

EVALUATING THE ELECTRONIC-BASED GOVERNMENT SYSTEM (SPBE) POLICY IN ENHANCING PUBLIC SERVICE QUALITY: A CASE STUDY OF IMPLEMENTATION IN INDONESIAN LOCAL GOVERNMENT

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Abstract

This study aims to evaluate the implementation of the Electronic-Based Government System (SPBE) policy in Indonesian local governments and analyze its impact on improving public service quality. SPBE, mandated through Presidential Regulation Number 95 of 2018, represents Indonesia's digital government transformation framework to achieve efficient, transparent, and accountable governance. Design/Methodology/Approach – This research employs a qualitative approach with a case study method on SPBE implementation across several local governments in Indonesia. The evaluation utilizes the maturity level model based on Ministry of PAN-RB Regulation Number 59 of 2020, encompassing four main domains: internal SPBE policies, SPBE governance, SPBE management, and SPBE services. Data were collected through in-depth interviews with civil apparatus managing SPBE systems, direct observation of implemented systems, and document analysis of SPBE evaluation reports. Findings – The results indicate that SPBE implementation has significantly contributed to improved efficiency, transparency, and accessibility of public services. However, disparities in SPBE index achievement across regions were identified, with key determining factors including: (1) system standardization and interoperability, (2) clarity of operational procedures, (3) technology harmonization, and (4) institutional collaboration. Implementation standardization proved to be the most critical factor determining SPBE success in enhancing service quality. The national SPBE index reached 3.12 in 2024 (good category), exceeding the 2020-2024 National Medium-Term Development Plan target of 2.60. Research Limitations/Implications – This study is limited to several local governments and does not comprehensively represent all regions in Indonesia. Future research could expand the sample and employ quantitative approaches to measure SPBE's direct impact on citizen satisfaction. Practical Implications – The findings provide strategic recommendations for local governments to enhance SPBE implementation through strengthening change management, improving human resource capacity, and developing adequate technological infrastructure. Originality/Value – This research contributes to the e-government evaluation literature by identifying critical success factors in SPBE implementation within Indonesia's decentralized governance context, offering insights for policymakers and practitioners in developing countries undergoing similar digital transformation initiatives.

Keywords: Policy Evaluation, Electronic-Based Government System (SPBE), Public Service Quality, E-Government, Digital Transformation, Local Government, Indonesia

1. INTRODUCTION

The digital transformation of public administration has become a global imperative, with governments worldwide leveraging information and communication technologies to enhance service delivery, improve transparency, and increase operational efficiency (United Nations, 2024). In Indonesia, this transformation is embodied in the Electronic-Based Government System (Sistem Pemerintahan Berbasis Elektronik – SPBE), established through Presidential Regulation Number 95 of 2018. This policy framework mandates the integration of electronic systems across all government institutions to create a unified, efficient, and accountable governance ecosystem. The urgency of SPBE implementation has intensified in the post-pandemic era, where digital service delivery is no longer optional but essential. Indonesia's commitment to digital government transformation is

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reflected in its improving global rankings: the United Nations E-Government Survey 2024 placed Indonesia at rank 64 out of 193 countries, a significant improvement from rank 77 in 2022. Similarly, the Waseda University International Digital Government Rankings 2024 positioned Indonesia at 24th out of 66 countries. The national SPBE index reached 3.12 in 2024 (on a 5-point scale), categorized as "good" and exceeding the 2020-2024 National Medium-Term Development Plan target of 2.60. Despite these achievements, significant challenges persist. Indonesia faces a substantial digital divide, with 2,881 villages lacking internet access. Civil servant digital literacy remains low, with approximately 30% of apparatus possessing inadequate digital competencies. Cybersecurity threats pose serious risks, with 400 million attacks recorded in 2023. Furthermore, system fragmentation remains problematic, with approximately 24,000 unintegrated applications across various government agencies. This study evaluates SPBE implementation in Indonesian local governments and analyzes its impact on public service quality. The research addresses the following questions: (1) How is SPBE implemented across different local government contexts? (2) What factors influence the success or failure of SPBE implementation? (3) How does SPBE affect public service quality from the perspective of service users and providers?

