



Article

E-Government Adoption in Thai Public Sector Organizations: Citizens' Perspective

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Abstract: The adoption of e-government in public sector entities is essential due to the trend of digitizing government services. Thailand has implemented a variety of e-government policy frameworks with the goal of improving citizen public service delivery, private sector benefits, and the public sector performance. This study examines the key elements influencing e-government adoption in Thai public sector organizations from citizens' perspectives. This study employed a quantitative research design, collecting data from 450 Thai citizens, who have utilized or experienced e-government services, using a questionnaire. The data were examined using descriptive statistics and inferential statistics. This study's findings from citizens' viewpoints highlighted three important elements influencing e-government adoption in Thai public sector organizations: reliability, technology, and motivation. All characteristics have a favorable correlation with e-government adoption; however, the influence varies. The examination of these relationships enabled us to make suggestions on e-government adoption to the policymakers and public sector organizations. Theoretical and practical implications were addressed. The findings have practical consequences, since they provide Thai public sector organizations with a better understanding of the primary problems identified as potential barriers to e-government deployment. Furthermore, adopting e-government services not only benefits citizens, but also promotes communication between government agencies and the private sector.



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1. Introduction

Today, dynamic change, globalization, and technological breakthroughs create tremendous pressure on governments to provide efficient, transparent, and effective public services based on a citizen-centric approach. The transfer from traditional government approaches to e-government platforms has resulted in a novel concept for digital public administration. The adoption of e-government in public sector entities is essential due to the trend of digitizing government services. The digitization of the governing process promotes the proper implementation of legislation and policies, as well as public engagement. Adopting e-government is critical to improving public service delivery and promoting citizen engagement in governance. However, the prospect for e-government adoption is challenging, particularly in developing countries. Although governments and scholars have increased their focus on electronic public administration (e-government), both scientific and general audiences continue to cover the issue only in part and unevenly. The restrictions and motivators of citizen adoption, particularly in developing nations, have received little attention, despite their importance in meeting digital transformation goals. This study fills that gap by investigating e-government adoption in Thailand and offers lessons that may

be applicable to other countries undertaking similar digital revolutions. According to a literature review, developing countries face common challenges, such as a lack of digital literacy, insufficient digital infrastructure, a digital readiness gap between rural and urban areas, a lack of data privacy and security, insufficient sound digital policies and legislation, e-government acceptance, and resistance to change [1]. Thailand's Ministry of Digital Economy and Society (MDES) and Digital Government Development Agency (DGDA) play key roles in developing and implementing e-government plans. Thailand has implemented a variety of e-government policy frameworks with the goal of improving citizen public service delivery, private sector benefits, and public sector performance [2]. The technology acceptance model (TAM) is a framework for investigating the factors that impact citizens' intentions to utilize technology, namely the perceived ease of use and utility. The TAM's primary purpose is to describe the characteristics that promote technology acceptance to foresee behavior and offer a theoretical knowledge for technology adoption success [3–5]. Furthermore, this study employed the E-Government Adoption and Utilization Model (EGAUM), which analyses factors that influence users' intentions, attitudes, and behavior, hence determining adoption and usage [6,7]. The Unified Theory of Acceptance and Use of Technology (UTAUT) [8] and the Unified Model of Electronic Government Adoption (UMEGA) [9,10] are relevant to the study of Internet user behavior and the willingness to use. Additionally, more broadly based behavioral accounts, such as the Theory of Planned Behavior (TPB) [11–13], are essential. This model creates an e-government adoption framework based on the EGAUM and relevant theories, identifying four independent factors that have a substantial impact on e-government adoption in the public sector: individual, motivational, technological, and reliability aspects. Therefore, this study examines the key elements influencing e-government adoption in Thai public sector organizations from citizens' perspectives, as previous research in this field has been limited. This study seeks to contribute to the current body of knowledge by offering theoretical comprehensions and practical recommendations to public sector organizations, particularly in developing countries. It also emphasizes the government's ability to increase e-government adoption with public support when approaching the new administration in Thailand. This initiative aims to assist Thai public sector organizations in developing e-services that citizens are more likely to utilize. Furthermore, adopting e-government services not only benefits citizens, but also promotes communication between government agencies and the private sector. Government agencies should encourage and successfully implement e-government in the private sector to maximize its benefits and advantages, especially in today's competitive digital economy.

2. Literature Review and Theoretical Background

2.1. E-Government Adoption (EGA)

E-government is the use of information and communication technology systems in organizations to develop management and service systems for government agencies in order to provide public services to citizens, businesses, and other government agencies while also increasing efficiency, transparency, good governance, and accountability [6]. E-government also refers to the government's development of electronic-based systems and using information and communication technologies to improve public service delivery to citizens [14]. It is the use of digital technology, specifically the Internet, by government agencies to offer services, communicate with citizens, and facilitate interactions with other governmental institutions. It includes a variety of online services, such as information dissemination, service delivery, and governance engagement, all with the goal of increasing efficiency, openness, and accessibility in public administration [15]. Forms of e-government can be classified into four forms. (1) E-government connects information and commu-

nication technology to improve communications between the government and citizens (G2C). It is a service offered by the state to its citizens. (2) E-government connects the government and businesses (G2B). It provides government services to the private sector. (3) E-government connects the government and government agencies (G2G). This strategy utilizes information networks and formal information sharing to accelerate operations, minimize delivery times, and share papers and information. (4) E-government connects the government and employees (G2E). The government provides essential services to its employees, including welfare systems, information search systems, and personnel development systems [16,17]. E-government adoption is understood as the intention of the citizen to participate in government activity and access information and receive services from the government online. The implementation of e-government has the potential to dramatically increase the efficiency, transparency, and responsiveness of government services. Governments may employ technology to better address citizens' needs, build public trust, and ultimately improve government quality. The European Union's legislation and governance procedures provide a useful comparative context for understanding e-government adoption. In particular, Ref. [18] looks at the impact of the eIDAS Regulation on national legal systems, using the Slovak Republic as a case study. Their research focuses on the obstacles and opportunities that arise when supranational digital identity rules collide with domestic legislation, a dynamic that is also pertinent to e-government adoption. Similarly, Ref. [19] investigates multi-level governance within the European Union, focusing on the expanding role of local governments in legislative and administrative systems. Their work emphasizes the significance of integrating local policy execution with broader EU regulations, a premise that is consistent with the legal issues raised in this study. To widen the theoretical scope and place this research in a broader European context, it is useful to include insights from researchers who study public administration performance at various governance levels. Ref. [19] emphasizes the importance of local government in the EU's multi-level governance framework, providing insights into institutional responsibility, decentralization, and municipalities' role in shaping e-government success. Similarly, Ref. [20] studies the factors influencing social service provision at the local level in the Slovak Republic, emphasizing how administrative efficiency and policy coherence can have a direct impact on public trust and service adoption. These viewpoints contribute to the conceptual framework of this study and provide important points of comparison for understanding the Thai example. Although e-government efforts are becoming more widespread, there is still a need for conceptual frameworks to better explain their development, implementation, and impact, particularly in developing nations. E-government aims to improve the efficiency, openness, and accountability in government processes, as well as reduce administrative expenses [21]. Adopting e-government is crucial for improving public service delivery and increasing citizen participation in the government. However, e-government adoption remains a challenge, particularly in developing countries infrastructure limitations, demographics, limited digital literacy, and cultural influence [22]. Thailand's e-government implementation faces numerous challenges, including improving digital literacy, investing in infrastructure, ensuring robust cyber security measures, and cultivating an adaptable culture.

Thailand's e-government initiatives are part of a larger effort to increase public sector efficiency and citizen participation. In 2015, the Secretariat of the House of Representatives mentioned that the concept of e-government was established when Thailand joined the electronics agreement of ASEAN (E-ASEAN Agreement) in 1999 to strengthen the information technology potential of the ASEAN region. Thailand has begun to develop the project called E-Thailand, with the idea of laying down guidelines for national development in order to fairly reduce the inequality gap in society by using information technology in government organizations and providing Internet-based services that can improve conve-

nience, save time, and promote equality and prosperity for rural communities [15]. In 2002, the Ministry of Information and Communication Technology (MICT) was established to drive e-government. In 2016, it was renamed the Ministry of Digital Economy and Society (MDES). In addition, in 2018, the Digital Government Development Agency (DGDA) was established to serve as the central agency of the digital government system, overseen by the prime minister. It promotes and supports government operations under Thailand's 4.0 policy. The Thai government has made significant investments in digital infrastructure to support these programs, which seek to improve service delivery and transparency. The MDES and the DGDA lead the way in Thailand's e-government development. Thailand has implemented a variety of e-government policy frameworks with the goal of improving citizen public service delivery, private sector benefits, and public sector performance [2]. These organizations seek to improve the efficiency, openness, and accessibility of public services through digital transformation. Thailand's modern public management relies heavily on e-government. It is the development and improvement of government activity through the use of information technology as a tool to supply public services via electronic networks in order to promote access to government services and operational transparency. E-government aims to improve efficiency and convenience through the use of information technology in work processes and targeted services, resulting in speedier government procedures. There is also the use of technology to help integrate many aspects of the administration. The goal is to create an environment that supports and facilitates citizens by reorganizing work processes and changing operational and service approaches. As a result, e-government plays an important role and benefits the country in a variety of ways, and modern management leverages the benefits of digital innovation. E-government by design involves redesigning public procedures with digital technologies. The goal is to simplify procedures and open up new avenues of communication and participation for citizens [21]. E-government will provide a critical foundation for national growth, allowing the public and private sectors to conduct social and economic activities more freely and effectively [23]. Thailand recognizes the importance of e-government and its benefits, including transparency, efficiency, cost reduction, improved service delivery, accountability, and reduced corruption. Government agencies and public organizations aim to understand the factors that influence citizens' intention to adopt e-government [13,14,24].

