A Literature Review of E-Government Research in Mexico Utilizing the PRISMA Methodology

Marcela Diaz-Guzman Verastegui, Universidad Autonoma de Tamaulipas, Mexico*

Rodrigo Sandoval-Almazan, Universidad Autonoma del Estado de México, Mexico

https://orcid.org/0000-0002-7864-6464

Jose Melchor Medina-Quintero, Universidad Autónoma de Tamaulipas, Mexico

ABSTRACT

This research aims to understand the state of the art in Mexico's e-government research field, research trends, empirical research, e-government access, adoption, and availability of online services. Through a systematic literature review using preferred reporting items for systematic literature reviews and meta-analysis (PRISMA) methodology, 19 articles were identified from 2000-2020. The findings show that research trends contribute to the study of factors influencing e-government research in Mexico. Additionally, the insufficient number of publications and reports in scholarly journals related to this topic in Mexico supports this claim. It is essential to foster future studies in several areas to address this gap and understand the factors influencing e-government research by citizens in Mexico.

KEYWORDS

Digital government, Digital transformation, Electronic government, Local government, Technology adoption, Technology policies

INTRODUCTION

E-government is a priority for the development of national digital agendas, according to the United Nations (2016). It is considered to deliver improved services, better governance, and more efficient and effective relations with citizens and organizations (Ma & Zheng, 2018). Information Technologies (IT) and innovation are used by all countries to transform their operations, creating new opportunities to address unprecedented challenges and respond to the Covid 19 pandemic. This digital transformation not only refers to the use of nation's digital technologies to change their operations, share data, make decisions, and deliver public services, but also to solve policy-making demands, while providing better services in terms of accessibility, trust, response, and delivering personalized and secure services (United Nations, 2020).

*Corresponding Author

Information Technology (IT) can contribute to this change as it improves productivity, mitigates climate change, fosters inclusion, and transforms public institutions (Organización para la Cooperación y el Desarrollo Económico, 2021). However, these effects can only occur if citizens and organizations can benefit from a digital transformation promoted by citizen-centered public policies (Kassen, 2014) E-government application responds to a variety of purposes, including transparency (Bearfield & Bowman, 2017), service delivery improvement (Zheng, 2017), public participation growth, and government structures' transformation (Cumbie & Kar, 2016). Despite e-government popularity in the last decade, its use still does not reach government expectations (Venkatesh, et. al., 2016). Despite the e-government initiatives, use still reflects low levels of citizen participation. In that respect, e-government is considered a topic of interest to IT academics and practitioners, considering that the number of citizens that use e-government is an element in judging its success (Ma & Zheng, 2018). A systematic literature review is considered a tool for many professionals, academics, scientists, and institutions as a valid approach to exploring existing research content in various fields (Corallo et al., 2019; Santos-Neto & Cabral, 2019). Hence, knowledge from research in e-government may bring several benefits to a nation, public and academic institutions involved in implementing e-government strategies (Almeida, 2014).

E-government is an interaction between the state, citizens, private industries, clients, and public institutions, facilitated by modern information technologies (Schedler et al., 2004). The Covid 19 crisis has led to an increased use of e-government services worldwide, as they are now seen as a necessary facilitator for societies to function (Gozgor, 2020; Taddeo, 2020). Recent studies have shown that citizens are more likely to adopt technology if they have a positive perception of its functional, practical, easy-to-use, and trustworthy aspects (Gil-Garcia et al., 2014; Gil-Garcia & Helbig, 2007). However, knowledge about these factors is still limited in Mexico, and this literature review aims to contribute to understanding the multiple factors that may affect e-government adoption, as well as to identify potential areas for future research.

E-government allows for different interactions with citizens to gain information, set transactions, and define contractual arrangements (Jansen & Ølnes, 2016). Although there is some literature on e-government research regarding transparency, corruption, website portals, regulations and policies, open government, and social media, there are limited studies on e-government adoption. This can be due to the reality in the country regarding e-government services. There are only a few available, and usability is limited. In Mexico, only 31% of users use the internet to access government services. E-government adoption in the country is still in its early stages. According to the United Nations E-government Survey 2020, Mexico reports an index of 0.8235. The given number indicates that the country has achieved a very high e-government development index according to the standards set by the United Nations (UN) in 2020. This index is higher than the one-point index achieved by developed countries. Another national survey by the Mexican agency INEGI reports on its survey Information Technology use, and availability in Mexico (ENDUTIH, 2022) shows that 35.9% of the population use the internet to interact with the government. This data supports the information disparity in international reports and the country's reality on e-government adoption.