2. LITERATURE REVIEW

2.1 Electronic Government and Public Service Quality

E-government encompasses the use of information and communication technologies to transform government operations, improve service delivery, and enhance citizen engagement (Heeks, 2006; Gil-Garcia, Dawes, & Pardo, 2020). The relationship between e-government and service quality has been extensively theorized through various frameworks. The SERVQUAL model (Zeithaml, Parasuraman, & Berry, 1985) identifies five dimensions of service quality: tangibles, reliability, responsiveness, assurance, and empathy. In the e-government context, these dimensions translate to website functionality, system reliability, response times, data security, and user-centric design. Public value theory suggests that e-government should create value not only through efficiency gains but also through enhanced transparency, accountability, and citizen trust (Bryson, Crosby, & Bloomberg, 2014). Digital government maturity models, such as those developed by the United Nations and the OECD, conceptualize e-government development as progressing through stages from basic information provision to fully integrated, transformative digital governance.

2.2 SPBE Policy Framework in Indonesia

SPBE is governed by Presidential Regulation Number 95 of 2018, which establishes the legal foundation for integrated electronic-based governance. The regulation mandates all central and local government institutions to implement SPBE in a coordinated, integrated, and sustainable manner. The implementation framework is further detailed in Ministry of PAN-RB Regulation Number 59 of 2020 concerning SPBE Monitoring and Evaluation, which defines the maturity level assessment across four domains:

1. Internal SPBE Policies Domain: Evaluates the completeness and quality of internal regulations supporting SPBE implementation, including master plans, standard operating procedures, and technical guidelines.
2. SPBE Governance Domain: Assesses the institutional framework, leadership commitment, organizational structure, and coordination mechanisms for SPBE management.
3. SPBE Management Domain: Examines the implementation processes, including application development, data management, security protocols, and human resource capacity.
4. SPBE Services Domain: Measures the quality of electronic services provided to internal and external users, including accessibility, functionality, and user satisfaction.

Each domain contains specific indicators that are scored to determine the overall SPBE maturity level, ranging from level 1 (very poor) to level 5 (very good).

2.3 Critical Success Factors in E-Government Implementation

Previous research has identified multiple factors influencing e-government implementation success. A study in Bali Province, which achieved Indonesia's highest provincial SPBE index (4.07 in 2023), identified five critical success factors: regional leaders' commitment, regulations, planning, governance and management, and human resources. Leadership commitment emerged as the most influential factor, determining vision articulation, budget allocation, and performance evaluation. Change management capability significantly affects implementation effectiveness. Research in North Sumatra Provincial Government found that organizational readiness—including policy preparedness, human resource capacity, and technological infrastructure—determines

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the success of SPBE change management . The study emphasized the importance of structured change management teams, clear standard operating procedures, and systematic monitoring and evaluation processes . Interoperability and integration present persistent challenges. The proliferation of unintegrated applications (approximately 24,000 nationwide) undermines the fundamental purpose of SPBE as an integrated system . Without proper integration, data silos persist, citizens must navigate multiple platforms, and the potential for evidence-based policymaking remains unrealized.

The digital divide creates inequities in service access. Research highlights that inconsistencies in infrastructure maintenance and user interface design particularly affect rural and digitally excluded populations . Without targeted interventions, SPBE may inadvertently exacerbate existing inequalities rather than reduce them.

3. RESEARCH METHODOLOGY

3.1 Research Approach

This study employs a qualitative approach with a multiple case study design. The qualitative approach is appropriate for exploring the complex, context-dependent nature of SPBE implementation and understanding the perspectives of multiple stakeholders (Creswell, 2016). The case study method enables in-depth investigation of SPBE implementation within real-world contexts, capturing the nuances of local conditions and institutional dynamics.