2.2. Technology Adoption Models and Theories

Behavioral science research provides strategies for increasing the use and adoption of e-government services. Theoretical frameworks that are integral to the explanation of e-government adoption include the technology acceptance model (TAM) [13,25], the E-Government Adoption and Utilization Model (EGAUM) [6,7], the Unified Theory of Acceptance and Use of Technology (UTAUT) [8], and the Unified Model of Electronic Government Adoption (UMEGA) [9,10]. Additionally, more broadly based behavioral accounts, such as the Theory of Planned Behavior (TPB) [11–13], are essential to evaluate for model conceptualization.

The technology acceptance model (TAM) is the most commonly utilized theory to explain how a person accepts an information system. The model aims to provide a clear explanation of the elements that influence technology adoption, as well as guidance on how to employ information technology [25]. The TAM focuses on utilizing information technology by designing it based on the impression of usefulness and the simplicity of use [26]. The TAM is based on the Theory of Reasoned Action (TRA) model, which states that an individual's reaction and perception of something determines their attitude and behavior [27]. The TAM explains information technology users' conduct using individual behavior explanatory elements, such as beliefs, attitudes, interests, and relationships. Ac-

According to this paradigm, an individual's ability to accept a specific aspect of technology is governed by the attitude towards adopting that technology. The perceived ease of use is widely recognized as a significant predictor of perceived usefulness, shaping users' overall assessment of the system's utility for improving performances. Research indicates that the simplicity of use significantly impacts user opinions [27,28]. Perceived usefulness refers to an individual's belief that technology improves productivity and job performance. Previous research has explored the link between perceived usefulness and attitudes towards accepting information system technologies [27,29]. Therefore, the TAM is a prominent theoretical model for predicting the acceptance and utilization of new information technology inside an organization [26,27].

The E-Government Adoption and Utilization Model (EGAUM) identifies critical elements that impact e-government adoption and proliferation. The EGAUM was created by analyzing the existing literature on technology acceptance and incorporating ideas from various models and theories [6]. The EGAUM aims to identify characteristics that impact users' attitudes, intentions, and behavior, ultimately influencing adoption and usage levels. The EGAUM has four groups of independent variables: individual factor (IF), motivational factor (MF), technical factor (TF), and reliability factor (RF). These independent variables significantly impact the adoption and usage of e-government [6]. The EGAUM correlates with the intention to use, resulting in e-government adoption. Perceived behavioral control is a key factor in technology-based implementation systems, alongside intention [8,30]. Successful e-government adoption depends on user perceptions. The elements of e-government have a significant impact on its perception, implementation, and use [30]. The EGAUM is a global model for e-government adoption that may be applied in multiple nations. This method can be used to assess the adoption and use of interactive systems and service applications, as it takes into account important elements [6].

The Unified Theory of Acceptance and Use of Technology (UTAUT) has been widely used by researchers to explain the acceptance and use of information system (IS) and information technology (IT) innovations [8]. This theory was developed through a review and synthesis of various theoretical models. According to the UTAUT's theoretical paradigm, behavioral intention determines actual technology use. The perceived chance of adopting technology is determined by the direct effect of four major constructs: performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FCs). The influence of predictors is tempered by age, gender, experience, and voluntary use [8]. PE measures an individual's belief in the system's ability to improve job performance. EE indicates how easy the system is to use. SI measures an individual's perception of others' support for using a new system, and the FC indicates an individual's confidence in the system's organizational and technical infrastructure [31]. The UTAUT model is widely used in a variety of sectors, demonstrating its versatility. Research has examined the acceptance of various technologies, such as the Internet of Things [32], artificial intelligence [33,34], and others [31]. Several research reviews and meta-analyses have examined its use in various domains. These studies cover various topics, including e-government adoption [35], smartphone technology [36], and more [31]. The UTAUT examines how individuals use a certain technology based on its ease of use and utility. Developing countries face the most hurdles in embracing e-government. Many citizens may have limited access to technology, including computers and the Internet [35]. Lower technology skills, literacy and education levels, limited content accessibility, inadequate infrastructure, insufficient service delivery, and a lack of confidentiality and trust may hinder the adoption of Industry 4.0 technologies, such as clouding and block-chain [37]. Therefore, the UTAUT offers a comprehensive framework for understanding technology adoption by combining major principles from existing models [38].

The Unified Model of Electronic Government Adoption (UMEGA), one of the most comprehensive theoretical models for e-government acceptance, has been empirically validated from the citizens' perspective. It includes constructs such as (1) performance expectancy, (2) effort expectancy, (3) social influence, (4) facilitating conditions, (5) perceived risk, (6) attitude, and (7) behavioral intention [39]. In this model, attitude was presented as a mediating variable and used to describe the impacts of core dimensions, like performance expectancy, effort expectancy, and social influence, on behavioral intentions. Therefore, the UMEGA is linked to attitude, which serves as a mediator variable for the behavioral intention to utilize e-government services [39]. Furthermore, the UMEGA focuses on the e-government acceptability by potential users at the individual level [40]. The UMEGA is used to explore the elements that influence citizens' adoption of open data technology. The UMEGA is a recent model of e-government adoption that includes attitude as a prominent component of e-government adoption [41] and facilitating conditions as an antecedent of effort expectancy in the e-government context [42].

The Theory of Planned Behavior (TPB) is an extension of the TRA that addresses behaviors with limited volitional control [11]. The TPB varies from the TRA as it includes perceived behavioral control. Perceived behavioral control describes how easy or difficult it is to achieve a desired behavior. The idea suggests that perceived behavioral control and purpose can directly predict behavioral performance [38]. The TPB has been successfully deployed to understand the individual adoption and utilization of various technologies [39]. The TPB suggests that intention and Internet purchasing behavior are influenced by attitudes towards the target behavior, subjective norms, and perceived control over the behavior. According to the theory, people's perceptions of the importance of others' opinions on Internet purchases can impact their intention to buy. Perceived behavioral control is influenced by an individual's confidence in their ability to access necessary resources and opportunities [11]. Rapid technical advancements have led to increased research in various sectors. Understanding the various elements influencing technology uptake and utilization is crucial. The TPB is a popular theoretical lens for analyzing the factors that influence technology adoption [43,44]. The TPB is a social psychological model. The social psychology paradigm explains individuals' behavior and motives. The idea suggests that individuals' behavioral intentions and attitudes are the most important predictors of decision-making behavior. The TPB identifies three key building elements for predicting an individual's behavior: subjective norms, perceived behavioral control, and attitude towards behavior. These elements are believed to impact an individual's behavioral intentions, providing insight into their true intents [45].

2.3. Factor Influencing E-Government Adoption and Hypotheses Development

The shift from traditional governmental operations to e-government platforms has created a new paradigm for public administration in the digital age. The global recognition of information, communication, and technology (ICT)'s revolutionary capacity has led to a growing desire to use it to improve transparency and efficiency of and accessibility to government services. However, the landscape of e-government adoption is difficult. Although e-government offers numerous benefits, citizens nevertheless have concerns about the security of their personal information. This problem is prevalent in developing countries [14,46]. Several studies have explored the factors that influence citizens' preference for e-government services. For example, research has looked into how technology infrastructure and service quality influence adoption. A concrete and reliable technological foundation has been acknowledged as critical for user adoption, particularly in places facing technical hurdles [47]. Service quality—particularly response time, simplicity of navigation, and information correctness—has been identified as a key determinant [48].

