

Success and Failure of Local Government in Digital Transformation: An Indonesian Experience

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Abstract

The digital transformation of government is a crucial aspect of Indonesia's bureaucratic reform, designed to improve efficiency, transparency, and responsiveness. The execution of the Electronic-Based Government System (SPBE) at the local level is inconsistent. This study analyzes strategic elements affecting SPBE in three places with differing conditions: Banyuwangi Regency, Metro City, and Ternate City. Employing a constructivist paradigm and qualitative case study methodology, data were gathered via interviews, focus group discussions, observations, and document analysis, which were then thematically analyzed using NVivo 12 Plus. The findings delineate seven interconnected elements influencing digital transformation: leadership commitment, policy support, budgeting, digital literacy, application responsiveness, infrastructure, and collaborations. Banyuwangi exemplifies best practices through robust leadership and coherent rules; Metro advantages from considerable budgeting however encounters challenges in application integration; conversely, Ternate confronts large obstacles stemming from inadequate leadership, limited budget allocation, and deficient infrastructure. The paper indicates that effective SPBE implementation relies on the interplay of these strategic determinants and necessitates asymmetrical policy responses customized to local settings. These findings offer pragmatic insights for expediting adaptable and service-oriented digital governance in Indonesia.

Keywords: Digital Government; Digital Literacies; Digital Transformation; Leadership; Local Government

Introduction

Digital government transformation has emerged as one of the most strategic pillars of bureaucratic reform, particularly amid the accelerating global wave of digitalization. This transformation is not merely concerned with automating administrative tasks or adopting new digital tools; instead, it reflects a fundamental shift in governance paradigms. Governments across the world are increasingly moving toward smart society and governance 5.0 models, which emphasize inter-agency collaboration, service agility, and institutional adaptability in responding to rapidly evolving technological and societal changes. In this shifting landscape, digitalization should not be understood solely as an operational mechanism but as a catalyst capable of redefining state-citizen relations, strengthening

accountability, and enhancing the quality of public service delivery.¹ For Indonesia, which continues to face structural governance challenges, digital transformation represents a critical pathway toward more effective public administration.

Public expectations toward government performance have also increased dramatically as digital technologies become embedded in daily life. Evidence of this societal shift is reflected in the national Kompas survey, which reported a significant rise in the use of digital public services from 47.8% to 61.7%, indicating that digital engagement has become normalized across diverse demographic groups.² This upward trend signals that citizens not only demand more accessible services but also expect higher levels of transparency, responsiveness, and procedural efficiency. However, despite growing public adoption, many regional governments in Indonesia still struggle to implement digital services optimally. Limitations in fiscal capacity, technological readiness, and human resource capabilities create uneven progress, ultimately widening the gap between regions that are digitally advanced and those that lag behind.³ This disparity underscores the importance of involving all stakeholders not just bureaucrats and academics in the national conversation about digital governance, considering that government digitalization directly influences citizens' quality of life, the affordability of essential services, and the overall accountability of public budget utilization.⁴

Despite the strong momentum for digital reform, Indonesia's bureaucratic environment continues to exhibit entrenched structural and procedural weaknesses. Bureaucratic reform still encounters obstacles across eight areas of change, as highlighted in the literature. Complex administrative structures impede efficiency,⁵ while complicated and rigid procedures often lead to delays and inconsistencies in program implementation.⁶ Efforts to deregulate and streamline regulations remain constrained by slow revision processes and institutional sectoral ego.⁷ The uneven quality of civil servant competencies further contributes to inconsistent implementation of digital initiatives across regions.⁸ Moreover, nepotism and weak supervisory mechanisms have enabled corrupt practices to persist.⁹ Weak bureaucratic accountability,¹⁰ suboptimal service delivery particularly outside major cities¹¹ and resistance to change among government employees¹² together form a complex web of barriers that complicate the adoption of digital governance reforms.

Academic research has extensively discussed digital transformation and digital governance from various conceptual, technological, and organizational perspectives. For example, Mergel & Haug¹³ describe the typology of digital transformation, highlighting how governments transition from digitizing individual services toward integrated, citizen-centric platforms.¹⁴ Gil-Garcia and Sayogo focus on inter-organizational information-sharing initiatives, illustrating how data interoperability depends not only on technical standards but also on trust, institutional coordination, and shared incentives.¹⁵ Thus, it can be stated that digital transformation benefit is not recognized by the organization if the 3 (three) digital components -people, process, and technology (PPT), not harmony.¹⁶ However, although such studies provide valuable conceptual foundations, the majority of digital governance research remains centered on national-level institutions or technologically advanced countries, thereby leaving a gap in understanding the complexities of digital transformation at the subnational level, particularly within decentralized administrative systems such as Indonesia.

At the national level, Indonesia has made formal strides toward digital governance following the issuance of Presidential Regulation No. 95/2018 on the Electronic-Based Government System (SPBE). Prior to this regulation, the development of e-government was relatively stagnant.¹⁷ Since the regulation's enactment, progress has become more evident, with the national SPBE index increasing from 2.18 in 2019 to 2.79 in 2023.¹⁸ Although the rising score suggests improved policy alignment and broader digital adoption, the aggregated figure does not fully capture the unevenness of implementation across local governments. Indeed, significant disparities remain, as shown in the contrasting SPBE scores of Banyuwangi Regency (4.50), Metro City (3.04), and Ternate City (1.20).

These variations indicate not only differences in institutional capacity but also the broader inequalities embedded within regional governance structures. Adams stated that the difference capacity of local government is not caused by the natural resources or governability, but uniqueness aspect more highlighted by national government.¹⁹ The uniqueness of local government indicates asymmetric regulation made by national government.

The sharp inequality in SPBE maturity across regions reflects an underexplored research gap, particularly regarding strategic and contextual factors that influence digital transformation at the local government level. Much of the existing literature focuses heavily on quantitative metrics such as scores, indices, and service counts, which although useful do not adequately explain why certain regions excel while others remain stagnant. Quantitative assessments alone cannot capture the nuances of local political leadership, organizational culture, and administrative capacity, which often play decisive roles in shaping digital transformation outcomes. Additionally, the geographical complexity of Indonesia with its archipelagic structure, diverse socio-economic conditions, and asymmetric decentralization further complicates uniform implementation strategies. If these regional disparities are not addressed, the long-term benefits of digital government will remain uneven, thereby reinforcing structural inequalities and limiting citizens' access to essential digital services.

Given these challenges, this research gains strong relevance within Indonesia's ongoing bureaucratic reform and national development agenda. The findings do not merely contribute to academic discourse on digital government; they also carry practical implications for policymaking, institutional strengthening, and the design of local digital ecosystems. Digital transformation has the potential to significantly enhance service efficiency, reduce administrative burdens, and foster greater public participation. However, this potential can only be realized if digital policies are contextualized and adapted to local conditions. An asymmetrical approach rather than a uniform, centralized model is therefore essential to accommodate the diversity of regional characteristics, capacities, and needs. This view aligns with Constitutional Court Judge Wahiduddin Adams, who emphasizes the importance of embracing regional uniqueness within Indonesia's decentralized governance framework.²⁰

By grounding the analysis in local contexts, this study aims to enrich the understanding of how digital government implementation unfolds in practice. The comparative focus on Banyuwangi Regency, Metro City, and Ternate City offers a unique window into the strategic variations and common challenges found across different types of local governments in Indonesia. Banyuwangi is often cited as a model of digital innovation, Metro represents regions with moderate but promising digital progress, while Ternate illustrates the challenges faced by geographically isolated and resource-constrained areas. By examining these three cases, the study seeks to construct a more nuanced and empirically grounded understanding of the factors that support or hinder SPBE implementation, ultimately contributing to a broader theoretical construction of digital transformation in decentralized governance contexts.

Material and Methods

Study Design

This study was conducted over a six-month period, from February to August 2024. It employed a constructivist research paradigm, which views social reality as dynamic, context-dependent, and shaped by the interactions and interpretations of individuals involved in the phenomenon under study.²¹ Within this paradigm, a qualitative descriptive analytical approach was used to examine how digital government is implemented across different regional contexts and to identify the strategic factors that influence its success.

