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Assessing Citizens' Attitudes and Intentions to Adopt E-Government Services: A Roadmap toward Sustainable Development

Yongrong Xin [1], Azer Dilanchiev [2], Madad Ali [3], Muhammad Irfan [4,5,6,*] and Yangxiao Hong [7]

1 Business School, Jiangsu Open University, Nanjing 210036, China
2 Faculty of Business and Technologies, International Black Sea University, 0131 Tbilisi, Georgia
3 School of Economics and Management, Qujing Normal University, Qujing 655011, China
4 School of Management and Economics, Beijing Institute of Technology, Beijing 100081, China
5 Center for Energy and Environmental Policy Research, Beijing Institute of Technology, Beijing 100081, China
6 Department of Business Administration, ILMA University, Karachi 75190, Pakistan
7 School of Ethnology, North Minzu University, Yinchuan 750030, China
* Correspondence: irfansahar@bit.edu.cn

Abstract: Technological advances have ushered in the era of "e-services." Scientists and academics are trying to determine how e-services affect citizens' lives, satisfaction, and future service quality. As e-government emerges, this knowledge leads to improved frameworks for delivering e-services. This study examined the factors influencing Pakistanis to adopt e-government services, particularly those living abroad. Online surveys (structured questionnaires) were administered primarily among Pakistani citizens, including those residing in China and Turkey, via social media networking techniques. Purposive convenience sampling was used, 599 people were surveyed, and the results were considered complete enough to analyze. Structured equation modeling (SEM) and Amos were used to interpret quantitative research results. Results show that values are strongly correlated with expectations about others' efforts. An invaluable feature of e-government services is their simplicity of use. It may be possible for policymakers to overcome barriers to e-government by using these research findings.

Keywords: e-government services; modified technology acceptance model; e-government trust; perceived public value; behavioral intentions; environmental sustainability

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1. Introduction

In the 21st century, we live in the era of "e-services," which is the vital shift of the market from goods to services, as well as the exponential expansion of electronic networks and IT-based economies [1,2]. Several governments around the globe have made e-government services a top priority. Information and communication technology (ICT) has been widely used in government services due to its ubiquitous usage, the potential for good change, and implementation strategies. The Economic Development Board has established broad guidelines and principles for e-government projects (EDB). This government agency encourages foreign investment in significant economic clusters, notably the information and communication technology sector. In today's information-based economy, governments cannot avoid integrating ICT [3]. People in such societies add to the problem by avoiding solutions offered by the government in digital form. Expatriates face several problems in other countries when they try to connect with their home countries due to a lack of governance development. In 2012, an e-governance initiative was taken to launch in Pakistan, but unfortunately, the adoption pace was languid. Currently, the developing world is focusing on the electronic mode of governance to attain sustainable development goals and their associated targets.

It is essential to note that the need for managing administration goes far beyond just territorial security but also encompasses several fundamental and constitutional issues, as outlined in the concurrent and union list of the state [4]. Studies have shown that e-government in various sectors is resilient to attacks by threats and frauds, inadvertent viruses, and variously motivated cybercrimes. There is a lack of IT infrastructure in developing countries, a lack of the implementation of IT policies across the states, and a lack of qualified human resources. As a result of economic liberalization and the development of e-governance in the country, the constitution has undergone numerous revisions on these lines in the past few decades. The diffusion of technological advances throughout society increases fears of identity theft and privacy loss [5]. With the inherent uncertainty of using an open technology infrastructure such as the internet, citizens desire assurances that their online interactions with the government are secure [6]. E-government has the potential to improve government transparency, responsiveness, and accountability. However, e-services will only be used if citizens deem them trustworthy. When uncertainty or risk is present, trust is considered an essential component of the relationship [7]. Trust has been studied extensively in e-commerce [8,9]. Researchers have yet to empirically explore the importance of trust in e-government adoption. In some studies, trust has been considered in broader adoption models [10]. However, few studies have examined the impact of trust on the adoption of e-government exclusively [11]. However, the above literature has studied the importance of e-governance in different contexts. Still, there is a need to explore e-government adoption moderating the impact of trust. Therefore, the below questions are investigated here. In advanced economies over the past few decades, the widespread adoption of e-services has been happening in this century [12]. The present study analyzes data from Pakistan, China, and Turkey to determine what influences Pakistani residents' willingness to use e-government services.

