P-ISSN: 2338-8617
E-ISSN: 2443-2067

Jurnal Ilmiah

PEURADEUN

Vol. 11, No. 1, January 2023

SCAD Independent
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JIP
The Indonesian Journal of the Social Sciences
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DOI Prefix Number: 10.26811

ACCREDITED "Sinta 2" by Decree No. 164/E/KPT/2021
Valid Until the January 2026 Edition

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INDEX COPERNICUS INTERNATIONAL

JURNAL ILMIAH PEURADEUN
The Indonesian Journal of the Social Sciences
p-ISSN: 2338-8617/ e-ISSN: 2443-2067
www.journal.scadindependent.org

Vol. 11, No. 1, January 2023
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Siti Hasanah[1]; Inka Nusamuda Pratama[2]; Al Fauzi Rahmat[3]; Cahyadi Kurniawan[4]
[1]*Department of Law Master, Universitas Muhammadiyah Mataram, Indonesia*
[2,4]*Universitas Muhammadiyah Mataram, Indonesia*
[3]*Master of Government Affairs and Administration, Universitas Muhammadiyah Yogyakarta, Indonesia*

Article *in* Jurnal Ilmiah Peuradeun
Available at : https://journal.scadindependent.org/index.php/jipeuradeun/article/view/819
DOI : https://doi.org/10.26811/peuradeun.v11i1.819

How to Cite this Article
APA : Hasanah, S., Pratama, I.N., Rahmat, A.F., S., & Kurniawan, C. (2023). Digital Government in Social Sciences Discipline: Mapping Pivotal Features and Proposed Theoretical Model. *Jurnal Ilmiah Peuradeun, 11*(1), 195-220. https://doi.org/10.26811/peuradeun.v11i1.819

Others Visit : https://journal.scadindependent.org/index.php/jipeuradeun

Jurnal Ilmiah Peuradeun
The Indonesian Journal of the Social Sciences
doi: 10.26811/peuradeun.v11i1.819

Jurnal Ilmiah Peuradeun
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DIGITAL GOVERNMENT IN SOCIAL SCIENCES DISCIPLINE: MAPPING PIVOTAL FEATURES AND PROPOSED THEORETICAL MODEL

Siti Hasanah[1]; Inka Nusamuda Pratama[2]; Al Fauzi Rahmat[3]; Cahyadi Kurniawan[4]
[1]*Department of Law Master, Universitas Muhammadiyah Mataram, Indonesia*
[2,4]*Universitas Muhammadiyah Mataram, Indonesia*
[3]*Master of Government Affairs and Administration, Universitas Muhammadiyah Yogyakarta, Indonesia*
[3]*Contributor Email: fauzirahmata@gmail.com*

Received: June 15, 2022	**Accepted:** December 09, 2022	**Published:** January 30, 2023
Article Url: https://journal.scadindependent.org/index.php/jipeuradeun/article/view/819		

Abstract

The research aimed to describe the trend issues, identify the key features, and propose a theoretical model of digital government. A comprehensive search was used to find eligible articles in the Academic Scopus Database. Further, the quality of the study was assessed during the screening phase, where it met 115 journal-related articles on digital government within the social sciences discipline. Further, this literature was analyzed by NVivo 12 Plus via a hierarchy diagram, cluster analysis, word frequency analysis, and the VOSViwer tool to visualize the data via a network, overlay, and density analysis. The findings revealed a term network formed by digital government and trend issues, resulting in several growing concerns, such as e-government, open government, and technology adoption. Furthermore, key features were reported following proportional analysis, such as systems, development, services, models, information, public, policy, management, and networks. Another point is that a proposed theoretical model has been constructed and selected for future research.

Keywords: *Digital Government; Social sciences; Core Features; Model; Literature Review.*

A. Introduction

Digital government is predicated on technology enhancing democracy, transparency, and accountability by making it easy for individuals to interact with the government (Henman, 2019). Digital government is required to facilitate the delivery of government services to citizens through the use of information technology and to engage citizens (Scholl, 2020). Furthermore, Digital government may aid in advancing human rights, the openness of governmental institutions, the reduction of nepotism and corruption, and the transition of political decision-making processes from analogue to digital (Erkut, 2020).

There have been notable breakthroughs in the literature addressing digital government from various viewpoints. For instance, from a political perspective, Abusleme (2020) has examined e-participation as a digital government platform by considering the political situation's complexity. Duruji et al. (2021) investigated the electoral process with the need for digital government infrastructure. Robertson et al. (2010) and (2013) explored the political discourse using digital government social media. From the public administration and bureaucratic perspectives, Melitski et al. (2005) have assessed the e-government framework from several local government websites. Luna et al. (2013) analyzed the performance assessment of government web portals. Continently, Luna-Reyes & Gil-Garcia (2014) also researched the transformation of digital government in technology, organization, and institutional aspects. Marienfeldt (2021) explored the institutional and organizational conditions for e-government availability of e-services. Other scholars have analyzed public service issues. Yavuz (2022) studied gender perceptions and their implications in using digital government technology in public transport services.

