THE IMPACT OF DIGITAL TRANSFORMATION ON PUBLIC SERVICES GOVERNANCE: A QUALITY ASSESSMENT SCALE APPROACH IN URBAN MUNICIPALITIES

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Abstract

This study aims to measure and analyze the impact of digital transformation on the quality of public services in Southeast Asia, focusing on Singapore, Indonesia, and Thailand. Using secondary data from government reports and academic studies, the research employed NVivo software to conduct qualitative analysis and identify key themes and trends in public sector digitalization. The evaluation centred on key performance indicators (KPIs), including service efficiency, user satisfaction, transparency, and accessibility. The findings indicate that Singapore demonstrates high success in implementing digital transformation, supported by robust infrastructure, targeted regulations, and high public participation (Rönkkö & Herneoja, 2021). In contrast, Indonesia and Thailand face structural challenges, including a persistent digital divide in rural areas and limitations in human capital competencies, which inhibit the widespread and equitable adoption of digital services (Hu et al., 2022). The study underscores the importance of developing policies that strengthen digital infrastructure, enhance digital literacy, and encourage inclusive governance approaches. Moreover, it contributes to the growing discourse on public service reform in the digital era by proposing that adaptive strategies are needed to address regional disparities and institutional constraints in digital transformation across Southeast Asia.

Keywords: Impact, Digital Transformation, Public Services, Quality Rating Scale, Southeast Asia

Authors' individual contribution: Conceptualization — A.M.; Methodology — A.M. and S.I.; Investigation — A.M. and E.H.; Resources — E.H.; Writing — Original Draft — A.M.; Writing — Review & Editing — E.H. and S.I.; Supervision — S.I.; Project Administration — E.H.; Funding Acquisition — A.M.

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1. INTRODUCTION

Digital transformation has fundamentally reshaped various sectors, including public services, by integrating digital technologies that streamline and enhance service delivery. In the modern era, information and communication technology (ICT) is no longer merely a supporting tool but has become the core infrastructure enabling more effective, efficient, and accessible public services (Jun et al., 2022; Rhee et al., 2022). This shift involves replacing bureaucratic, manual, and often inefficient procedures with digital systems that are more responsive, transparent, and citizen-centric (Aminah

& Saksono, 2021; Sazzad et al., 2021). In Southeast Asia, this transformation is increasingly seen as a strategic response to urbanization and rising public demand for high-quality services. Urban centers such as Jakarta, Kuala Lumpur, and Bangkok are under growing pressure to improve public service delivery amid rapid population growth and limited resources (Rehman et al., 2023; Sukarno & Nurmandi, 2023).

However, the implementation of digital public services across the region is marked by considerable disparities, especially in digital infrastructure and internet connectivity. While Singapore enjoys one of the highest internet speeds in the region at 71.69 Mbps, countries like Indonesia and Cambodia lag far behind, with speeds around 22 Mbps (DataHub, n.d.). These differences significantly impact how effectively digital services can be delivered. Although the literature on digital transformation in public services is extensive, it remains largely dominated by studies from developed countries, where digital infrastructure is more advanced and institutional capacity is more established. There is a notable gap in understanding how digital transformation affects public service quality in developing and middle-income countries, particularly in Southeast Asia's diverse and dynamic context.

To address this research gap, the present study seeks to evaluate the impact of digital transformation on the quality of public service governance within urban municipalities across Southeast Asia. The study is guided by three central research questions:

RQ1: How does the quality of public services differ according to the level of digital infrastructure, particularly internet speed?

RQ2: What governance-related challenges and enabling factors affect the implementation of digital public services?

RQ3: How can a contextually relevant quality assessment scale be constructed to evaluate the performance of digitally transformed public services in diverse urban settings?

To structure this investigation, the study employs a conceptual framework of digital public service value, which synthesizes key dimensions such as digital infrastructure, institutional governance, service responsiveness, and citizen satisfaction (Loc et al., 2020; Rönkkö & Herneoja, 2021). This integrative framework enables a comprehensive analysis of how technological advancements interact with institutional capacities and societal expectations in shaping public service delivery.

Methodologically, the research employs a comparative case study approach involving three countries (Singapore, Indonesia, and Thailand) representing different levels of digital transformation readiness. These countries were selected based on their contrasting internet speeds and digital public service implementation stages, thereby providing a comprehensive view of the phenomenon. The study uses mixed methods, combining document analysis, expert interviews, and citizen feedback surveys to develop and validate a quality assessment scale relevant to Southeast Asia.

This study offers several important contributions. Academically, it enriches the literature by providing empirical insights from developing and middle-income countries often underrepresented in digital governance discourse. It introduces a context-sensitive assessment tool that local governments can use to monitor and enhance the quality of digital public services. Regionally, the findings are expected to inform policy formulation and strategic planning across Southeast Asia, offering actionable recommendations for cities striving to implement effective and inclusive digital transformation in public administration.