RQ1: How are e-government services influencing the lives of Pakistanis currently residing in other countries? RQ2: To what degree does trust in government influence the citizens' attitude toward adopting e-government services? RQ3: How does performance expectancy affect expatriate Pakistanis' satisfaction with the utilization of e-government services? This study contributes to the existing literature in the following way: the current research uses trust in the government as a unique stance to increase the confidence of individuals in the government who are providing services. There is a need on both sides to better understand what motivates individuals to use public-sector digital services. This research will shed light on the elements that would either slow down or speed up the implementation of Pakistan's and expatriate Pakistanis' e-government service infrastructures. The history of failed efforts to deploy e-government in other developing nations is presented. Governments in developing countries and transitional societies may use this research as a roadmap to adopt e-government services successfully. Academics and scholars have been interested in the impacts of e-business on people's everyday lives, levels of satisfaction, and the efficacy of offered services since the debut of e-government services [13]. Increased reliance on information and communication technologies (ICT) has become necessary in many facets of governance [14].

2. Literature Review

2.1. The Theoretical Stance Adopted from TAM and TAM2

To measure the pace of e-government adoption and citizens' intent to use e-government services, it is appropriate to apply the technology acceptance model (TAM), the most extensively used theory for analyzing the rate at which new technologies are accepted. The TAM, developed by Davis [15] and based on the theory of reasoned action (TRA) [16], shows how people's routines change as a consequence of using innovative technology. Users' intent to embrace new technology may be influenced by the TAM's two key components, performance expectation and effort expectancy. Using the public value associated with people as an antecedent for performance expectation and effort expectancy, this research analyzes citizens' intentions and attitudes toward e-government services. Identifying trust,

safety, and protection concerns are critical in IS/IT. Security, privacy, and trust concerns are causing many companies to fear that their clients will not utilize their technology, not even for e-government services [17,18]. Safa [19] argues that the public's wariness of e-government and other online services is a persistent obstacle to the further development of IS. Therefore, companies must provide adequate security measures for all online transactions and user authorization for all online verification [20].

The degree to which people believe in e-government services is frequently mentioned as a critical indicator of how well such services will be received and used. Because it is beneficial when dealing with uncertainty and security problems in the digital realm, several researchers' efforts have illuminated this problem [21,22]. Trust, as defined by Belanger and Carter [11] believes in the reliability and honesty of e-marketers. The concept, therefore, suggests that dependable traits should be preserved. Numerous theoretical and observational studies have shown the significance of trust in TAM2, comprised of two systems: perceived utility (PU) and perceived ease of use (PEOU). The same is true for electronic government systems, and it has been emphasized that trust is essential for e-government to function well. In addition, people's perspectives on data privacy should be surveyed using direct questionnaires [23]. Figure 1 presents the conceptual model of the study.

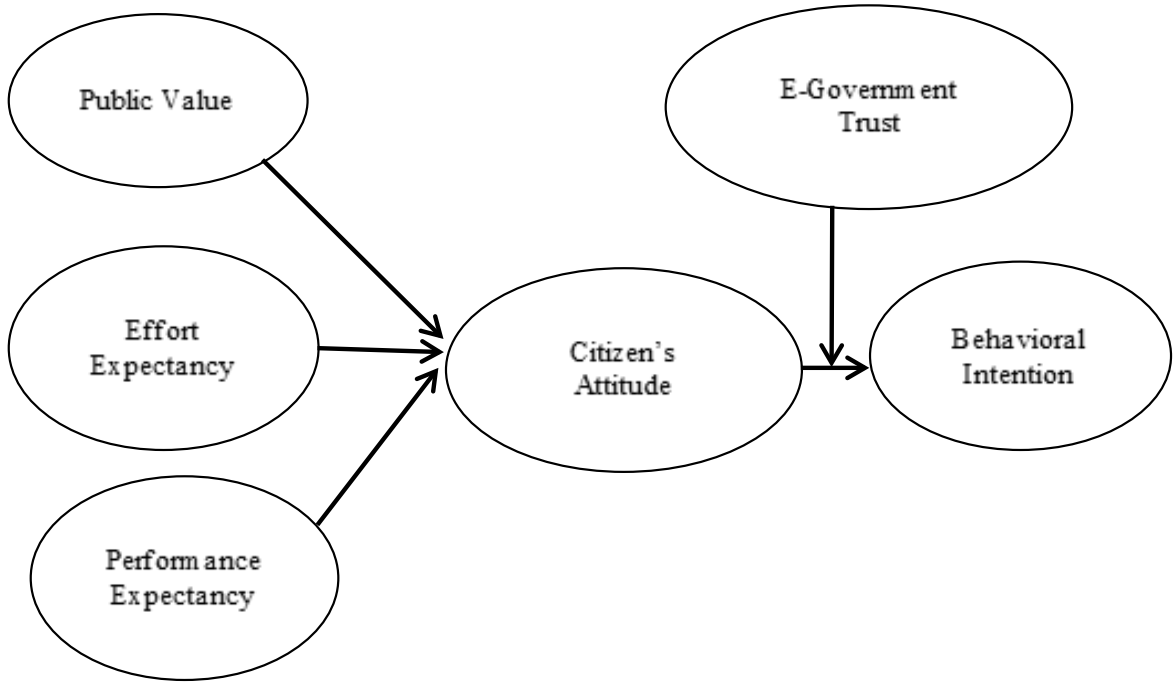

Figure 1. Proposed model for the study.