A multiple case study design was selected to allow a deeper and more nuanced understanding of digital transformation across three local governments Banyuwangi Regency, Metro City, and Ternate City. These regions were purposively chosen based on their varied levels of digital maturity and their official SPBE (Electronic-Based Government System) index scores published by the Ministry of Administrative and Bureaucratic Reform (PANRB). This design enabled the researcher to explore contextual complexities, compare governance characteristics, and identify factors that differentiate successful digital transformation from less successful implementations.²²

Research Locus and Data collection

Banyuwangi, Metro, and Ternate represent three contrasting typologies of local digital governance in Indonesia. Banyuwangi is recognized as a digitally progressive region with a high SPBE score, Metro occupies a middle level with several developing initiatives, while Ternate faces structural, fiscal, and geographic constraints that hinder its digital governance efforts. This variation allows the study to capture a wide spectrum of conditions, thereby strengthening the analytical richness and transferability of the findings. Geographically, these locations have different land structures where Ternate city is an archipelagic region, located in eastern Indonesia. While Metro city and Banyuwangi regency are continental regions, located in middle-western Indonesia.

A total of 12 key participants in FGD were selected purposively based on their expertise, authority, or direct involvement in digital governance. Informants included officials from the Ministry of PANRB, the Ministry of Communication and Informatics, regional secretaries, heads of local information and communication offices, professional assessors of the e-government index, and academic experts. This selection ensured diverse perspectives from policy-making, technical implementation, regional administration, and professional evaluation domains.²³ In the interview process, a total of 6 (six) persons were selected with purposive sample technique, based on several criteria, namely 1) practical expertise; 2) academic expertise; and 3) practical experience.

Data collection followed semi-structured interviewing techniques, allowing flexibility to explore emerging themes while maintaining alignment with the research objectives. FGDs were conducted with regional stakeholders to capture group interpretations, policy dynamics, and collective decision-making processes. FGDs were conducted three times, in Ternate city (28 March 2024), Metro city (16 February 2024), and Banyuwangi Regency (28 February). Observations were undertaken in government offices and public service units to examine actual digital service implementation, infrastructure conditions, and user interactions with digital platforms. Document analysis included reviewing SPBE reports, policy documents, regional regulations, SPBE masterplans, and evaluation results.

Table 1: Participants in FGD

Participants	Institution	Role/authority	Research loc.
Deputy of Institution and Governance	Ministry of PANRB, Republic of Indonesia	National policy formulator in digital transform	Ternate City
Deputy Assistant of Digital Transform	Deputy of Institution and Governance, Ministry of PANRB	National policy formulator in digital transform	
Policy Analyst in application infrastructure	Ministry of Communication and Informatic	Technically e-Gov implementation	
Regional secretary of Ternate City	Local Government of Ternate City	Local policy formulator in electronic government	
Head of Local Information and Technology Agency of Ternate City	Local Government of Ternate City	Technically implementor in local electronic government implementation	
Deputy of Institution and Governance	Ministry of PANRB, Republic of Indonesia	National policy formulator in digital transform	
Deputy Assistant of Digital Transform	Deputy of Institution and Governance, Ministry of PANRB	National policy formulator in digital transform	Banyuwangi Regency
Policy Analyst in application infrastructure	Ministry of Communication and Informatic	Technically e-Gov implementation	
Regional secretary of Banyuwangi Regency	Local Government of Banyuwangi Regency	Local policy formulator in electronic government	
Head of Local Information and Technology Agency of Banyuwangi Regency	Local Government of Banyuwangi Regency	Technically implementor in local electronic government implementation	
Deputy of Institution and Governance	Ministry of PANRB, Republic of Indonesia	National policy formulator in digital transform	
Deputy Assistant of Digital Transform	Deputy of Institution and Governance, Ministry of PANRB	National policy formulator in digital transform	
Policy Analyst in application infrastructure	Ministry of Communication and Informatic	Technically e-Gov implementation	Metro city
Regional secretary of Metro City	Local Government of Metro City	Local policy formulator in electronic government	
Head of Local Information and Technology Agency of Metro City	Local Government of Metro City	Technically implementor in local electronic government implementation	

Source: Processed By The Authors, 2025.

Data were analyzed inductively using thematic analysis guided by the procedures of Saldaña²⁴ and further operationalized through NVivo 12 Plus software. The analysis followed several stages:

1. Initial coding, where interview transcripts, observation notes, and documents were broken down into meaningful units;
2. Focused coding, in which similar concepts were grouped into categories;
3. Theme construction, where categories were synthesized to form broader themes related to leadership, policy support, budgeting, digital literacy, application responsiveness, infrastructure, and partnership; and
4. Cross-case analysis, where patterns and divergences across the three regions were systematically compared.

NVivo software assisted in managing large volumes of qualitative data, visualizing relationships among codes, and enhancing analytical transparency. Analytical memo writing was also performed throughout the process to document reflections, emerging insights, and theoretical linkages.²⁵ To ensure the credibility, dependability, confirmability, and transferability of the research, several validation strategies were implemented.

1. Credibility was strengthened through triangulation of data sources, methods, and informants.
2. Member checking was used by returning preliminary findings to several key informants for verification.
3. Dependability was maintained through detailed documentation of the research procedures and analytical decisions.
4. Confirmability was ensured by maintaining an audit trail of coding structures, memos, and decision logs.
5. Transferability was supported through thick descriptions of each research locus and its contextual factors.

Ethical approval was obtained prior to data collection, and all participants provided informed consent. Confidentiality was maintained by anonymizing informant identities, and sensitive institutional information was handled with care to prevent misuse or misinterpretation.

Table 2: Informants In Interview

Informants	Institution	Role/authority
E-Gov Index assessor (2 person)	Professional/consultant	Person who in-charge for electronic government measurement process
Local government expert	Lecture, Institut Pemerintahan Dalam Negeri	Local government act's formulator
Policy Analyst in digital transform function (3 persons)	Deputy Assistant of Digital Transform	
Head of Local Information and Technology Agency	Local government of Ternate, Metro, and Banyuwangi	

Source: processed by the authors, 2025.

Result and discussion

This research seeks to identify strategic factors that influence the implementation of digital transformation in three local governments: Banyuwangi Regency, Metro City, and Ternate City. Digital transformation encompasses more than technology adoption; it represents a holistic change that includes leadership, regulation, budget considerations, public literacy, application quality, infrastructure availability, and partnership networks. Qualitative analysis utilizing NVivo 12 Plus software identified seven interrelated strategic factors that influence the success of digital transformation implementation: (1) leadership commitment, (2) policy support, (3) budgeting, (4) public digital literacy, (5) application responsiveness, (6) infrastructure, and (7) partnership.

Leadership commitment (tenacity)

In the regional head's vision and mission statement, "Strengthening Agile and Dynamic Governance through Digital Transformation to Achieve Productive Bureaucracy and Ease of Doing Business," Banyuwangi Regency demonstrates a strong commitment to digital transformation. Weekly Banyuwangi Performance is a weekly forum to evaluate the performance of all regional government agencies, including aspects of the implementation of the Electronic-Based Government System (SPBE). This program demonstrates the concrete implementation of this commitment. Furthermore, the Bunga Desa program, also known as *Bupati Masuk Desa* (Regent Enters Village), focuses on building relationships with the community through digital data. The Head of the Banyuwangi Communications and Informatics Agency, interviewed, stated that: "*the regent's decisions are always based on data, demonstrating consistent digital leadership practices*".

Digital transformation is also part of the mayor of Metro City's objective to achieve good, dignified, and respectable governance. Successful digital projects include the Creative Hub, Smart Village, and Digital Reading Corner. In contrast to Banyuwangi, Metro City's mayor has not shown great dedication through direct oversight procedures. In general, keeping an eye on digital policies is still part of the good governance agenda. Weak leadership commitment is exemplified by Ternate City. The mayor's vision and objectives do not include digital transformation. As a result, regional government entities do not effectively collaborate to assist the SPBE. The head of the Ternate City Communications and Information Agency said in an interview that: "*nothing has been done about the recurrent budget recommendations for digital infrastructure*." This illustrates the SPBE's low political status among local authorities. This study's findings validate the digital leadership hypothesis²⁶, asserting that visionary leadership is essential for successful digital transformation. Banyuwangi effectively showcased digital leadership through data-driven decision-making, but Ternate illustrated that without leadership commitment, SPBE devolves into mere administrative jargon.

