
Arab cultural dimensions model for e-government services adoption in public sector organisations: an empirical examination

Mohannad Moufeed Ayyash*

Department of Business Administration and E-commerce,
The College of Business and Economics,
Palestine Technical University,
Kadoorie, Tulkarm, Palestine
Email: mohannad.ayyash@gmail.com

*Corresponding author

Fadi A.T. Herzallah

Business Administration and E-commerce Department,
The College of Business and Economics,
Palestine Technical University,
Kadoorie, Tulkarm, Palestine
Email: f.herzallah@ptuk.edu.ps

Mohammed A. Al-Sharafi

Institute for Artificial Intelligence and Big Data,
Universiti Malaysia Kelantan,
City Campus, Pengkalan Chepa, 16100 Kota Bharu, Kelantan, Malaysia
Email: alsharafi@ieee.org

Abstract: The aim of this study is to examine the effect of Arab cultural dimensions on employees' adoption of e-government services by adaptation of the cultural dimensions concept as theorised by the Hofstede cultural model and nepotism as well as face-to-face interactions as derived from literature review. This study developed and examined a model that contributes to the scholarly research on e-government and information systems. The study used a survey that was administered to 137 Saudi administrative employees at hospital King Fahad of the Al-Baha emirate region in the Saudi Arabia. The data was analysed employing a structural equation modelling (SEM) approach through partial least square (PLS) software. The results revealed that high power distance, low uncertainty avoidance, high collectivism, high masculinity, face-to-face interactions, and nepotism contributed positively to employees' adoption of e-government services in public sector organisations. The study also helps public sector organisations to understand the effect of the cultural dimension on e-government adoption. Theoretical and practical implications are discussed.

Keywords: Arab culture; e-government adoption; Hofstede cultural dimensions; nepotism; face-to-face interactions; public sector organisations; Saudi Arabia.

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Biographical notes: Mohannad Moufeed Ayyash is an Assistant Professor in the Department of Business Administration and E-Commerce at Palestine Technical University-Kadoorei, Palestine. He received his PhD in Systems Science and Management from the National University of Malaysia. His major research areas focus on e-government, e-commerce, IS/IT adoption, quality factors in IS, cultural IS, and e-learning.

Fadi A.T. Herzallah is currently working as an Assistant Professor and Head of the Business Administration and E-Commerce Department at Palestine Technical University-Kadoorei, Palestine. His research interest includes e-commerce applications, IS adoption, online social network, and e-learning.

Mohammed A. Al-Sharafi is a Postdoctoral Fellow at Institute for Artificial Intelligence and Big Data, Universiti Malaysia Kelantan, Malaysia. He obtained his PhD in Information Systems from Faculty of Computing, Universiti Malaysia Pahang. He has MSc degree in Management Information System from Yarmouk University, Jordan. He is interested in research related to acceptance, adoption, and diffusion of emerging technologies (e.g., cloud computing, blockchain, OSNs, big data, and IoT), and quantitative methods in information systems research.

1 Introduction

Information and communication technology (ICT) serve several purposes ranging from acting as a means of providing public services to imparting education (Garcia-Murillo and Velez-Ospina, 2017). Along with being one of the main contributors in the economies of developed markets, ICT also enables innovations (Amiri and Woodside, 2017). A latest survey conducted by United Nations E-government advocates that everyone should be able to gain access to public services; no one should be left behind. This way, developmental sustainability and resilience of societies can be ensured (United Nations, 2018). Thus, several government bodies strongly support using the electronic medium to deliver public facilities to their businesses and citizens, thus allowing them to do most of their dealings with the government using electronic media. E-governments are believed to bring forth great benefits like reduced expenditure, time-saving, better convenience and greater transparency to citizens and governments (Guimaraes and Madeira, 2018; Nguyen, 2016). Thus, over the past decade, e-governments are rapidly developing across the globe, gaining momentum in most nations.

But, according to Zahid and Haji Din (2019) “e-government project do not always provide all of the benefits as promised, and citizens hesitate to use online e-government services”. Additionally, the acceptance level of e-government services greatly differs across countries (Twizeyimana and Andersson, 2019; Ghareeb et al., 2019). Even among the nations with similar telecommunications infrastructure and national income levels, there is still a huge disparity in the levels of online services available (UNDESA, 2014). Similarly, in spite of huge investments in resources, the acceptance rate of e-government

across the globe is quite far from what was anticipated (Sawalha et al., 2019). Although the e-governments are advancing technologically, there are several risks associated with an increasingly digitised world such as increasing threats to economic prosperity and social cohesion (United Nations, 2018). Based on these evidences, it can be said that along with technical aspects, non-technical aspects too, like social factors and the heterogenic factors like culture, ought to be considered at the time of implementing e-government (Al-Sharafi, 2014).

According to the literature, culture plays a significant role in influencing consumer behaviour and usage of technology (San Martín et al., 2011; Tifferet and Herstein, 2010; Miranda et al., 2009; Dwyer et al., 2005). Despite this, it is surprising that fairly little thought is given to the effect of culture while implementing ICT (Al-Lamki, 2018). Likewise, the impact of cultural standards on the development of e-governments development is often overlooked in the overall official global surveys and research documents on e-government (Zhao, 2011). A recent United Nations e-government survey 2018 enlists digital technology as one of the main determining factors in a nation's developmental index and its ability to respond to shocks occurring due to neglected cultural standards, natural or man-made disasters, and various other emergency situations.

Remarkably, e-government initiative in developing nations frequently fails because non-customised information technology (IT) packages are taken from developed nations (Ali and Kabbi, 2018). These packages are not in line with the social norms, local culture, and political situations of the developing nations (Dada, 2006). But, one notable aspect that surfaced from the works on the cross-cultural effects of IT system adoption was the variables connected with the individual citizens. Culture affects individuals who are part of an organisation, and this in turn influences the selection of IT solutions in that respective organisation or nation (Sehli et al., 2016). According to Uğur (2017) aspects that emerge while figuring out factors that hinder IT adaptation are the ones related to the culture of that particular place.

Much research on the political, economic, and technological aspects that effect technology transfer has been done (e.g., Lee and Porumbescu, 2019; Ingrams and Schachter, 2019; Schedler et al., 2017; Kassen, 2017; Al-Sharafi et al., 2017; Savoldelli et al., 2014; Ramli, 2012; Mutula and Mostert, 2010; Straub et al., 2001; Nkwe, 2012; Mundy and Musa, 2010; Ahn and Bretschneider, 2011; Capgemini, 2010; Fountain and Osorio-Urzuá, 2001; Scholl, 2005; Gil-García and Pardo, 2005; Fernandez and Rainey, 2006). Furthermore, current research on e-government in the Arab countries is focused on technology aspects (e.g., Abdelkader, 2015; Al-Naimat et al., 2013; Fatile, 2012; Al-Khoury, 2012; Al-Wazir and Zheng, 2012; Hamner and Al-Qahtani, 2009; Al-Shehry et al., 2009; Alhussain and Drew, 2010; Al-Gahtani et al., 2007; Al-Somali et al., 2009; Bawazir, 2006; Bakry, 2004; Al-Khaldi and Wallace, 1999; Bjerke and Al-Meer, 1993). However, most of the previous studies do not take into account the cultural dimensions of e-government adoption.

Several researchers have noted that technology spreads across cultures as per a very culture specific mode (Al-Gahtani et al., 2007; Erumban and De Jong, 2006; Hill et al., 1994; Karahanna et al., 1999; Straub et al., 2003). Straub et al. (2003) argue that these hindrances in adaptation of technology are mainly because technology adoption and culture are strongly interrelated. Another study, very much in line with the cultural aspect, conducted a technology adaptation model (TAM) test on five Arab countries (UAE, Lebanon, Saudi Arabia, Egypt and Jordan) and examined how transfer of

technology works (Rose and Straub, 1998). The findings reiterated the strong influence of cultural factors on the success ratio of IT usage.

Therefore, one of the aims of this research is to propose a model that studies the Arab cultural aspects influencing an e-government conducive environment that works for a developing nation. This study investigated the works related to cultural aspects and e-government in an Arab context specifically in Saudi Arabia and attempted to comprehend how these two interact. One more aim of this work is to examine this model empirically and combine the findings of other researchers in order to define this environment and enhance our comprehension of this particular domain. Thus, the primary research question can be worded as follows: Does a relationship exist between e-government services adoption and cultural aspects of the Arab region?