The structure of this paper is as follows. Section 1 introduces the background, research objectives, and the central questions that guide the study, emphasizing the need to assess the quality of public service governance in the context of digital transformation. Section 2 presents a review of the relevant literature on digital transformation and public services. Section 3 outlines the research methodology, including case selection, data sources, and analytical strategies. Section 4 reports the findings of the study, while Section 5 discusses these results in light of regional governance dynamics. Finally, Section 6 concludes with policy recommendations and suggestions for future research.

2. LITERATURE REVIEW

2.1. Conceptualizing digital transformation in public services

Digital transformation in public services is broadly defined as integrating digital technologies into government operations to enhance service efficiency, accessibility, transparency, and responsiveness. Unlike simple digitization, which involves converting analog processes into digital formats, digital transformation implies a systemic and cultural shift in how public services are conceived and delivered (Jun et al., 2022; Rhee et al., 2022). Aminah and Saksono (2021) emphasize that transformation must be user-centric, supported by adaptive institutions, and rooted in data-driven decision-making. In urban municipalities, where service demand is intense, digital transformation is particularly relevant to meet the expectations of citizens who increasingly rely on online interactions.

2.2. The role of infrastructure and connectivity

One of the critical success factors for digital public services is the availability and reliability of digital infrastructure, primarily internet speed and network coverage. Curtis (2024) noted that countries with high-speed internet are more likely to deploy and scale digital platforms effectively. The disparity in internet speeds across Southeast Asia, for instance, Singapore at 71.69 Mbps versus Indonesia at 22.08 Mbps (DataHub, n.d.), illustrates the uneven digital readiness among countries. These infrastructure gaps influence the quality, accessibility, and reliability of digital services, particularly in low-income urban areas where connectivity remains limited.

2.3. Governance capacity and bureaucratic transformation

Digital transformation in the public sector also requires strong institutional support and agile governance mechanisms. Traditional bureaucracies, often hierarchical and rigid, must evolve into more flexible, learning-oriented institutions (Vărzaru, 2023; Rudmark & Molin, 2023). However, in Southeast Asia, many bureaucracies struggle to adapt due to cultural inertia and limited capacity (Kontogeorgis & Varotsis, 2021). Governance capacity includes not

only leadership and policy frameworks but also the digital competence of public servants, the availability of financial resources, and organizational willingness to innovate.

2.4. Assessing the quality of digital public services

While much of the early literature focused on technology adoption and infrastructure, more recent studies have shifted toward evaluating the quality of digital public services. Quality is increasingly defined in terms of efficiency, user experience, accessibility, satisfaction, and responsiveness (Loc et al., 2020). Tools such as the digital public service value index (DPSVI) (Rönkkö & Herneoja, 2021) have been developed to assess the performance and impact of digital initiatives. However, these tools are often designed in the context of developed countries, raising questions about their relevance in Southeast Asia. There remains a need for localized assessment scales that consider regional variations in infrastructure, culture, and governance.

2.5. Citizen participation, accountability, and data ethics

Digitalization has the potential to strengthen participatory governance by providing platforms for citizen feedback and increasing transparency (Sadayi et al., 2022). Studies show that governments incorporating citizen voices into service evaluation processes tend to experience higher trust and legitimacy (Edelmann & Virkar, 2023; Loc et al., 2020). At the same time, increased data collection raises concerns about privacy, surveillance, and ethical data use. Establishing clear data governance frameworks is essential to balance innovation with accountability.

2.6. Human capital and capacity building

The effectiveness of digital transformation efforts is closely tied to the availability of skilled personnel. (Yukhno, 2024) emphasizes the importance of continuous professional development, especially in digital literacy, cybersecurity, and data analytics. Public servants may resist digital initiatives without adequate training and support systems or fail to utilize them optimally. Comparative experiences, such as from China's integrated data governance systems, show that investments in human capital are as critical as technological investments (Wang & Ma, 2022; Xiao et al., 2022).

2.7. Research gap and the need for context-specific evaluation tools

Most current research on digital transformation in public services has focused on high-income countries, with little attention to middle-income and developing nations. With its rapid urbanization and digital growth, Southeast Asia presents a unique but under-researched context (Barry et al., 2023; Sohag et al., 2021). There is a lack of context-sensitive tools for evaluating the quality of digital public services that reflect local infrastructure constraints, governance structures, and societal needs (Dobrolyubova, 2022). This study responds to that gap by proposing a tailored quality assessment scale designed explicitly for Southeast Asian urban municipalities, contributing to the theoretical development of digital governance and its practical application.

3. RESEARCH METHODOLOGY

This research adopts a qualitative approach using Computer-Assisted Qualitative Data Analysis Software (CAQDAS) to analyze secondary data systematically. The focus of the study is to explore how digital transformation affects the quality of public service governance in urban municipalities across Southeast Asia. Secondary data will be drawn from various credible sources, including government reports, academic publications, digitization policies, and public data from international institutions relevant to the region's digital transformation of public services (Borgert et al., 2019). The analysis aims to identify key trends, challenges, and best practices, ultimately offering actionable insights for policymakers and stakeholders involved in digitization.