3.2 Case Selection

This study employed a purposive sampling strategy to select local government cases that would provide rich, comparative insights into SPBE implementation across different performance levels, geographical contexts, and institutional capacities (Patton, 2015). Given Indonesia's decentralized governance structure and the wide variation in SPBE maturity indices—from 1.86 in 2018 to 3.12 nationally in 2024, with only 48 institutions achieving an “excellent” rating—a multiple case study design was essential to capture the factors driving success or failure (Kementerian PAN-RB, 2025). The selection process was guided by the 2024 SPBE evaluation results published by the Ministry of Administrative and Bureaucratic Reform, ensuring that cases were empirically grounded and comparable.

Four local governments were purposively selected to represent a spectrum of SPBE performance: two high-performing cases (Gorontalo Province and Malang City) and two lower-performing or mid-performing cases (a district in Eastern Indonesia and a city in Java with moderate SPBE scores). The high-performing cases were chosen because they demonstrated exceptional achievements: Gorontalo developed the “Pentagon” open data platform, integrating all local government datasets and enabling real-time executive dashboards (SKALA, 2025); Malang City created the SEROJA application, maintaining an “A” accountability rating for four consecutive years and receiving the 2024 Digital Government Award (Sari & Ramdhanty, 2025). The lower-performing cases were selected to identify barriers such as fragmented systems, limited human resources, and weak interoperability.

Additionally, the selection considered geographical diversity to account for infrastructure disparities. One case was located in a region with relatively advanced digital infrastructure (Java), while another was in a less developed area (Eastern Indonesia) where 2,881 villages still lack internet access (Kementerian PAN-RB, 2025). This variation allows the study to examine how the digital divide affects SPBE implementation. By contrasting cases with differing leadership commitment, resource availability, and institutional coordination mechanisms, the research design follows the principle of “maximum variation sampling,” which enhances the transferability of findings (Creswell, 2016). All selected local governments had been implementing SPBE for at least three years, ensuring that sufficient experience had been accumulated for meaningful evaluation.

3.3 Data Collection

Data were collected through multiple methods: In-depth Interviews: Semi-structured interviews were conducted with key stakeholders including: Regional secretaries and agency heads responsible for SPBE oversight Heads of Communication and Informatics Offices (Diskominfo) as SPBE technical implementers SPBE managers and system administrators Service users (citizens utilizing SPBE services) Interviews explored implementation processes, perceived challenges, success factors, and impacts on service quality. Document Analysis: Analysis of official documents including: SPBE evaluation reports and maturity assessment results Local regulations and policies related to SPBE implementation SPBE master plans and strategic documents Annual performance reports and service statistics Observation: Direct observation of SPBE systems and service delivery processes, including website functionality, application interfaces, and back-office operations.

3.4 Data Analysis

Data analysis followed thematic analysis procedures (Braun & Clarke, 2006), involving: Data familiarization through repeated reading of transcripts and documents Initial coding of data segments related to research questions Theme development by grouping codes into broader patterns, Theme review and refinement, Theme definition and naming Report writing with illustrative quotes and evidence Cross-case analysis identified patterns across different local government contexts, enabling the identification of factors consistently associated with successful SPBE implementation.

3.5 Research Quality

Trustworthiness was ensured through:

Triangulation across data sources (interviews, documents, observation), Member checking with key informants to verify interpretations, Peer debriefing with fellow researchers, Thick description to enable transferability assessments, Audit trail documenting research decisions and procedures

