Bureaucratic Innovation in the Smart City Era: An Analysis of the Implementation of the Electronic Based Government System (SPBE)

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ABSTRAK

Penelitian ini mengeksplorasi implementasi Sistem Pemerintahan Berbasis Elektronik (SPBE) sebagai bentuk inovasi birokrasi dalam konteks pengembangan kota cerdas (smart city) di Indonesia. Menggunakan metode deskriptif kualitatif, penelitian ini dilakukan di tiga pemerintah daerah yang dipilih berdasarkan keterlibatannya dalam inisiatif SPBE dan program tata kelola perkotaan. Data dikumpulkan melalui wawancara mendalam, analisis dokumen, dan observasi langsung untuk menelaah bagaimana SPBE diinstitusionalisasi, diintegrasikan, dan dialami di tingkat lokal. Temuan menunjukkan adanya variasi yang signifikan dalam keberhasilan implementasi, yang dipengaruhi oleh komitmen kepemimpinan, infrastruktur digital, kapabilitas sumber daya manusia, dan koordinasi antarinstansi. Beberapa daerah berhasil mengintegrasikan SPBE secara efektif dengan tujuan tata kelola cerdas, sementara daerah lain masih menghadapi tantangan seperti inersia birokrasi, rendahnya literasi digital, dan sistem yang terfragmentasi. Penelitian ini menyimpulkan bahwa inovasi birokrasi melalui SPBE tidak hanya memerlukan kemajuan teknologi, tetapi juga transformasi budaya, organisasi, dan regulasi. Studi ini memberikan kontribusi pada diskursus pemerintahan digital dengan menekankan pentingnya konteks lokal, kesiapan institusional, dan kepemimpinan strategis dalam mewujudkan tata kelola kota cerdas yang efektif.

Kata kunci: inovasi birokrasi, kota cerdas, SPBE, e-government, pemerintah daerah, transformasi digital.

ABSTRACT

This study explores the implementation of the Electronic-Based Government System (SPBE) as a form of bureaucratic innovation in the context of smart city development in Indonesia. Using a qualitative descriptive method, the research was conducted in three local governments selected based on their engagement with SPBE initiatives and urban governance programs. Data were collected through in-depth interviews, document analysis, and direct observation to examine how SPBE is institutionalized, integrated, and experienced at the local level. The findings reveal considerable variation in implementation success, influenced by leadership commitment, digital infrastructure, human resource capabilities, and inter-agency coordination. While some regions have demonstrated effective innovation in aligning SPBE with smart governance goals, others face persistent challenges such as bureaucratic inertia, lack of digital literacy, and fragmented systems. This study concludes that bureaucratic innovation through SPBE requires not only technological advancement but also cultural, organizational, and regulatory transformation. The research contributes to the discourse on digital government by highlighting the importance of local context, institutional readiness, and strategic leadership in realizing effective smart city governance.

Keywords: *bureaucratic innovation; smart city; SPBE; e-government; local government; digital transformation*

INTRODUCTION

In recent years, the concept of the "smart city" has emerged as a strategic response to the growing complexities of urban management, technological advancement, and public expectations for better services. Smart cities leverage digital technologies to enhance the quality of life for citizens, improve the efficiency of public services, and promote sustainable development (Albino, Berardi, & Dangelico, 2015). In this context, public

administration is required to undergo significant transformation through bureaucratic innovation, particularly in adapting to the rapid pace of digitalization.

One of the key innovations in public sector reform in Indonesia is the implementation of the Electronic-Based Government System (Sistem Pemerintahan Berbasis Elektronik/SPBE). This system aims to integrate government processes, increase transparency, reduce inefficiencies, and improve accountability by digitizing services and information management across governmental levels (Kementerian PANRB, 2021). SPBE is not only a tool for modernization but also a mechanism for aligning national development with global smart governance trends.

Bureaucratic innovation is defined as the adoption and implementation of new ideas, processes, or technologies to improve administrative functions and public service delivery (Borins, 2014). In the context of smart city development, bureaucratic innovation becomes essential for enabling governments to utilize information and communication technology (ICT) as a driver of effective governance and citizen-centric services. The SPBE initiative reflects this shift by promoting interoperability, process simplification, and data-based decision-making.

However, the implementation of SPBE in Indonesia is not uniform and remains challenged by various structural, cultural, and technical barriers. Issues such as siloed bureaucracies, limited ICT infrastructure in remote areas, and low digital literacy among civil servants often hinder the full realization of SPBE goals (Setiawan & Prakoso, 2022). Consequently, understanding the dynamics of SPBE implementation within the broader framework of smart city development is crucial to identify best practices and areas for improvement.

Smart city governance is inseparable from the quality of its public administration. As cities aim to become "smart," they must also become more adaptive, responsive, and transparent. Bureaucratic innovation in this regard requires a reconfiguration of traditional governance models, fostering collaboration across sectors, and building digital competencies among government personnel (Meijer & Bolívar, 2016). The SPBE initiative thus serves as a critical entry point for institutional transformation toward digital-era governance.