Several scholars who have conducted systematic reviews, such as Rawat (2020), have constructed the terminology of ICT and government studies, where key terms were found in the study, such as; smart city, e-government, e-governance, digital government, open government, e-participation, and e-democracy. Further, Matheus & Janssen (2020) developed a detailed model of the variables that impede openness afforded by open government data and the projected impacts. Likewise, Zuiderwijk, Chen, & Salem (2021) have pointed out the literature on the implications of using artificial intelligence (A.I.) in public

governance. Another scholar from Sánchez-Torres & Miles (2017) examined the role of future-oriented technology used literature review to support e-government planning, implementation or evaluation.

Although there are several sub-studies of digital government in several previous Scholars' studies, there has yet to be (upside my knowledge) a comprehensive study of the analysis of the description of issues, themes and main networks of the development of digital government. This article addresses this gap by detailing how social science scholars understand digital government. This study will answer the following concerns: (1) what are the core issues and sub-issues in social science journals concerning digital government? (2) What new propositions and conceptual approaches may be created from these results? To answer these points, this study did a thorough literature review on digital government in the social sciences.

B. Method

A systematic literature review was adopted in this paper. According to Wang et al. (2018), there are five steps to conducting a systematic literature review: the first step is to plan and formulate the problem. Secondly, conduct a literature search, data collection, and quality evaluations. The next step, analyze and understand the data and, finally, present the findings and discuss future study directions. We have classified digital government issues in the Academic Scopus Database. In which screening phase of such as title-abs-key is "digital government", the subject area is "social sciences", keywords are "digital government", the document type is "article", the source type is "journal", the publication stage is "final"; language is "English". The data found 115 articles up to June 2022, and this data analysis uses VOSViewer tools to visualize and map some of the themes. This article uses VOSViewer with three visualizations: network, overlay, and density. In addition, we use NVivo 12 plus, which maps the issues studied by several previous scholars based on the issues of the manuscript as a whole.

To start the literature review analysis, we first do a mapping based on annual publications, the number of articles by author, citation by article, journal publisher, country or territory analysis, and the affiliation of each document. Next, we mapped based on the methodology used for each article, and then

we mapped VOSViewer, based on the theme network, annual theme analysis, and density of each issue rolled out. Finally, we make a proposed theoretical model. Next, data analysis uses NVivo 12 plus, with a cluster analysis menu with Jaccard's Coefficient approach to see the frequency of relationship between the main issue and other related issues.

C. Result and Discussion

The result section provides the findings and discussion of the digital government study. Each sub-section presented some analysis such as annual publication, total article by author, author network visualizes, citation, publisher, country or territory, document by affiliation, term network, overlay, and density visualization. Otherwise, there are theme proportions, word frequencies, and proposed theoretical models of digital government.

1. *Year of Publications*

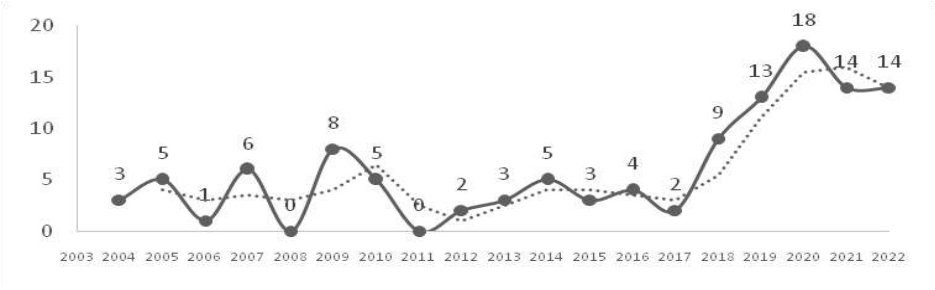


Figure 1. Annual publications of digital government
Source: Processed from the academic scopus database, 2022

Figure 1 shows that the digital government study has emerged since 2004. There are three initial digital governments in the social science discipline: Seifert & Relyea (2004) point out the expanding concept and practice of e-Gov't in the federal United States. Second, Sharma & Gupta (2004) presented a framework based on web services for creating mobile government apps. Finally, Eyob (2004) evaluated numerous challenges confronting municipal governments to make commercial operations more efficient and accurate through e-commerce and e-government. This literature is the beginning of digital government studies in the social sciences discipline in the Scopus Database.

On the other hand, digital government study has been growing and fluctuating each year; the year with the highest frequency of article publication is 2020, with 18 total articles in journal publications. In the literature on digital government between 2008 and 2011, the most jumped journal publication from 2008 to 2009 was eight articles. To sum up, digital government topics have significant issues in the social sciences discipline, where this phase was set up in June 2020. This phenomenon is directly tied to international scholars' interest in common digital government issues. It also demonstrates that scholars are paying increasing attention to the topic, proving that the subject of this article is worthy of study.