Cultural and societal conventions are also taken into account. Social perspectives on technology and cultural attitudes towards governance can have a significant impact on how citizens perceive and interact with e-government platforms [14]. Previous research has focused on understanding e-government adoption through theoretical frameworks. The technology acceptance model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) have been used to study the perceived usefulness, ease of use, and behavioral intention in e-government [8]. The E-Government Adoption and Utilization Model (EGAUM) [6,7] and the Unified Model of Electronic Government Adoption (UMEGA) [9,10] were used to investigate the factors influencing citizens' adoption of open data technology. Furthermore, more generally based behavioral explanations, such as the Theory of Planned Behavior (TPB) [39], provide insight into the individual adoption and utilization of diverse technologies. This study looks at the fundamental factors impacting e-government adoption in Thai public sector organizations from citizens' viewpoints. The E-Government Adoption and Utilization Model (EGAUM) has been used to identify key factors influencing e-government adoption and expansion. The EGAUM is a global paradigm for e-government adoption that can be used in a variety of countries. It was developed by reviewing the existing literature on technology acceptability and incorporating concepts from various models and theories [6]. The EGAUM seeks to uncover variables that influence users' attitudes, intentions, and behavior, hence influencing adoption and usage rates. The EGAUM comprises four types of independent variables: individual factor (IF), motivational factor (MF), technical factor (TF), and reliability factor (RF). These independent variables have a considerable impact on e-government adoption and utilization [6,7,49,50]. As a result, the purpose of this study was to investigate such connections in the context of Thai public sector organizations from the perspective of citizens. The hypothesis can be stated and tested separately in the following ways:

The individual factor (IF) has the potential to influence e-government adoption and utilization. Personal resources, educational background, and geographical location have been shown to have a direct impact on the intention to use e-government. Previous research found a link between literacy and e-government use. Research indicates that low literacy levels have a detrimental impact on the utilization of e-government. Citizens' geographical location influences their use of e-government and its success [6,7,49]. Citizens from urban to rural locations differ in terms of technology awareness, knowledge, and accessibility. Citizens in remote and underprivileged places are less likely to employ technology than those in urban ones. Furthermore, individuals in distant locations may lack access to current technology, which can impede their willingness to use e-government services. There are data to suggest the link between individual factors and e-government adoption [6,7,49]. As a result, the purpose of this study was to look into such connections in the context of Thai public sector organizations from the perspective of citizens. The first hypothesis can be stated as follows:

H1 : *The individual factor has a positive impact on e-government adoption in Thai public sector organizations, according to citizens' perspectives.*

The motivational factor (MF) is crucial for understanding the adoption and use of e-government. The motivational component refers to the perceived benefits of using the new technological system. The incentive for using e-government services is influenced by changes in values, perceived benefits, sociocultural contexts, awareness, government structure, rules, regulations, and systems. Motivational considerations can assist policymakers, decrease risks, and recognize achievements in e-government adoption. In establishing the EGAUM, prior studies highlighted the motivational factor as a major variable in e-government adoption. There is evidence to show a link between motivational variables

and e-government adoption [6,7,49]. As a result, the goal of this research was to investigate such linkages in the context of Thai public sector organizations from the standpoint of citizens. The second hypothesis can be stated as follows:

H2 : *The motivational factor has a positive impact on e-government adoption in Thai public sector organizations, according to citizens' perspectives.*

The technical Factor (TF) is an important component driving e-government adoption. Adopting e-government necessitates robust technological support. Technical support might encompass infrastructure, systems, portals, and human resources [50]. The technical factors, such as simplicity, interface design, e-service accessibility, and service descriptions and indications, can also impact user experience. To deploy an e-government system, a physical infrastructure and existing technologies must be available and upgraded. Technology availability can affect the utilization of e-government systems. It is important to have solutions accessible to address technical issues and update existing systems. To influence citizens, it is important to have both a technology infrastructure and qualified human resources with technical skills. Human capital development can take various forms, including skill development, ICT competency building, and enhancing personal data analysis skills. Technical support in the form of human capital is required to promote and manage the system. Easy-to-use systems have a positive impact on citizen adoption; moreover, the design of the e-government interface has an impact on e-government adoption. Furthermore, the website design, including the ease of use, layout, color contrast, font labels, search functionality, and language options, can impact citizens' use of the system. There is evidence to show a link between technical factors and e-government adoption [6,7,49,50]. As a result, the goal of this research was to investigate such linkages in the context of Thai public sector organizations from the view of citizens. The third hypothesis can be stated as follows:

H3 : *The technical factor has a positive impact on e-government adoption in Thai public sector organizations, according to citizens' perspectives.*

The reliability factor (RF) is an important consideration for citizens when deciding whether to use e-government services. Adopting e-government requires a high level of system stability and trust. To succeed in online government, new users require trust and the fulfillment of their expectations. Legislation and judicial supports for e-government adoption foster trust among citizens. Trust is the key ingredient in e-government adoption. Citizens' willingness to use e-government services is heavily influenced by their perceived reliability. To successfully adopt an e-government system, citizens must be willing to send and receive information through it. Reliability in digital government platforms includes not only technical stability but also functional adequacy, service accuracy, and user adaptability. As previous research has demonstrated, these factors are highly linked to user pleasure and long-term adoption [16,30]. Recognizing these aspects enables a more sophisticated understanding of how system dependability influences the overall trust and perceived usefulness in public digital services. The EGAUM also incorporates the reliability factor construct. This concept includes key aspects that impact users' perceived risks and trust. Perceptions of acceptability can be influenced by elements such as security and privacy, trustworthiness, legislation, and policies, leading to an increased adoption and use of e-government. There is evidence of a link between reliability criteria and e-government adoption [6,7,49,50]. As a result, the goal of this research was to analyze such linkages in the context of Thai public sector organizations from the perception of citizens. The last hypothesis can be stated as follows:

H4 : *The reliability factor has a positive impact on e-government adoption in Thai public sector organizations, according to citizens' perspectives.*

3. Conceptual Framework

Figure 1's conceptual framework displays the conceptual framework for this research study's analysis model, which is based on literature reviews. It examines how individual, motivational, technical, and reliability aspects influence e-government adoption in Thai public sector organizations from the perspective of citizens. The conceptual framework was studied using both the aforementioned bodies of literature and the researcher's understanding of the relationship between elements. The technology acceptance model (TAM) is a framework for looking into the elements that influence citizens' intentions to use technology. Furthermore, this study used the E-Government Adoption and Utilization Model (EGAUM), which examines the factors that influence users' intentions, attitudes, and behavior, hence deciding adoption and usage. Therefore, this model describes four independent variables that, according to the literature, have a significant impact on e-government adoption in the public sector.

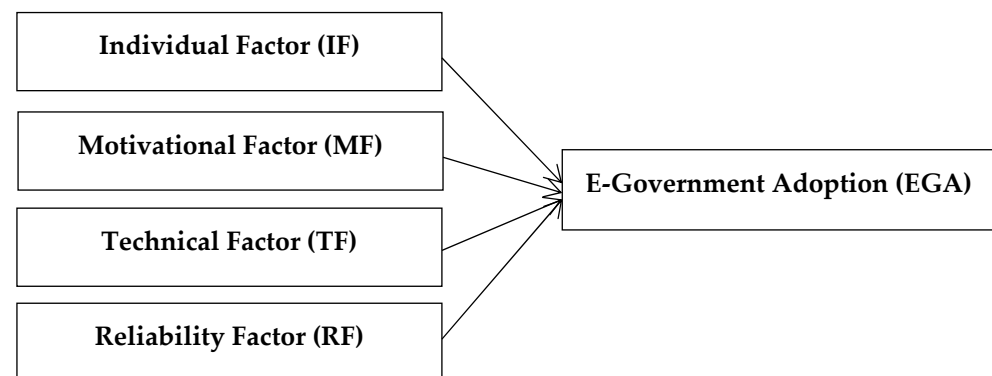


Figure 1. Conceptual framework.

4. Research Methodology

4.1. Applied Research Methods

This study adopts a mixed-methods approach, combining both quantitative and qualitative research methods to provide a comprehensive analysis of the factors influencing e-government adoption. Quantitative data, gathered through a structured questionnaire distributed to 450 respondents, allowed for statistical hypothesis testing. In parallel, qualitative elements—such as open-ended responses or thematic context—offered deeper insights into citizen attitudes and interpretations. This methodological integration enhances the reliability and richness of the findings. This study employs a combination of general and specific scientific methods to ensure a comprehensive and systematic approach to the research problem. Analysis was used to break down theoretical concepts and previous studies into key components, especially during the literature review phase. In turn, synthesis allowed for the integration of these findings to form a cohesive theoretical framework. Inductive reasoning was applied in interpreting patterns from empirical observations, particularly in the literature review, while deductive methods guided the testing of established hypotheses based on theoretical assumptions. Comparison served as a key methodological tool in evaluating different legal frameworks and their application in varying national contexts, including European approaches. Finally, abstraction and generalization were applied to draw broader conclusions from specific findings.

