

ARTICLE

Mapping the Evolution of E-Government in ASEAN: A Bibliometric Analysis (2011–2024)

Faturachman Alputra Sudirman^{1*} and Syamsul Alam²

¹Government Science Study Program, Universitas Halu Oleo, Kendari, Indonesia

²Public Administration Study Program, Universitas Halu Oleo, Kendari, Indonesia

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ABSTRACT

The rapid digital transformation of governance has become a critical policy agenda across the globe, with ASEAN countries emerging as important laboratories for E-Government adoption. The regional diversity highlights the need to understand how digital governance evolves within Southeast Asia. This study analyses research trends and patterns related to E-Government in the ASEAN region from 2011 to 2024 using a bibliometric approach. Despite being central to digital government transformation in enhancing administrative functions and public engagement, the adoption of E-Government in ASEAN still faces persistent challenges, including the digital divide, limited ICT infrastructure, and political-economic disparities. Through bibliometric analysis of Scopus-indexed publications, this study examines the growth of research outputs, identifies leading contributors among researchers and institutions, and explores evolving thematic trends in the field. Findings reveal that Thailand, Malaysia, and Indonesia dominate the scholarly landscape. Furthermore, recent studies have increasingly shifted from focusing on technical implementation to addressing broader issues such as socio-economic impacts, international trade, and governance reforms. The results underscore the importance of policy measures that promote digital inclusion and enhance technological literacy. Strengthening transparency and building public trust emerge as crucial components of successful E-Government initiatives. For future research, the study recommends more focused case studies across ASEAN countries and further investigation into the effects of digital policies on key sectors like education and healthcare. This study is limited to English-language publications in Scopus; subsequent research could incorporate a wider range of data sources to provide a more inclusive regional perspective.

A. INTRODUCTION

E-Government in the ASEAN region represents a strategic initiative to enhance governance, economic growth, and citizen engagement through digital transformation. The implementation of E-Government systems in ASEAN countries has become a priority for improving public administrative efficiency, strengthening transparency, and supporting regional economic integration. However, the adoption of E-Government remains uneven across ASEAN member states due to various factors, including political stability, financial capacity, and education levels.

* Corresponding Author

Email : fatur@uho.ac.id

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Pusjar SKPP-Lembaga Administrasi Negara, Indonesia.

Despite notable progress in E-Government implementation across several ASEAN nations, significant challenges persist in maintaining and improving its effectiveness. Some of the key barriers include the digital divide, limited information and communication technology (ICT) infrastructure, and disparities in human resource readiness (Ha & Chuah, 2023; Kunasegaran et al., 2024; Roengtam et al., 2017). Additionally, political stability plays a crucial role in determining the success of E-Government, as a stable political environment tends to foster greater citizen satisfaction and engagement with government services (Canini & Yu, 2020).

The digital divide in ASEAN underscores the fact that, despite advancements in E-Government implementation, many countries continue to face challenges in sustaining these initiatives. Financial support for ICT infrastructure remains a critical aspect, with central governments and international donors playing a significant role in facilitating the adoption of E-Government (Apriliyanti et al., 2021).

Existing literature on E-Government in ASEAN has primarily concentrated on country-specific case studies, policy evaluations, or the sectoral impacts of digital initiatives (Ha & Chuah, 2023; Haqqoni & Pramana, 2022; Sinpeng, 2020; Sinpeng & Koh, 2023; Sombatpoonsiri & An Luong, 2022; Sukarno & Nurmandi, 2023; Tan et al., 2022; Wijayanto et al., 2022). While these studies offer valuable insights into national experiences and contextual challenges, they often lack a broader regional perspective. Consequently, there is limited understanding of how E-Government discourse in ASEAN has evolved—what dominant themes have emerged, which countries and institutions have led scholarly contributions, and where critical research gaps remain.

To date, only a small number of studies have employed bibliometric analysis to capture long-term research trends across the region. This methodological gap underscores the need for a more systematic and comparative approach. Using bibliometric techniques, it is possible to map the intellectual landscape of E-Government research in ASEAN, track the evolution of key topics, and identify areas that remain underexplored.

Therefore, this study aims to systematically map E-Government research in ASEAN from 2011 to 2024 using bibliometric analysis to identify key trends, research gaps, and policy implications. While some prior studies have explored the factors influencing E-Government, few have adopted a bibliometric lens to evaluate long-term patterns at the regional level.

This study contributes by offering a comprehensive mapping of scholarly discourse through the application of advanced bibliometric techniques, including keyword co-occurrence clustering, temporal trend analysis, and density visualisation. These tools facilitate a nuanced understanding of how academic conversations have evolved from foundational issues, such as governance and infrastructure, toward emerging topics like trust, digital inclusion, and cross-border policy alignment. The finding is intended to support future research and policymaking, promoting and fostering inclusive and sustainable digital governance throughout the ASEAN region.

B. LITERATURE REVIEW

Factors Influencing E-Government Adoption in ASEAN

A range of political, economic, and social factors shapes the adoption and development of E-Government across ASEAN countries. Chu & Guo (2019) demonstrated that these dimensions are not only relevant in shaping national digital agendas but also determine the pace and sustainability of digital reforms. Political will and stability, for instance, create an enabling environment for consistent policy implementation and long-term investments in digital governance. At the same time, instability often leads to fragmented or short-lived initiatives. Additionally, financial capacity and educational attainment significantly impact a country's ability to pursue digital transformation effectively. Munga and Mbi (2020) argue that

sufficient financial resources enable governments to invest in advanced technological infrastructures and human resource training. At the same time, higher levels of education enhance citizens' digital literacy, which is critical for the widespread adoption of E-Government services. From an economic perspective, E-Government initiatives have shown measurable impacts on private sector productivity and national economic growth. [Hart and Kalman \(2020\)](#) emphasised that digital governance mechanisms can reduce bureaucratic inefficiencies, streamline service delivery, and improve macroeconomic indicators, such as GDP growth. This economic rationale underscores the importance of E-Government not only as a governance tool but also as a driver of economic competitiveness in a globalised digital economy.

The availability and quality of ICT infrastructure also consistently predict the success of E-Government. The availability and quality of ICT infrastructure have also emerged as consistent predictors of E-Government performance in the region ([Di et al., 2022](#); [Tan et al., 2022](#)). Additional studies from academic conferences have similarly emphasised the importance of infrastructure and skills development in Southeast Asia's digital transformation ([Ponil & Osathanukul, 2021](#); [Sunkpho et al., 2014](#)). They stress without a robust foundation in both technological capacity and human resource competence, ASEAN nations risk widening the digital divide. Therefore, the success of E-Government adoption in ASEAN rests not only on the availability of resources but also on integrated strategies that address political commitment, economic investment, ICT infrastructure, and citizen readiness. This multi-dimensional approach is essential for fostering inclusive and sustainable digital governance across the region.

Theoretical Foundations and Digital Governance Paradigms

E-government research is grounded in the broader theoretical frameworks of digital development and electronic governance, which emphasise the integration of Information and Communication Technologies (ICT) to enhance government efficiency, responsiveness, and service delivery ([Gil-Garcia et al., 2018](#)). These frameworks argue that ICT acts as both a tool and a catalyst for transforming bureaucratic structures, reducing administrative burdens, and creating more citizen-centric governance models. A central complement to this paradigm is the Open Government Data (OGD) movement, which advocates transparency, accountability, and citizen empowerment through freely accessible data platforms ([OECD, 2018](#); [Styrin et al., 2016](#)). By promoting data availability and interoperability, OGD initiatives strengthen policy innovation and intergovernmental collaboration. Scholars [Bates \(2014\)](#) and [Paneva & Kaharevic \(2023\)](#) highlight that the synergy between E-Government and OGD is particularly vital for fostering public trust and legitimacy, as it allows citizens not only to access but also to scrutinise and co-create governance processes. This theoretical foundation underscores that E-Government is more than technological adoption; it embodies a paradigm shift toward participatory, transparent, and inclusive governance.