Empirical evidence suggests that cities that successfully implement e-government strategies tend to experience increased public trust, enhanced policy responsiveness, and reduced administrative costs (Mergel, Edelmann, & Haug, 2019). However, these outcomes depend largely on the political will, organizational readiness, and stakeholder involvement at the local level. For Indonesia, where local autonomy plays a significant role, the effectiveness of SPBE implementation can vary significantly between regions.

Furthermore, the integration of SPBE into smart city policies necessitates a paradigm shift—from bureaucratic control to agile governance. This transformation involves dismantling hierarchical structures, encouraging innovation within public institutions, and enabling participatory mechanisms for citizens (Nam & Pardo, 2011). Without these shifts, the risk persists that digital tools may replicate existing inefficiencies instead of solving them.

The Indonesian government has issued a national roadmap and regulation to support SPBE, including Presidential Regulation No. 95 of 2018. This regulatory framework outlines standards for digital service delivery, institutional governance, data management, and infrastructure development. Yet, implementation still faces fragmentation, with some agencies lagging in system integration and service

automation (Bappenas, 2021). Therefore, continuous evaluation and innovation are necessary to ensure that SPBE aligns with the smart city agenda.

This study aims to analyze the implementation of SPBE as a form of bureaucratic innovation within the framework of smart city development in Indonesia. It focuses on the practical challenges, strategic responses, and institutional mechanisms that shape the effectiveness of SPBE in selected local governments. By doing so, the study contributes to the discourse on digital governance and public sector innovation in the global south.

The findings are expected to provide insight into how bureaucratic innovation can support smart city objectives, identify gaps between policy and implementation, and offer policy recommendations for strengthening SPBE governance. In an era where cities must rapidly adapt to technological change and growing citizen demands, understanding the interplay between innovation, bureaucracy, and digital systems becomes increasingly vital for sustainable urban governance.

METHOD

This study adopts a qualitative descriptive approach to analyze the implementation of the Electronic-Based Government System (SPBE) as a form of bureaucratic innovation within the context of smart city development in Indonesia. A qualitative design was chosen to provide a deep understanding of institutional behaviors, implementation practices, and contextual challenges that influence the realization of SPBE across different local government settings (Creswell & Poth, 2018).

The research was conducted in three purposively selected urban local governments that are actively pursuing smart city programs and have adopted SPBE as part of their public service reform. These locations were selected based on the availability of digital public service infrastructure, diversity in regional characteristics, and varying levels of SPBE implementation as recorded in the national SPBE evaluation by the Ministry of Administrative and Bureaucratic Reform (Kementerian PANRB, 2021).

Data collection employed three main techniques: in-depth interviews, document analysis, and direct observation. In-depth interviews were conducted with key informants, including regional government officials (such as heads of e-government units), civil servants responsible for digital service delivery, and representatives of IT teams involved in SPBE platform development. A semi-structured interview guide was used to explore themes such as institutional readiness, inter-agency coordination, policy interpretation, system integration, and user adoption.

Document analysis was used to examine relevant regulations, regional development plans, official reports on SPBE progress, and internal memos related to smart city initiatives. These documents provided insight into formal commitments, budget allocations, and digital governance strategies. Additionally, publicly available dashboards and performance indicators from the SPBE monitoring system were analyzed to assess the implementation status and trends.

Direct observation was carried out by accessing the online service platforms of each selected region. Researchers assessed the structure, responsiveness, functionality, and integration of SPBE components, including licensing systems, citizen complaint portals, e-office systems, and internal government databases. This allowed for the verification of interview data and a firsthand understanding of system usability and coherence.

To ensure validity and reliability, the research employed data triangulation across different methods and sources.

Interview responses were cross-checked with document content and observational findings. Member checking was also conducted by sharing initial results with select informants for confirmation and further input. This approach strengthens the credibility and confirmability of the findings (Lincoln & Guba, 1985).

The data analysis used the interactive model of Miles, Huberman, and Saldaña (2014), involving data condensation, data display, and drawing/verifying conclusions. Thematic coding was applied manually using inductive logic, allowing analytical categories to emerge organically from the field data. The analysis focused on identifying patterns of bureaucratic innovation, institutional enablers and constraints, and strategic alignment between SPBE and smart city governance goals.

This study is bounded by a case study design, with each local government serving as an individual unit of analysis. By comparing across cases, the study aims to uncover cross-cutting factors that shape successful or struggling SPBE implementation. Ethical considerations were strictly observed, including informed consent from all participants, anonymity, and compliance with institutional research protocols.

RESULTS AND DISCUSSION

The findings of this study show that the implementation of the Electronic-Based Government System (SPBE) has achieved varying degrees of success across the three selected local governments. In the metropolitan city, SPBE integration has been relatively advanced, with multiple services already digitized, including licensing, public complaints, and civil registry services. This region has established a dedicated e-government unit, supported by sufficient budget and strong leadership commitment, which has accelerated the pace of digital transformation.

