

Research Article

Digital Government Reform: Analysis and Trends Through Systematic Literature from 2004-2024

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Abstract.

Turbulent globalization has driven transformation across multiple sectors, including shifts in government systems toward digital governance. This research aims to explore how government systems are transitioning to digital platforms in various countries, with a particular focus on the Asian region for a more in-depth and holistic review. The study employs a systematic literature review of digital government reforms in Asian countries over the past twenty years (2004–2024), using the Scopus database with the keywords “Digital,” “Government,” and “Reform.” It also employs bibliometric analysis using VOSviewer software. The findings reveal that several Asian countries, including Vietnam, China, Japan, South Korea, Singapore, Indonesia, and Malaysia, have initiated the implementation of digital government systems with varying degrees of success. These countries have leveraged technologies such as the Internet of Things (IoT), big data, and artificial intelligent (AI) to foster innovation and improve governmental performance. However, significant challenges remain, including regional digital disparities and the need for more adaptive and responsive policies to keep pace with technological change. The study concludes that although notable progress has been made, further research is needed to identify the key factors influencing the successful implementation of digital government systems in Asia.

Keywords: digital government, reform, bibliometric analysis

1. INTRODUCTION

In the era of globalization, changes in various social, economic, political and governmental spheres are inevitable. Turbulent globalization, interconnectedness and uncertainty imply that there must be changes to the existence and sustainability of a strategic environment that is dynamic complexity. According to Lester Turrow in his work “Creating Wealth” says that changes in the dynamics of complexity are “a) the world is changing at an ever-accelerating rate; b) life, social, and economics are becoming ever more complex; c) jobs are disappearing at an unprecedented rate; d) it is an age of uncertainty; e) the past is less and less guide the future”. The existence of changes accompanied by various new paradigms in responding to new challenges in various lives requires

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the quality of a country's human resources or "human capital based knowledge" which has anticipatory, competitive and comparative abilities based on vision and strategy in responding to changes in the strategic environment (1). This also applies to government systems in various countries.

Initially, the government system in various countries was still carried out manually and paper-based, resulting in inefficiency, non-transparency, and difficult access to informants for the public, long and complicated procedures, lack of supervision, and so on. As in one research source which says that public information disclosure is difficult to implement because there are several public officials who still have the assumption that community involvement can influence the assessment of the performance of public agencies (2). Meanwhile, public administration, which is one part of dynamic social science, will continue to change along with the times, civilization, and advances in science and technology. In the context of public administration, the general public or the public is at the center of services as a state or government that works for the public interest. So in this case, a change in governance is needed in various countries that can encourage effectiveness and efficiency in the implementation of governance.

In the 1990s, the term electronic government or commonly abbreviated as e-government emerged. The emergence of e-government goes hand in hand with changes in the era of public administration towards the era of new public management. In this era, the beginning of a wave of driving public sector efficiency with tools, internet applications, information and communication technology entered the government arena. The Government Online or e-government initiative is more broadly dependent on internet technology which at that time was still static or what was referred to as Web 1.0. Then, over time, in the early 2000s, there was a step change in the functional static web towards a more dynamic web with the term Web 2.0 which involved direct citizen involvement in discussions about government services and public policies (3–5). Subsequently, the focus on governance shifted to transparency, accountability and open access to government data, referred to as open government in the 2010s. This shift was a global initiative to develop governance that promotes openness, community engagement, accountability, and the use of technology in strengthening governance in various countries (6). Changes in the governance system continue to shift over time. Until now, the government has shifted towards digital government or digital government which is more integrated with the broader concept of digital government.

In addition, the pressure to reduce costs, increased expectations of government, and a comprehensive digital transformation in government administration are also reasons

for the term digital government. The Organization for Economic Co-operation and Development (OECD) views digital government as an integrated part of government modernization strategies to create public value. It also relies on a digital government ecosystem that includes government actors, non-governmental organizations, the private sector, and society (3,7). There are 2 (two) fundamental reasons why digital transformation is needed in government, namely first, the modernization of digital government makes public services and administration better, such as increasing efficiency, transparency, and responsiveness. Second, building government readiness in facing waves of change due to the emergence of the industrial revolution 4.0 and the society 5.0 revolution (8). The research results from (9) show that it is very important to establish innovative strategies for governments that utilize the Internet of Things, Big Data, Artificial Intelligence (AI), and Robotic. This is also important to keep up with changes in a society that tends to be intelligent about information so that a significant transformation towards digital government is needed (8).