Challenges of the Digital Divide and Need for Inclusion

Despite significant progress in digital governance, the digital divide remains a substantial barrier to the equitable implementation of e-government across ASEAN. This divide is most visible through unequal access to digital infrastructure and services among different socio-economic groups, which hinders participation and reinforces structural inequalities ([Dwi Wahyunengseh et al., 2020](#); [Wihlborg et al., 2021](#)). The concept of digital inclusion, defined as both access to technology and the capacity to use it effectively, is therefore increasingly acknowledged as a prerequisite for sustainable E-Government strategies ([Wihlborg et al., 2021](#)). Without comprehensive digital literacy programs, citizens remain excluded from fully engaging with digital platforms, limiting the effectiveness of government initiatives. To

address this, governments and civil society in ASEAN have launched various initiatives, ranging from capacity-building programs to digital literacy campaigns, particularly targeting marginalized groups (Kusumastuti & Nuryani, 2020; Puspitasari et al., 2022). These efforts underscore that bridging the digital divide requires not only infrastructure investment but also inclusive policies that empower all citizens.

While the literature offers rich insights into national-level implementation, most existing studies rely on case studies and policy evaluations, lacking a comparative or regional analytical lens. Few studies have systematically examined how E-Government research trends have evolved across ASEAN over time. In contrast, this study employs a bibliometric approach to provide a longitudinal, region-wide perspective on scholarly developments in E-Government. By mapping publication trends, thematic clusters, and institutional contributions, this research addresses a significant gap in the literature and offers a novel contribution to digital governance scholarship in Southeast Asia. Bibliometric works focusing on global contexts (Napitupulu & Yakub, 2021) further highlight the lack of region-specific syntheses within the ASEAN setting.

C. METHOD

This study employs a bibliometric approach to analyse research trends, collaboration patterns, and the evolution of E-Government studies in the ASEAN region over the period 2011-2024. The bibliometric method was selected for its ability to uncover conceptual relationships, track thematic developments, and evaluate author and institutional contributions in a systematic and reproducible manner.

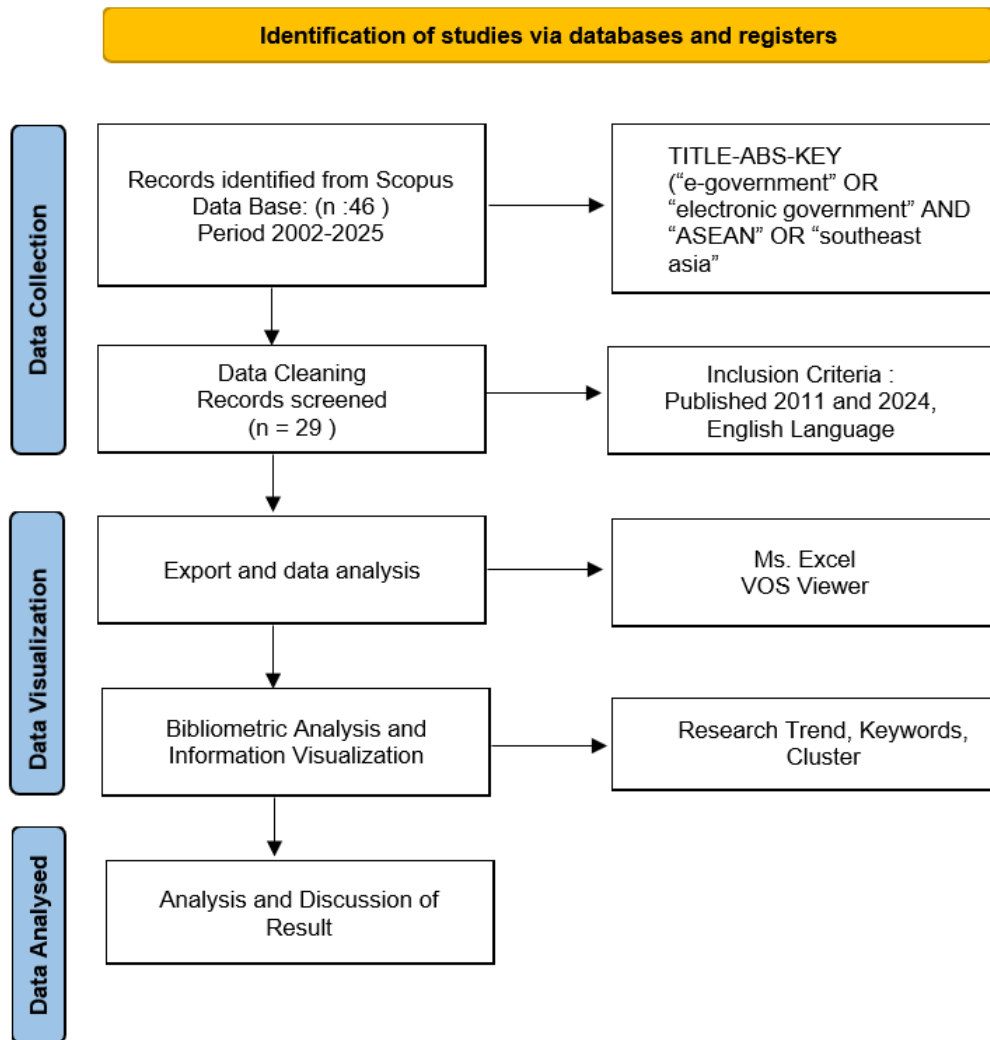
Data for this study were sourced from the Scopus database, a widely recognised resource for its extensive coverage of peer-reviewed literature. The search query is "e-government" OR "electronic government" AND "ASEAN" OR "Southeast Asia", targeting journal articles, conference papers, book chapters, and review articles. The initial search retrieved 46 documents published between 2002 and 2025.

In the next stage, inclusion criteria were applied to refine the dataset. Documents were selected if they (1) were published between 2011 and 2024, (2) were written in English, and (3) focused explicitly on E-Government in at least one ASEAN member country. This time frame was chosen for several reasons. First, 2011 marked the early consolidation of ASEAN's regional digital agenda, particularly with the launch of the ASEAN ICT Masterplan 2015, which signalled an increased regional commitment to digital governance. Second, the decade following 2011 reflects a more stable and consistent body of literature in Scopus related to E-Government in Southeast Asia. Third, it captures major shifts in public digital service development, including the acceleration of digital adoption driven by the COVID-19 pandemic and its aftermath. This period, therefore, represents both conceptual depth and policy relevance in ASEAN's digital transformation journey.

After applying these criteria and removing duplicates and irrelevant entries, 29 documents were retained for analysis. The metadata extracted included titles, abstracts, keywords, author names, affiliations, and publication years.

The bibliometric analysis was conducted using VOSviewer version 1.6.20 and Microsoft Excel for descriptive statistics. The analysis comprised several stages. First, annual publication trends were mapped to observe the volume and trajectory of research outputs. Second, contributions by authors and institutions were assessed to identify key players in the field. Third, documents were categorised by type and disciplinary focus. Thematic development was explored through keyword co-occurrence analysis, which grouped frequently used terms into clusters such as digital governance, economic impact, trust, and digital inclusion. Temporal trend analysis illustrated the evolution of the topic over time, while density visualisation identified areas of high keyword concentration, reflecting the dominant research interests.

The study followed a structured process that included data collection using a defined query, data cleaning, bibliometric mapping with VOSviewer, and data analysis. This methodological rigour enables a transparent synthesis of E-Government research trends across ASEAN, laying the foundation for future scholarly and policy-oriented studies.

