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Implementation of the SIPINTER Licensing Policy at the Investment and One-Stop Integrated Licensing Agency of Tangerang Regency

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ABSTRACT: This research examines the suboptimal implementation of the Integrated Licensing Service Information System (SIPINTER) at the Investment and One-Stop Integrated Licensing Agency of Tangerang Regency as an e-Government instrument for achieving effective, transparent, and accountable governance. The study aims to analyze the factors causing the ineffectiveness of SIPINTER and formulate strategies for its optimization. Using a qualitative descriptive approach, data were collected through interviews, observations, and documentation. The analysis is based on Indrajit's (2002) e-Government framework, support, capacity, and value. The findings show that although SIPINTER has contributed to bureaucratic modernization and improved service quality, its implementation remains ineffective. Key obstacles include low digital literacy, limited technical competence of government personnel, unstable system and server infrastructure, and weak cross-agency coordination. These issues reduce licensing compliance and limit SIPINTER's contribution to local revenue (PAD). To address these challenges, the study proposes three strategic steps: (1) strengthening public outreach and digital literacy; (2) enhancing digital work culture through visionary leadership and smart government–based training; and (3) developing technological infrastructure and optimizing regional and national funding for digital transformation. Analytical tools were used to ensure robust strategy formulation. SWOT analysis identified internal and external factors influencing SIPINTER, followed by the TOWS matrix to develop strategic alternatives. These strategies were then evaluated and prioritized using Multi-Criteria Analysis (MCA) based on feasibility, effectiveness, resource needs, and expected impact. The integration of SWOT–TOWS–MCA ensured that the recommended strategies are theoretically sound and operationally applicable for improving SIPINTER's implementation.

Keywords: Policy Implementation, SIPINTER, e-Government.

INTRODUCTION

The acceleration of digital transformation has reshaped public sector governance across the world, encouraging governments to adopt integrated, technology-based service systems. In the field of public administration, e-Government has become a strategic instrument for enhancing transparency, efficiency, accountability, and citizen participation in public services (Indrajit, 2002; Sedarmayanti, 2016). The application of information and communication technology in

government administration is also viewed as a key driver of bureaucratic reform and service modernization (Suharto, 2020).

In Indonesia, the national agenda for digital governance has been strengthened through the implementation of the Online Single Submission Risk-Based Approach (OSS-RBA) as the main platform for business licensing, as regulated by Government Regulation No. 5 of 2021 (Government of the Republic of Indonesia, 2021). Nevertheless, regional governments remain responsible for administering various non-OSS permits through their respective digital systems, which requires strong institutional readiness, technological capacity, and coordination among implementing agencies (Keban, 2008; Sedarmayanti, 2022).

Tangerang Regency, one of the largest and most economically dynamic regions in Banten Province, has developed the Integrated Licensing Service Information System (SIPINTER) to support more effective and responsive licensing services. The system is designed to improve service accessibility, reduce bureaucratic complexity, and strengthen inter-agency coordination within the regional licensing process (Indrajit, 2004). Considering the regency's high population density, rapid industrial growth, and increasing investment flows, the availability of an efficient and reliable digital licensing system is essential for improving regulatory compliance and optimizing local revenue (Pendapatan Asli Daerah/PAD).

However, despite its strategic importance, the implementation of SIPINTER has not yet produced optimal outcomes. Preliminary observations indicate persistent problems, including low digital literacy among service users, limited technical competence of system operators, unstable server and network infrastructure, and fragmented coordination among related agencies. Similar conditions have been identified in previous studies on digital licensing implementation in several regions in Indonesia (Jaya, 2021). These constraints manifest in frequent service delays, low permit completion rates, user dissatisfaction, and a continuing gap between licensing potential and actual issuance. As a result, SIPINTER has not fully functioned as an effective instrument for improving service quality or strengthening regional fiscal performance.

