Unified Access Point Integrated with UMEGA Model as Determinants of Citizens' Behavioral Intention in E-government Services Context

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Abstract. The purpose of this study is to investigate the factors that influence Palestinian citizens' behavioral intention toward e-government services' portal. To address this research problem, the study introduced and integrated a new variable which is the Unified Access Point (UAP) with the Unified Model of Electronic Government Adoption (UMEGA) as the study model. The study used purposive and quota sampling to collect 415 valid responses from the study population, which were analyzed using Smart PLS 4.0. Results revealed that UAP, along with performance expectancy, social influence, and perceived risks, significantly influenced citizens' attitudes toward e-government services, with UAP having the strongest impact. Additionally, the study found that attitudes and facilitating conditions predicted citizens' behavioral intentions, with attitudes exerting a stronger effect than facilitating conditions. The practical and theoretical implications of these findings suggest that UAP is a crucial factor in shaping citizens' perceptions and behaviours towards e-government services and that governments should consider investing in UAP as a means of improving service delivery and enhancing citizens' satisfaction. Moreover, the study contributes to the existing body of knowledge on e-government adoption, providing insights that can be applied to other contexts and regions.

Keywords: e-government, UMEGA, Unified Access Point, e-portal, Citizens' Behavioral Intention.

1. Introduction

In today's era of the internet, private sector organizations are in tough competition to provide their services to stakeholders as quickly and efficiently as possible. This is achieved by utilizing electronic services, which are delivered through ICTs, with a focus on the Internet for conducting all transactions electronically (Alaroud et al., 2023; Andraško, 2017). Simultaneously, many government and public sector organizations are adopting such means to deliver the offered services to their citizens. Citizens expect their governments to utilize the widespread of cloud computing and technological devices such as smartphones to achieve a better level of service delivery that empowers them to share information, interact with the services providers and access the offered services freely (Zeebaree et al., 2023; Li and Shang, 2020). Thus, leveraging the level of accountability and governance of the public sector organization (Al-Hujran, et al., 2015). E-government is defined as the use of web-based technological systems to optimize citizens' reachability to government information and the process of delivering government services to the beneficiaries (OECD, 2014). Citizens' participation and use of these channels are essential and considered a measure of the government's success (Abu Shanab, 2017).

In the Middle East region, many developing countries' governments either have already launched their e-government services to their citizens like the Arab Gulf States or have started their transformation to digitized services like the Palestinian government aiming to interact more efficiently within government departments, businesses, and citizens through electronic channels, which help in achieving sustainable development goals by 2030. Despite the political crisis in the region and the difficulties forced by the Israeli government on the development initiatives of the Palestinians, as well as the complex organizational, technological, and economic framework approach that is elementary for the e-government implementation, the West Bank e-government department has established the government network in March 2010. This evolution of e-government to a service provision channel that utilizes ICTs makes it a driver of public participation, social, and democratic developments (Abu Shanab, 2017) in which the success or failure depends on several factors among which the most important one is citizens' and businesses adoption of these applications (Abu Shanab, 2017). It is believed that the way citizens perceive the potential risks while using e-government services can have a negative impact on their attitudes and willingness to use such services (Zhu et al., 2021; Mensah et al., 2020; Ejdys et al., 2019). E-government projects could be classified as huge, multi facets and complex projects in which they share some risk similarities with e-businesses and e-commerce projects due to the common characteristics in the electronic environment such as infrastructure, boundless organizations, and business transformation. Among these common risks are technology reliance, security risks, uncertainty related to unpredicted ICT's nature, misinformed decisions, and others (Waithaka, and Mnkandla; 2017). Citizens' perception of these potential risks in online transactions reduces their perceived level of environmental, behavioral, and managerial control, which would negatively influence their usage of these technologies (Park and Tussyadiah, 2017).

In addition, another important factor in the e-government services that has been overlooked by available literature is the mechanism used to provide these services to citizens, which might have a role in the extent of their participation and adoption of these services. Traditionally, prior to the electronic boom, people had to go to government offices, had direct in-person or telephone contact with an employee in the respective government department, or in better cases had to visit a one-stop shop which is a department or an office that offers multiple services to its clients (Janenova & Kim, 2016). The emergence of civil service innovations like e-portals represents a new agenda for improving the services for citizens. E-portal helps in leveraging citizens' level of electronic participation (Sangki, 2018) since it overcomes the problems of bureaucratic processes, speeds up access to procedures and services, outperforms the fragmented online user interface, and paves the way for an approach that is citizen-centric (OECD, 2016).

In the online environment, the unified-access point modeled by e-portals represents the electronic form of the one-stop-shop that could be defined as the unified access point "Single Sign On" through which

citizens can log in to access and benefit from the offered electronic services from various governmental departments. For example, most countries in the Arabian Gulf provide their government services through unified portals through which citizens can access the local and federal services offered by various ministries and government departments in Gulf countries through a unified entry, as is the case in the e-government portals of United Arab Emirates available at https://u.ae/en#/. Such unified access points make reaching and accessing the offered services by the citizens easier, more dynamic, and well-arranged based on the most frequently used ones that automatically change according to the daily use of the services in a way that reflects the user's behavior/ preferences. This form of presentation of the offered services helps in creating positive attitudes toward the use of the portal (Aljukhadar et al., 2022).

In Palestine, the Department of Electronic Government in Palestine has created a unified login system known as "Single Sign On" through which citizens can log in to access and benefit from the offered electronic services. The newly designed e-government services portal aims to integrate all the offered services from different ministries into the portal, and using a single sign-in, the citizen can access any service he/she needs instead of visiting different websites.

The researchers have reviewed the literature and found that while various models and theories have been used to identify factors that affect citizens' attitudes and intentions towards e-government services, to the researchers' knowledge, none of them has considered unified access points as a potential determinant. Moreover, there has been a lack of focus on ensuring the reliability of models for the widespread adoption of e-government services among Palestinian academics. As a result, the aim of this study is to gain an understanding of e-government adoption in Palestine, with the main objectives being (1) to verify UMEGA in the Palestinian context, and (2) to alter it by integrating it with the unified access point as a new variable. To achieve these objectives, the current proposes and tries to answer the following research questions: (1) what is the influence of the UMEGA Model variables on Palestinian citizens' behavioral intentions toward using the e-government services' portal?. And (2) what is the influence of the unified access point on citizens' attitudes and ultimately their behavioral intentions?.

Despite the fact that the Palestinian e-government services portal was only made available to the public at the end of December 2022, the current study used behavioral intentions rather than actual use as the dependent variable. The reason behind this is that the study was planned and the data was gathered prior to the portal's launch where the focus was to study citizens' behavioral intentions towards the forthcoming portal.

2. Literature Review

2.1. UMEGA Model

Numerous models and theories for technology adoption have been studied in different contexts. One such model, the Unified Model of Electronic Government Adoption (UMEGA), was proposed by Dwivedi et al. (2017) specifically for the e-government context. The authors compared nine different technology adoption models and found that UMEGA was the most suitable for e-government environments. UMEGA was specifically designed for e-government and had a higher explanatory power of 80% for behavioral intentions. UMEGA model's inclusion of attitude was also noted as important since the use of e-government services in Palestine is not mandatory and depends on citizens' attitudes towards the service. Therefore, the current study adopted the UMEGA model as the basis for its research. The original UMEGA model is illustrated in Fig. 1 (a).

2.2. Extending UMEGA

Prior to the launching of the e-government services' portal in West Bank, the only way for getting the required governmental services was through visiting the governmental departments. In this traditional form of services delivery citizens have to deal with the distributed departments and systems that are not connected with each other which do not support the goals of efficient management and governance, rather the procedures are time-consuming, long, and lack transparency, consequently result

in high costs and citizens' dissatisfaction. By moving to the unified access point, the need for an integrated system is satisfied. From citizens' perspective, several benefits are attained such as reducing the loss of access data, providing a high degree of security and protection of user data, and reducing technical support costs (MTIT, 2021). Citizens as potential users of the offered online services would evaluate the e-government services' portal based on the demonstrated characteristics of the innovation; these characteristics are expected to influence their attitudes and intentions toward the use of the portal (Hamad et al., 2017). An innovation is accepted at a higher rate if it offers compatibility, a lower level of complexity, and better communication channels to its users (Moore & Benbasat, 1991); or is perceived by its users to have greater benefits, observability, and less complexity (Rogers, 2002).