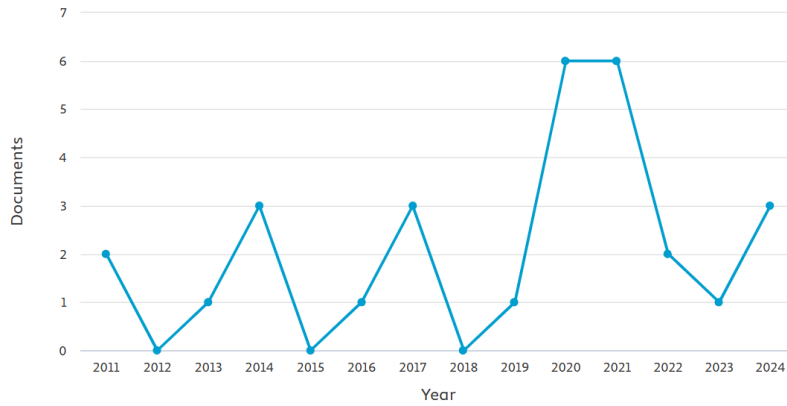


(Source: Writer, 2025)
Figure 1. Research Process

D. RESULT AND DISCUSSION

Trends in E-Government Publications in ASEAN

Figure 2 illustrates the publication trends related to E-Government in the ASEAN region from 2011 to 2024. The graph indicates that the number of published documents fluctuated throughout this period.



(Source: Scopus, 2025)

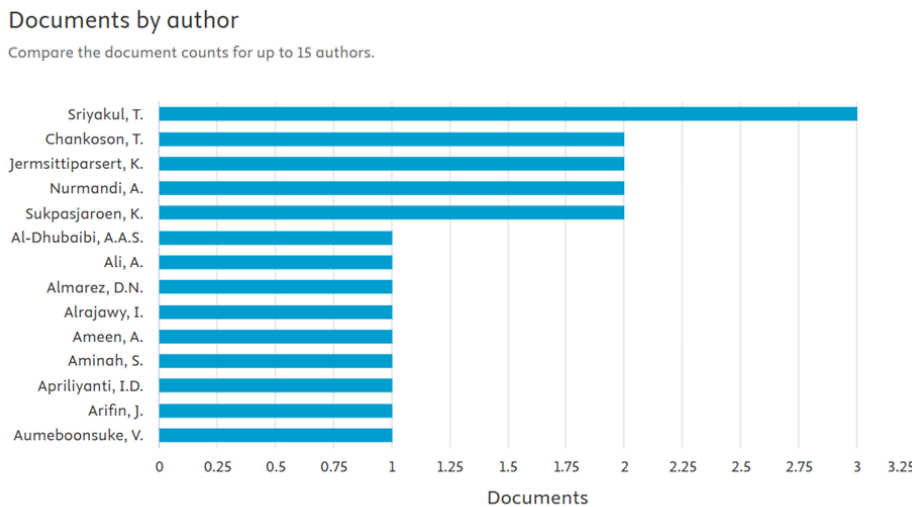
Figure 2. Trends in E-Government Research Publications in ASEAN (2011–2024)

The trajectory of E-Government research in ASEAN between 2011 and 2024 illustrates a dynamic yet uneven development. During the early years (2011–2015), scholarly attention was relatively limited, with annual outputs ranging from zero to three documents. This period marked the nascent stage of digital governance in the region, characterised by sporadic academic interest often tied to individual country case studies. A noticeable upward trend began in 2017, gaining momentum by 2019, and culminated in the peak years of 2020 and 2021, during which each recorded six publications. This surge was strongly associated with the COVID-19 pandemic, which accelerated digital transformation initiatives and spurred greater academic inquiry into governance innovation under crisis conditions.

After 2021, publication numbers declined, signalling possible saturation or shifting priorities, before showing a modest rebound in 2024. Overall, the trend underscores how E-Government research in ASEAN responds to external shocks, evolving policy agendas, and technological advancements, highlighting the field’s sensitivity to socio-political and global contexts.

Contribution of Researchers in E-Government Publications in ASEAN

Figure 3 presents the number of publications by authors contributing to E-Government research in ASEAN. The data indicate that some researchers have made more significant contributions than others.



(Source: Scopus, 2025)

Figure 3. Documents by Author

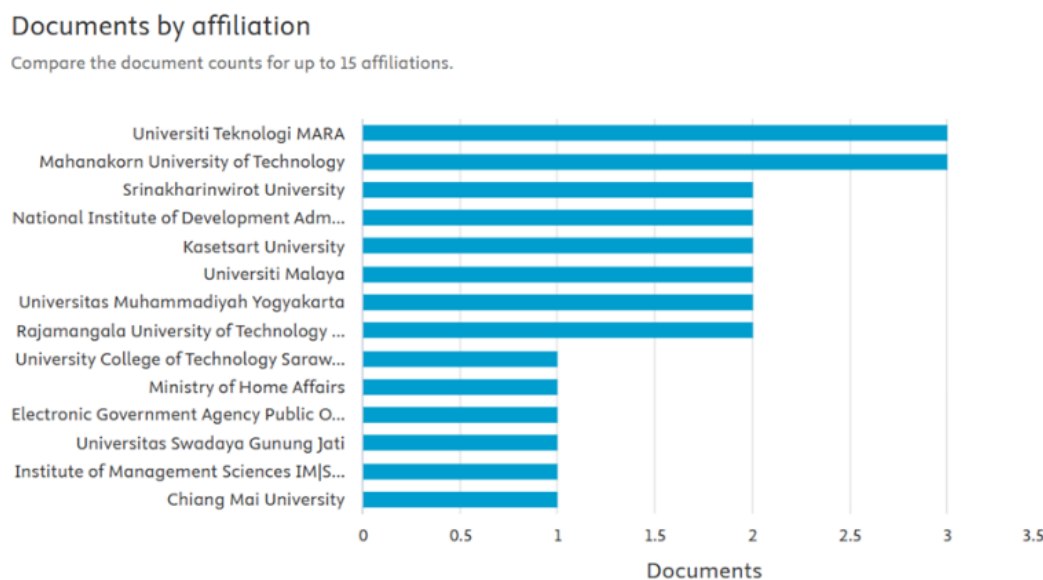
The author with the highest number of publications is Sriyakul, T., who has three publications. This is followed by Chankoson, T., Jermstittiparsert, K., Nurmandi, A., and Sukpasjaroen, K., each with approximately two publications. Other researchers, such as Al-Dhubaibi, A.A.S., Ali, A., and Almarez, D.N., have contributed only one publication.

These findings suggest that some researchers are key contributors to E-Government research in ASEAN. Their involvement may indicate the presence of research groups or networks focusing on this topic, as well as the potential for collaboration among researchers from various institutions or countries within the region.

Institutional Contribution to E-Government Research in ASEAN

Figure 4 illustrates the distribution of documents based on institutional affiliations contributing to E-Government research in ASEAN. Several key institutions with high publication output include Universiti Teknologi MARA (Malaysia) and Mahanakorn University of Technology (Thailand), both of which have the highest number of publications, each contributing more than three documents.

Other institutions, such as Srinakharinwirot University, National Institute of Development Administration, Kasetsart University, and Universiti Malaya, have also made significant contributions, each with more than two publications. Meanwhile, Universitas Muhammadiyah Yogyakarta (Indonesia), Rajamangala University of Technology (Thailand), and several other institutions have contributed a smaller number of publications, ranging from one to two.



