Research Article

The Implementation of E-government in Spatial Planning Licensing: A Study in Asmat Regency Government

Rikover Alberth Rumkorem

Department of Public Administration, Hasanuddin University, Indonesia

Abstract.

This paper investigates the implementation of e-government in the spatial planning licensing sector within the Asmat Regency Government. In light of national policies promoting digital transformation in public administration, this study highlights the specific dynamics, challenges, and impacts of such initiatives in remote and underdeveloped regions. Using a qualitative approach involving document analysis, interviews, and field observations, the research reveals both progress and limitations. While the e-government system has contributed to more transparent and efficient licensing processes, issues such as inadequate infrastructure, limited digital literacy, and system fragmentation persist. The findings show that the Asmat Regency has made initial steps in digitizing licensing processes through a basic online platform. However, the effectiveness of this system is hindered by uneven access to ICT infrastructure across its districts, a lack of skilled personnel to operate and maintain digital systems, and a public that is largely unfamiliar with digital platforms. In response, local government has taken initiatives such as mobile service units and digital literacy training. Nonetheless, broader support from national-level programs is essential to ensure long-term success. This study contributes to the discourse on e-government implementation in marginalized and geographically isolated regions, providing insights that may be applicable to other districts with similar challenges. It underscores the importance of contextual policy design, multi-stakeholder engagement, and integrated infrastructure development.

Keywords: e-government, spatial planning, licensing, digital transformation, public service, Papua, Asmat Regency, infrastructure, digital literacy, local governance

Corresponding Author: Rikover Alberth Rumkorem; email: rikover.rumkorem28@gmail.com

Published: 2 September 2025

Publishing services provided by Knowledge E

Selection and Peer-review under the responsibility of the 2nd Doctoral International Conference Committee.

1. Introduction

The evolution of public administration in the digital era has been marked by an increasing emphasis on the application of e-government to improve transparency, efficiency, accountability, and accessibility in public service delivery. In Indonesia, this transformation is reflected in several policy directives, most notably Presidential Instruction No. 3 of 2003 on the National Policy and Strategy for E-Government Development, which encourages all levels of government to adopt digital platforms to enhance public services. Among the many sectors targeted for digitalization, spatial planning licensing

represents a critical area due to its impact on regional development, investment, and environmental governance [1].

However, the implementation of e-government initiatives in spatial planning licensing remains uneven across Indonesia, especially in remote and underdeveloped regions (commonly referred to as 3T areas—terdepan, terluar, tertinggal). Asmat Regency in Papua Province presents a unique case study for evaluating e-government performance due to its geographical isolation, limited digital infrastructure, and rich socio-cultural diversity. Despite national efforts to streamline licensing processes through online platforms, local governments in such areas often face technical, organizational, and cultural challenges that hinder full adoption and integration of digital services.

This study aims to evaluate the implementation of e-government in the spatial planning licensing process in Asmat Regency by applying a contextualized analytical framework. The objective is not only to assess the current maturity level of digital service delivery but also to understand the structural and contextual barriers to successful implementation.

To this end, the research utilizes an integrated framework combining the United Nations E-Government Development Model and Layne and Lee's Four-Stage Model of E-Government Maturity, complemented by local adaptation indicators that are specific to the realities of the Asmat region. This multi-dimensional framework allows for a comprehensive assessment that considers both the technological sophistication and institutional integration of e-government systems, while also embedding cultural sensitivity, accessibility, and capacity considerations relevant to rural and indigenous communities [2].

Analytical Framework

1. UN E-Government Development Stages

This global model delineates five progressive stages of digital governance:

- Emerging Presence: Basic online availability of public information.
- Enhanced Presence: Access to downloadable forms, laws, and policy documents.
- Interactive Presence: Citizens can engage through feedback mechanisms and consultations.
- Transactional Presence: Full online transactions such as license applications and payments.
- Connected Presence: Cross-departmental service integration and user-centered platforms.

In Asmat's context, these stages are adapted to assess how licensing platforms align with local realities such as infrastructure constraints and digital literacy levels.

2. Layne and Lee's Four-Stage Model

This model emphasizes the depth of system integration and the institutional maturity of e-government implementation:

- Cataloguing: Online presentation of service information.
- Transaction: Availability of electronic submission and payments.
- Vertical Integration: Alignment between local, provincial, and national platforms.
- Horizontal Integration: Interoperability across departments (e.g., spatial planning, public works, and licensing units).

This model is used to evaluate inter-agency coordination and the extent to which digital systems facilitate streamlined workflows.

3. Local Adaptation Indicators

To bridge global models with local realities, the framework includes context-specific criteria:

- Offline-to-online support mechanisms for low-literacy users;
- Accessibility in remote villages, including mobile access or village-level digital service points;
- Sociocultural compatibility, such as the use of local languages and culturally appropriate interfaces;
- Capacity and training of civil servants responsible for managing digital licensing systems.

