

Factors Influencing the Adoption of E-government Services

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Abstract—E-government initiatives are in their infancy in many developing countries. The success of these initiatives is dependent on government support as well as citizens' adoption of e-government services. This research identified the attitudes and perceptions of the citizens of Kuwait, a developing country, towards the adoption of e-government services. Based on previous research exploring the determinants of the adoption of e-government services using an amended version of the UTAUT model, the study reported here investigates the factors that influence the take-up of such services. These factors are related to usefulness, ease of use, reforming bureaucracy, cultural and social influences, technology issues and lack of awareness. Conclusions and implication for decision makers are also considered in this paper.

Index Terms—e-government, adoption, services, UTAUT, perceptions, attitudes, Kuwait

I. INTRODUCTION

E-government has been defined as “the application of information and communications technology (ICT) to transform the efficiency, effectiveness, transparency and accountability of informational and transactional exchanges within government, between governments and government agencies at federal, municipal and local levels, citizens and businesses; and to empower citizens through access and use of information” [1]. The success of such initiatives is dependent not only government support, but also on citizens' willingness to accept and adopt those e-government services [2]. Government decision makers, therefore, need an understanding of the factors that would encourage use of electronic rather than more traditional service delivery methods.

A number of studies have investigated the adoption of e-government services using technology acceptance theories and models, such as the Theory of Reasoned Action (TRA) [3], the Theory of Planned Behavior (TPB) [4], the Technology Acceptance Model (TAM) [5], the Diffusion of Innovation (DOI) [6] and the Unified Theory of Acceptance and Use of Technology (UTAUT) [7]. These studies provide useful insights and implications for understanding an individual's intention of using e-government services. They also have identified a

number of factors that determine the adoption of e-government services, such as usefulness, ease of use, perceived risk, trustworthiness, compatibility, external influence, Internet safety, interpersonal influence, relative advantage, image and facilitating conditions, see for example [8], [9], [10].

Research has also identified other factors that influence citizens' adoption of e-government services, for example, citizen's trust. People have feelings of confidence and greater control over using traditional services in case “something happens” [11]. Therefore, Deakins and Dillon [12] believe that users' trust of e-government is associated with security and privacy assurances provided to users. Parent, Vandebek and Gemino [13] surveyed 182 Canadian voters to measure the extent to which e-government and online interaction have succeeded in increasing citizens' trust, using performance metrics traditionally applied to government performance. The results showed that the success of e-government and winning the trust of citizens are dependent on citizens' engagement with persistently high levels of trust, in addition to government maintaining a good website and offering quality customer service.

Bagchi, Hart and Peterson [14] claim that IT adoption is affected by culture in every society. Evans and Yen [15] assert that e-government “should be in place to preserve the freedom and integrity of its citizens and as a reliquary of their individual and unique cultural heritage”. Chen *et al.* [16], in a study comparing the adoption of e-government in developed and developing countries, found that the culture of some developing countries can affect their citizens' use of e-government. They believe that the citizens of some developing countries, especially those holding certain religious beliefs or being of certain backgrounds, might not carry out certain activities that are commonplace in developed countries.

Other studies have investigated gender differences in the adoption of technology as one aspect of socio-cultural differences between people. Venkatesh, Morris, Davis and Davis [7] claim that research on gender differences shows that men tend to be more highly task-oriented than women. Nysveen, Pedersen and Thorbjørnsen [17] claim that women tend to have lower self-efficacy, lower computer aptitude and higher computer anxiety than men.

In contrast, Igbaria [18] claims that evidence concerning the effect of gender in the adoption of technology is equivocal, some studies having found no gender differences while others have reported such differences. Another claim often made is that women tend to focus on other people's opinions, while men are more likely to seek advice from others.

Bagchi, Hart and Peterson [14] found that individualism and collectivism, one or the other of which is generally dominant in a given culture, affect the adoption of IT. Unlike in individualistic societies, relationships between people in collectivist societies are strong and long-lasting, and overlap between work, family and friendship. The adoption of IT in both individualistic and collectivistic societies depends on the differences in the way these societies function and how interdependence is handled in each group. Therefore, as the use of IT decreases opportunities for face-to-face interaction, the likelihood of IT adoption in individualistic societies is greater and quicker than in collectivistic societies. Furthermore, Jaruwachirathanakul and Fink [19] point out that in Thai culture, personal relationships and face-to-face contact can add value to customers dealing with banks, for example, when conducting regular transactions. This attitude would seem to justify the high rate of e-government avoidance in many cultures. Another consequence is that, once face-to-face contact is reduced, the uncertainty of many people when it comes to adopting e-government is increased. This depends on society and the extent to which a given society senses a threat from new technology and its needs for security.

