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Challenges of Digital Transformation of Makassar City Government in the Framework of E-Government

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ABSTRACT

Digital transformation in government has become an essential part of improving public service quality, bureaucratic effectiveness, and governmental transparency at the local level. The Government of Makassar City is considered one of the regions actively developing digital based public services through the implementation of e-government, smart governance, and the Electronic Based Government System (SPBE). This study aims to analyze the challenges of digital transformation within the Makassar City Government in the framework of e-government and to identify the supporting and inhibiting factors affecting its implementation. This research employed a qualitative approach using a library research method through the analysis of scientific journals and related documents concerning governmental digital transformation. The findings indicate that the Makassar City Government has experienced significant progress in implementing digital services, particularly in population administration, public services, and the strengthening of information technology based governance systems. However, the digital transformation process still faces several challenges, including limited interagency data integration, inadequate digital human resource capacity, gaps in public digital literacy, regulatory changes, as well as issues related to data security and information technology infrastructure. This study also found that the success of digital transformation in Makassar remains sectoral and has not been fully integrated into a sustainable digital governance framework. Therefore, stronger coordination among regional institutions, improvement of bureaucratic competence, development of digital infrastructure, and optimization of SPBE implementation are required to ensure that governmental digital transformation can operate more effectively, inclusively, and sustainably.

Keywords: Digital Transformation, E Government, SPBE, Smart Governance, Public Service

INTRODUCTION

The development of information and communication technology has driven significant changes in government administration systems in various countries, including Indonesia. Digital transformation is no longer understood simply as the use of technological devices in government administration but has evolved into a crucial component in establishing more effective, transparent, and responsive governance to public needs. In this context, the implementation of e-government has become a key government strategy to improve the quality of public services while strengthening good governance practices at the central and regional levels (Anuradha & Pathranarakul, 2023; Najich Alfayn, 2022; Wahyuni, 2023).

In Indonesia, digital government transformation is further strengthened through the implementation of the Electronic-Based Government System (SPBE), an instrument for integrating government services based on information technology. The SPBE is aimed at creating a more efficient, integrated, and transparent bureaucracy capable of providing easily accessible public services. The implementation of SPBE is also considered capable of reducing

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geographical and administrative barriers, allowing the public to access government services more quickly without the constraints of space and time (Fardiah, Darmawan, Rinawati, Supaat, & Hadnansyah, 2024; Nafi'ah, 2022; Prastowo & Sudiana, 2024).

Nevertheless, the implementation of digital government transformation in Indonesia still faces various complex challenges. Several studies indicate that the main obstacles to e-government implementation include limited information technology infrastructure, low digital human resource capacity, weak data integration between agencies, the digital literacy gap among the public, data security issues, and bureaucratic resistance to changes in digital work systems. Furthermore, the development of SPBE (Economic and Social Service) in various regions still shows inequality due to the unequal quality of technological infrastructure and government institutional support (Agustini, Nurdin, & Indriyani, 2025; Almadani, Cahyani, & Khadafi, 2024; Yunizhar, Nurdin, & Indrayani, 2025).

The development of information technology has driven a shift in government administration patterns toward a digital-based public service system. In the context of public administration, e-government is understood as the government's use of information and communication technology to improve service effectiveness, bureaucratic transparency, administrative efficiency, and strengthen government-public relations (Lah & Kotnik, 2024; Matteucci, Santolini, & Di Fabio, 2023; Sihombing & Lumbantobing, 2024). The presence of e-government not only functions as a tool for bureaucratic modernization but also serves as a crucial instrument in supporting good governance practices by strengthening accountability and public information transparency.