By employing this integrated analytical framework, the study seeks to provide a nuanced understanding of both the progress and limitations of e-government in one of Indonesia's most remote administrative regions. The findings are expected to contribute to the development of more inclusive digital governance strategies, particularly in areas where infrastructure and social dynamics pose significant constraints to e-government success [3].

2. Methods

This study employs a qualitative case study approach to examine the implementation of e-government in spatial planning licensing in Asmat Regency. A qualitative design was

chosen to enable a rich, contextualized understanding of the interplay between policy, infrastructure, institutional capacity, and citizen experience in a remote governance setting.

2.1. Research Type and Approach

A descriptive and exploratory case study approach was adopted, which is suitable given the unique socio-political, geographical, and technological conditions in Asmat. This approach enables in-depth exploration of how digital governance policies are understood, interpreted, and operationalized by various stakeholders on the ground.

2.2. Data Collection Methods

Data were gathered through three primary methods:

1. Document Analysis: A review of official documents such as regional development plans (RPJMD), spatial planning policies (RTRW), ministerial regulations, digital platform interfaces, and internal reports from the Department of Spatial Planning and Licensing.

2. Semi-Structured Interviews: Conducted with 15 purposefully selected key informants, including:

- Local government officials from spatial planning and licensing offices;
- IT staff managing the online platform;
- Business actors and citizens who have engaged with the licensing system;
- Representatives from civil society organizations and national e-government task forces.

3. Field Observations: Direct observations were carried out in the licensing office and during mobile licensing unit operations in selected sub-districts, focusing on daily workflows, digital infrastructure usage, and citizen-service interaction dynamics.

2.3. Sampling Technique

A purposive sampling strategy was used to identify informants with firsthand experience in the licensing process. Criteria included institutional role, duration of service, and frequency of system use. Snowball sampling was also employed to reach lesser-known but relevant actors involved in supporting digital services at the village level.

2.4. Data Analysis

Data were analyzed using thematic analysis. Transcripts, observation notes, and document extracts were coded inductively and categorized under key themes, such as:

- Infrastructure and connectivity;
- Institutional coordination;
- Human resource capacity;
- Public trust and participation;
- Service accessibility and sociocultural compatibility.

This process allowed for the identification of recurring patterns and context-specific challenges related to e-government performance.

2.5. Validity, Reliability, and Reflexivity

To ensure credibility and trustworthiness, the study employed:

- Data triangulation (documents, interviews, observations);
- Member checking by validating summaries of interview transcripts with participants;
- Peer debriefing with academic colleagues familiar with governance reform and digital transformation in Eastern Indonesia.

Furthermore, reflexivity was integrated throughout the research process. The power dynamics between the researcher and informants—particularly government actors—were acknowledged and managed by emphasizing confidentiality, voluntary participation, and the non-evaluative nature of the inquiry. The researcher also kept a reflexive journal to document positionality, expectations, and the potential influence of their presence on respondents' behavior during fieldwork.

While efforts were made to minimize the observer effect, it is recognized that the researcher's presence—especially in mobile unit operations—may have subtly influenced service behavior or staff performance. This potential influence is considered in the interpretation of observational data.

2.6. Research Limitations

This study is limited in scope to Asmat Regency and may not represent broader patterns across Papua or other 3T regions. Additionally, given the sensitivity surrounding

public administration and digital reform, informant bias is possible. Nonetheless, the triangulation of data sources and reflexive practices help mitigate these concerns and strengthen the reliability of findings.

3. Findings and Discussion

3.1. Achievements of E-Government Implementation

The adoption of e-government in spatial planning licensing in Asmat Regency has led to notable improvements in service delivery, particularly in administrative efficiency and transparency:

- Process Efficiency: The launch of an online portal has significantly reduced the time required for permit application and processing. Applicants now face fewer bureaucratic delays and can submit documents remotely.
- Transparency: Digital platforms have enhanced public access to procedural information, including licensing requirements, application status tracking, and estimated timelines.
- Data Management: The shift to digital records has improved archival practices and facilitated better use of licensing data in policy planning and performance monitoring.

These developments mark a critical step toward more responsive and accountable governance in a geographically remote region [4].

3.2. Key Challenges

Despite these achievements, several structural and contextual barriers continue to hinder full implementation [5] :

- Infrastructure Gaps: Most sub-districts suffer from low internet bandwidth, unstable electricity supply, and minimal digital hardware. These limitations prevent consistent online access, particularly in rural areas.
- Human Resource Constraints: Many civil servants lack training in digital systems operation, troubleshooting, and data security. This skill gap undermines the reliability and user-friendliness of digital platforms.
- System Fragmentation: Licensing systems operate in silos, with limited interoperability between spatial planning, land registration, environmental assessment, and regional

development databases. Preliminary findings suggest this is not merely a technical issue, but stems from institutional fragmentation and weak inter-agency coordination mechanisms. There is no centralized data governance unit or formal protocol for cross-sectoral system integration.

