

Citizens' Intention to Use the Palestinian e-Government Services Portal - An Extension of UMEGA

Rania A. Abdalla

ORCID Nr: 0000-0001-8091-1143

Universiti Sains Malaysia, Penang, Malaysia, raniaabdalla@student.usm.my

Palestine Technical University Kadoorie, Tulkarm, Palestine, r.alkhateeb@ptuk.edu.ps

Normalini Md Kassim

ORCID Nr: 0000-0002-5685-7340

Universiti Sains Malaysia, Penang, Malaysia, normalini@usm.my

Jasmine A. Yeap

ORCID Nr: 0000-0003-3390-1545

School of Management, Universiti Sains Malaysia, Penang, Malaysia, jasmine@usm.my

Abstract: With the wide spread of Information and Communication Technologies (ICTs), governments are increasingly employing them to better satisfy the demands of their citizens, and to advance their vision of sustainable development. The purpose of this study is to investigate the determinants of Palestinian citizens' attitudes and behavioural intentions to use the recently launched e-government services portal. Using a revised version of the Unified Model of Electronic Government Adoption (UMEGA) that incorporates a multidimensional construct of perceived risk construct, this study addresses a gap in the e-government literature where most previous studies have used perceived risk as a unidimensional construct. The study is a quantitative study that utilizes a combination of purposive and quota sampling to draw the sample, 415 valid responses were collected from the study population, and then analysed using PLS-SEM. The findings revealed that performance expectancy, effort expectancy, social influence and opportunity cost risk significantly influenced citizens' attitudes, which in turn, positively influenced their behavioural intentions.

Keywords: e-government, Risk Dimensions, Behavioral Intentions, Citizens' attitudes, UMEGA

1. Introduction

With the internet age progressively advancing, numerous private sector organizations compete their governance to citizens by using ICT's innovations to carry out the desired exchanges electronically. So many governments around the world today are using these innovations to improve how they advertise to citizens (Zeebaree et al., 2023; Rasool et al., 2022). Mobile devices and cloud computing have made it possible for citizens to access and share information freely. As a result, citizens now expect their governments to be just as responsive as businesses in the private sector (Li and Shang, 2020), which has made the concept of electronic government (e-government) a pressing concern (Sheoran & Vij, 2022). Recently, almost all governments have at least a minimal level of an electronic presence, through which, they can interact with their stakeholders and provide their governmental services to individuals, organizations, and other governments (Rose et al., 2015).

E-government is the use of technological systems, that are based on the web, to enable citizens to access government information, and the process of providing governmental services to the recipients (UN Survey, 2020). Participation and use of these channels by the citizens are crucial and considered an indicator of a successful government (Abu-Shanab, 2017), particularly that greater citizen participation in e-government services will lead to the efficient delivery of the services provided, a higher level of transparency, easier access to information and ultimately, to a better quality of life for citizens, which is one of the main objectives of the announced UN's sustainable development goals, to be achieved by 2030.

Over the years, researchers have focused mostly on how different technological acceptance models might be used to analyse the spread of e-government. Nevertheless, the intricacy of how citizens adopt e-government behaviours is too complex for these models to precisely capture, as noted by Verkijika and De Wet (2018). To tackle this issue, Dwivedi et al. (2017) developed the Unified Model of Electronic Government Adoption (UMEGA), which aims to address this challenge. Dwivedi et al. (2017) conducted an empirical study, to examine the applicability and efficacy of nine distinct theoretical models of technology adoption, within the domain of e-government. The models under consideration in this context were; the Theory of Reasoned Actions, Technology Acceptance Model, Theory of Planned Behaviour, Decomposed Theory of Planned Behaviour, Social Cognitive Theory, Innovation Diffusion Theory, Diffusion of Innovation and Unified Theory of Acceptance, and Use of Technology (UTAUT). Because of its clarity and ability to explain phenomena, the developers asserted that the UMEGA model outperformed all previous theoretical frameworks, in terms of explanatory power, with an outstanding 80% explanatory capability in predicting behavioural intention.

The issue of establishing robust models for widespread acceptance of e-government services has been largely overlooked by Palestinian scholars in the academic community. Hence, UMEGA is used in this study to comprehend e-government acceptance in Palestine, the key objectives of this study are; to authenticate the applicability of UMEGA in the Palestinian environment and to modify it by including essential e-government acceptance features that are suitable in this region, that is usually characterized by a high level of uncertainty avoidance (Hofstede Insights, 2022), where citizens may avoid, or refrain to use, the offered services due to issues related to uncertainty and the potential

risks involved (Verkijika & De Wet, 2018; Abu Shanab, 2107). While the Palestinian e-government services portal was only released to the public at the end of December 2022, the current study uses behavioural intentions as the dependent variable, rather than actual use, because the study was prepared, and the data was collected before the portal was released. Furthermore, because the use of the e-government services is not obligatory in Palestine, the decision whether to use the e-government services depends on citizens' beliefs and attitudes toward its use. Hence, the need for including citizens' attitudes, as an important variable in the study, emerges. UMEGA explicitly employs attitudes as a main component for predicting behaviour. As a result, it was preferred over other models, such as UTAUT which is believed to be more appropriate inside the private organisational settings (Dwivedi et al., 2017).

2. E-government in Palestine

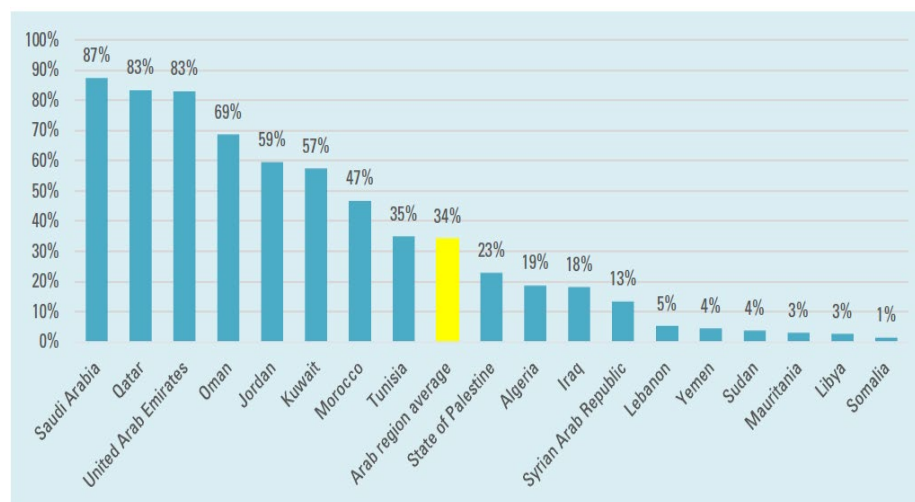
In line with ICT advances, many governments of developing countries in the Middle East region have either; already rolled out their e-government services for their citizens, such as the Arab Gulf States, or have started the shift to digitized services, like the Palestinian government, to be more efficient while interacting with authorities, businesses and citizens through electronic channels. In spite of the prevailing political crisis in the region and the challenges faced by Palestinian development initiatives due to restrictions imposed by the Israeli government, alongside the intricate organisational, technological and economic frameworks that are essential for the successful implementation of e-government, it is noteworthy that the Department of e-government in the West Bank managed to establish the government network by March 2010. The department has recently launched its Government to Citizen (G2C) services through a Unified Access System which is a portal to the e-government services provided. This shift to a services channel, using ICT, makes it an engine for public participation and social and democratic developments as a means for achieving sustainable development.

Every two years, the United Nations publishes a report about the global state of e-government. The E-Government Development Index (EGDI) is compiled for member states, and its value ranges between 0 and 1 with four ranks: very high ranking ($EGDI > 0.75$), high ranking ($0.5 < EGDI < 0.75$), medium ranking ($0.25 < EGDI < 0.5$), and poor ranking ($EGDI < 0.25$) with the global average being 0.6201 (UN Survey, 2022). According to the findings of the United Nations survey, there exists a positive correlation between income levels, as measured by Gross Domestic Product (GDP) per capita, and EGDI scores. The EGDI exhibit higher values in nations with higher income levels, as compared to countries with lower income levels. The observed trend aligns with previous survey results, considering advancements in technology within wealthier countries.