The remainder of the paper is organised as follows: Section 2 presents the study literature review that revealed cultural dimensions and e-government adoption in Arab countries, Section 3 reviews a theoretical foundation of the study, Section 4 presents research model and hypotheses development, Section 5 presents methodology of the study that describes the instrument development and the data collection processes and reports on the empirical results, Section 6 and Section 7 discusses data analysis and findings. Finally, we conclude in Section 8.

2 Literature review

There are several hindrances faced while adopting e-government. These vary from legal, technical, to behavioural type. This limits its adoption, thus making the e-government undertaking a partial or absolute failure (Abu-Shanab and Shahbat, 2018). Thus, governing bodies are required to cover all hindrances faced by e-government project and especially the human adoption aspect. The subsequent notes will throw some light on IT adoption and cultural aspects, as well as the e-government acceptance in Arab countries and cultural aspects.

2.1 Cultural dimensions and IT adoption

Culture can be defined as “the mass programming of mind which differentiates the individuals belonging to one category or group from the individuals belonging to another” [Hofstede, (2001b), p.9]. Over the last few decades, several researchers have studied a variety of aspects of the cultural issues influencing the information systems (IS) (Bankole and Bankole, 2017). The notion of culture can enhance the comprehension of human diversity issues which are often studied these days. Culture is seen as a multi-faceted (e.g., beliefs, values, artefacts, etc.) and multi-level (i.e., individual, organisational, and national) construct (Taras et al., 2009). Thus, gaining an in-depth understanding of culture and its several aspects is an important step required to achieve success while implementing new systems.

If cultural aspects are overlooked, it may place IT adoption at risk (Al-Lamki, 2018). Researchers like Kousha and Abdoli (2004) also emphasise that developing technological strategies by simply duplicating them from other developed nations without considering the local cultural aspects often poses problems. Arokiasamy et al. (2015) state that an in-depth understanding of cultural aspects plays an important role in comprehending the technological advantages. Directly or indirectly, culture affects the IT acceptance. Thus,

it plays a key role in the adoption of new systems. Both IT as well as individuals are involved in the adaptation process. Consequently, the social features and behaviour of individuals have a great impact on the success ratio of the integration process.

Several works on IT adoption and acceptance conclude that culture plays a major role in the acceptance of IT (Leidner and Kayworth, 2006; Herzallah et al., 2018). Ahmad et al. (2018) also supported the premise promoted by the TAM. Hofstede's cultural dimensions concept also demonstrates people's intentions regarding using Arabic e-commerce websites. Veiga et al. (2001) devised a direct influence model of the four cultural aspects, which as suggested by Hofstede can affect technology adoption while implementing IS. These aspects are defined as culturally created beliefs and are counted as external variables which affect usefulness and user-friendliness of a system. Elbeltagi et al. (2005) consider cultural features as external variables (a total measure of the initial four cultural aspects as defined by Hofstede) that directly affect the usefulness and user-friendliness in a decision support system (DSS) context. Lee et al. (2007) examined how direct effects comprising avoidance, uncertainty, context, individualism, and time perception influence behavioural traits and usage of mobile internet.

McCoy et al. (2005) examined the moderating influence of cultural standards on the correlations between determining factors of intention (perceived ease of use, perceived usefulness, perceived behavioural control, and subjective norm) and intention in relation to the usage of e-mail. Likewise, Dinev et al. (2009) and Pavlou and Chai (2002) examined the moderating influences of culture on the correlations between determinants (perceived behavioural control, subjective norm and attitude) and intention in relation to the usage of protective IT. Erumban and de Jong (2006) established that there is a close correlation between a nation's culture and the rate at which IT adoption occurs. They accepted that the cultural aspects as defined by Hofstede play a major role in influencing IT acceptance. Particularly, a nation's cultural aspects such as the uncertainty avoidance dimensions and the power distance are the most significant decision-makers of a self-selected web retailer.

2.2 E-government adoption in Arab countries and cultural dimensions

A prime condition for efficient functioning of an IT project is its adoption and acceptance by the users (Weerakkody et al., 2013). E-government acceptance is a significant area for research (Kumar et al., 2018). E-government has been described as the use of (ICT) to serve civilians better (Evans and Yen 2006; Muir and Oppenheim, 2002; Norris et al., 2001; Reddick, 2006; Shareef et al., 2010; Kumar et al., 2018). As per Ayyash et al. (2012), the correlation between the government and the users of its e-government services can be classified into government to business (G2B); government to citizen (G2C); government to government (G2G); and government to employees (G2E). Though the e-government functioning of different nations differs widely with respect to general missions and goals, all of them have similar fundamental viewpoint of its value, that is, it must be focused on the citizens (Ayyash et al., 2012).

From the Arab perspective, the induction of the ICT system has provided a great occasion for the government to change the old traditional bureaucratic ways into a more proficient government by implementing the concept of e-government (Sait et al., 2004). As the focus of this research, the objectives of e-government adoption in Saudi Arabia are: increasing public sector efficiency and productivity; providing superior services to inhabitants, citizens and enterprises; increasing the investment returns; and providing the

necessary information rapidly and accurately (Alsowoyegh, 2012). Nevertheless, the success of this initiative relies not just on the support of the government, but also on the residents' eagerness to accept the e-government services (Carter and Belanger, 2004, Weerakkody et al., 2013).

Several online electronic services (e-services) have been launched in Saudi Arabia in recent years and more e-services are under construction. Besides the requirement to increase the level of acceptance and utilisation of the functioning e-government services, it is also important to understand the parameters that can affect the acceptance and utilisation of these new e-services (Alghamdi and Beloff, 2016). Nevertheless, most of the e-government literature is about the technology aspect (Gefen, 2002; Carter and Bélanger, 2005; Navarrete, 2010; Obi and Hai, 2010; Kaisara and Pather, 2009; Aldrich et al., 2002; Dewan and Riggins, 2005; Sang et al., 2009). In Saudi Arabia, several studies have been carried out to resolve similar issues (Abanumy and Mayhew, 2005; Ghani and Al-Sakran, 1998; Abdullah et al., 2006; Al-Fakhri et al., 2008; Al-Gahtani, 2003; Al-Gahtani et al., 2007; Al-Khalidi and Wallace, 1999; Al-Somali et al., 2009; Atiyyah, 1989; Bakry, 2004; Bawazir, 2006; Bjerke and Al-Meer, 1993; Elmusa, 1997; Hamner and Al-Qahtani, 2009; Al-Shehry et al., 2009; Alhussain and Drew, 2010). Based on the earlier studies that were carried out in Saudi Arabia, it was discovered that it did not offer a human and cultures perspective in managing the technology and especially the effect of traditional values on the adoption of e-government services. Moreover, as per Cabrera et al. (2001) and Doherty et al. (2003), technology is important, but not as critical to successful acceptance as the human aspect.

Nevertheless, successful utilisation of e-government services cannot be done without a careful modelling of social influences on the e-government acceptance (Sharifi and Zarei, 2004). The cultural influence has become apparent for several applied domains, including technology and IS (Ali et al., 2009; Davison and Martinsons, 2003). Moreover, scholars have discovered a significant relationship between cultural parameters and ICT adoption (Erumban and de Jong, 2006; Zhang and Maruping, 2008), IS (Min et al., 2009; Twati, 2008) and IT (Srite and Karahanna, 2006). Also, the literature has suggested the significance of examining the relationship between technology and culture, especially the e-government services and culture (Al-Shehry et al., 2006; Warkentin et al., 2002). Thus, there is a lack of empirical and thorough research regarding the effect of cultural aspects on e-government acceptance in the Arab context.

3 Theoretical foundation

3.1 Hofstede's cultural dimensions

There are numerous advanced models developed to assess the cultural differences (Trompenaars and Hampden-Turner, 2000; Hofstede, 2001a; Dickson et al., 2003; House et al., 2004; Inglehart and Welzel, 2005). Among them, the most extensively used is the Hofstede's model that uses cultural indexes due to the fact that it has been on the top of the Index for Social Science Citation for years (Erumban and de Jong, 2006). Hofstede (2001a) recognised four cultural aspects: uncertainty avoidance, power distance, collectivism versus individualism, and femininity versus masculinity. A fifth aspect short-term versus long-term orientation was added (Hofstede, 2001a). Lately, a sixth aspect – restraint versus indulgence – has been added (Hofstede et al., 2010).