4.2. Sample and Data Collection

This study was exempt from ethical review because it is a survey with no sensitive questions and will have no effect on respondents because their responses are generic. Furthermore, because individuals are not identified, encoded recording information maintains confidentiality. The questionnaire requested voluntary participation in the form of a consent statement, while maintaining privacy and confidentiality. Finally, research assistants collected the data exclusively for instructional purposes, and this study's findings do not name the organizations. This is a statistical and quantitative analysis. This study's population consists of Thai citizens who have utilized or experienced e-government services. The sample size was determined by using the [51] formula with a 95% confidence level and a maximum error of 5%, yielding a sample size of 450. The sample for this study consisted of 450 Thai citizens who responded to a structured questionnaire. Participants were predominantly recruited through online distribution, which may have contributed to the high number of respondents using the Internet platform. This selection was not intended to be exclusive but reflects the accessibility and responsiveness of this demographic through the channels utilized. The study sample consisted of individuals who had prior experience using e-government services. This decision was made to allow for a more accurate assessment of the influence of specific factors—such as motivation, system reliability, and technical usability—on the behavior of active users. However, we acknowledge that this design limits insights into the reasons why some citizens choose not to engage with e-government platforms at all. Including non-users in future studies could help to identify deterrents to adoption and offer a more holistic view of e-government usage patterns across the broader population. The validity analysis established the research instrument's accuracy by assessing its content validity. Content validation refers to how accurately the instrument analyzes the target notion [52]. The questionnaire's overall scale content validity index was 1.00, demonstrating complete agreement among subject matter experts. In addition, Cronbach's alpha was employed to assess reliability in this study. The Cronbach's alpha coefficient for variables was calculated to be 0.844. Cronbach's alpha is greater than 0.700, indicating that the survey is very reliable [53], as shown in Table 1. The Cronbach's alpha coefficient for the variables presents the reliability values and the 55 measure items used to assess the five latent constructs.

Table 1. Cronbach's alpha coefficient of variables.

Variables	Cronbach's Alpha	No. of Items
Individual factor (IF)	0.721	10
Motivational factor (MF)	0.701	10
Technical factor (TF)	0.719	10
Reliability factor (RF)	0.701	10
E-government adoption (EGA)	0.722	15
Overall	0.844	55

4.3. Questionnaire

This study primarily employed scales with measure items designed to construct five latent variables: the individual factor, motivational factor, technical factor, reliability factor, and e-government adoption scenario. To eliminate translation bias, the English questionnaire was translated into Thai, then back-translated into English. To measure the dimensions of all multi-item variables, we used a five-point Likert scale questionnaire survey that expressed rating scale signals (5 = strongly agree, 1 = strongly disagree). Furthermore, following the 50-participant pilot testing of the instruments, the adequacy of

measurements was ensured, with Cronbach's alpha falling within the prescribed range of 0.701 to 0.722.

4.4. Statistical Analyses

The research findings were analyzed with social science statistics software version 24. Data were analyzed using descriptive statistics. Respondent demographic information was presented in the form of frequency and percentage, while respondents' viewpoints on individual, motivational, technical, and reliability factors, as well as e-government adoption, were expressed as the mean and standard deviation. Additionally, the data were analyzed using the following inferential statistics: the link between variables was investigated using Pearson's product-moment correlation and hypotheses were tested using multiple regression analysis. Bias in research has been investigated, and it can be reduced by using a structured survey design and carefully structuring questions, ensuring that participants' responses are more accurate and autonomous.

5. Results

5.1. Demographic Information of Respondents

According to [54], 450 questionnaires were distributed to participants between July and August of 2024 to assure the accuracy and stability of the data, and the higher the sample size, the less bias in the model parameter estimates. All questionnaires were completed and accurately filled out, resulting in a 100% response rate. According to the study's demographic data, the majority of the sample (276 individuals or 61.30% of the total) was female, with an average age of 34 years. The majority of participants, 268 in total, held a Bachelor's degree (59.60%). The majority earned between THB 20,001 and 30,000 per month (214 individuals or 47.60% of the total). The participants comprised up to 147 employees from private companies, accounting for 32.70%. The majority of them live in Thailand's central region (153 individuals or 34.00% of the total). The majority of respondents (159 individuals, or 35.40% of the total) used e-government to file their personal income taxes, with the platform being used 1–2 times per month (347 individuals or 77.10% of the total), according to Table 2.

Table 2. Demographic information of respondents.

Demographic Factors	Descriptive Statistics
Gender	Male: 174 (38.70%) Female: 276 (61.30%)
Age	34 Years
Education	Below a bachelor's degree: 16 (3.50%) Bachelor's degree: 268 (59.60%) Above a bachelor's degree: 166 (36.90%)
Monthly Income	No more than THB 20,000: 99 (22.00%) THB 20,001–30,000: 214 (47.60%) THB 30,001–40,000: 65 (14.40%) THB 40,001 or more: 72 (16.00%)
Occupation	Civil servant/state enterprise employee: 60 (13.30%) Business owner: 60 (13.30%) Private company employee: 147 (32.70%) Student: 77 (17.10%) Freelance: 99 (22.00%) Others who did not identify: 7 (1.60%)

Table 2. *Cont.*

Demographic Factors	Descriptive Statistics
Region	Northern: 80 (17.70%) Northeastern: 75 (16.70%) Central: 153 (34.00%) Western: 26 (5.80%) Eastern: 89 (19.80%) Southern: 27 (6.00%)
Objective of e-government usage	Receive state welfare fund: 59 (13.10%) Receive public services from the state: 41 (9.10%) File taxes: 159 (35.40%) Follow the news from the state: 86 (19.10%) Transact with the government: 105 (23.30%)
Frequency of e-government usage	1–2 times per month: 347 (77.10%) 3–4 times per month: 57 (12.70%) 5 times per month or more: 46 (10.20%)

5.2. Descriptive Statistics

From the five-point Likert scale questionnaires, expressing rating scale signals (5 = strongly agree, 1 = strongly disagree), average scores and standard deviations were calculated for a descriptive statistical analysis. The average Likert scale scores and standard deviations for respondents' viewpoints on the individual factor (\bar{x} = 3.75, S.D. = 0.50), motivational factor (\bar{x} = 3.87, S.D. = 0.49), technical factor (\bar{x} = 3.94, S.D. = 0.48), reliability factor (\bar{x} = 3.92, S.D. = 0.47), and e-government adoption (\bar{x} = 3.86, S.D. = 0.43) were all high.

Table 3 displays descriptive statistics for the individual factor, including the ranking average scores of the top five question item measurements. According to Table 3, the average Likert scale scores and standard deviations for respondents' perspectives on the individual element show that a restricted budget or a poor government technological infrastructure will not be a barrier to using e-government services. Citizens have the necessary information and resources, as well as adequate social standing, to use e-government, and they have a solid financial foundation to sustain it.

Table 3. Descriptive statistics for individual factor.

Question Items	\bar{x}	S.D.	Rank
You can use e-government technologies even if you have a limited budget.	3.85	0.95	1
You have the necessary information and resources to utilize e-government.	3.83	0.86	2
You have sufficient social standing to justify the usage of e-government.	3.82	0.96	3
You have a financial background that can encourage the adoption of e-government.	3.80	0.90	4
You believe that the government's inadequate technology infrastructure will not be a barrier to offering e-government services.	3.75	0.94	5

Table 4 shows the descriptive statistics for the motivational factor, including the ranking average scores of the top five question item measurements. According to Table 4, the average Likert scale scores and standard deviations for respondents' viewpoints on the motivating aspect indicate that citizens are motivated to use the e-government system more easily when they have the appropriate resources, opportunities, and information. Society and employment influence citizens' use of e-government systems to communicate with

the public. All citizens, including those with special needs, will benefit from e-government services, which will allow them to communicate with the government without requiring assistance from others.

Table 4. Descriptive statistics for motivational factor.

Question Items	\bar{x}	S.D.	Rank
You believe that having the necessary resources, opportunity, and information makes it easier for you to use the e-government system.	4.00	0.87	1
You believe that citizens with special needs can utilize e-government services to communicate with the government without the need for assistance from others.	3.99	0.88	2
You believe that society influences you in using electronic government systems to connect with the government.	3.96	0.93	3
You believe that the government may encourage citizens to value the use of technology in their employment.	3.87	0.88	4
You believe that citizens with special needs will benefit more from using e-government tools.	3.87	0.93	5

Table 5 describes descriptive statistics for the technical factor, including the ranking average scores of the top five question item measurements. According to Table 5, the average Likert scale scores and standard deviations for respondents' views on the technical aspect depict that the government should educate and train citizens on digital skills through various media and public channels in order to increase citizens' digital proficiency and encourage them to use e-government systems. Furthermore, public sector organizations should improve their technological capabilities and make electronic government systems more available to citizens in order to increase the likelihood of citizens accepting digitization and adopting an e-government system.

Table 5. Descriptive statistics for technical factor.

