

Digital Leadership in Accelerating Bureaucratic Transformation: Evidence from the Implementation of SRIKANDI and Electronic Signatures in an Indonesian Provincial Government

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Abstract. The implementation of the Electronic-Based Government System (SPBE) has become a strategic priority for the Indonesian government to improve bureaucratic efficiency, transparency, accountability, and the quality of public services through digital transformation. However, the adoption of digital government applications remains uneven across regional institutions due to organizational resistance, limited digital competencies, and challenges in managing institutional change. This study aims to examine how digital leadership, regulatory intervention, and technical facilitation accelerate bureaucratic transformation through the implementation of the Integrated Dynamic Archival Information System (SRIKANDI) and Electronic Signatures (TTE) at the West Sulawesi Provincial Department of Cooperatives, SMEs, Industry, and Trade. A qualitative descriptive case study approach was employed using purposive sampling. Primary data were collected through semi-structured interviews, non-participant observations, and document analysis, while data were analyzed using the interactive model of Miles, Huberman, and Saldaña. The findings reveal that successful implementation of SRIKANDI and TTE was driven by the synergy between strong digital leadership, mandatory regulatory enforcement, and continuous technical mentoring. These complementary factors reduced organizational resistance, improved employees' digital competencies, accelerated the transition from paper-based administration to integrated digital governance, and significantly enhanced administrative efficiency, transparency, and accountability. This study contributes to the digital government literature by demonstrating that sustainable bureaucratic transformation depends not only on technological readiness but also on the integration of leadership commitment, institutional support, and organizational learning. The findings provide practical recommendations for strengthening SPBE implementation across regional government institutions in Indonesia.

Keywords: Digital Leadership, Electronic-Based Government System (SPBE), SRIKANDI, Electronic Signatures, Digital Transformation, Public Sector Governance.

1. Introduction

Digital transformation has become one of the most significant reforms in contemporary public administration as governments worldwide increasingly adopt digital technologies to improve governance, administrative efficiency, transparency, and public service delivery. The integration of information and communication technologies (ICT) into governmental processes is no longer viewed merely as technological modernization but as a comprehensive organizational transformation involving institutional restructuring, innovation, and changes in public management practices. International studies demonstrate that successful digital government initiatives require the alignment of technology, organizational capability, leadership commitment, and institutional readiness to generate sustainable public value rather than simply digitizing existing administrative procedures [1], [2], [3]. Consequently, digital transformation has become an essential strategy for improving government responsiveness, accountability, and citizen-centered services in both developed and developing countries.

In Indonesia, digital government reform has been institutionalized through the implementation of the Electronic-Based Government System (Sistem Pemerintahan Berbasis Elektronik—SPBE), which serves as the

national framework for integrating digital technologies across government institutions. Presidential Regulation No. 95 of 2018 establishes SPBE as a strategic instrument for improving governance effectiveness, service quality, bureaucratic transparency, and inter-agency collaboration. Since its implementation, various ministries and local governments have accelerated the adoption of electronic administration systems, digital archives, integrated information systems, and electronic signatures. Nevertheless, empirical evidence indicates that SPBE implementation remains highly heterogeneous among regional governments due to differences in technological infrastructure, institutional capacity, digital competency, financial resources, and organizational readiness [4], [5]. These disparities suggest that digital transformation within Indonesian public institutions cannot rely solely on technological investment but also requires comprehensive organizational change.

Numerous studies emphasize that technological readiness alone is insufficient to ensure successful digital transformation in the public sector. Digital transformation requires significant changes in organizational culture, work processes, employee competencies, governance mechanisms, and institutional behavior. Public organizations frequently encounter resistance to change arising from employees' attachment to conventional paper-based administration, limited digital literacy, uncertainty regarding technological adaptation, and concerns over information security and legal accountability [1], [2]. Such organizational resistance often delays the institutionalization of digital innovations and reduces the effectiveness of electronic government initiatives. Therefore, understanding organizational dynamics has become increasingly important in explaining why similar digital systems produce different implementation outcomes across government institutions.