To ensure data validity and reliability, the secondary data collection process follows a structured three-step procedure: source identification, data selection, and data organization (Sadayi et al., 2022). First, relevant documents and literature will be identified through academic databases such as Scopus and Google Scholar, as well as official government portals (Priadana & Sunarsi, 2021). Second, data selection will be conducted by assessing each document's relevance, credibility, and contextual alignment with the research objectives. Finally, selected data will be organized and imported into NVivo 12 software, allowing for efficient thematic coding and content management (Zuchri Abdussamad & Sik, 2021).

Within NVivo 12 Plus, the qualitative data will be coded into core categories such as digitization policies, service quality, and urban governance in Southeast Asia. The coding process is designed to identify emerging patterns and interrelated themes that provide deeper insight into the impact of digital transformation across diverse city contexts (Elliott-Mainwaring, 2021; Mortelmans, 2019). The query and text search tools will examine the relationships between digital governance and service quality (Yulyana et al., 2024). To enhance analytical depth, the matrix coding query function will compare data across selected cities, enabling the identification of context-specific outcomes and regional variation.

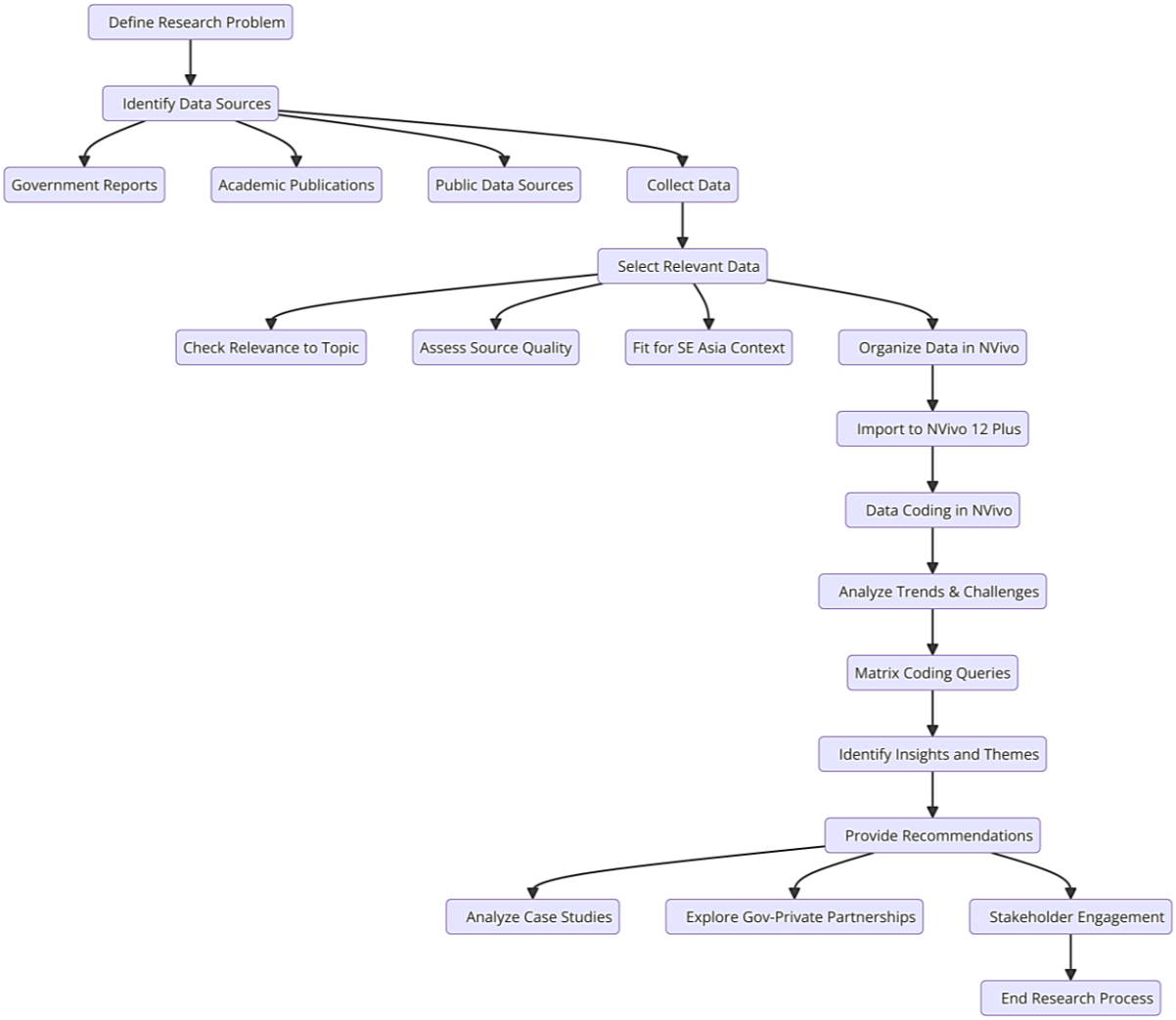
This research also incorporates case study reviews of successful digital transformation initiatives, which serve as grounded references for formulating regionally adaptable policy recommendations. Case studies offer practical insights into real-world implementation, particularly regarding leadership, citizen engagement, and organizational readiness (Allsop et al., 2022). Public-private partnerships will also be explored, as these collaborations often play a vital role in driving innovation, scaling infrastructure, and enabling resource sharing to sustain digital ecosystems.