2. *Publication by Author and Author Network Visualization*

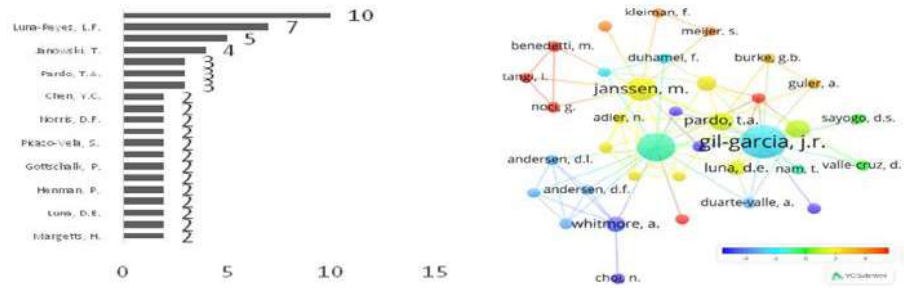


Figure 2. The most production authors and authors are interconnected

Figure 2, several scholars who have studied digital government studies have been reported through the Scopus database, where Gil-Garcia, J.R., a prolific writer, released ten articles on digital government from 2004 to 2022, followed by Luna-Reyes, L.F., with a total of seven published articles, and Janssen, M. has five publications. It is shown in the network visualization that these scholars have the most influence on digital government studies. Compared to the three authors, Janssen, M. is the present author after Luna-Reyes, L.F., and Gil-Garcia, J.R. based on overlay visualization. In addition to each scholar's contribution, the visualization above also shows global collaborative research. Therefore, it allows each name to have connectivity to the released documents. It is the main point for improving digital government studies so that various perspectives fill each other's gaps among scholars.

3. *Citation Analysis*

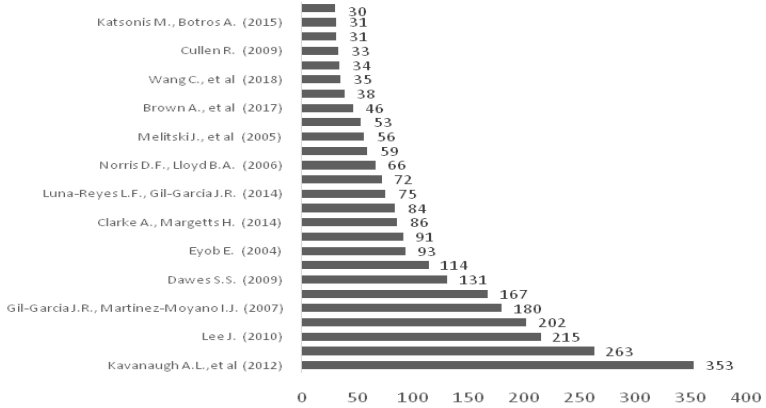


Figure 3. Covering citation per article journal by authors
Source: Processed from the academic scopus database, 2022
at least thirty citations of digital government articles have been selected

Figure 3, shows the most frequently cited digital government articles. Kavanaugh et al. (2012) appear to be the most influential author on digital government. At the same time, we should pay attention to the three authors, Helbig et al. (2009), J. Lee (2010), and Gil-Garcia, et al. (2015), whose published works are of exceptionally high quality, with over 200 citations.

4. *Publisher Analysis*

Table 1. The most productive journals

No	Journals	No. of Articles	%
1	Government Information Quarterly	29	25.217
2	International Journal Of Electronic Government Research Ijegr	8	7.017
3	Information Polity	7	6.140
4	Journal Of E-democracy And Open Government	5	4.385
5	International Journal Of Electronic Government Research	5	4.385
6	Sustainability Switzerland	5	4.385
7	Electronic Government	4	3.508
8	Transforming Government People Process And Policy	4	3.508
9	European Journal Of Information Systems	2	1.754
10	International Journal Of Electronic Governance	2	1.754
11	International Journal Of Public Administration In The Digital Age	2	1.754
12	Policy And Internet	2	1.754
13	Public Performance And Management Review	2	1.754
14	Social Science Computer Review	2	1.754

Source: Processed from the academic scopus database, 2022
only journals publishing at least two digital government articles have been selected

The 115 articles in the database were published in 64 journals. Table 1 shows at least two published articles on digital government. In which the digital government study on Government Information Quarterly (GIQ) publishers is at the forefront of subscriptions by scholars to publish their articles on GIQ publishers, as many as 29 articles per journal, or 25.217%, it shows the leading position of other journals. Compared with others journals that are far from the publication of the International Journal of Electronic Government Research (Ijegr), only published eight journal articles or 7.017%. The GIQ journal has the highest reputation and concern for developing digital government studies compared to 45 other publishers.

