

Influencing the Adoption of e-Government: A Systematic Literature Review

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Abstract

This Systematic Literature Review study discusses the factors that influence the adoption of e-government services with variability in the influence of these factors in various countries. The research confirms the importance of trust, performance expectancy, effort expectancy, social influence, and facilitating conditions in the acceptance and adoption of e-government services. Trust factors, especially related to information security and government transparency, were found to be key elements in driving e-government adoption. In addition, the expectation of benefits obtained, ease of use, and influence from the social environment also play an important role in people's decision to use the service. Suggested recommendations to increase e-government adoption involve improving technology infrastructure, supportive policies, technology training for government personnel, as well as an approach that considers local community conditions and factors. This study provides important insights for governments and agencies in improving e-government services and increasing the adoption of these technologies across various social and cultural environments.

Keywords: e-government, adoption

1 Introduction

The evolving technology of today instigates significant transformations across various sectors, notably within the governmental domain (Lallmahomed et al., 2017). One notable application of technology and information within the government sector is through electronic government or e-government initiatives (Alzahrani et al., 2017). E-government represents the concerted governmental effort to enhance service delivery and disseminate information to citizens by leveraging information technology (Rana et al., 2017). Another related definition characterizes e-government as facilitating citizen access to public services through technological innovations introduced by the government sector (Nawafleh, 2018). An essential challenge confronting both corporations and governments is the attainment of sustainable development goals (Fu et al., 2018). The ongoing evolution of e-government, recognized for its multifaceted impacts and benefits, includes advancements in accountability, democracy, responsiveness, cost-efficiency, administrative cost reduction, and problem-solving capacities. Factors influencing the sustained utilization of e-government websites by citizens remain a significant consideration (Nawafleh, 2018; Rana et al., 2017).

However, among the perceived benefits of the presence of e-government in government, it is known that there are obstacles that need to be anticipated by the government sector such as the implementation of the use of electronic-based services by the community which is still not comprehensive. (Alzahrani et al., 2017). The study addresses the Function of Trust and Risk in Citizens' Acceptance of E-Government Services. It is noted that despite the considerable appeal of using e-government, there is a portion of individuals who remain reluctant to utilize it due to a lack of trust in the internet and e-government services (Li, 2021). In line with previous research, it is known that one of the factors that make people related to the use of e-government services is the trust factor. (Yang & Wibowo, 2020). Other research explains that in developing countries the implementation of electronic-based services has not been carried out optimally due to the digital divide (Kumar et al., 2023).(Kumar et al., 2023).

In line with the problems described above, there are many previous studies that explain the factors that can influence people in adopting services using e-government. one of the previous studies

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explained that the main factors that can influence people in using e-government services are people's confidence in being able to carry out the service process to achieve goals as expected and the intention of the community to adopt services. (Mensah & Mi, 2017). Other research delineates that the primary elements persuading individuals to utilize e-government services are the government's capabilities and the effectiveness of the e-government system. (Mensah, 2019). According to other studies, it is explained that there are several factors that influence people in adopting e-government services such as ease of access, service costs, risk-averse characteristics, and value-added services.

Other studies explain that the existence of conditions from e-government facilities and the amount of risk that will be accepted by the community in using e-government are conditions that affect the adoption of e-government by the community. (Mensah et al., 2020). With an explanation of the factors that influence people in adopting e-government. This research will systematically analyze and compare the factors that influence the adoption of e-government in society. Specifically, the questions that will be asked are:

1. What are the factors that influence the adoption of e-government in society?
2. What are the recommended improvements for the government in implementing e-government?

2 Research Method

Literature review research is not only done to summarize the results of a collection of studies that have been conducted. More than that, according to (Cook et al., 1997) literature review research is conducted to find out the differences from research that has been done before. In this study, we aim to find out what factors influence the adoption of e-government in society. To answer this research, an analysis of previous research on the same topic was conducted. By analyzing all the reviews and results provided from previous research, it is hoped that it can provide information and knowledge for future research. compared to descriptive analysis in the literature, reducing bias and random errors by using a process that can be followed, is scientific, and transparent (Tranfield et al., 2003). In the following sections, we describe data collection, extraction, and synthesis.