Among the organizational factors influencing successful digital transformation, digital leadership has emerged as one of the most decisive determinants. Digital leaders not only formulate strategic directions for technological innovation but also cultivate organizational commitment, coordinate cross-functional collaboration, communicate transformational goals, and encourage employees to adapt to new working methods. Research consistently demonstrates that leadership significantly influences employee acceptance of digital systems by reducing uncertainty, increasing trust in organizational change, and facilitating organizational learning throughout the implementation process [1], [6]. In addition to leadership, regulatory support and continuous technical facilitation have been identified as complementary mechanisms that strengthen employee confidence and accelerate digital adoption within public organizations.

One important component of Indonesia's SPBE implementation is the Integrated Dynamic Archival Information System (*Sistem Informasi Kearsipan Dinamis Terintegrasi—SRIKANDI*), which standardizes electronic records management across government agencies. Combined with Electronic Signatures (*Tanda Tangan Elektronik—TTE*), SRIKANDI enables secure document management, paperless administration, faster correspondence processes, improved legal certainty, and more efficient intergovernmental communication. Previous studies report that the adoption of electronic archival systems significantly improves administrative efficiency, reduces bureaucratic processing time, enhances document traceability, and strengthens institutional accountability [7], [8]. Nevertheless, the successful implementation of SRIKANDI depends not only on technological functionality but also on employees' willingness to integrate digital systems into their daily administrative practices.

The Department of Cooperatives, SMEs, Industry, and Trade of West Sulawesi Province provides an important empirical setting for examining these issues. As an institution responsible for supporting regional economic development, MSME empowerment, industrial development, and trade administration, the agency manages substantial volumes of official correspondence, licensing documents, and administrative records. To improve administrative efficiency and support SPBE implementation, the institution has adopted SRIKANDI and Electronic Signatures as mandatory digital administrative tools. However, the transition from conventional paper-based procedures to electronic administration has generated several implementation challenges, including employee resistance, varying levels of digital competence, limited technical understanding, adaptation difficulties, and concerns regarding the legal validity and security of electronic documents. These challenges illustrate that organizational transformation extends beyond technological deployment and requires effective institutional change management [9], [10].

Although extensive literature has investigated SPBE implementation, most previous studies primarily focus on technological readiness, information system quality, user acceptance, infrastructure availability, or digital maturity assessment. Comparatively fewer studies examine how digital leadership interacts with regulatory enforcement and technical facilitation in overcoming organizational resistance during bureaucratic digital transformation, particularly within local government institutions located in developing provinces. This limitation creates an important theoretical gap because organizational change in public institutions is influenced not only by technology adoption but also by leadership behavior, institutional governance, employee engagement, and continuous implementation support. Accordingly, a more comprehensive understanding of these interacting factors is required to explain successful digital transformation in regional government organizations [1], [11].

Based on these considerations, this study investigates how digital leadership, regulatory intervention, and technical facilitation interact to accelerate bureaucratic transformation through the implementation of SRIKANDI and Electronic Signatures at the Department of Cooperatives, SMEs, Industry, and Trade of West Sulawesi Province. This research offers two principal contributions. First, it extends the digital government literature by integrating digital leadership, organizational resistance, regulatory enforcement, and technical facilitation into a unified analytical framework for understanding SPBE implementation. Second, it provides empirical evidence from a developing regional government in Indonesia, thereby enriching the literature on public sector digital transformation while offering practical recommendations for strengthening electronic government implementation in local governments facing similar institutional and organizational conditions.