From an academic perspective, studies on digital licensing in Indonesia have largely focused on the national OSS system, with relatively limited attention given to regional digital platforms such as SIPINTER. In addition, many existing studies still rely on classical public policy implementation approaches that tend to emphasize formal structures rather than the multidimensional characteristics of digital public service ecosystems (Amelia, 2022). This situation creates a research gap concerning how local governments operationalize regional digital licensing systems, manage institutional and technological constraints, and formulate practical strategies to optimize system performance (Rulandari et al., 2022).

Based on these empirical and theoretical gaps, the problem statement of this study is formulated as follows: although SIPINTER has been introduced as a regional digital licensing platform, its implementation in Tangerang Regency has not yet achieved effective operational performance or the expected service outcomes.

Accordingly, this study addresses two main research questions:

1. What factors hinder the effective implementation of the SIPINTER licensing policy in Tangerang Regency?

2. What strategic measures are required to optimize SIPINTER's implementation in order to improve digital service performance and enhance regional revenue?

This research aims to provide a comprehensive analysis of institutional, technical, and user-related factors influencing the implementation of SIPINTER, while offering evidence-based and operationally applicable strategies for strengthening digital licensing governance at the regional level.

METHOD

This study adopts a qualitative descriptive research design to examine the implementation of the SIPINTER digital licensing system in Tangerang Regency. A qualitative approach is considered appropriate because the research seeks to understand institutional dynamics, technical capacities, and user experiences within their real-world context, rather than testing causal relationships or hypotheses. The descriptive orientation allows the study to present a systematic and factual account of how policies, organizational arrangements, and technological factors influence the performance of SIPINTER .

A total of 14 informants were selected using purposive sampling, a technique that enables researchers to deliberately choose individuals who possess relevant knowledge, authority, or experience related to the phenomenon under study (Sugiyono, 2015). The informants consisted of 2 policymakers (the Vice Regent and members of the Regional House of Representatives/DPRD), 3 senior officials of the Investment and One-Stop Integrated Service Agency ((DPMPTSP Tangerang Regency, 2024), 3 technical system operators, 3 representatives from related agencies (the Department of Communication and Informatics and supporting technical units), and 3 business actors who actively utilize SIPINTER services. The number of informants reflects data saturation, as additional interviews no longer produced new information and recurring themes had consistently emerged across different informant groups (Darmadi, 2013). Data collection was conducted at the DPMPTSP office and relevant supporting institutions in Tangerang Regency.

The research employed semi-structured interview guides, field observation checklists, and document review protocols as supporting instruments. Data were collected through in-depth interviews, direct observations of system operations, and a comprehensive review of policy documents, administrative records, service standards, and performance reports. This combination of techniques enabled data triangulation and enhanced the credibility of the findings (Sugiyono, 2015).

Data analysis followed an interactive qualitative analysis model involving data reduction, data display, and conclusion drawing, allowing the researcher to continuously interpret and verify

findings throughout the research process (Miles & Huberman, as adapted in Sugiyono, 2015). To strengthen analytical depth, Indrajit's e-Government framework-consisting of support, capacity, and value-was applied as the primary analytical lens to assess the implementation of SIPINTER (Indrajit, 2002; Indrajit, 2004). Furthermore, SWOT analysis was employed to identify internal and external factors influencing system performance, followed by the development of a TOWS matrix to formulate strategic alternatives. These alternatives were then evaluated and prioritized using Multi-Criteria Analysis (MCA) to ensure that the recommended strategies were feasible, effective, and aligned with available resources (Agustino, 2006; Purwanto et al., 2015).

Ethical considerations were strictly observed throughout the research process. All participants were informed about the purpose of the study, provided voluntary consent prior to participation, and were assured of confidentiality and anonymity. Data were handled responsibly and used solely for academic purposes, in accordance with established ethical standards in qualitative research (Sugiyono, 2015).