According to [1] There are 3 perspectives in conducting the search. The first is to use the PICOC structure with the aim of categorizing the data from each keyword in the question. Second, consulting language specialists to determine the word similarities (synonyms) of the keywords in the questions that have been asked in this study. Third, conduct a word search with the keywords in the question or synonyms of the question keywords with the PICOC structure using the conjunction "and". The following is an explanation of question 1 [How is the discussion on previous research related to factors that influence the adoption of e-government in society?]:

First Step

(1) PICOC

Population : E-government

Comparison: Factors

Context: Adoption

Intervention, Outcome is not used in this question.

(2) Synonym

Population: "E-government"

Comparison: "Factors", "Aspects", "Elements", "Variables"

Context: "Adoption", "Acceptance"

(3) Or, And, Wildcards

Search "E-government" And "Factors* OR Aspects* OR Elements* OR Variables*" And "Adoption* OR Acceptance"

The data search in this research was carried out through all world databases that are trusted or have high credibility value. We used 5 repository databases with a period starting from October 28 to "FINISH". The criteria that we use in this research are as follows:

Inclusion criteria:

The study selection process includes inclusion and exclusion criteria to ensure the relevance and quality of the studies reviewed. Inclusion criteria require that the results of the study must answer one of the questions posed by the study and that the study or paper is relevant to the current situation.

Exclusion criteria involved ignoring studies that did not have clear results or that had the same discussion as other studies. The study selection process was conducted in four steps: first, the researcher collected all relevant research results according to the pre-defined keywords. In the second step, we identified and sorted papers that were clearly not related to the study, focusing on document titles containing terms such as “factor,” “aspect,” “element,” and “E-government adoption.” In the third step, the results from the second step were further filtered based on data sources that have quality assurance of the literature, such as those indexed by Scopus in “Q1-Q3.” Finally, in the fourth step, the selected articles were thoroughly read and analyzed.

The results obtained from the four stages that have been carried out produce 30 articles that will be used as the main reference in this study. The following are the results of the selection:

Databases	URL	No Filter	1st Filter	2nd Filter	3rd Filter	
Science Direct	https://www.sciencedirect.com/	26968	200	80	11	
Emerald Insight	https://www.emerald.com/	2996	120	50	3	
Google Scholar	https://scholar.google.com/	90000	190	73	10	
Taylor & Francis Online	https://www.tandfonline.com/	50000	120	35	3	
Springer	https://iast-journal.springeropen.com/	30000	100	25	3	
		Total	199964	730	263	30

The subsequent process involves research mapping. Furthermore, to support the results obtained from the screening stage. Mapping is also carried out using two tools, namely Publish or Perish and Vosviewer. Publish Or Perish tools aim to help collect and analyze data from trusted and indexed sources. While the Vosviewer tool is an application for conducting data analysis and visualization by identifying structures, relationships, and patterns related to scientific publications.

In this study, journal searches on publish or perish were conducted with two databases, namely Scopus and Google Scholar with the keyword "Factors of E-Government adoption". The total number of search results on publish and perish is 993 articles on Google Scholar and 200 articles on Scopus. The results that have been obtained above will be visualized through the Vosviewer tool. The following is an image of the results of the Vosviewer visualization.