The digital transformation of government in Indonesia is further strengthened through the implementation of the Electronic-Based Government System (SPBE). This system was developed as a form of integrated government administration based on information technology to create effective, efficient, transparent, and accountable public services. SPBE is a crucial part of the development of digital governance because it focuses not only on the use of technology but also on the comprehensive integration of government work processes. In addition to e-government and SPBE, the concept of smart governance is also a crucial part of digital government transformation. Smart governance emphasizes the use of information technology to create more participatory, responsive, transparent, and integrated governance. This approach has evolved alongside the implementation of the smart city concept, which focuses on improving the quality of public services and technology-based regional management.

In the context of regional government, Makassar City is one of the regions actively developing the concepts of e-government and smart governance through various digital-based public service innovations. The Makassar City Government has developed a number of information technology-based services in the areas of population administration, public services, public complaints, and digital-based healthcare. The implementation of the smart city concept is also part of the Makassar City Government's strategy to realize modern governance based on information and communication technology (de Waal & Dignum, 2017; Nam & Pardo, 2011; Nastjuk, Trang, & Papageorgiou, 2022; Ramadhani & Handoyo, 2023).

Makassar City is acknowledged as an area actively advancing digital transformation within local government by implementing e-government, smart governance, and the Electronic-Based Government System (SPBE). Numerous digital advancements have been implemented in population administration, public services, complaint management, and healthcare services. These programs demonstrate the local government's dedication to enhancing service quality, administrative efficiency, and citizen participation via information and communication technology.

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Prior research indicates that the deployment of e-government in Makassar has positively impacted the effectiveness of public services by enhancing service accessibility, streamlining administrative procedures, and promoting transparency. Nonetheless, the advancements attained are inconsistent among sectors. Numerous studies have underscored ongoing obstacles, such as inadequate interoperability among governmental information systems, variances in digital human resource capabilities, regulatory modifications, infrastructural constraints, and data security issues. These problems suggest that digital transformation in Makassar has not yet fully developed into a cohesive and sustainable digital governance framework.

While many studies have investigated facets of digital governance in Makassar, the majority concentrate on singular projects or entities. Thus, a comprehensive synthesis is necessary to critically analyze the overarching problems of digital transformation in the context of e-government and SPBE implementation. This study examines existing scholarly material to identify principal challenges and strategic pathways for enhancing digital governance in Makassar City.

Several studies have shown that the implementation of e-government in Makassar City has had a positive impact on the effectiveness of public services. The Makassar City Government is considered quite responsive in providing fast, easy, and transparent digital services to the public by strengthening e-services across various government sectors. In the population administration sector, the digital bureaucratic transformation at the Makassar City Population and Civil Registration Office is even considered effective using online application-based services that save time, money, and effort for the public.

However, various studies also indicate that the development of digital transformation in Makassar City has not been fully optimal. The implementation of smart governance still faces various obstacles such as limited supporting facilities, regulatory changes, weak integration of service systems, and uneven distribution of human resource capacity to support digital services (Affandi et al., 2023). Furthermore, the success of digitalizing public services in Makassar still tends to be sectoral and not fully integrated across regional government agencies. System fragmentation between agencies remains a major challenge in data management and digital public services in Makassar City (Beckers & Mora, 2025; Ruijer et al., 2023; Yu, 2024).

While several facets of e-government and digital public services in Makassar City have been covered in earlier research, the majority of studies concentrate on certain initiatives or establishments. Insufficient emphasis has been devoted to synthesizing the overarching difficulties of digital transformation in the context of e-government and SPBE deployment. This study seeks to examine the obstacles of digital transformation within the Makassar City Government and determine strategic pathways for enhancing sustainable digital governance.

METHODS

This research uses a qualitative approach, using library research. The qualitative approach was chosen because it aims to gain a deeper understanding of the phenomenon of digital government transformation, particularly the various challenges faced by the Makassar City Government in implementing e-government and the Electronic-Based Government System (SPBE). This approach is considered relevant for examining policy dynamics, digital governance, and various issues in the implementation of information technology-based public services.

