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Digital Government Innovation in Election Monitoring: Evaluating the Implementation of Siwaslu through a Digital Governance and State Capacity Perspective in the 2024 Election

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Abstract
This study evaluates the implementation of the Election Monitoring Information System (Siwaslu) in Indonesia's 2024 Election using an integrated analytical framework combining Digital Governance, Public Sector Innovation, and State Capacity. Employing a qualitative case study approach with an interpretive evaluation design, data were collected through institutional documents, in-depth interviews, and focus group discussions, and analyzed using thematic analysis. The findings indicate that Siwaslu has significantly improved efficiency, data accuracy, and real-time monitoring capacity, reflecting its role as an incremental-adaptive innovation in the public sector. However, the study identifies an "innovation gap" between system design and implementation, manifested in three dimensions: (1) access gaps due to unequal digital infrastructure, (2) capacity gaps related to varying levels of digital literacy among users, and (3) integration gaps caused by limited interoperability across systems. These meaning, while Siwaslu contributes to strengthening state capacity in election oversight, its effectiveness is contingent upon the readiness of supporting ecosystems. This study contributes to the literature by providing an empirical evaluation of digital oversight systems in emerging democracies and highlighting the importance of integrating technological innovation with institutional and human capacity development.

Keywords: Siwaslu, digital government innovation, election monitoring, digital governance, state capacity

Abstrak
Penelitian ini mengevaluasi implementasi Sistem Informasi Pengawasan Pemilu (Siwaslu) dalam Pemilu 2024 di Indonesia dengan menggunakan kerangka kerja analitis terintegrasi yang menggabungkan Tata Kelola Digital, Inovasi Sektor Publik, dan Kapasitas Negara. Dengan menggunakan pendekatan studi kasus kualitatif dan desain evaluasi interpretatif, data dikumpulkan melalui dokumen kelembagaan, wawancara mendalam, dan diskusi kelompok terfokus, kemudian dianalisis menggunakan analisis tematik. Temuan menunjukkan bahwa Siwaslu telah secara signifikan meningkatkan efisiensi, akurasi data, dan kapasitas pemantauan real-time, yang mencerminkan perannya sebagai

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inovasi adaptif-inkremental di sektor publik. Namun, studi ini mengidentifikasi "celah inovasi" antara desain sistem dan implementasinya, yang terwujud dalam tiga dimensi: (1) celah akses akibat infrastruktur digital yang tidak merata, (2) celah kapasitas terkait tingkat literasi digital yang bervariasi di antara pengguna, dan (3) celah integrasi yang disebabkan oleh keterbatasan interoperabilitas antar sistem. Mengartikan, meskipun Siwaslu berkontribusi dalam memperkuat kapasitas negara dalam pengawasan pemilu, efektivitasnya bergantung pada kesiapan ekosistem pendukung. Studi ini memberikan kontribusi pada literatur dengan memberikan evaluasi empiris terhadap sistem pengawasan digital di negara-negara demokrasi yang sedang berkembang dan menyoroti pentingnya mengintegrasikan inovasi teknologi dengan pengembangan kapasitas kelembagaan dan sumber daya manusia.

Kata Kunci: *Siwaslu, inovasi pemerintahan digital, pengawasan pemilu, tata kelola digital, kapasitas negara*

INTRODUCTION

The implementation of the Election Monitoring Information System (Siwaslu) can be interpreted as a form of digital government innovation that extends beyond technological advancement into the institutional domain. It signifies a shift in election oversight from a conventional, procedure-oriented approach toward a data-driven system supported by real-time monitoring. From the perspective of Public Sector Innovation, this transformation represents an incremental and adaptive form of innovation aimed at enhancing efficiency, transparency, and accountability in public service delivery (Osborne & Brown, 2011; Hartley, 2005). At the same time, within the Digital Governance framework, Siwaslu reflects an effort to strengthen state capacity through the integrated and systematic use of digital technologies in managing electoral processes (Janowski, 2015).

The rapid expansion of digital technologies in the public sector has fundamentally reshaped governance practices, including those related to electoral administration and oversight. Rather than simply digitizing existing administrative procedures, contemporary digital government initiatives emphasize data-driven decision-making, real-time coordination, and integrated service systems (Margetts & Dunleavy, 2013; Cordella & Tempini, 2015). In the electoral context, such transformations are particularly crucial given the complexity of election stages, the wide geographical coverage, and the high risks associated with fraud, administrative failure, and declining public trust.