Research Type

This study employs a qualitative descriptive research design aimed at exploring and understanding the implementation dynamics of the SIPINTER digital licensing system in Tangerang Regency. A qualitative approach is appropriate because the research seeks to examine processes, institutional interactions, and user experiences within their real-world context, rather than testing predetermined hypotheses (Sugiyono, 2015; Darmadi, 2013). The descriptive orientation allows the study to present a detailed, systematic, and factual account of how policies, technical capacities, and stakeholder roles influence the performance of SIPINTER (Winarno, 2012).

Through this approach, the research captures the complexity of digital public service delivery and public policy implementation, enabling the identification of underlying institutional, technical, and user-related factors that support or hinder the effectiveness of the system (Purwanto et al., 2015; Pasolong, 2010).

Population and Sample/Informants

The population of this study consists of stakeholders involved in the formulation, implementation, and utilization of the SIPINTER digital licensing system in Tangerang Regency. Because the research aims to capture diverse perspectives from policy actors, implementers, and service users, the selection of informants was conducted using purposive sampling. This sampling technique allows the researcher to deliberately select individuals who possess direct experience, authority, or technical knowledge relevant to the operational processes of SIPINTER (Sugiyono, 2015; Darmadi, 2013).

The informants were grouped into three main categories. First, key policymakers, including the Vice Regent, senior officials in the Regional Secretariat, and members of the Regional House of Representatives (DPRD), who play roles in providing strategic direction, regulatory frameworks,

and political oversight for digital governance initiatives. Second, institutional implementers from the Investment and One-Stop Integrated Service Agency (DPMPTSP Tangerang Regency, 2022) and supporting agencies-particularly system administrators, licensing officers, technical staff, and representatives from the Department of Communication and Informatics-who are directly responsible for managing, operating, and maintaining the SIPINTER system (Keban, 2008; Sedarmayanti, 2016). Third, service users, including business owners, applicants, and community members who utilize SIPINTER for licensing submissions and whose experiences reflect the system's practical value, accessibility, and usability (Saadah, 2021).

This structured selection of informants ensures the inclusion of multiple perspectives that represent institutional support, technical capacity, and user perceptions. As a result, the research is able to generate a comprehensive and holistic understanding of the implementation dynamics of SIPINTER within the broader context of regional digital governance (Pereira, 2018; Siti, 2023).

Research Location

The research was conducted in Tangerang Regency, Banten Province, with the primary research site located at the Office of the Investment and One-Stop Integrated Services Agency (DPMPTSP). This location was selected because DPMPTSP functions as the central institution responsible for managing, operating, and delivering licensing services through the SIPINTER digital licensing system (Government of Tangerang Regency, 2018). As the main implementing agency, DPMPTSP plays a strategic role in coordinating licensing processes, managing system operations, and ensuring compliance with regional and national regulations (Nurani, 2017).

Additional observations and data collection were conducted at related government offices, including the Department of Communication and Informatics and other technical units involved in providing recommendations and technical verifications for licensing. This multi-agency approach reflects the inter-organizational nature of digital licensing implementation, which requires coordination across multiple institutional actors (Keban, 2008; Purwanto et al., 2015). Field visits were also carried out in several business areas and service points where citizens and business actors directly interact with SIPINTER, allowing the researcher to capture user experiences and practical challenges in accessing digital licensing services (Suharto, 2020).

This multi-site research setting enabled a comprehensive understanding of administrative workflows, institutional coordination, system operations, and user experiences within the broader digital governance environment of Tangerang Regency. Such an approach is consistent with qualitative research principles that emphasize contextual depth and holistic analysis in examining public policy implementation (Sugiyono, 2015; Pasolong, 2010).

Instrumentation or Tools

The primary instrument in this qualitative study is the researcher, who functions as the main tool for collecting, interpreting, and validating data within the natural setting of SIPINTER's

implementation. In qualitative research, the researcher plays a central role in understanding social phenomena, interpreting meanings, and ensuring the depth and contextual accuracy of the data (Sugiyono, 2015; Darmadi, 2013). This role enables flexibility in exploring institutional dynamics, technical capacities, and user experiences associated with the SIPINTER digital licensing system.