This study presents an integrated understanding of the factors influencing citizen adoption of e-government in Mexico. It is based on a literature review of scholarly research conducted worldwide, which has identified several trends, methods, and concepts to map the state of the art in the research field. The impact of e-government implementation is evident (Roseth et al., 2018), however, it is not easy to find research evidence to support the adoption from the citizens' perspective, as studies in the field do not represent the same growth scenario in e-government adoption research.

Mexico's Digital Government is a result of the digitalization of bureaucratic management in the 1990s. The early adoption of PCs and the use of the Internet in the country was met with slow and resistant reactions from the government. However, the political shift from the incumbent PRI to the right-wing PAN created a new opportunity for technology in government. Vicente Fox's e-Mexico

public policy aimed to foster government adoption of technology and promote digital literacy in many Mexican communities, laying the groundwork for an e-Government strategy to be implemented later.

The new law for open access and transparency, publicized in 2001, has forced the digitalization of government tasks, documents, reports, and spreadsheets to meet the new challenges of transparent information available for citizens. Despite these efforts, there has been very little systematization and scholarly research done to drive the new government trend. This investigation aims to describe the research efforts focused on e-government adoption, which is a key element in understanding the maturity of digital government in Mexico.

The main objective of this study is to address the current research development of Mexico relating to e-government adoption, and it approaches the questions: 1) Which are the aspects of e-government adoption that are most studied in Mexico? 2) Which factors influencing e-government adoption have been studied in Mexico? To answer these questions, we present a systematic literature review through the presentation of a systematic review guided by the Preferred Reporting Items for Systematic Literature Reviews and Meta-Analysis (PRISMA) statement (Moher et al., 2011). The authors conducted a systematic literature review of recent publications in the e-government field over the last twenty years. Data from Web of Science and Scopus were used to ensure the quality assessment of the research (Mclean & Titah, 2021). The research process began with a logical search of scientific articles on e-government in Mexico, following the PRISMA methodology.

The paper is structured into five sections. The first serves as an introduction, while the second defines the PRISMA method used to search for papers in the Web of Science and Scopus databases. The third section outlines the features of the systematic literature review, the fourth provides an analysis of the review results, and the fifth presents conclusions and potential future research applications on e-government adoption in Mexico.

LITERATURE REVIEW ACCORDING TO PRISMA

Following the Preferred Reporting Items for Systematic Literature Reviews and Meta-Analysis (PRISMA) method, we identified and selected scientific literature related to e-government adoption studies in Mexico. This protocol allows for transparency and traceability of the search (Mclean & Titah, 2021). As a first step, we conducted a search in the search engines Web of Science and Scopus in May 2022, and classified the scientific papers about the research field. The selection criteria included scientific and academic journal articles on e-government, e-government adoption, and e-government acceptance, with a focus on studies in Mexico.

To identify critical papers for our research field, we searched titles and abstracts that match terms of syntax in the different search terms: "e-government" and "adoption," or "e-government" and "use," or "e-government" and "acceptance" or "digital government" and "adoption" or "digital government" and "use" or "digital government" and "acceptance." Through this logical search, we considered e-government to be a synonym of digital government, as according to the United Nations (2020), "e-Government" and "digital government" are used interchangeably, as no formal distinction is made between the terms among academics, policymakers, and practitioners.

Following an examination of full-text articles to confirm topic relevance according to the aim of our research, we eliminated 104 repeated articles not related to our specific research target, leaving 85 articles regarding research topics on e-government in general terms. We identified 19 articles that consider e-government adoption aspects, from which we selected 19 for further review. After a second review of the same 19 articles, we discarded ten that did not meet the selection criteria. We then made a full-text second revision to ensure the remaining articles met our eligibility criteria in relation to e-government adoption or use, discarding one last. This resulted in a total of 8 articles for state-of-the-art for this systematic literature review on e-government adoption. The flow chart of research selection process guided by PRISMA methodology is presented in Figure 1 with the following logical search: "e-government" AND "adoption", OR "e-government" AND "use", OR "e-government" AND

"acceptance" OR "digital government" AND "adoption" OR "digital government" AND "use" OR "digital government" AND "acceptance".

METHOD

Research Design

Following the review of 85 articles related to e-government, the next step was a screening process based on titles and abstracts. This enabled us to classify the various literature aspects that researchers are currently studying in relation to e-government in Mexico, to define the most recent study topics of the field and identify research trends, including relevant aspects of the literature (Table 1). Through this, we aim to provide an overview of current studies and potential opportunities for future research, as well as to identify possible research lines.