Unfortunately, in this survey, no statistics are available about the classification of Palestine, with respect to other countries globally. However, in the context of Arab countries, the United Nations - Economic Commission for Western Asia conducted a survey in 2022, to evaluate the Government Electronic and Mobile Services (GEMS) Maturity Index across 18 Arab countries, including Palestine. The overall scores in GEMS 2022 of the 18 Arab countries are illustrated in Figure 1, where the overall average of the 18 countries is 34%.

The GEMS metric is based on three fundamental factors: the availability and expansion of services, the utilization and satisfaction of services, and the delivery of services to the community (outreach). The average values of the 18 Arab countries on these three pillars were 39%, 28% and 37%, respectively. The report states an increasing trend in the annual assessment of services and entities. The increasing utilisation of e-government services in the Arab region has led to the expansion of the local index to encompass additional organisations. Furthermore, a comparative analysis of data from 2021 and 2022 reveals that there has been a discernible fluctuation in the total GEMS ratings across various Arab states. This suggests that the advancement of digital transformation initiatives differs among member States. The Arab Gulf countries reinforced by their relative wealth and highly developed infrastructure compared to the rest of the Arab countries, ranged between very high and high ranking as their scores are higher than the average on the three pillars. On the other hand, despite the progress of Palestine scores in these pillars compared to 2021, the scores in 2022 remain lower than the average (27%, 16%, and 27% respectively) (Government Electronic and Mobile Services (GEMS-2022) Maturity Index, n.d.).

Figure 1: Overall Scores in GEMS 2022



This emphasizes the significance of this study, which seeks to examine the elements that influence the attitudes and behavioural intents of Palestinian people towards the utilization of the newly introduced e-government services portal. The significance arises from the observation that the provision of services to the general population (outreach), and their level of satisfaction with those services, are key determinants in enhancing the GEMS maturity index of Palestine. The amount of previous e-government research in Palestine is very limited. For example, Alkhateeb and Abdalla (2021) examined the determinants of Palestinian citizens' trust in the e-government services that were offered separately by the different ministries and government departments. Obaid et al. (2020) proposed that there are three possible factors, including personal factors, reliability factors and technical factors, that could influence the adoption of e-government services. However, the researchers did not conduct any empirical tests to verify their suggestions. Earlier to these studies, Ayyash et al. (2013) studied citizens' trust in e-government initiative adoption. To the researchers' knowledge, no previous studies have empirically employed an e-government context-specific model, to examine

Palestinian citizens' behavioural intentions determinants. The UMEGA model hasn't been officially approved for use in the Middle East. Therefore, this study utilized a modified version of UMEGA to examine the determinants of attitudes and intentions of the citizens. This research contributes new knowledge on e-government services acceptance by validating a modified version of UMEGA where the perceived risk construct is dimensionalized into four dimensions and which has not been conducted earlier in the e-government context, except for a recent study by Rouibah et al. (2022) in Kuwait where the researchers used a three-dimensional construct for perceived risk (privacy, time, and psychological risk). However, it differs from the current study since it measures the positive influence of each dimension on overall risk, which in turn, is proposed to influence both trust and perceived value, whereas in the current study, the aim is to examine the influence of each dimension of perceived risk, on citizens' attitudes which will help in filling a knowledge gap regarding this issue (Miles, 2017). As well as, filling a population gap by examining the factors that influence Palestinian citizens' attitudes and intentions, which is an under-investigated population (Miles, 2017).

3. Proposed research model and hypothesis development

Notwithstanding, the above-mentioned advantages of UMEGA showing its superiority over other models, and the fact that it incorporates perceived risk as a necessary exogenous construct in e-government deployment studies, it modelled it as a general risk as illustrated in Figure 2, rather than as a multidimensional construct. Similarly, previous research on e-government has often treated perceived risk as a simple construct without providing a rationale for this approach (Rouibah et al., 2022). Featherman and Wells (2010) argued that the perception of risk in electronic services should be conceptualised as a multidimensional construct, as it encompasses many types of potential losses that may arise from unfavourable transactions or purchases. On this basis, services provided under e-government are mostly intangible services provided by the government and public sector agencies and not by private sector organizations, where citizens provide their personal data to conduct a transaction, the need arises to model perceived risk as a multidimensional construct.

The bulk of the studies in the e-government literature that considered perceived risk, used the same UMEGA technique and modelled perceived risk as general risk, although the concept of "perceived risk" is typically utilized as a multi-dimensional construct in other fields, such as e-commerce and online banking (Rouibah et al., 2022). As a result, there is a gap in the e-government literature on the subject, and the researcher in the present study proposes to fill it by extending UMEGA with the multidimensional construct of perceived risk, as shown in Figure 3. Furthermore, to present a thorough study, the researchers decided not to employ a second-order technique because this study aimed to examine how perceived risk variables affect attitude. This method was intended to help us understand how each dimension affects attitude formation. In addition, second-order methods for multidimensional variables can complicate interpretation. It can be difficult to distinguish each dimension's influence on the higher-order construct, making results less clear and harder to interpret for researchers and readers.

Due to their dependence on the electronic environment, different e-businesses, e-commerce, and e-government projects may share similar risks, such as security-related risks, uncertainty due to ICT's nature, and technology related risks (Waithaka, and Mnkandla; 2017). According to Park and

Tussyadiah (2017), citizens' perception of these potential risks in online transactions lowers their perception of the level of environmental, behavioural and managerial control. This has an adverse effect on how they use these technologies. Even though some aspects of perceived risk are the same regardless of the e-context, other aspects varied in various contexts. Source, delivery, quality, and after-sale risks are some of the risk dimensions that are more significant than others for the e-commerce sector, because the offered products are typically of a tangible nature (Ariffin et al., 2018; Ashoer and Said, 2016). Whereas in the e-services industry, some of these dimensions may not be applicable and are replaced by others such as financial, time-loss, opportunity cost, privacy and security, and technology (Trinh et al., 2020; Park and Tussyadiah, 2017; Kassim and Ramayah, 2015).

Figure 2: Original UMEGA Model

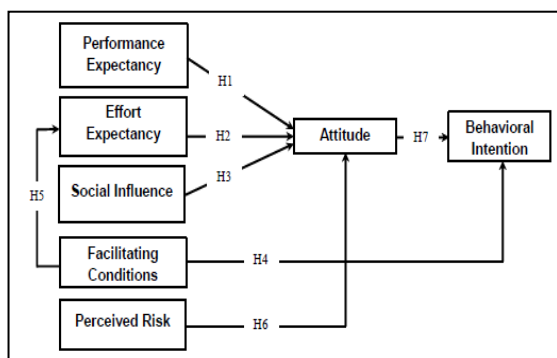
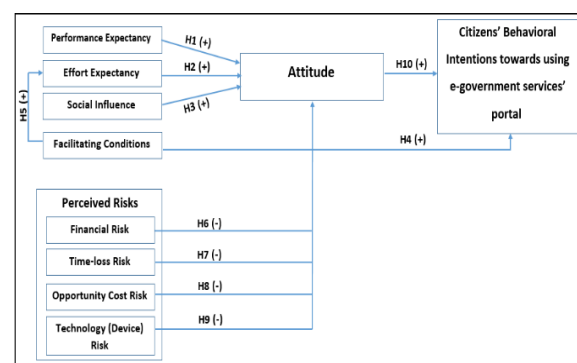


Figure 3: Research Model



3.1. Performance Expectancy, Effort Expectancy, and Social Influence

Venkatesh et al (2012) posit that performance expectancy (PeEx) refers to an individual's perception of the extent to which utilising a certain system will enhance their ability to effectively complete designated activities. This suggests that an individual's perception, that utilising an e-government portal will result in advantageous outcomes in effectively executing a government service, will influence their disposition and inclination to utilise the provided services. Based on the comprehensive analysis conducted by Williams et al. (2015) about the existing body of literature on UTAUT research, it was found that a significant proportion of the 174 studies examined in the review, focused on evaluating PeEx as the primary determinant of behavioural intention. Effort Expectancy (EfEx) pertains to the perceived level of simplicity in utilising a certain system (Venkatesh et al., 2012). This concept posits that users are more inclined to adopt an e-government system that is user-friendly and does not necessitate substantial effort. To achieve effectiveness, e-government service portals must exhibit the characteristics of being uncomplicated, user-friendly and easily navigable (Alghamdi & Beloff, 2015). According to Mensah (2019), the likelihood of citizens utilising e-government services is positively influenced by their perception of the simplicity of these services. Social influence, as defined by Venkatesh et al. (2012), refers to the extent to which individuals hold the belief that their significant social connections, such as friends and family, would provide support for their adoption and utilisation of an innovation or technology. This suggests that individuals are more inclined to embrace a specific system when their immediate social connections demonstrate support for its utilisation.