(Source: Scopus, 2025)

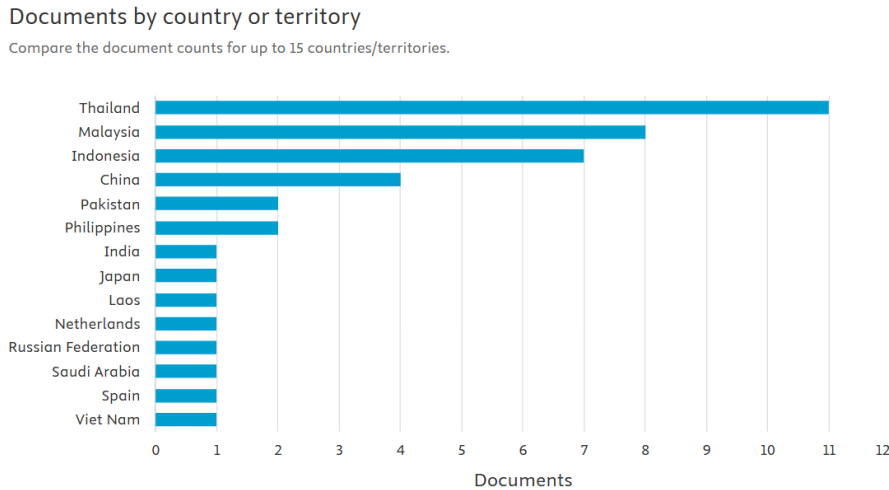
Figure 4. Documents by affiliation

This distribution indicates that the majority of publications originate from institutions based in Malaysia, Thailand, and Indonesia. This suggests that universities and institutions in ASEAN predominantly lead E-Government research, particularly from countries experiencing rapid digital government transformation.

Distribution of E-Government Research by Country

Figure 5 illustrates the distribution of E-Government research outputs by country of origin, providing valuable insights into the regional dynamics of scholarly contributions. The analysis

reveals that Thailand is the most prolific contributor, with over 11 documents. This strong presence suggests that Thailand has positioned itself as a hub for academic inquiry into digital governance, likely driven by sustained government initiatives, robust ICT infrastructure, and a growing network of universities engaged in governance and technology research. Malaysia follows with approximately eight publications, reflecting the country’s progressive digital government strategies, such as the Malaysia Digital Economy Blueprint, which have spurred interest in evaluating their policy impact. Indonesia ranks third, with around seven publications, reflecting growing scholarly attention to its ambitious e-government reforms and ongoing challenges related to digital inclusion and institutional readiness.



(Source: Scopus, 2025)

Figure 5. Documents by Countries

Interestingly, the dataset also highlights contributions from non-ASEAN countries such as China and Pakistan. Although their numbers are relatively small, their inclusion underscores the transnational nature of digital governance research and its relevance to ASEAN’s regional development. Other countries, including the Philippines, India, Japan, and Laos, have contributed fewer documents but play a role in fostering cross-country comparisons and international collaboration.

Overall, the distribution confirms that Thailand, Malaysia, and Indonesia function as the three principal hubs of E-Government research in Southeast Asia. Their leadership can be attributed to a combination of enabling policies, technological advancement, and active academic communities. This pattern reflects how national priorities and collaborative networks drive scholarly productivity in the evolving field of digital governance.

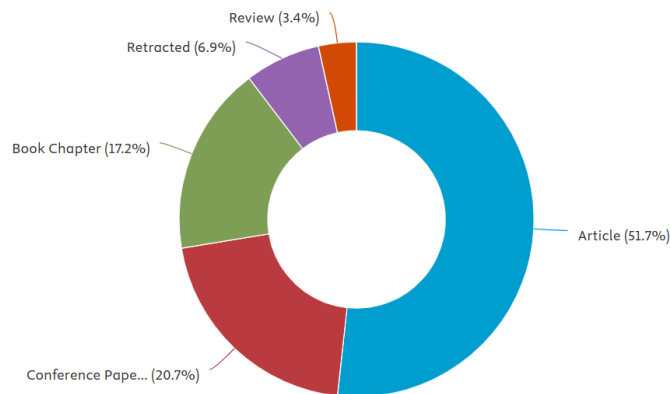
Types of Documents in E-Government Research in ASEAN

Figure 6 provides an overview of the types of documents produced on E-Government research in ASEAN, highlighting the diverse channels through which scholarly knowledge is disseminated. The analysis reveals that journal articles are the most prevalent, accounting for 51.7% of the total. This dominance underscores the centrality of peer-reviewed journals as the primary platform for academic dissemination, ensuring that findings on E-Government are scrutinised through rigorous editorial and peer review processes. Such outlets not only enhance the credibility of the research but also facilitate international visibility and scholarly exchange.

Conference papers represent the second most common document type, making up 20.7% of the total. Their presence indicates that E-Government is a recurring subject of debate in academic forums, where researchers can share preliminary results, exchange ideas, and receive

feedback that often leads to more refined journal publications. Meanwhile, book chapters (17.2%) reflect the integration of E-Government research into broader edited volumes, offering more contextual or thematic explorations that may not be suited for journal-length articles.

Documents by type



(Source: Scopus, 2026)

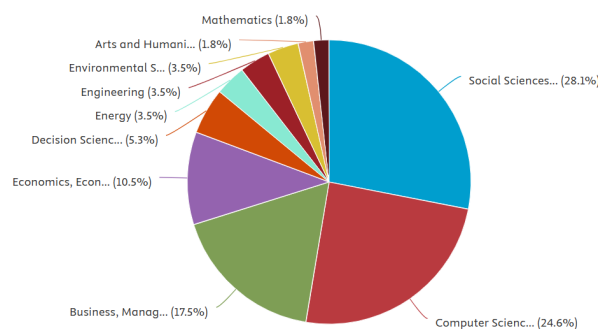
Figure 6. Documents by Type

Interestingly, the dataset also includes retracted documents (6.9%), which, though relatively small, raise important considerations about methodological rigour, ethical standards, and data reliability within the field. Lastly, review articles account for only 3.4%, suggesting that systematic syntheses of existing scholarship remain limited. This scarcity presents an opportunity for future scholars to conduct more integrative reviews, which could consolidate fragmented findings and provide a stronger theoretical foundation for the field. Overall, the distribution highlights a research domain that remains primarily driven by journal outputs, yet with ample space for broader syntheses and critical reflection.

Research Fields in E-Government Studies in ASEAN

Figure 7 illustrates the distribution of E-Government research based on academic discipline. The dominant research field is Social Sciences (28.1%), which serves as the primary domain for E-Government studies, given its focus on public policy, governance, and societal interactions with digital technology. Computer Science (24.6%) follows, highlighting the significant interest in technological aspects and information systems related to E-Government.

Documents by subject area



(Source: Scopus, 2025)

Figure 7. Documents by subject area

Business and Management (17.5%) reflects the connection between E-Government and organisational efficiency, public service delivery, and data management and digital innovation. Economics (10.5%) indicates growing attention to the impact of E-Government on economic growth, administrative efficiency, and fiscal policy. Decision Sciences (5.3%) contributes to research on policy analysis, data-driven decision-making, and E-Government implementation strategies.

Additionally, Engineering, Energy, and Environmental Science each account for approximately 3.5%, suggesting that some studies explore the relationship between E-Government, sustainability, and digital infrastructure.

This distribution demonstrates that E-Government research in ASEAN is inherently multidisciplinary, with a primary focus on social, technological, and managerial aspects. The integration of these diverse disciplines suggests that E-Government is not merely a technological implementation but also a complex socio-economic phenomenon.

Bibliometric Mapping of Topic Relationships in E-Government Research in ASEAN

Figure 8 presents a network visualisation of topic relationships in E-Government research in ASEAN. This map, generated using VOSviewer, is based on co-occurrence analysis of frequently appearing keywords in related literature. The mapping identifies several key clusters with strong interconnections, as previously observed in the cluster analysis.