Most Cited Authors on E-Government in Mexico

Authors participating in current e-government research in the country are collaborating, with most findings indicating an average of three authors working together to produce a research product. In terms of citation, a top ten ranking is presented, featuring the 10 most cited works (See Table 2).

FINDINGS

Quantitative Findings

This section presents an analysis of eight articles included in a systematic review of e-government adoption in Mexico. It is divided into two subsections: the first provides a quantitative description of the research topic, while the second outlines the qualitative findings.

Table 1. E-government broad research topics in Mexico in the last decade

Research e-government topic	Number of documents
Websites and Portals	12
Digital Agendas	1
Corruption	8
Digital Signature	2
Policies and Regulations	4
E-government implementation	8
Adoption	19
Local e-government implementation	6
Mobile government	2
Open Government	11
E-government public value	1
Smart Cities	2
Social Media	7
Blockchain	1
E-Tourism	1

Source: Authors' own elaboration

Table 2. Most cited top ten authors on e-government research in Mexico

Authors	Articles
GIL-GARCIA JR	40
SANDOVAL-ALMAZAN R	34
LUNA-REYES LF	29
PURON-CID G	9
VALLE-CRUZ D	9
CRIADO JI	8
PARDO TA	7
ALDAMA -NALDA A	3
ALAWADHI S	3
GARCIA-GARCIA LM	3

Source: Authors' own elaboration

Quantitative analysis reveals a trend in the annual scientific production, the journals that have published these articles, and the studies performed on e-government adoption in Mexico. Figure 2 indicates that there has not been a significant increase in the number of studies over the last decade. It displays the tendency in the studies of e-government in general terms and e-government specific studies on adoption in Mexico; the year 2013 presents a growing trend, which is related to increased e-government empirical studies in the nation. Although adoption appears to be decreasing, general e-government studies demonstrate a growing trend. With respect to e-government adoption studies, the data indicates a lack of studies in the field and a decrease in research studies. This can be analyzed in Figure 2, which presents the annual scientific production on e-government and e-government adoption research in Mexico in the last decade.

These research documents on e-government adoption are published in 11 journals, predominantly ACM International Conference Proceeding Series, followed by Government Information Quarterly with two publications. (See Table 3).

In the following literature review, a tendency was observed towards efficiency, transparency, corruption, social media, and open government in e-government. The factors identified in e-government adoption studies are presented in Table 4, which demonstrate the prevalence of these tendencies.

Table 3. Journals publishing e-government adoption research in Mexico

Sources	Articles
ACM International Conference Proceeding Series	2
Revista Brasileira de políticas Públicas	1
INNOVAR	1
IGI Global	1
Public Administration of Information Technology – Springer	1
Revista Venezolana de Gerencia	1
Gestión y Política Pública	1

Source: Authors' own elaboration

Table 4. Current study aspects identified in e-government adoption research in Mexico

Author	E-government adoption research aspect
Carrera-Mora	Sufficiency and efficiency are factors that affect the intention to use e-government services.
Carrera-Mora	Poverty is an original cause of factors that inhibit the use of e-government services.
Carrera-Mora	There is a relationship between the efficiency perspective and use behavior towards the use of e-government services at the local level.
Puron-Cid	The multiple dimensions of e-government efficiency are a goal for e-government adoption from the perspective of the actors responsible for its implementation and adoption.
Puron-Cid	The multiple dimensions of trust are involved in the interdisciplinary nature of e-government implementation, from the perspective of those inside the government.
Puron-Cid	Knowledge is one of the most influential aspects of e-government adoption from the perspective of those within the organizational contexts.
Puron-Cid	Examination of the role of institutional arrangements and organizational forms during the adoption of e-government initiatives.
Gomez-Reynoso	Citizens 'perceptions about e-government services adoption need to be identified so that the government might develop what people really need and are willing to use.

Source: Authors' own elaboration

Previous and current literature has not reported substantial research regarding the use of e-government services by Mexicans and the factors that affect this use. According to Gomez et al. (2012), the benefits of e-government services can be seen from both the government and citizen perspectives. This literature review has revealed more studies on the factors that influence e-government use, with very few scholars considering the factors that affect e-government use from the citizen perspective. The advantages of e-government services include convenience, reliable services, transparent processes, and agile services, which reduce the risks of corruption and increase trust in government, leading to increased productivity, cost reduction, and service integration (Helbig et al., 2005).