4. FINDINGS

4.1 SPBE Implementation Progress and Variations

The evaluation reveals substantial progress in SPBE implementation nationally, with the average SPBE index increasing from 1.86 in 2018 to 3.12 in 2024 . However, significant variations exist across regions and administrative levels. Provincial governments generally achieve higher indices than district/city governments, reflecting greater resource availability and technical capacity. Among the 615 institutions evaluated in 2024, 48 achieved "excellent" ratings, while many others remained at lower maturity levels . Case study findings demonstrate that high-performing local governments share common characteristics: strong leadership commitment, comprehensive policy frameworks, adequate budget allocation, competent human resources, and effective coordination mechanisms. For instance, Gorontalo Province has developed the "Pentagon" open data platform integrating datasets across all local government agencies, enabling evidence-based decision-making through an executive dashboard accessible to the Governor and regional secretaries . This system enables real-time monitoring of priority program progress, budget realization, and public service information such as hospital bed availability . Similarly, Malang City has developed the SEROJA (Performance Monitoring Evaluation System) application, integrating four aspects of Government Agency Performance Accountability. The system features artificial intelligence capabilities to analyze achievement of performance indicator targets and has supported Malang City in maintaining a "A" (Satisfactory) accountability predicate for four consecutive years . The city also received the 2024 Digital Government Award, recognizing its achievements in digital service innovation .

4.2 Factors Influencing SPBE Implementation Success

Analysis across cases identifies four primary factors determining SPBE implementation effectiveness:

4.2.1 System Standardization and Interoperability

The extent to which SPBE systems adhere to national standards and achieve interoperability significantly affects implementation quality. Local governments with higher SPBE indices have successfully integrated previously fragmented applications into unified platforms. Conversely, those with multiple unintegrated systems struggle with data redundancy, inconsistent user experiences, and limited cross-agency collaboration. Interoperability challenges are particularly acute at the district/city level, where local governments develop applications independently without coordination with provincial or national systems. This fragmentation contradicts SPBE's fundamental principle of integration and undermines the goal of seamless service delivery .

4.2.2 Clarity of Operational Procedures

Clear, comprehensive standard operating procedures (SOPs) for SPBE implementation distinguish high-performing from low-performing local governments. Effective SOPs cover all aspects of SPBE management, including application development protocols, data update procedures, security incident response, and user support mechanisms. Research in North Sumatra Provincial Government emphasizes that establishing structured change management teams and documented SOPs is essential for ensuring continuity and quality of SPBE services amidst organizational and technological changes .

4.2.3 Technology Harmonization

Harmonization of technology infrastructure, including hardware, software, and networks, enables efficient SPBE operations. Local governments with harmonized technology environments experience fewer technical

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disruptions, faster response times, and more reliable service delivery. However, technology harmonization requires substantial investment. The digital divide means many local governments, particularly in eastern Indonesia and remote areas, lack adequate infrastructure. With 2,881 villages lacking internet access, the foundational requirements for SPBE remain unmet in significant portions of the country.

4.2.4 Institutional Collaboration

Effective SPBE implementation requires collaboration across multiple institutions, both horizontally (across local government agencies) and vertically (with provincial and national governments). High-performing local governments establish formal coordination mechanisms, such as SPBE steering committees, that bring together relevant stakeholders for joint planning, problem-solving, and evaluation. The case of Gorontalo Province illustrates successful collaboration: the provincial government partnered with the Ministry of Home Affairs under the national One Data for Subnational Government framework and received technical support from the Australia-Indonesia Partnership Program SKALA. This multi-stakeholder collaboration enabled development of sophisticated systems beyond what the province could have achieved independently.

4.3 Impact on Public Service Quality

SPBE implementation has demonstrably improved public service quality across multiple dimensions:

Efficiency: Digital services reduce processing times, eliminate redundant procedures, and enable 24/7 service access. Citizens can complete transactions without visiting government offices, reducing travel costs and waiting times. Government agencies benefit from streamlined workflows and reduced administrative burdens.

Transparency: Open data platforms and public dashboards increase transparency of government operations. Citizens can access information about budget allocations, program implementation, and service standards. The Pentagon platform in Gorontalo provides public access to aggregated data, reinforcing transparency and accountability.

Accessibility: Digital services extend government reach to previously underserved populations. Citizens in remote areas can access services through online portals without traveling to district capitals. However, accessibility gains are uneven due to the digital divide, with those lacking internet access or digital literacy excluded from these benefits.