In rapid change, transparency and synergy, a state government needs government structuring and renewal in various fields of life or what is commonly referred to as reform government (1). One form of change in government is digital government reform, which with this change towards digital government is able to increase the efficiency of government institutions at all levels, encourage transparency in the activities of state management bodies, provide faster and more convenient services for the community and the business world through online public services, thereby minimizing the need for businesses and the public to visit physical governments and institutions for administrative procedures. However, while digitization can bring many significant benefits to the government system, some existing data and research also show that there are many challenges in implementing digitization into the government system, such as the fact that many digital systems have not yet shown their usefulness to the public, the existence of a workforce (employees) who have difficulty in me, the development of the digitalization system, and the lack of access to information. The use of digital media in the government system has not been fully implemented. As the findings of several studies show that the application of the concept of digitalization also has several challenges, such as the need for better technology development, the need for adaptation from users, and the need for measures to address data security and privacy issues (10). In addition, a major challenge faced in the change of government systems to digital is how they are able to carry out activities efficiently and effectively. The quality of digitization of the government system is one of the highlights directed at the government bureaucracy

with the frequent appearance of news hashtags highlighting the government service system (11). So that the urgency of digitization in the government system is one of the important focuses in bureaucratic reform and improving the quality of public services.

Therefore, referring to this background, the question that arises for this research is how digital government changes in developed and developing countries and what sectors dominate in feeling the impact of the shift to digital-based government. Based on the research question, this study aims to explore how the digital government system is developing in Asian countries through an exploration of research trends related to digital government reforms that have developed and see how changes occur from the shift towards digital government, as well as what sectors are more dominant in feeling the positive impact of this digitalization-based government change. The findings in this study are expected to be used as evaluation material regarding the situation of development or change in digital government.

2. THEORETICAL STUDY

Reform is part of the dynamics of society, in the sense that development will cause demands for renewal and change to adapt to the demands of development. Reform also means change without destroying or change while preserving. In this case, the reform process is not a radical change process that takes place in a short period of time, but a planned and gradual change process. Reform literally means a movement to reformat, reorganize or reorganize deviant things to return to their original format or form in accordance with the ideal values aspired to by the people (12).

E-government is the focal point of reforms supported by information systems to digitize government services and processes at all levels. E-government services in different countries have different levels of service, depending on the internet usage habits and expectations of their citizens (13). E-government refers to the implementation of public administration activities in all three branches of government (legislative, executive, and judicial) by utilizing technology. E-government juga tidak hanya mewakili alat penting untuk administrasi publik, tetapi juga alat E-government also represents not only an important tool for public administration, but also an important tool for the economy, international reputation, and a tool for the purpose of serving society (14). In addition, e-government systems also affect interested stakeholders, such as policy makers, state employees, businesses (private parties), citizens, and others. Among these stakeholders, citizens are the main actors of the services provided by the government.

Thus, the success of e-government depends on the results of satisfaction provided by the public (15).

3. METHODS

This research also tries to use a qualitative research method with a systematic literature review (SLR) approach to explore more deeply related to digital government reform, which material in this research is obtained through database searches on the Scopus platform, which provides information on scientific journals, scientific papers, books, events, and other items. The researcher selected data from the data collection on Scopus that focused on global trends related to digital government reform and found the search results with a total of 876 articles. Next, the researcher set inclusion criteria to find suitable scientific papers for evaluation and literature discussions that were not related to the topic were excluded (16). Then from the results of these findings, the researchers further narrowed down by limiting the research to the publication year for the last 20 years, namely 2004-2024, articles in English and Indonesian, social science fields, journal types, article document types, open access with predetermined keywords, which then resulted in 130 documents. Furthermore, the researcher conducted full text screening by checking the feasibility of recording in accordance with the main idea of digital AND government AND reform, which finally resulted in 18 documents that were in accordance with the main idea of the research. The detailed steps of the systematic literature review can be seen in the chart below.

4. RESULT AND DISCUSSION

4.1. Year of Publication

The figure below shows the development of publications related to digital government reform in various developed and developing countries from 2004 to 2024. From the graph, it can be concluded that the publication trend in general continues to increase continuously and significantly. Although there was a decline in some years, such as in 2009, 2011, 2014, 2018, and 2024, the decline in the number of publication trends related to digital government reform did not occur significantly and prominently.