According to Hamad et al. (2017), in their study of citizens' acceptance and intentions to use an integrated one-stop shop for utility management, the perceived benefits of the service played a crucial role in users' evaluation of the service. The researchers found that the perceived relative advantage and ease of use were the primary factors that influenced citizens' behavioral intentions. This suggests that when online services offer increased value to users, it can have a positive impact on their attitudes and, ultimately, their intentions to use the service. Hence, the role of integrating one-stop-shop in delivering services in a more efficient and convenient way would create a favorable attitude toward using it among the citizens (Hamad et al., 2017; Agarwal & Prasad, 1999). By using the unified-access point, citizens can reach any offered service with the same single login, through an easy-to-use portal that provides its users with the desired benefits. This would make them realize the importance and the level of convenience associated with unified-access point usage, which will create a positive attitude towards its use that in turns will positively influence their behavioral intention. As a result, the unified access point is integrated with UMEGA as a potential determinant of citizens' attitudes and ultimately their behavioral intention as illustrated in the extended UMEGA model in Fig.1 (b).
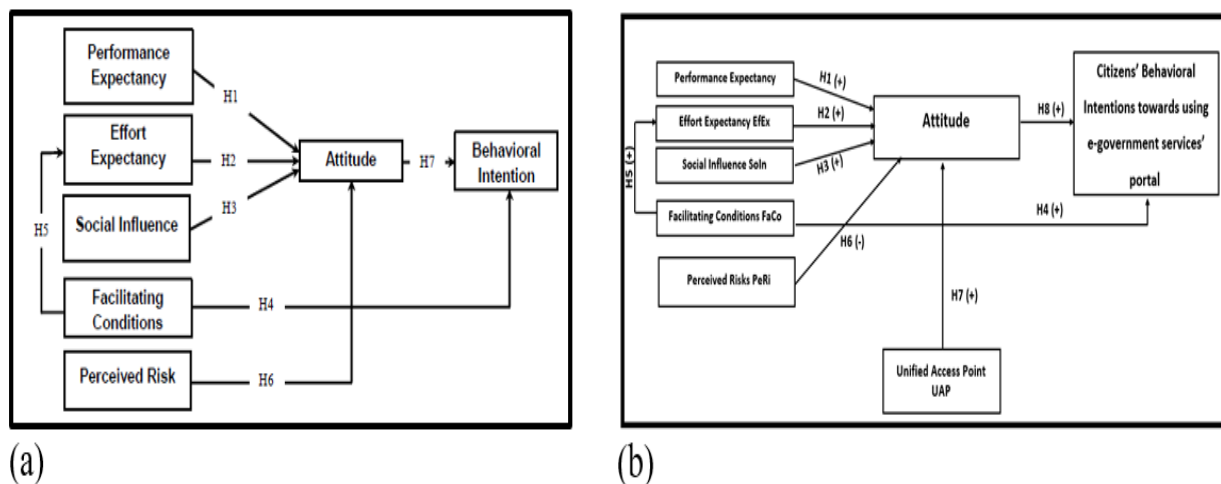

Fig. 1: (a) Original UMEGA Model; (b) Extended UMEGA model

3. Hypothesis Development

3.1. Performance Expectancy (PeEx)

Performance expectancy is defined as the individual's perception level regarding the achieved improvements in accomplishing specific tasks when using a certain system (Venkatesh et al., 2012). People's adoption of these systems is strongly related to the gained level of improvement in their jobs from using these systems (Williams et al., 2015). In the e-government services context, this means that if individuals believe that utilizing an e-government website would help them perform a government service more efficiently, their attitudes and plans to use the services supplied will be influenced. The

positive significant influence of performance expectancy on attitudes was reported by many studies (Khurshid, et al., 2019; Verkijika and De Wet, 2018; Dwivedi et al., 2017); while Mensah et al., (2020) reported an insignificant influence. Williams et al. (2015) in their literature review on UTAUT research reported that performance expectancy was classified as the best predictor of behavioral intention in most of the 174 included studies. Consequently, the following hypothesis is proposed:

H1: Performance expectancy has a direct positive influence on citizens' attitudes towards using the e-government services' portal.

3.2. Effort Expectancy (EfEx)

Effort expectancy is the level of ease associated with the use of a specific system (Venkatesh et al., 2012). In the e-government services context in particular, the simplicity level associated with the use of the system, being straightforward and understandable are important features to enable potential users to utilize and benefit from these services (Alghamdi and Beloff, 2015); If e-government services are perceived as user-friendly by citizens, it would motivate them to utilize the services (Mensah, 2019). In Palestine, the stability and reliability of electricity, internet, and mobile networks can help in creating an encouraging environment regarding the use of e-government services portals, which may positively influence citizens' perception of the low level of the required effort to use e-government services' portal Many studies reported the direct positive impact of effort expectancy on attitude including Kirat Rai, et al. (2020), Dwivedi et al. (2017) and Rana et al. (2015). While other studies reported that effort expectancy doesn't predict attitude toward e-government use (Mensah et al., 2020; Khurshid et al., 2019; Verkijika and De Wet, 2018). Thus, the second hypothesis reads:

H2: Effort expectancy has a direct positive influence on citizens' attitudes toward using the e-government services' portal.

3.3. Social Influence (SoIn)

Social influence is the individuals' perception level about the level of support they are expected to have from their significant people regarding the use of a certain technology system or innovation (Venkatesh et al., 2012). Although some individuals are independent and take their own decisions without being influenced by the opinions of the people surrounding them at work, family, or elsewhere, others may be influenced by the opinions of their friends, colleagues, close relations, and their important people (Venkatesh et al., 2003). This influence affects their decisions to conduct a certain act. Regarding the direct impact of social influence on citizens' attitudes, previous literature provides contradicting results. Several studies supported that social influence significantly impacts attitudes such as Verkijika and De Wet (2018), Dwivedi et al. (2017), and Rana et al. (2016); whereas other studies failed to support this impact as Mensah et al. (2020) and Khurshid et al. (2019). Palestinian families' members are closely related to each other, and many families (particularly in villages) are living within extended families in which the influence of other family members may be considered as a key player in shaping other members' attitudes. Additionally, colleagues and friends may also influence an individual's attitude toward the use of the e-government services' portal. So, if the surrounding social environment around the individual is using the e-government services' portal or supports its use, this would be encouraging to use the e-government services' portal as well.

Thus, the following hypothesis reads:

H3: Social influence has a direct positive influence on citizens' attitudes toward using the e-government services' portal.

3.4. Facilitating Conditions (FaCo)

Facilitating conditions are the availability of all technological and organizational resources, in addition to the knowledge and skills required by users to utilize a system (Venkatesh et al., 2012). Individuals can be encouraged to participate and adopt such systems through the availability of technical resources, such as personal computers, smartphones, and a dependable network; organizational

resources, such as instructions regarding the use of the system and the required assistance when needed; and the personal skills and aptitude of the users.

In organizations where the use of technological systems is mandatory, usually such facilitating conditions are freely supported to the users, these including technical support, usage instructions, and the required training (Venkatesh et al., 2012). When the system's use is optional, the level of its usage depends on the availability of these resources. If these resources are available to the users, their intentions and behaviors are more likely to be influenced by the use of the system (Ajzen, 1991, Venkatesh et al., 2012).

In the e-government context, facilitating conditions depict citizens' perception level that enough required resources are available which enable them to efficiently use the offered e-government services (Verkijika and De Wet, 2018). It follows that citizens' behavioral intention towards the use of these services is positively influenced and their awareness about the satisfied prerequisites for these services to work properly is enhanced. Facilitating conditions were found to have a positive significant influence on behavioral intention in the work of Mensah et al., (2020), Al-Swidi and Faaeq (2019), Mensah (2019), and others.

In the UMEGA model, another relation between facilitating conditions and effort expectancy is hypothesized. This relation positively associates facilitating conditions with effort expectancy and was supported by many studies in many contexts such as the e-government context where Mensah et al., (2020), Dwivedi et al. (2017), and Alrawashdeh et al. (2012) supported the hypothesis. Similarly, in the e-learning context, Sukendro et al. (2020) reported that the role of facilitating conditions on ease of use (effort expectancy) was the second strongest predictor.