In general, Baker and Bellordre [20] consider lack of awareness of a given technology or of its benefits a primary concern associated with the adoption and use of IT. In order for ordinary citizens to recognize the value of the new technology, its potential utility must be known. The lack of familiarity with IT is simply another awareness barrier. Lack of familiarity with a range of technologies is evident in various groups of people, such as (some) older people, the economically disadvantaged, (some) persons with disabilities and individuals from a culture that is resistant to change. Chen and Dimitrova [21] state bluntly that if potential users are not aware of online services, they will not be able to use them. Jaruwachirathanakul and Fink [19] found that awareness in the early stages of an implementation of IT contributes to a willingness to adopt new technologies such as Internet banking. Attractive presentations in various media, such as newspapers, radio, television and the World Wide Web, are useful for introducing such services to a large number of potential users and for educating those users about the benefits the new technology offers. However, Beynon-Davies [22] argues that awareness of the availability of information and services online will not necessarily help with their take-up. The take-up of Inland Revenue online services in the UK, for example, has been very low, although marketing campaigns have been conducted using different media to encourage the take-up of its online

services. The reasons were found to be related to the lack of benefits offered to the taxpayer using online services over other conventional methods. AlShihi [23] investigated the development and adoption of e-government services in Oman, one of the Gulf Cooperation Council (GCC) countries. He interviewed employees in both the private and the public sector and surveyed different segments of Omani society. He found a number of barriers to the take-up of e-government in Oman which were related to users' lack of IT knowledge, awareness and motivation; the under-marketing of e-government plans and initiatives; a lack of proper legislation and laws; and a lack of trust and confidence by users. However, the findings showed that culture had little effect on the adoption of e-government.

To date, there has been little research exploring factors that affect the adoption of e-government services by citizens in developing countries, especially in the Arab world [23]. Despite the fact that the researchers have investigated factors that determine the adoption of e-government services by adapting the Unified Theory of Acceptance and Use of Technology (UTAUT) model [24], there has been little research that has explored other factors that might influence the take-up of government online services in developing countries, such as Kuwait. The research outlined in this paper aims to address this gap. The specific aim of the research described was to gain insight into the factors that affect the adoption of e-government services in Kuwait. It is expected that the findings will help decision makers gain a better understanding of user acceptance and adoption of e-government services enabling them to plan and design services more effectively. The paper is organized as follows: Section 2 provides the background and the context of the research by presenting an overview of e-government in Kuwait and its implementation. Section 3 introduces methods used in this study to explore factors that influence the adoption of e-government services. The results obtained are reported and discussed in section 4 in light of the literature review and the aim of this research. Finally, section 5 concludes the paper.

II. BACKGROUND AND CONTEXT

The impetus for government services to be provided electronically stems from the international trend of digital economies and information-based societies where easy access to vast amounts of digitized information has become the norm. Kuwaiti ministers have recognized the need to keep abreast of world-wide developments as well as the need to improve their government's performance [25].

Initially, the former Prime Minister, the present Emir of Kuwait, Sheikh Sabah Al-Ahmad Al-Sabah, established a steering committee at governmental level to assess the e-readiness and management of ICT, and of control systems. He then announced that e-government was to be one of the government's top priorities. In 2000, the Council of Ministers issued a decree concerning the formation of a committee with responsibility for supervising the implementation of the e-government

project in Kuwait. Under the direction of this Committee, a Central Technical Body (CTB) was established to coordinate the work of the National Higher Committee and government organizations. It was also responsible for seeking appropriate IT specialists in addition to exploring relevant experience in the implementation of e-government in other countries. A Memorandum of Understanding (MoU) was signed in 2004 with the Government of Singapore to cooperate in the implementation of the e-government project, thus enabling Kuwait to benefit from their successful experience [26].

Launching the official site (portal) for Kuwait's e-government on the Internet was the first step in the implementation phase of the project. This site enables visitors to "obtain instant services, and become familiar with the State of Kuwait and its different governmental and non-governmental sectors" [27, p.9]. In an annual survey of *Global e-government*, where various features of national government websites by 198 countries around the world were analyzed, Kuwait scored 28.9 on a scale of 100, whereas Taiwan scored 60.3, the highest score achieved by any country [28]. These findings indicate that Kuwait is still in an early stage of developing e-government and needs to improve its web instruments to encourage potential users to use the available online services.