Furthermore, stakeholder engagement is emphasized as a core element of analysis. Understanding how different actors, such as government agencies, private sector entities, and civil society, interact during digitalization is essential for fostering a participatory and inclusive approach. Such interaction is key to ensuring that public services reflect local needs and that diverse user groups accept and support transformation efforts.

While this study primarily employs qualitative methods with a CAQDAS approach, several alternative methods could also be suitable for future or complementary research (Borgert et al., 2019). A quantitative approach, using citizen satisfaction

surveys or service delivery metrics, could validate qualitative insights statistically. Similarly, a mixed-methods design could triangulate qualitative thematic analysis with quantitative performance indicators, offering a more comprehensive understanding of digital transformation outcomes. Additionally, participatory action research (PAR) could be employed in localized settings to involve stakeholders directly in evaluating and redesigning digital services. By applying a rigorous, structured qualitative approach complemented by relevant alternatives, this research seeks to deliver robust insights into how digital transformation shapes public service governance across Southeast Asian cities. The entire process flow of this methodology is illustrated in Figure 1.

Figure 1. Flow of research method



4. RESULT

4.1. Development and validation of service quality rating scale

The development of a service quality rating scale for digital public services in Southeast Asian cities involved identifying key performance indicators (KPIs) that reflect service effectiveness. These indicators include speed of service, public satisfaction, level of digitalization, transparency, and accessibility (Hu et al., 2022; Kontogeorgis & Varotsis, 2021). The performance of Singapore, Indonesia, and Thailand across these KPIs varies significantly, as summarized in Table 1.

Table 1. Comparison of key public service KPIs in Singapore, Indonesia, and Thailand

Indicator	*Singapore*	*Indonesia*	*Thailand*
Speed of service	Very fast (full digitization)	Varies (urban areas faster)	Moderate, but starting to improve
Public satisfaction level	Very high (> 90%)	Medium (Avg. 70–80%)	Good enough (Avg. 80%)
Digitalization and technology	Very advanced	Medium (depending on region)	Starting to develop
Transparency and accountability	Very high	Still needs improvement	Medium (bureaucratic reform improvement)
Service accessibility	High and even	Limited to rural areas	There is still a gap

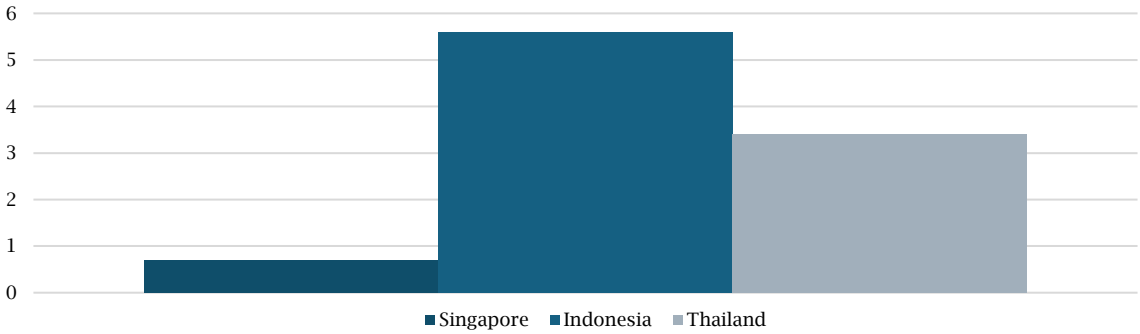
Source: Adopted (Lourdes et al., 2021; Rhee et al., 2022; Sadeka et al., 2018; Sukarno & Nurmandi, 2023; M. Tran et al., 2021).

Based on the results of thematic analysis conducted by the author on the scale of public service quality assessment in Singapore, Indonesia, and Thailand, can be seen in Figure 2 below.

Figure 2. Wordcloud analysis of digital transformation in public services

Figure 2 presents a thematic analysis of the word cloud that identifies the key drivers of public service quality assessment in the region, focusing on Singapore, Indonesia, and Thailand. The term "quality" is central in the figure, emphasizing that public service quality is a top priority. This is supported by a strong emphasis on "satisfaction", "improvement", and "infrastructure", which are important indicators in public service management. The terms "digital" and "digitization" indicate the movement towards digitalization as an effective way to improve services. In addition, the elements "ESG" (environmental, social, and governance) and "transparency" indicate the importance of high standards and transparency in government sector operations and accountability. Challenges, including "corruption" and "challenges", highlight areas that require attention and improvement in improving services. The emergence of the word "gov-tech" indicates the application of technology in governance, characterizing the evolution of modernization strategies and the continuous adaptation of public service management in the region.