The availability of the proper infrastructure, required devices, knowledge, and continuous support to the users of a certain system encourages them to use the system. Moreover, facilitating conditions availability helps in making the system easier to use since when any individual uses a system for the first time, he/she might find some difficulties or uncertainty regarding his transactions, but with the proper help and support these are diminished by time and his/he ability to use the system increases. This would positively influence their perception of the low level of effort they have to exert to use the system. Hence, H4 and H5 read as:

H4: Facilitating conditions have a direct positive influence on citizens' behavioral intention toward using the e-government services' portal.

H5: Facilitating conditions have a direct positive influence on effort expectancy.

3.5. Perceived Risk (PeRi)

Perceived risk generally refers to the users' beliefs and thoughts about the possibility of having adverse consequences when engaged in electronic interactions (Kim, et al., 2008). In the e-government context, perceived risk could be defined as citizens' fear of being vulnerable to some losses when using the e-government system (Verkijika & De Wet, 2018). The users of an electronic system are concerned about different sorts of risks including financial, security, and privacy issues, time loss risks, technology-related risks, and others. Their concerns stem from their fear that the used system is insecure enough, which exposes it to various breaches or risks (Straub and Welke, 1998). As their perception level of risks increases, their intentions to interact with the system decrease (Fu et al., 2006). The inclusion of perceived risk in the e-government model is necessary particularly because these systems are transactional where risk is considered a main player in affecting citizens' attitudes (Dwivedi et al., 2017). A negative influence of perceived risk on behavioral intentions was reported in the study of Rana et al. (2016). Regarding the impact of perceived risk on attitude, Mensah et al., (2020), Verkijika & De Wet (2018), and Dwivedi et al., (2017) pointed out that a negative significant influence of perceived risks on users' attitudes was found, while the findings of Andrie et al. (2023), Khurshid et al., (2019) and Zahid & Haji Din (2019) did not support this influence.

Generally, perceived risks have a negative influence on attitudes and behavioral intentions as they may reduce the behavioral and environmental control level (Pavlou, 2003). Although internet users

perceive the internet as an environment offering various benefits, citizens' perception of the risks associated with the transactional operations involved when using e-government services may create a negative feeling about these services and ultimately negatively influence their attitudes towards using these services. Hence, the sixth hypothesis is:

H6: Perceived risks have a direct negative influence on citizens' attitudes toward using e-government services.

3.6. Unified Access Point (UAP)

E-government's greatest challenge is to change citizens' attitudes and culture (Sharma, 2004). By providing a unified-access point to the citizens which is a daunting task (Sharma, 2004), e-government has the power to transfer service delivery and citizens' attitudes (West, 2004). In previous e-government literature, the unified access point has not been suggested nor examined as a potential determinant of attitudes and behavioral intentions. However, One-Stop-Shops (OSS) government has been used in developed countries for delivering various governmental services to the citizens in a single office or building (Janenova & Kim, 2016), which helped in achieving many benefits such as better accessibility to the services, faster processing, reduced number of government officials to interact with and reduction in cost (IRI). A study to analyze the use of one-stop-shops to enhance public services delivery quality and to reduce corruption was conducted by the government of Kazakhstan, the findings showed the accessibility to public services was positively improved (Janenova & Kim, 2016). A Unified access point by grouping all the offered services under one umbrella in which citizens can reach all services with few mouse clicks demonstrate the one-stop shop in its electronic form. According to the e-government survey issued by the United Nations, there is a trend now to provide OSS through unified-access point citizens-centric e-portals (UN, 2020) since the use of the unified access point by citizens and businesses allow them to achieve several benefits. A study that supports this argument was conducted and the findings were published on the website of London Economics (londoneconomics.co.uk), which is Europe's leading specialist policy and economics consultancy. They reported that the provision of an effective single point of entry to a common platform to the European and national level online services would help in enhancing users' awareness and access of the provided services, accessing information more efficiently, and contributing to the benefits of improved web accessibility.

The e-government services portal in Palestine has been recently launched, hence, when citizens use the portal to access the services, they expect these services to satisfy and meet their needs in a standardized quality (Hajnal & Kovács, 2013). If these expectations were satisfied by the unified access, and citizens find the use of its use beneficial to them, it is logical to hypothesize that this will positively affect their attitude towards these services because they sense the benefit accrued from using them. Thus, the following hypothesis is presented:

H7: Unified-access point will positively influence Palestinian citizens' attitudes toward using the e-government services' portal.

3.7. Attitude and behavioral intention (Attitude and BeIn)

Attitudes are individuals' opinions and assessments regarding specific behavior that could be positive or negative (Dwivedi et al, 2017). Whereas behavioral intentions are individuals' intentions toward conducting a specific act such as using a specific system in the future (Ajzen, 2011). Attitudes and normative beliefs lead to intentions (Ajzen, 1969). Usually, individuals assess a certain act or behavior based on their beliefs (Attitude itself is formulated from definite personal beliefs (Ajzen, 1991), and creates either a positive or a negative attitude towards it. These attitudes in turn are the motivators for their future behavior toward it. Hence, for a better understanding of citizens' behavioral intentions towards using the e-government services portal is to identify the right factors that influence their attitudes. The use of the e-government services portal is not mandatory in Palestine, therefore when citizens decide to use it, their decision stems from their own beliefs and attitudes towards it. Thus,

defining and selecting the potentially significant beliefs that have a role in shaping citizens' attitudes is necessary.

Different theories in information systems acceptance extended the relationship between attitudes and behavioral intention such as TRA, TPB, and others to anticipate users' behavioral intentions (Shropshire et al., 2015). Kim and Hunter (1993) argued that different models that explains the attitude-behavior relationship trace the causal links from attitudes, mediated by behavioral intention to the actual behavior. Attitudes are elementary for predicting behavioral intentions that are in turn necessary for increasing the likelihood of performing a certain behavior. The significant influence on attitudes on behavioral intention was approved in different contexts that use information systems such as e-banking (Effendi et al., 2020), tourism (Confente and Vigolo, 2018), courier services (Andrie et al., 2023), and e-government context as well (Kirat Rai et al., 2020; Mensah et al., 2020). Kurshid et al., (2019) and Al-Hujran et al. (2015) provided strong evidence that citizens' attitudes towards using e-government services are the main influencing factor on their intentions to use these services. Thus, the last hypothesis reads:

H8: Citizens' attitudes have a positive significant influence on their behavioral intention toward using the e-government services' portal.

4. Methodology

The quantitative approach was adopted in the current study because of its deductive nature which helps in clarifying causal relationships and hypotheses testing and generalization (Saunders et al., 2019). Data was collected using a structured questionnaire that consisted of two parts: the first for the demographic characteristics of the respondents and the second for the study items. Each variable was measured using four items that were adopted and adapted from reliable and valid previous literature. The items for measuring each variable and their sources are provided in Appendix A. The survey items were translated to Arabic using back-to-back translations since Arabic is the mother tongue of the respondents. Besides, the current study used the cross-sectional approach since at this stage prior to the launching of the e-government services portal it is necessary to investigate the level of citizens' acceptance and the influence of the examined factors on citizens' behavioral intentions towards its use. However, the cross-sectional approach may raise Common Method Variance (CMV) issues, particularly since independent and dependent variables were collected simultaneously using the same instrument and from the same respondents. For avoiding/reducing CMV, several procedural remedies, as well as statistical remedies were used as suggested by (Podsakoff et al., 2003). Procedural remedies included the careful selection of the wording in the items and different Likert Scale anchor points were used that helps in getting more attention from the respondents, reducing boredom while answering the questions, and minimizing measurement errors. Whereas the marker variable approach was used as a statistical remedy for assessing CMV using three items adopted from Lin et al. (2015) that were included in the data collection instrument.

The population of the study is Palestinian citizens living in West Bank and meets three criteria. (1) who have access to the internet, (2) who didn't use the e-government services' portal before since the aim of the study is to define the factors that influence behavioral intentions and not the actual use of the portal, and (3) aged 18 years or more since in Palestine for obtaining a governmental service the citizen must be an adult. The total population of West Bank in 2021 Palestine is 3,120,448 (PCBS, 2020), and according to the data report issued by the data portal website (data portal.com.) about Palestine, the percentage of internet users of all population is 64%, hence, the population size = 64% * 3,120,448 = 1,997,087.

