameters are viable and estimated correctly as theorized [28].

All construct-to-items loadings were above that of the required threshold (0.5). The critical ratio of each item was more than ±1.96 with high significance (p <0.001). Both of these indicators suggest convergent validity of the model. As all of the indicators discussed were acceptable, the PCEGT model was considered to establish discriminant and convergent validity.
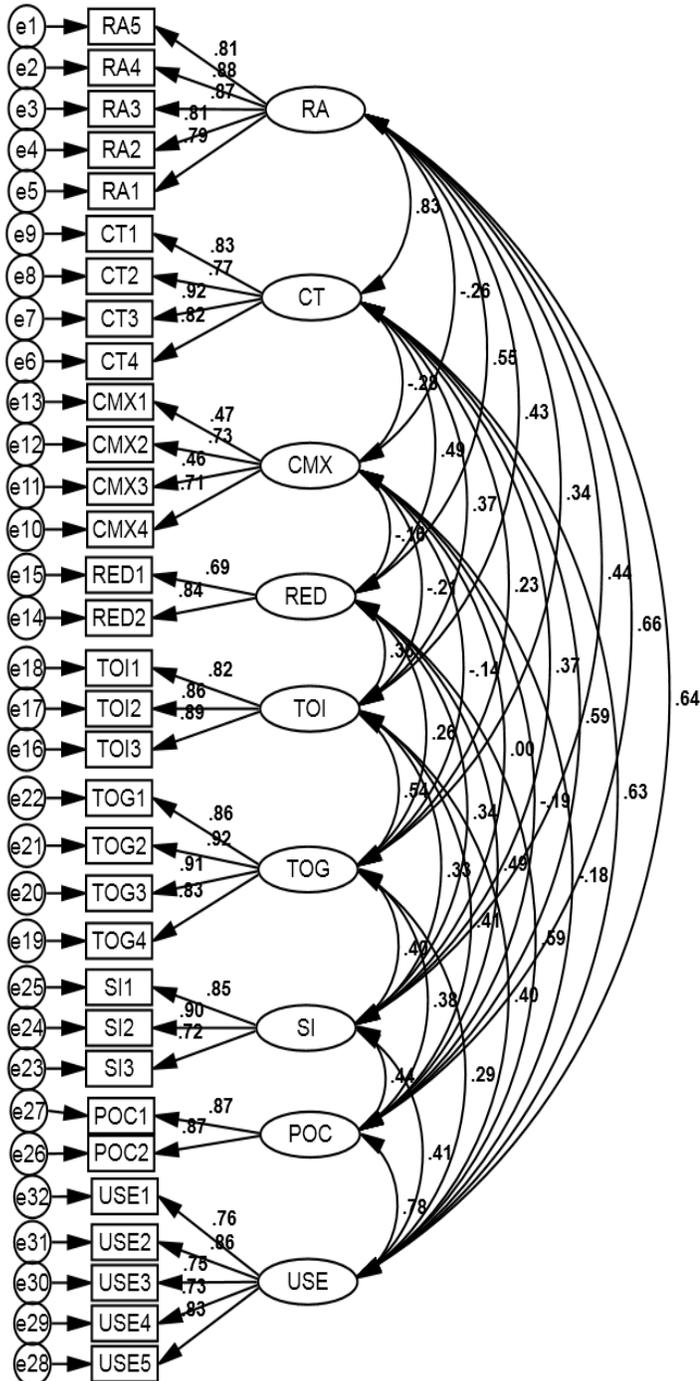
Figure 1: CFA model of the PCEGT model

5 ASSESSMENT OF THE STRUCTURAL MODEL

The evaluation of the structural model can be conducted by the assessment of (1) the structural model fit indices and (2) the structural parameter estimates for the hypothesized relationships [29]. The hypothesized structural model is shown in Figure 2 below. The structural model was

developed by replacing the correlations (double-headed arrows) between the independent constructs and the dependent construct (intention to use eGovernment transactions) with causal paths (one-headed arrows). These arrows graphically represent the research hypotheses. For the sake of clarity, the correlations between the independent constructs, the measurement error and the residual terms are not included in the figure.

The evaluation criteria for the structural model are the structural parameter estimates, which included the standardized regression weights, p-values and squared multiple correlations (SMC) for the dependent construct [29]. The direction (positive or negative) of the structural path is shown by the positive or negative sign of the standardized regression weight. A p-value less than 0.05 signify whether the hypothesis is supported by the data. Finally, SMC determines wither the overall model is able to predict acceptance (USE) by calculating the percentage of variance that the independent constructs explain in the dependent construct [28, 29].