• Public Readiness: Low levels of digital literacy—particularly among Indigenous Papuans in remote villages—limit citizens' ability to access e-government services independently. In many cases, intermediaries or local facilitators are needed to bridge the digital divide.

3.3. Institutional Responses and Local Innovations

To address these challenges, the Asmat government has pursued a range of adaptive strategies:

• Mobile Licensing Units: Deployed to bring services directly to underserved districts, these units reduce geographic barriers and have received positive community feedback.

• ICT Partnerships: The local government has collaborated with national ICT agencies to expand connectivity infrastructure and pilot satellite-based internet services.

• Digital Literacy Initiatives: Ongoing training programs target both civil servants and citizens, focusing on basic digital skills and system navigation.

• While these innovations demonstrate local agency and contextual sensitivity, their long-term effectiveness remains uncertain. Interviews and field observations suggest that:

• Mobile units depend heavily on temporary project funding and face logistical disruptions during the rainy season or fuel shortages.

• Digital training programs often lack follow-up mechanisms or refresher sessions, resulting in limited knowledge retention.

• Inter-agency coordination remains informal, relying on personal networks rather than institutionalized communication protocols.

3.4. Discussion

These findings reveal a duality in Asmat's digital governance landscape: while progress is visible, systemic challenges rooted in institutional design, capacity limitations, and contextual constraints continue to inhibit scalability and sustainability.

Addressing system fragmentation will require not just technical upgrades, but the establishment of inter-agency coordination frameworks, standard data-sharing protocols, and possibly the creation of a regional digital integration task force. Likewise, for digital literacy and mobile services to have lasting impact, they must be embedded in a long-term capacity-building strategy, supported by consistent funding and policy alignment.

4. Conclusion

The implementation of e-government in spatial planning licensing in Asmat Regency represents an important milestone in advancing public service reform in a remote and challenging environment. The introduction of digital platforms has enhanced process efficiency, increased transparency, and improved data management. These outcomes demonstrate the potential of digital governance even in regions with significant infrastructural and geographic limitations.

However, the sustainability of these reforms is contingent upon addressing several persistent structural challenges. Infrastructure deficits, limited digital literacy, fragmented institutional systems, and the absence of robust local capacity continue to undermine the long-term impact of e-government initiatives.

Critically, the study finds that while national-level interventions—such as policy mandates, funding, and technical support—have been instrumental in initiating digital transformation, overreliance on external directives has created a dependency dynamic. This hampers the growth of local initiative, weakens innovation at the regional level, and threatens the institutionalization of reforms. Sustainable e-government implementation in Asmat therefore requires a shift toward stronger local ownership, where digital systems are not only adopted but also governed, adapted, and expanded by local actors who are culturally and administratively embedded in the context.

5. Recommendations

1. Infrastructure Development through Local-National Synergy

Improve rural internet connectivity via public-private partnerships, with local governments playing an active role in identifying service gaps, co-designing infrastructure plans, and monitoring implementation.

2. Institutional Capacity Building with Ownership Focus

Conduct regular digital literacy and technical training programs tailored to the local context. These should be led by local trainers and integrated into long-term human resource development strategies, rather than ad-hoc, donor-driven workshops.

3. Integrated and Decentralized System Architecture

Design licensing platforms that are interoperable with other local government databases (e.g., land tenure, environmental permits) using open standards. Integration should be coordinated by local digital governance teams, not outsourced entirely to central agencies.

4. Community-Centered Governance of Digital Services

Establish inclusive mechanisms for citizen engagement in the design, monitoring, and feedback loops of e-licensing systems. This includes the use of local languages, village-level digital posts, and participatory evaluations.

5. Fostering Local Innovation Ecosystems

Incentivize local problem-solving through digital innovation hubs or challenge funds that support grassroots solutions. Reduce bureaucratic rigidity that inhibits adaptive experimentation at the local level.

References

[1] Jaeger PT, Thompson KM. E-government around the world: lessons, challenges, and future directions. Gov Inf Q. 2003 Jan;20(4):389–94.

[2] y AM, Frinaldi A, Roberia R; A. M. Y. A. Frinaldi, and R. Roberia, “Implementasi Tantangan dan Upaya dalam Mewujudkan Good Governance di Indonesia,”. Al-DYAS. 2024 Dec;4(1):233–45.

[3] Ndou VD; V. (Dardha) Ndou. E – Government for Developing Countries: opportunities and Challenges. Electron J Inf Syst Dev Ctries. 2004 Jun;18(1):1–24.

[4] Yustia DA, Arifin F. Bureaucratic reform as an effort to prevent corruption in Indonesia. Cogent Soc Sci. 2023 Dec;9(1):2166196.

[5] Kawabata MK, Camargo AS Jr. E-Government Innovation Initiatives in Public Administration: A Systematic Literature Review and a Research Agenda. Adm Soc. 2023 Oct;55(9):1758–90.