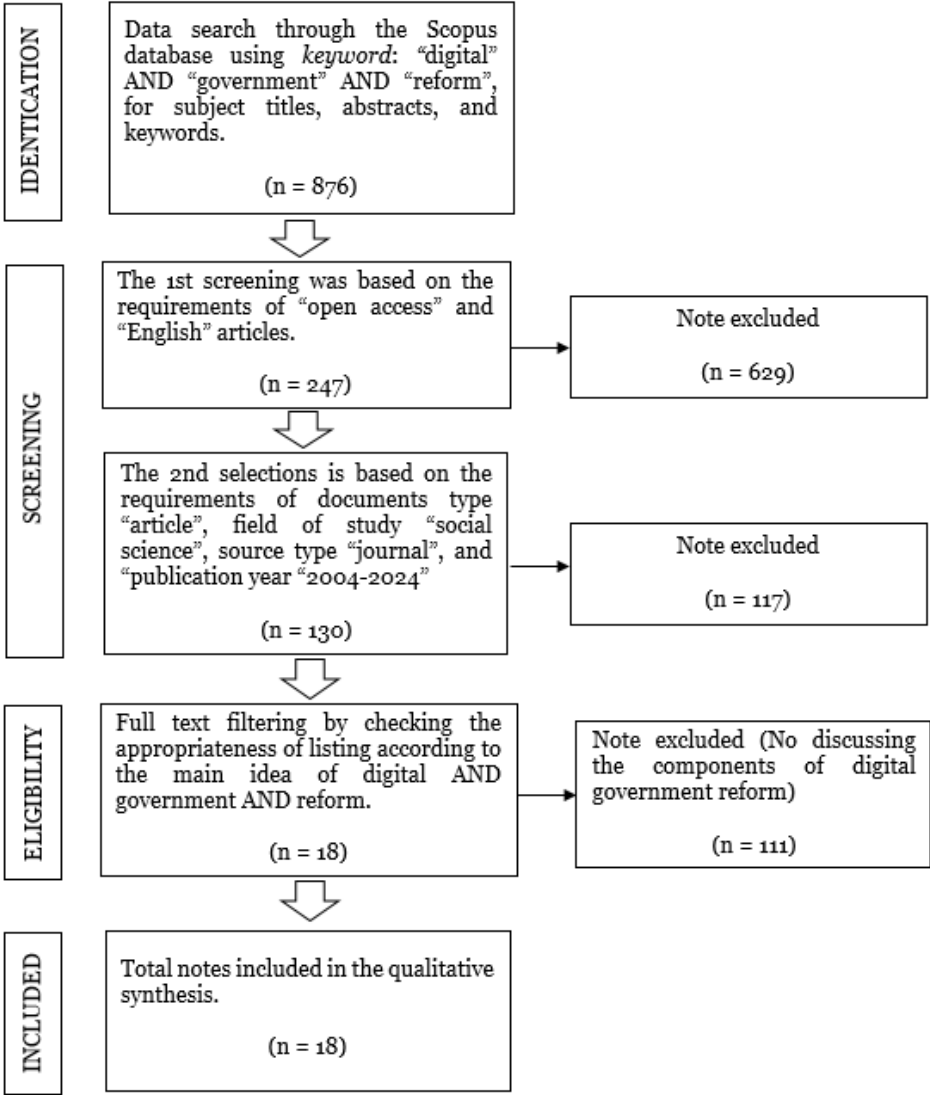


Figure 1: Detailed Steps of Systematic Literature Review. Source: Processed by Researchers, 2024.

4.2. Network Visualization

Literature mapping using clustering was conducted to determine the group categories in research related to digital government reform. There are seven different colors of keyword clusters, indicating that there are seven clusters with top keywords. This clustering illustrates a major topic raised by scholars in studying changes in digital governance. The distribution of the keyword network with the topic of digital government reform is related to how the issue has developed in various studies conducted by academics in each period. This can be seen in the figure below which shows that the pattern of Research on digital governance focused on the development of information and communication technology from 2014 to 2016. This can be seen in the purple