The researchers were forced to utilize a non-probability sampling method since there was no sampling frame available for the population as stated by Saunders et al. (2019). The most suitable sampling methods are purposive and quota sampling. The justification for this selection is that the Palestinian population density is not the same in all governorates (PCBS, 2020). For identifying the

sample size to be drawn from this population, the researchers used G-Power 3.9.1.7 software. For social science, the recommended values are statistical power= 80%, effect size = 0.15, and 5% for significance level (Hair et al., 2017). The proposed model has a maximum of five arrows pointing toward the latent variable of Attitude. Using this information in the software, the researchers have determined that at least 92 responses are required to test the research framework. Data were collected using identical self-administered paper surveys and a single-attempt electronic survey designed using Google Forms that consisted of two parts: demographic characteristics and the items for measuring the variables. For distributing the paper surveys, the researchers visited the waiting rooms in the governmental departments in the different governorates and handled the surveys to the respondents directly while they were waiting for their transactions to be processed by the governmental employees. This enabled the researchers to meet in person with the respondents and to clarify and answer any inquiries they may encounter while filling out the surveys. However, some respondents were time-constrained and could not fill out the surveys at the time, so they took the surveys to fill it in their free time and return it to the department when they had to come back to proceed with their transactions. In these cases, the researchers returned few days later to gather their responses. Later, the collected surveys were analyzed using IBM SPSS 28.0, and Smart PLS 4.0 was used Ringle et al., (2022).

5. Data Analysis

Initially, a total of 454 responses were collected through 398 Google forms and 56 hardcopy surveys. After cleaning the data, imputing missing values, and treating outliers, 415 valid responses were used for analysis. The electronic survey did not have mandatory questions due to recent research indicating that requiring participants to answer all questions can lower study reliability. This may be because participants experience a negative reaction called reactance effect, where they feel threatened or lose their freedom to respond freely when presented with forced-choice surveys, leading to lower quality responses and higher drop-out and non-response rates (Sischka et al., 2020). Demographic missing data were excluded, but missing values in research items were imputed using expectation maximization methods. The model estimation was not affected as missing values were less than 5% (Hair et al., 2017).

5.1. Descriptive Statistics
The respondents' profile is summarized in Table 2.

Table 2: Respondents profile

Demographic Characteristic	Category	Frequency	Valid Percent %
Gender	Male	220	53.0
	Female	195	47.0
Age (Years)	18-28	94	22.7
	29-39	130	31.3
	40-50	115	27.7
	> 50	76	18.3
Qualification	Less than High School	1	.2
	High School	4	1.0
	Diploma	45	11.0
	Bachelor	206	50.4
	Post Graduate Degree	153	37.4
Governorate	Jerusalem	7	1.7
	Tulkarm	182	44.0
	Tubas	14	3.4
	Nablus	62	15.0
	Qalqilya	28	6.8
	Jenin	22	5.3
	Ramalla	24	5.8
	Bethlehem	14	3.4
	Salfeet	13	3.1
	Hebron	38	9.2
	Jericho	10	2.4
	1-5 Years	17	4.1

Total Years of Internet Usage	6-10 Years		85	20.5
	> 10 Years		313	75.4
Devices for accessing e-government services portal	Smart Phones		96	4.1
	Personal Computer / Laptop		23	20.5
	Both		294	75.4
Credit Card Ownership	Yes		235	56.6
	No		180	43.4
Paying Channel	Printing the reference number of the requested services		187	45.5
	Paying directly at the e-government services portal using Visa/Master Card		224	54.5

5.2. Measurement Models Assessment

Following the instructions of Hair et al. (2019), the researchers first ran the measurement model to verify the validity and reliability of the instruments used and then assessed the structural model to test the hypotheses developed.

Convergent and discriminant validity should be investigated when evaluating measurement models. Three criteria are used to assess the convergent validity of reflective measurement models: factor loadings, composite reliability (CR), and Average Variance Extracted (AVE). Hair et al. (2017) suggested a factor loading threshold of 0.708; however, a threshold of 0.7 is considered close and acceptable (Hair et al., 2017). They should be considered for deletion if their deletion results in an increase in the CR and AVE of the construct for loading between 0.4 and 0.7. (Hair et al., 2017). The CR and AVE must be at least 0.7 and 0.5, respectively (Hair et al., 2017). Table 3 summarizes the initial loadings, CR, and AVE of the items.

Table 3: Initial loadings, CR and AVE

Variable	Items	Loadings	CR	AVE	Variable	Items	Loadings	CR	AVE
PeEx	PeEx1	0.825	0.906	0.707	PeRi	PeRi1	0.658	0.815	0.469
	PeEx2	0.881				PeRi2	0.710		
	PeEx3	0.861				PeRi3	0.699		
	PeEx4	0.795				PeRi4	0.745		
						PeRi5	0.602		
EfEx	EfEx1	0.788	0.808	0.665	UAP	UAP1	0.844	0.902	0.741
	EfEx2	0.788				UAP2	0.867		
	EfEx3	0.854				UAP3	0.859		
	EfEx4	0.831				UAP4	0.873		
FaCo	FaCo1	0.785	0.829	0.551	Attitude	Attitude1	0.874	0.933	0.776
	FaCo2	0.750				Attitude2	0.894		
	FaCo3	0.824				Attitude3	0.876		
	FaCo4	0.588				Attitude4	0.878		
SoIn	SoIn1	0.855	0.851	0.604	BeIn	BeIn1	0.894	0.944	0.808
	SoIn2	0.877				BeIn2	0.903		
	SoIn3	0.861				BeIn3	0.910		
	SoIn4	0.419				BeIn4	0.887		

The loading of all items exceeds the cut-off value of 0.708 except for five items (FaCo4, SoIn4, PeRi1, PeRi3, PeRi5) as their loadings were 0.588, 0.419, 0.658, 699, and 0.602 respectively. However, the researcher deleted items FaCo4, and SoIn4 because FaCo4 and SoIn4 had loadings lower than 0.7,

PeRi5 was also deleted to increase the AVE of the construct which should be at least 0.5. For CR, all values are above 0.7 indicating a high level of internal consistency reliability between the items. All AVE values are above 0.5 for all variables, except for PeRi, which is 0.469 and increased to 0.507 after the deletion of PeRi5. This ensures that the convergent validity of the measurement model is achieved.

To assess the discriminant validity, which refers to the ability of items to differentiate between constructs when measuring distinct concepts, the heterotrait-monotrait ratio (HTMT) is used. According to Henseler et al. (2015) and Franke and Sarstedt (2019) neither cross-loadings nor Fornell-Larker criterion approaches detect discriminant validity. The HTMT criterion, proposed by Henseler et al. (2015) and updated by Franke and Sarstedt (2019), has two criteria: the stricter criterion, which requires HTMT values of 0.85, and the lenient criterion, which requires HTMT values of 0.90. All the values of HTMT ratios between the variables are less than the stricter criterion except for the ratio between Attitude and Behavioral intentions (0.897) which is lower than the lenient criterion and the two constructs (Attitude and Behavioral Intentions) are conceptually similar to each other, hence using 0.9 as a threshold is justified (Hair et al., 2017).

Table 4: The HTMT ratios of the variables

	Attitude	BeIn	EfEx	FaCo	PeEx	PeRi	SoIn	UAP
Attitude								
BeIn	**0.897**							
EfEx	0.633	0.611						
FaCo	0.636	0.562	0.752					
PeEx	0.700	0.693	0.749	0.609				
PeRi	0.307	0.295	0.186	0.223	0.186			
SoIn	0.588	0.576	0.610	0.421	0.691	0.126		
UAP	0.820	0.755	0.623	0.550	0.598	0.309	0.503	

5.3. Common Method Bias

Marker variable methodology was utilized to examine common method bias as a single source of data was employed to acquire the data. Using the three items of marker variable as an exogenous variable associated with all endogenous variables, a method factor was incorporated (EfEx, Attitude, and BeIn). Then, the baseline model and method factor model were compared in terms of R^2 values and path coefficients. In the method factor model, the increase in R^2 did not exceed 10%, and the significance of the coefficient path did not change. This means that the data is free of CMB issues.