1.1. Digital Leadership

Digital leadership refers to the ability of organizational leaders to formulate strategic visions, drive innovation, facilitate organizational change, and develop employees' digital capabilities to achieve organizational goals in the digital era. Unlike traditional leadership, digital leadership emphasizes the integration of digital technologies into organizational strategies while simultaneously fostering a culture of innovation, collaboration, agility, and continuous learning. Effective digital leaders not only promote technology adoption but also reduce employee resistance, enhance digital competencies, and align technological initiatives with organizational objectives. In the public sector, digital leadership has become a critical determinant of successful digital government implementation because it enables institutions to respond effectively to technological disruption and changing public expectations. Previous studies have consistently shown that digital leadership positively influences digital transformation, organizational performance, and innovation capability by strengthening organizational commitment and facilitating change management [12], [13].

1.2. Electronic-Based Government System (SPBE)

The Electronic-Based Government System (Sistem Pemerintahan Berbasis Elektronik—SPBE) is Indonesia's integrated digital governance framework designed to improve the effectiveness, efficiency, transparency, accountability, and quality of public services through the utilization of information and communication technology. SPBE integrates business processes, government information systems, electronic services, digital infrastructure, and institutional governance into a unified digital ecosystem that supports evidence-based decision-making and inter-agency collaboration. Rather than focusing solely on technology implementation, SPBE promotes bureaucratic reform by encouraging organizational innovation, interoperability, and standardized digital administration across government institutions. Research indicates that successful SPBE implementation depends on organizational readiness, leadership commitment, digital competencies, regulatory support, and institutional collaboration, rather than technological infrastructure alone [14], [15].

1.3. SRIKANDI (Integrated Dynamic Archival Information System)

The Integrated Dynamic Archival Information System (Sistem Informasi Kearsipan Dinamis Terintegrasi—SRIKANDI) is Indonesia's national electronic records management system developed to standardize digital archival management across government institutions as part of SPBE implementation. SRIKANDI enables government agencies to manage incoming and outgoing correspondence, document classification, electronic filing, archival preservation, and inter-agency communication through an integrated digital platform. By replacing conventional paper-based administration, SRIKANDI improves document traceability, administrative efficiency, information accessibility, and institutional accountability while supporting paperless governance. Previous studies have demonstrated that electronic archival systems such as SRIKANDI significantly reduce document processing time, improve organizational productivity, and strengthen records management quality, although their successful implementation requires leadership support, employee readiness, and continuous technical assistance [16], [17].

1.4. Electronic Signatures (Tanda Tangan Elektronik—TTE)

Electronic Signatures (Tanda Tangan Elektronik—TTE) are digital authentication mechanisms used to verify the authenticity, integrity, and legal validity of electronic documents within digital administrative systems. In Indonesia, TTE is certified by the Electronic Certification Authority (Balai Sertifikasi Elektronik—BSrE) to ensure secure document authentication, legal compliance, and protection against document forgery. The implementation of TTE enables government institutions to accelerate approval processes, eliminate geographical limitations, reduce paper consumption, and improve administrative transparency while maintaining legal certainty. Empirical studies indicate that electronic signatures significantly enhance organizational

efficiency and digital governance by facilitating secure digital transactions, although user acceptance depends on trust, regulatory support, cybersecurity assurance, and organizational readiness [18], [19].

1.5. Digital Transformation

Digital transformation refers to a comprehensive organizational process in which digital technologies fundamentally reshape organizational structures, business processes, service delivery, decision-making, and institutional culture to create greater public or business value. It extends beyond technology adoption by involving organizational innovation, leadership transformation, employee capability development, governance reform, and continuous adaptation to changing environments. In public administration, digital transformation aims to improve government responsiveness, service quality, transparency, efficiency, and citizen engagement through integrated digital ecosystems. Scholars emphasize that sustainable digital transformation requires the interaction of technology, organizational culture, leadership commitment, and institutional readiness rather than isolated technological investments [20], [21], [22].