To support the researcher's role, several auxiliary instruments were developed. These include semi-structured interview guides designed to explore institutional support, technical capacity, and user experiences; observation checklists used to document service workflows, system performance, and interactions between officers and applicants; and document review protocols that facilitate the systematic examination of regulations, service standards, administrative records, performance reports, and system-generated data. The use of multiple instruments allows for data triangulation, which enhances the credibility, dependability, and confirmability of qualitative findings (Sugiyono, 2015).

Together, these instruments ensure consistency in data collection, enable cross-validation of information from different sources, and improve the accuracy and reliability of the research findings. This approach is consistent with qualitative research principles that emphasize methodological rigor, contextual understanding, and systematic data verification in public policy and public administration studies (Pasolong, 2010; Purwanto et al., 2015).

Data Collection Procedures

Data for this study were collected through a combination of in-depth interviews, direct observations, and document analysis to ensure a comprehensive understanding of the implementation of SIPINTER. The use of multiple data collection techniques is intended to capture different dimensions of policy implementation and to strengthen the credibility of qualitative findings (Sugiyono, 2015; Darmadi, 2013).

In-depth interviews were conducted using semi-structured interview guides with key policymakers, institutional implementers, technical staff, and service users. These interviews explored perceptions of system performance, institutional support, technical challenges, and user experiences related to SIPINTER. Direct observations were carried out at the DPMPTSP office and related agencies to document service workflows, system operations, and real-time interactions between officers and applicants. Observational notes recorded issues such as system downtime, service delays, and user difficulties during the licensing process, providing contextual evidence of day-to-day implementation practices (Pasolong, 2010).

Document analysis involved the systematic review of relevant regulations, standard operating procedures, system manuals, service performance reports, statistical data on permit issuance, and other administrative records that contextualize SIPINTER's operational environment. This technique enabled the researcher to compare formal policy provisions with actual implementation practices (Winarno, 2012; Purwanto et al., 2015).

To strengthen methodological rigor, a multi-step verification process was implemented. Member checking was conducted by returning summarized interview interpretations to selected informants to validate accuracy and reduce the risk of misrepresentation. Data analysis procedures followed an open–axial–selective coding sequence, beginning with initial labeling of meaning units, grouping them into thematic categories, and integrating them into core analytical themes aligned with the research questions (Sugiyono, 2015). A systematic audit trail was maintained, consisting of dated field notes, coding logs, decision memos, analytic diagrams, and versioned drafts to ensure transparency and traceability of the analytical process.

All data collection activities followed a structured sequence, including instrument preparation, institutional coordination and access approval, scheduling, field data collection, transcription, and systematic data organization. Triangulation across interviews, observations, and documents further strengthened the credibility and trustworthiness of the research findings by enabling cross-validation of data from multiple sources (Sugiyono, 2015; Darmadi, 2013).

Data Analysis

The data were analyzed using an interactive qualitative analysis framework consisting of data reduction, data display, and conclusion drawing and verification. This analytical approach allows researchers to systematically organize, interpret, and validate qualitative data throughout the research process (Sugiyono, 2015). Interview transcripts, observation notes, and documents were coded and categorized according to the core analytical dimensions of support, capacity, and value, which align with the e-Government framework proposed by Indrajit (Indrajit, 2002; Indrajit, 2004).

The coded data were subsequently organized into thematic matrices and narrative summaries to identify recurring patterns, relationships, and implementation dynamics within the SIPINTER digital licensing system. This process facilitated a deeper understanding of how institutional support, technical capacity, and perceived value interact in shaping system performance (Purwanto et al., 2015). The credibility of the findings was ensured through triangulation across multiple data sources and data collection methods, including interviews, observations, and document analysis (Sugiyono, 2015; Darmadi, 2013).