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The library research method was conducted through the collection and analysis of various secondary data sources related to the digital transformation of government. Research data was obtained from scientific journals, academic articles, and research documents discussing the implementation of e-government, smart governance, SPBE, digital public services, and digital bureaucratic transformation in Indonesia, particularly in Makassar City. The use of library research enabled the researcher to conduct a comprehensive analysis of various previous research results relevant to the research focus.

The literature selection process was executed methodically to guarantee the pertinence and caliber of the examined sources. Scientific articles were located using searches in Google Scholar, Scopus-indexed databases, and nationally accredited journals employing keywords such as "digital transformation," "e-government," "SPBE," "smart governance," "digital public services," and "Makassar City Government." The investigation concentrated on articles released from 2020 to 2025 to encompass contemporary advancements in digital governance. The inclusion criteria consisted of peer-reviewed journal publications, conference papers, and official research reports addressing digital government transformation, e-government implementation, SPBE, or smart governance in Indonesia, specifically at the local government tier. Sources not directly pertinent to public sector digital transformation, duplicated works, or those lacking adequate methodological details were omitted from the analysis. Subsequent to the screening procedure, the chosen literature was classified based on principal topics, encompassing digital public service innovation, SPBE implementation, governance integration, digital human resources, infrastructure readiness, digital literacy, and information security. Thematic analysis was utilized to discern repeating patterns, similarities, variations, and emerging difficulties throughout the examined studies.

The data sources in this study came from two types of data: primary data and secondary data. The primary data in this study consisted of various scientific journals that specifically discuss digital government transformation and e-government implementation in Makassar City. Meanwhile, secondary data came from supporting journals on SPBE, digital governance, smart cities, and the challenges of digital transformation in government in various regions in Indonesia. All references used in this study were sourced from national scientific journals selected according to the research focus.

Data collection techniques were conducted through documentation and literature review. Researchers identified, read, categorized, and recorded various important information from each reference related to the research theme. This process was carried out to identify patterns, similarities, and differences in research results related to the implementation of digital transformation in local governments. Furthermore, researchers also mapped various supporting and inhibiting factors in the implementation of e-government and SPBE in local governments.

The data analysis technique in this study used descriptive qualitative analysis. The analysis was conducted through several stages: data reduction, data presentation, and drawing conclusions. The data reduction stage was carried out by selecting data relevant to the research focus on the challenges of digital transformation in the Makassar City Government. Next, the data was presented systematically based on discussion themes such as e-government implementation, smart governance, SPBE, the quality of digital public services, and obstacles to digital transformation in government. The final stage involves drawing conclusions based on the interpretation of all analyzed data.

This research focuses on analyzing the challenges of the Makassar City Government's digital transformation within an e-government framework. The study covers aspects of digital public service implementation, human resource readiness, digital government system integration, information technology infrastructure, regulations, and various institutional

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barriers to supporting digital-based governance. With this approach, the research is expected to provide a more in-depth overview of the state of digital transformation in local government in Makassar City.

RESULT AND DISCUSSION

The Development of Makassar City Government's Digital Transformation

The digital transformation of government in Makassar City has shown significant progress in recent years. The Makassar City Government has begun developing various information technology-based public service systems as part of its bureaucratic modernization efforts and strengthening digital governance. The implementation of e-government, smart governance, and smart city concepts is part of the local government's strategy to improve the quality of public services while strengthening administrative efficiency (Muñoz-Hermoso, Domínguez-Mayo, Cerrillo-I-Martínez, & Benavides, 2025; Popova & Popovs, 2023; Triyanto, Kismartini, Purnaweni, & Luqman, 2025).

This digital transformation is evident in the increasing use of electronic-based government services across various public service sectors. The Makassar City Government, through the Communication and Informatics Office, has developed a digital service system that allows the public to access services more quickly, easily, and transparently. The presence of e-government services is considered to increase government responsiveness to public needs by providing access to digital-based information and public services.