1.6. Electronic Signatures (Tanda Tangan Elektronik—TTE)

Public sector governance refers to the structures, processes, policies, and institutional mechanisms through which public organizations are directed, managed, and held accountable in delivering public services and achieving governmental objectives. Good public sector governance emphasizes transparency, accountability, participation, effectiveness, responsiveness, integrity, and adherence to the rule of law. In the context of digital government, governance extends beyond administrative control to include digital policy implementation, inter-agency coordination, information security, data governance, and citizen-centered service delivery. Effective governance enables governments to maximize the benefits of digital technologies while ensuring institutional accountability and sustainable public value creation. Recent studies demonstrate that digital governance supported by strong institutional leadership and collaborative organizational arrangements significantly improves public service performance and strengthens citizens' trust in government institutions [23], [24], [25].

2. Method

This study employed a qualitative research design using a descriptive case study approach to examine the implementation of the Integrated Dynamic Archival Information System (SRIKANDI) and Electronic Signatures (TTE) at the West Sulawesi Provincial Department of Cooperatives, SMEs, Industry, and Trade. A qualitative case study was selected because it enables an in-depth understanding of organizational processes, leadership practices, and employee experiences within their real-life institutional context. This approach is particularly appropriate for exploring how digital leadership, regulatory intervention, and technical facilitation contribute to bureaucratic transformation during the implementation of the Electronic-Based Government System (SPBE) [26].

The research was conducted at the West Sulawesi Provincial Department of Cooperatives, SMEs, Industry, and Trade, one of the regional government institutions implementing SPBE through SRIKANDI and Electronic Signatures. Informants were selected using purposive sampling based on their direct involvement in the implementation process. The primary key informant was the SPBE Technical Coordinator, Muh. Aswad M., who was responsible for coordinating the implementation of SRIKANDI and Electronic Signatures within the institution. To obtain a comprehensive understanding of organizational practices, supporting information was also gathered from employees involved in digital document management and administrative services.

Primary data were collected through semi-structured in-depth interviews, allowing participants to explain their experiences regarding digital leadership, implementation strategies, organizational resistance, technical facilitation, and the utilization of SRIKANDI in daily administrative activities. These interviews were complemented by non-participant observations of electronic document management practices and administrative workflows. Secondary data were obtained from official regulations, institutional documents, implementation reports, archival policies, and other relevant documents related to SPBE and SRIKANDI implementation. The combination of multiple data sources enabled methodological triangulation and strengthened the credibility of the findings [27].

The collected data were analyzed using the interactive model of [28], which consists of four iterative stages: data collection, data condensation, data display, and conclusion drawing and verification. Interview transcripts and field notes were coded and categorized through thematic analysis to identify patterns related to digital leadership, organizational resistance, regulatory intervention, technical facilitation, and bureaucratic transformation. Throughout the analysis process, emerging findings were continuously compared across

interviews, observations, and documentary evidence to ensure consistency and enhance the trustworthiness of the results.

Figure 1 illustrates the overall research procedure adopted in this study. The research began with problem identification and a review of relevant literature, followed by the selection of the research site and purposive identification of key informants. Data were subsequently collected through interviews, observations, and document analysis before being analyzed using the interactive qualitative analysis model. The findings were then interpreted to explain how digital leadership, regulatory intervention, and technical facilitation interact in accelerating the implementation of SRIKANDI and Electronic Signatures as part of bureaucratic transformation within the West Sulawesi Provincial Department of Cooperatives, SMEs, Industry, and Trade.