There are just four cultural aspect indexes that are offered for the Arab culture: uncertainty avoidance (Hofstede et al., 1991; Kabasakal and Dastmalchian, 2001; Hofstede, 1984); power distance (Hofstede et al., 1991; Kabasakal and Dastmalchian, 2001), collectivism versus individualism (Hofstede et al., 1991; Feghali, 1997; Kabasakal and Dastmalchian, 2001; Hofstede, 1984), and femininity versus masculinity (Hofstede, 2001a; Hofstede et al., 2010). Erumban and de Jong (2006) discovered a significant association between cultural aspects and decision-making for adopting an innovative technology across nations. The outcomes of this review suggested that the aspects uncertainty avoidance and power distance are the most important cultural aspects using which certain differences in the adoption rates of ICT among nations could be described. Thus, this research adapted Hofstede's above-mentioned cultural aspects that can be used for the Arab culture and are relevant to the research context. The following portion represents a thorough examination of these cultural aspects.

1 Power distance: It is the degree to which the less dominant members of institutions and organisations accept and suppose that the power is dispersed unequally [Hofstede, (2013), p.61]. Nations with high power distance have staff members who are too fearful of disagreeing with the management decisions. Such countries include the nations of the Arab region which had score of 80 out of 104; these were placed the 7th among the 50 nations included in the research. On the contrary, nations with a lower PD are likely to have less variation in social status and salary. Diversity and equality are more recognised in such nations and societies. Moreover, nations with high PD, like the Arab nations, have a lower ICT adoption rate than nations with low PD scores (Erumban and de Jong, 2006; Al-Hujran et al., 2011). Therefore, it is hypothesised that:

H1 High power distance affects employee's adoption of e-government services in the Saudi Arabia public sector organisations.

2 Uncertainty avoidance: It is the extent to which the residents of a society feel intimidated by uncertain or unknown circumstances. In a culture where there is high uncertainty evasion, situations that are uncommon and strange are considered as a menace and danger to the community and people of such a culture avoid taking any risks. They refuse to accept the changes and are anxious regarding the future. In cultures where there is low uncertainty evasion, the people do not express themselves liberally and are less nervous and anxious. People are likely to be more easy-going and relaxed and take time to engage in recreational activities. It can be observed that Arab nations in Hofstede's model had a low score in the aspect of uncertainty avoidance in comparison to other nations like Greece. This was identified by Parnell and Hatem (1999) who highlighted the effect of religious beliefs on this aspect and regarded it as a significant aspect which influenced Hofstede's results. Nevertheless, Leidner and Kayworth (2006) mentioned that the uncertainty avoidance aspect plays an important role in predicting how groups will possibly adopt and spread ICT. Nations with high uncertainty avoidance are unlikely to adopt the frame relay technology. As ICT is essentially risky, those who are not too comfortable with uncertainty are less likely to embrace new technologies. Therefore, it is hypothesised that: Therefore, it is hypothesised that:

H2 Low uncertainty avoidance affects employee's adoption of e-government services in the Saudi Arabia public sector organisations.

3 Individualism vs. collectivism: This aspect is the degree to which individuals are expected to take care of themselves or remain collected in groups (Hofstede, 2001a). In Hofstede's categorisation, Arab nations scored 38 out of 100. They were regarded as a more collective culture than an individualistic one. In such nations, people rely more on groups and power figures rather than on individuals (Hofstede, 1994). The residents of this collectivist culture are not much sensitive to diversity, and it can have a harmful effect on the knowledge sharing and communication in a workplace, where there is a blending of different cultures (Abdraehim et al., 2012). As regards the culture of Arab nations, Saudi Arabia can be called a collectivist society, having scored 20 for this aspect (Gillespie and Hennessey, 2010), in comparison to 91 of United State and 90 of Australia (Hofstede et al., 2010). Saudi Arabia is a nation with a collective dominating society that gives more importance to groups and family culture (Abdraehim et al., 2012). Therefore, it is hypothesised that:

H3 High collectivism affects employee's adoption of e-government services in the Saudi Arabia public sector organisations.

4 Masculinity versus femininity: This aspect is related to men whose dominance, strength, toughness and competitive nature had dominated the culture in a traditional way whereas femininity is related to women who give more importance to relationships, housekeeping, caring for the family, nurturing, concern for life, being social, soft nature and tenderness. Hofstede highlights the conventional aspects of femininity and masculinity. In a masculine society, strong conventional gender differences are preserved which cannot be discarded by the advanced and modern technological era. Masculine societies tend to be ruthless and struggle for excellence. The objectives of the masculine cultures are sovereignty, wealth accumulation and material benefits like bonuses and promotions. According to Hofstede (1980), the Arab countries were classified as having high masculine culture. Therefore, it is hypothesised that:

H4 High masculinity affects employee's adoption of e-government services in the Saudi Arabia public sector organisations.

3.2 *Arab cultural dimensions and e-government adoption*

The adoption of e-government is not simple as it entails various political, cultural, organisational and technical factors (Alenezi et al., 2017). The culture is a worldwide phenomenon, which consequently influences the adoption of e-government (Müller and Skau, 2015; Yavwa and Twinomurizi, 2018). The significance of and the necessity for research on societal culture has been extensively recognised in research of IS (Chu et al., 2019; Ford and Ford, 2009; Myers and Tan, 2003). As regards e-government, the cultural aspect plays a significant role in the adoption, success, as well as failure of e-government initiatives (Ziba and Kang, 2019; Al-Hujran et al., 2011). Studies have discovered that this aspect impacts citizens' online expectations and experiences as well as their attitude regarding the e-government (Erumban and de Jong, 2006; Zhao, 2011).

There has been many empirical studies exploring culture and e-government (Ali et al., 2009; Carter and Weerakkody, 2008); however, these studies largely focus on developed nations (Carter and Bélanger, 2005), and little research is available that focuses on the developing nations (Arpaci et al., 2020; Al-Hujran et al., 2011). It is worth noting that

e-government initiatives in developing nations are often unsuccessful due to off-the-shelf IT resources adopted from developed nations, which do not consider local society, social practices, and political circumstances (Dada, 2006). For instance, Al-Shboul et al. (2014) carried out a study that examined the challenges and aspects that influenced the e-government adoption in Jordan. They deduced that the difficulties of e-government adoption can arise from a nation's infrastructure, the available technology and financial issues, from lack of financial support for the adoption and also from the cultural issues.

Cultural virtues are related to forming and predicting behaviour (Schwartz, 2003). Earlier researchers who studied adoption of internet (Dwivedi and Weerakkody, 2007) and e-commerce (Sait et al., 2004) have stated that cultural principles strongly influence the adoption of such technologies. A different research carried out by Hill et al. (1998) highlights the strength of Arab attributes and suggested that social and cultural values are quite strong and impact the activities of the individuals. Likewise, Ali and Sabri (2001), in their study about the adoption of IT in Arab culture, acknowledged the importance of these aspects in the nations of the Middle East. Another research on Arab culture explores the impact of culture on transfer of IT, indicating that Arab cultural views are quite strong determinants of resistance to innovations (Straub et al., 2002). Consequently, it was concluded that cultural dimensions influence the adoption of e-government with respect to the Arab nations (Al-Shehry et al., 2006; Webber et al., 2006; Abunadi, 2013).

Arab cultural views are quite a strong determinant of resistance to new systems. Several researchers maintain that Arab cultures (Egypt, Jordan, Saudi Arabia, Sudan and Lebanon) settle their technological concerns within their cultural context. Cultural disagreements between the institute and management approach of Arab and Western business leaders and employees have affected the process of system development and resulted in ineffective approaches towards usage and policy regarding computers [Straub et al., (2001), p.3; Vörös and Choudrie, 2011).

The main Arab attributes are: fatalism, culture of heart versus culture of mind, closed versus open mind, and horizontal versus vertical values. Religion, relations and national conventions often adversely affect the innovations adoption (Aldraehim et al., 2013). The Arab society stresses the significance of home and the customary nature of its impact on adopting innovative technologies; culture fixes the agenda for the social lives of the people [Hill et al., (1998), p.6]. Additionally, the tribal structure plays a significant role in the organisation in Arab culture (Aldraehim et al., 2013). Along the lines of the earlier point, Rose and Straub (1998) highlighted the importance of cultural aspects that impact the extent of success in adopting IT system in the Arab context. The social aspects that they found significant were: the tribal structure of the people and their inclination towards face-to-face communication.