To strengthen the strategic depth of the analysis, the qualitative findings were integrated with SWOT analysis to identify internal strengths and weaknesses, as well as external opportunities and threats affecting SIPINTER's implementation. The identified factors were then structured into strategic alternatives using the TOWS matrix, enabling the formulation of responsive and context-sensitive strategies (Agustino, 2006; Winarno, 2012). Furthermore, a Multi-Criteria Analysis (MCA) was applied to evaluate and prioritize the proposed strategies based on predefined criteria, including feasibility, effectiveness, resource requirements, and expected impact. This combined analytical approach supports evidence-based decision making and the development of operationally applicable policy recommendations (Purwanto et al., 2015).

Ethical Approval (Optional)

This study adhered to established ethical standards for qualitative research involving human participants. Prior to data collection, all informants were provided with clear information regarding the purpose of the study, the voluntary nature of their participation, and their right to withdraw at any time without any negative consequences. Such procedures are essential to ensure ethical integrity and respect for research participants (Darmadi, 2013; Sugiyono, 2015).

Informed consent was obtained verbally or in writing before interviews were conducted. To ensure confidentiality, the identities of participants were anonymized, and all research materials-including interview transcripts, field notes, and digital files-were securely stored and accessible only to the researcher. These measures were implemented to protect participants' privacy and to prevent the misuse of research data.

No personal or sensitive information was disclosed in the reporting of the research findings. Although formal institutional ethical clearance was not mandatory for this study, all research procedures followed ethical guidelines consistent with academic research norms and the fundamental principles of respect, beneficence, and data protection in social and public administration research (Pasolong, 2010; Purwanto et al., 2015).

RESULT AND DISCUSSION

The findings reveal that the implementation of the SIPINTER digital licensing system in Tangerang Regency has produced mixed outcomes. While the system has contributed to faster and more transparent licensing services, its overall effectiveness remains constrained by institutional, technical, and user-related limitations. The results are presented following the analytical dimensions of support, capacity, and value.

1. Support: Institutional Commitment and Cross-Agency Coordination

The findings indicate that political and bureaucratic support for SIPINTER exists primarily at the normative level, as reflected in the issuance of regional regulations, service standards, and formal policy directives governing digital licensing. Normative support through regulations is an important prerequisite for policy implementation; however, it does not automatically guarantee effective operational performance. These conclusions are derived from multiple data sources, including 2023–2024 service performance reports, system usage logs, and interview estimations collected between February and June 2025.

Despite SIPINTER being positioned as the district's primary non-OSS digital licensing platform, institutional commitment has not fully translated into effective implementation. System log data indicate that only 57–63% of registered business actors actively utilize SIPINTER. This finding is reinforced by a 2024 internal user satisfaction survey, which confirms that formal institutional encouragement and regulatory mandates have not resulted in widespread adoption. Such

conditions reflect a common implementation gap in public policy, where formal compliance exists but substantive engagement remains limited

Inter-agency coordination also remains weak. Based on cross-agency integration records from 2024 and interviews with technical operators, only around 60% of relevant regional offices are actively connected to the SIPINTER system. Limited institutional integration has been widely recognized as a major obstacle in policy implementation, particularly in programs that require cross-sectoral collaboration (Government of Tangerang Regency, 2024). In the case of SIPINTER, this fragmentation results in significant delays, especially for permits that require technical recommendations from multiple agencies.

Document reviews indicate that actual processing times frequently exceed the five-day service standard, with interview data suggesting additional delays ranging from 2 to 6 working days due to verification bottlenecks and coordination failures. These findings illustrate that SIPINTER currently operates more as a stand-alone administrative tool rather than as part of an integrated digital governance ecosystem. Similar patterns have been identified in previous studies on digital licensing and public service digitalization in Indonesia, where weak inter-organizational coordination undermines system effectiveness (Winarti, 2020).

Overall, these institutional gaps significantly restrict SIPINTER's potential to improve service performance and to meaningfully optimize local revenue. The findings reinforce the argument that effective digital governance requires not only regulatory support but also strong operational alignment, inter-agency coordination, and shared institutional commitment (S. Suharto, 2020).

Table 1. Evidence Sources Supporting SIPINTER Implementation Findings.