III. METHODOLOGY

A series of focus groups were used to qualitatively explore factors that affect the adoption of e-government services in Kuwait, for example, culture and trust, and the perceived advantages and disadvantages of such services. This research built on previous quantitative questionnaire survey research described in [24]. Focus group methodology was used because detailed information about the users' experience, opinions and feelings was required and this technique is recommended for this purpose [29].

The participants comprised undergraduate and postgraduate students at Kuwait University not only for practical reasons and for convenience's sake, but because university students are amongst the adult population for whom the Internet has become part of their daily routine. Further, when the e-government project is fully implemented in Kuwait, this group will be its main users; therefore, knowing their attitudes and perceptions will help to improve services.

Potential participants for the focus groups were identified from the questionnaire survey; students were asked to supply email addresses if they were interested in taking part. In total, 249 students expressed their opinion regarding various topics of e-government services, 94 male and 155 female. About two thirds (165) of the students were undergraduate students, and the remaining one third (84) were postgraduate students.

The majority (158) of participants claimed to be experienced in using the Internet; 91 indicated that they had less experience; see Table 1.

TABLE I.
PARTICIPANTS' INTERNET PROFICIENCY

Internet proficiency	Number of participants
Fair	34
Good	57
Very good	88
Excellent	70

IV. RESULTS AND DISCUSSION

The findings of this study largely confirmed those obtained in the previous research. However, the findings also identified other factors that are likely to influence the adoption of e-government services, and these are discussed below.

A. Usefulness of e-government services

According to the results, the majority of participants (85%) thought that e-government services would be useful to them. They favoured e-government services over traditional services because of convenience of access, savings in time, money and effort, and the efficiency of service delivery. Almost half of participants (42%) also thought that such services would prevent them encountering stressful situations, such as waiting in long queues, and dealing with uncooperative employees. These findings confirm the results of performance expectancy in the amended UTAUT model of the previous research [24], which were significant for participants' behavioural intentions. The findings suggest that the intention to use e-government services is likely to increase if citizens perceive the services to be useful. These results are in accordance with those reported in a number of studies, for example, [2], [30] but they contradict results reported in [31].

A small percentage of participants (10%), who had some experience of using the e-government services, held negative views of them. Since the e-government project is not yet fully implemented, they said that they often encountered problems using the online services currently provided. Several of these users thought the online services were ineffective and "a waste of time", and that their experience would deter them from using them in the future. About 5% of participants showed further concerns about the usefulness of online services, indicating that such services might still require them to visit government buildings for additional procedures such as signatures, stamps and payments.

B. Ease of use

The overall perception of the participants was that online services are easy to learn and use, especially when support is provided. These perceptions were formed as a result of the participants' ability to use the Internet, confirming results of previous research that effort expectancy is significantly related to participants' behavioral intention. One participant said: "I have enough Internet experience that enables me to use e-government services." However, 63% of participants claimed that any online e-government services needed to be easy to use if

they were to be used by those with little Internet experience. The findings suggest that the greater one's Internet experience, the easier it would be to learn and use e-government services. It is clear, therefore, that e-government services need to be straightforward and easy to use to enable all potential users, with or without Internet experience, to benefit from the services. These findings, relating prior Internet experience to behavioural intention, are not surprising as they are similar to those reported by Carter and Belanger [2], who found that complexity and ease of use were not significant in the intention to use e-government services of undergraduate students with Internet experience. However, Carter and Belanger [31] and Phang *et al.* [32] found that ease of use is apparently a significant determinant of the intentions of people with limited Internet experience.

C. Reforming Bureaucracy

The results showed that the majority of participants (78%) were optimistic about the planned reforms in terms of reducing bureaucracy. A typical response was this:

Finally, we will get rid of bureaucracy and the unnecessarily complicated procedures in government services.

However, 53% of participants also expressed a cynical attitude towards government bureaucracy that requires them to follow unnecessary and complicated procedures when completing government transactions.

Many members of government in Kuwait admit that inefficiencies and routine paperwork are associated with the delivery of services in the Kuwaiti ministries, and about two thirds of focus group participants (66%) expressed their hope that e-government services would bring about radical changes such as a speedier service and more efficient procedures. However, 25% of participants were skeptical and thought that the current inefficient performance of government shows that the bureaucracy could be replicated in similar online services. Silcock (2001) also expressed similar concerns about e-government information and services being no better than traditional services, with bureaucracy simply being moved from the old to the new.

D. Cultural and social influences

Previous research [24] found that Kuwaiti students would use e-government services if the need arose, even if their peers or family did not. Similarly, this study found that those participants with experience of online services would be more likely to use e-services even though others did not. One participant said:

I think using e-government services will depend on my experience. If they are good, then I will use them again, regardless of whether others have used them or not.