About the impact of PeEx on attitudes towards e-government services, several studies (Almamy, 2022; Xin et al., 2022; Khurshid et al., 2019; Verkijika and De Wet, 2018; Dwivedi et al., 2017) have provided evidence supporting a direct and significant influence. However, it is worth noting that Mensah et al. (2020) have argued that the influence of PeEx in this context is minimal. Several studies have documented the strong positive influence of EfEx on attitudes. Notable contributions in this regard include the works of Almamy (2022), Xin et al. (2022), Kirat Rai et al. (2020), Rana et al. (2017), and Dwivedi et al. (2017). Conversely, contrasting findings were reported by other researchers (Mensah et al., 2020; Khurshid et al., 2019; Verkijika and De Wet, 2018). The studies conducted by Almamy (2022), Verkijika and De Wet (2018), Dwivedi et al. (2018), and Rana et al. (2016) found that social impact played a substantial role in predicting citizens' sentiments. The research conducted by Mensah et al. (2020) and Khurshid et al. (2019) both reported insignificance about the topic at hand.

Much research addressed the possibility that variations in results occurred because of the assumption that individuals' attitudes about adopting a technology, affect the relationship between the three criteria and behavioural intention (Dwivedi et al., 2017; Sumak and Sorgo, 2016). Yet, in the Palestinian context, it is desirable to include attitudes because e-government services portal use is entirely optional and, thus, could be influenced by the individual's beliefs and attitudes that affect intention. Based on the above the first three hypotheses are:

H1: Performance expectancy positively influences citizens' attitude towards using the e-government services portal.

H2: Effort expectancy positively influences citizens' attitude towards using the e-government services portal.

H3: Social influence positively influences citizens' attitude towards using the e-government services portal.

3.2. Facilitating Conditions (FaCo)

According to Venkatesh et al. (2012), FaCo represent the individual's perception that all the organizational and technical resources needed for accessing a technology are readily available. Although Venkatesh et al. (2003) argued that in the organizational context where the use of the system is mandatory and when PeEx and EfEx are maintained, FaCo becomes insignificant, FaCo, as it relates to e-government, represents the extent to which people believe that they have access to sufficient resources to make effective use of the provided services, such as computers or mobile phones, information, knowledge, skills, and assistance when needed. As a result, the behavioural intention of citizens to use these services is positively influenced, and their awareness of the fulfilled requirements for these services to function properly is increased. Therefore, as the use of e-government services is not mandatory in Palestine, testing the influence of FaCo on behavioural intention is reasonable. In the research of Mensah et al., (2020), Al-Swidi and Faaeq (2019), Mensah (2019), and Dwivedi et al. (2017), FaCo had a significant positive impact on behavioural intention as well.

Numerous studies in the context of e-government, such as those by Mensah et al. (2020) and Dwivedi et al. (2017) found another relationship that favourably correlates FaCo with effort expectancy. When users of a particular technological system find technical support, and receive the required training, in addition to the availability of the well-established infrastructure, their ability to use the system easily increases, which would favourably influence their perception of the minimal amount of effort they must expend to use the system. Hence, H4 and H5 read as:

H4: Facilitating conditions positively influence citizens' behavioural intention toward using the e-government services portal.

H5: Facilitating conditions positively influence effort expectancy.

3.3. Perceived Risk

According to Kim et al. (2008), perceived risk is the users' perceptions of the likelihood of negative outcomes, when engaging in electronic transactions. Internet users worry about the increased level of uncertainty in purchase transactions, even though they see the internet as a space with many benefits (Masoud, 2013). As a result, they will perceive risk as being higher, and anticipate some types of loss (Lim, 2003). The current study identifies four dimensions as possible components of perceived risk: financial, time-loss, opportunity cost, and technology (device) risk. Pavlou (2003) pointed out that perceived risks usually impose a negative influence on attitudes and behavioural intentions because they may reduce the degree of behavioural and environmental control. As a result, in the four areas of perceived risk discussed below, a negative impact on citizens' attitudes is to be anticipated.

3.3.1. Financial Risk (FiRi)

FiRi is an important part of risk perception in many settings, however, different research has shown conflicting outcomes. While some research (Kassim and Ramayah, 2015) found that FiRi was not a major predictor of citizens' attitudes to continue using internet banking, other research (Park and Tussyadiah, 2017; Kang and Kim, 2013) found a negative significant influence. As a predictor of behaviour, FiRi has also been investigated in the context of e-banking, e-tourism, and e-shopping. The connections between purchase intent and perceived risk in Malaysia were investigated by Ariffin et al. (2018) using a multidimensional approach, based on six different types of perceived risk. A negative effect of perceived financial risk on purchase intent was seen, contrary to the findings of Amirtha, et al. (2020), who reported a non-significant influence. Similar findings were made by Khan et al. (2018), who found a negative significant effect on behavioural intention in stock trading.

Citizens' impressions of the possible financial loss would produce bad feelings about these services and eventually impose a negative influence on their attitudes towards utilizing these services, independent of the underlying causes for this loss. Economic loss due to information interception by unauthorized parties is always a risk when conducting business online. Consequently, it is suggested that:

H6: Financial risk negatively influences citizens' attitudes towards using the e-government services' portal.

3.3.2. Time-loss Risk (TLRi)

Prior to the preparation of the current study, no previous research has investigated the impact of TLRi in the context of e-government. Park and Tussyadiah (2017) reported a significant impact of TLRi on attitudes and behavioural intentions in the travel booking field. Examining e-commerce TLRi also revealed a significant impact on consumers' behavioural intentions (Amirtha et al., 2020; Ariffin et al., 2018), while Ashoer and Said (2016) and Masoud (2013) revealed a negligible effect of TLRi on behavioural intention. Similar studies on e-banking services by Kassim and Ramayah (2015), Lee (2009), Wang et al. (2014), and Hanafizadeh and Khedmatgozar (2012) revealed a significant influence of TLRi on users' attitudes. Recently, a new study by Roiubah et al. (2022) that investigates the risk perception and trust in the intention to reuse the e-government services in Kuwait examined TLRi as dimension of overall risk. The findings revealed that time loss positively influenced the overall risk.

Citizens must first learn how to use and operate these services because the portal for e-government services has only recently launched. Some of them might view this as a time waste and prefer to acquire the services through more conventional means rather than wasting time on uncertain transactions that could result in time loss or unsuccessful transactions or purchases. Citizens with less free time may view this as a waste of time as they need time to learn how to use the e-services portal, so they don't make any mistakes themselves, as well as time for the website to download, depending on the users' internet connection and computer hardware, as well as time to respond to various queries. H7 therefore, says:

H7: Time-loss risk negatively influences citizens' attitudes towards using the e-government services portal.

3.3.3. Opportunity cost Risk (OCRi)

One of the less fortunate factors studied as a predictor of attitudes and behavioural intention in information technology application systems is OCRi. In their 2015 study, Kassim and Ramayah examined perceived risk factors that affect Malaysians' intentions to continue using internet banking. The results revealed that OCRi has a negative and significant impact on Malaysians' attitudes. In assessing investors' acceptance of stock trading, Khan et al. (2020) and Khan et al. (2018) found that it had a significant impact on behavioural intention.

The opportunity cost risk associated with missed opportunities can result from citizens' incorrect perception of the opportunity to use government electronic services, in place of the conventional method, which may prevent them from reaping the benefits of this use. It is expected that opportunity cost risk will have a negative impact on attitudes because, in general, decreasing perceived risk tends to increase attitudes, which directly affects behavioural intention. Therefore, the following hypothesis is suggested:

H8: Opportunity cost risk negatively influences citizens' attitudes towards using the e-government services portal.