5. *Country or Territory Analyze*

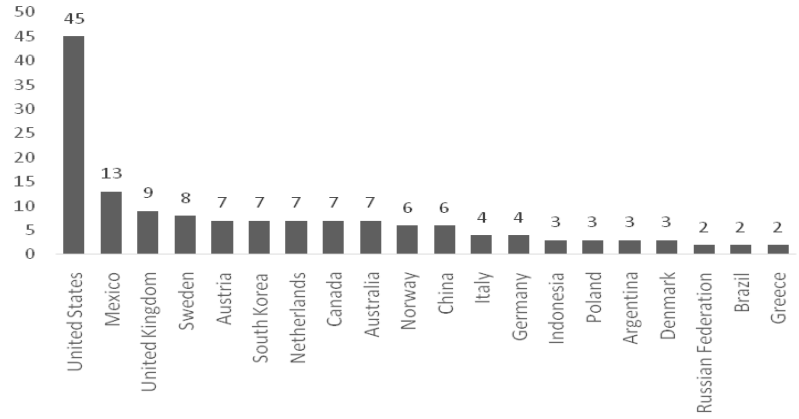


Figure 4. Article distribution by country or territory on digital government
Source: Processed from the academic scopus database, 2022
only country or territory, at least two digital government articles have been selected

Figure 4 shows the most prolific in the sphere of digital government. Over 40 countries or territories have significantly contributed to digital government research during the last few decades. The allocation of digital government studies has spread to almost every country, but there is one country with the highest frequency of publication, namely the United States. The United States has 45 published journal articles on digital government, followed by Mexico, the United Kingdom, and Sweden, with 13, 9, and 8 published articles, respectively.

The United States ranks first because the United States Federation has a digital government ecosystem that matures as technology changes to provide access to high-quality information and services anywhere, anytime, on any device.

6. *Document by Affiliation*

Figure 5. Some scholars have contributed their thoughts to the affiliates supporting them, including a digital government study. The top five campuses with the highest proportion of publications are the State University of New York Albany (14 articles), Centro de Investigación y Docencia Económicas (8 articles), Universidad de las Américas Puebla (8 articles), Donau-Universitat Krems (6 articles), and also Delft University of Technology (6 articles). Thus, this is directly proportional to the fact that the United States of America is the country that contributes the most to digital government studies, and the University of New York Albany, as an affiliate, has contributed many of its articles related to digital government.

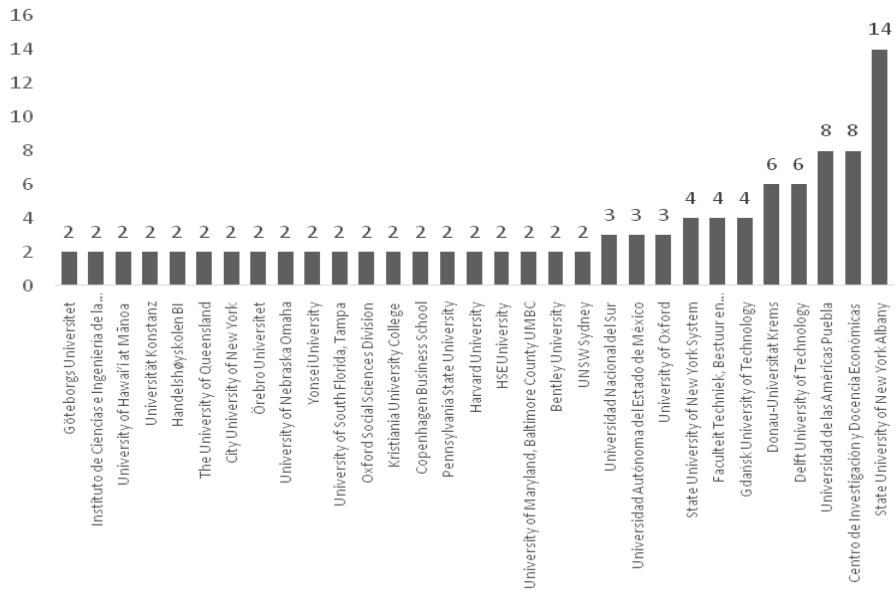
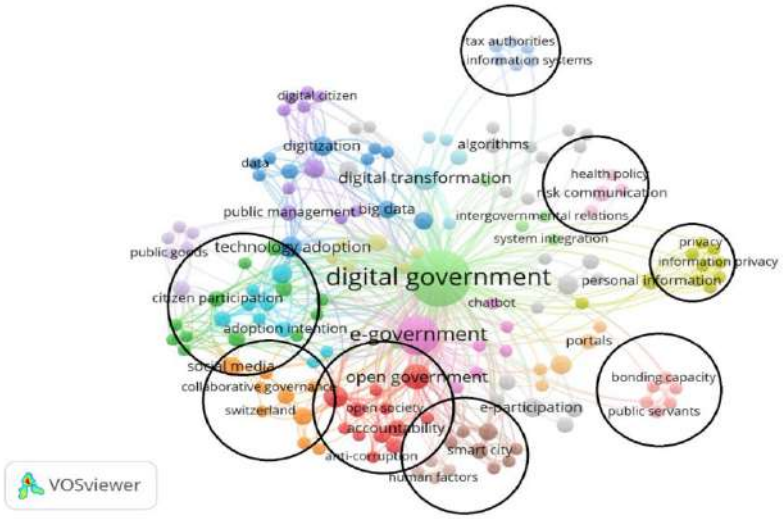