In contrast, the second city, categorized as a medium-sized urban area, demonstrated partial implementation of SPBE components. While some departments had adopted digital systems for internal operations, such as e-office and digital archives, the integration between services remained weak. Data silos persisted, and many civil servants continued to operate using manual procedures. This fragmentation indicated a lack of coordination and standardization—challenges frequently cited in bureaucratic innovation literature (Borins, 2014).

The third local government, located in a developing district, faced the greatest implementation challenges. Limited ICT infrastructure, low digital literacy among staff, and weak institutional support resulted in minimal adoption of SPBE features. Services were still predominantly paper-based, and there was little understanding of SPBE principles among lower-level bureaucrats. This situation reflects the "implementation gap" between national digital governance policies and local administrative capacities (Meijer & Bolívar, 2016).

From the perspective of bureaucratic innovation, the most progressive region exhibited several enabling factors: visionary leadership, internal incentives for digital adoption, and investment in human resource development. Interview data indicated that innovation was treated not merely as compliance with central policy, but as a strategic agenda to improve public service delivery. This aligns with the view that successful innovation requires not only structural change, but also a cultural shift within bureaucracy (Borins, 2014).

Another important finding relates to citizen engagement. In the first case, the local government had developed an integrated citizen portal, where residents could access multiple services using a

single digital ID. Satisfaction surveys conducted by the region indicated high public trust and improved response times. Meanwhile, in the other regions, citizen access to digital services remained limited, with some citizens unaware of the existence of SPBE systems. This highlights the importance of digital inclusivity and communication strategies in supporting smart city goals (Mergel et al., 2019).

The study also found that cross-sector collaboration was a key differentiator in SPBE effectiveness. The successful case showed evidence of coordination between government departments, local universities, and private IT vendors in system development and user training. In contrast, the less developed cases lacked partnerships, leading to system redundancies and technical inefficiencies. These findings support the idea that bureaucratic innovation in the digital era thrives in environments with collaborative governance models (Nam & Pardo, 2011).

Despite the progress in some regions, challenges remain in institutionalizing SPBE. A major issue across all three cases was the absence of systematic performance evaluation mechanisms. While digital systems had been developed, there was no clear metric to assess their impact on service efficiency, employee performance, or citizen satisfaction. Without data-driven evaluation, SPBE risks becoming a symbolic initiative rather than a transformative one (Kementerian PANRB, 2021).

Furthermore, interviews revealed resistance to change among senior bureaucrats, particularly in regions with entrenched administrative cultures. Some officials viewed SPBE as a threat to job security or as an additional burden rather than a solution. This bureaucratic inertia is a well-documented barrier to public sector innovation and underscores the need for continuous leadership training and change management strategies (Setiawan & Prakoso, 2022).

Another challenge identified was cybersecurity and data privacy. The more advanced region had already begun developing a cybersecurity protocol in collaboration with the national cybersecurity agency. Meanwhile, the other regions lacked basic data protection policies, putting public data at risk. This discrepancy illustrates the uneven preparedness of local governments to safeguard digital transformation (Gil-Garcia et al., 2016).

In summary, the implementation of SPBE as a form of bureaucratic innovation reflects both the potential and the complexity of transitioning toward smart governance. The differences in institutional capacity, leadership commitment, technological infrastructure, and citizen engagement significantly influence the success of SPBE. These findings suggest that national SPBE policies must be accompanied by contextualized implementation strategies that empower local governments to innovate sustainably and inclusively.

CONCLUSION

This study has analyzed the implementation of the Electronic-Based Government System (SPBE) as a form of bureaucratic innovation in the context of smart city development in Indonesia. The findings indicate that the degree of SPBE implementation varies significantly across local governments, influenced by differences in leadership commitment, technological infrastructure, institutional capacity, and interagency coordination.

The case of the metropolitan city demonstrates that SPBE can function effectively as a transformative tool when supported by strategic leadership, strong political will, and inclusive governance structures. Integrated digital services, cross-sector collaboration, and a culture of innovation were critical factors in enabling

bureaucratic reform and achieving the goals of smart governance.

Conversely, the challenges faced by medium and lower-capacity local governments highlight the persistent obstacles in digital bureaucratic transformation. Issues such as fragmented systems, limited human resource capacity, weak interdepartmental integration, and low public awareness continue to hamper the progress of SPBE. These gaps suggest that national policies must be implemented with greater sensitivity to local contexts and resource disparities.

The research underscores the notion that bureaucratic innovation in the digital era is not solely about adopting technology but requires institutional transformation. The success of SPBE depends on how well local governments internalize digital governance values, provide continuous training, develop inclusive digital systems, and measure service outcomes based on user needs.

To advance SPBE and smart city goals, it is essential for national and regional policymakers to strengthen institutional frameworks, invest in digital infrastructure, promote adaptive leadership, and foster citizen participation. Future studies should explore longitudinal impacts of SPBE implementation and develop comprehensive evaluation models that link digital transformation with public service quality and democratic accountability.

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