3.3.4. Technology (device) Risk (TDRi)

Lim (2003) claims that technology can cause defects and other problems. People's trust in technology to deliver services also differs. Younger people are more prone to trust technology than older ones (Onyeaka et al., 2021; Makkonen et al., 2017). Despite the Palestinian community being classified as a youth population, the study's population is Palestinian citizens 18 years of age and older, thus, some may be old enough to be wary of technology and prefer conventional means of doing business with e-government agencies. Their concerns are related to the possible technological risks that could affect their utilisation of the portal for e-government services.

This point is supported by numerous research findings. For example, Park and Tussyadiah (2017) revealed a significant negative impact of technology (device) risk on attitudes. Similarly, Wright (2014) argued that the lack of internet access, a technological concern, impedes the adoption of instructional innovations. Furthermore, Harris et al. (2016) stated that technological challenges are one of the key barriers to the adoption and exploitation of technology breakthroughs, such as mobile applications. In addition, the department of e-government plans to establish a mobile app for citizens to access services, which adds to the potential risks. Consumers who lack confidence in their abilities to download, install, purchase, and use a mobile app are more likely to abandon it (Harris et al., 2016). Because these mobile apps frequently need upgrades that take a lot of mobile data package, and force users to accept them when online, through Wi-Fi, certain important updates may not get installed. This issue may incur financial costs in addition to technology risk. As a result, H9 reads:

H9: Technology (device) risk negatively influences citizens' attitudes towards using the e-government services portal.

3.4. Attitude and behavioural intention (Attitude and Beln)

Attitudes are one's evaluation of a behaviour, whereas behavioural intentions are one's preparations to engage in that activity (Dwivedi et al., 2017; Hung et al., 2013). Attitudes have been shown to have a substantial impact on people's propensity to accept new forms of information technology in a variety of settings, including e-banking (Effendi et al., 2020), tourism (Confente and Vigolo, 2018), and e-government. Individuals are more inclined to make use of e-government services when they have a positive impression of them, and the inverse is also true. Many studies Almamy (2022), Xin et al. (2022), Kurshid et al. (2019) and Al-Hujran et al. (2015) offered strong evidence that individuals' views regarding utilizing e-government services are the primary factor affecting their intentions to utilize such services. Similar findings were also reported by (Kirat Rai et al, 2020; Mensah et al., 2020; Verkijika and De Wet, 2018). Thus, the last hypothesis reads:

H10: Citizens' attitudes positively influence their behavioural intention towards using the e-government services portal.

4. Methodology

The current study adopted the quantitative approach, since it has a deductive nature, where the quantitative approach is the most relevant as it helps in explaining causal relationships between the variables, hypotheses testing and generalization (Saunders et al., 2019). In addition, the study's framework is based on literature review and theoretical reasoning, in such cases the quantitative approach is the most suitable (Sekaran & Bougie, 2019). A cross-sectional approach is adopted because the researcher is interested in examining the influence of the independent variables on citizens' behavioural intention towards e-government services' portal at a single point of time. The G2C e-government services are new in Palestine, and it is necessary to find the level of citizens' acceptance of these services and their behavioural intention towards using them in the future, which could encourage the authorities to increase the number of the provided services.

A data collection instrument was designed to collect the data, it consisted of two sections: demographic data of the participants and the items for measuring the study's variables. Basically, four items were used to measure each variable, these items were adopted and adapted from previous reliable and valid measures in literature as shown in appendix 1. Although the items were borrowed from prior research, they were reworded to fit the public services and e-government context. Additionally, a back-to-back translation of the questions to Arabic language was conducted, since Arabic is the mother tongue language of the respondents. However, as the independent and dependent variables were collected at the same time from the same people using the same instrument (i.e., the common method or common source approach), the possibility of Common Method Variance (CMV) must be explored. Tehseen et al. (2017) point out that this may cause bias into the constructions and reduce their accuracy. To reduce the CMV effect, careful selection and wording of the study items was conducted, and different Likert Scale anchors were used in the data collection instrument. There were several reasons why different Likert Scale points were used: as a procedural remedy to avoid CMV (Podsakoff, et al., 2003), and to get more attention from the respondents, thus, obtaining more accurate results. In addition, it could help in reducing boredom while filling the survey. A five anchors Likert scale was used for UMEGA independent variables' items and for attitude and behavioural intention, a seven anchor Likert scale was used for perceived risk dimensions' items. In addition; marker variable approach was used as a statistical remedy for assessing CMV using three items adopted from Lin, Huang & Hsu (2015) that were included in the data collection instrument.

The population of the study is the Palestinian citizens living in West Bank who have access to the internet, who didn't use the e-government services' portal before, and were aged 18 years or more, since in Palestine, for obtaining a governmental service, the citizen must be an adult. The population of West Bank in 2021 Palestine is 3,120,448 (PCBS, 2020), and based on the data report issued by the data portal website (data portal.com.) about Palestine, the percentage of internet users of the whole population is 64%. Thus, the population of the current research is: Population Size = 64% of 3,120,448 = 1,997,087. For drawing a sample from the population that lacks a sampling frame, which is the complete list of all citizens in West Bank, who meet the three qualifying questions, non-probability sampling is the only option to be used as a sampling method (Saunders et al., 2019). Especially when the population is very large where the randomization is almost impossible (Etikan et al., 2016). The most suitable sampling methods are the quota and purposive sampling, this is because Palestinian

population density varies by governorate (PCBS, 2020). For example, Hebron governorate makes up 25.1% of West Bank's population, while Jericho governorate makes up only 1.7%. Quota sampling is the best way to ensure that each geographic area or governorate is adequately represented in the drawn sample, making it as representative as possible of the entire population (Saunders et al., 2019). Purposive sampling will be used to choose the required number of respondents from each stratum once the population is proportionally divided into non-overlapping strata based on the population density ratio.

To specify the sample size to be drawn from the population, G-Power 3.9.1.7 software was used to calculate the sample size. For using the software, four elements must be specified; statistical power, effect size, significance level, and the largest number of arrows or paths that point to a latent variable in the model, regardless of whether it is exogenous, mediating, or endogenous variable. Usually, for social sciences, the recommended values are statistical power= 80%, effect size = 0.15, and 5% for significance level (Hair et al., 2017). As the maximum number of arrows pointing to a latent variable in the proposed model is 7 (the arrows pointing to Attitude), applying these values in the software yields 103. Therefore, the researchers must collect at least 103 responses for testing the research framework.

Two approaches were used to collect the data: self-administered surveys and a single-attempt electronic survey, designed using Google forms, the data collection instrument in the two forms were identical. In the first approach, the researchers had the opportunity of meeting the respondents face to face in the waiting rooms of government agencies in the different governorate where citizens have to wait for their transactions to be completed, which will be a good opportunity for including a larger number of participants who need to perform government transactions. For those citizens who were time-constrained, they were asked to take the questionnaire home to fill it and return it the next day if they have to come back to complete their transaction. On the other hand, the electronic form of the survey instrument enabled the researcher of reaching both the citizens living in the near governorate, as well as hard-to-reach areas, particularly that these require passing through the Israeli's checkpoints and barriers that may sometimes prevent the travellers from reaching their destinations. The electronic form of the survey was delivered using Human Resource Departments in different ministries or establishments to reach public/private sector employees after issuing a facilitating letter from the university where the researcher works to make the distribution easier. For reaching non-public/private sector citizens, and due to some cultural restrictions and technical limitations, it is not easy to have citizens' emails in the different areas to deliver the questionnaires by email, therefore, the most suitable way to reach this segment would be by adding a link for this form on the websites of some major news agencies that are frequently visited by Palestinians citizens.

To conduct data analysis, the researchers utilised IBM SPSS 28.0 and Smart PLS 4 software tools, as mentioned by Ringle et al. (2022). The rationale for choosing this software lies in its capability to analyse both the measurement and structural model. Additionally, it does not necessitate adherence to normality distributions, which is particularly advantageous as survey-based research often deviates from normal distribution patterns (Chin et al., 2003).

5. Data Analysis

Data was collected from mid-March to June 2022. In total 454 responses were retrieved, 398 from Google forms, and 56 papers. After data cleaning, missing value imputation, and outlier treatments, 415 valid responses were included in the analysis. The electronic version does not include mandatory questions because recent research (Sischka et al., 2020; Decieux et al., 2015) shows that, requiring participants to answer each question, lowers study dependability. This assertion can be ascribed to individuals exhibiting a reactance effect, which is a detrimental manifestation of motivated arousal, occurring when individuals perceive a threat or experience a restriction on their autonomy to act without constraint (Steindl et al., 2015) when presented with forced choice surveys, which materialises in a noticeable reduction in the quality of their responses, higher drop-out rates, and higher non-response rates (Decieux et al., 2015). Demographic missing data were excluded from the analysis, but research item missing values were imputed using expectation maximization. Thus, model estimation was unaffected, since the missing value percentages ranged from 0% to 0.922, less than 5% (Hair et al., 2017).