In the population administration sector, digital transformation has also experienced significant progress. The Makassar City Population and Civil Registration Office has implemented various online application-based administrative services to simplify the processing of population documents. The use of digital services has been proven to reduce service times, reduce administrative costs, and increase the efficiency of public service bureaucracy (Sabri et al., 2025). Furthermore, the implementation of digital governance in the population administration sector has also been deemed successful in increasing public accessibility to technology-based public services.

The Makassar City Government's digital transformation is also strengthened through the development of the smart city concept. The local government utilizes information and communication technology in managing various urban sectors to support the development vision of "Makassar as a World City" based on technological advancements and public service innovation. Smart city implementation is not only aimed at strengthening digital infrastructure but also at improving the quality of governance through more responsive and integrated public services.

Several digital-based public service innovations in Makassar City have even become part of the implementation of smart governance. The Homecare Dottorotta program, for example, is a form of digital-based health service developed by the Makassar City Government to improve public access to health services more quickly and efficiently. The program's presence demonstrates that digital transformation in Makassar is not solely focused on administrative services but is also beginning to impact the social services sector.

This development demonstrates the Makassar City Government's strong commitment to promoting digital transformation in local government. However, the development of digital public services still demonstrates disparities in implementation across government service sectors. Some public services have been implemented effectively through digital systems, while others still face various limitations in terms of infrastructure, system integration, and government human resource capacity.

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The findings suggest that digital transformation in Makassar has predominantly concentrated on service innovation. However, the longevity of these advances relies on the incorporation of digital governance frameworks within governmental entities. This indicates that innovation is inadequate without institutional coordination and long-term governance strategies.

Implementation of E-Government and SPBE in Makassar City

The implementation of e-government in Makassar City is fundamentally aimed at creating more effective, transparent, and accountable public services. The Makassar City Government has utilized information technology in various government administration and public service activities as part of the development of the Electronic-Based Government System (SPBE). This system's implementation is a form of digital bureaucratic transformation to accelerate public service delivery.

Research shows that e-government implementation in several government sectors in Makassar City has been quite successful. For example, at the Makassar City Population and Civil Registration Office, e-government services are considered highly effective, particularly in terms of service system, timeliness, and the quality of digital facilities and infrastructure. The use of online application-based services simplifies administrative processes and makes them more accessible to the public.

In addition to improving service effectiveness, the implementation of digital governance also improves public service accountability. Research shows that the implementation of digital governance at the Makassar City Population and Civil Registration Office (Disdukcapil) improves service accessibility and strengthens the quality of information technology-based public services. The presence of digital systems helps the public obtain services more quickly while increasing the transparency of government administration processes.

In terms of governance, the implementation of the SPBE (E-Government System) in South Sulawesi has influenced the direction of digital transformation in Makassar City, a key region in the development of e-government services. However, the South Sulawesi Provincial Government's SPBE evaluation results indicate that the maturity level of SPBE remains moderate, with various weaknesses in information technology audits and digital system integration. This situation indirectly indicates that strengthening regional government digital governance still requires more systematic improvements.

The implementation of e-government in Makassar City also demonstrates strengthening aspects of digital public services based on information transparency. The local government is considered quite responsive in providing easily accessible public information through various digital government services. This demonstrates that digital transformation is not only aimed at bureaucratic efficiency but also at strengthening the relationship between the government and the public through more open public services.

Although e-government implementation in Makassar has shown positive progress, this success tends to be sectoral in nature and is not yet fully integrated across regional agencies. Some digital services have been running effectively in certain sectors, but coordination and data integration between government agencies remain a critical issue in the development of SPBE and the overall digital governance of local governments.

The analyzed research consistently indicates that the adoption of e-government has enhanced service accessibility and administrative efficiency. Nonetheless, the advancement of SPBE deployment is hindered by insufficient compatibility among governmental systems. This discovery indicates that the subsequent phase of digital transformation ought to prioritize governance integration instead of only increasing the quantity of digital apps.