5.4. Structural Models Assessment

5.4.1 Collinearity Analysis

The collinearity analysis is the first step in evaluating the structural model. The Variance Inflation Factor (VIF) values were calculated. All VIF values ranged between 1-2.249 which are lower than 3.3 (Diamantopoulos & Siguaw, 2006), indicating that no collinearity issues are present in the current study.

5.4.2 Normality Check

The multivariate skewness and kurtosis of the data were assessed to check the normality distribution of the data, as suggested by (Hair et al., 2017). The test was carried out using the WebPower website (Zhang & Yuan, 2018). The latent variable scores were uploaded for testing, and the retrieved results revealed that Mardia's multivariate skewness ($\beta= 8.052, p< 0.01$) and Mardia's multivariate kurtosis ($\beta = 96.092, p < 0.01$) were both significant. When these results are compared to the cut-off values of (multivariate skewness 3; multivariate kurtosis 20) stated by Kline (2015), it is clear that the data distribution is not normal. As a result, a nonparametric test is required to determine the significance of the weight, loadings, and path coefficient. The bootstrapping procedure with 5000 sample resamples was used to report the structural model's path coefficients, t-values, and p-values, as recommended by

Hair et al (2017).

5.4.3 Direct influence relationships significance

The direct effects on citizens' attitudes of the five exogenous variables PeEx, EfEx, SoIn, PeRi, and UAP were investigated. Because the p-value criterion has been criticized for not being a good criterion for examining significance since it is usually affected by sample size (Hahn and Ang, 2017), the researchers also used confidence intervals and effect size (substantive significance) to examine significance (Sullivan and Feinn, 2012). If the two bounds (lower and upper) have the same sign (+ or -), this indicates a significant relationship; otherwise, the confidence interval straddles a zero, indicating an insignificant relationship. For the effect size (f^2), which computes the relative influence of an exogenous construct on an endogenous construct, values of 0.02, 0.15, and 0.35 or higher represent small, medium, and large effects, respectively (Cohen, 1988).

5.4.3.1 Direct Relationships with Attitude

The first structural model in the proposed model links the four UMEGA model variables (PeEx, EfEx, SoIn, PeRi) and UAP with Attitudes. The results indicate that PeEx, SoIn, and UAP have a significant positive influence on citizens' attitudes as their p-value <0.001 and their confidence intervals do not straddle zero for all of them. Similarly, PeRi showed a significant negative influence on citizens' attitudes, with a p-value <0.05 and the confidence intervals do not straddle zero. Regarding influence size, PeEx, SoIn, and PeRi have small effect on citizens' attitudes as the f^2 values for all of them are less than 0.15, whereas UAP effect on citizens' attitudes is substantial as the f^2 value exceeds 0.35. This leads to support H1, H3, H6, and H7. On contrary to these results, EfEx did not show a significant relationship with citizens' attitudes since the p-value is 0.109 which is > 0.05, thus H2 is not supported, and the confidence interval bounds straddle a zero that confirms this result. All of these variables were responsible for R^2=63.4% of the change in citizens' attitudes.

5.4.3.2 Direct Relationships with Behavioral Intention (BeIn)

The current study's second structural model connects Attitude and FaCo with BeIn. The results show that FaCo has a direct positive significant influence on citizens' behavioral intentions toward using the portal for e-government services, as the p-value is less than 0.05 indicating support for H4. In line with this finding is the finding regarding the relationship between Attitude and BeIn, which demonstrates that Attitude has a significant influence on citizens' behavioral intention to use the portal for e-government services because the p-value is less than 0.05. Furthermore, the effect of attitude on behavioral intention is significant, with f^2= 1.374 supporting H8. FaCo and Attitude explain 67.2% of the variation in citizens' behavioral intention to use the portal for e-government services.

5.4.3.3 Direct Relationships between FaCo and EfEx

The third structural model in the present investigation links FaCo and EfEx. the results imply that FaCo has a direct, positive, and substantial influence on EfEx, thus supporting hypothesis 5. The effect of FaCo on EfEx is substantial, since f2=0.569, which is greater than 0.35. In addition, FaCo accounts for 36.3% of the variance in EfEx. Table 5 summarizes the findings related to these hypotheses.

Table 5: Hypotheses testing results

Hypothesis	Relationship	Beta	St. Dev.	T value	P Value	BCI LL	BCI UL	f^2	effect size	Supported?
H1	PeEx -> Attitude	0.233	0.048	4.851	0	0.152	0.313	0.071	small	**Yes**
H2	EfEx -> Attitude	0.054	0.044	1.231	0.109	-0.016	0.129	0.004	No Effect	**No**
H3	SoIn -> Attitude	0.12	0.035	3.407	0	0.059	0.176	0.024	small	**Yes**

H6	PeRi -> Attitude	-0.087	0.032	2.756	0.003	-0.137	-0.032	0.019	Small	**Yes**
H7	UAP-> Attitude	0.508	0.046	10.991	0	0.43	0.584	0.439	Large	**Yes**
H4	FaCo -> BeIn	0.053	0.031	1.719	0.043	0.002	0.104	0.006	No Effect	**Yes**
H8	Attitude -> BeIn	0.79	0.026	30.081	0	0.744	0.831	1.374	Large	**Yes**
H5	FaCo -> EfEx	0.602	0.037	16.21	0	0.533	0.657	0.569	Large	**Yes**

5.4.4 Predictive Relevance of the model

The blindfolding method was used to calculate Stone-Q2 Geisser's value in order to test the predictive relevance of these models (Geisser, 1974; Stone, 1974). Q2 measures the model's predictive power when it is used outside of the sample. A reflective endogenous variable Q2 value greater than zero indicated the model's predictive power (Hair et al., 2017). The PLS Predict method was used, and the predictive power of the Attitude structural model was Q2=62.6%, the BeIn structural model Q2 was 55.8%, and the EfEx structural model Q2 was 35.7%. These values indicate that these three models have sufficient predictive power.

6. Discussion

This study aims to determine the influence of an extended UMEGA model integrated with the unified access point on the attitude and behavioral intention of Palestinian citizens towards using the e-government services portal in Palestine. After analyzing the data, the researchers determined that some of the offered hypotheses were supported by the findings, but others were not. Policymakers and decision-makers can use benefit from the findings to discover the mechanisms through which citizens' intent to use e-government services can be increased, resulting in widespread population adoption. Achieving a high level of citizen engagement in e-government services has many benefits, including the efficient delivery of the provided services, a higher level of transparency, easier access to information, and ultimately a better quality of life for the citizens, which is one of the United Nations' Sustainable Development Goals (2020).

The hypotheses, H1, H3, H6, and H7 that were suggested to investigate the effects of performance expectation, social influence, perceived risks, and unified access point on citizens' opinions were supported. Contrary to the findings of Mensah et al. (2020), and consistent with the findings of Khurshid, et al. (2019), Verkijika and De Wet (2018), and Dwivedi et al. (2017), the positive influence of performance expectancy on citizens' attitudes was supported. This indicates that citizens' expectations regarding the performance of the e-government system portal have a beneficial effect on their attitude toward its use. Policymakers should recognize that when a system provides its users with a suitable level of performance, such as a user-friendly interface that enables citizens to complete activities swiftly and productively, they are more inclined to utilize it on a frequent basis. Therefore, it is vital to promote the usefulness of the site for e-government services to the public through campaigning and advertising. Furthermore, making the e-government services portal useful in citizens' daily lives is necessary too, this could be achieved by different means such as the ability to apply for the services online and receive the required services documents or results without the need for travel.

In accordance with the findings of Verkijika and De Wet (2018) and Dwivedi et al. (2017), social influence had a favorable, statistically significant effect on citizens' attitudes. People are frequently touched by the stories and experiences of others. Users of a particular information system acquire either positive or negative attitudes based on their usage and evaluation of the system's capacity to meet their needs and achieve their goals. Later, people may purposefully or accidentally spread their attitudes to co-workers, family members, and friends who are influenced by this experience or judgment (Dwivedi et al., 2017; Chiu et al., 2012). Therefore, government agencies can begin by encouraging their personnel to utilize the site and recommending its use to their immediate networks, who may in turn suggest it to their networks. In addition, utilizing the power of social media websites can be useful for promoting the use of an e-government services portal by adding supporting posts that express the positive experience of using the portal or by writing positive comments on the posts of others, which

may encourage social media users who read these posts and comments to use the portal.