5.1. Descriptive Statistics

The sample consisted of 53.49% males, and 46.02% females, with two missing values. About 23.37% of the respondents were aged 18-28 years, 31.57% were within the age group 29-39 years, 27.71% were within 40-50 years and 17.35% were aged above 50 years. As for the Qualification of the respondents, 3 respondents (0.723%) held qualifications that were less than high school, while 5 respondents (1.205%) held high school certificates, diploma degree holders were 41 respondents (9.88%), bachelor degree holders were 201 respondents (48.43%), post graduates were 153 respondents (36.88%) and 12 respondents did not report their qualifications. The distribution of the respondents among the different governorates was as follows: Tulkarm (40.9%), Tubas (3.37%), Nablus (15.66%). Qalqilya (7.47%). Jenin (5.30%). Ramallah (5.78%), Bethlehem (3.61%), Salfeet (2.89%), Hebron (12.28%), Jericho (2.41%), and only one respondent did not answer his part. The collected number of responses from each government was proportionally related to the population density in each governorate, with the exception of Tulkarm that had the largest portion of respondents. A possible justification is that the majority of the citizens in it are working in different governorate, hence, when these filled the survey, they probably selected their home governorates rather than where they work or live.

The fourth demographic characteristic was occupation; 59.52% of the respondents were public sector employees, 14.22% were private sector employees, 2.16% were from the security/military forces, 4.09% were self-employed, 0.723% were retired, 9.15% were students, 2.41% were unemployed, 4.57% were housewives, 2.65% worked in other jobs, and 2 left this part unanswered. For the total years of internet usage of the respondents, 5.06% had 1-5 years experience, 20.48% had 6-10 years experience, and 74.45% had experience of more than 10 years. The respondents were then asked about the Devices that they would use for accessing the e-government services portal, 22.16% replied that they would use their smart phones, 6.024% reported they would use their PC's, 71.08% would use both, and 3 left this part unanswered.

The last part of the demographic characteristics dealt with credit card ownership and the payment channels. About 55.4% of the respondents reported that they own credit cards, while the remaining 44.6% did not. 45.1% reported that they would pay for the requested services by printing the reference number of the requested services, whereas 53.3% preferred Paying directly at the e-government services portal using Visa/Master Card, and 7 respondents did not fill this part.

5.2. Measurement Models Assessment

As suggested by Hair et al. (2017), convergent validity and discriminant validity should be examined to assess the reflective measurement models.

5.2.1. Convergent Validity

The assessment of convergent validity of the reflective measurement models consists of examining three criteria: factor loadings, composite reliability (CR), and Average Variance Extracted (AVE). The values of factor loadings should be ≥ 0.708 (Hair et al., 2019); the CR should be ≥ 0.7 and the AVE should be ≥ 0.5 (Hair et al., 2017). Table 1 summarizes the initial loadings, CR, and AVE of the items.

Table 1: Initial loadings, Composite Reliability, and Average Variance Extracted

Variable	Items	Loadings	CR	AVE
PeEx	PeEx1	0.823	0.904	0.701
	PeEx2	0.869		
	PeEx3	0.853		
	PeEx4	0.803		
EfEx	EfEx1	0.796	0.891	0.672
	EfEx2	0.789		
	EfEx3	0.863		
	EfEx4	0.828		
FaCo	FaCo1	0.778	0.832	0.555
	FaCo2	0.751		
	FaCo3	0.816		
	FaCo4	0.620		
SoIn	SoIn1	0.865	0.871	0.636
	SoIn2	0.883		
	SoIn3	0.858		
	SoIn4	0.529		
FiRi	FiRi1	0.779	0.877	0.641
	FiRi2	0.874		
	FiRi3	0.831		
	FiRi4	0.710		
TLRi	TLRi1	0.671	0.896	0.686
	TLRi2	0.899		
	TLRi3	0.857		
	TLRi4	0.867		

OC Ri	OC Ri1	0.754	0.879	0.645
	OC Ri2	0.816		
	OC Ri3	0.786		
	OC Ri4	0.854		
TDRi	TDRi1	0.865	0.894	0.679
	TDRi2	0.871		
	TDRi3	0.708		
	TDRi4	0.841		
Attitude	Att1	0.895	0.937	0.788
	Att2	0.907		
	Att3	0.875		
	Att4	0.876		
BeIn	BeIn1	0.889	0.941	0.801
	BeIn2	0.898		
	BeIn3	0.906		
	BeIn4	0.886		

The loadings of all items exceed the cut-off value of 0.708 except for four items (FaCo4, SoIn4, and TLRi1) where the loadings were 0.620, 0.529, 0.688 and 0.671 respectively, but they were maintained since the CR and AVE of the variable are within the acceptable thresholds (Hair et al., 2019). For CR, all values are above 0.7 demonstrating a high level of internal consistency reliability between the items. All AVE values are above 0.5 for all variables (Hair et al., 2017). This ensures that the convergent validity of the measurement model is achieved.

5.2.2. Discreminant Validity

Discriminant validity refers to the extent to which items within constructs can differentiate and measure diverse concepts. The Heterotrait-Monotrait ratio (HTMT) is a measurement tool commonly employed for evaluating discriminant validity, as suggested by Henseler et al. (2015) and Franke and Sarstedt (2019). All HTMT ratios between the variables meet the harsher threshold, except for the ratio between TLRi and OC Ri (0.884), which falls below the lenient criterion of 0.9 (Henseler et al., 2015; Franke and Sarstedt, 2019). This finding suggests that the measure of discriminant validity has been achieved, as evidenced by the results presented in Table 2.

Table 2: The HTMT ratios of the variables

	Attitude	BeIn	EfEx	FaCo	FiRi	OC Ri	PeEx	SoIn	TDRi	TLRi
Attitude										
BeIn	0.844									
EfEx	0.650	0.550								
FaCo	0.710	0.554	0.783							
FiRi	0.212	0.219	0.127	0.130						

OCRI	0.409	0.426	0.264	0.299	0.697					
PeEx	0.691	0.678	0.740	0.638	0.095	0.329				
SoIn	0.544	0.484	0.695	0.529	0.091	0.132	0.603			
TDRi	0.293	0.305	0.224	0.144	0.644	0.747	0.245	0.147		
TLRI	0.270	0.289	0.260	0.288	0.639	0.884	0.238	0.140	0.699	

5.3. Common Method Variance

For examining common method variance, all endogenous factors were linked to the three items of the marker variable, which served as an exogenous factor. R2 values and path coefficients were used to evaluate the method factor model vs. the baseline model. In the method factor model, the improvement in R2 was less than 10%, and the significance of the coefficient path remained the same. This proves that there are no CMV problems in the data.

5.4. Structural Models Assessment

5.4.1. Collinearity Analysis

The first step in assessing the structural model is to conduct the collinearity analysis. Utilizing the inner model's PLS-calculated Variance Inflation Factor (VIF) values, the collinearity between the constructs was evaluated. There are two threshold values: the lenient value of 5 and the tougher value of 3.3 (Diamantopoulos and Siguaw, 2006). Table 3 lists the VIF values between the constructs in the current study.

Table 3: VIF of the variables

	Attitude	BeIn	EfEx
Attitude		1.503	
EfEx	1.963		
FaCo		1.503	1
FiRi	1.586		
OCRI	2.712		
PeEx	1.883		
SoIn	1.653		

TDRi	1.886		
TLRi	2.3		

The study does not have any collinearity problems as all the VIF values are below the more stringent limit of 3.3.