However, other participants, without online service experience, thought that a number of factors might influence their online use and behaviour. For example, nearly half of participants (47%) indicated that they would be more inclined to use online services if other members of their families had used them. Nearly a quarter of all participants (20%) also mentioned that

peers might influence their views about using online services if their experience was successful. While another quarter of participants (23%) were influenced by large numbers of people using the services, others said they would adopt any technology that made life easier. These findings suggested that users' experience with online services would determine whether there would be any social influence on the adoption of e-government services, since good experience was likely to encourage users to recommend the services to others.

The current study also found that social influence was unimportant to many participants, with especially postgraduates suggesting that those students who have adequate experience of their chosen professions are able to think sufficiently independently and normally place less weight on others' opinions. Such findings are consistent with those reported in [33], who found a non-significant effect of peer influence on the behavioural intentions of others to use IT related services.

Connections (wasta)

The current study also showed that the majority of participants (86%) might be encouraged to use e-government services if the importance of connections or "wasta" was likely to be decreased in Kuwaiti society, confirming the quantitative results in [24]. Wasta is a "force in interpersonal networks, every significant decision, and connections that pervade all aspects of business and social life" [34]. The participants thought that this kind of practice, which was thought wide-spread in government departments, helps to maintain corruption in society and increases inequality between individuals. Therefore, they thought that the use of e-government would be the means through which wasta would be greatly limited and that all people would be given an equal chance to carry out their governmental transactions.

About a quarter of participants (24%), expressed some concerns, however, and thought it would be difficult to limit wasta in governmental work, even if such work is electronic, because they considered it to be part of their culture. One respondent said sarcastically:

Wasta in our society will be used in everything, even if it is electronic.

Several participants (5%) thought that the level of human interference in the system would be likely to determine the level of wasta in service transactions. These findings suggest that the extensive use of wasta in Kuwait made participants doubtful about the ability of government to eradicate wasta and provide services fairly to the public.

Face-to-face interaction

The study also revealed that although it would be easier for many participants to use online services, many preferred to conduct business face-to-face with government employees, explaining that the relationship with government should be live and tangible and that human judgment was necessary to understand the various views and feelings expressed. One participant said:

It's a good technology, but it will reduce the live interaction with government more and

more. So I don't think that everything in our life should be reduced to simple electronic exchanges – I prefer a tangible relationship with government.

These findings are explained in the collectivism that characterizes Kuwaiti society, where relationships between people are strong and long-lasting, and usually overlap between work, family and friendship. Such relationships and face-to-face contact are important in Kuwaiti culture and usually add value to individuals' dealings with government for conducting transactions. These findings are similar to those of Jaruwachirathanakul and Fink [19] who discovered that personal relationships play an important role in the low take-up of Internet banking in Thailand.

Cultural differences

About half of the participants (45%) thought that cultural differences in Kuwaiti society – two thirds of the population are non-nationals – might affect the adoption of e-government services by the majority of its adult population. This suggests that if the cultural heterogeneity found within Kuwait's borders, relating to gender, age, profession, education, ethnicity, religion and social class, are not considered in the design of e-government services, their adoption will be limited to certain groups in society and thus will undermine governmental social inclusion policies. These findings are in line with Deakins and Dillon [12] and Evans and Yen [15], who assert that e-government should respect and consider various cultural differences within society.

Chen and Dimitrova [21] suggest that the development of e-government initiatives faces opposition in many countries because of citizens' religious and other beliefs that resist certain activities that are common in or imported from developed countries. The results from the focus groups, however, showed that the participants were enthusiastic about the implementation of the e-government project and were supportive of any activity from any country that would contribute to the development of various areas in Kuwait. This suggests that Kuwaiti people, living with large numbers of foreigners, are more prepared to interact with others and are more open to other societies and cultures than people in many other Arab nations.

Gender issues

Unexpectedly, the results obtained from the test of the amended UTAUT model [24] did not reveal any significant gender effect on the relationship between performance expectancy, effort expectancy and peer influence on the one hand and the intention to use e-government services on the other. These results contradict results reported in many other studies, which indicate gender differences in the adoption of technology, for example, [7], [18].