Qualitative Findings

Two decades ago, Mexico began to implement e-government services (Purón-Cid, 2013). Since then, there has been progress in the form of transformational and process changes in government, which necessitated the design of new structures to facilitate development and implementation through public policies that promote innovation (Carrera-Mora et al., 2020). Current literature does not provide substantial research on Mexicans using e-government services and the factors that could influence it, despite the advances in e-government adoption and research.

On Table 3 reports on recent research conducted by scholars on various topics, such as factors influencing citizens' use of e-government services (Carrera-Mora et al., 2020; Carrera-Mora et al., 2019; Puron-Cid, 2014); poverty (Carrera-Mora et al., 2020); trust from within government (Purón-Cid, 2013), knowledge implementation (Purón-Cid, 2013), and the institutional role in the adoption of e-government initiatives (Purón-Cid, 2013) and citizen perceptions about e-government services (Gomez et al., 2012).

Several authors have defined e-government adoption from a citizen's perspective, describing it as the intention to exchange information and require government services (Helbig et al., 2005), the willingness to use the services (Gilbert & Balestrini, 2004), or the intention to use them (Carter & Bélanger, 2005). Kumar et. al (2007) has a different approach, defining it as a multidimensional variable that includes frequency of use, scope of usage, and website preference over other transactional channels with government.

Despite the presence of numerous research articles and empirical studies concerning e-government adoption in Mexico, there is still a gap in understanding the application of e-government from a citizen's perspective in terms of adoption, acceptance, and use. To bridge this gap, further study should be conducted on public administration issues, technology and infrastructure challenges, security, and trust concerns in terms of online services, and the digital divide.

This research study has several practical implications, including an increase in the demand for online public procedures and services. This is in response to a new citizen configuration, a digital citizen, with permanent access to the Internet and information technologies. These technologies generate more efficient services in some major aspects of everyday life, such as electronic commerce, online learning, online banking, online information search, and even online entertainment. In the same way, this new citizen also demands online public permits and services.

Citizens demand that public institutions transform their processes and offer digital services to provide efficient, simplified, and intuitive services that similarly perform to the processes citizens do today (banking transactions or purchases). Institutions, in turn, require efficient operations that allow for better, transparent, and efficient management of resources, as well as real-time transactions that enable decision-making and support the design of public policies. Consequently, investing in electronic government must be evaluated and justified, making the study of such factors a pertinent issue for public officials and companies that design digital government solutions. This is because, given the nature of such organizations, a flawed e-government solution design can compromise the public treasury, leading to a loss of financial and human resources, resulting in economic detriment for citizens and administrations.

Therefore, giving valuable attention to the study of aspects of the acceptance of information services has been the object of studies in recent decades (Li et al. 2009; Maier, 2007; Venkatesh & Davis, 2000; Warkentin et al., 2002). However, in the national territory, there are few efforts that have focused on the adoption of public information services e-government. Thus, the literature review provided in the present study is intended to be used for further studies, to evaluate and give real value to the effect of technological acceptance factors that may influence adoption of e-government in Mexico.This literature review of worldwide research presents trends, methods, and concepts that demonstrate the importance of studying factors that impact e-government implementation. It also reveals the limited research sources of e-government adoption in Mexico.

It is evident that research studies are necessary to study the factors that influence e-government adoption in Mexico, considering social aspects that can impede implementation, such as citizens' low IT skills, e-government websites' ease of use, lack of connectivity, and lack of knowledge and e-government services awareness. This research will provide a more efficient, effective, and transparent access to public services. (Gupta et al., 2016).

Analysis of the literature revealed two distinct sets of factors that impact e-government adoption: external factors (sufficiency and efficiency, poverty, and citizens' perceptions of these services) and internal factors (efficiency, trust, knowledge, and institutional arrangements). This qualitative overview provides an in-depth look at these factors.

E-government efficiency should lead to e-government adoption (Carrera-Mora et al., 2021). Researchers in Mexico have studied efficiency from two aspects, information systems and budget, in addition to the technical and economic factors (Rorissa et al., 2011). According to Puron-Cid (2014), these two dimensions and the context in which they develop and operate are essential to understanding e-government efficiency. In an e-government scenario, this information system has been applied to budgeting, with the goal of transforming how the government spends public resources based on performance evaluation. The adoption of this system was expected to result in e-government efficiency, as it represented a transformation within government as the implementer of public policies in e-government.