As a core mechanism of democracy, elections require not only procedural integrity but also a strong and credible oversight system. To address persistent challenges such as manual reporting, fragmented documentation, and delayed responses, the Election Supervisory Agency (Bawaslu) introduced Siwaslu as a web-based platform designed to facilitate real-time monitoring, structured data documentation, and more efficient coordination

across institutional levels. Through this system, electoral oversight is expected to become more transparent, accountable, and responsive.

Despite its promising potential, the implementation of Siwaslu in the 2024 General Election has yet to reach optimal performance. Initial observations highlight several ongoing challenges, including heavy reliance on digital infrastructure, uneven levels of digital literacy among field supervisors, and limited interoperability with other systems such as SiGapLapor and SIPS. These issues suggest that the effectiveness of digital innovation in electoral governance cannot be assessed solely based on technological design, but must also consider institutional arrangements and human capacity factors. Normatively, the effectiveness of election oversight systems is closely tied to the concept of electoral integrity, which refers to the extent to which elections are conducted in a free, fair, transparent, and accountable manner (Catt, 2014; Norris, 2014). In this sense, Siwaslu should not be viewed merely as a technical instrument, but as a strategic mechanism that ensures oversight processes are systematically documented, traceable, and accountable.

Although the use of digital technology in electoral governance continues to expand, existing scholarship has largely concentrated on e-voting and electoral management systems, with comparatively limited attention given to digital monitoring systems, especially in the context of developing democracies. Empirical studies examining platforms such as Siwaslu remain scarce, particularly in understanding how digital innovation interacts with institutional capacity and governance structures (Lips, 2020; Sienkiewicz-Ma³yjurek & Zyzak, 2025).

In addition, previous research often treats Digital Governance, Public Sector Innovation, and State Capacity as separate analytical frameworks. This lack of theoretical integration limits a comprehensive understanding of how these dimensions interact in shaping the effectiveness of digital government initiatives (Park & Gil-Garcia, 2022).

This gap becomes increasingly significant when considering the policy urgency and democratic risks associated with ineffective digital oversight systems. Weak implementation may result in incomplete data, delayed responses to violations, and reduced transparency, ultimately undermining electoral integrity and eroding public trust in democratic processes. Therefore, a more integrated and empirically grounded analysis is necessary to better understand how digital innovations in election oversight operate in practice.

Based on these considerations, this study aims to evaluate the implementation of Siwaslu in the 2024 Election using an integrated analytical framework that combines Digital Governance, Public Sector Innovation, and State Capacity. This study adopts an integrated analytical approach that brings together these three complementary perspectives. Rather than treating them as separate theories, they are positioned as interconnected dimensions that collectively explain the dynamics of digital innovation in election oversight.

Digital Governance provides the foundation for understanding the shift toward data-driven and real-time monitoring systems (Janowski, 2015; Cordella & Tempini, 2015). Public Sector Innovation highlights the incremental and adaptive character of Siwaslu as an innovation that strengthens existing institutional mechanisms (Osborne & Brown, 2011). Meanwhile, State Capacity focuses on the ability of institutions and actors to effectively implement, manage, and sustain digital innovations (Fukuyama, 2013).

The interaction among these perspectives enables the identification of an "innovation gap" between system design and its implementation in practice. While Digital Governance offers the structural and technological foundation, Public Sector Innovation explains the nature of institutional change, and State Capacity determines the effectiveness of implementation. Through this integrated framework, Siwaslu can be more comprehensively understood not merely as a technological system, but as a socio-technical innovation embedded within broader governance structures.

RESEARCH METHODS

This study adopts a qualitative case study approach with an interpretive evaluation design to examine digital government innovation in election oversight through the implementation of the Election Monitoring Information System (Siwaslu) in the 2024 Election. This approach enables an in-depth understanding of Siwaslu not only as a technical system but also as part of the broader transformation toward data-driven electoral governance. Within the Digital Governance perspective, Siwaslu is positioned as a shift from conventional administrative oversight to an integrated, real-time monitoring system. The analysis focuses on three key aspects: system functionality as a form of digital innovation, the effectiveness of its use across different levels of oversight actors, and the identification of strengths and limitations that indicate the presence of an innovation gap. To enrich the analysis, this study also incorporates the perspectives of Public Sector Innovation and State Capacity to assess the adaptive nature of the system and its contribution to strengthening institutional capacity.