Figure 5. Document by affiliation
Source: Processed from the Academic Scopus Database, 2022
only affiliation at least two digital government articles have been selected

7. *Network and Overlay Visualizations*



Picture 1. Network visualization on digital government issues

Table 2. Distributing the critical term on a digital government study

Label	Links	Total link strength	Occurrences
Accountability	8	10	3
adoption intention	11	13	2
artificial intelligence	10	14	4
citizen participation	12	13	2
decision making	14	15	2
digital government	156	274	114
digital transformation	8	16	8
Digitization	17	20	4
e-government	65	115	37
e-participation	7	12	4
local government	9	11	3
open government	15	30	9
personal information	11	12	2
public participation	13	14	2
public policy	17	18	2
public services	9	12	3
smart city	9	12	2
smart government	10	16	3
social media	14	17	4
technology adoption	22	29	5
Transparency	17	25	6

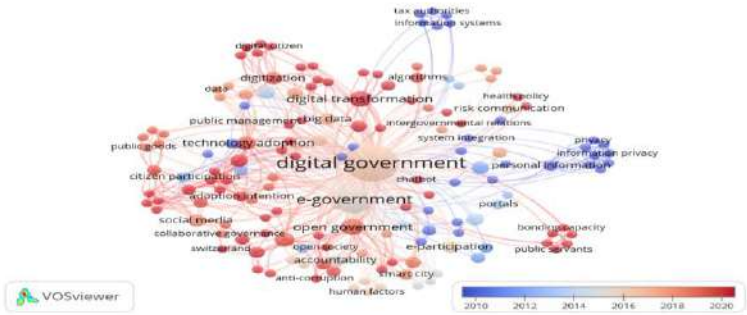
Source: Processed from VOSViewer, 2022
only the total link strength of at least ten digital government key terms has been selected

As reported in picture 1, there are 28 clusters with 157 items detected in the network visualization analysis. It significantly affects the relationship between digital government issues and other intersection topics marked by color. The critical term network has been presented in table 2, where several vital terms have significant total strength. In addition to the issue of digital government as the main topic (274), there are terms such as e-government (115), open government (30), and technology adoption (29). Furthermore, picture 2 shows the trend of topics by year of publication. The red-brown color indicates the topic of digital government in recent years, compared to the blue color that has been studied in several previous articles.

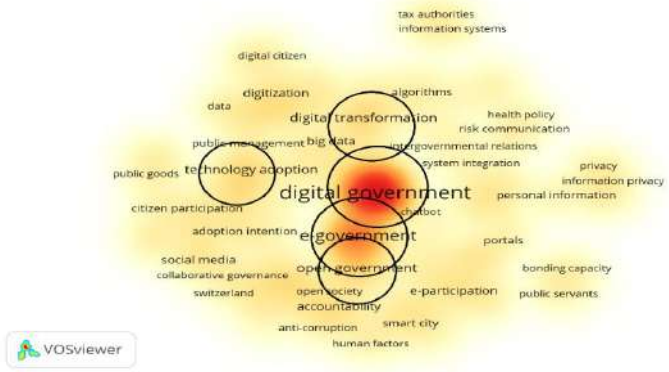
On the other hand, picture 2 presented the study of digital government has been running for almost two decades. It is estimated that this study will continue to be produced, considering the transformation of the trend of digital government studies that are increasingly massive and diverse, as in the early days of digital government studies focusing on 'networking', 'database', 'information infrastructure', 'law enforcement', 'culture attitudes', 'policies investigation', 'inclusion policies', and so on. In contrast, the latest 2020 trend upward from the digital government has developed towards studies such as; 'mobile application', 'digital citizen', 'blockchain', 'algorithms', 'teleworking', 'digital citizen', and so on. The initial study of digital government focused on infrastructure networks, policies, and implementers' institutes. Currently, digital government issues have been running to see how the websites/ applications and digital communities develop, as well as the existence of teleworking towards the transition of the work system into digital space to serve the citizen.

Picture 3. The relevant phrase has been highlighted in the density view-the hue of each point on the map to the density of concerns in that location. The map's thick hue is determined by the number of things around that point. Dark orange has the most significant item density in this color scheme, while light orange has the lowest. Density views are beneficial for understanding the map's structure and calling attention to the most relevant regions. Apart from the digital government as the dominant element, it is evident in figure 3 that there is side to side topics which include digital transformation, e-government,

open government, and technology adoption. It shows that the problem is dense and large. These areas are incredibly packed, indicating that the total intensity of information contact, among other crucial parameters, is the highest.