Beyond the formal articulation of leadership visions, the empirical findings demonstrate that the intensity and consistency of leader engagement play a decisive role in shaping bureaucratic behavior toward digital transformation. In Banyuwangi, the regent's routine presence in performance review mechanisms such as the *Weekly Banyuwangi Performance* forum has cultivated a culture of institutional discipline. This forum establishes a rhythm of accountability that encourages every regional device organization (OPD) to showcase measurable progress. Such practices resonate with digital-era governance principles, where leadership uses data as a governance instrument rather than as a symbolic reporting tool. This contrasts sharply with Ternate, where leadership disengagement has resulted in minimal inter-departmental synchronization, reflecting what the interview data describe as a "low political status" for SPBE initiatives.

The comparative evidence also shows that leadership commitment significantly shapes the degree of innovation diffusion within regional governments. For example, Banyuwangi's *Bunga Desa* program functions not only as a mechanism to engage communities but also as an innovation pipeline, enabling the collection of granular digital data from village-level interactions. Meanwhile, Metro's case demonstrates that although leadership is supportive, the absence of direct and consistent monitoring creates reliance on mid-level bureaucrats to maintain digital initiatives. This explains why Metro's innovations such as Smart Village and Creative Hub tend to progress incrementally without the transformative momentum observed in Banyuwangi. Ternate's stagnation validates the leadership model presented by Avolio et al.,²⁷ illustrating that without a clear mandate from the top, digital transformation becomes fragmented and lacks institutional traction.²⁸

Leadership differences across regions also influence institutional willingness to engage in regulatory reforms. Banyuwangi's strong commitment has translated into the issuance of multiple regulatory instruments such as the Banyuwangi Data Center regulation and the Service Liaison System regulation indicating strategic foresight in anticipating future integration with the National Data Center. Metro follows similarly but with slower policy harmonization, while Ternate remains reactive, issuing regulations that are often misaligned with RPJMD targets. Such discrepancies highlight that leadership in digital transformation is not simply about vision, but about the capacity to mobilize administrative machinery and align multi-level governance instruments to support system-wide change.

Policy Support (Thoroughness)

The Regional Medium-Term Development Plan (RPJMD) Regulation, the Regent's Regulation on SPBE (Smart Village), and the Regent's Decree on the SPBE Monitoring and Evaluation Team are only a few of the extensive laws in Banyuwangi Regency. Even the Smart Village program, which is currently a SuperApps application, was derived from the updated PIM II (leadership for high-middle manager) Training Program. This policy support is consistent with the regional head's idea, formal regulations, and technical implementation. The Mayor's Regulation on the 2022–2026 SPBE Master Plan and the SPBE Regional Regulation are both in Metro City. The goal of the policy is to create Smart Villages, the smallest part of the digital government framework. The Ministry of Administrative and Bureaucratic Reform (PANRB), the Supreme Audit Agency (BPK), and the Indonesian Ombudsman are all involved in Metro's SPBE examination in addition to internal review. This cross-sectoral review process reflects the idea of checks and balances, which might enhance digital governance.

There is an SPBE Regional Regulation in Ternate City as well. Nevertheless, national regulations (scale 1–5) do not correspond with the RPJMD objectives (scale 10–100). Furthermore, rather than creating new apps, Ternate's policy implementation typically focuses only on enhancing digital governance. As a result, official policies and actual needs diverge. Banyuwangi and Metro demonstrate relative consistency in policy formulation and issuance, whereas Ternate continues to encounter issues with regulatory asynchrony. Milakovich highlighted the role of policy as a driver of digital innovation within the public sector. Banyuwangi and Metro exhibited coherence between national regulations and local execution, whereas Ternate encountered a disjunction between RPJMD objectives and central regulations.²⁹

Policy coherence stands out as a distinguishing factor among the three regions. Banyuwangi has developed a chain of regulatory instruments that mutually reinforce one another, beginning with the RPJMD and cascading down to specific regent regulations concerning SPBE application governance, data center operations, and service integration. The Smart Village initiative, originating

from a PIM II training project, exemplifies how policy is used as an adaptive tool to institutionalize innovation. This strategic layering of regulations creates a structured environment that minimizes ambiguity and provides clear operational guidelines for digital transformation actors. Metro City demonstrates adequate regulatory alignment but relies heavily on external accountability mechanisms. The involvement of PANRB, BPK, and the Ombudsman in SPBE review processes forces Metro to maintain compliance and improves coordination across OPDs. Nevertheless, the regulatory framework in Metro is narrower in scope compared to Banyuwangi, especially in areas related to system interoperability. This reflects a pragmatic approach where policy serves to meet administrative requirements rather than functioning as a blueprint for innovation and long-term integration.

Conversely, Ternate exhibits regulatory asynchrony, where local SPBE regulations emphasize administrative compliance rather than digital service expansion. Misalignment between national scales (1–5) and regional planning scales (10–100) further complicates implementation. Ternate has not issued an integration-specific regulation equivalent to Banyuwangi's Service Liaison System policy, leaving the region without clear guidelines to connect local applications with the national interoperability framework. Such gaps indicate that Ternate's policy environment lacks the strategic depth needed to support holistic digital transformation.

Budgeting (Treasury)

Banyuwangi will set aside 380 million rupiah in 2024. Optimization techniques are being applied, although not substantially. Instead of developing new applications, Banyuwangi has been improving its current ones since 2021. With a 2024 budget of 2.89 billion rupiah, Metro City has the highest allocation of any of the three study sites. Internet infrastructure, data security, professional personnel, and system upkeep will all be covered by this expenditure. Only 23.79 million rupiah was given by Ternate City. It is clear from this extremely low budget that SPBE is not a top priority. Instead of creating digital infrastructure or services, it is merely adequate for monitoring and reporting. This disparity suggests that regions that prioritize SPBE and those that do not differ significantly.

Ripani et.al asserted that proper budgeting is essential for the process of digital transformation.³⁰ This analysis demonstrates that Metro, possessing a substantial budget, is capable of constructing more resilient infrastructure compared to Ternate, which operates with a more limited financial framework. This indicates a clear correlation between the magnitude of the budget and the efficacy of SPBE. Budget allocation patterns reveal different strategic orientations. Banyuwangi's decision to cease funding new application development after 2021 reflects a mature digital ecosystem strategy where emphasis is placed on consolidation rather than expansion. This approach aligns with the technological governance shift toward minimizing application sprawl and prioritizing interoperability. Metro's much larger allocation enables more comprehensive digital governance investments, including cybersecurity, encryption, expert staffing, and system maintenance components that indicate a governance model preparing for a more integrated SPBE future.

The financial disparity between Metro and Ternate underscores the structural inequality in regional capacity. Metro's budget facilitates stable network infrastructure and allows continuous updates, while Ternate's small allocation mostly earmarked for monitoring and reporting prevents meaningful advancement beyond administrative compliance. Ternate has not secured support through national programs due to disputes regarding its classification as a 3T region, resulting in stalled infrastructure projects such as BTS towers that would enable digital service expansion. These findings reinforce the argument by Ripani et.al that effective digital transformation requires sustained financial commitment.³¹ In Banyuwangi and Metro, budgetary decisions reflect strategic intent either consolidating an existing system or strengthening foundational infrastructure. In Ternate, however, the

insufficient budget acts as a constraining factor that limits technological upgrades, capacity building, and inter-agency integration. Without addressing this fiscal gap, digital disparities among regions will continue to widen.

Public Digital Literacy (Tech-Savvy)

The level of digital literacy among the public significantly affects the utilization of digital demand for digital services among the public, prompting civil servants (ASN) to expedite their adaptation efforts. This establishes a beneficial feedback loop between service delivery and public demand. Metro City employs the Questionnaire Plan Complaint Program (QPCC) to evaluate digital services and operates the “Metro Kita” portal, which encompasses 33 public services. The local government obtains direct feedback through this public evaluation system, promoting active public participation. The digital literacy rate in Ternate is low. Despite the availability of certain services online, the public demonstrates a preference for in-person visits to government offices. The situation is worsened by inconsistent digital standard operating procedures (SOPs). According to Hung et.al³² and Visser,³³ public digital literacy is essential. Ternate encounters difficulties stemming from inadequate digital literacy, whereas Banyuwangi and Metro have effectively augmented public demand.