Figure 3. Public service index Singapore, Indonesia, Thailand



Note: Public services index, 0 (high)–10 (low), 2024: The average for 2024, based on 11 countries, was 4.89 index points. The highest value was in Burma (Myanmar): 9.2 index points, and the lowest value was in Singapore: 0.7 index points. The indicator is available from 2007 to 2024.
Source: DataHub (n.d.).

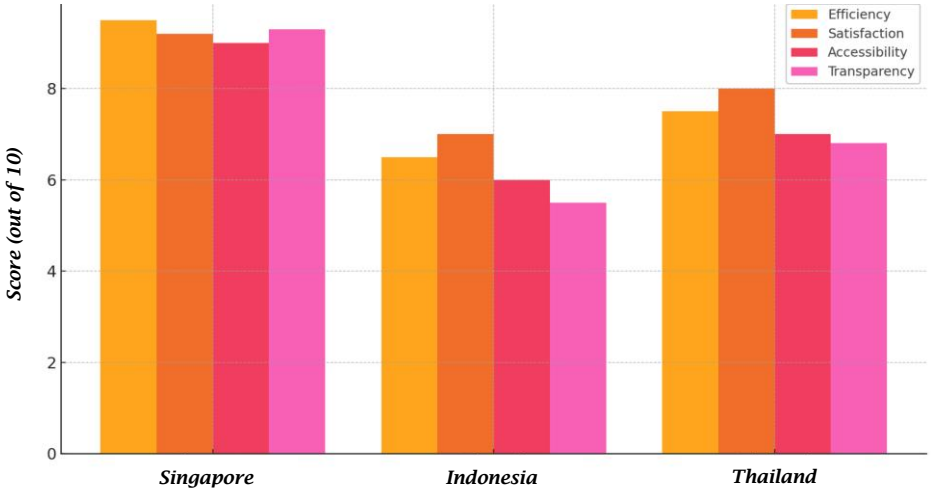
Figure 3 compares the public service index in Singapore, Thailand, and Indonesia. In this context, Singapore, which has a score of 0.7, records the best public service index. This confirms that Singapore has a highly efficient, fast, and transparent public service system, in keeping with its reputation as a country with a highly developed bureaucracy and integrated digital services. On the other hand, Indonesia's score of 5.6 shows that despite improvements in public services, Indonesia is still above the global average of 4.89. The index indicates that Indonesia still faces significant challenges in terms of speed, accessibility, and quality of service, especially in more remote areas, and related to corruption in the bureaucracy. With a score of 3.4, Thailand is in a better position than Indonesia but still below Singapore. This suggests that despite progress in specific sectors, Thailand still needs to improve the digitization and efficiency of public services to achieve a more optimal level of service. Overall, this information shows that Singapore is the leader in public service quality and has the best score. At the same time, Indonesia and Thailand still need to improve their service quality to reach a more efficient and responsive level in line with global standards.

A comparison of public service quality KPIs across these three countries shows that Singapore leads the way with fast, efficient, and digitized services. In Indonesia, reform efforts are ongoing, focusing on improving efficiency and fighting corruption, although significant challenges remain, especially in rural areas. Thailand, while having good service quality and continuing reforms, is still lagging in terms of digitization and accountability when compared to Singapore. These three countries reflect different levels of development in public service delivery, with Singapore being a leading model in technology integration and service efficiency. At the same time, Indonesia and Thailand continue improving bureaucracy to achieve higher standards.

4.2. Thematic comparison: country-level performance

A thematic comparison was conducted in the deep analysis to examine how each country performs across various dimensions of public service delivery in digital transformation. This approach allows for a more nuanced understanding of the similarities and differences between Singapore, Indonesia, and Thailand in implementing digital governance. The thematic comparison emphasizes key aspects such as service accessibility, governance quality, public satisfaction, and digital infrastructure, providing insights into the strengths and limitations of each country's approach.

Figure 4. Thematic comparison of public service performance



Singapore stands out as the regional leader in digitized public services, with the majority of its services accessible online through platforms such as gov-tech, resulting in high operational efficiency and a public satisfaction rate exceeding 90% (Sadeka et al., 2018; T.-V. Tran et al., 2021). This strong performance is further supported by robust governance structures and comprehensive ESG reporting frameworks that enhance transparency and accountability (Kwilinski et al., 2023). In contrast, Indonesia has shown progress in digital service access and citizen satisfaction, particularly in urban areas; however, it continues to face significant challenges in rural accessibility, infrastructure disparities, and bureaucratic corruption (Herdiyanti et al., 2019). Although initiatives like the electronic-based government system (SPBE) and the 100 Smart Cities program have been introduced, their implementation remains fragmented and inconsistent across regions. Thailand, meanwhile, occupies a middle ground, having benefited from reforms such as universal healthcare and achieving moderate levels of public satisfaction (Piyasunthornsakul et al., 2022) but still struggles with ensuring full transparency and expanding digitalization uniformly throughout the country (Fleischer et al., 2018).