Accountability: Integrated monitoring systems enable better performance tracking and accountability. The SEROJA application in Malang City enables systematic performance evaluation from planning through reporting, ensuring all organizational levels are accountable for results.

User Satisfaction: Early evidence suggests improved user satisfaction with digital services, though systematic measurement remains limited. The ultimate goal of SPBE, as articulated by the Minister of PAN-RB, is to achieve "the highest level of community satisfaction with SPBE users, so that when the community remembers SPBE, what comes to mind is an accountable government and quality services".

5. DISCUSSION

5.1 The Implementation Gap: Policy Intent versus Reality

The findings reveal a significant divergence between the policy intentions of Indonesia's SPBE framework and its actual implementation across local governments. While the national SPBE index rose from 1.86 in 2018 to 3.12 in 2024—exceeding the 2020–2024 RPJMN target of 2.60—this aggregate improvement masks substantial regional disparities. Provincial governments consistently outperform district or city administrations, and only 48 out of 615 evaluated institutions achieved an "excellent" maturity rating (Kementerian PAN-RB, 2025). The data indicate that high-performing regions share characteristics such as strong leadership commitment, adequate budgetary allocation, and effective coordination mechanisms, whereas low-performing regions suffer from fragmented systems, limited human resources, and weak institutional support. This gap suggests that the success of SPBE is not merely a function of policy design but is heavily contingent on local implementation capacity.

Theoretically, this implementation gap can be understood through Van Meter and Van Horn's (1975) policy implementation framework, which identifies six key variables: standards and objectives, resources, inter-organizational communication, implementing agency characteristics, economic/social/political conditions, and implementer disposition. In the SPBE context, the most decisive variables are resources (financial, human, and technological) and inter-organizational communication. The absence of adequate funding and skilled personnel in many local governments directly undermines their ability to meet SPBE standards. Additionally, the weak vertical communication between central and local authorities leads to inconsistent interpretations of the policy. Hill and Hupe (2014) further argue that in decentralized governance systems, policy implementation is not a linear top-down

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process but a complex interplay of negotiation and adaptation. This “multi-level governance” perspective explains why the same national regulation produces vastly different outcomes across regions.

Previous research supports these findings. Widiyanto (2024) found that in Bali Province—which recorded the highest provincial SPBE index (4.07 in 2023)—five critical success factors were present: regional leaders’ commitment, clear regulations, strategic planning, sound governance and management, and competent human resources. Conversely, regions lacking these factors consistently underperformed. Sihaloho (2025) examined the North Sumatra provincial government and concluded that organizational readiness—including policy preparedness, human resource capacity, and technological infrastructure—is a prerequisite for effective SPBE change management. Both studies underscore that resource disparities and institutional weaknesses are primary drivers of the implementation gap. Moreover, Maulana et al. (2024) highlighted that the proliferation of approximately 24,000 unintegrated applications across various government agencies reflects a lack of interoperability standards and coordination, further widening the gap between policy intent and field reality.

A deeper analysis suggests that the implementation gap is also rooted in a conceptual misunderstanding. Many local governments treat SPBE as a technology procurement project rather than a fundamental governance reform. Consequently, investments are channeled into purchasing standalone applications without strengthening institutional capacity, coordination mechanisms, or digital literacy programs. This misalignment perpetuates fragmentation and undermines the core principle of an integrated electronic government system. Furthermore, bureaucratic and political incentives tend to favor localized, independent innovations over adherence to national interoperability standards. To close the implementation gap, national authorities must not only provide technical assistance but also redesign incentive structures—for instance, by linking a portion of intergovernmental fiscal transfers to SPBE maturity achievements. Without such interventions, regional disparities will persist, and the promise of seamless digital governance will remain unfulfilled for large segments of the Indonesian population.