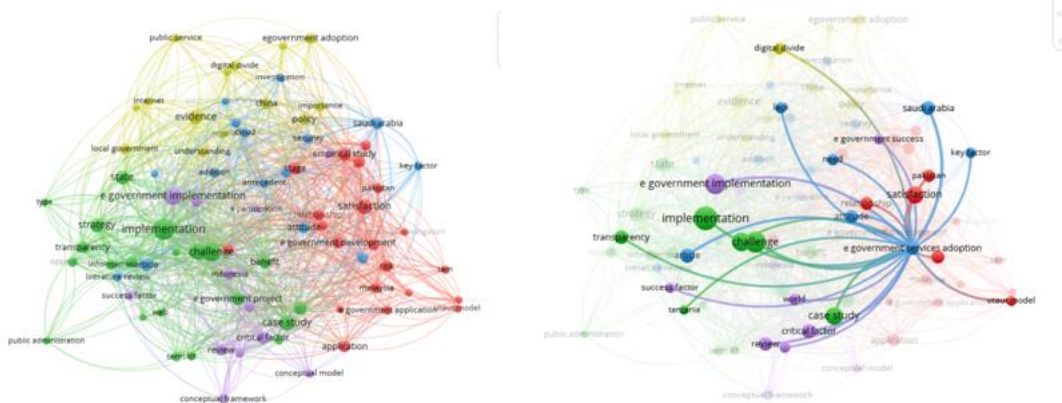


Figure 1. Vosviewer visualization

As seen in Figure 1, the visualization results obtained using Vosviewer, it is known that there are several interconnected clusters. There is a point "e-government services adoption" which is displayed with a small circle connected to several other clusters such as "e-government success" and "e-government implementation". This explains that research related to factors affecting e-government adoption can still have the opportunity to continue to be developed. In addition to visualization using Vosviewer, researchers also use charts to determine the development of research in this field. The following are the chart results from the articles that have been collected.

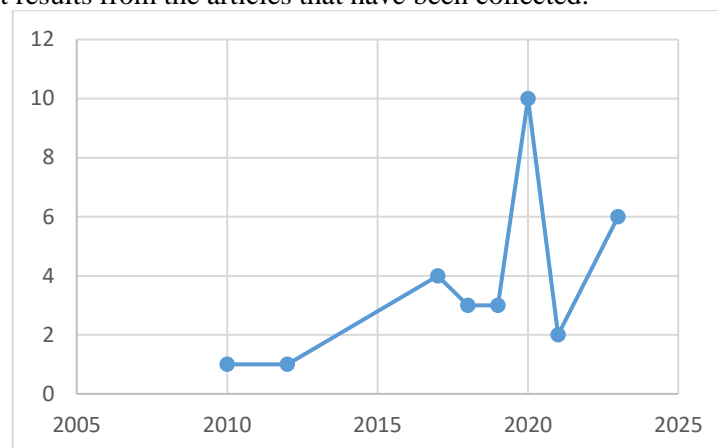


Figure 2. Data research related from year to year

As seen in Figure 2, it is known from the chart above that research related to "factors affecting e-government adoption" increases from year to year. So, it can be concluded that this research is interesting for further development.

3 Results and Analysis

The results and discussion in this study are an analysis and review of the literature based on the questions that have been asked in the previous section.

3.1 E-Government

E-Government is the government's effort to enhance services and information delivery to citizens through information technology means (Rana et al., 2017). The implementation of e-government extends beyond technology use and also involves optimizing government processes and activities to achieve efficiency, transparency, and greater citizen engagement. By employing tailored models aligned with governmental needs, through problem-solving platforms, e-government can play a pivotal role in enhancing information services to the public, streamlining internal government processes, and promoting transparency and citizen participation in governance activities. This encompasses online services, remote training, as well as endeavors to ensure the equitable availability of these services across all segments of society (Iong & Phillips, 2023).