5.4.2. Normality Check

For checking the normality distribution of the data, the multivariate skewness and kurtosis of the data were assessed as suggested by (Hair et al., 2017; Cain, 2017). The researchers used WebPower website (Zhang & Yuan, 2018) to conduct the test. The latent variable scores were uploaded for testing, the retrieved results showed that Mardia's multivariate skewness ($\beta = 10.069$, $p < 0.01$) and Mardia's multivariate kurtosis ($\beta = 137.870$, $p < 0.01$). Comparing these results with the cut-off values of (multivariate skewness $\leq \pm 3$; multivariate kurtosis $\leq \pm 20$) as stated by Kline (2015) indicates that the distribution of the data is not normal. Therefore, a nonparametric test must be used to check the significance of the weight, loadings and path coefficient. The bootstrapping procedure using a 5000 sample-resample has been used to report path coefficients, t-values and p-values of the structural model as recommended by Hair et al., (2017).

5.4.3. Direct influence relationships significance

The direct influences of the seven exogenous variables PeEx, EfEx, SoIn, FiRi, TLRi, OCRi and TDRi on Attitude were examined. As the p-value criterion alone has been criticized for not being a good criterion for examining significance (Hahn and Ang, 2017), the researchers also used confidence intervals and effect size (substantive significance) for examining the significance following the suggestion of Sullivan and Feinn (2012). For effect size, Cohen (1988) guidelines were followed where 0.02, 0.15, and 0.35 indicate small, medium, and large effects, respectively.

5.4.3.1. Direct Relationships with Attitude

In the proposed model, the first structural model relates the three UMEGA model variables (PeEx, EfEx, SoIn) and the four dimensions of perceived risk (FiRi, TLRi, OCRi, TDRi) with Attitudes. Table 4, presents a summary of the findings related to these hypotheses.

Table 4: Attitude Model Findings

Hypothesis	Relationship	Beta	St. Dev.	T value	P Value	BCI LL	BCI UL	f ²	effect size	Decision
H1	PeEx→ Attitude	0.328	0.051	6.436	0	0.243	0.41	0.111	Small	Supported
H2	EfEx→ Attitude	0.222	0.049	4.494	0	0.139	0.3	0.049	Small	Supported
H3	SoIn→ Attitude	0.170	0.044	3.888	0	0.098	0.241	0.034	Small	Supported
H6	FiRi→ Attitude	-0.046	0.047	0.985	0.162	-0.127	0.026	0.003	No Effect	Not supported
H7	TLRi→ Attitude	0.079	0.052	1.512	0.065	-0.011	0.163	0.005	No Effect	Not supported
H8	OCRi→ Attitude	-0.223	0.062	3.61	0	-0.319	-0.117	0.036	Small	Supported
H9	TDRi→ Attitude	-0.023	0.046	0.504	0.307	-0.099	0.049	0.001	No Effect	Not supported

The three UMEGA model variables (PeEx, EfEx, SoIn) have significant positive influences on citizens' attitudes as their p-value < 0.001 and confidence intervals do not straddle 0 for all of them. All these variables have a relatively small effect on attitudes as the f² values for all of them are < 0.15, which leads to supporting H1, H2, and H3. Similarly, regarding perceived risk dimensions influence on attitudes, the findings reveal that only OCRi has a negative significant influence ($\beta = -0.223$, p-value < 0.001) with a small effect size of 0.036, hence, supporting H8. On the other hand, the other three dimensions of perceived risk (FiRi, TLRi, TDRi) influence on attitudes was found to be insignificant as the p-value of these three variables are 0.162, 0.065 and 0.307 respectively, which are > 0.05, thus, H6, H7, and H9 are not supported. All these variables were responsible for R²=48.7% of the change in citizens' attitudes.

5.4.3.2. Direct Relationships with Behavioural Intention (BeIn)

The second structural model in the current study relates Attitude and FaCo with BeIn. Table 5, presents a summary of the findings related to these hypotheses.

Table 5: Behavioural Intention Model Findings

Hypothe-	Rela- tionship	Beta	St. Dev.	T value	P Value	BCI LL	BCI UL	f2	effect size	Decision
H4	FaCo→ BeIn	0.011	0.035	0.321	0.374	-0.046	0.072	0	No Ef- fect	Not Sup- ported
H10	Atti- tude→ BeIn	0.767	0.034	22.575	0	0.71	0.821	0.975	Large	Sup- ported

Since the p-value for H4 is > 0.05 and the confidence interval contains 0, it cannot be concluded that citizens' behavioural intentions with respect to utilizing the portal for e-government services are positively influenced by the presence of facilitating conditions. In contrast, results confirmed what was hypothesized: that citizens' attitudes significantly impact their desire to utilize the portal for e-government services. With a p-value below 0.05 and a 95% confidence interval that does not include 0, it can be concluded that attitude has a substantial impact on behaviour intention. Additionally, the $f^2 = 0.975$ indicates that attitude has a large impact on behavioural intention, lending support to Hypothesis 10. FaCo and attitude together are explaining 59.9% of the variance in citizens' behavioural intention towards using e-government services' portal.

5.4.3.3. Direct relationships between FaCo and EfEx

The third structural model in the current study relates FaCo with EfEx. Table 6, presents a summary of the findings related to this hypothesis.

Table 6: Effort Expectancy model findings

Hypothe-	Rela- tionship	Beta	St. Dev.	T value	P Value	BCI LL	BCI UL	f2	effect size	Decision
H5	FaCo→ EfEx	0.616	0.038	16.117	0	0.553	0.679	0.611	Large	Sup- ported

Facilitating conditions have a direct positive significant influence on EfEx (p -value < 0.05 and the confidence interval does not straddle a 0), therefore this leads to supporting H5. The influence of FaCo on EfEx is substantial as $f^2=0.611$ which is larger than 0.35. Lastly, FaCo is responsible for 37.9% of the change in EfEx.

5.4.4. Predictive Relevance of the model

Stone-Q2 Geisser's was determined using the blindfold method to assess the predictive value of these models (Geisser, 1974; Stone, 1974). Q2 is a measure of the model's ability to predict outcomes that fall beyond the sample. When the reflecting endogenous variable Q2 was greater than zero, the model's predictive ability became apparent (Hair et al., 2017). The blindfolding strategy was applied, and the predictive capability of Attitudes structural model was $Q^2=48.1\%$, for BeIn structural model Q2 was 40.4%, and lastly $Q^2=37.4\%$ for EfEx structural model. These numbers suggest that these three models have appropriate predictive potential.

Predictive item-level power was evaluated according to the procedures outlined by Shmueli et al. (2019), which involve determining the differences between items using a (PLS-LM). According to Table 7, the PLS model's errors for attitude and behavioural intentions were all lower than the LM model's, showing good predictive power, however, the four EfEx PLS-LM items were positive, indicating low predictive power.

Table 7: Predictive power at the items' level

Item	PLS	LM	PLS-LM	Q ²	Prediction Power
	RMSE	RMSE			
Attitude1	0.657	0.659	-0.002	0.481	High
Attitude2	0.655	0.657	-0.002		
Attitude3	0.705	0.723	-0.018		
Attitude4	0.700	0.718	-0.018		
BeIn1	0.759	0.777	-0.018	0.404	High
BeIn2	0.804	0.82	-0.016		
BeIn3	0.78	0.812	-0.032		
BeIn4	0.778	0.801	-0.023		
EfEx1	0.786	0.656	0.13	0.374	Low
EfEx2	0.777	0.712	0.065		
EfEx3	0.669	0.65	0.019		
EfEx4	0.66	0.647	0.013		

6. Discussion

The purpose of this research is to identify the factors that influence Palestinian citizens' attitudes and behavioural intentions, with respect to using the e-government services' portal that has been recently launched in Palestine, using an extended UMEGA model in which perceived risk is defined as a four-dimensional construct rather than a one-dimensional construct. According to the analysis of the results, some of the hypotheses were confirmed by the data while others were not. The findings of this research carry significant implications that can offer vital insights to policymakers and decision-makers. These insights can aid them in formulating strategies that promote increased public interest in and adoption of upcoming e-government services, and notably align with the sustainable development goals established by the United Nations, specifically focusing on the objective of enhancing citizen participation in e-government services. The anticipated transition is projected to result in a variety of advantages, encompassing increased operational effectiveness, heightened visibility, better availability of information for the public, and eventually, an improvement in their general well-being.