Picture 2. Overlay visualization on digital government issues

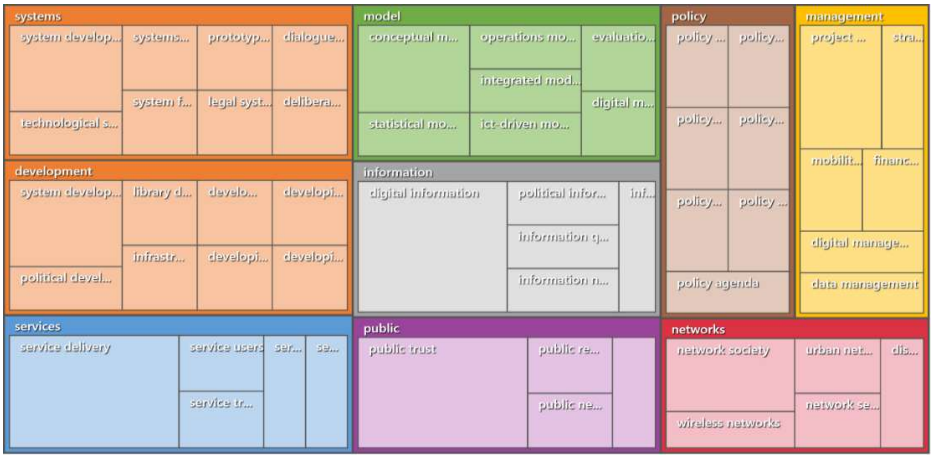


Picture 3. Density visualization on digital government issues

8. *Themes Proportion on Digital Government Issues*

The proportion of issues from the study of digital government has been presented in figure 4, which describes the results of auto-coding analysis through NVivo 12 plus from all articles on the development of digital government research. From picture 4, the hierarchy diagram means that the most significant and compact is also the most widely used. It provides information that the topic is the main topic of study in digital government research. From picture 4, several proportions are discussed: "system", "development", "services", "model", "information", "public", "policy", "management", and "networks".

p-ISSN: 2338-8617
e-ISSN: 2443-2067



Picture 4. Hierarchy diagram on digital government and sub-issues
Source: Processed from the NVivo 12 plus

9. *Proportion 1: Systems, Development, and Services*

Digital government studies have touched on several sub-issues in systems, such as deliberation systems, dialogue systems, legal systems, prototype systems, system frameworks, technological systems, and so on. In the application of technology, the presence of digital government allows participatory and deliberative processes in the e-participation system to be carried out so that the service process becomes more inclusive (Abusleme, 2020). Thus, there is a need to develop information technologies such as digital government systems to enable resource sharing, coordination, and collaboration among the agencies of the participating countries (Su et al., 2005). Therefore, digital government services need a transparent legal system and process for responsibility, accountability, transparency, compliance, and quality control (Henman, 2020). Then, a prototype system is also needed to manage information in terms of the e-government domain (Sabucedo & Rifón, 2010). The government provides a platform for accessing information, requiring a framework system for documents, complements existing metadata, and evaluates information access effectiveness (Freund et al., 2012). In addition, regarding the government web portal, it is necessary to specify the technology system for its transformation.

Several scholars have adopted digital government studies, many related to studies; on developing democracy, developing economies, developing

society, development agenda, and infrastructure development. The digital government tries to combine the roles of citizens into two: voters and service users. It becomes essential when e-government is used in developing democratic ideas for developers to create more excellent technology for politics and public information (Helbig et al., 2009). Norris (2005) states that it is shorter than the provision of government technology impacts the development of e-democracy. However, the adoption of technology to convey information and government services transparently. Henman (2019) emphasized that the presence of digital government is also a form of economic development and public economic procurement. Ning et al. (2021) explained that digital government applications are a blockchain for poverty alleviation and social and developing economies. Thus, according to Janowski et al. (2018), the presence of a digital government as a reconstruction government to understand the sustainable development agenda is a process in which various actors collaborate and discuss and formulate decision-making. Furthermore, Janssen et al. (2009) reveal the development infrastructure of digital government designed for various fields, including crisis management, law or regulation, information and knowledge, connectivity and security, and collaboration between public and private parties, utilizing advancing digital government.

The digital government study mentions four service issues: service delivery, service economy, service transformation, and service users. Bright et al. (2019) stated that the digital government is currently trying to increase transparency in public information delivery. Therefore, Henman (2019) showed that all governments have developed digital service delivery processes worldwide. Mergel et al. (2019) so that citizens' expectations of the government's ability to deliver high-value real-time digital services are met. Governments change their modes of operation to improve public service delivery, become more efficient and effective in their designs, and achieve goals such as increased transparency, interoperability, and citizen satisfaction. In addition, Brown et al. (2017), in providing digital government, allow platform support that can build financial services for the public. Then, Weerakkody et al. (2016) reported that critical factors hinder the services offered in in-service transformation,

such as lack of staff capability, skills, service quality, and public awareness of services. Furthermore, Henman (2019) said that the government is increasingly providing opportunities for service users to have greater access to digital technology services. Thus, according to Bajaj & Ram (2007), recently, there has been an increasing interest in sharing digital information between government agencies and service users to increase security, reduce costs, and offer better quality services.