2.2. Public Value

Ali et al. [24] argue that governments generate public value via various means, including providing services, legal regulation, and other forms of activity. Using these procedures, we may compile and share with the public every facet of a government program's success [25]. Many parties are involved in e-government, including citizens, businesses, other government agencies, and government workers [26]. To paraphrase, "Stakeholders and governments may choose what constitutes actual public value," hence, the notion of public value depends on stakeholder choices [27]. Because of the benefits received, continuing government expenditure on electronic services is lawful and acceptable in the long run. In other words, the credibility of e-services depends on their capacity to serve the public interest via means that align with the goals of e-government. To regain the people's confidence, governments must use new electronic systems to enhance government information and services, public governance, openness, and accountability [28]. According to research

conducted by Bailey [29], individuals are more likely to utilize e-government services if they feel doing so would reduce their financial and time commitments. Considerable public importance is placed on the ability to help people save both time and money.

Hypothesis 1 (H1). *Public value has a positive impact on Citizens' attitudes toward e-government services.*

2.3. Effort Expectancy

To be successful, the suggested TAM must consider customers' expectations of how time-consuming it would be to use the new technology [30]. People's "effort expectation" measures how easy they think new technology will be to learn and use. Users are more likely to use government-run websites if they are easy to navigate, as stated by [24]. According to research by Underwood and [31], clients are more likely to have faith in a business after interacting with an easy-to-navigate website. Consumers who have difficulty navigating a website are less likely to utilize the site's built-in communication features [32]. Therefore, e-government services must be understandable and straightforward. This facilitates the accessibility of these services for those with less internet proficiency.

Hypothesis 2 (H2). *Effort expectancy has a positive impact on Citizens' attitudes toward e-government services.*

2.4. Performance Expectancy

Davis [33] defines "performance expectation" as "the degree to which a person believes that utilizing a certain method would improve performance." User and citizen expectations of a technology's performance significantly impact its TAM. Citizens' confidence in their ability to learn about and master the usage of government services online is measured by their "performance expectation" in the realm of e-government [34,35]. According to Krishnan [36], if the e-government website offers high-quality information and services, people would be willing to accept e-government services [37].

Hypothesis 3 (H3). *Performance expectancy has a positive impact on Citizens' attitudes toward e-government services.*

2.5. Citizens' Attitudes toward Intention to Use E-Government Services

Attitude is defined as the psychological tendency to express one's likes and dislikes while assessing a situation. A person's attitude may be defined as their emotional response to a given circumstance [38,39]. Individuals' propensity to interact with e-government portals is the focus of this study, which defines behavioral intents in that context [40,41]. In the context of e-government, "the intensity of a person's desire to assess a given activity" is the definition of "behavioral intent" [42]. According to the idea of intent, user behavior and IT adoption are driven by the original goal behind IT purchases. The TAM is a theoretical instrument for gauging the relative importance of the factors of belief, attitude, and behavior [43]. There has been a plethora of research looking at what elements affect a system's acceptance of behavioral intent and what motivates a user to put in the effort to use that system [44].

Hypothesis 4 (H4). *Citizens' attitudes have a positive impact on intentions to use e-government services.*

2.6. The Mediating Role of Citizenship Attitude

One of the most critical determinants of altruistic actions is one's attitude [45]. Acceptance of e-government initiatives may be increased by using AI [46]. Further, according to [47], a change in public opinion toward implementing e-government projects helps ensure the long-term viability of human civilization. The TAM initially included attitude

as a connection between beliefs and intention to use, but some scholars have contested the complete mediation of beliefs by attitude [48]. Davis et al.'s [33] research failed to show that attitudes were a complete mediator. This principle is expressed as follows in the workplace: individuals may adopt a technology even if they do not have a pleasant attitude (affect) toward it, since it may boost productivity. Due to the voluntary nature of using e-government services, we contend that one's outlook plays a crucial role in influencing behavioral intention to do so. The original TAM was chosen as the foundation for this research because of its integration of the attitude construct, which was discovered via a survey of the related literature.