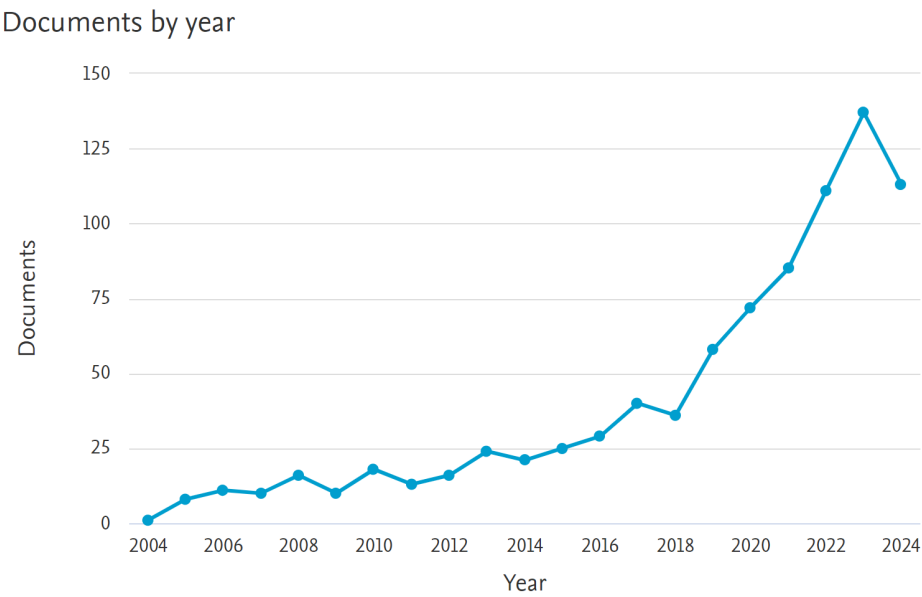


Figure 2: Trends in Digital Government Reform Research Publications. Source: Scopus Database, 2024.

color group that shows one of the top keywords related to 'information technology'. Meanwhile, in the 2016-2018 period there was a shift in issues related to the 'public sector'. While in the 2018-2020 period, the topic of 'e-government' became a topic that was widely discussed by researchers. Until finally, topics related to 'innovation' began to attract the attention of academics to study this, which can be seen in the 2020-2022-period shown in the light green color pattern. Finally, since 2022 until now, there are not a few studies that try to analyze digital transformation, which is shown in the dominant bright yellow color pattern.

4.3. Author

The table below shows some of the top authors who have published extensively and paid more attention to issues related to digital governance reforms. Roy, J, Kassen, M, and Virkar, S are the authors with the highest publications in 11 and 8 journals respectively. This can be seen in the table below.

4.4. Co-occurrence Map Visualization Results Based on Text Data

This mapping visualization image aims to visualize terms that often appear based on titles and abstracts. The results of this visualization will help in identifying research

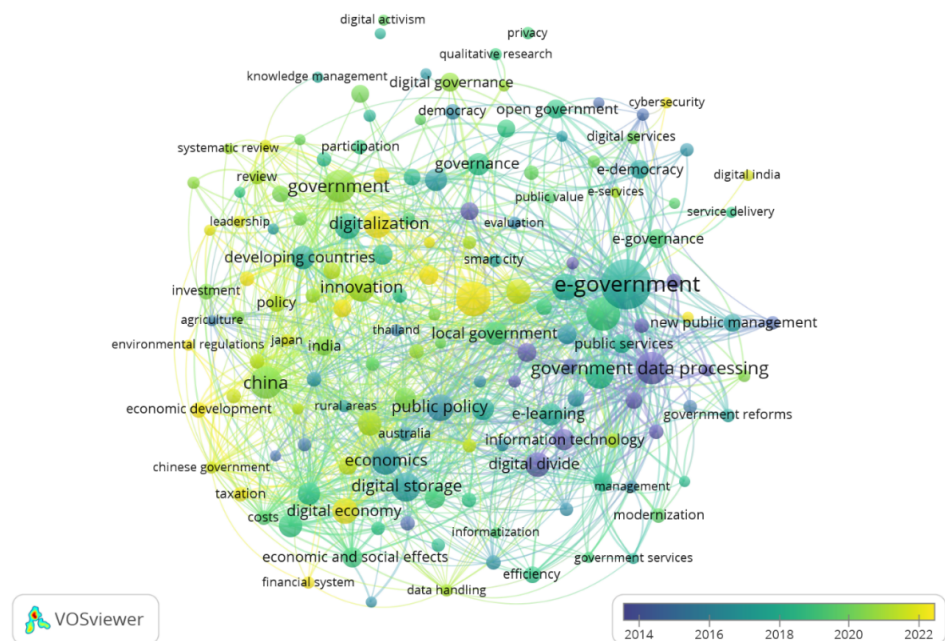


Figure 3: Visualization of Digital Government Reform Keyword Network. Source: Processed by Researcher, 2024.