Evidence Source	Type	Year / Period	Key Insight
System Log Data	Quantitative	2023–2024	Active usage only 57–63%
Agency Integration Records	Administrative	2024	Only 60% agencies integrated
User Satisfaction Survey	Quantitative	2024	Low adoption due to literacy & access barriers
In-depth Interviews	Qualitative	Feb–Jun 2025	Confirms bottlenecks, delays, coordination gaps
SOP & Regulation Review	Document Analysis	2020–2024	Strong normative support but weak implementation

2. Capacity: Technical Infrastructure, Financial Support, and Human Resources

Capacity emerged as the most significant barrier to the effective implementation of the SIPINTER digital licensing system. From a technical perspective, the system's infrastructure is insufficient to accommodate high volumes of user traffic. Evidence drawn from administrative system logs and field observation notes shows that SIPINTER frequently experiences performance slowdowns

and occasional downtime during peak service hours. These disruptions are primarily caused by limited server capacity, unstable network bandwidth, and the absence of automated system monitoring tools. As a result, system maintenance relies largely on manual procedures documented in internal IT maintenance logs, meaning that technical issues are often identified only after service interruptions occur. Such infrastructure weaknesses substantially undermine system reliability and erode user trust, which are critical elements in digital public service delivery

Financial constraints further exacerbate these technical limitations. Data from the 2023-2024 Regional Budget (APBD) administrative records indicate that the annual budget allocation for SIPINTER is sufficient only to support routine operational needs, such as basic server maintenance and internet connectivity. However, it remains inadequate for strategic system development, including server capacity expansion, cybersecurity strengthening, and the adoption of more advanced digital infrastructure. Interviews with managerial-level informants corroborate these findings, forming a strong cross-source consensus that limited financial resources hinder the local government's ability to scale SIPINTER in response to increasing service demand. This condition reflects a broader challenge in public sector digital transformation, where technological ambitions are not always matched by sustainable fiscal support

Human resource readiness also remains a critical capacity constraint. Although DPMPTSP employs 87 staff members, internal human resource assessments and competency records indicate that only a small proportion of personnel possess adequate digital and technical skills relevant to managing and troubleshooting SIPINTER. This assessment is reinforced by consistent interview responses from officers, who reported that training programs are irregular, largely dependent on budget availability, and not systematically aligned with technological development needs. Consequently, service performance reports and system tracking logs reveal that the average completion time for digital licensing services remains between 9 and 10 working days, significantly exceeding the official five-day service standard. Limited technical competence among operators contributes to inconsistent service quality and prolonged service delays, particularly during system outages or peak demand periods. These findings are consistent with previous studies emphasizing the importance of human resource capacity in determining the effectiveness of digital policy implementation (Pasolong, 2010; A. S. Purwanto, 2015).

3. Value: User Perception, Service Outcomes, and Contribution to Regional Revenue

In terms of perceived value, SIPINTER delivers several measurable benefits to its users. Many applicants reported faster processing times, clearer service procedures, and greater transparency through real-time application tracking features. The system has also supported more accurate licensing data management and improved monitoring of permits linked to local revenue streams, reflecting the potential of digital systems to enhance service accountability and administrative control (E. Suharto, 2007).

However, these benefits have not been fully realized across the broader user base. Digital literacy barriers continue to limit effective system utilization, particularly among micro-enterprise

operators and actors in the informal sector. Users frequently encounter difficulties when uploading required documents, navigating digital forms, or resolving system-related errors. As a result, many applicants revert to manual procedures, reducing the overall effectiveness and inclusiveness of SIPINTER. Similar challenges have been identified in previous studies on digital public service delivery in Indonesia, which highlight digital literacy as a critical determinant of perceived service value.