Table 8. Parameter estimates for the structural model

Significant Hypothesis	Standardized regression weight	P-value	Conclusion
H1: USE←RA	-0.02	0.77	RA has a non-significant effect on USE.
H2: USE←CT	0.18	***	CT is positively related to USE at the level of p<0.001.
H3: USE←CMX	-0.01	0.82	CMX has a non-significant effect on USE.
H4: USE←RED	0.19	***	RED is positively related to USE at the level of p<0.001.
H5: USE←TI	0.09	0.03	TI is positively related to USE at the level of p<0.05.
H6: USE←TG	-0.09	0.03	Opposite to hypothesis, TG is negatively related to USE at the level of significance of p<0.05.
H7: USE←SI	0.03	0.46	SI has a non-significant effect on USE.
H8: USE←POC	0.54	***	POC is positively related to USE at the level of p<0.001.

Table 8 above illustrates the outcome of the structural model estimation using the structural equation modeling software, AMOS (Analysis of Moment Structures) [30]. As shown in the table above, 5 of the 8 hypotheses were supported ($p < 0.05$). The standardized regression weights show that the only significant ($p < 0.05$) negative relationships were between USE and TG (-0.04). The most significant construct was POC, which has a standardized regression weight (0.54) higher than 0.50, indicating a large effect on acceptance. On the other hand, the other constructs with significant influence (CT and RED) were considered to have a medium effect (0.18 and 0.19). TI and TG were significant ($p < 0.05$) contributors to the intention to use eGovernment transactions (USE) and had a small influence (<0.1) on the dependent construct USE. The overall structural model contributed 69% of the variance (SMC = 0.69) in the dependent construct (USE), indicating that the overall structural model can strongly predict acceptance.

6 DISCUSSION

Perceptions of a technology and more particularly, eGovernment transactions and services, are identified in the literature as determinants of acceptance [6]. Those related to the Saudi culture and eGovernment transactions were included in the research model for hypothesis testing. The SEM structural assessment shows that preference to use eGovernment transactions as a method for contacting the government, compatibility with cultural needs, values, and previous experiences, result demonstrability, trust in the Internet and government are salient factors that affect the intention to use eGovernment transactions, whereas relative advantage and complexity are not.
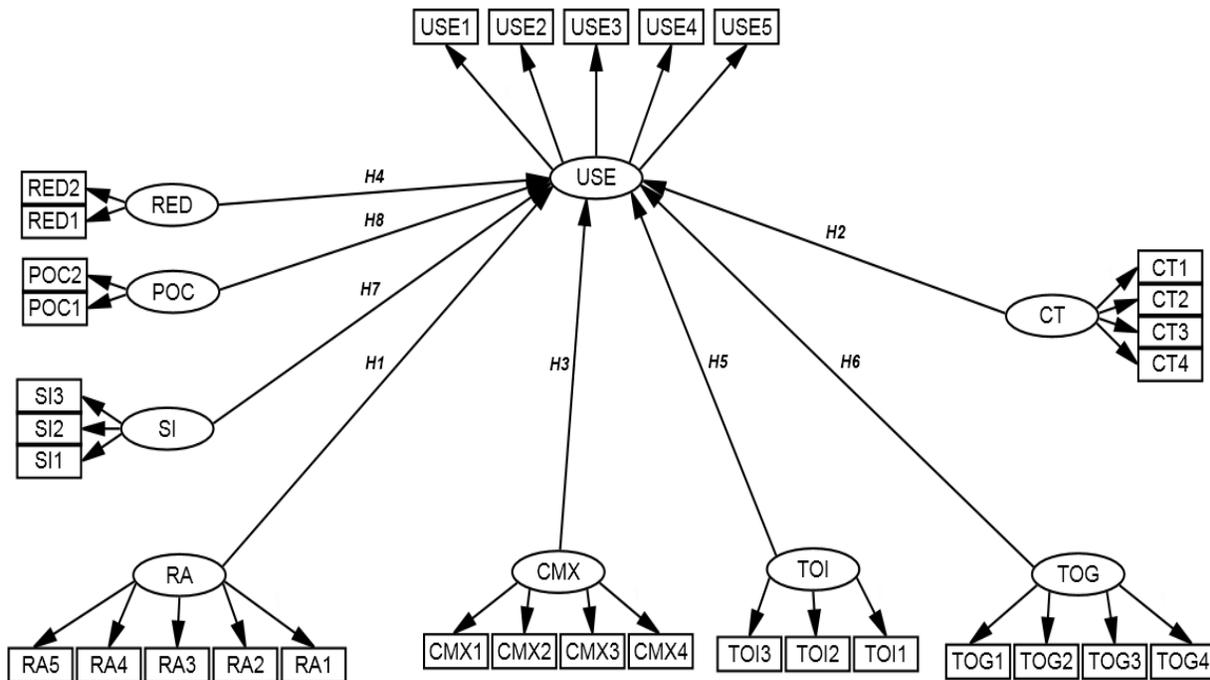