3.2 E-government Service Adoption Factors

The first question of the literature review research is related to factors that influence the adoption of e-government services. First of all, let's know what adoption is. According to Rogers (1962) technology adoption is the process of accepting, integrating, using, and utilizing new technology. (Rogers, 1983). There are several models/techniques that can provide insight into how people can accept new technologies and innovations. (Mansoori et al., 2018).. Some of these models are the Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), Theory of Planned Behavior (TPB), Innovation of Diffusion Theory (IDT), Social Cognitive Theory (SCT) and Combined Technology Acceptance Model and Theory of Planned Behavior (TPB). (Méndez-Rivera et al., 2023).. According to the mapping (Rana et al., 2017) It is known that there are other theories such as TRA, DTPB, SCT, IDT, ISSM, DOI and OMEGA.(Mensah et al., 2020; Rana et al., 2017)..

In this research, a mapping of the selected articles that influence the adoption of e-government will be conducted as follows:

Table 1. Factors and reference

Factor	Reference
Trust	[2]
	[3]
	[4]
	[5]
	[6]
	[7]
	[7]
performance expectancy	[2]
	[8]
	[9]
	[3]
	[6]
	[7]
	[10]
Effort expectancy	[2]
	[8]
	[9]
	[3]
	[11]
	[6]
Social Influence	[12]
	[8]
	[9]
	Alruwaie et al. 2020
	[6]
	[7]
facilitating conditions	[2]
	[8]
	[9]
	[13]
Computer Self Efficacy	[9]
	[11]
	[7]
Literacy	[2]
	[4]

Attitude	[12]
	[8]
	[5]
Perceived Ease of Use	Chen et al. 2020
	Almasabe et al. 2023
	[14]
Service Quality	[2]
	Alruwaie et al. 2020
	Almasabe et al. 2023
perceived utility/benefit	[12]
attitude towards use	[12]
Anxiety	Rana et al. 2017
Perceived Price Value	[9]
Service Provision	Abu-Shanab 2017
Government Capacity	[15]
E-government Performance	[15]
prior experience	[5]
information quality	[5]
service quality	Alruwaie et al. 2022
personal outcome expectation	[5]
satisfaction,	[5]
External Influence,	[5]
Accessibility	[16]
Training	[16]

From table 1, it is known that the main factors that often appear in each study with different study cases are trust, performance expectancy, Effort expectancy, Social Influence, and facilitating conditions. In this study, researchers will discuss the factors that often arise from each previously selected article.

Trust factors in the scope of e-government services according to (Mansoori et al., 2018) trust in e-government services is one of the factors that can convince people to use the e-government services that have been provided. Furthermore, performance expectancy, this factor is known to be related to individual perceptions regarding the extent to which the use of a system or technology will help them achieve the desired performance or results in the work or tasks they do. (Nawafleh, 2018). Effort expectancy, effort expectancy refers to an individual's belief about how easy it is to use a system or technology. In other words, the more individuals feel that using an online service or system requires lower effort, the less likely they are to resist or experience resistance to changing from traditional services to online services (Lallmahomed et al., 2017). (Lallmahomed et al., 2017).. Social Influence is an external factor that has an important influence if people are not experienced with the quality of technology-based information and services. (Alruwaie et al., 2020).. The last factor that has

been found in several studies is facilitating conditions. This factor influences e-government adoption by creating conditions that support or facilitate individuals to use e-government services (Lallmahomed et al., 2020). (Lallmahomed et al., 2017).

Computer self-efficacy (CSE) refers to an individual's level of belief or confidence in their ability to effectively and successfully use computers or information technology. This factor plays a significant role in the adoption of e-government services as it can influence how confident and capable someone feels in utilizing these services. This aligns with research findings indicating that computer self-efficacy (CSE) has a positive and meaningful impact on the willingness to use e-government services. Additionally, the age factor does not directly and significantly influence this aspect. However, significantly, age affects the relationship between computer self-efficacy (CSE) and the inclination to use e-government services. This suggests that computer self-efficacy (CSE) becomes more crucial as a determinant of the desire to use e-government services when considering age factors (Mensah & Mi, 2017). Regarding literacy within the context of e-government, it encompasses not only reading and writing skills but also understanding information technology, utilizing computer devices, and comprehending the functionalities of e-government services. According to a study, when individuals possess a high level of information literacy, they generally have a better ability to comprehend, interpret, and evaluate information presented on government websites (Lee et al., 2020).