Question Items	\bar{x}	S.D.	Rank
You believe that the government can educate and instruct citizens about digital skills through various media and public channels.	4.07	0.82	1
You believe that strengthening the technological ability of the public sector is critical to increasing the possibility that citizens will adopt e-government.	4.02	0.88	2
You believe that citizens' digital proficiency will encourage them to use e-government systems.	4.02	0.90	3
You believe that the government's capacity to make electronic government systems more accessible to citizens will lead to increased acceptance of digitization.	4.00	0.90	4
You believe that using the e-government system is not difficult as long as sufficient training is provided.	3.96	0.86	5

Table 6 describes descriptive statistics for the reliability factor, including the ranking average scores of the top five question item measurements. According to Table 6, the average Likert scale scores and standard deviations for respondents' views on the reliability element indicate that they trust the government's electronic system and believe sensitive

information would be protected and not exploited for malicious purposes. Citizens believe that e-government system security is critical, and they are confident that these systems can protect public services and data from hackers. Furthermore, citizens are aware that the government has enacted legislation to safeguard citizens' information and data when they use computerized government services.

Table 6. Descriptive statistics for reliability factor.

Question Items	\bar{x}	S.D.	Rank
You believe that the government will protect your sensitive information and not utilize it for harmful purposes.	3.98	0.86	1
You believe that e-government system security is a crucial consideration when using them.	3.98	0.87	2
You are confident in the security of e-government systems.	3.97	0.92	3
You are aware that the government has enacted legislation to protect the information and data of citizens who use electronic government services.	3.93	0.92	4
You believe the government can protect public systems and information from hackers.	3.92	0.93	5

Table 7 describes descriptive statistics for e-government adoption, including the ranking average scores of the top five question item measurements. According to Table 7, the average Likert scale scores and standard deviations for respondents' views on e-government adoption show that using electronic government systems in government organizations will improve information sharing efficiency and promote a positive image of the government sector. Furthermore, it will contribute to addressing the issue of delayed public service delivery, improving public service delivery, and providing citizens with online public services.

Table 7. Descriptive statistics for e-government adoption.

Question Items	\bar{x}	S.D.	Rank
You believe that using electronic government systems in government organizations will improve the efficiency of information sharing among government organizations.	3.95	0.90	1
You believe that implementing e-government technology in government organizations will assist to address the issue of delayed public service delivery.	3.93	0.94	2
You believe that implementing e-government systems in government organizations will improve the delivery of public services in the government sector.	3.93	0.95	3
You believe that implementing e-government technology in government organizations will allow them to provide online public services to citizens.	3.92	0.91	4
You believe that implementing e-government systems in government organizations promotes a positive image of the government sector.	3.91	0.94	5

5.3. Hypotheses Testing

Inferential statistics were examined by calculating the correlation coefficient between the independent and dependent variables. Pearson's product-moment correlation was used to assess the relationship between these variables. The correlation analysis was

performed to determine the size of the correlation between variables and to detect multicollinearity. Table 8 shows the correlation analysis of the framework variables and depicts the relationship between variables using correlation coefficients (r).

Table 8. Correlation analysis of variables.

Title 1	IF	MF	TF	RF	EGA
\bar{x}	3.75	3.87	3.94	3.92	3.86
S.D.	0.50	0.49	0.48	0.47	0.43
IF	1	0.465 **	0.155 **	0.238 **	0.208 **
MF		1	0.331 **	0.172 **	0.256 **
TF			1	0.186 **	0.310 **
RF				1	0.315 **
EGA					1

** Correlation is significant at 0.01 level (2-tailed).

The relationship assumptions suggest that the correlation between the variables should be smaller than 0.800 [55]. The relationship between variables was found to be significantly correlated at the highest value of 0.465, which was less than 0.800, indicating that there appears to be no multicollinearity problem in this relationship; this implies that each variable has an appropriate relationship with each other and can be used for a linear model structure analysis. As a result, this study can use a multiple regression analysis to evaluate the hypotheses at a 0.05 significance level.

According to the research findings, the hypothesis predicts a positive association between the motivational, technical, and reliability aspects, as well as e-government adoption in Thai public sector organizations, from the perspective of citizens. At the 0.05 level of significance, the three indicators have a 17.80% predictive value for e-government adoption (adjusted R Square = 0.178). Table 9 demonstrates a positive correlation between the MF ($\beta = 0.113, p < 0.05$), TF ($\beta = 0.218, p < 0.01$), RF ($\beta = 0.240, p < 0.01$), and EGA. However, the hypothesis testing indicates no positive association between the individual factor and e-government adoption in Thai public sector organizations from the perspective of citizens. The multiple regression analysis of the three components reveals that the beta coefficient is 95% statistically significant. As a result, the hypothesis receives partial support. Hypothesis 1 (H1) stated that the individual factor has a positive impact on e-government adoption in Thai public sector organizations, based on citizen viewpoints. The findings did not support this hypothesis; hence, it is rejected. Hypothesis 2 (H2) proposed that the motivational factor has a favorable impact on e-government adoption in Thai public sector organizations, based on citizen perspectives. This hypothesis is validated by the data analysis, which reveals a statistically significant association between the motivational factor and e-government adoption. Hypothesis 3 (H3) proposed that, from the standpoint of citizens, the technical factor has a favorable impact on e-government adoption in Thai public sector organizations. This hypothesis is supported by the data analysis, which shows a statistically significant association between the technological factor and e-government adoption. Hypothesis 4 (H4) claimed that, from the perspective of citizens, the reliability factor positively influences e-government adoption in Thai public sector organizations. This hypothesis is supported by the data analysis, which reveals a statistically significant link between the reliability factor and e-government adoption. The following are significant recommendations for Thai public sector entities seeking to enhance the citizen acceptance of e-government. First, Thai government organizations must provide citizens with resources, opportunities, and information for using e-government systems to make them more user-friendly. Thai government organizations must enable citizens with special needs to communicate with the government via e-government technologies without the need to

seek assistance from others. In addition, Thai government organizations must encourage individuals to be socially motivated, which will inspire them to utilize e-government platforms to engage with the government. Second, Thai government organizations must be able to educate and train individuals on digital skills via a range of media and public channels. Thai public sector organizations must promote and enhance technical capabilities, which are crucial for increasing the possibility that citizens will use e-government. In addition, Thai government organizations must improve citizens' digital capabilities, which will boost their willingness to use e-government services. Finally, Thai government organizations must be able to safeguard citizens' sensitive information and ensure that it is not utilized for purposes that are detrimental to citizens, and they must be able to ensure the security of e-government systems, which is regarded as a crucial aspect in their adoption. In addition, Thai government organizations must be able to instill trust in the security of e-government systems in citizens.

Table 9. Results of multiple regressions of factors on e-government adoption.

Model	Beta	t	Sig.	Tolerance	VIF
IF	0.065	1.327	0.185	0.758	1.320
MF	0.113	2.223	0.027 *	0.714	1.400
TF	0.218	4.770	0.000 **	0.873	1.146
RF	0.240	5.375	0.000 **	0.920	1.807

** $p < 0.01$, * $p < 0.05$, standardized coefficients (Beta) are reported. Model: IF, MF, TF, and RF predicts EGA. Adjusted $R^2 = 0.178$, S.E.E. = 0.39094, and $F = 25.382$.

Furthermore, based on the open-ended questions, citizens' responses suggest the following useful recommendations, as shown in Table 10.

As previously stated, in terms of the individual factor, citizens recommend that the public organization improve citizens' awareness and provide individuals with sufficient knowledge, tools, and resources to encourage their usage of e-government. For the motivational factor, citizens recommend that the government sector offer incentives to citizens so that they can use the electronic government system conveniently and quickly, as well as increase the number of online e-commerce channels connected to the e-government system, allowing citizens to access a variety of electronic services, and develop modern, user-friendly platforms and applications. In terms of the technological factor, citizens recommend that public organizations develop an e-government system that is simple to use and that citizens can learn on their own, educate the public on how to use e-government, and provide digital skills training to citizens of all ages to familiarize them with the system. In terms of the reliability factor, citizens recommend that the government needs to establish credibility and trust in the e-government system for citizens to interact with the government online and that the government protect citizens by enacting rules that protect personal information and confidentiality and ensure security in online transactions. Additionally, the government sector should portray a positive image and demonstrate reliability in terms of citizen protection. According to citizens' perspectives on e-government adoption, public organizations should encourage the use of electronic government technology in a variety of transactions because it can benefit citizens while also saving time by eliminating the need to contact public officials in person. Furthermore, before making e-government systems available to citizens, the government should perform a thorough assessment of their requirements and promote comprehension.

Table 10. Content analysis on e-government adoption from citizens' perspectives.