Figure 2. Structural model

6.1 Influence of Perspective on Communication

The significant positive effect of communication perceptions on eGovernment transactions acceptance reflects the inclination of citizens towards the use of eGovernment transaction technology as a means of contacting the government. Furthermore, the use of eGovernment transactions to communicate with the government improves the understanding of transaction requirements, the structure of transaction processes, and the simplification of delivery or

receipt of necessary documents for the completion of transactions [31]. Therefore, the high level of preference for eGovernment transactions as a communication method is associated with increased acceptance.

6.2 Influence of Compatibility

Perceptions of the compatibility of eGovernment transactions with users' cultural needs, values, and previous experiences significantly determine acceptance. Compatibility is an important part of acceptance in the KSA given that Saudi society is conservative, making cultural needs and values essential influencing factors for accepting introduced technologies. Therefore, the significant positive relationship between intention and the compatibility construct indicates that Saudis who have Internet access find eGovernment transactions with the government highly compatible with their cultural needs, values, and previous experiences.

6.3 Influence of Result Demonstrability

Perceptions of the result demonstrability of eGovernment transactions and their significant positive effect on acceptance indicate that the outcomes of using eGovernment transactions are communicable to others. The relationship between result demonstrability and intention to use eGovernment transactions can be understood by considering the collective orientation of Saudi culture, which is characterized by the tendency to share experiences with others [15].

6.4 Influence of Trust in Internet and Government

Trust in both the Internet and government are significant contributors to the acceptance of eGovernment transactions, but in opposite directions. As hypothesized, Trust in the Internet exhibits a significant positive influence, whereas trust in the government has a significant negative effect in the opposite direction of the hypothesis. The positive correlation between trust in the Internet and eGovernment transaction acceptance shows that Saudis who have Internet access trust

the Internet as a medium for conducting transactions with the government. The sampled citizens prefer eGovernment transactions because this technology reduces the frustration of having to experience the negative consequences of visiting a government agency. Examples include long queues, unequal treatment, and vague requirements for completing a transaction, lengthy transaction processes and the uncooperativeness of government employees. Therefore, those who do not trust government agencies believe that technology facilitates the provision of better and more reliable services [32, 33]. Conversely, trust in government agencies diminishes the acceptance of eGovernment transactions because most citizens do not have faith in the government agencies as a provider of service. This finding indicates that citizens view some government agencies as lacking in integrity, effectiveness, efficiency, and trustworthiness in terms of providing and completing eGovernment transaction services. Thus, it was understood that, for most citizens, trust in the Internet and eGovernment transactions as a medium to conduct government transactions was accompanied by a lack of trust in government agencies to facilitate the usage of these technologies.

6.5 Discussion of Non-Significant Results

Non-significant results are discussed because they highlight interesting perspectives. For perceptions on eGovernment transactions, relative advantage and complexity are non-significant contributors to acceptance, which is similar to the findings reported by Carter and Bélanger [6]. Additionally, the non-significance of complexity in eGovernment transaction acceptance is consistent with the results derived by Carter and Bélanger [34].

Relative advantage was expected to be an important and significant contributor to eGovernment transaction acceptance, but the empirical assessment of this hypothesis reflects the opposite. Those who have Internet access do not consider the use of eGovernment transactions as a relative advantage under circumstances where a more novel or more innovative method (e.g. government services provided over mobile

phones) exists [6]. Although eGovernment transactions may be preferred, this preference does not translate to perceptions of superior advantage in all eGovernment transaction features, such as better control over transactions or quality of results of conducted transactions.

The hypothesized relationship between complexity and acceptance of eGovernment transactions is non-significant. Many Saudis were expected to consider eGovernment transactions as a novel method, consequently triggering the high uncertainty avoidance tendency, from which perceptions of complexity arise. However, high uncertainty avoidance was not found a related factor in the perceived complexity of eGovernment transactions. Compared with traditional methods, eGovernment transactions are not perceived as complex. Thus, citizens find eGovernment transactions considerably easier to accomplish for its availability, simplicity and efficiency in comparison to visiting government agencies [32, 33].