2.7. E-government Trust Acts as a Moderator, Reducing the Severity of the Effects

When citizens trust their government, they anticipate that their representatives will carry out the law and fulfill their campaign pledges. The government of Pakistan has shown a lack of collaboration regarding the implementation of ICT, the standardization of system usage, and the creation of rules and regulations about sharing information [49]. Because of these issues, the Pakistani government may be unable to meet the needs of its citizens when it comes to providing them with essential services and information. Therefore, Pakistani residents may wonder whether their government has the authority to carry out all the necessary duties, such as an efficient and secure transaction system, in an e-government environment. So, this study looks at how individuals in Pakistan react when they "trust the government's desire to employ e-government services." Belanger and Carter's [11] research on the impact of government trust on e-government adoption in the United States offers empirical data in this regard (US). They find that people's confidence in the government affects their willingness to utilize e-government services. However, studies examining how citizens' faith in their government affects the introduction of e-government in developing nations such as Pakistan are rare. Based on these arguments, we proposed that:

Hypothesis 5 (H5). *E-government trust significantly moderates the relationship between Citizens' attitudes and behavioral intentions.*

Hypothesis 6a (H6a). *Citizens' attitudes positively mediate the relationship between public values and behavioral intentions.*

Hypothesis 6b (H6b). *Citizens' attitudes significantly mediate the relationship between effort expectancy and behavioral intentions.*

Hypothesis 6c (H6c). *Citizens' attitudes significantly mediate the relationship between performance expectancy and behavioral intention.*

3. Material and Methods

3.1. Instrument Development

This study utilizes a quantitative research approach to determine the impact of numerous moderator variables on the adoption of e-government. According to Creswell [50], such quantitative variables should be coded within the measuring tools, in this case, questionnaires, in a way that makes it easy to perform descriptive or inferential statistical data analysis. The researchers used a self-administered online questionnaire to collect the study's primary data. The ideas used in this study were taken from another research to ensure they were reliable and valid. The way people felt about using e-government services was measured by giving them a scale made by [51]. Work by [52,53] was used to measure e-government trust and behavioral intent to use e-government services [52,53]. The authors of [54] state that demographic factors such as age, gender, and level of education are essential when mapping behavioral intentions related to e-governance adoption. Because of this, we used the level of e-government as a moderator in this study.

3.2. Measurement Scales

"Behavioral Intention" (BI), "Citizen's Attitude" (AI), "Public Value" (PV), "E-government Trust" (GV), "Effort Expectancy" (EE), and "Performance Expectancy" were the constructs of interest in this study (PE). Validated items taken from earlier studies were used to operationalize the theoretical constructs. Items from [33,55] were adopted for the TAM scale of PEOU. Taylor and Todd's [48] AI scales were used to create the TAM. The BI items were taken from [56]. EE items were taken from [57]. The e-government trust (GV) measurement was adapted from [58,59]. Items for PE were taken from [60]. The five-point Likert scale that was used to rate each topic was changed to go from strongly disagree (1) to strongly agree (5). Thirty people took part in a test of the questions and answers with a pilot study. Most of the people who filled out the survey thought that it was of the right length and level of difficulty.

3.3. Data Analysis and Results

The survey consisted of self-reporting items, and Herman's single factor was used to obtain the highest value for each construct. The most significant variance of the computed data in this investigation was 34.23%. There was a pilot study with 30 people to make sure that the question and response forms were clear. The vast majority of people who filled out the survey thought the length and language were fine. Two distinct statistical software programs, SPSS 26.0 and AMOS 24, were used to conduct the statistical analysis. Due to missing data points, 17 responses were removed from the data during pre-processing. As a result, only 599 responses were examined in this study.

3.4. Instrument Validation and Translation

This was a quantitative study, and an online survey questionnaire was the primary tool for gathering data. Due to this, a well-structured, self-completion questionnaire was created based on prior research and given to a random sample through social networking technologies. Participation was entirely voluntary. The authors of [61] emphasize the significance of selecting questionnaire language that roughly corresponds to the respondents' level of comprehension. The study's questionnaire items have been translated into Urdu because most Pakistanis use that language to communicate. Two different translators independently translated the survey's English version into Urdu. The second translator has converted the Urdu version that the first translator translated into English. The second translator's version received the same treatment. The two versions in each language have been compared to settle any discrepancies. After the revisions, the final version was utilized to collect data. Prior studies have shown that educated Pakistani individuals are early adopters of the internet [62], which raises the possibility that they will also be early adopters and international users of e-government.

3.5. Target Population and Sampling Process

A study population is a collection of cases, objects, or events that the researcher is interested in from which a sample is taken. The study results can be applied generally [63]. As critical consumers of e-government in the public sector, the researcher in this study specifically targeted Pakistani residents abroad in Turkey and China. Sample sizes of 599 users of ICT in government were chosen at random using a basic random approach.

3.6. Data Collection

Pakistani citizens, including those residing in China and Turkey and people born and raised in Pakistan, were asked to fill out an online survey to test the suggested conceptual framework and research hypotheses. Six hundred eighty-seven people answered the questions about how they use electronic government, whereas 88 people refused to be participants. After being told that the research would be kept private and filling out permission forms, a random sample of 599 people (38.4% women and 61.6% men) filled out an online self-report questionnaire for this study. The survey was shared on social

media sites such as WhatsApp, Facebook groups, Twitter, and Instagram. Before the link to the questionnaire was posted, the study's goals were explained to the group leaders, who agreed that the data could be shared. A total of 24% of the people who took the poll had a bachelor's, 38% had a master's, and 12% had a Ph.D. Only 4% of those who answered thought they were experts in e-governance, while 44% thought they knew nothing about it (exposure to e-governance). Only 28% of the respondents said they used e-governance tools often. The statistics are listed in Table 1.