Dimension	Recommendation	Frequency
IF	The government should enhance citizens' understanding through high-quality education and training.	8
	The government should provide citizens with enough knowledge, tools, and resources to facilitate their use of e-government.	4
MF	The government should provide incentives for citizens to adopt the e-government system more conveniently and swiftly by developing modern, user-friendly platforms and applications.	36
	The government should encourage citizens to use e-government by increasing the number of online e-commerce sites connected to the e-government system, allowing citizens to access a variety of electronic services.	22
TF	The government should develop an e-government system that is easy to use and that citizens may learn on their own.	45
	The government should educate the public on e-government and provide digital skills training to citizens of all ages.	4
RF	In order for citizens to interact with the government online, the government needs to establish credibility and trust in the e-government system.	35
	The government should safeguard citizens by enacting rules that preserve the confidentiality of personal information and create security in online transactions.	17
	Through numerous communication channels, the government sector should portray a positive image and demonstrate credibility in terms of citizen protection.	7
EGA	The government should encourage the use of electronic government technology in a variety of transactions since it can benefit citizens while also saving time by reducing the need to contact public authorities in person.	82
	Before providing e-government systems available to citizens, the government should perform a thorough survey of their needs and promote comprehension.	6

6. Discussion and Conclusions

6.1. Discussion of Findings

According to the research, various factors influence the adoption of e-government services. These studies examine a variety of critical factors impacting e-government adoption in Thai public sector organizations from the citizens' perspective. There is a favorable association between the three factors of reliability, technology, and motivation, as well as e-government adoption, in Thai public sector organizations, as perceived by citizens. There is no significant correlation between the individual factor and e-government adoption. Hypothesis 4 (H4) claimed that, from the perspective of citizens, the reliability factor positively influences e-government adoption in Thai public sector organizations. This hypothesis is supported by the data analysis, which reveals a statistically significant link between the reliability factor and e-government adoption. According to the research,

while deciding whether to use e-government services, citizens prioritize reliability over other factors. Adopting e-government necessitates a high degree of system stability and trust. Trust is a critical component in e-government adoption [6,7,56]. Citizens' propensity to use e-government services is strongly influenced by their perceived trustworthiness. Perceptions of acceptability can be modified by factors such as security and privacy, trustworthiness, legislation, and regulations, resulting in higher e-government acceptance and use [49,50]. A previous study suggests that perceived privacy influences trust in online banking and e-government services [56]. Governments should prioritize protecting citizens' privacy while offering e-government services on social media platforms. The findings of this study also imply that perceived security is a major predictor of trust in e-government services [57]. As a result, government organizations must make steps to raise awareness about the policies, security, and dependability of their e-government infrastructure and social media platforms. The role of system reliability in influencing citizens' adoption of e-government services can be better understood by situating the findings within the existing literature. Prior studies have emphasized that the adequacy, effectiveness, and adaptability of digital systems to meet user needs are critical predictors of successful e-government implementation [16,30]. When users perceive an e-government platform as reliable—meaning it functions consistently, provides accurate information, and adapts well to their preferences and needs—they are more likely to trust and adopt the service. The findings are consistent with this line of research, suggesting that the technical performance and user-centered designs remain essential in shaping adoption behaviors. By expanding on these dimensions, future work can more deeply explore how system adaptability and responsiveness contribute to sustained user engagement. In addition, Hypothesis 3 (H3) proposed that, from the standpoint of citizens, the technical factor has a favorable impact on e-government adoption in Thai public sector organizations. This hypothesis is supported by the data analysis, which shows a statistically significant association between the technological factor and e-government adoption. The research indicates that in order to develop an e-government system, the physical infrastructure and existing technology must be available and enhanced [50]. The availability of technology can have an impact on how people use e-government solutions. It is vital to have solutions for addressing technological issues and modernizing existing systems [6,7]. The perceived system quality was an issue, and it had a major impact on the use and utility of necessary e-government services [58–60]. The perceived simplicity of use has a substantial impact on the perceived usefulness and citizen desire to use social media for e-government services. Citizens value user-friendly e-government services, which leads to an increased involvement in and acceptance of e-government services on social media [61]. Furthermore, Hypothesis 2 (H2) proposed that the motivational factor has a favorable impact on e-government adoption in Thai public sector organizations, based on citizen perspectives. This hypothesis is validated by the data analysis, which reveals a statistically significant association between the motivational factor and e-government adoption. The research on motivation is crucial for understanding the adoption and use of e-government. Changes in values, perceived benefits, sociocultural contexts, awareness, government structures, laws, regulations, and systems all influence citizen's motivation to use e-government services [6,7]. Prior research identified motivation as a key component in e-government adoption [49]. Finally, direct avenues are being built to improve communication between the government and its citizens. Digital channels facilitate citizens' information access and participation in governance [47]. E-government programs provide 24/7 access to government information, resulting in a better service quality [62]. Furthermore, the impact of social networks on e-government adoption is a driving force [7]. In conclusion, citizens believe that using e-government tools will allow them to become 21st-century citizens. The outdated public administration system produces

problems for citizens. Shifting from paper to digital can enhance modern citizenship [7], and the government can encourage citizens to use e-government by increasing the number of online e-commerce sites linked to the e-government system, allowing citizens to access a wide range of electronic services [63,64]. However, Hypothesis 1 (H1) stated that the individual factor has a positive impact on e-government adoption in Thai public sector organizations, based on citizen viewpoints. The findings did not support this hypothesis; hence, it is rejected. The lack of significant relationships between certain individual characteristics and e-government usage may be partially attributable to the sample consisting solely of current users. Including non-users in future research may reveal stronger patterns or explanatory mechanisms related to digital exclusion or disinterest.

6.2. Theoretical Implications

This research improves the understanding of the various factors impacting e-government adoption. Furthermore, combining findings from diverse studies has resulted in a more comprehensive understanding of e-government adoption, successfully bridging gaps and harmonizing conflicting points in the current literature. This study addresses a gap in the literature by examining the factors influencing e-government adoption in Thai public sector organizations from citizens' perspectives, particularly in developing countries where technology is used for e-government services. This study advances our understanding of how reliability, technological, and motivational factors influence citizen's intentions to adopt e-government services. This research model simplifies and establishes a scientific framework for evaluating e-government interactions utilizing the EGAUM, a universal model applicable to a variety of countries. The EGAUM is now being tested and confirmed to determine its impact on e-government adoption and utilization. As a result, citizens' perspectives on critical emerging elements in the promotion of e-government service adoption enhance the theoretical understanding.

6.3. Practical Implications

This research has important implications for e-government services across multiple dimensions. Policymakers can use the identified factors to create effective strategies for increasing adoption rates. This can involve increasing trust, improving security, and implementing user education programs. Adequate resources, opportunities, and information for using e-government systems are critical to making citizens more technology-friendly and encouraging them to be socially motivated, which will inspire them to use e-government platforms and engage with the government. Furthermore, education and training, as well as improving citizens' digital capabilities through a variety of media and public channels, are critical for increasing citizens' ability and willingness to use e-government services. The findings also have practical implications, since they provide Thai public sector organizations with a better understanding of the main issues identified as potential impediments to e-government deployment. This effort intends to help Thai public sector organizations create e-services that citizens are more likely to use. Furthermore, implementing e-government services benefits citizens while also encouraging contact between government departments and the commercial sector. Government agencies should promote and successfully implement e-government in the private sector to maximize its benefits and advantages, particularly in today's competitive digital economy.

6.4. Conclusions, Limitations, and Future Research

This study looks at the fundamental factors impacting e-government adoption in Thai public sector organizations from the perspective of citizens. This study used a quantitative research design, collecting data from Thai citizens who have utilized or experienced e-government services using a questionnaire. The data were analyzed using descriptive and

inferential statistics. According to this study's findings, three primary elements influence e-government adoption: reliability, technology, and motivation. The analysis of these links allowed us to provide recommendations to policymakers and public sector organizations regarding e-government adoption. The findings have given Thai public sector organizations a better understanding of the primary issues identified as potential barriers to citizens' e-government deployment, the ability to increase e-government adoption with public support, the development of e-services that citizens are more likely to use, and the promotion of communication between government agencies and the private sector. Aside from its theoretical and empirical contributions, this study offers practical value by highlighting elements that may impact the reform of public administration policies to comply with sustainable development goals (SDG 9: Industry, Innovation, and Infrastructure). The findings on citizens' attitudes about reliability, technology, and motivation in e-government adoption should assist legislators in improving digital service accessibility, trust, and usability. Future research might expand on this foundation by examining best practices from other countries, allowing for a comparative analysis and the creation of adaptable policy models. Such comparative studies will emphasize the need for fulfilling the evolving needs of digital governance in a global context.