As per Vinton (1998), the nation's culture has a likely impact on nepotism. Therefore, studying the cultural factors plays an important role towards "a more systematic understanding of the effect of discriminative policies and customs" [Vinton, (1998); p.301]. Considering this, this study regarded nepotism as an element of the culture of the Arab countries. For instance, a study performed by Abdalla et al. (1998) recognised and assessed perceptions of human resource managers in the USA and Jordan towards claims supporting and countering nepotism, then evaluating them to find if there are disparities among developing and developed nations [Abdalla et al., (1998), p.561]. The outcomes

indicate that nepotism is a concern in both the developed and the developing nations. Managers under study “are likely to be disappointed, discouraged and traumatised to the extent that they might resign as soon as they get other jobs”. Moreover, strong-minded managers will stay away from joining these organisations in the future [Abdalla et al., (1998), p.568].

Besides that, Straub et al. (2001) built a cultural impact model and pointed out that Arab cultural views were a strong determinant of resistance to transfer IT [Straub et al., (2001), p.8]. Moreover, the Arab researchers have not written much about other conventional aspects of Arab cultural values that affect the e-government adoption. The initial literature review indicated a necessity to explore Arab cultural views that affect the adoption of e-government by employees. Thus, based on the review of the literature, this study concentrated on nepotism and personal interactions as the most important aspects of Arab culture that influence the adoption of e-government.

- 1 Nepotism: Nepotism has ancient roots and is not a recent phenomenon [Ford and McLaughlin, (1986), p.78; White, (2000), p.109]. Nepotism’s history is discussed in various disciplines like evolutionary biology, religion, anthropology, psychology, sociology, political science, law, economics, and history [Ciulla, (2005), p.154; Laker and Williams, (2003), p.192]. People have diverse national, linguistic, racial, religious, and tribal backgrounds, from which the customs of nepotism are derived [Vanhanen, (1999), p.55]. Nepotism is found around the globe, although it is more prevalent and significant in the developing nations [Abdalla et al., (1998), p.554; Arasli and Tumer, (2008), p.1239]. Nepotism is described as the employment of family members [Ford and McLaughlin, 1986; Arasli and Tumer, (2008), p.1238] either in the same firm [Ford and McLaughlin, 1986; Hayajenh et al., (1994), p.53], or even being supervised or working by their relations in the same department [Abdalla et al., (1998), p.557].

A research conducted by Abdraehim et al. (2012) emphasised the cultural influence of the use of e-services in Saudi Arabia. The research centred on nepotism because it has a significant effect on Saudi workplace culture. The authors described nepotism as “the employing relatives, either in the same firm or even being supervised or working by their family members in the same section”. The authors mentioned several reasons for nepotism, which include economic, sociocultural, political and educational structures. The outcome of the research suggested that nepotism negatively affects the intention of using e-government. There is a feeble negative relationship between intention to use and nepotism. Deploying e-services would cause a fading of nepotism practices as business decisions would be made only by the system and no one else Abdraehim et al. (2012). Thus, those who are either in favour of nepotism or take advantage of it will not adopt or even attempt to adopt e-services so as to specify indirectly that the implementers of the new system will fail and subsequently drop the idea of adopting the innovative technology. Therefore, it is hypothesised that:

- H5 Nepotism affects employee’s adoption of e-government services in the Saudi Arabia public sector organisations.

- 2 Face-to-face interactions: As per Nardi et al. (2000), the idea of face-to-face interactions has been of huge interest to the researchers since as early as the beginning of the 20th century. In spite of the advent of several new ICTs, face-to-face interactions is still popular and widespread (Gapsiso and Wilson, 2015). With respect to the Arab culture, persons prefer face-to-face communication in the organisation (Alsowoyegh, 2012). Moreover, Arab cultural views are quite strong and do not prefer or readily adopt IT transfer, which in turn makes them greatly resistant to the acceptance of new technologies (Straub et al., 2001). Therefore, it is hypothesised that:

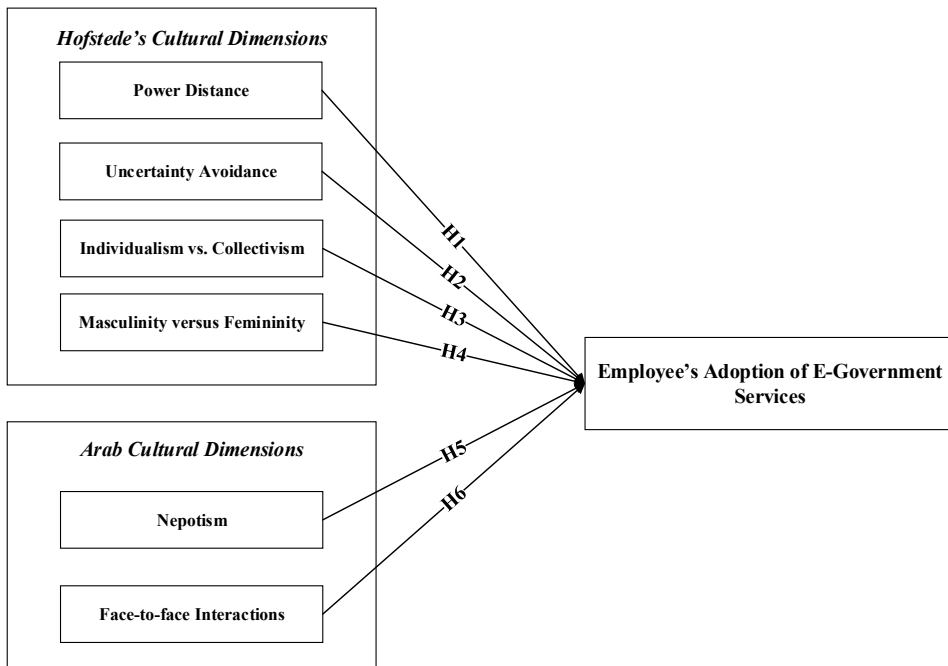
H6 Face-to-face interaction affects employee's adoption of e-government services in the Saudi Arabia public sector organisations.

4 Research model

After a couple decades of implementation of modern e-government IS based on the internet, such systems keep bringing up new significant challenges (Singh and Travica, 2018). A few of such challenges for the development of e-government are cultural beliefs. The cultural aspect is quite more dynamic than expected in comparative management and research literature of IS (Ali and Brooks, 2008; Vörös and Choudrie, 2011). The sensitivity of the cultural differences plays a significant role in the failure or success of the e-services initiatives [Kundi and Shah, (2007), p.7]. For instance, Marcus (2005) states, "that the effectiveness of E-business policies depends on the behaviour of other people". As a consequence, for an effective system interface, it is essential that the structure should take into account the cultural beliefs [Markus, (2005), p.377].

The significance of culture as regards the success of the adoption of IT/IS has also been extensively recognised (e.g., Bagchi et al., 2004; Erumban and de Jong, 2006; Leidner and Kayworth, 2006; Straub, 1994). Hofstede's cultural aspects are the most quoted reference regarding culture within the IS domain [Straub et al., (2002), p.18; Al-Sharafi et al., 2019; Vörös and Choudrie, 2011; Cardon and Marshall, (2008), p.104]. Even though the culture aspect is being regarded as a contributing parameter in the adoption of IT/IS, there is little research to examine the cultural impact on the adoption of IT/IS in the Arab nations. Majority of the earlier research has concentrated on political, economic, and technological aspects that influence technology transfer to the Arab nations (e.g., Straub et al., 2001).