Green Cluster: Digital Transformation and Trade

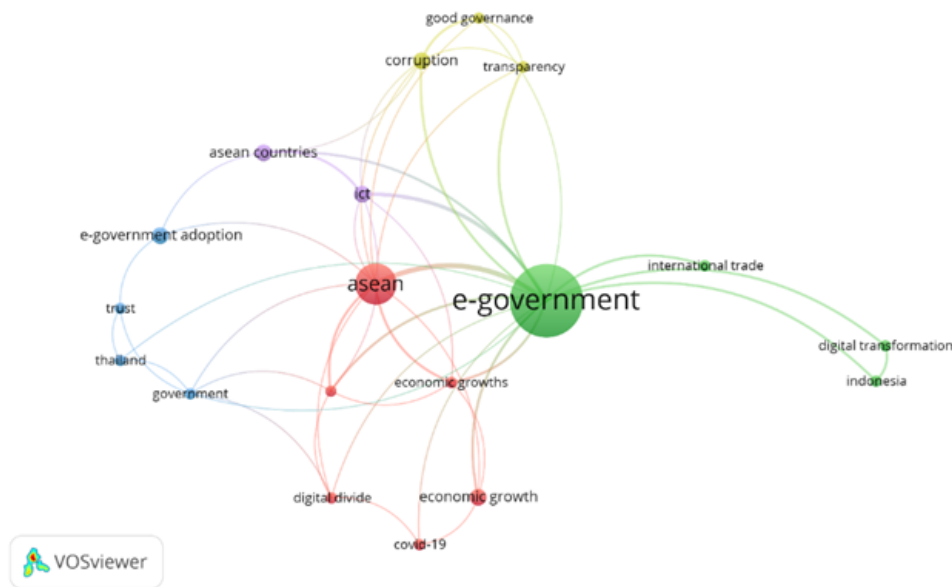
This cluster is centred around the keyword E-Government and includes research on digital transformation, Indonesia ([Aminah & Saksono, 2021](#); [Wagola et al., 2023](#)), and international trade ([Caballero, 2017](#); [Chongzhao et al., 2014](#); [Mohamed et al., 2020](#); [Yang & Wang, 2011](#); [Ying, 2011](#)). This finding suggests that the implementation of E-Government in ASEAN is closely linked to digital transformation efforts within its member states, particularly in Indonesia, and its impact on international trade.

Red Cluster: Social and Economic Issues

This cluster is centred on the keyword ASEAN. It includes studies on COVID-19 ([Sriyakul et al., 2022b](#)), digital divide ([Apriliyanti et al., 2021](#)), economic growth ([Aumeboonsuke, 2024](#); [Marimuthu et al., 2021](#); [Ponil & Osathanunkul, 2021](#); [Sriyakul et al., 2022a](#)), and information and communication technology (ICT) ([Darusalam et al., 2021](#); [Lovaxay, 2014](#); [Sunkpho et al., 2014](#)). This cluster highlights that E-Government research in ASEAN is strongly associated with economic impacts, digital inequality (digital divide), and policy shifts triggered by the COVID-19 pandemic.

Blue Cluster: Adoption and Public Trust

This cluster encompasses research on E-government adoption in Thailand, focusing on trust ([Boonratmaitree et al., 2020](#); [Ratnawati et al., 2020](#); [Sulistyowati et al., 2020](#)). The findings suggest that research in this area frequently explores factors influencing the adoption of E-Government, particularly in Thailand, as well as the role of public trust in the success of E-Government initiatives.



(Source: VOSviewer, 2025)
Figure 8. Network Visualization

Yellow Cluster: Good Governance

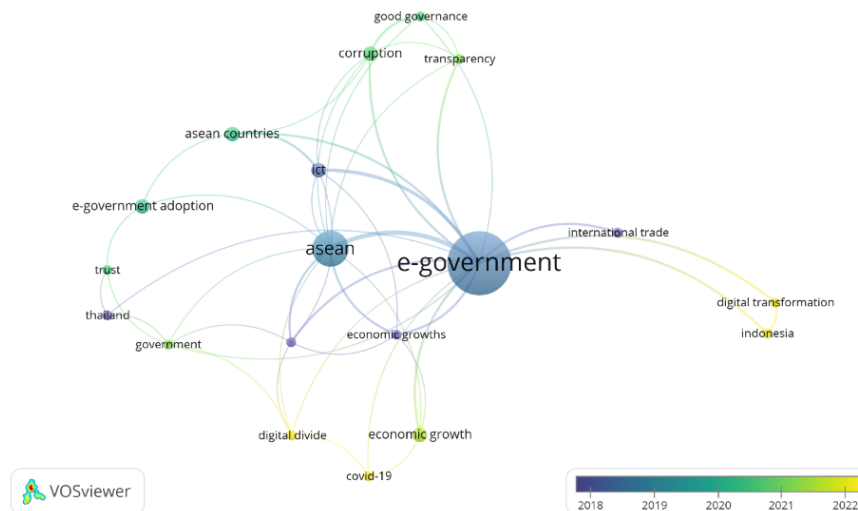
This cluster includes studies on good governance, transparency, and corruption (Darusalam et al., 2021; Hartani et al., 2020b; Rubasundram & Rasiah, 2019; Sriyakul et al., 2022b; Sriyakul & Jermstiparsert, 2020). The research within this cluster indicates that E-Government implementation is widely studied for its role in enhancing transparency, reducing corruption, and promoting more effective governance.

Purple Cluster: Digital Infrastructure in ASEAN

This cluster consists of research on ASEAN countries and Information Communication Technology (ICT) (Boonratmaitree et al., 2020; Darusalam et al., 2021; Hartani et al., 2020a; Ismail, 2024; Mohamed et al., 2020; Ratnawati et al., 2020; Roengtam et al., 2017). It highlights the significance of digital infrastructure in facilitating government transformation throughout the ASEAN region.

Temporal Mapping of E-Government Research Trends in ASEAN

Figure 9 presents a time-based bibliometric mapping (temporal mapping) of E-Government research in ASEAN. This map illustrates the evolution of research topics from 2018 to 2022, using a colour gradient in which blue represents earlier topics (2018–2019) and yellow represents more recent topics (2021–2022).



(Source: VOSviewer, 2025)
Figure 9. Overlay Visualization

Earlier Research Topics (2018–2019)

Topics that dominated the early phase of E-Government research in ASEAN (marked in blue) include. ASEAN and E-Government have been central themes from the beginning. Economic growth and economic growths, indicating that early research primarily focused on the impact of E-Government on economic development. Trust and E-Government adoption, suggesting that discussions on trust and the factors influencing technology adoption had already emerged during this period.

Intermediate Research Topics (2020)

During this period (marked in cyan-green), research began to shift towards Good governance, transparency, and corruption, reflecting an increasing focus on how E-Government can enhance governance and reduce corruption. ICT and ASEAN countries, highlighting the growing emphasis on technological infrastructure as a critical enabler for E-Government implementation.

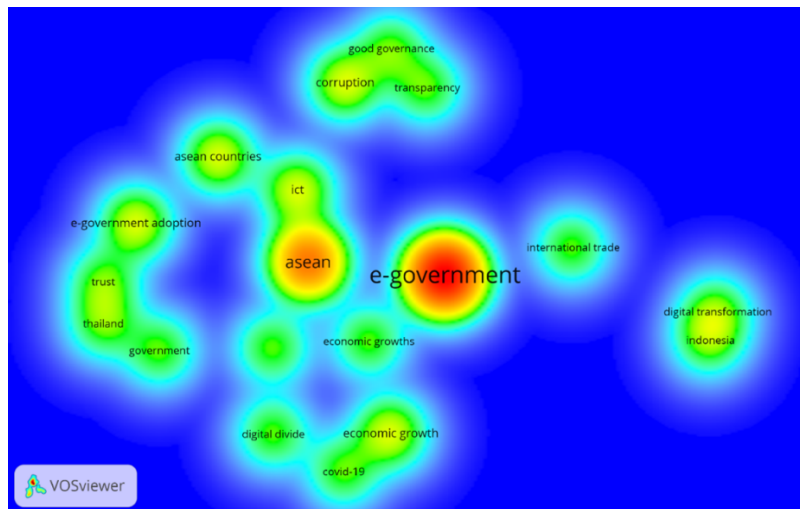
Recent Research Topics (2021–2022)

More recent topics (marked in green to yellow) include Digital transformation and Indonesia, indicating that the latest research focuses on digital transformation, with Indonesia serving as a key case study. International trade suggests an increasing interest in the link between E-Government implementation and its impact on global trade. The digital divide and COVID-19 reflect rising concerns about unequal access to digital services, which the COVID-19 pandemic has exacerbated.