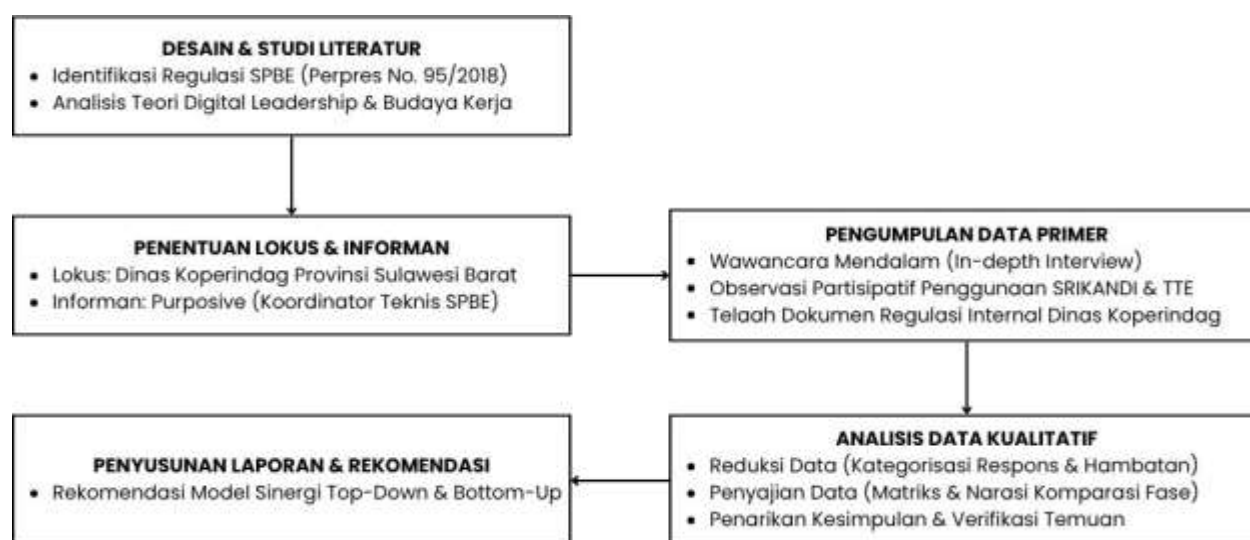


Figure 1. Research Methodology Flowchart

3. Result and Discussion

The findings indicate that the implementation of the Integrated Dynamic Archival Information System (SRIKANDI) and Electronic Signatures (TTE) at the West Sulawesi Provincial Department of Cooperatives, SMEs, Industry, and Trade underwent two distinct phases: an initial implementation phase characterized by limited utilization and an accelerated implementation phase marked by organization-wide adoption. During the early stage, although the necessary digital infrastructure had been established and electronic signature registration had been completed, administrative activities continued to rely predominantly on paper-based procedures. Official correspondence was manually recorded, approval processes required physical signatures, and document circulation depended heavily on the availability of authorized officials. As a result, administrative services remained relatively slow, fragmented, and inefficient despite the availability of digital systems. These findings suggest that technological readiness alone was insufficient to generate organizational transformation because employees had not yet integrated digital applications into their daily administrative routines, a situation similarly reported by [1], [2], who argue that digital transformation requires organizational adaptation in addition to technological adoption.

A substantial organizational transformation emerged following the appointment of the Acting Governor of West Sulawesi, Prof. Zudan Arif Fakrullah, who introduced mandatory implementation policies requiring all regional government agencies to utilize SRIKANDI and Electronic Signatures. Leadership commitment was demonstrated through continuous monitoring, policy enforcement, and institutional coordination, creating a strong organizational commitment toward SPBE implementation. Simultaneously, technical coordinators provided intensive mentoring and operational assistance for employees experiencing difficulties in adapting to the new digital system. These combined interventions significantly reduced organizational resistance and accelerated employee adaptation, indicating that successful digital transformation depends on the interaction between leadership commitment, regulatory enforcement, and continuous organizational support. This finding supports previous studies emphasizing that digital leadership functions not only as strategic direction but also as an organizational mechanism for facilitating innovation adoption and institutional change [6], [11].