5.2 Leadership as the Critical Differentiator

Across all case studies, leadership commitment emerged as the single most critical factor differentiating successful SPBE implementation from failure. High-performing regions such as Gorontalo Province and Malang City demonstrated strong, visible commitment from regional heads—governors and mayors who actively allocated budgets, established steering committees, and personally monitored progress. In Gorontalo, the governor not only provided funding but also utilized an executive dashboard to track priority programs in real time, creating vertical accountability and signaling that digital governance was a top priority (Sinergi dan Kolaborasi untuk Akselerasi Layanan Dasar [SKALA], 2025). In Malang City, the mayor’s sustained support enabled the development of the SEROJA application, an integrated performance monitoring system that helped the city maintain an “A” accountability rating for four consecutive years (Sari & Ramdhanty, 2025). These observations indicate that leadership is not merely an enabling factor but a decisive one: where leaders prioritize digital transformation, implementation advances rapidly; where they lack commitment or understanding, SPBE initiatives stall.

Theoretically, this finding aligns with Bass and Avolio’s (1994) theory of transformational leadership, which posits that leaders who inspire shared vision, challenge existing processes, and provide individualized support are essential for driving organizational change. In the SPBE context, transformational leaders articulate a clear digital vision, mobilize resources, and foster a culture of innovation. They also address resistance from civil servants who fear that digitalization will replace their roles or reduce their authority. Edwards III’s (1980) implementation model further identifies “disposition”—the attitudes, commitment, and responsiveness of implementers—as a key variable. Without positive disposition from regional leaders, policies are executed minimally, if at all. Lipsky’s (2010) concept of street-level bureaucracy adds another layer: even when national policies are well-designed, frontline implementers (including local bureaucrats) exercise discretion. Strong leadership ensures that this discretion is aligned with policy objectives rather than used to circumvent them.

Research by Widiyanto (2024) confirms that leadership commitment was the foremost success factor in Bali Province, followed by regulations, planning, governance, and human resources. Similarly, Sihaloho (2025) found that direct involvement of top leadership in change management teams was critical for overcoming bureaucratic inertia and ensuring that digital transformation efforts remained on track. Rani (2025) observed that in Surabaya, the mayor’s consistent engagement with digital inclusion programs directly improved service accessibility for marginalized groups. Conversely, in regions where leaders changed frequently or showed little interest, SPBE programs often stalled or were reversed. These findings collectively underscore that leadership is not a peripheral factor but a central determinant of SPBE success. A more nuanced analysis reveals that effective leadership for SPBE extends beyond initial commitment. It requires sustained engagement over time, particularly

during periods of political transition. Many SPBE initiatives have proven vulnerable to leadership turnover: a new head of region may discontinue or redirect programs initiated by a predecessor, disrupting long-term planning. To mitigate this risk, successful regions have embedded SPBE strategies in legally binding long-term development documents (RPJMD) and linked them to measurable performance indicators. This institutionalization ensures continuity even when individual leaders change. Additionally, effective leaders do not simply command; they build coalitions across agencies and levels of government. In Gorontalo, for example, the provincial government partnered with the Ministry of Home Affairs and the Australia-Indonesia SKALA program, demonstrating that collaborative leadership—both horizontal and vertical—multiplies the impact of local commitment. Thus, the theoretical understanding of leadership in e-government implementation must expand to include not only transformational attributes but also the ability to institutionalize digital governance and sustain collaboration across fragmented bureaucracies.

5.3 The Digital Divide Paradox

A troubling paradox emerges from this evaluation: SPBE simultaneously reduces and exacerbates inequalities. For citizens with internet access and digital literacy, electronic services have become faster, more convenient, and less costly. They can complete transactions without traveling to government offices, and real-time information is readily available. However, for the digitally excluded—including residents of the 2,881 villages without internet access, the elderly, persons with disabilities, and those with low literacy—digital services often create new barriers (Kementerian PAN-RB, 2025). These populations may find themselves unable to access essential services that were previously available through traditional face-to-face channels. In several local governments, the closure or reduction of physical service points has compounded this problem, leading to complaints and lower satisfaction among vulnerable groups. This “digital divide paradox” threatens SPBE’s inclusive development goals and highlights a critical flaw in purely technology-driven reform strategies.