10. ***Proportion 2: Model, Information, Public***

The next element mentioned in the study of digital government is the model. In the discussion, several studies have been found on conceptual, digital, evaluation, ICT-driven, and integrated models. First of all, the availability of conceptual models is needed to investigate future digital transformations, where technological developments and workspaces require a mature conceptual framework (Tangi et al., 2021). In Line with the opinion of J. Lee (2010), who revealed that in developing digital models, such as the presence of e-government, a comprehensive mapping is needed that includes mapping technology, organization, and services to the community. However, we found that developing digital models from a technology and organizational perspective has been done a lot, but how to serve the community still needs to be improved. It is emphasized by Dawes (2009), who argues that developing an ICT-driven model in digital government is more focused on technology and organization than explaining how the tool works. Plus, Luna et al. (2013) noted that most of the existing evaluation models still consider the quality of the results of information, services, and portal functions but ignore other different input capabilities, such as measuring the participation of the portal's ability to interact between citizens and the government. Thus, Su et al. (2005) stated that when technology and systems are precise, it is expected to form an integrated system from existing information systems.

Digital government studies have also approached information issues, such as; digital information, information integration, information networking, and political information. Through e-government facilities, it has become a transformation platform for digital information to deliver government services

and products to its citizens (Alvarenga et al., 2020). Digital government has also been intertwined with information integration across organizational boundaries (Gil-Garcia et al., 2019). Inter-organizational information integration includes four fundamental components: trustworthy social networks, sharing information, integrated data, and interoperable technology infrastructure (Gil-Garcia & Sayogo, 2016). The issue of information networks in digital government is supported by the digital capacity to store, process, and share information, thus requiring information standardization (Janowski et al., 2018). In addition, the digital government has also approached the study of political information, primarily political, in which the application of digital government technology through e-participation must pay attention to the complexity and dynamics of politics (Abusleme, 2020).

The public is one of the issues studied by several previous scholars who relate to digital government, where public issues have elements such as public models, networks, reports, and trust. A digital government project has implementation challenges as long as the system is developed, such as time and availability of budgetary resources. Still, the public models have saved everything where the private sector is present to verify the government's achievements (Chen et al., 2009). In addition, the government's digital government provides opportunities for public institutions to invite citizens to participate in public networks (Karippur et al., 2020). Furthermore, digital government is a forum for obtaining services and providing ongoing public reports (Henman, 2019). So, the government must be able to increase public trust in terms of transparency, efficiency, and corruption in the presence of digital government (Valle-Cruz et al., 2016).

11. *Proportion 3: Policy, Management, Networks*

Policies play an essential role in the development of digital government. There have been sub-discussions of policies that intersect with digital government, such as policy design, policy agendas, policy formulation, and policy implementation. In this case, several scholars have emphasized that the government must be able to design effective and sustainable digital service policies in practice (T. D. Lee, Park, & Lee, 2019). Further, De Blasio &

Selva (2019) argue that the presence of a policy agenda to provide an open government data system is very necessary. In this case, a digital platform can increase transparency, participation, and collaboration between the government and stakeholders. Therefore, Katsonis & Botros (2015) noted that the public is also expected to participate in providing input into policy formulation. However, Wang, Medaglia, & Zheng (2018) have revealed that, in the end, public-sector organizations are required to implement digital tools, including website platforms, to release open data to use and manage this data can improve services to the public.

In digital government issues, management elements also play an essential role. Several studies include data, digital, financial, and project management. Where the public sector provides several significant data sources, a clear understanding is needed for proportional data management (Susha et al., 2018). As explained by Daniel & Pettit (2021), interference becomes a sure thing in digital technology, so to anticipate this, professional human resources are needed in data management in digital technology. Stone et al. (2018)stated that operators and regulators must be able to manage and create integrated and good data network mobility services for user needs, so that information mobilization management runs well. According to Nicholls (2019), cost management is also needed in every service in the digital government project. It supports the actual relationship between web performance and the costs incurred. In the end, Chen et al. (2009) project management is all that is needed for digital government; this is one of the essential elements in system development and integration.

In the study of digital government, scholars have been in contact with network elements. In this study, previous scholars discuss several issues, such as network distribution, network settings, wireless networks, and community networks. It makes it possible for a good dataset network to be needed in the digital transformation transition process so that the public and businesses can access it easily (Kotsev et al., 2020). This network set not only focuses on the availability of qualified data, but wireless networks are also a focus that must be provided. As mentioned by Sharma & Gupt (2004), with the availability of wireless technology networks in the public sector, such as mobile government,

people can receive government services and information anywhere and anytime. In the study of digital government, it is also necessary to focus on the network community, with the internet implying a relationship between the public sector and society in providing services (Eynon & Dutton, 2007).