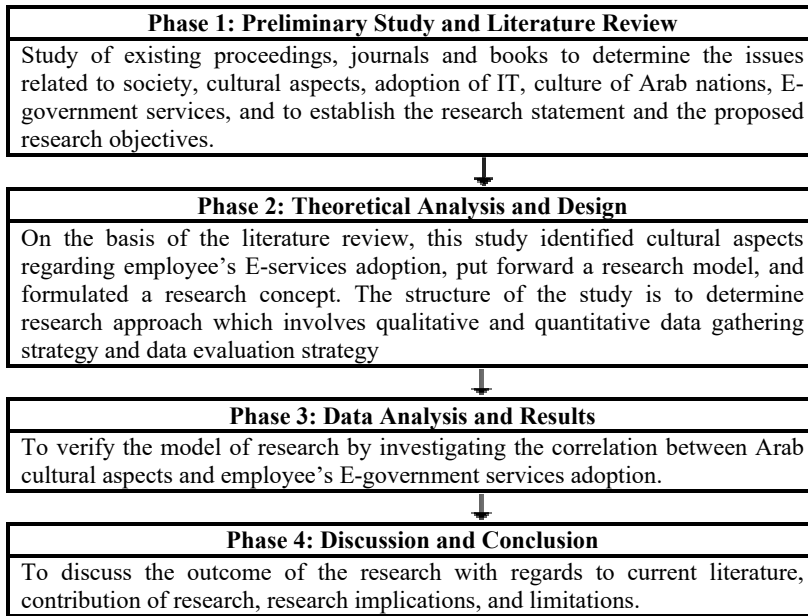
However, studies on the impact of the Arab culture aspects on employee's adoption of e-government services are still lacking. Therefore, this study will examine the impact of the Arab culture aspects on employee's adoption of e-government services via the integration of uncertainty avoidance, power distance, collectivism versus individualism, and femininity versus masculinity on the basis of (Hofstede, 2001a) and face-to-face communication and nepotism as the primary aspects of the Arab society based on the review of the literature. Based on these aspects, this study derives the theories forming the base of the creation of the research model and proposing to determine the impact of Arab cultural aspects on the employee's e-government adoption. Therefore, the development of a model that takes into account cultural aspects of the Arab nations is important in determining and exploring the adoption of e-government in controlled situations. The recommended model for the present study is depicted in Figure 1.

Figure 1 Proposed research model

5 Methodology

The main aim of this research is to examine the effect of Arab culture dimensions on employee's adoption of e-government services by adaptation of the cultural dimensions. For this purpose, investigating the factors that have impact Arab cultural aspects on employee's adoption of e-government services have been done to increase the body of information and add empirical research that can introduce an actual image of cultural aspects and their impact on the adoption of e-government with respect to the Arab nations. Citizens and firms are the customers of an e-government initiative; thus, they might be examined with a different tool (Abu-Shanab and Shehabat, 2018). This research sample involves the employee's perspective functioning in a hospital named King Fahad of the Al-Baha emirate region in Saudi Arabia. The process of sampling will target administrative employees functioning in this hospital. Figure 2 represents the research procedures that are employed to address the expected research issue. The process of research was developed in four stages; as shown in Figure 2. The objectives of each phase are outlined.

The six aspects included in this study model are supposed to reflect the impact of the cultural aspects on the employee's e-government services adoption. This research will focus on the impact of cultural aspects on employee's e-government services adoption. To verify this model, an empirical research is used by taking a survey to examine public employees' views regarding this research context. Further details about the instrument employed and the process of sampling is given in the following portions.

Figure 2 Research process

5.1 Research instrument

The quantitative technique of data gathering is employed in the current study in which data is gathered, numerically fixed and systematically processed after which the researcher deduces statistical outcomes. This kind of method is appropriate when there is conceptualisation and application of the data sample to the candidates involved for the establishment of trends and patterns (Ayyash et al., 2013). The researcher employs a review questionnaire to fulfil the aim of this study. A survey instrument with quantitative assessment is used in the investigation of the model parameters and goal accomplishments. The aim of the survey questionnaire is to evaluate the impact of cultural aspects on the employee's e-government services adoption. To fulfil the study objectives, the questionnaire was designed in eight sections. Table 1 shows the sections and their corresponding subjects.

Table 1 Design of the questionnaire

<i>Sections</i>	<i>Subjects</i>
A	Demographic profile of respondents
B	Power distance (PD)
C	Uncertainty avoidance (UA)
D	Individualism versus collectivism (IC)
E	Masculinity versus femininity (MF)
F	Nepotism (NEPO)
G	Face-to-face interactions (FFI)
H	E-government adoption (EGA)

The questionnaire for the survey contained close-ended questions giving a standardised reference structure for the participants' responses. The questionnaire is structured by applying a 5-point Likert scale to gather data about the research parameters with the scale varying from 1 – strongly disagree to 5 – strongly agree with 3 as the neutral which is the middle scale. For the content validity of the scales, the items chosen under each parameter should represent the concepts that are generalised (Ayyash et al., 2012). In this research, the parameters are primarily selected from earlier studies for content validity though they were adjusted for the purpose of this study.

The aspects of uncertainty avoidance, power distance, collectivism versus individualism, and femininity versus masculinity were adapted from past studies carried out by Tolba (2003) and Yoon (2009). As per the research carried out by Aldraehim et al. (2013) in Saudi Arabia there are two primary causes of nepotism: region and tribe. Thus, 8 items for determining the nepotism were adopted from his research, as this is very appropriate for the study context. In addition, there are five other items adapted from Aldraehim et al. (2013) and Blenke (2013) to gauge the face-to-face communication construct. Finally, there are four other items adapted from Bhattacharjee (2001), Teo et al. (2003) and Venkatesh et al. (2003) to gauge the e-government adoption construct.

The statistics were rechecked for legitimacy and reliability via an analysis of the faculty members, a procedure that would help the researching in establishing the weaknesses and strength of the survey questionnaire with respect to questions, order and wording. After the review, the scholar located the issues and adjusted the measurement wordings and obtained final clear, easy to respond, thorough, and professional questionnaire for survey. This questionnaire was then converted into Arabic, the local language of the Saudi Arabia. The process of translation was reassessed to ensure equivalent terms in English and Arabic.

5.2 Sampling process

The study sample includes the Saudi administrative employees working in hospital King Fahad of the Al-Baha emirate region in the Saudi Arabia. The number of Saudi administrative employees working in this hospital is 180. Thus, we did random sampling and selected 123 out of 180 (Sekaran and Bougie, 2010). The total usable samples gathered by the research scholar at the end were 137 surveys.

The first author of this research gathered the data when he worked at Al-Baha Private College of Science in the Saudi Arabia as an Assistant Professor. The researcher-initiated data collection early in the October of 2018 and completed the collection of the surveys by November 2018 end. It is crucial to make the procedure voluntary and free from any bias, which is a challenging task considering the research subject. Table 2 variables and their indicators.

Table 2 Variables and their indicators

<i>Variable</i>	<i>Indicator</i>	<i>Label</i>
Power distance (PD)	From my own perspective, we should respect our parents and older people	PD1
	Subordinates are afraid to disagree with their superiors.	PD2
	Subordinates should not object their superior's decisions.	PD3
	Subordinates should not question their superior's decisions.	PD4
	The less powerful people should be dependent on the more powerful people.	PD5
	Subordinates give their superiors respect even outside the work environment.	PD6
Uncertainty avoidance (UA)	When I get into a new job, I get worried	UA1
	The uncertainty about the future makes me anxious	UA2
	It is very dangerous to do something that has never been done before.	UA3
	People need detailed and clear instructions and procedures.	UA4
	People are comfortable in structured situations.	UA5
Individualism vs. collectivism (IC)	People will be identified as an individual even though they are in their group.	IC1
	Freedom of expression is guaranteed.	IC2
	Privacy is important in everyone's life.	IC3
	Group success is less important than individual success.	IC4
	Having autonomy and independence are more important than being accepted as a member of a group.	IC5
Masculinity vs. femininity (MF)	The fulfilment of tasks is more important than caring for others.	MF1
	A job with high earnings is better than a job with quality of life.	MF2
	A man should be strong and a woman should be tender.	MF3
	Having a job is compulsory for men and optional for women	MF4
	In family, men are always rational in their decision and women are more passionate.	MF5
Nepotism (NEPO)	Customers being of my tribe gives him an advantage over others.	NEPO1
	Employees are rewarded according to their tribal relationship with senior management.	NEPO2
	I find myself compelled to help customers from my tribe.	NEPO3
	Loyalty to my tribe is essential.	NEPO4
	Customers being of my region gives him an advantage over others.	NEPO5
	Employees are rewarded according to their regional relationship with senior management.	NEPO6
	I find myself compelled to help customers from my region.	NEPO7
	Loyalty to my region of birth is essential.	NEPO8

Table 2 Variables and their indicators (continued)

<i>Variable</i>	<i>Indicator</i>	<i>Label</i>
Face-to-face interactions (FFI)	Face-to-face communications would have benefited from more interactions within the e-government	FFI1
	I think there were more miscommunications with e-government, face-to-face meetings were helpful	FFI2
	E-government services are unable to cater for special cases as traditional face-to-face services do	FFI3
	I get scared by the way e-government could affect our community life	FFI4
	E-government makes me less sociable with others	FFI5
E-government adoption (EGA)	I have the intention to use e-government services in the future	EGA1
	I expect to use e-government services in the future	EGA2
	I plan to continue use e-government frequently in the future	EGA3
	I would like to collaborate with government electronically	EGA4

6 Data analysis and findings

The analysis of the data in this study was done using SPSS version 22 and Smart PLS version 3. The SPSS was used to obtain the descriptive statistics of the sample while the investigation of the latent variable within the causal structure was done by employing partial least squares-structural equation modelling (PLS-SEM) using the SmartPLS as recommended by Hair et al. (2016). According to Hair et al. (2016), PLS-SEM is the best choice to validate the research model for the evaluation of the measurement and structural models, which undoubtedly can lead to more precise results. The results of the statistical analysis are presented in the following subsections.