Attitude This encompasses individuals' views, beliefs, and evaluations of the available e-government services. A positive attitude towards e-government can serve as a crucial driver in promoting the adoption of this technology (Rana et al., 2017). Perceived Ease of Use The factor of perceived ease of use (Perceived Ease of Use) is a key element in e-government adoption. It reflects the extent to which individuals believe that using e-government services will be straightforward and user-friendly (Chen & Aklikokou, 2020). Service Quality The service quality factor significantly influences the adoption of e-government services by the public. Good service quality encompasses various aspects that impact users' experiences when utilizing e-government services (Alruwaie et al., 2020).

3.3 Government Recommendations in Implementing E-Government Services

The next question from this literature review research is related to what are the recommendations or suggestions for the government in implementing e-government services. The discussion will start from the development of e-government around the world. It is known that governments around the world are working on and developing e-government. This can be seen from the e-government development index (EDGI). EDGI is one of the indexes used to measure the progress of e-government around the world. (Akpan-Obong et al., 2023). It is known from the results of 2022 in the E-Government Survey 2022 book that the country with the highest rank is Denmark while some countries are still ranked lowest in e-government development. (Department of Economic and Social Affairs, 2022). The following table, is the top 10 country rankings in 2022:

Table 2. E-government development index

Rangking	Country
1	Denmark
2	Finland
3	Republic of Korea
4	New Zealand
5	iceland
6	Sweden
7	Australia
8	Estonia
9	Netherland
10	United States of America

As seen in Table 2, with the results of the e-government index assessment in each country, it is known that the government is trying to manage e-government. In an effort to improve e-government, there are recommendations that can be considered by government e-government teams related to

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service provision with e-government, human resources and governance. (Al Sayegh et al., 2023; Mensah et al., 2020; Verkijika & De Wet, 2018).. In one study, it was explained that considering IT investment in the government sector is one of the important things because the success of e-government depends on IT management (Mensah et al., 2020). (Mensah et al., 2020).

Regarding E-government services with the factors described in the first research question, there are various kinds of efforts suggested by several researchers. In this section we will explain each research result from the practitioner side that can be used as knowledge. According to (Nawafleh, 2018) In order to maintain the sustainable use of e-Government websites to be effective, several enabling and facilitating conditions are essential, including technical and managerial support, as well as supportive policies and regulations to make the use of e-Government websites mandatory. One of the strategy recommendations to Government parties and agencies, should ensure the availability of appropriate facilities, such as allocating funds for the procurement and development of the latest technology infrastructure and ICT devices, such as the internet, broadband networks, and 4G and 5G networks to realize the implementation of e-Government. (Mensah et al., 2020).

Management of community resources on technological knowledge because one of the research results states that technology and information capabilities are strong factors that have a major influence in terms of influencing the use of e-government services. (Mensah & Mi, 2017). Improved service experience, competitive service rates, and increased service value are able to support intermediaries in attracting people's attention to use the services they offer and retain customers. (Kumar et al., 2023).. A clear consideration from the internal or community is the comfort, convenience and ability of the community to access e-government services. (Jacob et al., 2019; Mansoori et al., 2018; Verkijika & De Wet, 2018).. overnment [2], [7], [17].

Efforts from the government from the internal side will be one of the community factors in the adoption of e-government. This explanation is in accordance with research which states that on the human resources side working in the government sector is expected to get Leadership support, employee training, and organizational readiness are also proven to have a positive correlation with G2G (Government-to-Government) adoption. (Al Sayegh et al., 2023).. The explanation above is also in line with one of the studies that education and training to government personnel related to technology can support the adoption of e-government. (Harrison & Johnson, 2019). The idea of technology development that can be utilized by the government is IoT-based services (Chohan & Hu, 2020). (Chohan & Hu, 2020).