This case represents an examination of e-government efficiency aspects or dimensions, as it helped to identify the structures of efficiency from the budgetary field and allowed us to understand

efficiency from inside of government, analyzing how these dimensions impact adoption on those responsible for adopting the initiative from within the government.

Puron-Cid (2013) explored the complex and multi-dimensional trust of those in charge of e-government implementation, who are responsible for adopting and integrating these initiatives into their organization and contexts. He suggested that trust can be a possible enabler or inhibitor of e-government adoption and emphasized the importance of building trust to foster e-government adoption from within. The study further explored the structures and disciplines defined while adopting specific e-government initiatives, which depend on the type of initiative and the context in which they are applied. Moreover, it took into account the interdisciplinary nature of the initiative's implementation, which involves different people from different backgrounds, knowledge, and expertise. To study the dimensions of trust, the type of e-government project and its dimensions were considered, not only in information systems but in the multi-dimensions of the disciplines involved.

Knowledge is a highly influential factor in the adoption of e-government, as highlighted by Wimmer and Traunmüller (2004). Maier (2007) further emphasizes its critical role in decision making and its potential as an asset for individuals, groups, organizations and networks involved in government initiatives.

In Mexico, Purón-Cid (2013) conducted research on the interdisciplinary aspect of knowledge of those participating in e-government projects, considering the diverse professional and organizational backgrounds required for different initiatives and contexts.

The author emphasizes the importance of considering five distinct types of knowledge - professional, self, budget, formal government, and previous experience - when designing and reforming government initiatives for self-e-government. It is evident that the successful adoption of e-government requires a multidisciplinary approach, as actors with different backgrounds, knowledge, and skills are involved in each initiative.

Therefore, it is essential to understand the project's multidisciplinary dimensions, beyond information technology, in order to build the necessary knowledge and skills for the adoption of e-government. Mexico's e-services suffer from a high degree of citizen exclusion, with only 31% of its population using the internet to access government services (Mexico, 2018). It is essential to understand the factors that limit the population's use of these resources, with the digital divide playing a significant role (Muritala et al., 2017). This divide creates exclusion, which refers to the inequality between those who do and do not have physical access to Information Technology. According to the literature, there are three digital gaps today: the access gap, the use gap (also known as the second level gap) and the appropriation gap.

The lack of access to infrastructure and technology, as well as the limited usability of communication channels, can be attributed to socioeconomic status and other factors of exclusion in developed countries (Ebbers et al., 2016). Thus, it is essential to analyze the origin of these factors to comprehend how they lead to exclusion, and to understand poverty as a multidimensional element (Carrera-Mora et al., 2020).

Citizens are increasingly expecting the same level of service from the public sector as they receive from the private sector, due to the potential benefits of improved efficiency, quality of service, transparency, cost reductions, decision making, and community creation (Gil-García & Helbig, 2006). Government portals can be used to meet this demand for electronic services (Luna-Reyes et al., 2009). From the citizen's perspective, having access to online services always would increase satisfaction, as government services are designed to serve citizens, small, medium, and large companies.

For these benefits to be realized, citizens must be aware of them and willing to adopt them, so their experience of the services should be more convenient and reliable, reducing corruption and increasing trust in the government (Rorissa et al., 2011). Governments should consider factors that may increase Mexican citizens' acceptance and adoption of e-government services, such as making them available on the government website and informing citizens of their availability.

CONCLUSION

The aim of this paper was to explore the literature of e-government studies and e-government adoption in Mexico through a systematic literature review in Scopus and Web of Science. The findings report a scarce number of studies focused on e-government topics, and an even less amount of research on e-government adoption. After an exhaustive literature review, we can answer our research questions, as we identified the aspects of e-government that are most studied in Mexico and that are influencing e-government adoption.

Researchers in Mexico have identified two main aspects of e-government study: (1) factors and elements derived from the implementation of e-government initiatives, such as limitations for e-government implementation, digital divide, citizen's exclusion, and challenges and opportunities of e-government; and (2) literature research in Mexico that reports government adoption factors focused on usability, although studies in this field remain scarce.

These findings present a challenge for future research, as we must consider an alternative to provide the necessary research background to design and implement successful public policies that have a positive effect on e-government adoption.

This study aimed to understand the research conducted on e-government adoption in Mexico between 2000-2020. Four main conclusions were drawn. Firstly, research on digital government in Mexico was scarce throughout the period, likely due to a lack of funding and the absence of public policy to promote studies of this topic.