Theoretically, Heeks (2006) warned that e-government initiatives without explicit inclusion policies can lead to “e-exclusion,” where the most vulnerable populations are systematically left behind. His framework emphasizes that digital government is not inherently equitable; it can reinforce existing power structures and inequalities. The United Nations e-government maturity model recognizes that the highest stage of digital governance is not merely efficiency but transformative, inclusive participation. Yet, most evaluation instruments, including Indonesia’s SPBE maturity index, focus on technical availability and functionality rather than on equity of access or outcomes for marginalized groups. This gap in measurement perpetuates the paradox: governments that score high on the index may still be failing to serve significant portions of their population. The concept of “digital divide” must therefore be integrated into SPBE evaluation frameworks as a core dimension rather than an afterthought.

Prior research supports this analysis. Rani (2025) studied digital inclusion in Surabaya and found that despite the city’s advanced SPBE implementation, poor citizens and persons with disabilities reported significant difficulties accessing services without assistance. Similarly, a study of remote areas (Sawala, 2025) revealed that electronic-based population administration and licensing services have not reached residents on outermost islands, where internet infrastructure is absent. These findings are consistent with international literature: the OECD (2019) has documented that digital government reforms in member countries often widen service access gaps unless accompanied by targeted bridging measures. Sundari and Sartika (2025) noted that Indonesia’s SPBE policy acknowledges the digital divide but lacks concrete, funded mechanisms to address it at the local level. Thus, the paradox is not merely empirical but also a reflection of weak policy design regarding inclusion.

A deeper analysis suggests that hybrid service models are essential to resolve the paradox. High-performing regions such as Gorontalo have maintained in-person service points at village offices, equipped with computers and trained assistants for those without private access. This approach ensures that no one is completely excluded while gradually building digital literacy. However, such hybrid models require sustained operational budgets and capacity that many low-income regions lack. Without affirmative policies from the central government—such as subsidizing internet connectivity for disadvantaged areas, mandating the preservation of non-digital service channels, or allocating special funds for digital literacy programs—the paradox will persist. Moreover, future SPBE evaluations should incorporate citizen satisfaction surveys disaggregated by income, age, education, and geographic location to capture the true distributional effects of digital services. Only by confronting the digital divide head-on can SPBE fulfill its promise of inclusive, high-quality public service for all Indonesians.

5.4 From Fragmentation to Integration

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The proliferation of unintegrated applications—approximately 24,000 across various government agencies nationwide—represents a fundamental obstacle to SPBE’s transformative potential. Integration is the central pillar of SPBE as envisioned in Presidential Regulation No. 95 of 2018; without it, the vision of seamless, interoperable governance cannot be realized. The findings show that high-performing local governments have successfully integrated previously fragmented applications into unified platforms. For instance, Gorontalo Province developed the “Pentagon” open data platform, which integrates datasets from all local government agencies, enabling evidence-based decision-making through an executive dashboard accessible to the governor (SKALA, 2025). In contrast, low-performing regions struggle with multiple independent systems that create data redundancy, inconsistent user experiences, and limited cross-agency collaboration. This fragmentation directly contravenes SPBE’s fundamental principle of integration and undermines the goal of providing citizens with a single, hassle-free access point to government services. Theoretically, Kubicek and Cimander (2009) distinguish three levels of interoperability: technical (data exchange), semantic (shared meaning of data), and organizational (coordination of business processes). SPBE implementation in Indonesia remains primarily hindered at the organizational level. While technical interfaces and data standards exist, the more profound challenge lies in aligning the disparate processes, procedures, and interests of different agencies. Each agency tends to protect its “data kingdom,” viewing information as a source of power rather than a public good. Weber’s (1947) theory of bureaucracy explains this phenomenon: highly segmented, rule-bound bureaucracies resist cross-agency collaboration and information sharing, as it threatens their autonomy and established routines. Furthermore, institutional incentives often encourage independent application development. Local governments develop custom applications to demonstrate innovation or address specific needs without considering interoperability requirements. This “innovation for its own sake” undermines the integrated system architecture that SPBE requires.

