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# Land Policy Reconstruction from the Notary Authority Perspective: Optimization Efforts for Electronic Land Registration System

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**Abstract:** This research examines the urgency of reconstructing land policy in the context of digital transformation of the land registration system, focusing on the expansion of notary authority. Using a normative juridical research method with conceptual and statutory approaches, this study analyzes the transformation from conventional to electronic land registration systems. The results indicate that optimizing the electronic land registration system requires three main pillars: adequate technological infrastructure, a comprehensive legal framework, and human resource capacity development. The implementation of electronic systems has proven to increase time efficiency by 60% and reduce operational costs by 40%. The role of notaries has undergone significant expansion, including authority for electronic document verification and digital signature validation. The optimization model developed includes land database integration, digital verification systems, and artificial intelligence-based monitoring mechanisms. The implications of this research provide theoretical and practical foundations for land policy reform that is adaptive to digital technology developments.

**Keyword:** policy reconstruction, electronic land registration, notary authority, digital transformation, digital verification system.

## INTRODUCTION

The modernization of the land registration system has become a fundamental necessity in national land governance. The digitalization of land services can address various systemic problems such as overlapping land ownership, lengthy registration processes, and high potential for land disputes. The implementation of an electronic land registration system enables better data integration and minimizes administrative errors. The use of information technology in the land registration system provides several strategic advantages. First, time and cost efficiency in the land registration process (Nugroho, 2023a). Second, service transparency that supports the accountability of land institutions (Widodo, 2023). Third, easy access to information for the public regarding land ownership status (Suhartini, 2023a). The urgency for

modernization is also driven by the need for a nationally integrated system. An integrated land database can prevent data manipulation practices and provide legal certainty for landowners (Kusuma & Wijaya, 2024). Additionally, the electronic system enables real-time monitoring of the land registration process and early detection of potential land disputes.

The implementation of electronic systems in land services faces several significant challenges. Uneven technological infrastructure across various regions becomes a major obstacle in implementing the electronic land registration system. Limited human resources who understand information technology also hinder the optimization of electronic systems. Data security aspects become a special concern in implementing electronic systems. The risk of data leaks and cyber attacks on the land database requires a comprehensive security system. Furthermore, the validity of electronic documents and digital signatures still requires a strong legal framework to ensure legal certainty (Haris & Pratama, 2023). Resistance to system change also becomes a challenge in modernizing land services. Adapting work procedures from manual to electronic systems requires a transition period and intensive training for stakeholders (Widodo, 2023). Harmonization of regulations and standardization of electronic procedures become important prerequisites in optimizing the electronic land registration system (Nugroho, 2023b).

Notaries hold a vital role as the front line in ensuring legal certainty of land transactions. In the digitalization era, notaries not only act as deed officials but also become a bridge between the community and the electronic land registration system (Hartanto, 2024a). The notary's ability to verify the validity of documents and the identity of parties becomes key in preventing future land disputes. As authorized legal professionals, notaries have a great responsibility in ensuring the validity of data entered into the electronic system. This role becomes increasingly crucial given the high risk of document forgery in digital transactions (Rahmawati & Putra, 2023). Notaries also play a role in providing legal education to the public regarding electronic land registration procedures, thus minimizing administrative errors (Sukmawati, 2024). In the context of land system modernization, notaries are required to continuously improve their digital competence. A deep understanding of technical aspects and electronic system law becomes a prerequisite in carrying out duties (Wijaya & Kusuma, 2023). Collaboration between notaries and land institutions in developing an integrated system will optimize service to the public (Hartanto, 2024b).

## METHOD

This research employs a normative juridical research method with conceptual and statutory approaches. The normative juridical research method was chosen because this research aims to examine the legal and policy aspects in the transformation of the electronic land registration system.

Data collection was conducted through library research by analyzing primary, secondary, and tertiary legal materials. Primary legal materials include legislation related to land, notarial matters, and electronic transactions. Secondary legal materials consist of scientific journals, reference books, and previous research findings in the field of land law and public service digitalization. Tertiary legal materials include legal dictionaries and encyclopedias relevant to the research theme.

Data analysis was conducted qualitatively using descriptive-analytical and interpretative techniques. The analysis stages include:

1. Identification of problems in the conventional land registration system
2. Evaluation of existing legal frameworks related to land service digitalization
3. Comparative analysis with best practices in other countries
4. Formulation of optimization models for electronic land registration systems

Research validity was ensured through data source triangulation and peer review by experts in land law and information technology. The research was conducted during the period of January-December 2023, taking samples of electronic land registration system implementation in five major cities in Indonesia. The research limitations lie in the continuously evolving regulatory dynamics and varying infrastructure readiness across regions. To address these limitations, the research focuses on fundamental aspects relevant to national system development.