Table 1. Data from demographic variables.

Demographic Variables	Description	Frequency	Percentage
Gender	Female	130	20.0
	Male	469	80.0
Age (Years)	Below 20	65	10.0
	21–30	173	34.5
	31–40	181	27.8
	41–50	117	18.0
	Above 50	63	9.7
Overseas Pakistani	China	206	39.5
	Turkey	210	32.3
Residents in Pakistan		183	28.2
Education	High school or diploma	169	26.0
	BSc	156	24.0
	MSc	196	38.0
	PhD	78	12.0
Exposure to e-Government	Beginner	286	44.0
	Advanced	287	52.0
	Expert	26	4.0
Employment sector/status	Student	196	38.0
	Public	143	22.0
	Private	182	28.0
	Jobless	78	12.0
Frequency of use	Every time	182	28.0
	Sometimes	326	58.0
	Never	91	14.0

3.7. Measurement Model

3.7.1. Exploratory Factor Analysis

We first calculated Kaiser–Mayer–Olkin (KMO) measures to verify our appropriate measurements and then used them. To ensure the accuracy of our measurements, we first computed Kaiser–Mayer–Olkin (KMO) measures. We then used SPSS's Bartlett's test of sphericity to determine whether or not to proceed with the EFA to create the measurement model. The KMO was 0.903, indicating that the model fit the data well. An EFA was performed using the principal component approach and varimax rotation to determine the factor loadings and reliability of all items with a 0.50 cutoff. All loadings were more significant than the 0.50 threshold, with no cross-loading effects observed. The research instrument and survey results are appropriate for our study. The goal is to have loadings that are both appropriate and powerful enough to conduct a comprehensive study. Our goods' factor loadings were also greater than 0.70, as shown in Table 2. Cronbach's alpha, concept validity, and reliability were calculated (see Table 2). According to Francis and colleagues (2004), no value was less than 0.70. The composite reliability (CR) and average variance extracted (AVE) reliability measures were used to assess the internal consistency of the constructs (AVE). The proposed framework must have a CR of 0.70 or higher to be considered internally consistent. Furthermore, every single AVE value was more significant than 0.50. Furthermore, the average variance was identified, comparative reliability was shown to be higher than average variance estimates, and composite reliability was used to validate all components. The study has an acceptable degree of consistency (AVE) between

0.74 and 0.85 and a CR between 0.86 and 0.95. The discriminant validity of concepts is critical in determining their reliability. This technique requires that the AVE of a construct be greater than the squared correlation between the construct and the other constructs. The measurement model exhibits discriminant validity, which in this investigation is deemed satisfactory. We provide comprehensive reliability and validity in Table 2.

Table 2. Validity and reliability.

Latent Variables	Coding for Direct Observation	Outer Loadings	Cronbach's Alpha	CR	AVE	Source
Effort expectancy (EE)	EE1	0.752	0.908	0.95	0.85	[54,64,65]
	EE2	0.889				
	EE3	0.925				
	EE4	0.894				
Performance expectancy (PE)	PE1	0.596	0.919	0.92	0.78	[51,66]
	PE2	0.835				
	PE3	0.892				
	PE4	0.737				
Public value (PV)	PV1	0.845	0.862	0.86	0.81	[16,65,67]
	PV2	0.692				
	PV3	0.643				
	PV4	0.744				
Citizen's attitude (AI)	AI1	0.439	0.826	0.91	0.77	[16,68]
	AI2	0.367				
	AI3	0.797				
	AI4	0.847				
	AI5	0.597				
Moderating effect of e-government trust (GV)	GV1	0.639	0.896	0.95	0.74	[52,53]
	GV2	0.667				
	GV3	0.797				
	GV4	0.847				
Behavioral intention (BI)	BI1	0.898	0.71	0.787	0.564	[54,64,65]
	BI2	0.914				
	BI3	0.748				
	BI4	0.664				