Field observations and interview data from the Head of Local Information and Technology Agency, and his technical staff, reveal that Banyuwangi's high digital literacy is not merely a product of citizen preference but the result of long-term investments in community-based digital education. The Smart Kampung program, which has been in place since 2016, integrates digital literacy modules into village governance, enabling rural communities to engage effectively with digital platforms. This grassroots model accelerates public adoption and reduces the digital divide internally. Metro's digital literacy ecosystem benefits from active user engagement facilitated by feedback mechanisms such as QPCC and the Metro Kita portal. The portal's 33 services create repeated user interactions, building familiarity and trust in digital platforms. Such iterative engagement is critical for sustaining user momentum and aligns with contemporary digital governance theory emphasizing user-centered design and continuous service improvement.

Ternate, however, faces structural barriers to digital literacy. Many services in Ternate Kota's 11-service portal remain one-way and non-interactive, reducing incentives for public engagement. Limited outreach efforts and inconsistent SOP implementation further discourage digital service usage. As Hoai et.al³⁴ and Visser³⁵ suggest, digital literacy thrives when users perceive digital services as reliable, responsive, and integral to daily administrative processes criteria not yet met in Ternate.

Application Responsiveness (Tactful)

Public service applications should be readily accessible and fulfill the needs of the public. Banyuwangi and Metro possess relatively user-friendly applications. Integrating these systems with nationally common applications, such as Integrated Dynamic Archiving Information System (*system informasi kearsipan dinamis terintegrasi*-SRIKANDI), Online Single Submission (OSS), or Digital Public Service Mall (*Mall pelayanan public digital*-MPP Digital), frequently causes disruptions for the public. A significant factor is the ego within ministry sectors. The Ternate application is characterized by its one-way, non-interactive, and unresponsive nature. The sectoral egos between ministries and agencies that impede digital integration were highlighted by Utama et al..³⁶ Metro's results about public misunderstanding of the OSS and MPP Digital support this claim. Strengthening cross-ministerial application integration is necessary to improve the responsiveness of digital services. Application responsiveness in Banyuwangi and Metro is supported by their relatively advanced backend systems.

Banyuwangi's proactive establishment of the Banyuwangi Data Center (BDC) ensures more stable data management and smoother system integration. Metro, leveraging web-based services, ensures consistent user interfaces across devices. However, both regions still experience challenges when integrating with national platforms such as OSS and SRIKANDI due to overlapping mandates and sectoral ego at the ministerial level.

System integration remains a significant barrier across Indonesia, only Banyuwangi has issued a dedicated regulation on the Service Liaison System, enabling smoother linkages to SPLP (the national interoperability hub). Metro and Ternate lag behind in this area, preventing seamless system connectivity. Without clear integration protocols, application responsiveness becomes constrained, and user satisfaction suffers. Ternate's application ecosystem demonstrates the lowest responsiveness, with most services limited to static information. The Head of Local Information and technology agency emphasize that: *"fragmented systems and poor responsiveness stem from both technical limitations and an absence of integrated design principles. Users frequently shift back to offline services, reducing the effectiveness of digital governance strategies"*. This illustrates the argument by Utama et.al that digital integration requires strong cross-ministerial collaboration something not yet achieved in Ternate.³⁷

Infrastructure

In Indonesia, different types of geography and poor telecommunications infrastructure are still major barriers to digital transformation in local areas. High-speed and reliable internet access is often not available in mountains, islands, and other remote areas. This makes it harder for people to use public digital services and makes the gap between cities and rural areas even bigger.³⁸ Ferrari et al. found similar results in 14 European countries highlight connectivity as the most persistent obstacle to rural digitalization.³⁹ In this study, Banyuwangi and Metro had fairly good digital infrastructure. Both entities possessed comprehensive wireless and fiber optic internet service throughout all their districts and sub-districts. Ternate, conversely, lagged significantly. Numerous offshore islands, like Batang Dua, Moti, and Hiri Island, continue to lack reliable connectivity and adequate infrastructure. Interviews with local officials indicate that: *"the construction of BTS towers has been suspended due to a lack of consensus between central and regional governments about the classification of "3T" areas (boundary, outermost, and disadvantaged)"*. This indicates that these islands will be ineligible for financial support from the national financing program.

Infrastructure quality remains a structural differentiator. Banyuwangi and Metro have achieved near-full coverage with fiber-optic and wireless networks, enabling robust access to digital services. Their reliance on the National Data Center is complemented by strong local preparedness. Banyuwangi's independent data center provides additional redundancy and operational continuity. The research highlights that Ternate's connectivity gaps are not limited to rural areas but extend to key administrative regions. In remote districts such as Batang Dua, Moti, and Hiri, the absence of network coverage prevents integration into basic SPBE services. Infrastructure deficits also hinder Ternate's ability to deploy advanced security protocols, as evidenced by ongoing coordination limitations with BSSN. These infrastructural challenges illustrate a broader policy challenge: without resolving disputes around 3T classification and national support frameworks, municipalities like Ternate will remain technologically disadvantaged. Ferrari et.al emphasize that connectivity is the most persistent obstacle in rural digitalization worldwide a finding that aligns squarely with the conditions observed in this study.⁴⁰

Partnership (Tandem)

Collaboration among multiple stakeholders is essential for facilitating digital transformation. Banyuwangi and Metro are actively forging partnerships with the central government, the private sector, and local communities to enhance the development of the digital ecosystem. Ternate continues to experience a deficiency in collaboration. Despite the occurrence of public consultations and development planning forums (*musrenbang*), the collaboration has not produced substantial outcomes because of budgetary and infrastructure constraints.

Internal resources exhibit comparatively weaker capabilities than those found in external partnerships⁴¹. Banyuwangi and Metro exemplify effective multi-stakeholder collaboration, whereas Ternate falls short due to less efficient collaborative efforts. Partnerships strengthen digital ecosystems by providing access to expertise, technology, and capacity-building resources. Banyuwangi's partnerships with both public and private actors have supported the development of Smart Kampung and digital entrepreneurship programs. These partnerships enable cross-sector innovation and allow the region to adapt global best practices into local solutions.

Metro City mirrors this collaborative approach through partnerships that support application development, data integration, and public service enhancements. Collaboration with PANRB and the Ministry of Communication and Informatics (*Kominfo*) enhances system alignment with national standards and improves digital security protocols. These relationships ensure that Metro's innovations remain compliant and scalable. Ternate continues to exhibit limited partnership development, general forums like *musrenbang* are conducted, but deeper collaboration does not occur due to inadequate budgeting and infrastructure constraints. This isolation limits Ternate's ability to integrate national systems or adopt best practices. Reim, Andersson, and Eckerwall⁴² emphasize that external partnerships often outperform internal capabilities in driving digital transformation a pattern clearly reflected in Ternate's experience.

Strategic Factor Matrix Carried out at the Research Location

In summary, the supporting and inhibiting factors in the implementation of local government transformation carried out by Banyuwangi Regency, Metro City, and Ternate City are presented in the following table:

Table 3: Strategic Factor Matrix Carried out at the Research Location			
Aspects	Research Location		
	Banyuwangi Regency <i>Supporting Factors</i>	Metro City <i>Supporting Factors</i>	Ternate City <i>Inhibiting Factors</i>
1. Leader commitment (<i>Tenacity</i>)	1. It is listed in the mission of the Regent and Deputy Regent of Banyuwangi and has been included in the RPJMD performance agenda.	1. It is listed in the mission of the Mayor and Deputy Mayor of Metro and is down to the RPJMD performance agenda.	Not listed in the mission of the Mayor and Deputy Mayor of Ternate.