6.1 Descriptive analysis

The participants in the study consisted of the administrative employees working in King Fahad hospital in the Al-Baha emirate region of Saudi Arabia. The number of administrative employees working in this hospital is 180 and out of this number, 123 workers were randomly selected (Sekaran and Bougie, 2010). The total usable samples gathered by the researchers at the end were 137 surveys. Table 3 is a summary of the respondents' demographic characteristics.

Table 3 Summary of demographic characteristics of research participant

<i>Sample characteristics</i>		<i>Frequency</i>	<i>Percent (%)</i>
Gender	Male	115	83.9%
	Female	22	16.1%
Age	20–30 years	47	34.3%
	31–40	44	32.1%
	41–50	31	22.6%
	Over 51 years	15	10.9%
Education level	Diploma	29	21.2%
	Bachelor	103	75.2%
	Master	5	3.6%
	PhD	0	0%
Experience	Less than 3 years	18	13.1%
	3–15 years	98	71.5%
	Over 15 years	21	15.3%

6.2 Evaluation of the measurement model

One of the steps of the PLS procedure is the verification of the survey for the measurement model Hair et al. (2016) and this verification process is done based on formative and reflective constructs. The two important criteria for testing the goodness of measures are reliability and validity, where reliability refers to the ability of a given instrument to consistently measure a particular aspect it was meant to measure, and validity is the determination of the level a given instrument can correctly measure a specific concept it was meant to measure (Sekaran and Bougie, 2016). In this study, the measurement model was assessed via a three-element process which are indicator items reliability, convergent validity (CV), and discriminant validity.

Thirty-eight (38) reflective indicators were employed during the measurement models' assessment as shown in Figure 3. Observably, the factor loading of items PD4, PD5, and FF11 was <0.50 and according to Hair et al. (2011) and Henseler et al. (2009), the indicator of items with factor loading values less than 0.50 must be deleted in as much as their deletion will improve the composite reliability (CR) above the recommended threshold value. Thus, these indicators were not considered during the PLS analysis in this study.

The CV of each of the tested constructs based on the AVE is shown in Table 4. By definition, CV is the level of a positive correlation between a measure and the other measures of the same construct (Hair and Sarstedt, 2016). The adopted minimum acceptable value of AVE in this study was 0.5 as suggested by previous researches (Hair et al., 2016; Ramayah et al., 2016). From the results, the AVE value for *FFI* was the highest (0.734) while *PD* recorded the lowest AVE value (0.560). Observable, these values are within the recommended levels considering their CV.

Figure 3 Measurement model (see online version for colours)

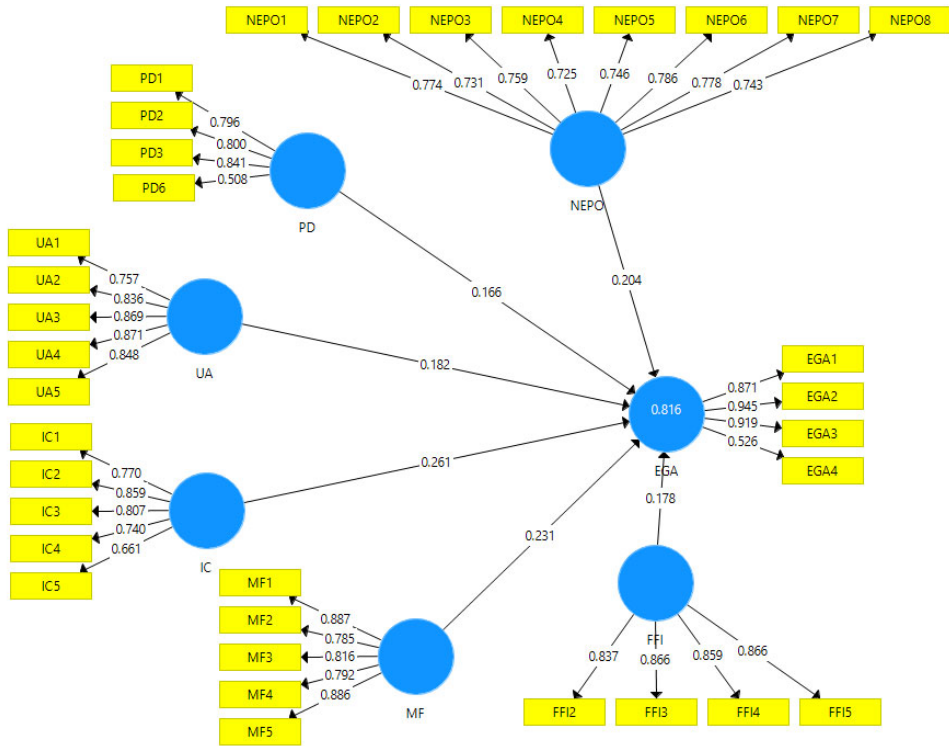


Table 4 Results of measurement model

<i>Construct</i>	<i>Items</i>	<i>Factor loading</i>	<i>CR</i>	<i>AVE</i>	<i>Convergent validity</i>
Power distance (PD)	PD1	0.796	0.831	0.560	Yes
	PD2	0.800			
	PD3	0.841			
	PD4	Deleted			
	PD5	Deleted			
	PD6	0.508			
Uncertainty avoidance (UA)	UA1	0.757	0.921	0.701	Yes
	UA2	0.836			
	UA3	0.869			
	UA4	0.871			
	UA5	0.848			
Individualism vs. collectivism (IC)	IC1	0.770	0.879	0.593	Yes
	IC2	0.859			
	IC3	0.807			
	IC4	0.740			
	IC5	0.661			

Table 4 Results of measurement model (continued)

<i>Construct</i>	<i>Items</i>	<i>Factor loading</i>	<i>CR</i>	<i>AVE</i>	<i>Convergent validity</i>
Masculinity vs. femininity (MF)	MF1	0.887	0.919	0.696	Yes
	MF2	0.785			
	MF3	0.816			
	MF4	0.792			
	MF5	0.886			
Nepotism (NEPO)	NEPO1	0.774	0.914	0.571	Yes
	NEPO2	0.731			
	NEPO3	0.759			
	NEPO4	0.725			
	NEPO5	0.746			
	NEPO6	0.786			
	NEPO7	0.778			
	NEPO8	0.743			
Face-to-face interactions (FFI)	FFI1	Deleted	0.917	0.734	Yes
	FFI2	0.837			
	FFI3	0.866			
	FFI4	0.859			
	FFI5	0.866			
E-government adoption (EGA)	EGA1	0.871	0.897	0.693	Yes
	EGA2	0.945			
	EGA3	0.919			
	EGA4	0.526			

Table 5 Assessment of discriminant validity

	<i>EGA</i>	<i>FFI</i>	<i>IC</i>	<i>MF</i>	<i>NEPO</i>	<i>PD</i>	<i>UA</i>
EGA	0.833						
FFI	0.662	0.857					
IC	0.720	0.481	0.770				
MF	0.684	0.544	0.430	0.834			
NEPO	0.612	0.411	0.415	0.450	0.756		
PD	0.655	0.451	0.518	0.445	0.375	0.748	
UA	0.658	0.411	0.571	0.434	0.337	0.519	0.837

Source: Fornell and Larcker (1981)

The Fornell and Larcker (1981) and Henseler et al. (2009) criterion were applied for discriminant validity testing of the investigated constructs. A construct is said to have a discriminant validity if its average square root of extracted variance is more than the correlation values between all the variables (Hair and Sarstedt, 2016). Based on the Fornell and Larcker criterion as shown in Table 5, each construct achieved adequate

discriminant since their squared correlation is less than the AVE. Furthermore, an estimate of the inter-constructs correlation which parallels the dis-attenuated construct score creation is the Heterotrait-Monotrait Ratio (HTMT) and its threshold value is 0.9. From Table 6, all the constructs evidently met the recommended thresholds; hence, there is no evidence of a lack of discriminant validity.