TABLE 1: Most Published Authors of Research on Digital Government Reform.

Author	Number of Publications
Roy, J.	11
Kassen, M.	8
Virkar, S.	8
Luna-Reyes, L.F.	5
Margetts, H.	5
Clarke, A.	4
Ivanova, M.	4
Sorrentino, M.	4
Thompson, R. M.	4
De Marco, M.	3

Source: (Database Scopus, 2024)

gaps and finding new things or research topics that have not and are still rarely done. In Figure 3 below, we can see discussions and studies related to the phenomenon of digital government reform in various countries that are closely related to several other study themes such as e-government, digital transformation, economy, innovation, ICT, public sector, developing countries, and many more that are closely related to digital government. The larger the circle pattern depicted, the more likely the keyword item

has a close relationship with other keyword items and has been studied by various studies. As for the color difference, this leads to different cluster groupings of keyword items.

In this study, 130 journal articles were collected in CSV format, 4466 terms with at least 5 occurrences were found, and at least 186 terms were most relevant. The set of keywords then formed 7 clusters represented by several colors. This composite occurrence map can determine which research topics have been over-researched and which are under- or over-researched. For example, “e-government” has one of the highest occurrences, with 97 occurrences and 364 total link strengths.

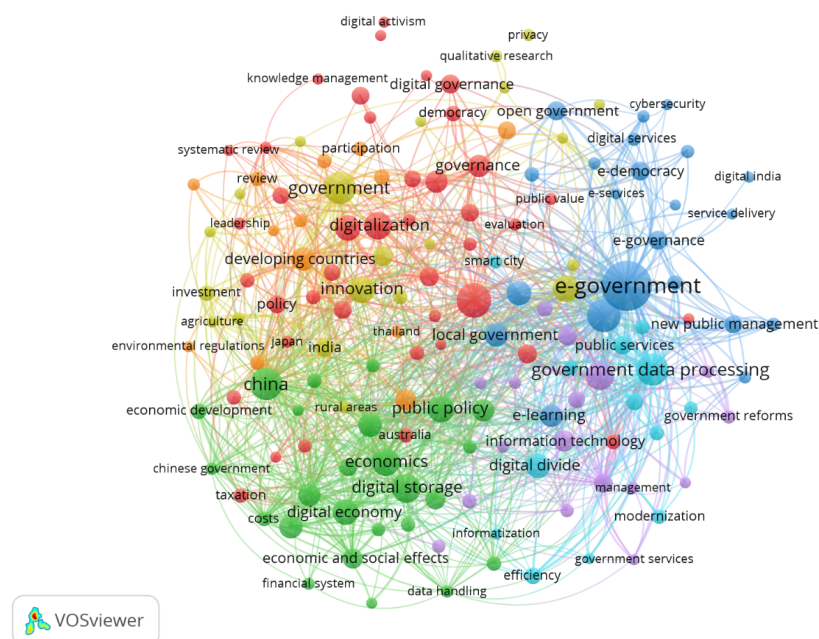


Figure 4: VOSviewer Network Visualization Results. Source: Processed by Researcher, 2024.

4.5. Discussion

Based on the findings that researchers have obtained, there are at least 18 international scientific journal articles that discuss digital government reform or transformation or modernization. The findings obtained were obtained by researchers through a step-by-step filtering process, where the emphasis of the discussion in the scientific journal articles is seen from the main discussion or has keywords related to digital government reform in countries in the Asian region. The findings show that the trend of research

among academics discussing digital government reform in Asian countries is still minimal. This can be seen from the findings that only a few countries in the Asian region discuss reform or transformation or modernization of digital government, such as China, Vietnam, Japan, Indonesia, Saudi Arabia, South Korea, Singapore, and Malaysia.

Whereas the purpose of digital government transformation itself is to make full use of new information technology to improve survival and development in government and to promote performance growth and optimization of the value system, and the ability of digital technology in the transformation process can contribute to government model innovation and performance improvement, which is very important for the development of governance (17,18). However, based on one of the findings from (19) Vietnam is one of the countries in Asia that is aware of the importance of digital government development. Vietnam became one of the first countries to start implementing digital government by issuing a National Digital Transformation Program or strategy. The implementation of the “National Digital Transformation Program to 2025, with a Vision to 2050” approved by the Prime Minister on June 3, 2020 has produced clear results, especially in raising awareness of digital transformation. The program aims to develop digital government, digital economy, and digital society while enhancing the global competitiveness of Vietnamese technology companies (19).