Secondly, the investigation was focused on the effects and obstacles of digital government in the country. Very few studies on measuring e-government impacts and potential effects were conducted, with less than ten scholars researching this topic in Mexico.

Thirdly, most research is centered on describing the implementation of digital government in the Federal government as a nation-wide policy, while scarce or no research has been published for local government or municipalities.

The present data indicates that the most investigated research factors in Mexico are trust, knowledge, institutional arrangements, and citizens' perception. However, topics such as strategies, public policies, and digital agenda have not been included in these studies. Additionally, the adoption of e-government in Mexico is investigated in terms of efficiency, productivity, and integration of services, but fails to consider government innovations, solutions to implement digitalization, or ways to improve government services. This paper identifies gaps and lack of research on e-government in Mexico, while also offering new opportunities for further research in unexplored or underdeveloped areas. To gain a better understanding of the factors that may influence the adoption of information systems for online public services or e-government, a rigorous methodology should be employed. This will provide the necessary information resources to key actors involved in the deployment of successful e-government initiatives.

Government and public administrations should consider studying the factors that may influence the correct planning and utilization of financial investments, to develop effective strategies for the distribution of resources, investments and efforts that support online public services initiatives. This study will direct the attention of e-government academy researchers and highlight the need for further research in the field. Additionally, private companies in the field of e-government software and solutions design must consider researching e-government adoption from the citizen's perspective, as it will result in successful solutions that address real needs and satisfy user expectations.

Governments should view the study of e-government adoption as an advantage, as it is necessary to understand user behavior in terms of information technology use. Citizens today are utilizing digital services for a variety of purposes, such as learning, banking, and entertainment, presenting an opportunity to study the aspects that may directly influence e-government policies.

Different theories have been utilized to analyze e-government adoption, allowing for research models that integrate various constructs. These studies present an opportunity to apply different

approaches and statistical elements, potentially yielding results that could influence science. Literature suggests that measurement errors can be reduced by enhancing measurement instruments, thus improving study models. This study has concluded that future research should explore different constructs to predict the acceptance of technology and the use of online services. Factors such as access to connectivity infrastructure, service providers, speed, bandwidth, network quality, credibility, trust, digital skills, social status, age, and gender can all influence an individual's intention to use, adopt, or reject such services.

This research was limited to papers published in English, thus overlooking many topics that challenge Mexican scholars to improve the quality of their research and publish in journals of high impact to publicize their findings. It can be anticipated that future research will address these opportunities.

COMPETING INTERESTS AND FUNDING STATEMENTS

FUNDING

REFERENCES

Almeida, G. (2014). *The status of e-government research: A bibliometric study.* Business and Management Review, 11, 7-22.

Bearfield, D. A., & Bowman, A. O. (2017). Can you find it on the web? An assessment of municipal e-government transparency. *American Review of Public Administration*, *33*(6), 847–853. doi:10.1177/0275074015627694

Carrera-Mora, O., Ovando, M., Villafuerte, L., & Parada, A. (2019). La relación de la perspectiva de eficiencia del ciudadano con su comportamiento de uso de los servicios de e-gobierno municipal. *Innovar (Universidad Nacional de Colombia)*, *29*(74), 133–146. doi:10.15446/innovar.v29n74.82096

Carrera-Mora, O., Villafuente, V., Romero León, D., & Mendoza, S. (2021). E-Gobierno local en México en tiempos de Covid-19. *Revista Venezolana de Gerencia*, *26*(94), 678–695. doi:10.52080/rvgv26n94.13

Carrera-Mora, O., Villafuente, V., & Sinforozo Martinez, S. (2020). Factores derivados de la pobreza multidimensional que afectan la usabilidad del e-gobierno en México. *Revista Brasileira de Políticas Públicas*, *10*(1), 69–86. doi:10.5102/rbpp.v10i1.6633

Carter, L., & Bélanger, F. (2005). The utilization of e-government services: Citizen trust, innovation and acceptance factors. *Information Systems Journal*, *15*(1), 5–25. doi:10.1111/j.1365-2575.2005.00183.x

Chan, C. H., & Almaghalsah, H. (2020). Usability evaluation of e-government websites: A case study from Taiwan. *International Journal of Data and Network Science*, *4*(2), 127–138. doi:10.5267/j.ijdns.2020.2.004

Corallo, A., Latino, M. A., Menegoli, M., De Devitiis, B., & Viscecchia, R. (2019). Human factor in food label design to support consumer healthcare and safety: A systematic literature review. *Sustainability (Basel)*, *11*(15), 4019. doi:10.3390/su11154019