Data were collected from multiple sources, including Bawaslu institutional documents, Siwaslu monitoring reports, in-depth interviews with key informants from national and regional levels, and focus group discussions (FGDs) with relevant stakeholders. Informants were selected using purposive sampling based on their involvement in the implementation of Siwaslu.

Data analysis was conducted using thematic analysis following Braun and Clarke (2006), involving stages of data familiarization, coding, theme development, and interpretation. This approach allows for the identification of patterns related to system performance, implementation challenges, and innovation gaps. The findings were then interpreted using relevant theoretical frameworks to generate conceptual and evaluative insights. To ensure validity, this study applies triangulation of data sources and methods and compares the

normative design of Siwaslu with its actual implementation in practice. Through this approach, the study provides a comprehensive evaluation of Siwaslu both as a public sector digital innovation and as an instrument for strengthening data-driven election oversight governance.

RESULTS

To enhance analytical clarity, the findings are organized into four thematic categories that capture the key dimensions of Siwaslu implementation within an integrated Digital Governance, Public Sector Innovation, and State Capacity framework

Institutional Transformation Institutional Transformation in Election Monitoring

The implementation of the Election Monitoring Information System (Siwaslu) reflects a fundamental transformation in election oversight from a manual, procedure-based model toward a data-driven and real-time governance system. This transformation aligns with the concept of Digital Governance, where data becomes the central element in coordination, reporting, and decision-making processes across organizational levels (Janowski, 2015; Yildiz, 2007).

In this context, Siwaslu functions not only as a reporting tool but also as a digital infrastructure that integrates monitoring, verification, and documentation processes into a unified system. This integration enables a shift from linear reporting mechanisms to simultaneous data circulation across institutional levels, strengthening coordination and responsiveness in election oversight.

Moreover, the implementation of Siwaslu redistributes institutional roles, particularly by positioning Polling Station Supervisors (PTPS), numbering more than 600,000 personnel, as primary data producers. This reflects an expansion of state capacity in terms of data extensiveness, defined as the ability to collect large-scale, granular data across regions (Fukuyama, 2013). However, this transformation also introduces a high level of dependence on the capacity of individual users, indicating that institutional transformation is closely linked to human resource readiness.

Operational Challenges in Election Monitoring

Despite the transformation introduced by Siwaslu, the findings reveal persistent operational challenges in the implementation of election monitoring. These challenges are primarily related to logistics distribution, accessibility, and procedural compliance at polling stations.

Empirical data from 343,307 polling stations across 27 provinces indicate several recurring issues, including delays in the distribution of notification forms (18,689 polling stations), logistical unpreparedness (3,100 polling stations), and limited accessibility for vulnerable groups (3,597 polling stations). Additionally, technical and procedural violations were identified during voting and vote-counting stages, such as delays in opening polling stations (37,466

cases), lack of accessibility tools for persons with disabilities (12,284 polling stations), and logistical shortages (10,496 polling stations).

These findings suggest that the primary challenges in election implementation remain rooted in operational management and coordination. While Siwaslu enables systematic documentation and real-time reporting, it does not fully eliminate structural weaknesses in election governance. Thus, digital systems alone are insufficient to resolve operational challenges without parallel improvements in coordination mechanisms, logistics management, and procedural enforcement.

System Performance and Effectiveness

From a functional perspective, Siwaslu demonstrates significant improvements in efficiency, reporting speed, and data accuracy through the digitalization of monitoring processes. Features such as real-time reporting, digital documentation, and standardized checklists enhance transparency and accountability in election oversight.

The system also strengthens vertical integration within the oversight structure, enabling faster and more coordinated data flows from the polling station level to the national level. In this regard, Siwaslu aligns with the principles of Public Sector Innovation as an incremental-adaptive innovation that enhances existing administrative systems rather than replacing them (Osborne & Brown, 2011; Hartley, 2005).

However, the effectiveness of the system varies significantly across regions. Limitations in internet infrastructure, particularly in less-developed areas, result in delays or failures in data reporting. In addition, variations in digital literacy and technical skills among field supervisors affect the accuracy and reliability of data input. These conditions indicate that system performance is uneven and highly dependent on the readiness of supporting infrastructure and user capacity.

Innovation Gap Analysis

The findings of this study identify the existence of an “innovation gap” between the potential of Siwaslu as a digital government innovation and its actual implementation in the field. This gap can be categorized into three main dimensions.