For the first three hypotheses, H1, H2 and H3 that are proposed to test PeEx, EfEx, and SoIn's impact respectively, on citizens' attitudes, the three hypotheses were supported. These findings are

in line with previous research conducted by Khurshid et al. (2019), Verkijika and De Wet (2018), and Dwivedi et al. (2017), which enhances the credibility and coherence of our results. The research has cumulatively established the foundation for comprehending the intricate interaction between individuals' perceptions and their attitudes toward digital platforms, particularly in the realm of e-government services. At the core of this result lies the acknowledgment of the significant influence that citizens' performance expectancy, perceptions of effort expectancy, and the social networks exert in moulding their overall opinions towards their forthcoming intentions toward the e-government portal. When individuals hold positive expectations about the portal's capacity to provide efficient and effective services, as supported by Khurshid et al. (2019), and perceive that interacting with the portal requires minimal cognitive effort, as aligned with Verkijika and De Wet (2018) and Dwivedi et al. (2017), they are more likely to develop a favourable attitude towards its utilization.

Significantly, these findings emphasize the essential function of a user-friendly interface in supporting favourable sentiments. A design that is easy for users to navigate not only enhances the efficiency of completing tasks, but also, integrates the portal seamlessly into the everyday routines of residents, thereby, increasing its significance and usefulness. The significance of this resonance with everyday life is crucial in promoting consistent usage patterns. Like the way in which a well-designed smartphone application smoothly integrates into the daily routines of users, the e-government portal, characterized by a simple and efficient interface, assumes a crucial role as an essential tool that citizens instinctively rely on for their administrative requirements. Therefore, it is imperative to advocate for the efficacy of the e-government services site among residents through public campaigns and advertisements.

The favourable influence of effort expectancy on citizens' views aligns with the findings of previous studies conducted by Kirat Rai et al. (2020), Rana et al. (2017), Dwivedi et al. (2017) which established a strong association between ease of use and attitudes. This finding suggests that there is a positive relationship between the perceived ease of use of the system and citizens' views towards its utilization. When individuals recognize the reduced level of system intricacy, and the simplicity of system utilization protocols that facilitate their proficiency in operating the system, they are more inclined to develop favourable dispositions towards it. The results also indicate that social influence has a statistically significant and favourable impact on citizens' opinions, aligning with the findings of Verkijika and De Wet (2018) and Dwivedi et al. (2017). Individuals are frequently influenced by narratives and encounters that are communicated by their peers. When individuals utilize a certain information system, they commonly develop either favourable or unfavourable sentiments, depending on their utilization and assessment of the system's capacity to meet their requirements and objectives. Subsequently, individuals may consciously or unconsciously transmit their opinions to colleagues, family members, and friends, potentially influencing those who are impacted by these encounters or evaluations (Dwivedi et al., 2017; Chiu et al., 2012). Hence, government entities can initiate the process by promoting the utilization of the portal among their personnel, and by encouraging them to advocate for its adoption within their immediate circles, which may then extend to wider networks. In addition, harnessing the potential of social media platforms can prove advantageous in promoting the adoption of e-government services portals. This can be achieved through the creation of supportive posts that highlight the positive experiences associated with utilizing the portal.

Furthermore, leaving positive comments on relevant posts can serve as a means of encouraging social media users to engage with the portal.

The examination of the four dimensions of perceived risk revealed a discernible pattern. Specifically, it was shown that only opportunity cost risk had a substantial negative influence on individuals' attitudes. This finding highlights that individuals perceived the use of the e-government services portal with a certain level of pessimism, linking it to an increased level of risk in comparison to conventional approaches. One potential rationale for this phenomenon might be attributed to the idea held by individuals; that interacting with the e-government portal entails a significant level of uncertainty. The impression consequently gives rise to a misunderstanding regarding the range of opportunities associated with government electronic services, thereby, rendering individuals vulnerable to the possible hazards of overlooking these opportunities. This result complies with the high level of uncertainty avoidance that characterizes Arab societies in general (Hofstede Insights, 2022). Significantly, the results of this study exhibit a strong correlation with the conclusions derived from the research conducted by Khan et al. (2020), Khan et al. (2018), and Kassim and Ramayah (2015). The concept of opportunity cost risk was consistently identified as a significant factor impacting individuals' attitudes towards the adoption of technology in these cases. This highlights the necessity of recognizing and addressing this concern in the development and execution of the e-government services portal.

Surprisingly, in contrast to the initial predictions, the three additional aspects, namely financial risk, time-loss risk, and technology/device risk, did not demonstrate a significant impact on the attitudes of individuals. One conceivable justification for the absence of a substantial influence is connected to the inherent characteristics of the services being provided. The provision, regulation, and monitoring of these services by governmental authorities certainly mitigated citizens' concerns regarding financial risk. Furthermore, a significant percentage of participants (over 55%) indicated that they had credit cards and had previous experience utilizing them securely online, besides, as the portal offers two payment channels either electronically using credit/debit cards or by printing the reference number of the requested service where the citizen can print the reference number and pay through specified payments point, about 45.1% of the respondents reported that they prefer to pay using the second method which helped in mitigating their apprehensions associated with doing financial transactions. These findings align with those documented by Kassim and Ramayah (2015), but deviate from the observations made by Park and Tussyadiah (2017) and Kang and Kim (2013).

Likewise, time-loss risk was not significant, individuals did not consider the utilization of the e-government portal as a squandering of time. The individuals appeared to perceive the first learning curve as a type of investment, acknowledging that the time dedicated to obtaining expertise in a novel platform will result in time-saving advantages during future transactions. Furthermore, a significant majority of respondents (over 95%) reported having extensive experience using the internet for a period of six years or more. This prior knowledge has provided them with the necessary familiarity to quickly adjust to new applications, including the e-government services site. The present study's results, in contrast to the previous research conducted by Park and Tussyadiah (2017) and Kassim and Ramayah (2015), offer valuable insights into the viewpoint of citizens regarding the risk of time loss associated with e-government services.

Finally, the analysis of the risk associated with technology and devices, which is a unique aspect explored in this study within the e-government domain, indicated that there is no substantial impact on people's perceptions. Remarkably, the conclusion deviates from the findings documented by Park and Tussyadiah (2017). The findings of this study indicate that participants did not express considerable apprehension towards the technological elements, such as the risks associated with personal computers and mobile devices. These concerns did not appear to have a substantial influence on their attitudes. One such rationale can be attributed to the prevalent utilization of personal computers and mobile devices among the general population, in conjunction with the familiarity acquired from the large utilization of applications by private sector services. The forthcoming launch of the e-government services portal, which can be accessed by personal computers, cell phones, and a dedicated application, serves to address and alleviate apprehensions about risks associated with technology. In addition, the progress in wireless mobile telecommunication technology, such as the widespread availability of third and fourth-generation networks offered by Palestinian and Israeli companies, has played a role in reducing concerns related to technological matters, particularly unexpected disruptions in internet connectivity. In conclusion, this analysis of perceived risk dimensions offers a full comprehension of how individuals perceive the dangers linked to the implementation of the e-government services portal. Additionally, it provides valuable insights into the necessary mitigation methods that must be implemented to effectively address these issues. This, in turn, promotes a more conducive atmosphere for the widespread adoption of digital government services.

Upon analysing the two components that impact individuals' behavioural intentions, a notable trend was observed: attitudes emerged as a powerful and statistically significant predictor, nevertheless facilitating situations did not exhibit a similar level of influence. The observed result diverges from the anticipated conclusion, and therefore, constitutes a significant breakthrough that warrants further investigation. In this study, there is robust evidence supporting Hypothesis 10, we noted, which posited a positive and statistically significant relationship between citizens' attitudes and their behavioural intentions towards utilizing the e-government services portal. This finding is consistent with the findings of previous studies conducted by Kirat Rai et al. (2020), Mensah et al. (2020), Khurshid et al. (2019), and Al-Hujran et al. (2015). The correlation among this research highlights the strength of the relationship between people's attitudes and their inclination to interact with the e-government portal. From a policy standpoint, this result provides a crucial message: politicians ought to allocate significant resources towards improving individuals' perceptions and attitudes about the site. By emphasizing on the concrete advantages associated with utilizing e-government services, such as the streamlining of administrative procedures, time efficiency, and improved accessibility to crucial information, policy measures can effectively collaborate with the inherent appeal of these benefits to enhance citizens' overall favourable attitude. By doing so, the process of enhancing behavioural intentions to employ the e-government services portal becomes significantly more streamlined.