Although this study focuses on Thailand, the findings have broader implications. The combination of reliability, technological, and motivational variables in determining citizen involvement with digital public services reflects global trends. This study thus contributes not just to national policy conversations, but also to the worldwide dialogue on optimizing citizen-centered digital governance in varied sociopolitical circumstances. While the findings provide valuable insight into the factors influencing e-government adoption among Thai citizens, the sample's demographic skew must be acknowledged. According to the United Nations E-Government Survey 2024, Thailand has a Human Capital Index (HCI) of 80,320, indicating a relatively high level of education and digital readiness in comparison to global averages. However, the current study's sample is heavily weighted toward individuals with tertiary educations, which may not fully represent the diversity of users interacting with e-government services across the country. Citizens with a lower educational attainment, older age groups, or rural residents may face different barriers or motivations regarding digital government use. This limitation may affect the generalizability of the results and should be considered when interpreting the findings. Future research should strive to include a more representative sample, encompassing broader socioeconomic and educational backgrounds to fully capture the multidimensional landscape of e-government adoption in Thailand. Another limitation of this study is the exclusion of those who do not use e-government services. While this study focused on current users to examine the impact of several factors on adoption behavior, this approach limits the generalizability of the findings. By eliminating non-users, we may have limited our ability to detect significant relationships between specific individual-level characteristics and e-government service use. Individuals who lack digital literacy, Internet access, or trust in government platforms, all of which regularly contribute to non-use, were omitted from this study. Future research should involve both users and non-users in order to gain a more comprehensive knowledge of adoption barriers and identify all relevant variables. Lastly, despite the current research's results, there is still a need for more exploration, as many other characteristics, such as attitude, expectancy, perceived risk, and others, are likely to boost e-government adoption in future studies.

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References

1. Samsor, A.M. Challenges and Prospects of E-government Implementation in Afghanistan. *Int. Trade Politics Dev.* **2021**, *5*, 51–70. [CrossRef]
2. Digital Government Development Agency. *Thailand Digital Government Development Plan 2023–2027*; DGA: Bangkok, Thailand, 2023.
3. Abdalla, R.A.M. Examining Awareness, Social Influence, and Perceived Enjoyment in the TAM Framework as Determinants of ChatGPT. Personalization as a Moderator. *J. Open Innov. Technol. Mark. Complex.* **2024**, *10*, 100327. [CrossRef]
4. Al Sayegh, A.J.; Ahmad, S.Z.; AlFaqeeh, K.M.; Singh, S.K. Factors Affecting E-Government Adoption in the UAE Public Sector Organizations: The Knowledge Management Perspective. *J. Knowl. Manag.* **2022**, *27*, 717–737. [CrossRef]
5. Undi-Phiri, B.; Phiri, J. Assessing Factors Affecting the Adoption of E-Government Services in Developing Countries for Transport Sector, Amidst the COVID-19 Pandemic. *Commun. Netw.* **2022**, *14*, 69–90. [CrossRef]
6. Alghamdi, S.; Beloff, N. Innovative Framework for E-Government Adoption in Saudi Arabia: A Study from the Business Sector Perspective. *Int. J. Adv. Comput. Sci. Appl.* **2016**, *7*, 655–664. [CrossRef]
7. Abdullah, N.N. Factors Affecting the Adoption of E-Government in Public Sector Organizations of Kurdistan Region. *Public Adm. Asp.* **2021**, *9*, 15–27. [CrossRef]
8. Venkatesh, V.; Morris, M.G.; Davis, G.B.; Davis, F.D. User Acceptance of Information Technology: Toward a Unified View. *MIS Q.* **2003**, *27*, 425–478. [CrossRef]
9. Dwivedi, Y.K.; Rana, N.P.; Jeyaraj, A.; Clement, M.; Williams, M.D. Re-Examining the Unified Theory of Acceptance and Use of Technology (UTAUT): Towards a Revised Theoretical Model. *Inf. Syst. Front.* **2017**, *21*, 719–734. [CrossRef]
10. Dwivedi, Y.K.; Rana, N.P.; Tamilmani, K.; Raman, R. A Meta-Analysis Based Modified Unified Theory of Acceptance and Use of Technology (Meta-UTAUT): A Review of Emerging Literature. *Curr. Opin. Psychol.* **2020**, *36*, 13–18. [CrossRef]
11. Ajzen, I. The Theory of Planned Behavior. *Organ. Behav. Hum. Decis. Process.* **1991**, *50*, 179–211. [CrossRef]
12. Gao, L.; Wang, S.; Li, J.; Li, H. Application of the Extended Theory of Planned Behavior to Understand Individual's Energy Saving Behavior in Workplaces. *Resour. Conserv. Recycl.* **2017**, *127*, 107–113. [CrossRef]
13. Faulkner, N.; Jorgensen, B.; Koufariotis, G. Can Behavioural Interventions Increase Citizens' Use of E-Government? Evidence from a Quasi-Experimental Trial. *Gov. Inf. Q.* **2019**, *36*, 61–68. [CrossRef]
14. Aleisa, N. Key Factors Influencing the E-Government Adoption: A Systematic Literature Review. *J. Innov. Digit. Transform.* **2024**, *1*, 14–31. [CrossRef]
15. Mhuentoei, M. Thailand's E-Government: Changing Definition and Development. *Inthanintaksin J.* **2020**, *15*, 129–152.
16. Carter, L.; Yoon, V.; Liu, D. Analyzing E-Government Design Science Artifacts: A Systematic Literature Review. *Int. J. Inf. Manag.* **2022**, *62*, 102430. [CrossRef]
17. Goldkuhl, G. E-Government Design Research: Towards the Policy-Ingrained IT Artifact. *Gov. Inf. Q.* **2016**, *33*, 444–452. [CrossRef]
18. Gregusova, D.; Halasova, Z.; Peracek, T. eIDAS Regulation and Its Impact on National Legislation: The Case of the Slovak Republic. *Adm. Sci.* **2022**, *12*, 187. [CrossRef]
19. Kokaj, A.; Sinani, B. The Multi-Level Governance of the European Union: The Role of the Local Government. *Jurid. Trib.* **2023**, *13*, 32–42. [CrossRef]
20. Zofcinova, V. Factors Influencing the Provision of Social Welfare Services at the Level of Territorial Self-Government of the Slovak Republic. *Adm. Si Manag. Public* **2017**, *29*, 6–26. Available online: <https://ramp.ase.ro/vol29/29-02.pdf> (accessed on 17 April 2025).
21. Méndez-Rivera, C.A.; Patiño-Toro, O.D.; Valencia-Arias, A.; Arango-Botero, D.M. Factors Influencing the Adoption of E-Government Services: A Study among University Students. *Economies* **2023**, *11*, 225. [CrossRef]
22. Haughton, O.; Barnes, D. A Comparative Analysis of E-Government in Jamaica and Singapore: An Exploratory Study of Supply-Side Factors. *J. Glob. Inf. Technol. Manag.* **2023**, *26*, 116–144. [CrossRef]
23. Ramirez-Madrid, J.P.; Escobar-Sierra, M.; Lans-Vargas, I.; Montes Hincapie, J.M. Government Influence on E-Government Adoption by Citizens in Colombia: Empirical Evidence in a Latin American Context. *PLoS ONE* **2022**, *17*, e0264495. [CrossRef] [PubMed]
24. Alharbi, A.S.; Halikias, G.; Rajarajan, M.; Yamin, M. A Review of Effectiveness of Saudi E-Government Data Security Management. *Int. J. Inf. Technol.* **2021**, *13*, 573–579. [CrossRef]
25. Davis, F.D.; Bogozzi, R.P.; Warshaw, P.R. User Acceptance of Computer Technology: A Comparison of Two Theoretical Models. *Manag. Sci.* **1989**, *35*, 982–1003. [CrossRef]
26. Martin, T. A Literature Review on the Technology Acceptance Model. *Int. J. Acad. Res. Bus. Soc. Sci.* **2022**, *12*, 2859–2884. [CrossRef]