Cumbie, B. A., & Kar, B. (2016). A study of local government website inclusiveness: The gap between e-government concept and practice. *Information Technology for Development*, *22*(1), 15–35. doi:10.1080/02681102.2014.906379

Ebbers, W., Jansen, M., & Deursena, V. A. N. (2016). Impact of the digital divide on e-government: Expanding from channel choice to channel usage. *Government Information Quarterly*, *33*(4), 685–692. doi:10.1016/j.giq.2016.08.007

J. R. Gil-García and N. Helbig. (2007). *Exploring e-government benefits and success factors. encyclopedia of digital government.* Idea Group Inc., 803-811. 10.4018/978-1-59140-789-8.ch122

Gil-Garcia, J. R., Renteria, C., & Luna-Reyes, L. (2014). Enacting collaborative electronic government: Empirical evidence and lessons for developing countries. *Proceedings of the Annual Hawaii International Conference on System Sciences*. IEEE. doi:10.1109/HICSS.2014.284

Gilbert, D., Balestrini, P., & Littleboy, D. (2004). Barriers and benefits in the adoption of e-Government. *International Journal of Public Sector Management*, *17*(4), 286–301. doi:10.1108/09513550410539794

Gomez, J., Navarrete, C., & Sandoval Almazan, R. (2012). Understanding citizens' perceptions of e-government services in Mexico. *ACM International Conference Proceding Series*, 109-112. (2012). ACM. doi:10.1145/2463728.2463753

Gozgor, G. (2020). Global evidence on the determinants of public trust in governments during the COVID-19. *Applied Research in Quality of Life*, *17*(2), 559–578. doi:10.1007/s11482-020-09902-6 PMID:33564341

Gupta, K. P., Singh, S., & Bhaskar, P. (2016). Citizen adoption of e-government: a literature review and conceptual framework. *Electronic Government, an International Journal, 12*(2), 160. 10.1504/EG.2016.076134

Heeks, R. (2006). Implementing and managing e-government. An international text. SAGE Publications Ltd. doi:10.4135/9781446220191

Helbig, N., Gil-García, J. R., & Ferro, E. (2005). Understanding the complexity of electronic government: Implications from the digital divide. *Government Information Quarterly*, *26*(1), 89–97. doi:10.1016/j.giq.2008.05.004

Instituto Nacional de Estadística. Geografía e Informática, (2019). Encuesta Nacional sobre disponibilidad y uso de tecnologías de la información en los hogares ENDUTIH. México: INEGI.

Jansen, A., & Ølnes, S. (2016). The nature of public e-services and their quality dimensions. *Government Information Quarterly*, *33*(4), 647–657. doi:10.1016/j.giq.2016.08.005

Kassen, M. (2014). Globalization of e-government: Open government as a global agenda; benefits, limitations and ways forward. *Information Development*, *30*(1), 51–58. doi:10.1177/0266666912473620

Kumar, V., Mukerji, B., Butt, I., & Persaud, A. (2007). Factors for successful e-government adoption: A conceptual framework. *Electronic Journal of E-Government*, *5*(1), 63–76.

Li, Z., Li, J., & Li, X. (2009). A study on website operation efficiency evaluation: based on DEA model. *International Conference on Management and Service Science*, Wuhan. doi:10.1109/ICMSS.2009.5301119

Luna-Reyes, L. F., & Hernández-García, J. M. and J. R. Gil- García. (2009). Hacia un modelo de los determinantes de éxito de los portales de gobierno estatal en México. *Gestión y Política Pública*, *8*(2), 307–340.

Ma, L., & Zheng, Y. (2017). National e-government performance and citizen satisfaction: A multilevel analysis across European countries. *International Review of Administrative Sciences*, *85*(10), 506–526. doi:10.1177/0020852317703691

Ma, L., & Zheng, Y. (2018). Does e-government performance actually boost citizen use? Evidence from European countries. *Public Management Review*, *20*(10), 1513–1532. doi:10.1080/14719037.2017.1412117

Maier, R. (2007). *Knowledge management systems: Information and communication technologies for knowledge management*. Springer.