	2. Weekly program monitoring, through <i>Weekly Banyuwangi Performance</i>. 3. Program “Bunga Desa (Regent Enters Village).” 4. Optimize data-driven policies. 5. Digitalization as a legacy of leadership.	2. No in-depth examples of the Metro Mayor’s commitment to the digital transformation of Metro City were found.	
2. Thoroughness policy support	1. Regional Regulation (<i>Perda</i>) of Banyuwangi Regency Number 7 of 2016 concerning RPJMD 2016-2021 of Banyuwangi Regency. 2. PIM II Training Change Project for the General Government Assistant of Banyuwangi Regency as the forerunner of the grand design of the Smart Village application. 3. Banyuwangi Regent Regulation No. 18 of 2016 concerning the Integration of Village/Village-Based Programs Through Smart Villages. 4. Decree of the Regent of Banyuwangi Number 188/344/KEP/429.011/2019 concerning the Monitoring and Evaluation Team for the Implementation of SPBE in the Banyuwangi Regency Government. 5. Banyuwangi Regency Regional Regulation Number 2 of 2021 concerning the Banyuwangi Regency Regional Medium-Term Development Plan for 2021-2026.	1. Metro City Regional Regulation (<i>Perda</i>) Number 7 of 2021 concerning the Metro City RPJMD for 2021-2026. 2. Metro City Regional Regulation Number 8 of 2019 concerning SPBE. 3. Metro Mayor Regulation Number 35 of 2022 concerning the SPBE master plan for 2022-2026.	1. Ternate City Regional Regulation Number 4 of 2021 concerning the Ternate City RPJMD for 2021-2026. 2. Ternate City Regional Regulation Number 2 of 2023 concerning the Implementation of SPBE within the Ternate City Government.

	6. Banyuwangi Regent Regulation Number 21 of 2023 concerning Electronic-Based Government System Applications. 7. . Decree of the Regent of Banyuwangi No. 188/52/ KEP/429.011/2023 concerning Amendments to the Coordination Teams of Electronic-based Government in Banyuwangi Regency. 8. Decree of the Regent of Banyuwangi No. 188/346/ KEP/420.011/2020 concerning the Coordination Team for the Implementation of SPBE. 9. Banyuwangi Regent Regulation Number 6 of 2023 concerning Guidelines for Data Center Management in the Scope of the Banyuwangi Regency Government. 10. Banyuwangi Regent Regulation Number 22 of 2023 concerning Service Liaison Systems.		
3. Budgeting (Treasury)*	1. Budget for 2024: Rp. 380 million. 2. Since 2021, it is no longer budgeted to develop applications.	1. Budget for 2024: IDR 2.89 billion. 2. Allocated for the fulfillment of the government's internet infrastructure throughout Metro City, for information security and encryption activities, budget for payment of experts, and system maintenance.	1. Budget for 2024: IDR 23.79 million. 2. monitoring, evaluation, and reporting activities of the SPBE ecosystem.

Success and Failure of Local Government in Digital Transformation: An Indonesian Experience

4. Digital literacy of the community (<i>Tech-savvy</i>)	<i>The demand</i> from the public related to digitalization is high, so it is quite critical of digital services and provides input for improvement.	<i>The demand</i> from the public related to digitalization is quite high, so it is quite critical of digital services and provides input for improvement.	<i>Low demand</i> from the public regarding digitalization.
5. Responsiveness (<i>Tactful</i>)	1. It is quite <i>user friendly</i> and can be used by both Android and iOS operating system users. 2. The integration and interoperability of the common sharing applications provided by the central government has not been fully able to respond to the needs of local governments, and still has the potential to overlap and cause confusion in the community.	Very <i>user friendly</i> because it is web-based with quite complete service features.	The service is still one-way, not <i>user friendly</i> .
6. Infrastructure (<i>Telecommunications grid</i>)	Wireless and <i>fiber optic</i> networks are available for the internet in 25 sub-districts, 189 villages, and 28 sub-districts.	Wireless and <i>fiber optic</i> networks are available for the internet in 5 sub-districts and 22 sub-districts.	Internet network and hardware access is not fully available, especially in the outer archipelago.
7. Partnership (<i>Tandem</i>)	Adequate partnerships, both with the government and the private sector.	Adequate partnerships, both with the government and the private sector.	Lack of partnerships in various fields.

*: local budget is gathered from each local government, and got in research conducting process parallelly.

Source: processed by authors, 2025.

The findings of this research are novelty from previous researches, especially the theory of People, Process, and Technology (PPT) which in general is not a local government, and still tends to be simple in describing the implementation and prerequisites for complex and dynamic digital government transformation. Thus, this study establish novelty, composed in 2 (two) aspects, digital transformation, and strategic factors (5P7T). Digital transformation success is derived by 5 (five) indicators, namely preparedness, performing, participation, personnel, and partnership (5P). Moreover, Strategic factors in local government digital transformation derived from tenacity, thoroughness, treasury, tech-savvy, tactful, telecommunication grid, and tandem (7T). In summary, the construction of the implementation of digital transformation of local government as well as the supporting and inhibiting factors are described, as follows:

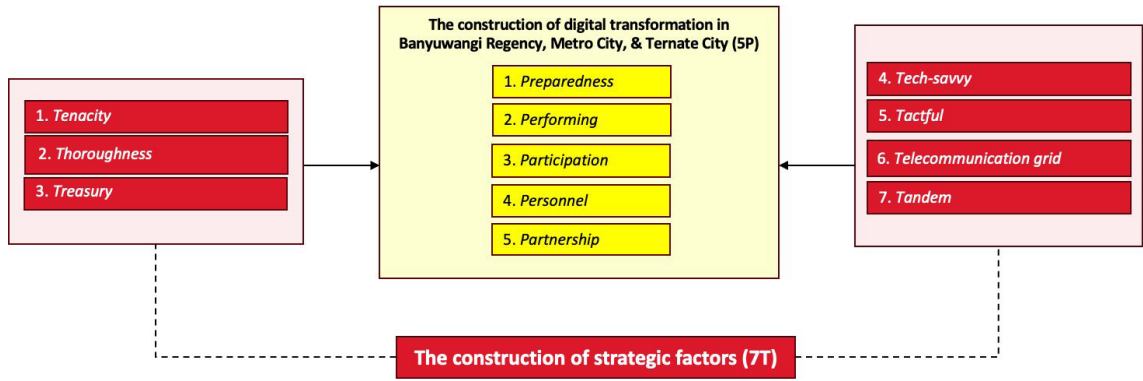


Figure 1: Construction of Digital Transformation of Local Government.
Source: data processed by researchers (2025).

If the construction of 5P7T is depicted in a venn diagram, it can be seen that the three main entities of the research can be seen, namely Banyuwangi Regency, Metro City, and Ternate City. Each of these entities has core characteristics carried out by each locus within its circle, both in terms of implementation and its supporting and inhibiting factors. Furthermore, there are intersections between the circles that indicate the values or characteristics shared by the two or three entities. In the context of this study, a venn diagram can be described as follows:

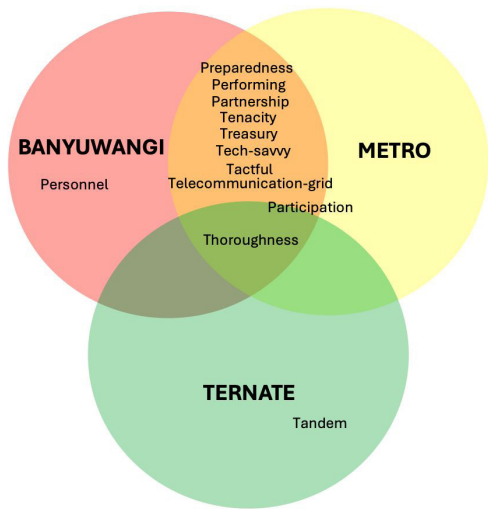


Figure 2: Focus on the construction of digital transformation implementation as well as strategic factors at the research locus.
Source: data processed by researchers, 2024.

Each research locus represents a focus on different digital transformation initiatives. The words in each circle represent the main pillars or strategies used in the digital transformation. For example, “Personnel” in Banyuwangi refers to the focus on the implementation of human resource development in their digital transformation which is not carried out at other research locus. For the implementation of “Preparedness”, “Performing”, “Partnership”, “Tenacity”, and “Treasury”, “Tech-savvy”, “Tactful”, “Telecommunication-grid” were found to be implemented in Banyuwangi Regency and Metro City, so that it is depicted at the intersection between the circles of the two regions. This shows the similarities carried out by the two research locus. Furthermore, “Participation” is carried

out dominantly in Banyuwangi Regency and Metro City, with a smaller portion carried out in Ternate City. Meanwhile, for the supporting factor (driver), namely “Thoroughness” was found to be carried out in the three research locus. The inhibiting factor in the form of a lack of partnership (Tandem) is not found in other locus, but only in Ternate City.