Table 6 Assessment of discriminant validity (HTMT)

	<i>EGA</i>	<i>FFI</i>	<i>IC</i>	<i>MF</i>	<i>NEPO</i>	<i>PD</i>	<i>UA</i>
<i>EGA</i>							
<i>FFI</i>	0.772						
<i>IC</i>	0.853	0.556					
<i>MF</i>	0.807	0.610	0.498				
<i>NEPO</i>	0.713	0.451	0.478	0.498			
<i>PD</i>	0.847	0.555	0.665	0.551	0.455		
<i>UA</i>	0.747	0.454	0.652	0.480	0.370	0.638	

Source: Henseler et al. (2015)

Considering the results of the seven constructs (*EGA*, *FFI*, *IC*, *MF*, *NEPO*, *PD*, and *UA*) based on their statistical significance and parameter estimates, they are all considered valid measures of their associated constructs. The results generally satisfactory empirical support of the measurement model for its reliability, discriminant validity, and convergent validity.

6.3 Evaluation of the structural model

In this study, the structural model or the inner model captures the effect of the relationships between the evaluated constructs. Therefore, the evaluation of the structural model implies the evaluation of the hypotheses underlying the proposed relationships or effects between these constructs. Based on this premise, the six hypotheses projected in this study were tested using the path coefficient (β) criterion. The standardised value of path coefficient ranges between -1 and $+1$, where values close to $+1$ are a reflection of a positive and strong relationship between every two constructs, while -1 indicates otherwise (Hair et al., 2016). When path coefficient value is used to assess the determine the significant level of relationships, the existence of t-values which are higher than a specified critical value indicates the significance of the coefficient at a specific error probability; for instance, t-value > 1.96 implies a significance level with a p-value < 0.05 .

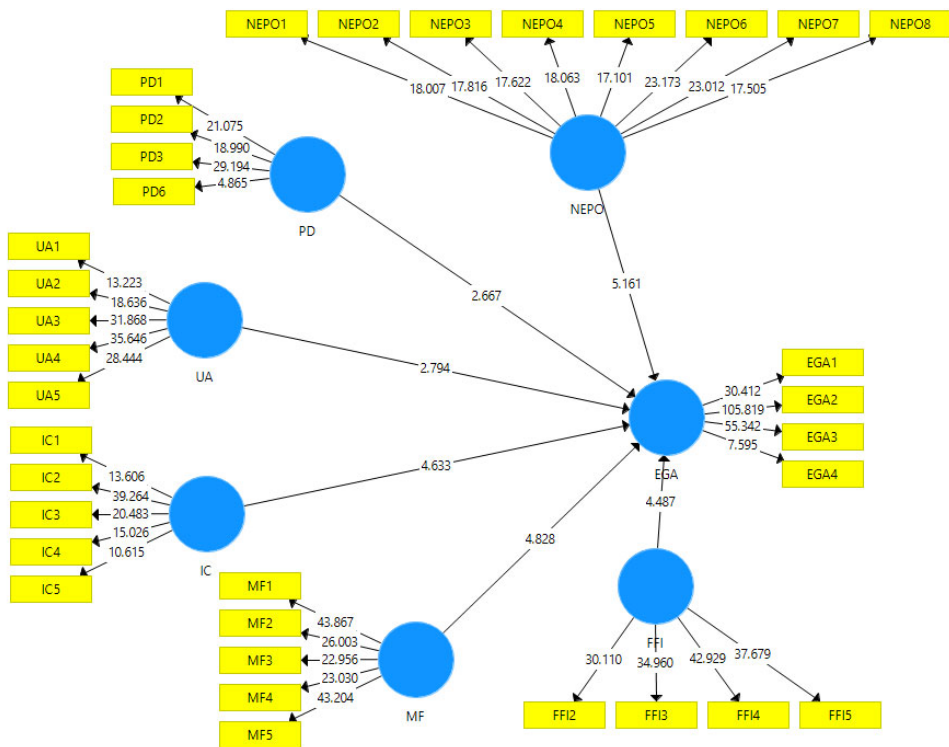
From the outcomes of the hypothesis tests shown in Figure 3 and Table 7, the all proposed research hypotheses were supported. The results indicated that the *PD* significantly and positively influenced the adoption of e-government services ($\beta = 0.166$, $t = 2.667$, $p < 0.05$). Therefore, *H1* was supported. In addition, the *H2* research hypothesis *UA* had a significant and positive influence on *EGA* and was supported ($\beta = 0.182$, $t = 2.794$, $p < 0.05$). The result also supported *H3* since *IC* also had a significant influence on the adoption of EG services ($\beta = 0.261$, $t = 4.633$, $p < 0.05$). Regarding the *H4* which assumed a significant and positive influence of *MF* on *EGA*, it was also supported ($\beta = 0.231$, $t = 4.828$, $p < 0.05$). The results also supported *H5* because *NEPO* presented a significant influence on the adoption of EG services ($\beta = 0.204$, $t = 5.161$, $p < 0.05$). In addition, the results also indicated that the *FFI* (*H6*)

significantly and positively influenced the adoption of e-government services ($\beta = 0.178$, $t = 4.487$, $p < 0.05$). Therefore, H6 was supported.

Table 7 Hypothesis testing

#	Hypothesis	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	Supported
1	PD -> EGA	0.166	0.163	0.062	2.667	0.008	Yes
2	UA -> EGA	0.182	0.181	0.065	2.794	0.005	Yes
3	IC -> EGA	0.261	0.262	0.056	4.633	0.000	yes
4	MF -> EGA	0.231	0.233	0.048	4.828	0.000	Yes
5	NEPO -> EGA	0.204	0.206	0.040	5.161	0.000	Yes
6	FFI -> EGA	0.178	0.173	0.040	4.487	0.000	Yes

Figure 3 Structural model (see online version for colours)



The assessment of the structural model was illustrated in Table 8 where the variance inflated factor (VIF), the coefficient of determination (R squared), the predictive relevance (Q square), and the effect size (f^2) were presented. The low VIF value (less than the 3.3 threshold value) indicated the absence of collinearity issues between the constructs (Diamantopoulos and Sigauw, 2006). This indicated that the constructs were distinctively different from one and another. In a similar vein, EGA had a path coefficient (R^2) value of 0.816 which implied the explanation of about 81.6% of the variances in

EGA by FFI, UA, IC, MF, NEPO, and PD. In addition to that, IC was found to have a large effect size on EGA ($f^2 = 0.202$) whereas PD had the lowest effect on EGA ($f^2 = 0.090$). The predictive relevance of the exogenous variables on the endogenous variables was also done using blindfolding, and from the results, the exogenous variables had predictive relevance over the endogenous variables as evidenced by the Q^2 values of > 0 for all the predictors F. (Hair et al., 2014; Stone, 1974).

Table 8 Assessment of structural model

<i>Constructs</i>	<i>VIF</i>	<i>R square</i>	<i>Q square</i>	<i>Effect size</i>
	<i>E-government adoption (EGA)</i>			<i>E-government adoption (EGA)</i>
Power distance (PD)	1.654	0.816	0.522	0.090
Uncertainty avoidance (UA)	1.710			0.105
Individualism vs. collectivism (IC)	1.823			0.202
Masculinity vs. femininity (MF)	1.678			0.173
Nepotism (NEPO)	1.400			0.161
Face-to-face interactions (FFI)	1.666			0.103

7 Discussion

This study gives explanation to employee's adoption of e-government from cultural perception. It explains employee's adoption of e-government services using Hofstede's cultural dimensions model in addition to the nepotism and face-to-face interactions based on literature review in Saudi Arabia public sector organisations. All the cultural dimensions hypotheses in the model were supported.

The results of the cultural dimensions that effect on employee's adoption of e-government revealed that high power distance (H1) significantly and positively effect on the employee's adoption of e-government services ($\beta = 0.166$, $t = 2.667$, $p < 0.05$). This can be interpreted as IT are, also, a symbol of power used to keep central control, it might be likely to remain in high request in high-power distance societies; this can motivate employee's adoption of e-government services. The results on power distance were consistent with the earlier study of Frambach et al. (2003), which argued that power distance is significantly and positively effect adoption of telecommunication innovations. Also, Warkentin et al. (2002) contend that people with high power distance are more likely to adopt e-government than people experiencing low power distance.