3.7.2. Confirmatory Factor Analysis

We determined whether the CFA measurement model was adequate by analyzing the data. We used AMOS 24 to perform a maximum likelihood confirmatory factor analysis to determine correlations between latent variables. The comparative fit index (CFI), Tucker–Lewis index (TLI), and aggressive goodness of fit index (AGFI) were used to assess fit quality, while the chi-squared to the degree of freedom ratio (CMIN/df) and root mean square error of approximation (RMSEA) were used to assess absolute fit quality (adjusted goodness-of-fit index). CMIN/df greater than 3.0, CFI greater than 0.90, TLI greater than 0.90, RMSEA greater than 0.08, Pclose greater than 0.05, SRMR greater than 0.08, and AGFI greater than 0.80 all indicate a well-fitting model. All fit statistics obtained exceeded the least acceptable threshold (CMIN = 768.032, df = 281, CMIN/df = 2.312, CFI = 0.927, TLI = 0.915, RMSEA = 0.045) [68]. The *p*-value, CHI/DF, NFI, IFI, RFI, TLI, CFI, GFI, AGFI, and RMSEA were all used to assess the overall structural equation fit [67]. Following the establishment of the measurement model, the structural model was estimated to capture the anticipated connections between the exogenous and endogenous variables. The same criteria were used to determine the GOF for the measurement model and the GOF for the structural model. Comparing the standardized direct and indirect route coefficients, a 5000-bootstrap sample and a 90% confidence interval (CI) were used to determine the importance of the indirect effects [69].

3.7.3. Structural Equation Modeling

Using structural equation modeling, we looked at how the suggested constructs related to the main study hypotheses. With a TLI of 0.949, IFI of 0.953, GFI of 0.942, AGFI of 0.965, NFI of 0.941, CFI of 0.922, RMSEA of 0.030, P-Close of 0.478, and RMR of 0.0382, we obtained great results (Bollen and Lennox [70]; MacKinnon, Lockwood et al. [67]). These numbers point to a model that fits the data well and can explain 55% of the differences in the reasons people gave for using e-government. In Table 3, you can find the results of our tests of the primary causal pathways we made using coefficient analyses. The relationship between public value ($\beta = 0.452$, $p < 0.01$) and the other variables in the suggested conceptual framework was statistically significant. Still, the evidence showed that H1 was true (the social significance of behavioral intention). We found that there is a strong link between the number of effort people expect to put in and their plans to take part in e-governance activities ($\beta = 0.368$, $p < 0.10$) and between the number of effort people expect to put in and their plans to get vaccinated ($\beta = 0.233$, $p < 0.01$). This shows that H2 and H3 are both suitable. Supporting H4, there was a strong link between what people thought a person was going to do and what they did ($\beta = 0.241$, $p < 0.05$).

Table 3. Hypotheses testing and path analysis.

Hypotheses	Relationships	Beta	*p*-Value	Decision
H1	PV → BI	0.452	0.01 ***	Supported
H2	EE → BI	0.368	0.10 *	Supported
H3	PE → BI	0.233	0.01 ***	Supported
H4	CA → BI	0.241	0.05 **	Supported
H5	CA*GV → BI	0.291	0.05 **	Supported

Significance of estimates. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$.

3.7.4. Moderation Testing

Hierarchical regression analysis was used to evaluate people's behavioral intentions, with faith in e-government as a moderator. Trust in the government's online services boosted the positive association between attitudes and intentions to act ($\beta = 0.521$, $p < 0.1$). Citizens' faith in their government may influence their outlook and actions in ways that help advance technology in the long run. Hierarchical regression analysis was used to assess people's behavioral intentions, with e-government trust as a moderator. Higher confidence levels in the government's online services bolster the positive association with citizens' intentions to take action ($\beta = 0.521$, $p < 0.1$). Citizens' trust in their government has the potential to influence their mindset and drive them to adopt more environmentally friendly practices and technologies.

3.7.5. The Mediation Evaluation Test

Assumptions H6a–c were tested by applying techniques from [71] to the model mentioned above. Moreover, the mediating influence of citizens' attitudes was explored using the bootstrapping method. Table 4 shows how citizens' views mediate the relationship between external factors and behavioral intentions. To this end, we looked at the relationship between people's perceptions of e-governance and their public value, effort expectation, performance expectation, and behavioral intention. All the links between public value and behavioral intention ($\beta = 0.240$, $p < 0.1$; CI [0.652,0.119]) and effort expectancy and behavioral intention ($\beta = 0.323$, $p < 0.05$; CI [0.445,0.118]) and the connection between performance expectancy and behavioral intention ($\beta = 0.461$, $p < 0.01$; CI [0.365,0.056]) were moderated by e-government trust. Lastly, H6a–c were approved because of the substantial moderation provided by e-government trust. The graphical depiction of SEM is presented in Figure 2.

Table 4. Mediating results using the bootstrapping method.

Hypo	IV	M	DV	Effect of IV on M	Effect of M on DV	Direct	Indirect	Total	95%	Results
H6a	PV	GV	BI	0.431 ***	0.21 **	0.494 ***	0.240 *	0.412 **	(0.652, 0.119)	Supported
H6b	EE	GV	BI	0.521 **	0.152 ***	0.361 *	0.323 **	0.404 ***	(0.445, 0.118)	Supported
H6c	PE	GV	BI	0.380 ***	0.224 *	0.310 **	0.461 ***	0.238 **	(0.365, 0.056)	Supported

Note: Bootstrapped 95% confidence interval (n = 2000), significance of estimates. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$.