This temporal mapping provides valuable insights into the shifting focus of E-Government research in ASEAN, illustrating how the field has evolved in response to technological advancements, governance challenges, and global events.

Density Visualisation in E-Government Research in ASEAN

Figure 10 presents the density visualisation of frequently occurring terms in E-Government research in ASEAN. The colours in this visualisation represent the density of term occurrences in the relevant literature, with red indicating the most frequently occurring terms, followed by yellow and green. In contrast, blue areas represent terms of lower density.



(Source: VOSviewer, 2025)
Figure 10. Density Visualization

Core Research Areas (Red Zone)

Terms appearing in the red zone represent the most frequently discussed topics in E-Government research in ASEAN. The two key terms with the highest density are: E-Government, as the central theme of research in this domain. ASEAN, indicating that research is primarily focused on E-Government implementation within the Southeast Asian regional context. ICT (Information and Communication Technology) also emerges as a highly dense topic, emphasising technological infrastructure as a fundamental component of E-Government implementation.

Moderately Frequent Topics (Yellow Zone)

Terms in the yellow zone represent topics that appear relatively frequently but are not as dominant as the core research themes. Some of these include the Digital divide, highlighting disparities in digital access among ASEAN countries. Economic growth and economic growths, indicating that E-Government research is often linked to its impact on economic development. Corruption, good governance, and transparency, reflecting the role of E-Government in enhancing transparency and governance practices.

Emerging Research Topics (Green Zone)

The green zone marks topics that appear less frequently but are part of emerging research trends. Some of these include E-Government adoption and trust, indicating growing interest in factors influencing public acceptance and trust in E-Government. Digital transformation in Indonesia is reflected in the increasing number of case studies on E-Government implementation. International trade suggests that research is beginning to explore the link between E-Government and global trade dynamics.

This density visualisation provides a comprehensive overview of the intensity of various research topics within the field of E-Government in ASEAN, offering insights into both dominant themes and emerging areas of interest.

Discussion

The findings of this study confirm that E-Government research trends in ASEAN have undergone dynamic development from 2011 to 2024. Overall, there has been a significant increase in the number of publications related to E-Government in the region, particularly in 2020 and 2021, which can be attributed to the growing need for digitalisation in public services

due to the COVID-19 pandemic. These findings align with the study by [Young & Yin \(2020\)](#), which states that Open Government Data (OGD) and E-Government play a crucial role in enhancing transparency and citizen engagement in the digital era.

However, this analysis also reveals that despite the increase in research output, disparities remain in the implementation of E-Government across ASEAN member states. Countries such as Thailand, Malaysia, and Indonesia dominate the publication landscape. In contrast, nations with limited technological infrastructure, such as Laos and Cambodia, continue to face challenges in effectively adopting E-Government. This finding supports the conclusions of [Apriliyanti et al., \(2021\)](#), who identified the digital divide as a significant barrier to the equitable implementation of E-Government in ASEAN.

From a theoretical perspective, this study reinforces the relevance of digital development theory, which emphasises that Information and Communication Technology (ICT) infrastructure serves as a primary driver of digital government transformation ([Di et al., 2022](#); [Tan et al., 2022](#)). Moreover, this study identifies a shift in research focus from 2018 to 2022—from merely discussing technological implementation to exploring the social and economic impacts of E-Government. For instance, recent research increasingly highlights how E-Government adoption enhances private sector efficiency and contributes to economic growth ([Hart & Kalman, 2020](#)).

Moreover, the findings of this study highlight that political dynamics and the stability of governmental institutions are pivotal determinants in the effective implementation of E-Government across ASEAN member states. [Canini & Yu \(2020\)](#) and [Roengtam et al., \(2017\)](#) emphasise that political stability enhances citizens' satisfaction with digital government services. Keyword clustering analysis reveals that in recent years, E-Government research in ASEAN has increasingly focused on public trust and good governance. These findings are consistent with [Sriyakul & Jermstittiparsert \(2020\)](#), who argue that E-Government implementation can improve transparency and reduce corruption if supported by adequate policies.

In the context of technology adoption, this study highlights the importance of digital literacy and human resource capacity in enhancing the effectiveness of E-Government. This finding aligns with [Munga & Mbi \(2020\)](#), who assert that education levels and financial capacity are key determinants of successful E-Government adoption. As an implication, policy strategies should not only focus on providing technological infrastructure but also emphasize digital skill development among citizens to ensure the optimal utilisation of E-Government services.

Overall, this study confirms that E-Government in ASEAN faces not only technological challenges but also social, economic, and political obstacles. Therefore, E-Government development strategies must incorporate these multidimensional factors to achieve sustainability and deliver broader societal benefits. The findings of this study also provide directions for future research, particularly in exploring how digital policies can be tailored to the unique characteristics of each ASEAN country to achieve more equitable digital integration across the region.

Implications of Bibliometric Mapping

The results of this bibliometric mapping indicate that E-Government research in ASEAN is not solely focused on technological aspects but also encompasses various social, economic, governance, and public trust dimensions. The dominance of terms such as economic growth, digital divide, and trust reinforces the fact that E-Government implementation in the region continues to face challenges related to accessibility gaps and societal acceptance. By understanding this network structure, researchers can identify underexplored research

opportunities and develop more effective solutions for E-Government implementation in ASEAN.

Overlay visualisation mapping reveals that E-Government research in ASEAN has evolved from general topics on governance and economic growth (2018–2019) to more specific issues such as digital transformation, the impact of COVID-19, and international trade (2021–2022). This trend suggests a growing focus on adapting technology in government policies and its broader implications across various sectors.

The findings from density visualisation show that E-Government research in ASEAN remains heavily concentrated on Information and Communication Technology (ICT), governance, and economic impact. However, emerging topics such as public trust, technology adoption, and the relationship between E-Government and international trade are gaining greater attention in recent studies.

These density patterns can serve as a guideline for identifying potential new research directions that remain underexplored. For instance, social and ethical impacts of E-Government, as well as more specific policy approaches tailored to individual ASEAN countries, present opportunities for further development.

E. CONCLUSION

This study was conducted to fill the gap in the regional-level understanding of how E-Government research has developed across ASEAN. Using bibliometric analysis of Scopus-indexed publications from 2011 to 2024, the research systematically mapped scholarly output, institutional contributions, and evolving thematic patterns. By doing so, the study transcended the limitations of prior works, which primarily focused on single-country case studies or sector-specific evaluations. Instead, it provided a comprehensive view of ASEAN as a region undergoing dynamic digital transformation.

The findings revealed that E-Government research in ASEAN has grown steadily, with Thailand, Malaysia, and Indonesia emerging as leading contributors in terms of publication volume and institutional engagement. Thematic clustering highlighted a noticeable shift in research emphasis; earlier studies prioritised foundational issues such as ICT infrastructure, system adoption, and technical implementation, while more recent works increasingly address trust, digital inclusion, and governance reforms. This transition highlights that digital governance in Southeast Asia encompasses not only technology but also societal acceptance, equity, and institutional capacity.