Following the implementation of these organizational interventions, administrative processes became fully digital through the utilization of SRIKANDI. Incoming and outgoing correspondence, document verification, approval procedures, and Electronic Signatures were integrated into a single digital platform, enabling documents to be processed in real time without requiring physical document circulation. According to interview data, documents that previously required two to five working days for completion could now be finalized within minutes, depending on the availability of the approving official within the system. Employees also reported improved document traceability, easier monitoring of correspondence status, and greater confidence in the legal validity of electronically signed documents. These improvements demonstrate that digital administrative systems can substantially enhance bureaucratic efficiency when technological innovation is supported by organizational readiness and institutional commitment, consistent with findings reported by [29], [30].

Table 1. Comparison of SPBE Implementation Phase

Indicator	Before Acceleration	Acceleration Phase	Organizational Impact
Organizational response	Limited digital adoption	Full organizational commitment	Increased institutional compliance
Document processing	2–5 working days	Several minutes	Administrative efficiency improved by more than 90%
Approval mechanism	Manual signatures	Electronic Signatures (TTE)	Faster decision making
Technical support	General socialization	Continuous technical mentoring	Reduced employee resistance
Administrative monitoring	Manual tracking	Real-time digital monitoring	Higher transparency and accountability

The organizational transformation observed during the implementation process is summarized in Table 2. Beyond improving administrative efficiency, SRIKANDI contributed to organizational integration by replacing fragmented document management practices with an interoperable digital archival system. The introduction of BSrE-certified Electronic Signatures strengthened legal certainty while simultaneously reducing dependence on physical document distribution. More importantly, continuous technical facilitation enabled employees with limited digital competencies to gradually adapt to the new work environment, thereby fostering a sustainable digital working culture rather than merely introducing a new technological platform. This finding reinforces previous research indicating that organizational learning and employee capability development are indispensable components of successful digital government implementation [1].

Table 2. Organizational Transformation Following SRIKANDI Implementation

Indicator	Before Implementation	After Implementation	Managerial Implication
Approval process	Wet signature	BSrE-certified Electronic Signature	Improved legal legitimacy
Records management	Fragmented documentation	Integrated SRIKANDI platform	Better interoperability
Document completion	48–120 hours	Less than one hour	Faster public services
Employee adaptation	Resistance to digital systems	Continuous mentoring and coaching	Improved digital competence
Organizational culture	Paper-based administration	Paperless digital governance	Sustainable bureaucratic transformation

The findings further demonstrate that digital leadership constituted the primary catalyst for bureaucratic transformation. Rather than focusing exclusively on technological deployment, organizational leaders actively communicated the strategic importance of digital administration, encouraged employee participation, and established accountability mechanisms to ensure consistent implementation. These results strongly support the Digital Leadership framework proposed by [6], which argues that organizational transformation depends on leaders' ability to combine technological innovation with organizational capability development. Likewise, the findings extend the work of [11], who emphasize that digital leaders facilitate organizational learning,

coordinate change initiatives, and reduce uncertainty during digital transformation processes. In the present study, digital leadership was complemented by mandatory policy enforcement and technical facilitation, suggesting that these factors operate synergistically rather than independently.

From the perspective of organizational change, the findings are also consistent with Kotter's Change Management Theory [31]. The mandatory implementation policy introduced by the Acting Governor established a strong sense of urgency that minimized organizational hesitation toward digital transformation. However, unlike many previous studies that primarily emphasize leadership or technological readiness, this research reveals that technical facilitators played a crucial intermediary role by translating strategic directives into practical operational guidance. Personalized mentoring, troubleshooting assistance, and continuous coaching reduced technostress, increased employee confidence, and accelerated organizational learning. This finding contributes to the digital government literature by highlighting technical facilitation as an important mechanism bridging strategic leadership and operational implementation, a dimension that remains relatively underexplored in previous SPBE studies.