The outcome related to the influence of effort expectancy on citizens' attitudes failed to support hypothesis H2. Analysis showed that no significant influence existed between the two variables. Although this result seems strange, it matches the findings of many previous studies such as Mensah et al. (2020), Khurshid et al. (2019), Verkijika and De Wet (2018), and Lallmahomed et al. (2017). Furthermore, in the UMEGA model itself, despite that effort expectancy was significant, it had the smallest effect on attitude. This would imply that as more individuals become familiar with technology, they will find it easier and easier to use e-government websites as their level of technological literacy increases. Therefore, the degree of ease connected with accessing e-government services is playing a minimum influence on their views and attitudes regarding using e-government services' portal, given that more than 85% of the respondents are holding at least a Bachelor's degree which supports this argument.

Another thing that was discovered was that citizens' perceptions of risk had a small but significant and unfavorable direct influence on their attitudes about the use of e-government services ($\beta = -0.087$; p-value=0.003). This conclusion provided support for the perceived risk negative influence on citizens' attitudes (H6), which is consistent with the findings of previous research (Verkijika and De Wet, 2018; Dwivedi et al., 2017). This demonstrates that citizens will be less likely to accept e-government services if they believe that using those services will put them at risk. The lower perceived risk level associated with the e-government services portal use contributes to a higher user's favorable attitude toward using it. The citizens' impression of the level of uncertainty that is linked with the portal has increased as a direct result of the fact that users can access e-government services whenever they choose to do so. Therefore, as a consequence, for a higher level of citizens' participation in and engagement with the e-government services portal, authorities should spare no effort in reducing citizens' concerns regarding perceived risk by enriching the portal with relevant and sufficient security measures that guarantee the safe transmission of citizens' personal and financial data, and to declare this explicitly on the website. This will allow for a higher level of citizens' participation in and engagement with the e-government services portal. Since these kinds of services are relatively new in Palestine and not everybody is familiar with them, one approach would be to use brief video clips of locals talking about their own personal experiences with regard to how risky or safe it was for them to use them.

As for the new hypothesis introduced in the present study as a novelty that examines the influence of UAP on citizens' attitudes the findings strongly and significantly supported the hypothesized relationship ($\beta = 0.508$; p-value=0.000). This indicates that the integration of all services under one umbrella that could be accessed by a single sign in is remarkably preferable by the citizens. The participants of the study perceived that it is in their interest, since they do not have to physically visit government departments nor Navigate between different websites to access or apply for a specific service. By UAP, the transactions are seamless, effortless, unlimited by time boundaries, and favourable to citizens who realized the accrued benefits such as an increased level of awareness about the newly added services, accessing information more efficiently, a better interaction medium with different departments and a better quality of life in the internet era.

Although the two factors that determine behavioral intentions had a significant impact on the citizens' behavioral intentions, the influence of facilitating conditions was extremely minimal in comparison to the substantial impact that citizens' attitudes had. The findings provided support for Hypothesis 8, which postulates a positive significant influence between citizens' attitudes and their behavioral intentions towards the use of the e-government services portal. This hypothesis was in line with other research, such as that conducted by Kirat Rai et al. (2020), Mensah et al., (2020), Kurshid et al., (2019), and Al-Hujran et al., which also found a positive significant influence between citizens' attitudes and their behavioral intentions (2015). Therefore, decision-makers should spare no effort in boosting citizens' attitudes (by placing an emphasis on the benefits that may be attained through the usage of the portal), which will in turn enhance the citizens' behavioral intentions towards the use of an

e-government services portal. For facilitating conditions influence citizens' behavioral intention, the findings agreed with the previously published findings of Mensah et al., (2020), Al-Swidi and Faaeq (2019), Mensah (2019), Kurfal et al., (2017), and Dwivedi et al. (2017). Despite the significance of facilitating conditions, the fact that citizens do not have access to free internet may be to blame for the relatively minor impact that facilitating conditions have on the behavioral intentions of citizens. Citizens would be forced to shoulder additional financial burdens if they decided to purchase internet bundles because having access to the internet is a prerequisite for using the portal for e-government services. Free internet access would therefore help improve the facilitating conditions, which would ultimately have a favorable effect on the citizens' behavioral intentions. In particular, the fact that numerous countries in the Middle East region have implemented such methods, including Qatar (Al-Shafi and Weerakkody, 2011). This argument is supported by the findings related to the influence of facilitating conditions on effort expectance (H5) which was significant. The effect size of facilitating conditions on effort expectance was large, indicating that citizens believed that the availability of facilitating conditions such as PCs, internet connection, the required skills to use the portal for e-government services, and a government help center could make the system easier to use. The significance of this relationship should compel the authorities behind the portal for e-government services to provide all available assistance to citizens to facilitate their use of the portal. These findings matched the findings of previous studies such as Mensah et al., (2020), Dwivedi et al. (2017), and Alrawashdeh et al. (2012).

7. Conclusion

The literature lacks evidence regarding the influence of unified access point implemented by e-portals on citizens' behavioral intentions regarding the use of e-government services. The current study aimed to help fill this gap by integrating the UMEGA model with UAP as a predictor of behavioral intentions in the Palestinian context. The study was able to achieve its objectives and answer the proposed research questions: (1) what is the influence of the UMEGA Model variables on Palestinian citizens' behavioral intentions toward using the e-government services' portal? and (2) what is the influence of the unified access point on citizens' attitudes and ultimately their behavioral intentions? It was determined that performance expectations, social influence, perceived risk, and a uniform access point are the most influential elements in determining attitudes. Attitude and enabling conditions are recognized as determinants of behavioral intention, with facilitating factors dictating effort expectations. Theoretically, the study will add to the literature because it examines the influence of UAP as a predictor of attitude, which has not been studied previously in the context of e-government. On the other hand, empirically speaking, the findings would be valuable to the authorities, specifically the Department of Electronic Government, as it will identify the elements that influence individuals' attitudes and behavioral intentions about the use of e-government services. In addition, this would aid the authorities in enhancing their web portal so that the usage of the UAP is as clear and straightforward as possible, as this had the greatest influence on individuals' perceptions. As well as implementing all security measures that lessen citizens' sense of risk and encourage their use of e-government services. E-government agencies and private sector practitioners could profit from the commonalities between electronic systems and identify the most important features from citizens' perspectives, notably in e-commerce. Though indirectly, the major stakeholders are Palestinian citizens, who will use a more robust and efficient system for governmental transactions. The present study's findings will also benefit scholars and future research.

Finally, yet importantly, the study faced some limitations including the use of a cross-sectional approach to investigate factors that may influence citizens' behavioral intentions before the launch of the e-government services portal. This approach has limitations in capturing dynamic and unpredictable user behavior associated with new technology adoption. Additionally, the respondents were asked about their expectations of the system, which may change after they actually use it, potentially altering the results. To address this limitation, a longitudinal experimental approach would be more beneficial as it

would allow respondents more time to investigate and experience the usage of the e-government services portal. Another limitation was the restricted access to critical information. As the Department of E-government manages the e-government services portal in Palestine, during the data collection process, the researcher requested some basic screenshots of the system screens to aid in clarifying the system to respondents, but the department refused to provide any images. The reason given for this refusal was that the screenshots could change before the release of the system. Lastly, the current study has been contextualized within the Palestinian context, and although it could be applicable to similar contexts, particularly those with conflicts, it may not be generalized to other countries without further research. However, the framework and model developed can serve as a foundational theory and a guide for researchers conducting similar studies.

References

Andrie, V., U. T. (2023). Can Attitude be a Mediator in Increasing User Intention in the Midst of Online Courier Service Businesses?. Journal of System and Management Sciences, 13(1), 362-381. https://doi.org/10.33168/JSMS.2023.0120 .

ALaroud, T., Mbaidin, H., Allahawiah, S., AlMubydeen, I. (2023). The Impact of Citizens' Engagement on E-Government Applications from the Employees Perspective in the Jordanian Financial Sector. Journal of System and Management Sciences, 13(1), 396-414. https://doi.org/10.33168/JSMS.2023.0122

Abu-Shanab, E. A. (2017). E-government familiarity influence on Jordanians' perceptions. Telematics and Informatics, 34(1), 103–113. https://doi.org/10.1016/j.tele.2016.05.001

Agarwal, R., & Prasad, J. (1999). Are Individual Differences Germane to the Acceptance of New Information Technologies? Decision Sciences, 30(2), 361–391. https://doi.org/10.1111/j.1540-5915.1999.tb01614.x

Ajzen, I. (1969). Prediction and change of behavior in the prisoner's dilemma. University of Illinois at Urbana-Champaign.