The findings of the focus group research confirmed the results obtained from the previous study to a great extent. A large number of female participants (72%) were enthusiastic about e-government services, who thought that they would be advantageous to them. Such services

were thought to enhance their independence and their equality with men, and thus improve their status within society. The absence of gender differences is reflected in the participation of both males and females in this research, and in the fact that they were receiving similar educational and learning opportunities. Therefore, providing services online would help a large number of women, especially from younger generations, to feel more independent and equal to men and enable them to carry out governmental transactions. The finding that gender differences were insignificant is consistent with those reported in Arab Human Development Reports, which found that Kuwaiti women experience less gender inequality than women in any other Arab country [35]. Similarly, Levy [36] found that gender differences have no effect on the use of the Internet or of e-government services, and that the traditional gender disparity has almost disappeared in many countries.

E. Technical issues

The findings revealed that more than half of participants (56%) were worried about technical problems, such as network and server malfunctions and access problems that might interrupt service transactions and cause serious delays not only in terms of service performance but also in all government work. These results suggest that technical problems might cause a great deal of annoyance to users who might be frustrated if they find it difficult to conduct their transactions successfully since this would lead to them having to start all over again. Apparently, the literature found that technical problems are common in the challenges confronting the implementation of e-government; accordingly, McClure [37] recommends making sure that networks are built with the capacity to handle the amount of electronic traffic expected.

F. Trust in the Internet

The research showed that trust in the Internet is likely to influence the adoption of e-government services. Many participants (64%) said they had trust in the Internet because they believed the advanced security solutions and technologies in cyber space were capable of protecting inter-operations and electronic transactions against fraud and hacking. The results also revealed that participants' levels of Internet experience played an important role in enhancing trust in the Internet. As the majority of participants were frequent users of the Internet, their trust in the Internet was such that a number mentioned that they shopped online and used Internet banking. This indicates that trust in e-commerce would lead to trust in e-government as similar procedures are involved in e-transactions in both domains.

However, other results revealed that one third of participants (30%) thought that security and privacy issues were factors that might prevent them from trusting, and therefore using, e-government services. Many participants thought that if e-government services were not secure enough; their personal data would be under threat and could be altered or misused by hackers. These perceptions were gained from stories about hacker

attacks, Internet crime and theft of credit card details. Similar concerns are highlighted in the literature, for example, [37], [38]. These findings are consistent with the findings of Jaruwachirathanakul and Fink [19] and Deakins and Dillon [12], who believe that users' trust of e-government services is associated with security and privacy assurances provided to users.

G. Lack of awareness

The literature reveals that awareness campaigns have been undertaken in Kuwait regarding e-government services through organizing exhibitions, conferences and seminars, the *e-Kuwait* periodical bulletin and through TV, radio and press interviews [39]. However, the findings indicated that about 87% of participants in this research complained about a lack of awareness of the e-government project in general, and of online services in particular. They blamed the media and those who are responsible for its implementation for not highlighting such an important project that could be beneficial to a large group of people. One participant said:

There is no awareness of e-government. If you ask anyone in the street about it, he or she might not know about it or even about its meaning. So, who is responsible for that?

About half of participants (49%) also mentioned that lack of awareness of e-government services was essentially a lack of knowing about the benefits to be gained, and of how to use the services. These findings are reflected in the results regarding facilitating conditions in the amended UTAUT model [24] on use behaviour, which indicate the necessity of awareness in the use of e-government services. These findings are similar to those reported by AlShihi [23], Baker and Bellordre [20] and Beynon-Davies [22].

V. CONCLUSION

Previous research identified determinants of potential users' adoption of e-government services in a developing country using an amended version of the UTAUT model [24]. The research described in this paper extends those findings and identifies other factors that could exert an influence. Despite the fact that the use of student subjects might have limited the generalizability of the findings of this study, the research provides useful insights into the motivations underlying the intentions to use e-government services in developing countries like Kuwait. The likely adoption of e-government services by student subjects is well predicted by many factors, including technical issues, trust and awareness. Future research could, for example, include a wider range of participants to identify other adoption factors.

For decision makers in government to get people to use and adopt e-government services, these services must be genuinely useful to the intended users. They must be efficient and should meet their specific needs. For an effective adoption of the services, widespread and attractive awareness campaigns should be conducted, targeting potential users properly to inform them about the real benefits they would gain from the use of these

new types of services. Benefits to be extolled could include lower costs, savings in time and effort, reduction in bureaucratic procedures and enabling everybody to conduct governmental transactions on an equal basis. The use of e-government services should be designed to be as easy to use as possible to meet the needs of the culturally diverse population of Kuwait in terms of education and Internet experience. Moreover, knowledge, resources and support should be provided to various groups in society, such as providing computers and Internet access at the community level in public places, especially in areas where less advantaged people are found. This would ensure that the largest possible number of people could make use of these e-services.

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