In the study regarding the influence of e-government adoption within the government of Abu Dhabi, researchers suggested to the Abu Dhabi government concerning the development of e-government for public services. This involves enhancing the quality and security of e-government services, providing technical support for users, raising awareness and educating individuals about the benefits and ease of e-government services, as well as fostering public trust and community engagement in e-government services (Mansoori et al., 2018). In a study conducted among Jordanian citizens, the factors influencing the public in adopting e-government led researchers to recommend the implementation of government policies and regulations that mandate the utilization of e-government services by the populace (Nawafleh, 2018). Research conducted in India regarding government services for the public provided recommendations, suggesting that the Indian government could disseminate information about the benefits of e-government services. Additionally, developers of e-government services could enhance accessibility for users and organize training sessions for individuals who have not yet utilized technology in accessing government services (Atmodjo et al., 2024; Rana et al., 2017).

Further research on e-government services in Mauritius recommends the government to enhance public trust and awareness in utilizing e-government services (Lallmahomed et al., 2017). A study conducted within the government of Ghana suggests that the government should design and implement e-government services considering the diverse needs, capabilities, and preferences across various age groups within the populace. This action is anticipated to enhance perceptions regarding the benefits, user-friendliness, and trust of the public in e-government services, thereby encouraging their adoption and usage (Mensah & Mi, 2017). A study targeting Chinese students in Ganzhou City regarding the impact and influence of e-government service adoption provided recommendations to the government. The government is advised to assert its ability and determination in formulating and

implementing high-quality e-government policies while ensuring independence from political pressures. This will affect public perceptions regarding the benefits and performance of e-government.

Additionally, the government needs to improve internet accessibility, education, economic conditions, and civil rights protection for citizens. These factors are critical for e-government performance, which significantly impacts its usefulness. Furthermore, the government should ensure that e-government delivers optimal services aligned with public expectations and enhances government transparency (Mensah, 2019). From the explanation above, it is known that the factors presented from the first research question are key that need to be followed up with the considerations provided by previously conducted studies. Thus, the government can provide useful e-government services and increase the intention of e-government service adoption by the public

4 Conclusion

This Systematic Literature Review analyzes and presents previous research related to factors influencing e-government adoption in society. Data collection from accredited databases worldwide revealed that e-government remains a topic of global interest (Al Sayegh et al., 2023; Arduini et al., 2010; Mensah et al., 2020; Verkijika & De Wet, 2018). The review concludes that factors affecting e-government adoption vary in intensity across countries, yet several factors are consistently influential globally, including trust, performance expectancy, effort expectancy, social influence, and facilitating conditions. Public trust, gained through information security, transparency, availability, reliability, public participation, legality, and compliance, is crucial for adoption, aligning with Mansoori et al. (2018). Performance expectancy, reflecting users' anticipated benefits from e-government, and effort expectancy, which involves the convenience of use, are both significant (Rana et al., 2017; Lallmahomed et al., 2017). Social influence from the surrounding environment can affect the decision to use e-government services (Alruwaie et al., 2020). Facilitating conditions, such as government support in accessing e-government services through infrastructure, digital literacy education, and resources, also play a key role (Jacob et al., 2019). Recommendations for improving e-government services suggest focusing on both public adoption factors and government support. Nawafleh (2018) emphasizes the need for technical and managerial support, and supportive policies and regulations. Strategies for government agencies include ensuring the availability of modern technology infrastructure and ICT devices, such as internet, broadband, and 4G/5G networks (Mensah et al., 2020). Additionally, internal factors like leadership support, employee training, and organizational readiness are positively correlated with G2G adoption (Al Sayegh et al., 2023). This aligns with Harrison & Johnson (2019), who suggest that education and training in technology can support e-government adoption, and highlights IoT-based services as a development opportunity (Chohan & Hu, 2020).

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