Ajzen, I. (1991). The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Ajzen, I. (2011). The Theory of Planned Behaviour: Reactions and Reflections. Psychology & Health, 26(9), 1113–1127. https://doi.org/10.1080/08870446.2011.613995

Al-Hujran, O., Al-Debei, M. M., Chatfield, A., & Migdadi, M. (2015). The imperative of influencing citizen attitude toward e-government adoption and use. Computers in human Behavior, 53, 189-203. https://doi.org/10.1016/j.chb.2015.06.025

Aljukhadar, M., Belisle, J.-F., Dantas, D. C., Sénécal, S., & Titah, R. (2022). Measuring the service quality of governmental sites: Development and validation of the e-Government service quality (EGSQUAL) scale. Electronic Commerce Research and Applications, 55, 101182. https://doi.org/10.1016/j.elerap.2022.101182

Alrawashdeh, T. A., Muhairat, M. I., & Alqatawnah, S. M. (2012). Factors affecting acceptance of web-based training system: Using extended UTAUT and structural equation modeling. arXiv preprint arXiv:1205.1904. https://doi.org/10.5121/ijcseit.2012.2205

Al-Shafi, S., & Weerakkody, V. (2011). Implementing free wi-fi in public parks: An empirical study in Qatar. In Applied Technology Integration in Governmental Organizations: New E-Government Research (pp. 201-214). IGI Global. https://doi.org/10.4018/jegr.2009070102

Al-Swidi, A. K., & Faaeq, M. K. (2019). How robust is the UTAUT theory in explaining the usage intention of e-government services in an unstable security context?: A study in Iraq. Electronic Government, an International Journal, 15(1), 37-66. https://doi.org/10.1504/eg.2019.10016168

Andraško, J. (2017). Theoretical aspects of public administration electronic services. Bratislava law review, 1(2), 119-128. https://doi.org/10.46282/blr.2017.1.2.76

Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed.). Hillsdale, NJ: Erlbaum

Confente, I. and Vigolo, V. (2018). Online travel behaviour across cohorts: T he impact of social influences and attitude on hotel booking intention. International Journal of Tourism Research, 20(5), pp.660-670. https://doi.org/10.1002/jtr.2214

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS quarterly, 319-340. https://doi.org/10.2307/249008

Diamantopoulos, A., & Siguaw, J. A. (2006). Formative Versus Reflective Indicators in Organizational Measure Development: A Comparison and Empirical Illustration. British Journal of Management, 17(4), 263–282. https://doi.org/10.1111/j.1467-8551.2006.00500.x

Dwivedi, Y. K., Rana, N. P., Janssen, M., Lal, B., Williams, M. D., & Clement, M. (2017). An empirical validation of a unified model of electronic government adoption (UMEGA). Government Information Quarterly, 34(2), 211-230. https://doi.org/10.1016/j.giq.2017.03.001

Effendi, I., Murad, M., Rafiki, A., & Lubis, M. M. (2020). The application of the theory of reasoned action on services of Islamic rural banks in Indonesia. Journal of Islamic Marketing. https://doi.org/10.1108/jima-02-2020-0051

Ejdys, J., Ginevicius, R., Rozsa, Z. and Janoskova, K., 2019. The role of perceived risk and security level in building trust in E-government solutions. 3(XXII), pp: 220-235. https://doi.org/10.15240/tul/001/2019-3-014

Featherman, M. S., & Pavlou, P. A. (2003). Predicting e-services adoption: a perceived risk facets perspective. International journal of human-computer studies, 59(4), 451-474. https://doi.org/10.1016/s1071-5819(03)00111-3

Featherman, M. S., & Wells, J. D. (2010). The intangibility of e-services: Effects on perceived risk and acceptance. ACM SIGMIS Database: the DATABASE for Advances in Information Systems, 41(2), 110-131. https://doi.org/10.1145/1795377.1795384

Franke, G., & Sarstedt, M. (2019). Heuristics versus statistics in discriminant validity testing: a comparison of four procedures. Internet Research. https://doi.org/10.1108/intr-12-2017-0515

Fu, J.R., Farn, C.K. and Chao, W.P. (2006). Acceptance of electronic tax filing: A study of taxpayer intentions. Information & management, 43(1), pp.109-126. https://doi.org/10.1016/j.im.2005.04.001

Geisser, S. (1974). A predictive approach to the random effect model. Biometrika, 61(1), 101-107. https://doi.org/10.1093/biomet/61.1.101

Hahn, E.D. and Ang, S.H. (2017). From the editors: New directions in the reporting of statistical results in the Journal of World Business. Journal of World Business, 52(2), pp.125-126.

Hair, J. F., Black, Jr, W.C., Babin, B.J., Anderson, R.E. (2019). Multivariate Data Analysis, 8th Ed. Cengage Learning.

Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). A primer on partial least squares structural equation modeling (PLS-SEM) 2nd Ed, Sage publications.

Hajnal, G. and Kovács, É. (2013). September. Coordination at the middle: Reforms of the county level state administration in Hungary (1990-2012). In EGPA, Annual Conference, Edinburgh, UK (pp. 11-13).

Hamad, A. A. A., Petri, I., Rezgui, Y., & Kwan, A. (2017). Towards the innovation of an integrated 'One-Stop-Shop' online services utility management: Exploring customer' technology acceptance. Sustainable cities and society, 34, 126-143. https://doi.org/10.1016/j.scs.2017.06.019

He, L., Park, K. & Roehl, W.S. (2013). Religion and perceived travel risks. Journal of Travel & Tourism Marketing, 30(8), pp.839-857. https://doi.org/10.1080/10548408.2013.835674

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the academy of marketing science, 43(1), 115-135. https://doi.org/10.1007/s11747-014-0403-8

Janenova, S., & Kim, P. S. (2016). Innovating public service delivery in transitional countries: The case of one stop shops in Kazakhstan. International Journal of Public Administration, 39(4), 323-333. https://doi.org/10.1080/01900692.2015.1064445

Khan, S. U., Liu, X., Khan, I. U., Liu, C., & Rasheed, M. I. (2020). Assessing the investors' acceptance of electronic stock trading in a developing country: the Mediating role of perceived risk dimensions. Information Resources Management Journal (IRMJ), 33(1), 59-82. https://doi.org/10.4018/irmj.2020010104

Khurshid, M. M., Zakaria, N. H., Rashid, A., Ahmed, Y. A., & Shafique, M. N. (2019, September). Adoption of Transactional Service in Electronic Government–A Case of Pak-Identity Service. In Conference on e-Business, e-Services and e-Society (pp. 439-450). Springer, Cham. https://doi.org/10.1007/978-3-030-29374-1_36

Kim, M. S., & Hunter, J. E. (1993). Relationships among attitudes, behavioral intentions, and behavior: A meta-analysis of past research, part 2. Communication research, 20(3), 331-364. https://doi.org/10.1177/009365093020003001

Kline, R. B. (2015). Principles and practice of structural equation modeling. Guilford publications.

Lallmahomed, M. Z., Lallmahomed, N., & Lallmahomed, G. M. (2017). Factors influencing the adoption of e-Government services in Mauritius. Telematics and Informatics, 34(4), 57-72. https://doi.org/10.1016/j.tele.2017.01.003.