From a policy perspective, the results emphasise that effective E-Government strategies must prioritise digital literacy, sustainable infrastructure investment, and mechanisms to build public trust. Regional collaboration offers an additional pathway for harmonising standards, facilitating knowledge exchange, and addressing common challenges such as interoperability and cyber resilience. For the academic community, this study provides a baseline for comparative research, highlighting opportunities to explore underrepresented themes, including cross-border interoperability, ethical applications of artificial intelligence in public administration, and sector-specific digital transformations in areas such as health, education, and trade.

Future research should broaden its scope by incorporating non-English publications and grey literature to capture more localised experiences and insights. Additionally, blending bibliometric findings with qualitative approaches such as interviews with policymakers, practitioners, and citizens can enrich the understanding of both opportunities and barriers to E-Government adoption. Ultimately, the study highlights the need to adopt a multidimensional and inclusive promote approach to advance sustainable and equitable digital governance throughout ASEAN.

REFERENCES

- Aminah, S., & Saksono, H. (2021). Digital Transformation of the Government: A Case Study in Indonesia. *Jurnal Komunikasi: Malaysian Journal of Communication*, 37(2), 272–288. <https://doi.org/10.17576/JKMJC-2021-3702-17>
- Apriliyanti, I. D., Kusumasari, B., Pramusinto, A., & Setianto, W. A. (2021). Digital Divide in ASEAN Member States: Analyzing the Critical Factors for Successful E-Government Programs. *Online Information Review*, 45(2), 440–460. <https://doi.org/10.1108/OIR-05-2020-0158>
- Aumeboonsuke, V. (2024). Digital Convergence and Divergence in EU and ASEAN Economies. *Economics - Innovative and Economics Research Journal*. <https://doi.org/10.2478/eoik-2025-0002>
- Bates, J. (2014). The Strategic Importance of Information Policy for the Contemporary Neoliberal State: The Case of Open Government Data in the United Kingdom. *Government Information Quarterly*, 31(3), 388–395. <https://doi.org/10.1016/j.giq.2014.02.009>
- Boonratmaitree, A., Yodsurang, S., Thongrawd, C., & Jermstittiparsert, K. (2020). The Influence of E-Government Adoption and Political Stability on Levels of Happiness: A Panel Study of ASEAN Countries. *International Journal of Innovation, Creativity and Change*, 12(11), 360–374.
- Caballero, I. M. (2017). Connectivity, Interoperability, and Regional Integration of the ASEAN Trademark and Design Systems. In *International Intellectual Property and the ASEAN Way: Pathways to Interoperability*. <https://doi.org/10.1017/9781316711606.017>
- Canini, D. B., & Yu, W. Y. (2020). Influence of E-Government Adoption and Political Stability – A Detailed Review. *Journal of Enterprise Business Management*, 24–30. <https://doi.org/10.46532/jebm.20200704>
- Chongzhao, L., Ke, J., & Hong, L. (2014). The Framework of Cross-Border Electronic Service Platform in ASEAN-China Free Trade Area. *ACM International Conference Proceeding Series, 2014-Janua*, 480–481. <https://doi.org/10.1145/2691195.2691242>
- Chu, S.-H., & Guo, S.-Y. (2019). Information and Communication Technology and International Trade: A Case of China-ASEAN Countries. *Proceedings of the 5th Annual International Conference on Management, Economics and Social Development (ICMESD 2019)*. <https://doi.org/10.2991/icmesd-19.2019.31>
- Darusalam, D., Janssen, M., Sohag, K., Omar, N., & Said, J. (2021). The Influence of ICT on the Control of Corruption: A Study Using Panel Data From ASEAN Countries. *International Journal of Public Administration in the Digital Age*, 8(1), 16–31. <https://doi.org/10.4018/IJPADA.20210101.0a2>
- Di, Y., Zhi, R., Song, H., & Zhang, L. (2022). Development and Influencing Factors of International Trade in Digitally Deliverable Services. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.908420>
- Dwi Wahyunengseh, R., Hastjarjo, S., Mulyaningsih, T., & G. Suharto, D. (2020). Digital Governance and Digital Divide: A Matrix of the Poor's Vulnerabilities. *Policy & Governance Review*, 4(2), 152. <https://doi.org/10.30589/pgr.v4i2.296>
- Gil-Garcia, J. R., Dawes, S. S., & Pardo, T. A. (2018). Digital Government and Public Management Research: Finding the Crossroads. *Public Management Review*, 20(5), 633–646. <https://doi.org/10.1080/14719037.2017.1327181>
- Ha, H., & Chuah, C. K. P. (2023). Digital Economy in Southeast Asia: Challenges, Opportunities, and Future Development. *Southeast Asia: A Multidisciplinary Journal*, 23(1), 19–35. <https://doi.org/10.1108/SEAMJ-02-2023-0023>
- Haqqoni, M. G. Al, & Pramana, S. (2022). Implementation of Marketplace Data in the Production of the Consumer Price Index in Indonesia. *Data Science*, 5(2), 79–95.

- <https://doi.org/10.3233/DS-210037>
- Hart, K., & Kalman, S. (2020). Analysis on Enhancing Private Sector Contribution in GDP through E-Government and Research in the ASEAN Region. *Journal of Enterprise Business Management*, 31–38. <https://doi.org/10.46532/jebm.20200705>
- Hartani, N. H., Cao, V. Q., & Nguyen, A. Q. (2020a). Digital Divide in ASEAN Member States: Analyzing the Critical Factors for Successful E-Government Programs. *Journal of Security and Sustainability Issues*, 9(May), 202–213. [https://doi.org/10.9770/JSSI.2020.9.M\(16\)](https://doi.org/10.9770/JSSI.2020.9.M(16))
- Hartani, N. H., Cao, V. Q., & Nguyen, A. Q. (2020b). Reducing Corruption through e-Government Adoption, Information and Communication Technology in ASEAN Countries. *Journal of Security and Sustainability Issues*, 9(May), 202–213. [https://doi.org/10.9770/JSSI.2020.9.M\(16\)](https://doi.org/10.9770/JSSI.2020.9.M(16))
- Ismail, N. A. (2024). Application of Latent Class Analysis in Identifying Digital Adoption Typologies. In *Lecture Notes on Data Engineering and Communications Technologies* (Vol. 215). https://doi.org/10.1007/978-981-97-5098-6_2
- Kunasegaran, M., Xing, Y., & Kunjiapu, S. (2024). Unveiling the Impact of the Digital Economy on Future Employment: A Comparison Study among Selected Southeast Asian Countries. *International Journal of Academic Research in Business and Social Sciences*, 14(5). <https://doi.org/10.6007/IJARBS/v14-i5/21725>
- Kusumastuti, A., & Nuryani, A. (2020). Digital Literacy Levels in ASEAN (Comparative Study on ASEAN Countries). *Proceedings of the 13th International Interdisciplinary Studies Seminar, IISS 2019, 30-31 October 2019, Malang, Indonesia*. <https://doi.org/10.4108/eai.23-10-2019.2293047>
- Lovanxay, B. (2014). ICT as One of the Critical Success Factors for an Aging Society in ASEAN: Role and Cooperation of Japan. *ACM International Conference Proceeding Series, 2014-January*, 510–511. <https://doi.org/10.1145/2691195.2691301>
- Marimuthu, M., Khan, H., & Bangash, R. (2021). Fiscal Causal Hypotheses and Panel Cointegration Analysis for Sustainable Economic Growth in ASEAN. *Journal of Asian Finance, Economics and Business*, 8(2), 99–109. <https://doi.org/10.13106/jafeb.2021.vol8.no2.0099>
- Mohamed, Z., Nadzri, F. A. A., Qureshi, S. F., Al-Dhubaibi, A. A. S., Arifin, J., & Yacob, N. (2020). Attracting Inward Foreign Direct Investment: An Analysis of E-Government Practices and Ease of Doing Business among Countries in the ASEAN Region. *Contemporary Economics*, 14(4), 532–541. <https://doi.org/10.5709/ce.1897-9254.424>
- Munga, J. W., & Mbithi, O. (2020). Role of Education and Financial Capacity on E-Government Adoption. *Journal of Enterprise Business Management*, 16–23. <https://doi.org/10.46532/jebm.20200703>
- Napitupulu, D., & Yakub, R. (2021). A Bibliometric Analysis of E-Government Research. *Library Philosophy and Practice*, 2021, 1–19.
- OECD. (2018). *Open Government Data Report*. OECD. <https://doi.org/10.1787/9789264305847-en>
- Paneva, T., & Kaharevic, A. (2023). In E-Government We Trust? Correlating Factors of E-Government Use in The Western Balkan and EU Countries. *Balkan Social Science Review*, 22(22), 293–319. <https://doi.org/10.46763/BSSR232222293p>
- Ponil, S., & Osathanunkul, R. (2021). Impacts of Foreign Aid and Democracy on ASEAN Economic Growth. *ACM International Conference Proceeding Series*, 122–128. <https://doi.org/10.1145/3466029.3466046>
- Puspitasari, A., Azzqy, A. A. R., & Pusvitasary, V. (2022). Digital Media Literacy Training for Youngsters in Ciamis to Achieve ASEAN Smart Cities. *International Conference on Community Development (ICCD)*, 4(1), 449–453.