Similarly, China has moved towards digital government change by implementing various e-government applications in all government sectors. As written in one of the journal articles from (20) which shows that China has made significant progress in developing digital government, although it still faces a number of obstacles. In fact, according to the UN e-government survey report, China’s e-government development level increased substantially in 2022 which ranked 43rd and became one of the countries with the highest growth rate in the world. However, when examined at the provincial level, there is still a significant gap in terms of digital government development. According to the Research Report on China’s Digital Government Development (2021), China’s provincial digital government development index shows a gradient distribution of leading, high-quality, characterized, developing, and catching up. However, when compared with regions such as Shanghai, Zhejiang, and Beijing, some provinces are still quite far behind. This change in the digital transformation of government in China is itself driven by a combination of technological, organizational, and environmental measures (20,21).

Then, digital government reform also occurs in Middle Eastern countries, especially in the Government of Saudi Arabia which stands out with digital government changes because the Government of Saudi Arabia has very ambitious policy goals in the field of

e-government. Based on (22,23), the Saudi Arabian government has a goal of turning its country into an open world-class information society to the public around the clock, seven days a week. In addition, they want to see an increase in the Kingdom's overall productivity. The Saudi government has emphasized that the needs of citizens should be the top priority in e-Government development (22). A national policy proposal titled 'Proposed Framework for Quality Assessment of E-Government Portals in Saudi Arabia' was submitted in 2019. This translates the concept of digital government reform into one aspect of public administration development (22,24).

The proposal is also similar to the digital government plan in Japan, where in January 2018, the Japanese Cabinet decided on its first proposal to issue a "Digital Government Action Plan". Then, in 2019, Japan issued "AI Strategy 2019 AI for Everyone: Society, Industry, Regions, and Government" published by the Integrated Innovation Strategy Promotion Council. The government also began to turn to algorithmic governance, as society "undergoes a major transition through digital transformation" and "one of the main driving forces" of this transition is artificial intelligence (Decision of the Integrated Innovation Strategy Promotion Council, 2019). Therefore, it proposed one of its initiatives to promote "Digital governance in the AI era" (25).

In addition to these countries, there are also other countries, such as South Korea, Singapore, Indonesia, and Malaysia. One of the studies researched by academics from South Korea, namely (26) explains that South Korea is one of the countries recognized as a leading country in the world in the fields of information and communication, informatization, e-Government, and digital government. Significantly, South Korea has achieved one of the most significant leaps in digital government in the last 50 years. This achievement cannot be separated from the tremendous development of information and communication technology (ICT). As a result, South Korea ranked first in the world three times in a row in the UN e-Government Survey in 2010, 2012, and 2014. These fruitful results were possible due to the development of ICT infrastructure that involved implementing high-speed information and communication systems and communication networks in the shortest possible time. The South Korean government also redesigned administrative processes by utilizing information technology and transformed administrative processes by seeking total government transformation. In 2019, digital government innovation emphasized face-to-face identity verification and face-to-face service delivery, which was promoted under the Moon Jae-In Administration as a form of initiation and response to the Covid-19 situation at that time. There were

also proposals related to the national strategy for artificial intelligence and the national strategy for smart cities (26–28).

Similarly, Singapore is one of the leaders in digital government in Asia with the Smart Nation initiative launched in 2014 which aims to integrate digital technology in all aspects of life including government. One of the things that emerged was the smart city, which was initiated as a trendy political ideal that was widely adopted as a vision for massive development in many countries (27). However, the development of smart cities is not a new or novel phenomenon. Although the initiation of smart cities has been around for a long time, the emergence of smart cities at the turn of the 21st century brings up two perspectives: from the perspective of urban policy and planning, the development of smart cities is the result of technological pushes that generate new levels of innovation capabilities and demand pulls from cities that seek to address issues related to e-commerce, efficiency, and sustainability (29). From an economic perspective, the growth of smart cities in the context of the United States is expected to be driven by the high concentration of human capital in these cities, creating a pull factor for student migration to pursue high-quality education, as many large cities in the United States are also centers of higher education (30).