First, the *access gap*, which refers to disparities in digital infrastructure, particularly in remote and underdeveloped regions. Limited internet connectivity leads to delays in data transmission and reduces the representativeness of national monitoring data. Second, the *capacity gap*, which relates to variations in digital literacy and technical competence among field supervisors. As primary system operators, their ability to use the system significantly influences data quality and overall system effectiveness. Third, the *integration gap,* which is reflected in the lack of interoperability between Siwaslu and other systems within the Bawaslu

ecosystem, such as SiGapLapor and SIPS. This fragmentation indicates that digital innovations remain partially integrated and have not yet formed a cohesive digital governance ecosystem.

Tabel 1. Evaluation of the Siwaslu System in the 2024 General Election

No	Parameter	Positive Aspects	Negative Aspects
1	Feature Completeness	Comprehensive features accelerate the reporting process and facilitate the presentation of monitoring outcomes.	Complex features may confuse unfamiliar users, making the system less accessible.
2	Ease of Use	For users familiar with the internet, the application is highly helpful and expedites reporting.	A major challenge for Bawaslu officers with limited digital literacy.
3	Process Efficiency	Monitoring processes become faster with reasonably good outcomes.	Increasing reliance on technology may marginalize users lacking the required skills.
4	Adaptability	Capable of operating effectively under various field conditions and monitoring scenarios.	Users with limited technical ability may struggle to adapt, causing operational delays.
5	Data Accuracy	Enhances the accuracy of data recording and reporting.	Raises concerns over user data security and privacy vulnerabilities.
6	Cost Efficiency	Significantly reduces operational costs, particularly those related to paper-based logistics.	May not deliver direct budgetary impact across all operational units.
7	System Comprehensiveness	Requires complete coordination across all organizational units, enhancing system integration.	Demands comprehensive compliance, which may overwhelm unprepared personnel.
8	Technical Complexity	Strengthens program structure and procedural discipline.	Overly complex for staff with low digital competency, potentially hindering performance.
9	System Development	Encourages ongoing system improvement and the need for capacity building among personnel.	Without adequate human resources, system development efforts risk becoming ineffective or underutilized.
10	System Maintenance	Correlates positively with increased institutional performance and professionalism.	If not matched with productivity, maintenance may become a resource burden that reduces operational efficiency.

Source: Adapted from various sources

These table and three dimensions demonstrate that the success of digital government innovation is not determined solely by technological sophistication, but also by the readiness of the broader ecosystem, including infrastructure, human resources, and system integration.

DISCUSSION

Discussion of this study demonstrate that digital government innovation, as represented by the implementation of Siwaslu, does not automatically lead to effective governance outcomes. While the system reflects a significant transformation toward data-driven election monitoring, its effectiveness remains contingent upon the interaction between technological design, institutional arrangements, and human capacity. This confirms the argument within the Digital Governance literature that the success of digital systems depends not only on technological advancement but also on the broader governance ecosystem in which they are embedded (Janowski, 2015; Margetts & Dunleavy, 2013).

From a Public Sector Innovation perspective, Siwaslu can be understood as an incremental-adaptive innovation that enhances existing oversight mechanisms through the integration of digital technology. This type of innovation is particularly relevant in complex governance settings such as elections, where institutional stability must be maintained while introducing new technological tools (Osborne & Brown, 2011; Hartley, 2005). The empirical findings confirm that Siwaslu has improved efficiency, transparency, and coordination across different levels of election oversight. However, these improvements are uneven and constrained by structural limitations, indicating that innovation in the public sector is inherently context-dependent.

Furthermore, the analysis highlights the central role of State Capacity in determining the effectiveness of digital innovation. In line with Fukuyama (2013), state capacity is not solely defined by institutional design or technological availability, but by the ability of actors to implement and utilize these systems effectively. In the case of Siwaslu, the expansion of data collection capacity through large-scale involvement of field supervisors represents a significant advancement. However, variations in digital literacy, technical skills, and operational readiness at the grassroots level limit the system's overall performance. This suggests that digital transformation, without corresponding investments in human capacity, risks producing suboptimal outcomes.