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Makassar City Government's Digital Transformation Challenges

Despite the relatively progressive development of digital transformation, the Makassar City Government still faces various challenges in implementing e-government and SPBE. These challenges relate not only to the use of information technology but also to institutional issues, human resources, regulations, and public readiness to face changes in the digital-based public service system.

One major challenge is the integration of systems and data between government agencies. The fragmentation of digital service systems remains an obstacle to creating comprehensively integrated governance. Research explain that data integration between government agencies in Makassar City is still suboptimal, resulting in digital services operating partially in each service sector. This situation demonstrates that e-government development is not fully supported by a strong digital coordination system between regional government agencies.

The issue of system integration is also related to the weak synchronization of government information technology policies and governance. Research explains that the main obstacles to digital transformation in Indonesian government lie in data integration, regulations between agencies, and the quality of information technology infrastructure. These issues appear relevant to the digital transformation situation in Makassar City, which still faces disparities in implementation across government service sectors.

In addition to system integration, the quality of digital human resources is also a significant challenge in the digital transformation of local government. Several studies have shown that the ability of government officials to operate digital service systems remains uneven. The Findings found that the quality of human resources among government officials remains a barrier to optimizing e-government implementation at the Makassar City Population and Civil Registration Office. This issue demonstrates that digital transformation requires increased capacity among government officials to ensure optimal technology-based services.

Another significant challenge is the low level of public digital literacy. Digital government transformation fundamentally requires active public participation as users of digital public services. However, in practice, not everyone has the same ability to utilize electronic-based services. The Findings explains that the digital literacy gap and limited internet access remain obstacles to e-government implementation in various regions in Indonesia. This situation means that some communities still experience difficulties in optimally accessing digital public services. From an institutional perspective, the implementation of smart governance in Makassar City still faces challenges in the form of regulatory changes and limited digital service support facilities. Research shows that smart governance in Makassar City has not been optimally implemented due to inadequate digital service systems and support facilities. Furthermore, regulatory changes occurring during the implementation of digital policies often impact the sustainability of information technology-based service programs.

Policy sustainability issues are also evident in the implementation of the Homecare Dottorotta program. The Findings explain that the sustainability of this digital-based health service program still faces regulatory challenges and the involvement of external parties. This situation demonstrates that digital public service innovation requires strong regulatory support for consistent and sustainable policy implementation.

Furthermore, data security and digital information protection are also significant challenges in the development of digital governance. The use of electronic-based service systems increases the risk of data leaks and security breaches in digital government systems. Therefore, strengthening data security and information technology governance is crucial to supporting the sustainability of regional government's digital transformation.

An analysis of the examined literature indicates that the obstacles of digital transformation in Makassar are interrelated rather than independent. Inadequate system integration hampers

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service efficiency, and insufficient digital capabilities diminish the efficacy of technology improvements. Likewise, regulatory ambiguity and deficiencies in digital literacy impede citizen engagement in digital governmental services. Consequently, effective digital transformation necessitates a holistic governance strategy that concurrently tackles technological, organizational, and societal aspects.

Analysis and Direction of Strengthening Digital Governance

Based on various research findings, the Makassar City Government's digital transformation has shown quite progressive progress compared to several other regions. The local government has successfully introduced various digital-based public service innovations and strengthened the use of information technology in government governance. However, this success still exhibits a sectoral character and has not been fully integrated into a comprehensive digital governance framework.

This study offers a comprehensive synthesis of the structural difficulties impacting digital transformation in Makassar City, in contrast to prior research that mostly focuses on specific digital service packages. The results underscore the significance of governance integration, institutional capability, and policy consistency as critical factors in achieving sustainable digital transformation.

This situation demonstrates that the success of the government's digital transformation cannot be measured solely by the number of service applications or digital innovations developed by the local government. Strengthening digital governance requires service system integration, policy synchronization, coordination between regional agencies, and human resource readiness to support digital bureaucratic transformation.