4.3. Impact of digital transformation on public service quality

This subsection presents a detailed assessment of how digital transformation influences the overall quality of public services in Singapore, Indonesia, and Thailand. The analysis focuses on four critical dimensions: service efficiency, user satisfaction, accessibility, inclusiveness, as well as transparency and accountability. Using a standardized rating scale, the evaluation highlights the extent to which each country has successfully leveraged digital technologies to improve public service outcomes. This comparative perspective offers valuable insights into each country's achievements and challenges in its digital governance journey.

Figure 5. Comparison of the impact of digital transformation in public services

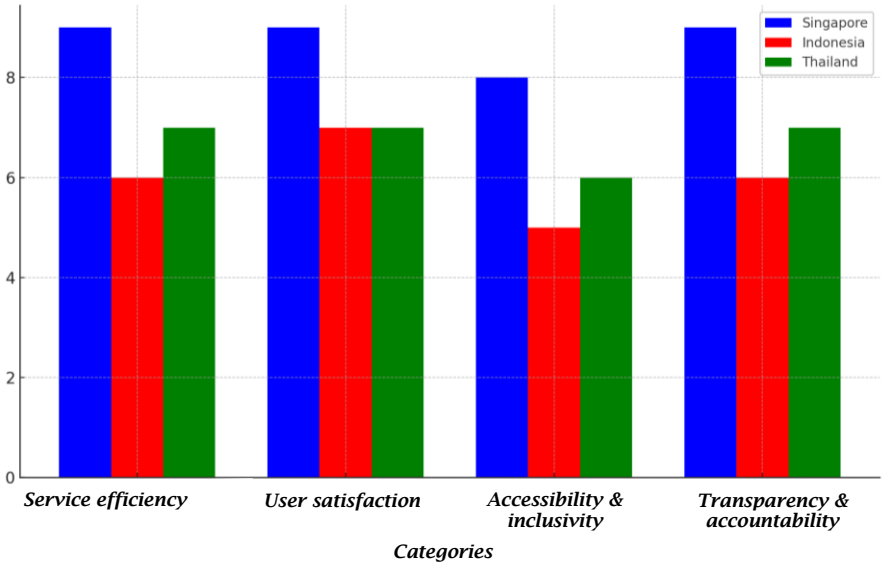


Figure 5 shows the results of evaluating the impact of digital transformation on public services in Singapore, Indonesia, and Thailand through four main categories: service efficiency, user satisfaction, accessibility and inclusiveness, and transparency and accountability, with each country rated on a scale of 1 to 10. Singapore stands out as an example of success, with the highest scores across all categories, indicating high operational efficiency, high levels of user satisfaction, and inclusive and transparent services. On the other hand, Thailand has shown significant success in user satisfaction and transparency, but still has room for improvement in the efficiency and accessibility of its services. While showing efforts in digitization, Indonesia still scores lower, especially in user satisfaction and transparency, reflecting the need for improvement in providing satisfactory and accountable services to its citizens. The overall analysis confirms that while digital transformation has had a positive impact on public services in all three countries, the level of progress and areas of improvement needed vary significantly, with Singapore leading the way in adopting and integrating technology in public services.

Table 2. Policies and regulations that support digital transformation in public services

Country	*Key policies*	*Supporting regulations*	*Obstacles/challenges*
Singapore	Smart Nation Initiative (2014)	Personal Data Protection Act (PDPA), technology innovation policy	Almost no major bottlenecks, supported by strong infrastructure and political commitment
Indonesia	100 Smart Cities Movement, Presidential Regulation No. 95/2018 on SPBE, ITE Law	Digitalization policies are still fragmented at the regional level	Complex bureaucracy, decentralized government, digital infrastructure gap
Thailand	Thailand 4.0, Digital Government Development Plan (2017–2021)	Digital regulation is evolving	Bureaucratic and political barriers, differences in digital readiness across regions

Source: Wahyu Sulistya et al. (2019), Matsumoto et al. (2019), and Fleischer et al. (2018).

4.4. Comparative analysis of digital transformation

This subsection provides a comparative analysis of key digital transformation indicators across Singapore, Indonesia, and Thailand. Examining five core categories, from policy and regulatory support to technological infrastructure and public participation. This analysis captures each country's broader readiness and capacity to implement effective digital governance. The comparative perspective highlights leading practices and identifies critical gaps that require strategic attention for sustained progress in digital transformation.