Survey data further reflect these challenges. While service components such as physical facilities and complaint handling mechanisms score relatively high, with average values ranging from 3.7 to 3.9, key performance indicators-including service procedures, service completion time, and staff competence-receive lower average scores of 3.1 to 3.4. These findings indicate a persistent gap between user expectations and actual service performance, suggesting that improvements in system usability and operator competence are necessary to enhance perceived value

The gap between licensing potential and actual output is also substantial. In the third quarter of 2025, SIPINTER issued only 1,799 permits, representing approximately 10% of the estimated non-OSS licensing potential. To avoid speculative interpretation, this estimation was derived using a combined and verifiable method: (1) comparison between SIPINTER-issued permit logs and the Business Licensing Potential Dataset for 2023–2025 compiled by DPMPTSP; (2) triangulation with annual administrative reports on sectoral business growth; and (3) proportional extrapolation based on workload estimates obtained from interviews with licensing officers. This methodological approach aligns with best practices in qualitative policy analysis that emphasize triangulation and transparency in data interpretation

The same method was applied to estimate the fiscal implications of underutilization. Retribution loss figures-estimated at Rp12.5 billion in 2023, Rp15 billion in 2024, and Rp17 billion in 2025-were calculated by comparing projected retribution based on historical compliance ratios and the number of eligible business units with actual retribution realization as reported in APBD financial statements. These figures indicate that SIPINTER's contribution to regional revenue remains far below its intended potential. Importantly, this conclusion is not based on speculative assumptions but is grounded in verifiable administrative records and triangulated field data, reinforcing the robustness and credibility of the findings

Overall, the findings demonstrate that although SIPINTER provides tangible benefits in terms of transparency and administrative efficiency, its overall value for both users and the local government remains constrained by digital literacy gaps, system usability issues, and capacity limitations. Enhancing the perceived and actual value of SIPINTER therefore requires integrated improvements in user readiness, institutional capacity, and technological reliability (Indrajit, 2004).

Interpretation of Key Findings

The findings of this study show that the suboptimal implementation of SIPINTER is not caused by a single weakness, but by the interplay of institutional, technical, and user-related constraints. Although political and regulatory support exists, this commitment remains normative and has not

translated into strong operational alignment. Low adoption rates (57-63%) and limited cross-agency integration (60%) indicate that SIPINTER is still functioning as a stand-alone platform rather than an integrated digital governance ecosystem.

From a capacity perspective, the system's reliability is hampered by unstable server performance, insufficient bandwidth, and the absence of automated monitoring tools. These technical limitations, compounded by inadequate financial support and limited digital competence among staff, contribute to service delays (9-10 days vs. 5-day standard) and inconsistent service quality.

In terms of value, SIPINTER provides benefits such as transparency, digital tracking, and structured documentation. However, these advantages are not fully realized due to user difficulties, digital literacy barriers, and recurring system disruptions. As a result, SIPINTER's contribution to licensing compliance and regional revenue remains far below its potential, evidenced by retribution losses of Rp12.5B-17B during 2023-2025.

Overall, the findings confirm that SIPINTER's implementation challenges stem from systemic misalignment between institutional support, technical infrastructure, and user readiness-three elements that must operate simultaneously to achieve digital service effectiveness.

Comparison with Previous Studies

The findings of this study reinforce and extend the conclusions of previous research on digital licensing and public policy implementation in Indonesia. Consistent with studies on public policy implementation, this research confirms that weak inter-organizational coordination and fragmented institutional arrangements create significant implementation gaps and hinder the achievement of policy objectives (Agustino, 2006; E. A. Purwanto & others, 2015; Winarno, 2012). These findings align with the argument that policy effectiveness depends not only on formal regulations but also on the capacity of implementing organizations to coordinate and operate in an integrated manner.

Previous empirical studies on digital licensing and online permit services at the local government level have similarly identified key challenges, including limited operator competence, uneven system integration, and low levels of digital literacy among users (Dewi, 2021; Gunawan, 2021; Utama, 2019; Wibowo, 2020). These patterns are clearly reflected in the implementation of SIPINTER in Tangerang Regency, where institutional fragmentation, technical limitations, and user readiness issues collectively constrain system performance(Prabowo, 2019).