Social influence is also a non-significant contributor to eGovernment transaction acceptance—a result that agrees with those of AlAwadhi [33] and Hung, and Chang and Yu [35]. Society or peer influence is a particularly important factor when there are few adopters of a given technology because non-adopters in collective cultures tend to seek advice from others [35, 36]. This situation, however, does not hold true for this research, in which the citizens sampled were mostly (68.4%) previous users of eGovernment transactions. Social influence can be a particularly essential factor for non-adopters or when eGovernment transactions have only been recently introduced [19, 33, 35]. Al-shafi et al [37] found that social influence significantly determines eGovernment acceptance in Qatar. The advanced eGovernment in Qatar provides an opportunity for citizens to discuss and share their experiences with online services [1, 37]. In KSA and Kuwait the adoption of eGovernment is motivated by need, in which individuals form their perceptions mostly independent of others given that no formal channel for sharing experiences is in place [33].

7 CONCLUSIONS

This paper focuses on the influence of perceptions, trust and communication preferences on eGovernment transaction acceptance for Saudis who have Internet access. The significant factors that influence acceptance of eGovernment transactions are namely perspective on communication, result demonstrability, compatibility, trust in the Internet, and trust in SGAs. The non-significant factors are relative advantage, complexity and social influence.

7.1 Theoretical Contribution

The findings of this study expand the technology and e-government acceptance literature, add to the theoretical and cultural understanding of e-government acceptance. A relatively atypical approach to contextualising the research model, questionnaire items, and instrument was implemented. Although all constructs were adopted from previous studies, methods typically used to develop constructs in research were applied in multiple phases to ascertain that the phrasing of the questionnaire items was suitable for the research context. Many participants that specialise in the field of information systems and other related fields were consulted at an early stage to discuss which factors were most relevant to the context (see Appendix A). Lewis' content validity ratio, typically used to assess the relevance of developed items, was employed to assess the level to which the wording of each questionnaire item was aligned with the research context. Within this same phase, the participants were provided opportunities to provide feedback on item wording; the most relevant and useful recommendations were adopted. These phases were intended to address the need for contextualisation and localisation when discussing the adoption of technology in the information systems field, and more specifically, in e-government research [38-40].

The 'perspective on communication' construct was adapted from the field of accounting information systems. This construct is the most important factor (it has the largest standardised regression weight) for determining the acceptance

of e-government in the KSA. The perspective on communication construct was originally developed by Aoun [10] to determine whether such perspectives influence the adoption of accounting information systems. The main author of this study (Aoun) was contacted to acquire the items considered in measuring this construct.

7.2 Practical Contribution

Here, strategies and practical solutions for developing a successful eGovernment programme in KSA are provided. This research indicates that adoption of some specific strategies will facilitate the country's transition into an information society and knowledge-based economy. These implications are also relevant to countries that are similar to KSA. Alternatively, these countries can take into consideration the strategies that are specific to their circumstances (e.g. a country that is dominated by a collective culture).

eGovernment transactions can be considered a tool for enhancing communication between citizens and the government. Although the Saudi communication culture is a high-context culture, in which oral and face-to-face communication is favored, most citizens prefer using eGovernment transactions, indicating that citizens value technology as a communication platform. This finding also implies that citizens desire improvements in the current traditional methods of communication within Saudi government agencies. To improve communication within the online environment, government agencies can expand their scope to other communication channels. To adequately support users, government agencies can add features such as online text chat, audio messaging, video conferencing, webinars, or online collaboration tools. Forums and social networking sites (e.g. Twitter and Facebook) can also improve communication. Government agencies can integrate the use of social networking sites into eGovernment transaction processes and practices to increase their usage by government employees. However, effective usage of these innovations necessitates high levels of transparency, tolerance, patience, and understanding on the part of from government employees. Improving services by

forming feedback-active teams (task forces) composed of programmers and information systems specialists also hastens responses to feedback. Such teams are in a unique position to adopt feasible recommendations from the public. Rapid response to issues materializes into tangible changes and developments in eGovernment websites, thereby encouraging trust in these communication channels and enhancing perceptions of government integrity [41]. In 2012, the Ministry of Communication and Information Technology implemented an initiative that involves citizens in forming policies, strategies, and regulations for the next five-year communication and information technology plan (ideas.mcit.gov.sa). This initiative signals a move towards the espousal of better interaction between the government and citizens. Nevertheless, this level of interaction, in which citizens put forward suggestions for future plans, remains one-sided. Two-way interactions are suggested to be established, in which government officials actively collaborate with citizens in discussion of such a plan.