27. Rastini, N.M.; Respati, N.N.R. Public Attitudes and Interests Using Online Transactions (TAM Application and TRA Model). *J. Minds Manaj. Ide Dan Inspirasi* **2021**, *8*, 175–190. [\[CrossRef\]](#)
28. Bashir, I.; Madhavaiah, C. Consumer Attitude and Behavioural Intention towards Internet Banking Adoption in India. *J. Indian Bus. Res.* **2015**, *7*, 67–102. [\[CrossRef\]](#)
29. Laily, N.; Riadani, F.S. The Factors Influencing Perceived Ease of Use of E-Learning by Accounting Lecturer. *J. Account. Bus. Educ.* **2019**, *3*, 142–150. [\[CrossRef\]](#)
30. Khoirul Aswar, R.; Sumardjo, M.; Wiguna, M.; Hariyani, E. Personal and Reliability Factors Affecting Adoption and Utilization of E-Government: An Effect of Intention to Use. *Probl. Perspect. Manag.* **2022**, *20*, 281–290. [\[CrossRef\]](#)
31. Xue, L.; Rashid, A.M.; Ouyang, S. The Unified Theory of Acceptance and Use of Technology (UTAUT) in Higher Education: A Systematic Review. *Sage Open* **2024**, *14*, 21582440241229570. [\[CrossRef\]](#)
32. Scur, G.; da Silva, A.V.D.; Mattos, C.A.; Goncalves, R.F. Analysis of IoT Adoption for Vegetable Crop Cultivation: Multiple Case Studies. *Technol. Forecast. Soc. Change* **2023**, *191*, 122452. [\[CrossRef\]](#)
33. Al-Sharafi, M.A.; Al-Emran, M.; Arpaci, I.; Iahad, N.A.; AlQudah, A.A.; Iranmanesh, M.; Al-Qaysi, N. Generation Z Use of Artificial Intelligence Products and Its Impact on Environmental Sustainability: A Cross-Cultural Comparison. *Comput. Hum. Behav.* **2023**, *143*, 107708. [\[CrossRef\]](#)
34. Terblanche, N.; Kidd, M. Adoption Factors and Moderating Effects of Age and Gender that Influence the Intention to Use a Non-Directive Reflective Coaching Chatbot. *Sage Open* **2022**, *12*, 21582440221096136. [\[CrossRef\]](#)
35. Amrouni, K.I.A.; Arshah, R.A.; Kadi, A.J. A Systematic Review: Factors Affecting Employees' Adoption of E-government Using an Integration of UTAUT & TTF Theories. *KnE Soc. Sci.* **2019**, *18*, 54–65. [\[CrossRef\]](#)
36. Ahmed, M.S.; Everatt, J.; Fox-Turnbull, W.; Alkhezzi, F. Systematic Review of Literature for Smartphones Technology Acceptance Using Unified Theory of Acceptance and Use of Technology Model (UTAUT). *Soc. Netw.* **2023**, *12*, 29–44. [\[CrossRef\]](#)
37. Al-Mutairi, A.; Naser, K.; Fayez, F. Obstacles toward Adopting Electronic Government in An Emerging Economy: Evidence from Kuwait. *Asian Econ. Financ. Rev.* **2018**, *8*, 832–842. [\[CrossRef\]](#)
38. Nnaji, C.; Okpala, I.; Awolusi, I.; Gambatese, J. A Systematic Review of Technology Acceptance Models and Theories in Construction Research. *J. Inf. Technol. Constr.* **2023**, *28*, 39–69. [\[CrossRef\]](#)
39. Dwivedi, Y.K.; Rana, N.P.; Janssen, M.; Lal, B.; Williams, M.D.; Clement, M. An Empirical Validation of a Unified Model of Electronic Government Adoption (UMEGA). *Gov. Inf. Q.* **2017**, *34*, 211–230. [\[CrossRef\]](#)
40. Avazov, S.; Lee, S. E-Government Services Adoption in Uzbekistan: An Empirical Validation of Extended Version of the Unified Model of Electronic Government Acceptance (UMEGA). *J. Policy Stud.* **2022**, *37*, 1–23. [\[CrossRef\]](#)
41. Nguyen, H.T.; Dang, T.V.; Van Nguyen, V.; Nguyen, T.T. Determinants of E-Government Service Adoption: An Empirical Study for Business Registration in Southeast Vietnam. *J. Asian Public Policy* **2020**, *15*, 453–468. [\[CrossRef\]](#)
42. Mensah, I.K.; Zeng, G.; Luo, C. E-Government Services Adoption: An Extension of the Unified Model of Electronic Government Adoption. *SAGE Open* **2020**, *10*, 2158244020933593. [\[CrossRef\]](#)
43. Agag, G.; El-Masry, A.A. Understanding the Determinants of Hotel Booking Intentions and Moderating Role of Habit. *Int. J. Hosp. Manag.* **2016**, *54*, 52–67. [\[CrossRef\]](#)
44. Yap, M.H.T.; Chen, N. Understanding Young Chinese Wine Consumers through Innovation Diffusion Theory. *Tour. Hosp. Manag.* **2017**, *23*, 51–68. [\[CrossRef\]](#)
45. Azamela, J.C.; Tang, Z.; Ackah, O.; Awozum, S. Assessing the Antecedents of E-Government Adoption: A Case of the Ghanaian Public Sector. *SAGE Open* **2022**, *12*, 21582440221101040. [\[CrossRef\]](#)
46. Carlo Bertot, J.; Jaeger, P.T.; Grimes, J.M. Promoting Transparency and Accountability through ICTs, Social Media, and Collaborative E-Government. *Transform. Gov. People Process Policy* **2012**, *6*, 78–91. [\[CrossRef\]](#)
47. Khan, S.; Umer, R.; Umer, S.; Naqvi, S. Antecedents of Trust in Using Social Media for E-Government Services: An Empirical Study in Pakistan. *Technol. Soc.* **2021**, *64*, 101400. [\[CrossRef\]](#)
48. Manoharan, A.P.; Ingrams, A.; Kang, D.; Zhao, H. Globalization and Worldwide Best Practices in E-Government. *Int. J. Public Adm.* **2020**, *44*, 465–476. [\[CrossRef\]](#)
49. Alghamdi, S.; Beloff, N. Towards a Comprehensive Model for E-Government Adoption and Utilization Analysis: The Case of Saudi Arabia. *Fed. Conf. Comput. Sci. Inf. Syst. ACSIS* **2014**, *2*, 1217–1225. [\[CrossRef\]](#)
50. Ilieva, G.; Yankova, T.; Ruseva, M.; Dzhabarova, Y.; Zhekova, V.; Klisarova-Belcheva, S.; Mollova, T.; Dimitrov, A. Factors Influencing User Perception and Adoption of E-Government Services. *Adm. Sci.* **2024**, *14*, 54. [\[CrossRef\]](#)
51. Cochran, W.G. *Sampling Techniques*, 3rd ed.; John Wiley & Sons: New York, NY, USA, 1977.
52. Rusticus, S.A.; Lovato, C.Y. Impact of Sample Size and Variability on the Power and Type I Error Rates of Equivalence Tests: A Simulation Study Practical Assessment. *Res. Eval.* **2014**, *19*, 11.
53. Cronbach, L.J. *Essentials of Psychological Testing*, 5th ed.; Harper Collins Publishers: New York, NY, USA, 1990.
54. Bentler, P.M.; Chou, C.H. Practical Issues in Structural Equation Modeling. *Sociol. Methods Res.* **1987**, *16*, 78–117. [\[CrossRef\]](#)

55. Hair, J.F.; Black, W.C.; Babin, B.J.; Anderson, R.E. *Multivariate Data Analysis*, 7th ed.; Prentice Hall: Englewood Cliffs, NJ, USA, 2010.
56. Tan, X.; Qin, L.; Kim, Y.; Hsu, J. Impact of Privacy Concern in Social Networking Websites. *Internet Res.* **2012**, *22*, 211–233. [[CrossRef](#)]
57. Susanto, A.; Lee, H.; Zo, H.; Ciganek, A.P. User Acceptance of Internet Banking in Indonesia: Initial Trust Formation. *Inf. Dev.* **2013**, *29*, 309–322. [[CrossRef](#)]
58. Alkrajji, A.I. Citizen Satisfaction with Mandatory E-Government Services: A Conceptual Framework and an Empirical Validation. *IEEE Access* **2020**, *8*, 117253–117265. [[CrossRef](#)]
59. Cletus, A.; Ayindenaba, A.E.S.H. Improving Cybersecurity: Factoring User Privacy and Security Concerns into E-Service Product Design in an E-Government System. *Inf. Knowl. Manag.* **2020**, *10*, 80–86. [[CrossRef](#)]
60. Maditinos, D.; Sidiropoulou, N.N. Incentives for the Adoption of E-Government by Greek Municipalities. *Int. J. Econ. Bus. Adm.* **2020**, *8*, 298–326. [[CrossRef](#)]
61. Khan, S.; Ab Rahim, N.Z.; Maarop, N. Towards the Development of a Citizens' Trust Model in Using Social Media for E-Government Services: The Context of Pakistan. In *Recent Trends in Data Science and Soft Computing*; Saeed, F., Gazem, N., Mohammed, F., Busalim, A., Eds.; IRICT 2018. Advances in Intelligent Systems and Computing; Springer: Cham, Switzerland, 2018; Volume 843. [[CrossRef](#)]
62. Ndou, V. E-Government for Developing Countries: Opportunities and Challenges. *Electron. J. Inf. Syst. Dev. Ctries.* **2004**, *18*, 1–24. [[CrossRef](#)]
63. Hadi, W.; Nawafleh, S. The Role of E-Business in the E-Government Services Implementation. *Int. J. Acad. Res.* **2012**, *4*, 230–236. [[CrossRef](#)]
64. Mustafa, A.; Ibrahim, O.; Mohammed, F. E-Government Adoption: A Systematic Review in the Context of Developing Nations. *Int. J. Innov.* **2020**, *8*, 59–76. [[CrossRef](#)]

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