However, this study contributes new insights by empirically demonstrating the direct relationship between technical system instability-such as limited server capacity, traffic bottlenecks, and the absence of automated monitoring-and licensing performance outcomes. Unlike many previous studies that rely primarily on perceptual or descriptive assessments, this research integrates triangulated empirical data, including system usage logs, user survey results, permit-potential extrapolation, and regional revenue (PAD) records. This multi-source approach strengthens the evidence that the effectiveness of digital licensing systems is highly dependent on the synchronized readiness of institutional support, technical infrastructure, and user capacity (Bridgman & Davis, 2005; Maulana, 2021).

Core Contributions

This study contributes to the literature on digital governance and public policy implementation in several important ways.

First, it offers an integrated diagnostic model that demonstrates how institutional support, implementation capacity, and perceived value interactively shape the outcomes of digital licensing policies at the local government level. By applying Indrajit's e-Government framework, this study provides a structured analytical perspective that links organizational commitment, technical readiness, and user experience in a single explanatory model(Dwidjowijoto, 2012; Grindle, 1980).

Second, this research provides empirical quantification of the gap between licensing potential and actual output by utilizing administrative permit datasets, system usage logs, and regional fiscal records. This empirical approach strengthens the evidence base for assessing digital licensing performance and addresses a limitation in previous studies that relied largely on descriptive or perceptual indicators(Gunartin, 2005).

Third, the study develops a practical strategic framework that integrates SWOT analysis, TOWS matrix formulation, and Multi-Criteria Analysis (MCA). This framework operationalizes policy recommendations into short-, medium-, and long-term action plans, enabling local governments to translate analytical findings into implementable strategies for improving digital licensing services.

Finally, this research offers a localized perspective on digital licensing implementation that complements the dominant OSS-centered research in Indonesia. By focusing on a regional digital platform, this study expands the empirical scope of e-Government research and provides insights into the specific institutional and technical challenges faced by local governments in managing non-OSS licensing systems.

Limitations and Future Research

This study is limited by:

- Reliance on administrative permit-potential estimation that may change with updated datasets.
- Limited generalizability due to its single-region focus.
- System log access that depended on agency restrictions.

Future research should incorporate:

- Comparative multi-region studies,
- Evaluation of digital governance maturity models,
- Longitudinal assessments of SIPINTER after system upgrades.

CONCLUSION

This study concludes that the implementation of SIPINTER in Tangerang Regency is constrained by systemic weaknesses across institutional support, technical capacity, and user readiness. Although regulatory frameworks and leadership directives exist, operational alignment remains limited, resulting in fragmented coordination and low system adoption. Technical infrastructure-particularly server stability, bandwidth adequacy, and monitoring mechanisms-has not kept pace with service demands, while human resource competencies and routine training remain insufficient to ensure consistent service delivery.

From a value perspective, SIPINTER provides substantive benefits in transparency, traceability, and structured documentation; however, these advantages are not experienced evenly by users due to digital literacy barriers, inconsistent system performance, and persistent reliance on manual alternatives. As a result, SIPINTER's contribution to licensing compliance and regional revenue remains significantly below its intended potential.

Overall, the findings reinforce that digital service implementation is not merely a technological endeavor but an institutional transformation process requiring synchronized readiness across organizational, technological, and human dimensions. Effective digital governance demands not only system upgrades but also cultural adaptation, sustained leadership commitment, and structured competency development.

To enhance SIPINTER's future performance, three strategic directions are recommended:

1. Strengthening digital literacy and user outreach to increase adoption, reduce reliance on manual processes, and expand service coverage.
2. Enhancing institutional alignment and digital competence through regular capacity building programs, clearer cross agency coordination mechanisms, and leadership driven monitoring.
3. Upgrading technical infrastructure and ensuring sustainable budget support, focusing on server capacity expansion, automated monitoring, cybersecurity readiness, and long term maintenance planning.

These strategic actions directly address the research objectives and offer practical implications for improving digital licensing services in Tangerang Regency. Strengthening SIPINTER is also expected to support broader e government maturity, increase licensing compliance, and optimize the district's revenue potential in the long term.

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