Figure 6. Comparative analysis of digital transformation indicators in Singapore, Indonesia, and Thailand

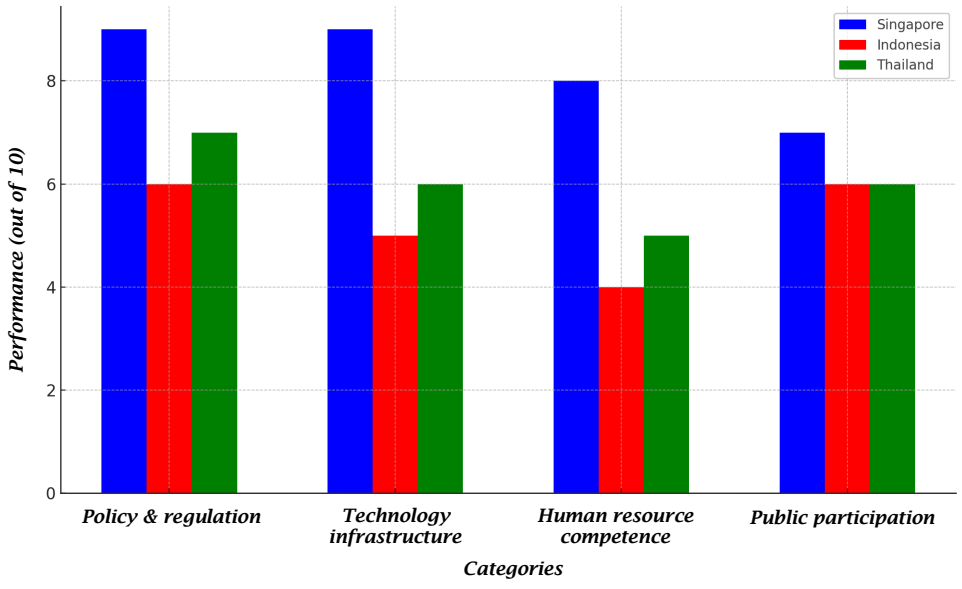


Figure 6 compares digital transformation indicators between Singapore, Indonesia, and Thailand, which are classified into five main categories. The analysis reveals that Singapore consistently occupies a leading position across all categories, highlighting its highly supportive policies and regulations and advanced technological infrastructure, which are close to achieving maximum scores. On the other hand, Thailand performed strongly, particularly in the aspects of technology infrastructure and public participation, reflecting the substantial investments that have been made in these two areas. Indonesia, with relatively lower scores in each category, urgently needs policy, infrastructure, and human resource development improvement to support its digital transformation. Despite the lower position compared to the other two countries, the data shows that there is still potential for each country to expand its integration of digital technologies into social and economic systems, mainly by improving human capital capabilities and facilitating greater public engagement in their digital transformation agenda.

Table 3. Supporting factors for digital transformation in public services in Singapore, Indonesia, Thailand

Factor	*Singapore*	*Indonesia*	*Thailand*
Technology infrastructure	Advanced information technology (IT) infrastructure contributes greatly to successful digital transformation, but challenges remain in technology adoption by small and medium enterprises (SMEs)	The IT infrastructure gap between urban and rural areas affects digital transformation, especially in public services such as land registration	Digital infrastructure is growing, but unequal access and high prices of digital technologies limit the spread of digital services across sectors
Human resource competencies	Continued investment in workforce skills and physical infrastructure, but there is still a shortage of skilled labor in some sectors	Digital skills gap among public sector employees, with a lack of ICT competencies being a major barrier to the implementation of e-government and digital services	The availability of skilled labor in the IT field is relatively small, making it a challenge to boost the country's digital economy
Community participation	High public participation thanks to user-friendly services and a technology-supportive culture, but more effort is needed to engage SMEs and low-income groups	Participation is hampered by low digital literacy. Participation in accessing information is higher, but lower in digital decision-making	Public participation is promoted, especially in local government, but there are challenges in providing rural communities with equal access to digital services

Source: Lourdes et al. (2021), Rhee et al. (2022), Sadeka et al. (2018), Sukarno and Nurmandi (2023), and M. Tran et al. (2021).

5. DISCUSSION

The results of this study underscore the profound impact of digital transformation on the quality of public service delivery in Southeast Asia. While all three countries, Singapore, Indonesia, and Thailand, have embarked on digitization journeys, their outcomes reflect differing levels of institutional readiness, technological infrastructure, and socio-political context. These findings reinforce existing theories of e-government and digital governance, which emphasize that the availability of technology does not merely determine the effectiveness of digital transformation but also the capacity of institutions and citizens to adapt and engage with that technology (Mergel et al., 2019).

Singapore is a regional model, demonstrating how integrated digital infrastructure, strong political will, and centralized governance can lead to highly efficient, transparent, and citizen-centric public services. The Smart Nation Initiative, supported by regulatory frameworks like the PDPA, ensures the widespread adoption of digital platforms and safeguards user trust through data privacy and transparency. The country's ability to translate digital initiatives into real public value aligns with studies that argue for a holistic approach to digital governance that incorporates legal, technical, and social dimensions (Alvarenga et al., 2020; Kwilinski et al., 2023).