Strengthening the implementation of the SPBE (E-Services and Electronic Services) is a crucial step in improving the Makassar City Government's digital governance. SPBE functions not only as an electronic service system but also as an instrument for comprehensive digital government integration. The Findings explain that SPBE plays a crucial role in increasing the accessibility of public services and strengthening the efficiency of government administration through the integration of information technology-based services.

In addition to strengthening system integration, increasing the capacity of government human resources is also an urgent need. Government officials need adequate digital skills to effectively deliver electronic-based public services. Strengthening civil servant competency is not only related to technical skills in using applications, but also the ability to adapt to changes in the digital bureaucracy's work culture.

The Makassar City Government also needs to strengthen equitable access to digital services for all levels of society. The development of digital services will not be optimal if there is still a gap in internet access and low digital literacy among the public. Therefore, strengthening information technology infrastructure and improving public digital literacy education are crucial to supporting the success of the government's digital transformation.

Therefore, strengthening digital governance in Makassar City cannot simply focus on developing public service technology. Digital government transformation also requires strengthening institutions, regulations, policy integration, data security, and cross-sector collaboration to ensure more effective, inclusive, and sustainable digital governance.

CONCLUSION

The Makassar City Government's digital transformation within the e-government framework has shown significant progress through the implementation of various digital-based public services, the strengthening of the implementation of SPBE (Smart

Governance and Smart City) and the development of smart governance and smart city concepts in several government service sectors. The presence of digital services has proven to be able to increase bureaucratic effectiveness, accelerate access to public services, and strengthen government transparency and responsiveness to public needs. However, this digital transformation still faces various challenges, such as suboptimal data integration between agencies, limited digital human resource capacity, gaps in public technological literacy, regulatory changes, and issues with data security and information technology infrastructure. Furthermore, the implementation of digital services in Makassar City still tends to be sectoral and not yet fully integrated into a comprehensive digital governance system. Therefore, strengthening coordination across regional agencies, improving the quality of digital apparatus, developing information technology infrastructure, and optimizing the implementation of SPBE are needed so that the digital transformation of government in Makassar City can be more effective, inclusive, and sustainable.

REFERENCES

Agustini, E., Nurdin, I., & Indriyani, E. (2025). International Journal of Social Science and Human Research The Development of SPBE Implementation and Its Implications in the Quality of Public Services in Serang City. *International Journal of Social Science and Human Research*, *8*(7).

Almadani, M., Cahyani, A. A. D., & Khadafi, M. (2024). The Influences of Electronic-Based Government System (Spbe) Implementation On Performance Accountability in the Regional Secretariat Of South Sulawesi Province. *Jurnal MSDA (Manajemen Sumber Daya Aparatur)*, *12*(1). https://doi.org/10.33701/jmsda.v12i1.4057

Anuradha, P. I., & Pathranarakul, P. (2023). Can governments rebuild the trust of their citizens through e-government? The mediating effect of good governance. *International Journal of Electronic Governance*, *14*(4). https://doi.org/10.1504/IJEG.2022.129320

Beckers, D., & Mora, L. (2025). Overcoming the Smart City Governance Challenge: An Innovation Management Perspective. *Journal of Urban Technology*, *32*(2). https://doi.org/10.1080/10630732.2025.2461983

de Waal, M., & Dignum, M. (2017). The citizen in the smart city. How the smart city could transform citizenship. *Information Technology*, *59*(6), 263–273. https://doi.org/https://doi.org/10.1515/itit-2017-0012

Fardiah, D., Darmawan, F., Rinawati, R., Supaat, V. E. M., & Hadnansyah, E. (2024). Digital transformation through electronic-based government system performance as public relations strategy. *PRofesi Humas*, *9*(1). https://doi.org/10.24198/prh.v9i1.56095

Lah, L. M., & Kotnik, Ž. (2024). Impact of digitalization on administrative burden: Empirical results of a content analysis . *NISPAcee Conference*.