Thus, overall, this diagram provides a simple yet effective visual overview of how different digital transformation projects can have similarities and differences in implementation focus. By identifying these diagrams, we can identify best practices that other regions can adopt, as well as a tool to compare and contrast different approaches to digital transformation.

Theoretical, Practical and Policy Implications

This study provides several theoretical contributions to the scholarship on digital government and public sector transformation, particularly within the context of decentralized governance systems. First, the findings reinforce the notion that digital transformation is not merely a technological endeavor, but a multidimensional institutional process shaped by leadership, regulatory coherence, fiscal choices, citizen capability, infrastructure readiness, and cross-sectoral collaboration. While previous literature such as Mergel et al.⁴³ and Gil-Garcia & Sayogo⁴⁴ emphasizes typologies and data interoperability, the results of this study show that the interaction among these factors is contextually situated and varies significantly across regions. Second, the cross-case comparison highlights that digital transformation in developing countries requires a more nuanced theoretical treatment than traditionally offered in e-government models. The stark differences between Banyuwangi, Metro, and Ternate demonstrate that the conventional “technology–organization–environment” framework is insufficient to explain digital transformation outcomes. Instead, the findings support a more ecosystemic perspective in which digital maturity is shaped by the alignment of political commitment, administrative capacity, public literacy, and infrastructural embeddedness. This suggests expanding future theoretical models to incorporate asymmetrical institutional conditions something particularly relevant in highly diverse countries such as Indonesia.

Third, the study deepens theoretical discussions on asymmetric decentralization. The variations in SPBE performance do not merely reflect differences in resources but also governance asymmetries such as leadership styles, coherence of long-term planning instruments, and the strength of intergovernmental coordination. These findings affirm Adams’s argument on the necessity of acknowledging regional uniqueness within national governance reforms. This perspective contributes to ongoing debates on how decentralization can either enable or constrain digital transformation, depending on the degree of alignment between central mandates and local institutional realities. Finally, the study enriches the methodological discourse in digital governance research by demonstrating the utility of inductive thematic analysis supported by NVivo. The seven strategic factors identified in this study do not emerge solely from theory but from grounded empirical patterns that recur across cases. This supports the argument that digital government studies benefit from deeper qualitative inquiry that captures institutional complexity, power relationships, and local adaptation processes that quantitative indices alone cannot reveal.

From a policy standpoint, the study offers several actionable insights for government stakeholders at both national and regional levels. First, the results confirm that leadership commitment is the most decisive factor for successful digital transformation. Therefore, national ministries including PANRB and Kominfo should strengthen leadership development programs that integrate digital governance competencies, performance accountability mechanisms, and evidence-based decision-making. Without strong leadership, regional SPBE initiatives risk becoming symbolic or fragmented, as illustrated by the Ternate case. Second, regulatory coherence must be improved. While

Banyuwangi and Metro demonstrate relatively aligned regulatory frameworks, Ternate illustrates how misaligned planning instruments and SPBE regulations can hinder progress. National authorities should therefore revise technical guidelines to promote vertical policy harmonization ensuring consistency between RPJMN, RPJMD, and SPBE masterplans. Furthermore, regional governments require stronger regulatory instruments that support system integration and data interoperability.

Third, budgeting strategies must move beyond compliance-driven allocations. Metro's experience shows that sustained investment in infrastructure, cybersecurity, and human resources substantially enhances digital readiness. Conversely, Ternate's limited budget emphasizes monitoring rather than service expansion. National grant schemes like special allocation fund for information and technology (DAK-ICT) should prioritize disadvantaged regions with clear criteria, and disputes related to underdeveloped, outermost, and frontier (3T) classification must be resolved to ensure equitable access to infrastructure funding. Fourth, public digital literacy must be expanded through structured community engagement. Banyuwangi's Smart Kampung demonstrates that strengthening literacy at the village level accelerates adoption and creates bottom-up demand for digital services. Regions such as Ternate would benefit from replicating community-centered literacy models supported by local training programs, digital ambassadors, and integrated SOPs. This aligns with Hung et al.,⁴⁵ who emphasize literacy as a prerequisite for effective digital service utilization.

Fifth, national-level reforms are needed to eliminate sectoral egos that hinder service integration. The recurring disruptions faced when linking OSS, SRIKANDI, and MPP Digital across regions highlight the need for uniform technical standards, a centralized interoperability hub, and strong cross-ministerial governance. Without structural integration, application responsiveness will continue to depend on local improvisation rather than systemic interoperability. Lastly, partnerships must be systematically strengthened. Banyuwangi and Metro illustrate the benefits of multi-stakeholder collaboration, including technical assistance, innovation co-creation, and ecosystem expansion. National institutions, academia, and private partners need to actively support less digitally mature regions such as Ternate through structured mentoring, joint innovation labs, and cross-regional knowledge exchange platforms. Partnership-driven models should be institutionalized rather than incidental, ensuring sustainability beyond leadership turnover.

Conclusion

The findings of this study demonstrate that the success of digital transformation in local governments is shaped by the interplay of seven strategic components: leadership commitment, policy support, budgeting, digital literacy, application responsiveness, infrastructure readiness, and partnership networks. Each of the three research sites illustrates how differences in these components lead to distinct digital transformation trajectories. Banyuwangi represents the most advanced model, characterized by strong digital leadership, coherent and comprehensive regulations, high levels of digital literacy, and extensive multi-stakeholder collaboration. Metro, despite facing ongoing challenges in application integration, has achieved notable progress due to substantial financial investment and moderately supportive leadership. Meanwhile, Ternate continues to struggle due to limited political commitment, minimal budget allocation, inadequate infrastructure, and low levels of digital literacy, which collectively hinder its ability to advance SPBE implementation. These comparative insights underscore that digital transformation outcomes cannot be fully understood through technological readiness alone but must be contextualized within broader institutional and sociopolitical dynamics.

Despite providing important empirical insights, this research possesses several limitations. First, its scope is restricted to only three local governments Banyuwangi Regency, Metro City, and Ternate City thereby limiting the generalizability of the findings. Indonesia's local governments

exhibit vast diversity in fiscal capacity, geographic conditions, institutional maturity, and demographic characteristics; therefore, the dynamics observed in these three cases may not fully represent the complexities of digital transformation across the country. Second, the study relies heavily on qualitative data derived from interviews and official documents, which introduces the potential for subjective bias from both researchers and informants. While triangulation efforts were undertaken, the interpretive nature of the data means that certain nuances may still be shaped by the perspectives of participants. Third, due to the descriptive-analytical design, the study does not quantitatively test causal relationships among the seven strategic factors, limiting the ability to draw statistically generalizable conclusions regarding the strength of each factor's influence on SPBE outcomes.

Future research should therefore expand the empirical scope by incorporating a wider range of regions with varying SPBE index scores and diverse fiscal, geographical, and demographic characteristics. Such expansion would allow for a more comprehensive understanding of how regional disparities shape digital transformation trajectories. Employing mixed-methods approaches that integrate quantitative surveys, structural equation modeling, or digital maturity indices with qualitative insights would enhance empirical robustness and enable the examination of causal mechanisms. Longitudinal studies would also be valuable for capturing the evolution of digital transformation over time, particularly in relation to leadership changes, shifts in national policy frameworks, and advances in digital technologies.

Subsequent research may also explore external variables that were beyond the scope of this study, such as inter-ministerial and inter-agency coordination, the role of private sector participation, and the influence of international policy interventions. Comparative studies across countries particularly in Southeast Asia could further enrich the theoretical understanding of how political structures, societal norms, and cultural contexts shape local government digital transformation. Such comparative work has the potential to identify regionally relevant best practices and institutional models that can support more adaptive and inclusive digital governance strategies. In this regard, the findings of this study provide an important empirical foundation for future research and policy development aimed at strengthening digital transformation efforts across Indonesia's diverse local governance landscape.

Notes

¹ Ines Mergel, Noella Edelmann, and Nathalie Haug, "Defining Digital Transformation: Results from Expert Interviews", *Government Information Quarterly*, 36(4), 2019, doi:10.1016/j.giq.2019.06.002.

² Litbang Kompas, 'Membaiknya Pelayanan Publik Berbasis Teknologi Digital Di Indonesia', 2024.

³ Alessio Ferrari and others, "Drivers, Barriers and Impacts of Digitalisation in Rural Areas from the Viewpoint of Experts", *Information and Software Technology*, 145, 2022, p. 106816. <https://doi.org/10.1016/j.infsof.2021.106816>.