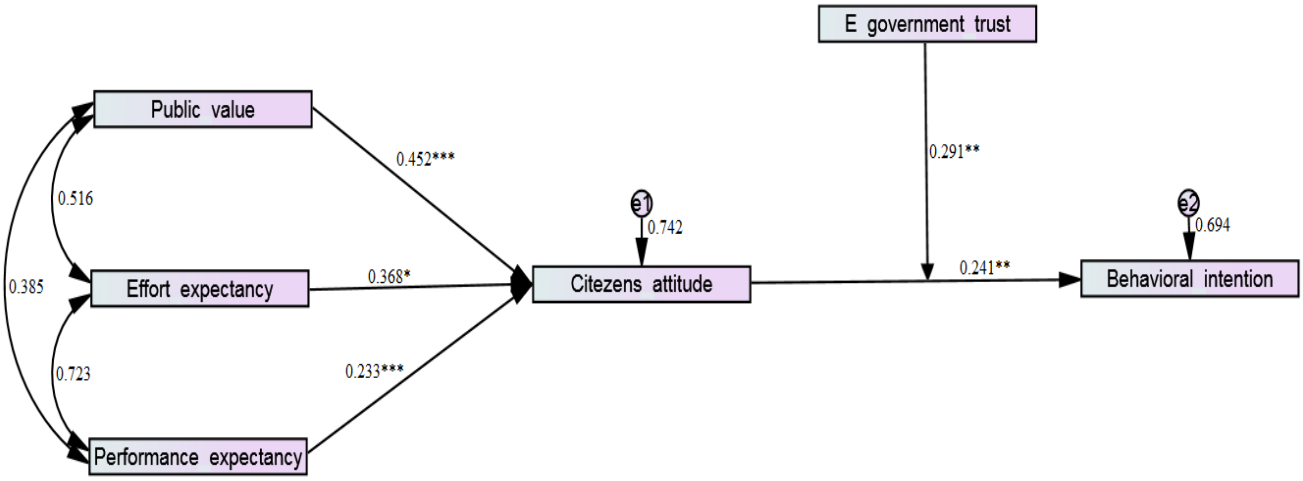

Figure 2. Graphical depiction of SEM. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$.

4. Discussion

The study proposed an empirical model for analyzing personal intent to better understand international consumers' motivations for using governance services. The works listed below provided conceptual inspiration for this study, using the TAM framework and environmental stimuli. People are more likely to use e-government services if they believe they will benefit them. According to the findings, citizens with positive attitudes toward e-government are more likely to use such services [72,73]. According to the findings of this study, the significance of performance expectancy (PE) implies that citizens are more likely to feel positive when consciously considering the use of e-government. If they have access to facilities, they believe they can make purchases without exerting additional effort. However, a distinction must be made between optional and required users of IT frameworks [74]. Obligatory users have no choice but to use these frameworks based on their normative values, whereas optional users use the system based on their mindset. When applying their findings, researchers must be cautious of this distinction. When the government adds value to services for the convenience of the public and makes the system more efficient, public value as a social attribute reflects the country's norm. It shifts the public's behavioral intention toward adopting the country's e-governance initiatives. The findings are consistent with the findings of [75], who stated that the value-driven attributes of the product easily attract and convince the end user to adopt it. When an individual must expend less effort in learning new technology, the ease of use and simplicity encourages people to use it. This study's effort expectancy revealed that people are motivated to use e-governance services. Because of their ease of use, they have positive intentions toward new applications.

Existing literature backs up these findings [76]. Rising e-government service trends connect the world. However, trust in the government to secure user information is critical. Users are often hesitant to provide sensitive information when interacting with e-services. Government-supported public awareness campaigns may boost the adoption of e-governance services. The public has come to trust the system due to the government's efforts. According to the findings, trust in the government's digital services is critical.

When citizens feel safe communicating with government institutions online, they are more likely to use the service. Customers' attitudes toward using e-government services will shift if they gain trust in the government's online portal. This study's findings support this hypothesis, consistent with previous research [77,78].