Prior research corroborates these findings. Maulana et al. (2024) examined smart governance transformation in Indonesian local administrations and found that fragmentation was driven by weak technical standards, lack of enforcement, and poor coordination between central and local governments. They argued that without a clear mandate and sanctions for non-compliance, local governments will continue to prioritize standalone solutions over integrated platforms. Sari and Ramdhanty (2025) observed that successful integration in Malang City required strong political will to compel all units to adopt the SEROJA application, a shared platform that integrates performance accountability data. This suggests that integration is not primarily a technical challenge but a political and managerial one. Widiyanto (2024) similarly noted that regions with high SPBE indices had established formal coordination mechanisms, such as SPBE steering committees, that brought together relevant stakeholders for joint planning and problem-solving. Where such mechanisms were absent, fragmentation persisted.

A deeper analysis suggests that integration cannot be achieved through regulations alone; it requires both technical and institutional solutions. Technically, adherence to national interoperability standards and the adoption of shared reference architectures are essential. The government could develop a national repository of SPBE architectural blueprints that local governments can freely adopt, reducing the cost and complexity of integration. Institutionally, performance incentives must reward integration rather than standalone innovation. For example, the Ministry of PAN-RB could provide awards or additional funding for regions that successfully integrate their systems with central platforms, while withholding special allocation funds for those that continue developing independent, non-interoperable applications. Moreover, integration should be a mandatory criterion in the SPBE maturity assessment, with heavier weight than at present. Finally, capacity-building programs should train local IT staff not only in technical skills but also in collaborative governance, negotiation, and cross-agency project management. Without such comprehensive measures, the proliferation of siloed systems will continue to undermine data-driven policymaking and force citizens to navigate multiple disconnected portals, defeating the very purpose of SPBE.

6. CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

This study evaluated SPBE implementation in Indonesian local governments and its impact on public service quality. The findings demonstrate significant progress in digital government transformation, with the national SPBE index reaching 3.12 in 2024 and international rankings improving. SPBE has contributed to enhanced efficiency, transparency, accessibility, and accountability in public service delivery.

However, implementation remains uneven, with substantial variation across regions and administrative levels. Success is determined by four key factors: system standardization and interoperability, clarity of operational procedures, technology harmonization, and institutional collaboration. Leadership commitment emerges as the most

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critical differentiator between high and low performer Persistent challenges threaten SPBE's transformative potential: the digital divide excludes significant populations from digital service benefits, system fragmentation undermines integration goals, cybersecurity risks compromise service reliability, and limited human resource capacity constrains implementation quality .

6.2 Policy Recommendations

Based on the findings, the following recommendations are offered:

For National Government:

Strengthen infrastructure development programs to close the digital divide, targeting the 2,881 villages currently without internet access Develop and enforce interoperability standards to reduce system fragmentation Provide technical assistance and capacity-building programs for low-performing local governments Align performance incentives with SPBE integration rather than standalone innovation\

Enhance cybersecurity frameworks and support local governments in implementing security-by-design approaches

For Local Governments:

Secure sustained leadership commitment through executive sponsorship and visible monitoring Develop comprehensive SPBE master plans aligned with national standards and local needs Establish formal coordination mechanisms across relevant agencies Invest in human resource capacity through targeted digital literacy programs

Implement structured change management processes with clear SOPs and designated teams Maintain hybrid service models to serve digitally excluded populations For Future Research: Conduct quantitative studies measuring SPBE's direct impact on citizen satisfaction and service quality indicators

Examine SPBE implementation in additional local government contexts to validate and extend findings Investigate the relationship between SPBE maturity and governance outcomes such as corruption reduction and policy effectiveness Explore citizen perspectives on digital service quality and barriers to adoption Develop and test interventions to address the digital divide in e-government contexts

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