Li, Y., & Shang, H. (2020). Service quality, perceived value, and citizens' continuous-use intention regarding e-government: Empirical evidence from China. Information & Management, 57(3), 103197. https://doi.org/10.1016/j.im.2019.103197

Lin, T. C., Huang, S. L., & Hsu, C. J. (2015). A dual-factor model of loyalty to IT product–The case of smartphones. International Journal of Information Management, 35(2), 215-228. https://doi.org/10.1016/j.ijinfomgt.2015.01.001

Mensah, I.K. (2019). Factors influencing the intention of university students to adopt and use e-government services: An empirical evidence in China. Sage Open, 9(2), p.2158244019855823. https://doi.org/10.1080/01900692.2019.1572621

Mensah, I. K., Zeng, G., & Luo, C. (2020). The Impact of National Culture Dimensions on the Adoption of Cross-Border E-Commerce: A Comparative Study. International Journal of Information Systems in the Service Sector (IJISSS), 12(4), 91-112. https://doi.org/10.4018/ijisss.2020100105

MTIT (2021). Ministry of Communications and Information Technology. https://main.eapp.gov.ps/c_dashboard/sso

Moore, G. C., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. Information systems research, 2(3), 192-222. https://doi.org/10.1287/isre.2.3.192

OECD (2014). Recommendation of the Council on Digital Government Strategies, OECD Publishing, Paris, www.oecd.org/gov/digital-government/Recommendation-digital-government-strategies.pdf

OECD (2016), Digital Government. Available. Last Accessed. 6/7/2021. https://www.oecd-ilibrary.org/docserver/9789264251823-15-en.pdf?expires=1625581505&id=id&accname=guest&checksum=45F8766D901B6A3EF04B959CE29AAFBF

Park, S., & Tussyadiah, I. P. (2017). Multidimensional facets of perceived risk in mobile travel booking. Journal of Travel Research, 56(7), 854-867. https://doi.org/10.1177/0047287516675062

Pavlou, P. A. (2003). Consumer acceptance of electronic commerce: Integrating trust and risk with the technology acceptance model. International Journal of Electronic Commerce, 7(3), 69–103.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. Journal of applied psychology, 88(5), 879. https://doi.org/10.1037/0021-9010.88.5.879

PCBS (2020). Palestinian Central Bureau of Statistics. https://www.pcbs.gov.ps/postar.aspx?lang=ar&ItemID=3699

Rana, N. P., Dwivedi, Y. K., Lal, B., Williams, M. D., & Clement, M. (2015). Citizens' adoption of an electronic government system: towards a unified view. Information systems frontiers, 19(3), 549-568. https://doi.org/10.1007/s10796-015-9613-y

Rana, N.P., Dwivedi, Y.K., Williams, M.D. & Weerakkody, V. (2016). Adoption of online public grievance redressal system in India: Toward developing a unified view. Computers in Human Behavior, 59, pp.265-282. https://doi.org/10.1016/j.chb.2016.02.019

Ringle, C. M., Wende, S., & Becker, J.-M. (2022). "SmartPLS 4." Oststeinbek: SmartPLS GmbH, http://www.smartpls.com.

Saunders, M., Lewis, P., & Thornhill, A. (2019). Research methods for business students. Eighth Edition. Pearson education.

Sekaran, U., & Bougie, R. (2019). Research methods for business: A skill building approach. John Wiley & Sons.

Shropshire, J., Warkentin, M., & Sharma, S. (2015). Personality, attitudes, and intentions: Predicting initial adoption of information security behavior. computers & security, 49, 177-191. https://doi.org/10.1016/j.cose.2015.01.002

Sischka, P.E., Costa, A.P., Steffgen, G. & Schmidt, A.F. (2020). The WHO-5 well-being index–validation based on item response theory and the analysis of measurement invariance across 35 countries. Journal of Affective Disorders Reports, 1, p.100020. https://doi.org/10.1177/0894439320907067

Stone, M. (1974). Cross-validation and multinomial prediction. Biometrika, 61(3), 509-515.

Sukendro, S., Habibi, A., Khaeruddin, K., Indrayana, B., Syahruddin, S., Makadada, F. A., & Hakim, H. (2020). Using an extended Technology Acceptance Model to understand students' use of e-learning during Covid-19: Indonesian sport science education context. Heliyon, 6(11), e05410. https://doi.org/10.1016/j.heliyon.2020.e05410

Sullivan, G. M., & Feinn, R. (2012). Using effect size—or why the P value is not enough. Journal of graduate medical education, 4(3), 279-282. https://doi.org/10.4300/jgme-d-12-00156.1

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. MIS quarterly, 425-478. https://doi.org/10.2307/30036540

Venkatesh, V., Thong, J., Xu, X. (2012). Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. MIS Quarterly 36 (1), 157–178. https://doi.org/10.2307/41410412

Verkijika, S. F., & De Wet, L. (2018). E-government adoption in sub-Saharan Africa Electronic Commerce Research and Applications, 30, 83-93. https://doi.org/10.1016/j.elerap.2018.05.012

Waithaka, S.T. & Mnkandla, E. (2017). Challenges facing the use of mobile applications for e-commerce in Kenya's manufacturing industry. The Electronic Journal of Information Systems in Developing Countries, 83(1), pp.1-25.

Williams, M. D., Rana, N. P., & Dwivedi, Y. K. (2015). The unified theory of acceptance and use of technology (UTAUT): a literature review. Journal of enterprise information management, 28(3), 443-488. https://doi.org/10.1108/JEIM-09-2014-0088

Zahid, H., & Haji Din, B. (2019). Determinants of Intention to Adopt E-Government Services in Pakistan: An Imperative for Sustainable Development. Resources, 8(3), 128. https://doi.org/10.3390/resources8030128

Zhu, Y. Q., Azizah, A. H., & Hsiao, B. (2021). Examining multi-dimensional trust of technology in citizens' adoption of e-voting in developing countries. Information Development, 37(2), 193-208. https://doi.org/10.1177/0266666920902819

Zeebaree, M., Aqel, M., & Agoyi, M. (2023). Challenges Facing E-government Implementation and Adoption in the Era of 5G, 6G. Journal of Internet Technology, 24(1), 173-184.

Appendix A

Items' measures and their sources

Variable	Item	Source
Performance Expectancy	I would find the Palestinian e-Government services portal useful in accessing government services.	Venkatesh et al (2003)
	Using Palestinian e-government services' portal would assist me in accomplishing government services related tasks more quickly.	
	I think that using Palestinian e-Government services portal would increase my productivity, as it will enable me to carry out more government services related tasks in shorter time	
	I would find the Palestinian e-government services portal useful in citizens' everyday life.	Verkijika and De Wet (2018)
Effort Expectancy	My interaction with the Palestinian e-Government services portal would be clear and understandable	Venkatesh et al (2003)
	I would find the Palestinian e-Government services portal easy to use.	
	It would be easy for me to become skillful in using Palestinian e-Government services portal.	Verkijika and De Wet (2018)
	Learning to operate the Palestinian e-Government services portal would be easy for me	
Social Influence	People who are close to me think that I should use the e-Government services portal.	Venkatesh et al (2003)
	People who influence me think that I should use e-government services portal.	
	People whose opinions I value would prefer me to use e-government services	Verkijika and De Wet (2018)
	I would use the e-government services portal if my friends used them	Venkatesh et al (2003)
Facilitating Conditions	I have the resources (eg. computer, mobile phone) that are necessary to use the e-Government services portal	Venkatesh et al (2003)
	I have the knowledge necessary to use the e-Government services portal (eg, computer usage skills)	
	I can get help from others when I have difficulties using e-government services portal	Lallmahomed et al. (2017)
	I can consult The Government Help Centre if I have difficulty using e-government services portal	
Perceived Risk	I think that the chances of losing money if I use the e-government services portal are high	Featherman and Pavlou (2003)
	Using the e-government services portal would lead me to lose a lot of time in fixing errors (e.g payment errors)	
	I think that the e-government services portal is not a better alternative than the traditional methods	Khan et al. (2020)
	While using the Palestinian e-Government Services Portal, I may be exposed to unexpected or unreasonable fees	
	While using e-government services portal, I may encounter technology related problems such as internet connection failure that would adversely affect my transaction	He et al (2013)
Unified Access Point	By using the e-government services portal my awareness about the existing and continuously-added e-government services would increase	Hamad et al. (2017)

Variable	Item	Source
	I believe that the e-government services portal will be an appropriate communication medium for interaction with the various government departments	
	By using the e-government services portal, I get better services than that through branch offices	
	Using the e-government services portal gives me greater control over my interactions	
Attitude	Using the e-government services portal would be a good idea	Dwivedi et al (2017)
	Using the e-government services portal would be a wise idea	
	Using the e-government services portal would be pleasant	
	I like the idea of using the e-government services portal	
Behavioral Intentions	I intend to use the e-government services portal in the coming months	Venkatesh et al (2003)
	I plan to use the e-government services portal in the coming months.	
	I intend to carry out my government related transactions via the e-government services portal	Mensah et al (2020)
	I will encourage friends and relatives to use the e-government services portal	