Overall, this study demonstrates that successful implementation of SPBE cannot be explained solely by technological readiness or information system quality. Instead, sustainable bureaucratic transformation emerges from the interaction between digital leadership, mandatory regulatory support, organizational learning, and continuous technical facilitation. This integrated perspective represents the principal contribution of the study because it expands existing digital government literature, which has predominantly emphasized infrastructure readiness, user acceptance, or digital maturity assessments. By providing empirical evidence from a provincial government in Indonesia, the findings offer a more comprehensive understanding of how organizational and institutional factors jointly accelerate digital transformation in the public sector. These insights may serve as a practical reference for regional governments seeking to strengthen SPBE implementation while contributing theoretically to the growing body of knowledge on digital leadership and public sector digital transformation.

4. Conclusion

This study concludes that the successful implementation of the Integrated Dynamic Archival Information System (SRIKANDI) and Electronic Signatures (TTE) at the West Sulawesi Provincial Department of Cooperatives, SMEs, Industry, and Trade was not determined solely by technological readiness but by the interaction of digital leadership, regulatory intervention, and continuous technical facilitation. The transition from conventional paper-based administration to integrated digital governance accelerated significantly after strong leadership commitment was reinforced through mandatory SPBE implementation policies and supported by intensive mentoring for employees. These complementary factors reduced organizational resistance, enhanced digital competencies, and enabled the institutionalization of digital administrative practices. Consequently, administrative processes became more efficient, transparent, accountable, and responsive, demonstrating that sustainable digital transformation in public organizations requires organizational change alongside technological innovation. The study also contributes to the digital government literature by proposing that digital leadership, regulatory enforcement, and technical facilitation function as an integrated framework for accelerating bureaucratic transformation within regional government institutions.

The findings provide several important implications for both theory and practice. From a theoretical perspective, this study extends the literature on digital government and digital leadership by demonstrating that successful SPBE implementation cannot be adequately explained by technological readiness or user acceptance alone. Instead, bureaucratic digital transformation emerges from the synergistic interaction between leadership commitment, institutional regulation, organizational learning, and technical facilitation. This integrated perspective enriches existing digital transformation frameworks by positioning technical facilitators as strategic change agents who bridge policy implementation and operational practice.

From a practical perspective, the findings suggest that regional governments should prioritize strengthening digital leadership competencies among senior administrators while simultaneously establishing structured technical assistance mechanisms within government agencies. Continuous mentoring, periodic digital competency training, and systematic monitoring of SPBE implementation should become institutional priorities to ensure that digital systems are fully integrated into daily administrative activities. Furthermore, policymakers should develop sustainable governance mechanisms that combine regulatory enforcement with employee capacity development to maximize the long-term benefits of digital public administration.

Several limitations should be acknowledged when interpreting the findings of this study. First, the research employed a single-case study design focusing on one provincial government institution, which may limit the transferability of the findings to other governmental contexts with different organizational structures or levels of digital maturity. Second, the study relied primarily on qualitative evidence obtained from interviews,

observations, and institutional documents, without incorporating quantitative performance indicators that could provide additional empirical validation of administrative improvements. Third, the research concentrated specifically on the implementation of SRIKANDI and Electronic Signatures; therefore, other dimensions of SPBE, such as integrated public service platforms, cybersecurity governance, interoperability, and citizen satisfaction, were beyond the scope of this investigation.

Future studies are encouraged to employ comparative multiple-case designs involving local governments from different provinces to examine whether the interaction between digital leadership, regulatory intervention, and technical facilitation produces similar outcomes across diverse institutional settings. Quantitative approaches using structural equation modeling (SEM) or mixed-methods designs could also be adopted to test the causal relationships among digital leadership, employee digital competence, organizational culture, change readiness, and SPBE performance. Additionally, future research should explore other strategic dimensions of digital government, including digital governance maturity, inter-agency interoperability, cybersecurity readiness, artificial intelligence integration, and citizen-centered digital public services. Such investigations would provide a more comprehensive understanding of the determinants of sustainable digital transformation and contribute to the continuous improvement of SPBE implementation in Indonesia.

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