⁴ The Global Economy, "Indonesia: Public Services Index", 2024 <https://www.theglobaleconomy.com/Indonesia/public_services_index/>; Kompas, 'Membaiknya Pelayanan Publik Berbasis Teknologi Digital Di Indonesia.'

⁵ M T Haning, "Reformasi Birokrasi Di Indonesia: Tinjauan Dari Perspektif Administrasi Publik", *JAKPP (Jurnal Analisis Kebijakan & Pelayanan Publik)*, 2018, pp. 25–37.

⁶ Z A Purna and D Didin, "Birokrasi Dalam Ekosistem Politik. Masihkah Birokrasi Menjadi Artikulator Pilihan Publik?", *Jurnal Arajang*, 5(1), 2022, pp. 76–98.

⁷ R M Harseno, "Kebijakan Deregulasi Dan Debirokratisasi Regulasi Ekonomi Kemaritiman Sebagai Katalisator Nawacita Indonesia Poros Maritim Dunia", *Gema Keadilan*, 4(1), 2017, pp. 86–98.

- ⁸ Y L Wello, "Kualitas Kinerja Organisasi Pemerintahan", *Jurnal Kebijakan Publik*, 5(3), 2013, pp. 17–22.
- ⁹ G Perdana, "Menjaga Netralitas ASN Dari Politisasi Birokrasi", *Negara Hukum*, 10, 2012.
- ¹⁰ R C Dewi and S Suparno, "Mewujudkan Good Governance Melalui Pelayanan Publik," *Jurnal Media Administrasi*, 7(1), 2022, pp. 78–90.
- ¹¹ A Tasyah and others, "Inovasi Pelayanan Publik Berbasis Digital (E-Government) Di Era Pandemi Covid-19", *Jurnal Ilmu Administrasi: Media Pengembangan Ilmu Dan Praktek Administrasi*, 18(2), 2021, pp. 212–24.
- ¹² A Wibowo, *Manajemen Perubahan (Change Management)*, Penerbit Yayasan Prima Agus Teknik, 2021.
- ¹³ Mergel, Edelman, and Haug, "Defining Digital Transformation: Results from Expert Interviews."
- ¹⁴ Gil-Garcia and Sayogo, 2016.
- ¹⁵ S Ramakrishnan and M Testani, *People , Process , Technology - The Three Elements for a Successful Organizational Transformation Business Performance*, 2011; Ahmed Taher, 'Stakeholders' Opinions Support the People-Process-Technology Framework for Implementing Digital Transformation in Higher Education', *Technology, Pedagogy and Education*, 32(5), 2023, pp. 555–67, doi:10.1080/1475939X.2023.2248134.
- ¹⁶ B A Iswandari, "Jaminan Keamanan Data Pribadi Warga Negara Dalam Penyelenggaraan Urusan Pemerintahan Berbasis Elektronik (E-Government)", *Dharmasisya Jurnal Program Magister Hukum FHUI*, 2(1), 2022, p. 6.
- ¹⁷ Ukrimatul Umam and Adianto, "Efektivitas Mal Pelayanan Publik (MPP) Kementerian Pendayagunaan Aparatur Negara Dan Reformasi Birokrasi Dalam Pelaksanaan Pelayanan Publik", *Jurnal Humaniora*, 4(1), 2020, pp. 160–65.
- ¹⁸ Wahiduddin Adams, *Dialektika Pembaruan Sistem Hukum Indonesia*, 1st ed., Sekretariat Jenderal Komisi Yudisial Republik Indonesia, 2022.
- ¹⁹ *Dialektika Pembaruan Sistem Hukum Indonesia*.
- ²⁰ Y S Lincoln, S A Lynham, and E G Guba, *The SAGE Handbook on Qualitative Research*, 5th ed. (SAGE Publications, 2017; J W Creswell and J D Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 6th ed. SAGE Publications Inc., 2023.
- ²¹ K Robert and B Taylor, *Nursing Research Process: An Australian Perspective*, 2nd ed., Nelson Australia Pty, 2002.
- ²² Michael Quinn Patton, *Qualitative Research & Evaluation Methods*, 3rd ed. SAGE Publications, 2015.
- ²³ Saldaña, Saldaña, Johnny, *The Coding Manual for Qualitative Researchers*, SAGE Publication, 2009.
- ²⁴ L. Kiger, M. E., & Varpio, *Thematic Analysis of Qualitative Data: AMEE Guide No. 131.*, published online 2020, doi:<https://doi.org/10.1080/0142159X.2020.1755030>.
- ²⁵ Omar A. El Sawy and others, "How LEGO Built the Foundations and Enterprise Capabilities for Digital Leadership", *MIS Quarterly Executive*, 15(2), 2016, pp. 141–66 <<https://aisel.aisnet.org/misqe/vol15/iss2/5>>; Bruce J Avolio and others, "E-Leadership: Re-Examining Transformations in Leadership Source and Transmission", *The Leadership Quarterly*, 25(1) (2014), pp. 105–31, doi:<https://doi.org/10.1016/j.leaqua.2013.11.003>.
- ²⁶ Avolio et al., 2014.
- ²⁷ Milakovich, 2012.
- ²⁸ Ripani et al., 2021.
- ²⁹ Ibid.
- ³⁰ Chia-Hui Hung and others, "The Literacy-Based Scale for Measuring Reflections on a University Social Responsibility Curriculum: Development and Validation," *International Journal of Environmental Research and Public Health*, no. 8, 2022, xix, doi: <https://doi.org/10.3390/ijerph19084545>.
- ³¹ Marijke Visser, "Digital Literacy and Public Policy through the Library Lens," *Maine Policy Review*, 22 (2013), doi: <https://doi.org/10.53558/WCUZ5068>.
- ³² Hoai, Hung, and Nguyen, 2022.
- ³³ Visser, 2013.

- ³⁴ Dani Rusli Utama and others, “The Effect of Digital Adoption and Service Quality on Business Sustainability through Strategic Alliances at Port Terminals in Indonesia”, *The Asian Journal of Shipping and Logistics*, 40(1) 2024, pp. 11–21, doi: <https://doi.org/10.1016/j.ajsl.2023.12.001>.
- ³⁵ Utama et al. 2024.
- ³⁶ Firdaus Masyhur, “E-Government Di Indonesia: Studi Literatur Sistematis Dari Perspektif Dimensi Pemeringkatan e-Government Indonesia (PeGI)”, *IPTEK-KOM*, 19(1), 2017, pp. 51–62.
- ³⁷ Ferrari and others, “Drivers, Barriers and Impacts of Digitalisation in Rural Areas from the Viewpoint of Experts”.
- ³⁸ Ferrari et al. 2022.
- ³⁹ Kristina S. Weißmüller, Adrian Ritz, and Srinivas Yerramsetti, “Collaborating and Co-Creating the Digital Transformation: Empirical Evidence on the Crucial Role of Stakeholder Demand from Swiss Municipalities”, *Public Policy and Administration*, no. July, 2023, doi: <https://doi.org/10.1177/09520767231170100>; Wiebke Reim, Ebba Andersson, and Kajsa Eckerwall, “Enabling Collaboration on Digital Platforms: A Study of Digital Twins”, *International Journal of Production Research*, 61(12), 2023, pp. 3926–42.
- ⁴⁰ Reim, Andersson, and Eckerwall, 2023.
- ⁴¹ Tommy Firman, “Territorial Splits (Pemekaran Daerah) in Decentralising Indonesia, 2000-2012: Local Development Drivers or Hindrance?”, *Space and Polity*, 17(2) (2013), pp. 180–96, doi:10.1080/13562576.2013.820373.
- ⁴² Reim, Andersson, and Eckerwall, 2023.
- ⁴³ Mergel, Edelmann, and Haug, “Defining Digital Transformation: Results from Expert Interviews.”
- ⁴⁴ Gil-Garcia and Sayogo, “Government Inter-Organizational Information Sharing Initiatives: Understanding the Main Determinants of Success”.
- ⁴⁵ Hung and others, “The Literacy-Based Scale for Measuring Reflections on a University Social Responsibility Curriculum: Development and Validation.”