The interaction between these three perspectives; Digital Governance, Public Sector Innovation, and State Capacity, reveals the existence of what this study conceptualizes as an "innovation gap." This gap reflects the discrepancy between the intended design of digital systems and their actual implementation in practice. Empirically, this gap is manifested in three interconnected dimensions: access, capacity, and integration. The access gap highlights the persistent digital divide in less-developed regions, which constrains real-time data reporting. The capacity gap underscores the importance of user competence in

determining data quality and system reliability. Meanwhile, the integration gap points to the fragmentation of digital systems, where the lack of interoperability limits the effectiveness of information flows within the oversight ecosystem.

These findings contribute to the broader literature by demonstrating that digital government innovation should be understood as a socio-technical process rather than a purely technological intervention. In this regard, Siwaslu illustrates how digital tools can enhance oversight capacity, but also how they reproduce existing structural inequalities when supporting conditions are uneven. This reinforces critical perspectives in public administration that emphasize the importance of aligning technological innovation with institutional capacity and governance structures.

In the context of electoral governance, the implementation of Siwaslu has important implications for transparency, accountability, and electoral integrity. The system provides a structured and traceable documentation mechanism that strengthens oversight processes and supports evidence-based decision-making. However, the limited public accessibility of Siwaslu indicates that the system remains predominantly government-centric. This condition contrasts with the principles of open digital governance, which emphasize public participation, transparency, and collaborative oversight (Norris, 2014). As such, the potential of Siwaslu as a participatory governance platform has not yet been fully realized.

Moreover, the role of Siwaslu extends beyond administrative efficiency into the domain of electoral justice. The availability of digital documentation as an audit trail strengthens the evidentiary basis for resolving electoral disputes, thereby enhancing the legitimacy and accountability of the electoral process (Orozco-Henríquez, 2010). At the same time, the data generated through the system holds strategic value for evidence-based policy formulation, allowing institutions to identify recurring patterns of violations and improve future election governance (OECD, 2019).

Despite these contributions, this study acknowledges that Siwaslu remains in a transitional phase toward a more mature and integrated digital governance system. The persistence of the innovation gap indicates that technological innovation alone is insufficient to transform governance practices without parallel improvements in infrastructure, human resources, and institutional coordination. Finally, this study opens several avenues for future research. First, further studies are needed to quantitatively assess the impact of digital monitoring systems on electoral outcomes and integrity. Second, comparative studies across regions or countries could provide deeper insights into how different institutional contexts shape the effectiveness of digital governance innovations. Third, future research should explore the potential of integrating public participation into digital oversight systems, particularly in advancing open and collaborative governance models. Overall, this study highlights that the effectiveness of digital government innovation lies not only in the design of technological

systems but in the capacity of institutions and actors to integrate, adapt, and sustain these innovations within complex governance environments.

CONCLUSIONS

This research concludes that the implementation of the Election Monitoring Information System (Siwaslu) represents a significant advancement in transforming election oversight in Indonesia toward a data-driven governance model. As a form of digital government innovation, Siwaslu has enhanced efficiency, transparency, and real-time monitoring capacity, while also strengthening the institutional ability to collect and utilize large-scale electoral data.

However, the findings indicate that the effectiveness of this innovation remains uneven and is still in a transitional phase. The study identifies the existence of an “innovation gap” between the system’s design and its implementation in practice, which is reflected in three main dimensions: disparities in digital infrastructure (access gap), variations in user capacity (capacity gap), and limited system interoperability (integration gap). These findings demonstrate that digital innovation in electoral governance is not solely a technological issue, but a socio-technical process shaped by the interaction between digital systems, institutional arrangements, and human capacity.

From a theoretical perspective, this study contributes by integrating Digital Governance, Public Sector Innovation, and State Capacity into a unified analytical framework to explain the dynamics of digital innovation in election oversight. The findings highlight that the success of digital governance initiatives depends not only on technological sophistication but also on the readiness of the broader governance ecosystem.

Practically, addressing the identified innovation gap requires not only improvements in system design but also strengthening digital infrastructure, enhancing human resource capacity, and ensuring greater integration across institutional systems. In addition, expanding public access and participation in digital monitoring systems is essential to support more transparent and collaborative electoral governance.

Without these efforts, the transformative potential of digital government innovation in strengthening electoral integrity and democratic governance will not be fully realized. Therefore, future development of Siwaslu should be directed toward building an integrated, inclusive, and sustainable digital oversight ecosystem that is capable of responding to the complexities of electoral governance in the digital era.

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This publication is a small contribution to the collective effort to strengthen democratic oversight and improve the election information system. It is hoped that this work will not only be an academic contribution, but also a practical reference for election oversight and future policy formulation.

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