Mclean, D., & Titah, R. (2021). *A systematic literature review of empirical research on the impacts of e-Government: A public value perspective.* Public Administration Review. *Public Administration Review*, *82*(5), 23–38. doi:10.1111/puar.13413

Moher, D., Altman, D. G., Liberati, A., & Tetzlaff, J. (2011). PRISMA statement. *Epidemiology (Cambridge, Mass.)*, *22*(1), 128. doi:10.1097/EDE.0b013e3181fe7825 PMID:21150360

Muritala, O., Rowle, J., & Johnson, F. (2017). The multi-dimensional digital divide: Perspectives from an e-government portal in Nigeria. *Government Information Quarterly*, *34*(2), 329–339. doi:10.1016/j.giq.2017.02.002

Purón-Cid, G. (2013). *The Dimensions of Knowledge in E-government Adoption: A Confirmatory Factor Analysis.* Gestión y Política Pública, México, CIDE. *SSRN*, *22*, 211–257. doi:10.2139/ssrn.2743480

Puron-Cid, G. (2013). *Trust measures for implementers of e-government adoption:* A Confirmatory Factor Analysis. IGI GLobal. 79-104. 10.4018/978-1-4666-4173-0.ch005

Puron-Cid, G. (2014). *Measuring e-government efficiency from the perspective of implementers: The case of e-budgeting in Mexico.* Springer. .10.1007/978-1-4614-9982-4_7

Puron-Cid, G., Valencia-Tello, D., & Garcia-Diaz, S. (2013). *Inter-temporal analysis of e-government enactment: the cases of Mexico and Colombia.* DOI:10.1145/2591888.2591893

Rorissa, A., Demissie, D., & Pardo, T. (2011). Benchmarking e- government: A comparison of frameworks for computing. e-Government index and ranking. *Government Information Quarterly*, *28*(3), 354–362. doi:10.1016/j.giq.2010.09.006

Roseth, B., Reyes, A., y Santiso, C. (2018). *El Fin del Trámite Eterno. Ciudadanos, burocracia y gobierno digital.* Banco Interamericano de Desarrollo.

Santos-Neto, J. B., & Cabral, A. P. (2019). Enterprise Maturity Models: A Systematic Literature Review. *Enterprise Information Systems*, *13*(5), 719–769. doi:10.1080/17517575.2019.1575986

Schedler, K., Lucas S., and Bernhard S. (2004). *Managing the Electronic Government: From Vision to Practice.* Research in Public Management. Greenwich Information Age.

Seong-Jae, M. (2010). From the digital divide to the democratic divide: Internet skills, political interest, and the second-level digital divide in political internet use. *Journal of Information Technology & Politics*, *7*(1), 22–35. doi:10.1080/19331680903109402

Singh, T., Malik, S., & Sarkar, D. (2016). E-commerce website quality assessment based on usability. *2016 International Conference on Computing, Communication and Automation*, Noida. doi:10.1109/CCAA.2016.7813698

Taddeo, M. (2020). The ethical governance of the digital during and after the COVID-19 pandemic. *Minds and Machines*, *30*(1), 171–176. doi:10.1007/s11023-020-09528-5 PMID:32836869

United Nations. (2016). *UN E-government Survey. E-government in support of sustainable development.* Department of Economic and Public Affairs, United Nations. https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2016-Survey/E-Government Survey 2016.pdf

United Nations. (2020). *UN E-Government Survey. Digital Government in the Decade of Action for Sustainable Development.* In United Nations E-Government Knowledge base. Department of Economic and Public Affairs, United Nations. https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2020-Survey/2020 UN E-Government Survey (Full Report).pdf

Venkatesh, V., & Davis, F. D. (2000). Theoretical extension of the Technology Acceptance Model: Four longitudinal field studies. *Management Science*, *46*(2), 186–204. doi:10.1287/mnsc.46.2.186.11926

Venkatesh, V., Thong, J. Y. L., Chan, F. K. Y., & Hu, P. J. H. (2016). Managing citizens' uncertainty in e-government services: The mediating and moderating roles of transparency and trust. *Information Systems Research*, *27*(1), 87–111. doi:10.1287/isre.2015.0612

Warkentin, M., Gefen, D., Pavlou, P. A., & Rose, G. M. (2002). Encouraging citizen adoption of e-government by building trust. *Electronic Markets*, *12*(3), 157–162. doi:10.1080/101967802320245929

Wimmer, M., & Traunmüller, R. (2004). Knowledge in E-Government. In: Lamersdorf, W., Tschammer, V., Amarger, S. (eds) Building the E-Service Society. IFIP International Federation for Information Processing, Springer. DOI: doi:10.1007/1-4020-8155-3_3

Zheng, Y. (2017). Explaining Citizens' E-Participation Usage: Functionality of E-Participation Applications. *Administration & Society*, *49*(3), 423–442. doi:10.1177/0095399715593313