Contrary to initial predictions, our research revealed that facilitating conditions did not demonstrate a statistically significant influence on the behavioural intentions of citizens. This finding stands in contrast to several prior research studies, such as those conducted by Mensah et al. (2020), Al-Swidi and Faaeq (2019), Mensah (2019), Kurfali et al. (2017), and Dwivedi et al. (2017), which

collectively indicated a significant association between facilitating conditions and behavioural intentions. This disparity necessitates a more comprehensive analysis to reveal the fundamental causes. In the e-government context, facilitating conditions include the availability of PCs, smart phones, internet connectivity, and the necessary technical support to use the e-government services portal. One probable explanation is that the respondents who dominated internet and smartphone use constituted the majority of the study's respondents. This helps to explain why they felt infrastructure like smartphones and the internet were trivial and not necessarily motivators of behaviour, especially given that most respondents (74.45%) have been using the internet for more than ten years and have a sufficient infrastructure to make use of the e-government services portal simple. As a result, in situations where citizens have the necessary resources and assistance to access e-government services, such as proficient internet connectivity, digital literacy expertise, and access to necessary hardware and software, facilitating conditions may not have a significant impact on determining their behavioural intentions. Furthermore, given that the illiteracy rate among individuals aged 15 years or more in Palestine was 2.3% in 2021 (PCBS, 2022), one of the lowest ratios in the world, this indicates that for those citizens with shorter internet experience, if they believe that the services are beneficial, expedient, and effective, the availability of resources and support may not have a significant influence in shaping their behavioural intentions as they may still be encouraged.

The additional relationship of facilitating conditions relates with effort expectancy, which was substantial and similar to the findings of Mensah et al., (2020) and Dwivedi et al. (2017). Mensah et al., (2020) and Dwivedi et al., (2017). Citizens had the impression that having access to facilitating conditions, such as personal computers, an internet connection, the necessary skills to operate the portal for e-government services, and a government support centre may make the system simpler to use. For this reason, the significance of this relationship should direct the authorities behind the portal for e-government services to avail of all possible means of assistance that make it easier for the citizens to use the portal.

7. Conclusion

In conclusion, this study has filled a notable gap in the current body of literature pertaining to the relatively unexplored domain of perceived risk and its impact on individuals' attitudes and ultimately their behavioural intentions. The study primarily examined the Palestinian setting, specifically investigating the factors that influence the perceived risk associated with the use of e-government services. This research conducted a comprehensive examination that effectively shed light on the key components that contribute to the perception of risk, thereby, enhancing our comprehension of this significant phenomena. This study examined the multifaceted nature of perceived risk, in relation to citizens' intents to utilise the Palestinian e-government services site. The analysis conducted in this study thoroughly examined the various dimensions of risk associated with e-government adoption, including financial risk, time loss risk, technology or device risk, and opportunity cost risk. This comprehensive investigation shed light on the complex factors that individuals consider when contemplating the adoption of e-government services.

The results of this study highlight the significant factors that are associated with attitudes, and extended beyond mere identification, elucidating the intricate interplay among attitude, anticipation

of effort, and the contextual environment. The complex nature of this relationship underscores the need of considering both individual beliefs and environmental influences when seeking to understand the behavioural intentions of persons in the context of e-government service uptake.

It's hoped that the results of this investigation will add to the body of knowledge, both theoretically and practically.

7.1. Theoretical Contribution

In theory, the results will contribute to the literature since they investigate the perceived risk dimension as a multidimensional construct, which has not been done previously in the e-government context, so bridging a gap in the existing body of work. Future studies might use these findings to further elaborate our knowledge of perceived risk dimensions in the context of e-government by considering additional risk aspects. Researching the factors that influence people's behaviour in the Palestinian community might help bridge a knowledge gap in an understudied group.

7.2. Practical Contribution

Empirically, the findings would be beneficial for the authorities, particularly the Department of Electronic Government as it will identify the influencing factors on citizens' attitudes and behavioural intention towards using e-government services. In addition, the findings will help in identifying the most influencing perceived risk dimensions from citizens' perspectives, which would help the authorities in improving their web portal in a way that reduces citizens' risk perception level that will encourage them to use e-government services. Other beneficiaries are expected to be interested in the findings of this research including the governmental agencies involved in the e-government services; the practitioners in private sector institutions who could benefit from the similarities between electronic systems and identify the most significant factors from citizens' perspective particularly in the e-commerce field.

In addition, the designers of mobile applications may find the results useful and helpful in clarifying the most influencing factors from citizens' perspective, which would help them in designing more powerful and need-satisfying mobile applications, either for the e-government services in particular or the e-context application in general. Lastly, the main stakeholders are the Palestinian citizens who are going to perform their governmental transactions using a more powerful and efficient system that is citizen-centric, thus, obtaining a more transparent, corruption free and sustained working environment.

7.3. Limitation and future research

Every study has limitations, as is the case with this study. First, although the study is interested in examining the behavioural intentions of the Palestinian citizens, in general, who are in the West Bank and Gaza Strip, which are two geographically separated areas, the study only considered the citizens in West Bank. The reason for excluding the Palestinians in the Gaza Strip is attributed to the political division and geographic constraints. Gaza Strip is controlled by the Hamas Party since the

Palestinians' division in 2007, that yielded two separate authorities. In the Gaza Strip, the citizens are administered by the Hamas government and don't follow the government in the West Bank. Even if the researcher tried to examine their behavioural intentions towards the services provided there, it is not possible for the researcher to travel to the Gaza Strip due to the Israeli restrictions that prevent Palestinians from moving between the two areas.

Another limitation is the difficulties during the data collection process due to the lack of system snapshots that were not provided to the researcher by the e-government department due to the sensitive nature of ongoing improvements. These snapshots would have clarified the portal and the process of obtaining the services, this constraint prevents the researcher from providing participants with a visual medium and may affect their interpretations. Lastly, adopting cross-sectional data collection, which is ideal for studying behavioural intentions before the gateway, has limitations. The existing technique fails to capture users' fluid and progressive behaviours and perspectives after portal adoption. Respondents' pre-system expectations can change after using the system. Hence, for future research, a longitudinal experimental approach would better understand user behaviour over time. In addition, future studies should examine the indirect effects of relevant variables. Understanding the various interrelationships and interdependencies between these variables will help the reader to comprehend user intentions and usage behaviour. Lastly, applying the research model in different scenarios for assessing e-government acceptance outside Palestine may help explain e-government adoption dynamics on a greater scale and show context-specific challenges and opportunities.

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About the Author

Rania Abdalla

A lecturer at the Information Technology Department at Palestine Technical University-Kadoori since 1998. Holding a Master Degree in Engineering Management and currently is a PhD candidate at Technology Management Department at the School of Management at Universiti of Sains Malaysia USM. Research interests include computer-human interaction, e-government services acceptance, e-business, e-learning, and information technology.

Normalini Md Kassim

Is a Senior Lecturer of School of Management, Universiti Sains Malaysia. Dip Comp Sc, Universiti Teknologi Malaysia (UTM). B Comp Sc (Hons), Universiti Teknologi Malaysia (UTM). Master of Business Administration, Universiti Sains Malaysia (USM). PhD, Universiti Sains Malaysia (USM). Research interests are ICT, Information Technology, Information Systems and Software

Jasmine A. L. Yeap

Is a Senior Lecturer of School of Management, Universiti Sains Malaysia. Mgmt (Hons), Universiti Sains Malaysia (Usm). Master Of Business Administration, Universiti Sains Malaysia (USM). Phd, Universiti Sains Malaysia (USM). Research interests include Brand Management, Environmental Management, Retailing, and others.

8. Appendix 1: Survey items' sources

Variable	Source
Performance expectancy	Venkatesh et al. (2003)
Effort expectancy	Verkijika & De Wet (2018)
Social influence	
Facilitating conditions	Venkatesh et al. (2003) Lallmahomed et al. (2017)
Financial risk	Featherman & Pavlou (2003) Khan et al. (2020)
Time loss risk	Featherman & Pavlou (2003) Alzahrani et al. (2018)
Opportunity cost risk	Kassim & Ramayah (2015) Khan et al. (2020)
Technology and device risk	Kim et al. (2015) He, Park, & Roehl (2013)
Attitude	Dwivedi et al (2017)
Behavioral intention	Venkatesh et al. (2003) Mensah et al. (2020).