In contrast, Indonesia's experience illustrates the challenges faced by decentralized states in equitably implementing digital public services. Despite national policies such as Presidential Regulation No. 95/2018 on SPBE and the 100 Smart Cities initiative, implementation remains fragmented, especially at the regional level. The discrepancy between urban and rural service access reflects a more expansive digital divide, exacerbated by uneven infrastructure, limited ICT competence among civil servants, and varying bureaucratic resistance. These findings support previous research that highlights how governance fragmentation and infrastructural inequality hinder the realization of digital transformation in developing contexts (Herdiyanti et al., 2019).

Thailand, positioned between Singapore and Indonesia regarding digital maturity, offers an interesting case. While it has made substantial progress in sectors like healthcare, particularly with the implementation of universal health coverage, its broader public service digitization is constrained by bureaucratic rigidity and regional inequalities. Nevertheless, the country's growing investment in infrastructure and citizen engagement initiatives signals an evolving commitment to e-government reforms. The Thailand 4.0 policy and the Digital Government Development Plan (2017–2021) are steps in the right direction, yet more targeted strategies are needed to ensure consistent adoption across all administrative regions (Fleischer et al., 2018; Piyasunthornsakul et al., 2022).

From a comparative perspective, the four critical factors affecting the success of digital transformation, policies and regulations, technological infrastructure, human resource competence, and community participation, are evident across all three countries. Singapore's consistent excellence across these dimensions confirms the synergistic nature of these factors. The country's success highlights the importance of aligning national digital agendas with institutional capabilities and citizen needs. In Thailand and Indonesia, policy ambitions are often not matched by implementation capacity or human capital development, leading to uneven outcomes. This aligns with the framework proposed by Alvarenga et al. (2020), which emphasizes the need for adaptive governance that continuously evolves in response to local constraints and opportunities.

Moreover, the thematic and word cloud analyses reveal that concepts such as "quality", "digitization", "gov-tech", and "transparency" are central to public service transformation. However, terms like "corruption" and "challenges" indicate that deeper institutional reforms are still required in Indonesia and Thailand. These findings echo Lourdes et al. (2021) and Rhee et al. (2022), who argue that digitization alone cannot overcome systemic governance issues — integrity reforms, capacity building, and inclusive participation mechanisms must accompany it.

In practical terms, this study suggests that while digital transformation offers a pathway toward improved public service delivery, its success hinges on a country's ability to harmonize digital ambitions with ground-level realities. Policies must be not only well-designed but also adaptable to different regional conditions. Infrastructure investments must go beyond urban centers. Capacity-building efforts must target civil servants and citizens, particularly in areas with low digital literacy. Most importantly, feedback loops, through which citizens can assess and influence digital services, should be institutionalized to promote accountability and sustained improvement.

In conclusion, digital transformation is not a linear or uniform process. As seen in Singapore, Indonesia, and Thailand, historical, institutional, and infrastructural contexts influence the journey toward digitized public service governance. Countries that invest in comprehensive strategies, encompassing technology, governance, and society, are more likely to achieve meaningful and equitable improvements in service quality. Future initiatives must build upon this understanding, fostering cross-sector collaboration, context-specific innovations, and continuous learning to ensure that digital transformation contributes to administrative efficiency, social equity, and democratic governance.

6. CONCLUSION

This study concludes that digital transformation has significantly improved the quality of public services in Southeast Asia, particularly in Singapore, Indonesia, and Thailand. Integrating digital technology into government systems has contributed to greater operational efficiency, transparency, and accessibility of services. Singapore stands out as the most digitally advanced country, as evidenced by its sophisticated technological infrastructure, supportive regulatory framework, and high levels of public participation. Initiatives like the Smart Nation program have enabled fast, accountable, and user-oriented digital public services.

On the other hand, Indonesia and Thailand still face structural challenges in implementing comprehensive digital transformation. Although Indonesia has demonstrated progress through various digital policies, infrastructure gaps between urban and rural areas and limitations in human resource competencies remain significant obstacles. While improving in sectors such as healthcare and logistics, Thailand also faces similar challenges regarding digital infrastructure and literacy, particularly in remote regions. Therefore, collaboration among the government, the private sector, and civil society is crucial in promoting inclusive and sustainable digital transformation.

This study also emphasizes the importance of internet speed and accessibility as fundamental prerequisites for successfully implementing digital transformation. Countries with more substantial digital infrastructure, such as Singapore, demonstrate faster and more equitable digital development than those with weaker connectivity.

Nevertheless, this study is not without limitations. The use of secondary data as the primary source constrains the depth of analysis, particularly due to the limited availability of up-to-date and consistent data in many developing countries. Furthermore, the findings are more applicable to urban contexts and may not fully reflect conditions in rural areas.

Future research should incorporate primary data collection, such as surveys or interviews, to gain deeper insights into real-life experiences with digital transformation. Further studies could also broaden the scope to include additional countries or focus on issues such as the digital divide and its impact on social inclusion in public service delivery.

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