Social networking tools and services can be used not only between citizens and the government, but also among citizens who wish to share their experiences with eGovernment transactions. As a collective society that places a premium on the result demonstrability of eGovernment transactions, KSA can benefit from the use of social networks and Web 2.0 technologies (e.g. blogs, YouTube, Facebook and Wikis) by increasing opportunities for information sharing. These social networking tools can also serve as feedback channels between citizens and eGovernment developers; these can drive government employees to improve eGovernment transactions as required by citizens. Saudi government can also consider transitioning into eGovernment 2.0 or government 2.0. This shift does not pertain merely to adopting a new technology; government 2.0 implementation would be appropriate because the Saudi collective culture is characterized by a tendency to share and discuss experiences with others. Government 2.0 is defined as the use of technology that enables the commoditization and socialization of the internal and external data, services, and processes of

governments. Its adoption, therefore, is not restricted to using Web 2.0 and social networking tools. Government 2.0 involves transparency, inclusion of citizens in decision making, sharing processes, service conduct, and methods with citizens, and citizen and employee empowerment [42].

The shift from mere publishing and transacting with citizens to a sharing and collaborative mentality via government 2.0 elevates the compatibility of services with cultural traditions within government agencies. Compatibility increases because government 2.0 enables a high level of social interaction among citizens, and between government officials and citizens, thereby stimulating numerous social cues and trends that are usually induced via traditional methods. Establishing eGovernment or government 2.0 features that promote social seamlessness and cultural compatibility is therefore a crucial objective [6].

Citizens trust the Internet as an intermediary between them and the government, but continued faith necessitates constant support. Government agencies can exert efforts to encourage trust in those who doubt the effectiveness of the Internet. Internet security can be enhanced by regulating use; that is, policies that penalize hackers can be formulated. Authentication methods can be employed, either by using national identification card biometrics, encryption methods, or Internet-specific policies, such as public key infrastructures or complex password authentication techniques. Internet research and innovations have engendered numerous methods and techniques for authentication. These features will reinforce trust in the Internet, especially when awareness campaigns devoted to Internet safety and security methods are launched; citizens will realize that the Internet can guarantee privacy and confidentiality [13].

The research findings indicate that Saudi citizens trust and accept the technology itself, but not the government agencies that oversee operations. Government agencies can enhance their public image by improving organizational culture, practices, and processes. These improvements are effective because the transition into eGovernment will not translate to replacing all traditionally

provided services even if all citizens have Internet access. An organizational culture of transparency is suggested. To increase adoption of such a culture top management can serve as exemplary role models for other employees. Government officials will also be consistent in their dealings with citizens, thereby reducing perceived unequal treatments. Another means of increasing transparency is the online posting of eGovernment transaction requirements, so that citizens are aware of them and realize that the prerequisites imposed are the same for all citizens.

8 LIMITATIONS AND FUTURE RESEARCH

The limitations and shortcomings of this research can serve as opportunities for future research. Only the citizens with Internet access were sampled in this study; a sample that also covers individuals who do not have Internet access will generate a more comprehensive and representative results. Researchers can perform random probability sampling in KSA to ensure representativeness. A qualitative method can also be triangulated with the research findings to add more depth to understanding the influence of perceptions and trust on the acceptance of eGovernment transactions. Instead of conducting a cross-sectional study, a longitudinal study can be carried out to accurately determine the influence of acceptance across different periods. This research focused on studying the perceptions and trust of Saudi nationals. The preliminary efforts initiated in this research can be extended to individuals of different nationalities who are residing in KSA. Such an extension would be favorable, especially when more eGovernment transaction services become available and the Internet becomes more accessible (e.g. via mobile phones). Demographic characteristics can be incorporated as a moderator of currently considered factors or can be assessed as independent determinants of acceptance. The acceptance of eGovernment transactions in general was considered, but other researchers can enhance the focus of future efforts by narrowing down this emphasis and contextualizing the research based on a specific online service. It is suggested that researchers can focus on the influence of perceptions and trust on the

acceptance of website interface, and elucidate online technology features and aspects in terms of different cultures. Scholars can explore the PCEGT model in relation to technology acceptance. Researchers can test the validity of the PCEGT model within different settings and varied cultures which enables understanding acceptance in different contexts.

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