References

- Adams, Wahiduddin. 2022. *Dialektika Pembaruan Sistem Hukum Indonesia*, 1st ed. (Sekretariat Jenderal Komisi Yudisial Republik Indonesia).
- Avolio, Bruce J, and others. 2014. “E-Leadership: Re-Examining Transformations in Leadership Source and Transmission,” *The Leadership Quarterly* 25, no. 1: 105-131.
<https://doi.org/10.1016/j.leaqua.2013.11.003>
- Creswell, J W, and J D Creswell. 2023. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 6th ed. SAGE Publications Inc.
- Dewi, R C, and S Suparno. 2022. “Mewujudkan Good Governance Melalui Pelayanan Publik,” *Jurnal Media Administrasi* 7, no. 1: 78-90.
- Economy, The Global. 2024. “Indonesia: Public Services Index,” *The Global Economy*, 16 March 2025.
https://www.theglobaleconomy.com/Indonesia/public_services_index/
- Ferrari, Alessio, and others. 2022. “Drivers, Barriers and Impacts of Digitalisation in Rural Areas from the Viewpoint of Experts,” *Information and Software Technology* 145, 106816: 1-15.
<https://doi.org/10.1016/j.infsof.2021.106816>
- Firman, Tommy. 2013. “Territorial Splits (Pemekaran Daerah) in Decentralising Indonesia, 2000-2012: Local Development Drivers or Hindrance?,” *Space and Polity* 17, no. 2: 180-196.
<https://doi.org/10.1080/13562576.2013.820373>

- Gil-Garcia, J R, and D S Sayogo. 2016. "Government Inter-Organizational Information Sharing Initiatives: Understanding the Main Determinants of Success," *Government Information Quarterly* 33, no. 3: 572-582.
<https://doi.org/10.1016/j.giq.2016.01.006>
- Haning, M T. 2018. "Reformasi Birokrasi Di Indonesia: Tinjauan Dari Perspektif Administrasi Publik," *JAKPP. Jurnal Analisis Kebijakan & Pelayanan Publik*: 25-37.
- Harseno, R M. 2017. "Kebijakan Deregulasi Dan Debirokratisasi Regulasi Ekonomi Kemaritiman Sebagai Katalisator Nawacita Indonesia Poros Maritim Dunia," *Gema Keadilan* 4, no. 1: 86-98.
- Hoai, Tu Thanh, Bui Quang Hung, and Nguyen Phong Nguyen. 2022. "The Impact of Internal Control Systems on the Intensity of Innovation and Organizational Performance of Public Sector Organizations in Vietnam: The Moderating Role of Transformational Leadership," *Heliyon* 8, e08954: 1-10.
<https://doi.org/10.1016/j.heliyon.2022.e08954>
- Hung, Chia-Hui, and others. 2022. "The Literacy-Based Scale for Measuring Reflections on a University Social Responsibility Curriculum: Development and Validation," *International Journal of Environmental Research and Public Health* 19, no. 8: 1-15.
<https://doi.org/10.3390/ijerph19084545>
- Iswandari, B A. 2022. "Jaminan Keamanan Data Pribadi Warga Negara Dalam Penyelenggaraan Urusan Pemerintahan Berbasis Elektronik (E-Government)," *Dharmasiswa Jurnal Program Magister Hukum FHUI* 2, no. 1: 75-86.
- Kiger, M. E., and Varpio, L., 2020. "Thematic Analysis of Qualitative Data: AMEE Guide No. 131," *Medical Teacher* 42, no. 8: 846-854.
<https://doi.org/10.1080/0142159X.2020.1755030>
- Kompas, Litbang. 2024. "Membaiknya Pelayanan Publik Berbasis Teknologi Digital Di Indonesia." *Kompas*, 16 March 2025.
- Lincoln, Y S, S A Lynham, and E G Guba. 2017. *The SAGE Handbook on Qualitative Research*, 5th ed. SAGE Publications.
- Masyhur, Firdaus 2017. "E-Government Di Indonesia: Studi Literatur Sistematis Dari Perspektif Dimensi Pemeringkatan e-Government Indonesia (PeGI)," *IPTEK-KOM* 19, no.1: 51-62.
- Mergel, Ines, Noella Edelmann, and Nathalie Haug. 2019. "Defining Digital Transformation: Results from Expert Interviews," *Government Information Quarterly* 36, 101385: 1-16.
<https://doi.org/10.1016/j.giq.2019.06.002>
- Milakovich, Michael E., 2012. *Digital Governance: New Technologies for Improving Public Service and Participation*, 1st ed. Routledge.
<https://doi.org/10.4324/9780203815991>
- Patton, Michael Quinn. 2015. *Qualitative Research & Evaluation Methods*, 3rd ed. SAGE Publications.
- Perdana, G, 2019. "Menjaga Netralitas ASN Dari Politisasi Birokrasi," *Negara Hukum* 10, no. 1: 109-128.
- Purna, Z A, and D Didin. 2022. "Birokrasi Dalam Ekosistem Politik. Masihkah Birokrasi Menjadi Artikulator Pilihan Publik?," *Jurnal Arajang* 5, no. 1: 76-98.
- Ramakrishnan, S, and M Testani. 2011. *People , Process , Technology - The Three Elements for a Successful Organizational Transformation Business Performance*.
- Reim, Wiebke, Ebba Andersson, and Kajsa Eckerwall. 2023. "Enabling Collaboration on Digital Platforms: A Study of Digital Twins," *International Journal of Production Research* 61, no. 12: 3926-3942.

- Ripani, Laura, Javier Fuenzalida, Francisco Suárez, and Rodrigo Salas. 2021. *Digital Transformation and Public Employment: The Future of Government Work*. Washington, DC: Inter-American Development Bank.
<https://doi.org/10.18235/0003245>
- Robert, K, and B Taylor. 2022. *Nursing Research Process: An Australian Perspective*, 2nd ed. Nelson Australia Pty.
- Saldaña, Johnny. 2009. *The Coding Manual for Qualitative Researchers*. SAGE Publication.
- Sawy, Omar A. El, and others. 2016. "How LEGO Built the Foundations and Enterprise Capabilities for Digital Leadership," *MIS Quarterly Executive* 15, no. 2: 141-166.
<https://aisel.aisnet.org/misqe/vol15/iss2/5>
- Taher, Ahmed. 2023. "Stakeholders' Opinions Support the People-Process-Technology Framework for Implementing Digital Transformation in Higher Education," *Technology, Pedagogy and Education* 32, no. 5: 555-567.
<https://doi.org/10.1080/1475939X.2023.2248134>
- Tasyah, A, and others. 2021. "Inovasi Pelayanan Publik Berbasis Digital (E-Government) Di Era Pandemi Covid-19," *Jurnal Ilmu Administrasi: Media Pengembangan Ilmu Dan Praktek Administrasi* 18, no.2 : 212-224.
- Umam, Ukrimatul, and Adianto. 2020. "Efektivitas Mal Pelayanan Publik (MPP) Kementerian Pendayagunaan Aparatur Negara dan Reformasi Birokrasi dalam Pelaksanaan Pelayanan Publik." *Jurnal Humaniora: Jurnal Ilmu Sosial, Ekonomi dan Hukum* 4, no. 1: 160-165.
- Utama, Dani Rusli, and others. 2024. "The Effect of Digital Adoption and Service Quality on Business Sustainability through Strategic Alliances at Port Terminals in Indonesia," *The Asian Journal of Shipping and Logistics* 40, no. 1: 11-21.
<https://doi.org/10.1016/j.ajsl.2023.12.001>
- Visser, Marijke. 2013. "Digital Literacy and Public Policy through the Library Lens," *Maine Policy Review* 22, no. 1: 104-113.
<https://doi.org/10.53558/WCUZ5068>
- Weißmüller, Kristina S., Adrian Ritz, and Srinivas Yerramsetti. 2023. "Collaborating and Co-Creating the Digital Transformation: Empirical Evidence on the Crucial Role of Stakeholder Demand from Swiss Municipalities," *Public Policy and Administration* 39, no. 3: 366-394.
<https://doi.org/10.1177/09520767231170100>
- Wello, Y L, 2013. "Kualitas Kinerja Organisasi Pemerintahan," *Jurnal Kebijakan Publik* 5, no. 3: 17-22.
- Wibowo, A, 2021. *Manajemen Perubahan (Change Management)*. Penerbit Yayasan Prima Agus Teknik.