5. Conclusions and Implications

This study examined Pakistan's e-government infrastructure and the primary variables influencing the country's strategic direction for e-government and its adoption. As a result of this research, we now have a better understanding of the factors that encourage or discourage Pakistani residents from using e-government infrastructure. As a result, a template was created to assist less-developed countries in transitioning to paperless administration. The findings of this study add to the existing body of knowledge, making it essential for academics and politicians committed to making improvements. This study was designed to lay the groundwork for future research on e-government services in Pakistan. This data will be helpful for Pakistani government agencies in charge of providing e-government services to the public. The government must be prepared to confront any problem and make the necessary changes. The primary responsibility of an e-government researcher is to assist policymakers in the e-government jurisdiction in seeing the value of potential e-government in the context of future government programs by identifying the primary benefits to those in power and then using those findings to make concrete recommendations for improving e-government implementation. Because the scope and complexity of e-government initiatives can vary greatly, there will inevitably be a slew of challenges to overcome during the launch, operation, and management phases. The technical challenges of implementing e-government include a lack of standardized terminology and incompatible infrastructure between government entities. The government of Pakistan is having difficulty achieving its goal of serving the public's best interests due to the difficulties inherent in using e-government services to protect citizens' personal information and physical safety. Guarantees from the government are insufficient unless they are accompanied by technical solutions, procedural transparency, and possibly independent audits [79]. For example, "weakness or lack of ICT infrastructure" has been identified as a significant barrier to the widespread adoption of e-government initiatives. Network interconnections are required for proper information sharing and new communication channels and services [80,81].

The study's recommendations and future work directions may be helpful to policymakers in Pakistan and other developing countries. E-government is critical in today's world, and its adoption by the people of Pakistan should be encouraged. Citizens' involvement was discovered to be critical to the success of the adoption process, and the current study evaluated the role of e-government by investigating citizens' intentions toward its adoption. Pakistan's Vision 2030 goals and the funding needed to equip the population fully must be implemented as soon as possible. As they reform various government agencies in Pakistan, government officials must consider the needs of their citizens and businesses. To ensure the success of its public reforms in Pakistan, the government must devise a strategy to ensure that government services are always readily available, of high quality, easily accessible, and reliably delivered on time. The ease of use and compatibility with Pakistani culture and language are critical considerations.

5.1. Policy Implications

Both scholars and practitioners can learn from this study's conclusions. The Pakistani government should establish strategies and regulations emphasizing usefulness, efficiency, awareness, infrastructure challenges, proper aid, user privacy concerns, and easy access to e-government services. Additionally, more public outreach efforts should emphasize the value of using the internet and e-government services in everyday life. To boost e-government services, the government should enhance its quality and operational excellence. The findings of this study also suggest that one of the main barriers to the use

and acceptance of e-government services is the facilitating condition. Due to inadequate infrastructure and a lack of knowledge about the existence of e-government services in Pakistan, the populace cannot utilize these services. The government should enact cyber regulations to foster trust in services and encourage the use of e-government services. In this regard, it may be stated that governments must comprehend citizen requirements to disseminate e-government services appropriately. The following recommended policies can be considered to address the demands of citizens living abroad. To make the most of their essential e-services, overseas people's participation should first be increased. Second, clear policies and attainable, step-by-step goals should be maintained to meet the public's expectations. Therefore, the government needs to start carefully considering how e-services might help increase efficiency and information utilization in the public sector. Thirdly, a single platform can improve communication between the many departments and the general public. Fourth, awareness and use ought to be promoted at all levels. Fifth, adaptability in terms of language, culture, and citizen comfort should also be considered.

5.2. Research Limitations and Future Implications

Like all research, this study has some restrictions. Because it is cross-sectional, this study only depicts a snapshot in time and does not account for any long-term changes in the attitudes and behaviors of the citizens. Studies adopting a longitudinal approach would determine whether or not citizens' attitudes regarding accessing e-government services change over time. The lack of earlier pertinent research related to overseas citizens was one of the constraints the researcher encountered while carrying out this study. As a result of the absence of earlier studies, this research is, therefore, less supported.

Additionally, participants might have characteristics that are unique to them compared to people in other regions of the world. The geographic location of the ongoing study is a further limitation (i.e., overseas Pakistanis in China and Turkey). It is considered that other South Asian nations that share demographic features with Pakistan and offer their citizens the same level of e-government facilities could also benefit from the findings. These conclusions might not apply to other neighboring states that fall behind Pakistan in adopting e-government. Therefore, this study's results would probably be strengthened and validated by more research conducted in various nations. This study's final limitation offers a chance and fresh direction for future research by looking at how direct determinants affect individuals' behavioral intentions and use of e-government services.

However, future studies can be improved by using various research variables, web scraping, web mining, and complete protection analyses of top trends. However, our research can be applied to enhance emotive protection and online social presence. Fourth, the information was gathered online. Because of this, we could not assess the respondents' responses during data collection, even though people were highly motivated to share their responses due to the government's involvement. Future studies may use different questionnaires to approach respondents and obtain more accurate and reliable data. By extending the study population to include individuals from other nations, research can be conducted more effectively. Due to time and financial constraints, our study was limited to three counties (Pakistan, China, and Turkey). Future studies can be expanded to more countries to obtain data for overseas Pakistanis.

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