In addition, Indonesia is one of the countries in Asia that has begun to transform government towards digital by launching “Visi Indonesia Digital (VID) 2045”. However, based on the results of research (8) explained that the development of digital government in Indonesia is still not optimal. This is evidenced by data in 2020, when the e-Government Development Index (EGDI) ranking. Indonesia was in 88th position in the global ranking of United Nations (UN) member data and was in 7th position among ASEAN countries. From these data, it can be said that digitalization in Indonesia is still relatively lagging behind compared to other ASEAN countries. The existence of several differences in the development of digital government in the two examples of research then encouraged researchers to see the many other findings in several other countries in Asia and see what things are different in the development of digital government in these Asian countries.

This is also the same in neighboring Malaysia, which in Malaysia has also begun to launch its government system towards digital government. As researchers found in a study from (31) which examines digital government, the results of the study say that it is not easy to escape from the old government system, but even so, the state still needs to establish a government system towards digital-based government. This digital government system is certainly not easy to follow because it requires many changes in

various matters, including in governance and administration. Successfully implementing modernization and fulfilling the latest direction of citizen-centric digital government also requires Comprehensive guidelines for successful implementation. One of the initiatives launched by the Malaysian Government is MyGov Mobile which is an application that provides easy access to various government services and the launch of the Malaysia Digital Economy Blueprint (MyDIGITAL) in 2021 as a form of digital economic progress and digital transformation of government. MyDigital is also available in a smartphone version called MyDigital ID, where MyDigital ID is a single sign-on for the public to access public services and make transactions for a service. So this makes it quite easy for the public to interact with the government and public services (32,33).

The importance of adaptation to changes in the strategic environment aims to address and adjust and select the values of internal and external changes that are conducive to the development of government organizations (Development Organization). If the government system is less responsive to demands and changes both internally and externally sourced organizations accompanied by a red type in the bureaucracy, it will lead to the proliferation of government bureaucratic pathology (1). This also applies to changes in digital government or digital government, where changes in government are very necessary to be made, because over time the government system will continue to change in accordance with technological developments in the world and existing countries must follow these changes to provide more optimal results in implementing the government system. This also applies to Asian countries, where several countries in Asia have adopted various digital government initiatives to improve efficiency, transparency, and accessibility of public services. However, many Asian countries have yet to implement or move towards digital government modernization. While each country has its own unique approach, they all aim to utilize digital technology to create a more responsive and innovative government.

5. CONCLUSION

The research identifies that the transformation towards digital government in Asia has shown a positive trend in the last 20 years. Countries such as Vietnam, China and South Korea have made significant progress in adopting digital technologies to improve government efficiency and transparency. However, there is still a significant digital divide within and between countries. Key challenges include policy adaptation, infrastructure

readiness, and the development of human resources capable of supporting digital transformation. While various initiatives have been launched, the successful implementation of digital government depends largely on responsiveness to technological change and societal needs. Further research is needed to examine the key factors that influence the implementation and success of digital governance in various countries, with a particular focus on countries that are still lagging behind in digital transformation. The results of this study are expected to provide insights for policymakers in designing effective strategies to overcome the challenges in implementing digital government.

5.1. Study Limitations

As a literature study-based study, this research has limitations in generalizing the results. The analysis was conducted based on relevant secondary sources, but did not involve empirical data directly. Therefore, the results and recommendations of this study are more theoretical and conceptual in nature, so they have the potential to not fully reflect real conditions in the field. In addition, not all changes to the digital government system can be analyzed in depth due to the limited scope of this study. This study is also limited in terms of geographical focus on countries in the Asian region and most of the literature analyzed comes from a global context, so the local context in certain regions in Asian countries has the potential to be further studies that need to be examined.

5.2. Policy Recommendations

Based on the research results that have been explained regarding digital government reform in countries in the Asian region, a spatial approach is needed that is based on good, accurate, and complete evidence of data, information, and knowledge, technology and information development scenarios, and clear systems according to digital development plans and environmental carrying capacity. So that it is necessary to have parameters for the implementation and assessment of the government towards digital development in the public service system by increasing the capacity of human resources, especially in the functions of programmers and operators which are balanced with adequate fiscal resources and infrastructure; development of digital applications and programs that are able to translate the National Development Planning System effectively, efficiently, and sustainably; integration of all digital government application systems so that users only need to enter data once; the digital government system must

be accessible to all types of available digital platforms; and adoption of information security standards in all digital government systems to ensure the security of user data.

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