Similarly, low uncertainty avoidance (H2) was identified as a significant factor that is associated with the e-government services adoption ($\beta = 0.182$, $t = 2.794$, $p < 0.05$). IT in overall is unsafe and has thrived in low uncertainty avoidance nations. Thus, e-government adoption increases in low uncertainty avoidance countries. This result was consistent with the studies of Erumban and de Jong (2006) who found that a low uncertainty avoidance cultures show a highest rate of ICT adoption than high uncertainty avoidance cultures.

High collectivism (H3) dimension significantly and positively affect employee's adoption of e-government services ($\beta = 0.261$, $t = 4.633$, $p < 0.05$). This result highlights the important of sharing and assigning tasks in an attempt to complete the ICT projects.

Thus, high collectivism culture tends to be higher rate in term of e-government services adoption. A result consistent with prior findings of Khalil (2011) who found that collectivism is a key determinant of E-government readiness.

The results also indicated that the research hypothesis show that Hofstede's high masculinity (H4) supported the significant and positive effect on employee's adoption of e-government services ($\beta = 0.231$, $t = 4.828$, $p < 0.05$). This can be interpreted as, organisation desire to IT implementations are logically motivated by interests in being efficient and competitive, so masculine societies may adopt ITs more quickly than feminine societies. A result consistent with prior findings of Aida and Majdi (2014) found that high masculinity in Tunisia confirms a positive attitude towards e-government project and (Abdulrab, 2011; Thowfeek and Jaafar, 2010) also found masculinity is significantly associated with IT adoption. In another study, masculinity was found as significant moderator of the direct relationship between trust and intention to use online shopping websites in Jordan (Ahmad et al., 2018).

Moreover, the research hypothesis (H5) was supported the result since nepotism was found to have a significant impact on the intention to use e-government services ($\beta = 0.204$, $t = 5.161$, $p < 0.05$). This can be interpreted as: the continuous developments in the field of e-government have encouraged the governments around the world to take advantages of these developments by established an online presence. Governments hope to increase the efficiency and organisational performance. In doing so, e-government helps to rise transparency, increase accomplishment of transactions, allow pursuing of procedures, allows operations and procedures to be confidentiality executed, allows easy spreading and collection of information from the users, decreases direct communication among government employees and the users, and confines the employee's authority. Undoubtedly, all the above advantages of e-government lead to decrease nepotism culture, as an electronic system such as e-government allow the tracking of operations and the detection of employees who makes a fraud or nepotism in public sector organisations. Consequently, the government should motivate their organisations to the rabid transform to deliver their services through e-government.

The last culture dimension was face-to-face-interactions (H6). The results demonstrate that face-to-face-interactions was significantly and positively for employee's adoption of e-government services, this hypothesis was supported ($\beta = 0.178$, $t = 4.487$, $p < 0.05$). A result consistent with prior finding of Baym, principal researcher at Microsoft research believes that more you communicate with people using devices, the more likely you are to communicate with those people face to face (Adler, 2013). Besides, more than 62% of individuals in Elon's campus remain to use mobile devices in the existence of others (Drago, 2015). However, the nature of Arab prefers face-to-face interactions, this will encourage employees to adopt of e-government services. This can be clarified as, in high collectivist culture like Arab countries, employees were highly influenced by the opinion of their group members when they establishing their intentions toward technology acceptance. Therefore, face-to-face-interactions play an important role in e-government services adoption.

8 Conclusions

The current research was conducted with the aim of investigating and understanding the impact of the factors that have impact Arab cultural aspects on employee's adoption of

e-government services have been done to increase the body of information and add empirical research that can introduce an actual image of cultural aspects and their impact on the adoption of e-government with respect to the Arab nations. Several models have been developed to evaluate cultural differences and the most extensively used model is Hofstede's model. However, most of the previous studies do not take into account the context of Arab culture. Therefore, the results of this research describe for the first time the Hofstede's model from the employee's perspective working in Saudi Arabia health sector. In the context of Arab culture, there are only four Hofstede's dimensions suitable to Arab culture; these dimensions include power distance, uncertainty avoidance, individualism vs. collectivism, and masculinity vs. femininity. Consequently, this research adopted the above-mentioned Hofstede's cultural dimensions in addition to nepotism as well as face-to-face interactions as derived from literature review to study employee's adoption of e-government services in developing countries, and more specifically in Saudi Arabia.

The major contribution of the current research is the development of the Arab culture dimensions model for studying the research objective. This model is a coherent model that can be used in future empirical studies in the same field; the model can also be extended in different directions. The model developed in this research can guide further studies on employee's adoption of e-government in developing countries. The findings revealed a positive and significant relationship among high power distance, collectivism, low uncertainty avoidance, high masculinity, nepotism, face-to-face interaction, and e-government adoption. Based on these findings, the influence of these dimensions should be considered by researchers and policymakers when trying to improve on the current low-level of e-government services adoption in the Arab world, including Saudi Arabia.

8.1 Theoretical contribution

The theoretical contribution is the specific implications of the findings for the existing theory related to Hofstede's cultural dimensions and e-government adoption. In this study, a theoretical model was proposed to study the impact of Arab cultural dimensions on the employee's e-government adoption; therefore, there are three theoretical implications. Firstly, the study made use of Hofstede's (2001a) model, in addition to the nepotism and face-to-face interactions based on literature studies to investigate the factors that influence the adoption of e-government services by employees in public sector organisations. Secondly, the investigations in this study were simultaneous (focusing on the impact of Hofstede's culture dimensions on e-government adoption in the public sector). Hofstede's culture dimensions (uncertainty avoidance, femininity vs. masculinity, power distance, collectivism vs. individualism), in addition to the face-to-face interactions and nepotism dimensions derived from literature review had significant positive impact on employees' adoption of e-government service. Thirdly, the number of researches that scrutinised cultural influence on the acceptance of IT/IS in the Arab nations is few, where most of the previous efforts such as (such as Straub et al., 2001) only focused on the technological, political, and economic aspects that influence the transfer of technology to the Arab nations. This study addressed this issue by investigating the impact of Hofstede's cultural dimensions on e-government adoption in public sector organisations focusing on Saudi Arabia as a representation of Arab culture.

Lastly, the dimensions of the model developed in this study can be added to the existing e-government literature.

8.2 Practical contribution

The findings in this study raise imperative implications for governmental organisations targeting to adopt e-government services by employees in public sector organisations in Arabic countries, specifically in Saudi Arabia. The primary objective of this study was to develop a model that studies the Arab cultural dimensions that influence a conducive e-government environment in a developing nation and this objective has been achieved. There are important managerial implications of the findings from this study for system developers, government organisations, and policymakers when trying to develop e-government portals. The findings in this study will serve as a practical and communicable compilation of the cultural dimensions that cover the employee's perceptions. This compilation can also serve as the basis for any e-government initiative.

The survey employees in this study agreed to the significant influence of Hofstede's culture dimensions (uncertainty avoidance, femininity vs. masculinity, power distance, collectivism vs. individualism), in addition to the face-to-face interactions and nepotism dimensions derived from literature review on employee's e-government services adoption in Saudi Arabia. However, there is little research to examine the cultural influence on e-government adoption in Arab countries like Saudi Arabia. The outcome of this study should, therefore, support e-government policymakers and officials when taking stands on strategies to facilitate the effective and quicker adoption of e-government services.

8.3 Limitations of the study

Despite the numerous contributions of the existing studies from both practical and theoretical perspectives, some limitations still exist which must be addressed. Firstly, the model used in the study includes four cultural dimensions (Hofstede's, 2001a) that fit Arab culture; these dimensions are uncertainty avoidance, power distance, femininity vs. masculinity, individualism vs. collectivism with face-to-face interactions and nepotism as per literature review. Regardless of the number of considered dimensions, their determination remains one of the limitations of the study because there are other dimensions which may affect Saudi employee's adoption of e-government services in public sector organisation in Saudi Arabia.

Secondly, the study sample was collected from Saudi managerial employees working in King Fahad hospital of the Al-Baha emirate region. This sample may not adequately represent all the hospitals in Saudi Arabia. Therefore, this result should not be generalised to the whole country in future studies. Thirdly, the present study's scope is within the realm of King Fahad hospital of the Al-Baha emirate region; hence, the other hospitals, government institutions, businesses, and ordinary citizens should be considered in future studies. Fourthly, this study cannot be generalised to all Arab nations as most of the other Arab nations may not share demographic features with Saudi Arabia and may not provide the same level of Saudi Arabia services to their citizens as obtainable in Saudi Arabia. Therefore, further studies should be conducted in different countries to validate and strengthen the results of this study.

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