- Ratnawati, V., Sari, R. N., Zin, N. M., Yusuf, S. N. S., Haider, J., & Ali, A. (2020). A Panel Data Analysis of the Roles of Education Level and Financial Capacity on E-Government Adoption for Higher Transparency and Efficiency in ASEAN Countries. *Contemporary Economics*, 14(4), 524–534. <https://doi.org/10.5709/ce.1897-9254.423>
- Roengtam, S., Nurmandi, A., Almarez, D. N., & Kholid, A. (2017). Does Social Media Transform City Government? A Case Study of Three ASEAN Cities: Bandung, Indonesia; Iligan, Philippines; and Phuket, Thailand. *Transforming Government: People, Process and Policy*, 11(3), 343–376. <https://doi.org/10.1108/TG-10-2016-0071>
- Rubasundram, G. A., & Rasiah, R. (2019). Corruption and Good Governance: An Analysis of ASEAN's E-Governance Experience. *Journal of Southeast Asian Economies*, 36(1), 57–70. <https://doi.org/10.1355/ae36-1f>
- Sinpeng, A. (2020). Digital Media, Political Authoritarianism, and Internet Controls in Southeast Asia. *Media, Culture & Society*, 42(1), 25–39. <https://doi.org/10.1177/0163443719884052>
- Sinpeng, A., & Koh, Y. (2023). Journalism in the Age of Digital Autocracy: A Comparative ASEAN Perspective. *JAS (Journal of ASEAN Studies)*, 10(2). <https://doi.org/10.21512/jas.v10i2.9162>
- Sombatpoonsiri, J., & An Luong, D. N. (2022). Justifying Digital Repression via “Fighting Fake News”: A Study of Four Southeast Asian Autocracies. In *Justifying Digital Repression via “Fighting Fake News”* (pp. 1–38). ISEAS–Yusof Ishak Institute Singapore. <https://doi.org/10.1355/9789815011753-003>
- Sriyakul, T., Chankoson, T., & Sukpasjaroen, K. (2022a). Economic Growth, E-Government, And Environmental Degradation During Covid-19: A Panel Analysis Of Selected Asian Economies. *International Journal of EBusiness and EGovernment Studies*, 14(3), 46–60. <https://doi.org/10.34109/ijebeq.202214182>
- Sriyakul, T., Chankoson, T., & Sukpasjaroen, K. (2022b). Modelling The Impact Of E-Government On Corruption For The Covid-19 Crisis. *International Journal of EBusiness and EGovernment Studies*, 14(3), 26–45. <https://doi.org/10.34109/ijebeq.202214181>
- Sriyakul, T., & Jermisittiparsert, K. (2020). Role Of E-Government And Open Data To Enhance Transparency in the ASEAN Region: A Panel Data Analysis. *Journal of Security and Sustainability Issues*, 10(Oct), 337–347. [https://doi.org/10.9770/jssi.2020.10.Oct\(26\)](https://doi.org/10.9770/jssi.2020.10.Oct(26))
- Styrin, E., Luna-Reyes, L. F., & Harrison, T. M. (2016). Open Data and Open Government. *Proceedings of the 17th International Digital Government Research Conference on Digital Government Research*, 76–85. <https://doi.org/10.1145/2912160.2912161>
- Sukarno, M., & Nurmandi, A. (2023). E-Government Development Index Impact on World Governance Indicator Index in Southeast Asian Countries. *Journal of Contemporary Governance and Public Policy*, 4(1), 97–114. <https://doi.org/10.46507/jcgpp.v4i1.106>
- Sulistyowati, W. A., Alrajawy, I., Yulianto, A., Isaac, O., & Ameen, A. (2020). Factors Contributing to E-Government Adoption in Indonesia—An Extended of Technology Acceptance Model with Trust: A Conceptual Framework. In *Lecture Notes in Networks and Systems* (Vol. 118). https://doi.org/10.1007/978-981-15-3284-9_74
- Sunkpho, J., Khaemasunun, P., & Tubtimhin, J. (2014). Thailand's new ICT Master Plan to promote ICT innovations and services for e-Ageing. *ACM International Conference Proceeding Series, 2014-Janua*, 308–311. <https://doi.org/10.1145/2691195.2691310>
- Tan, V. K. N., Truong, V. P., & Do, T.-X. (2022). The Influences of Technology on Digital Economy Development in Vietnam. *International Journal of Software Innovation*, 9(4), 10–18. <https://doi.org/10.4018/IJSI.289166>
- Wagola, R., Nurmandi, A., Misran, & Subekti, D. (2023). Government Digital Transformation in Indonesia. In *Communications in Computer and Information Science: Vol. 1835 CCIS*. https://doi.org/10.1007/978-3-031-36001-5_37

- Wihlborg, E., Kulanovic, A., Kaharevic, A., & Elg, M. (2021). *Digital inclusion in a disadvantaged Swedish suburb – Trust and participation to form Quality of Government*. <https://doi.org/10.24251/HICSS.2021.292>
- Wijayanto, W., Setiyono, B., Martini, R., & Elsitra, G. N. (2022). Digital Authoritarianism in Southeast Asia: A Systematic Literature Review. *Proceedings of the 6th International Conference on Social and Political Enquiries, ICISPE 2021, 14-15 September 2021, Semarang, Indonesia*. <https://doi.org/10.4108/eai.14-9-2021.2321400>
- Yang, Z., & Wang, Z.-A. (2011). Notice of Retraction: FTA and agricultural products trade. *2011 International Conference on E-Business and E-Government, ICEE2011 - Proceedings*, 1305–1306. <https://doi.org/10.1109/ICEBEG.2011.5881787>
- Ying, K. (2011). Notice of Retraction: Research of the Netting Mechanisms and Value Innovation in CAFTA’s Value Nets: Basing on the Perspective of Modularity. *2011 International Conference on E-Business and E-Government, ICEE2011 - Proceedings*, 8165–8168. <https://doi.org/10.1109/ICEBEG.2011.5887144>
- Young, K., & Yin, M. L. (2020). Role of E-Government and Open Data to Enhance Transparency Practices. *Journal of Enterprise Business Management*, 47–54. <https://doi.org/10.46532/jebm.20200902>

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