Matteucci, N., Santolini, R., & Di Fabio, S. (2023). ICT diffusion in public administrations and business dynamics: Evidence from Italian municipalities. *Annals of Public and Cooperative Economics*, *94*(4). https://doi.org/10.1111/apce.12400

Muñoz-Hermoso, S., Domínguez-Mayo, F. J., Cerrillo-I-Martínez, A., & Benavides, D. (2025). A Conceptual Framework for Smart Governance Systems Implementation. *International Journal of Electronic Government Research*, *21*(1). https://doi.org/10.4018/IJEGR.376170

Nafi'ah, B. A. (2022). Challenges of Implementing an Electronic-Based Government System in Local Governments. *KnE Social Sciences*. https://doi.org/10.18502/kss.v7i9.10932

Najich Alfayn, M. A. (2022). From E-Government to Good Governance: Examining the Impact of Digitalization on Public Service Delivery in Indonesia. *JPW (Jurnal Politik Walisongo)*, *4*(2). https://doi.org/10.21580/jpw.v4i2.14873

Nam, T., & Pardo, T. (2011). Conceptualizing smart city with dimensions of technology, people, and institutions. (282-291). *In Proceedings of the 12th ICDGR*, 282–291.

Nastjuk, I., Trang, S., & Papageorgiou, E. I. (2022). Smart cities and smart governance models for future cities. *Electronic Markets*, *32*(4). https://doi.org/10.1007/s12525-022-00609-0

Popova, Y., & Popovs, S. (2023). Effects and Externalities of Smart Governance. *Smart Cities*, *6*(2). https://doi.org/10.3390/smartcities6020053

Prastowo, S. L., & Sudiana, D. (2024). Recommendations for a Framework for Handling Security Incidents of Electronic-Based Government Systems (SPBE) using the ISO/IEC 27035: 2023 Standard. *JINAV: Journal of Information and Visualization*, *5*(1). https://doi.org/10.35877/454ri.jinav2747

Ramadhani, M. A., & Handoyo, E. (2023). Implementasi Kebijakan Jakarta Smart City dalam Mewujudkan Smart Governance pada Pemerintahan Provinsi DKI Jakarta. *Unnes Political Science Journal*, *6*(2). https://doi.org/10.15294/upsj.v6i2.58254

Ruijer, E., Van Twist, A., Haaker, T., Tartarin, T., Schuurman, N., Melenhorst, M., & Meijer, A. (2023). Smart Governance Toolbox: A Systematic Literature Review. *Smart Cities*, *6*(2). https://doi.org/10.3390/smartcities6020042

Sihombing, T., & Lumbantobing, R. D. H. (2024). Digital technology adoption for village public administration—Evidence from Indonesia. *Journal of Infrastructure, Policy and Development*, *8*(4). https://doi.org/10.24294/jipd.v8i4.3444

Triyanto, D., Kismartini, Purnaweni, H., & Luqman, Y. (2025). The Impact of Smart Governance Implementation on Sustainable Development Goals in Indonesia. *Journal of Lifestyle and SDGs Review*, *5*(3). https://doi.org/10.47172/2965-730x.sdgsreview.v5.n03.pe04592

Wahyuni, S. (2023). The Role of E-government Based Good Governance and Bureaucratic Reform in the Context of Improving the Performance of Government Work Units. *Journal of Law and Sustainable Development*, *11*(11). https://doi.org/10.55908/sdgs.v11i11.1831

Yu, M. (2024). Key Challenges and Potential Solutions in Smart City Governance. *Scientific and Social Research*, *6*(8). https://doi.org/10.26689/ssr.v6i8.7818

Yunizhar, M. I., Nurdin, I., & Indrayani, E. (2025). SPBE Implementation in West Java: A Case Study of Sapa Warga Super Apps. *International Journal of Social Science and Human Research*, *08*(07). https://doi.org/10.47191/ijsshr/v8-i7-17