12. ***Word Frequencies of Particular Terms in Digital Government***

This section conducted text search queries for particular terms or combinations of phrases on all or selected ranges of sources, like 'digital government', along with word frequency queries to obtain lists of the most frequently occurring words in articles, as shown in picture 5. However, picture 5 reported the most frequencies of terminations in digital government, such as 'government' at 2.84%, 'information' at 2.02%, 'digital' at 1.40%, 'public' at 1.29%, and 'management' at 1.09%.

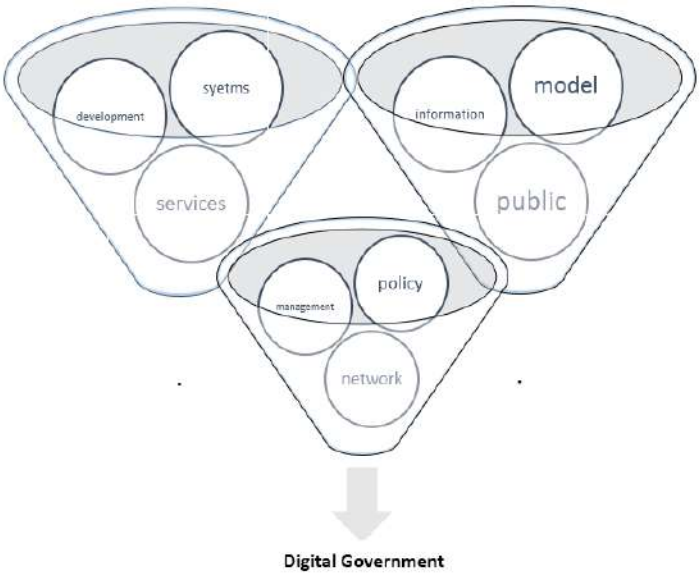
Picture 5. Most 50 frequent words in research articles
Source: Processed from the NVivo 12 plus

13. ***Proposed Theoretical Model***

The proposed comprehensive theoretical model, depicted in figure 6, is inferred from the first to ninth propositions. The nine most closely connected concerns have a significant relationship with digital government, i.e., systems, development, services, model, information, public, policy, management, and networks. Furthermore, the systems issues are connected to the six closest issues: deliberation systems, dialogue systems, legal systems, prototype systems, system frameworks, and technological systems. The

development issue is linked to five points: developing democracy, developing economies, developing society, the development agenda, and infrastructure development. The service issue is intertwined with four issues: service delivery, service economy, service transformation, and service users.

The model issue is inextricably linked to the five most closely related issues: conceptual, digital, evaluation, ICT-driven, and integrated models. Information issues are connected to four issues: digital information, information integration, information networking, and political information. The public is involved in four that are within range: public models, networks, reports, and trust. The policy is intrinsically related to the four most pressing issues: policy design, policy agendas, policy formulation, and policy implementation. Management is directly tied to the four most important issues: data management, digital management, financial management, and project management. Furthermore, the network is inextricably interrelated to the four most critical issues: network distribution, network settings, wireless networks, and community networks.



Picture 6. Proposed theoretical model in digital government
Source: Own author

D. Conclusion

Many scholars in the social sciences have previously explored digital government. This research contributes to expanding these social science scholars' arguments and viewpoints. As a result, the point of the study has been to discover the state of scientific output and intellectual structure of digital government to define trends and give helpful information to scholars working in related fields. The study examined 115 journal articles from the Scopus database.

This research found trend issues reported, such as e-government, open government, and technology adoption. These issues are significant co-occurrence with digital governance. Another point recorded that there are nine main digital government concerns: systems, development, services, models, information, public, policy, management, and networks. All of the terms are closed by digital governance proportion. Furthermore, this study announces a thorough recommended theoretical model based on the results of digital government concerns and sub-issues. The practical relevance of this research is that improving adaptable and representative government, public organizational capabilities, and supporting political involvement in policy making and implementation are the only ways to achieve global digital government at all government levels.

This study has certain drawbacks, including that the breadth of the science being studied needs to be more comprehensive, making it unable to uncover more particular difficulties. Because the number of publications assessed is small, it is possible that it needs to represent the current state of the art. This study offers some suggestions for future investigation. Future research should look into the concept of digital government in various disciplines, including politics, public administration, or sociology, to uncover particular issues. Furthermore, future research should include a more significant number of publications from various sources to evaluate the stability of their difficulties. Finally, longitudinal research may be used in future studies to validate the newly presented theoretical model.

Acknowledgement

The author would like to thank two anonymous referees and the academic editor for their comments and suggestions.

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p-ISSN: 2338-8617
e-ISSN: 2443-2067