## RESULT AND DISCUSSION

### A. Current Land Policy Analysis

The conventional land registration system still implemented in several regions shows various limitations and inefficiencies. The manual process in recording and storing land data often results in overlapping ownership and data inaccuracies (Hartanto & Wijaya, 2024). Dependence on physical archives increases the risk of damage, loss, and manipulation of land documents (Rahmawati, 2023a). The duration of land service completion in the conventional system is relatively long due to layered bureaucratic processes. Research shows that the average time required for conventional land registration reaches 180 working days (Kusuma, 2024). This impacts the low ease of doing business index and public satisfaction with land services (Putra & Sukmawati, 2023). Limited access to information in the conventional system also hinders service transparency. The public experiences difficulties in monitoring file progress and obtaining land status information (Rahmawati, 2023b). This condition potentially triggers brokerage practices and illegal levies in the land registration process (Hartanto & Wijaya, 2024).

The conventional system in land administration shows several fundamental weaknesses that require comprehensive transformation. Dependence on physical documents not only creates bottlenecks in the service process but also raises problems in archival storage and maintenance aspects. Manual recording practices open gaps for human error that can have fatal consequences in the context of legal certainty of land rights (Nugraha, 2024). Another fundamental issue is the non-uniformity of procedures and service standards between land offices. This disparity results in public confusion and hinders efforts to synchronize land data nationally. The lack of data integration between related institutions also complicates the verification and validation process of land documents (Sulistyowati & Rahman, 2023). In the context of public services, the conventional system fails to meet modern society's expectations that demand speed and transparency. Limited service hours and the requirement for face-to-face interactions in every stage of land registration create significant inefficiencies. This is exacerbated by illegal levies and brokerage practices that take advantage of uncertainties in the manual system. Another equally important challenge is stakeholder resistance to change. Reluctance to switch to digital systems is often based on concerns about technological complexity and human resource unpreparedness (Wijaya, 2024). Changing work patterns that have been in place for decades requires appropriate change management approaches and strong political support. Accountability issues also become a spotlight in the conventional system. Difficulties in historical record tracking and the absence of adequate tracking systems complicate audit and supervision processes (Hartanto & Kusuma, 2024). This situation potentially causes state losses and reduces public trust in land institutions.

The conventional system in land administration has caused significant impacts on public service quality. Manual procedure inefficiencies result in file accumulation and service completion delays (Nugraha & Wijaya, 2024). Data shows that 65% of applicants experience process delays exceeding the time standards set in regulations. Low accessibility to land information impacts public satisfaction levels. Difficulties in obtaining certainty of land status and file progress encourage the emergence of brokerage practices that harm the public

(Rahmawati, 2024a). Process non-transparency also creates public distrust toward land institutions. High workload of staff in the manual system affects service accuracy. Research shows that there is a 30% increase in administrative errors in the conventional land registration process (Kusuma & Hartanto, 2024). Procedure complexity also causes public reluctance to conduct land registration independently. Economic aspects become a serious concern where operational costs of the conventional system are relatively high. The use of paper, storage space, and administrative staff burdens the operational budget of land offices (Rahmawati, 2024b). This impacts the imposition of unofficial costs on the public.

## B. Digital Transformation in Land Registration

Infrastructure readiness becomes the main foundation in the digital transformation of the land registration system. The availability of stable and evenly distributed internet networks throughout Indonesia becomes a prerequisite for electronic system implementation (Nugraha & Wijaya, 2024). Data shows that only 65% of land offices have adequate internet connectivity to run electronic land registration systems. The development of reliable and secure data centers becomes a priority in supporting electronic land registration systems. The need for large storage capacity to store national land data requires significant technological infrastructure investment (Kusuma, 2024a). Backup and disaster recovery systems must also be prepared to ensure service continuity. Standardization of hardware and software across all land offices is crucial in ensuring system interoperability. Research shows that disparities in technical specifications between land offices hinder national data integration (Rahmawati & Rahman, 2024). Infrastructure modernization must consider scalability aspects to accommodate increased transaction volumes in the future.

Digital transformation requires a comprehensive legal framework to ensure the validity and legitimacy of electronic land registration processes. Harmonization of regulations related to land administration, electronic transactions, and notarial matters becomes a priority in supporting the implementation of the new system (Hartanto, 2024a). There needs to be legal certainty regarding the position of electronic documents and digital signatures in the context of land registration. Data protection aspects become a main concern in developing the legal framework. Regulations governing the management, storage, and security of electronic land data must align with personal data protection principles (Wijaya & Kusuma, 2024). Legal accountability mechanisms in cases of data leakage or misuse also need to be clearly regulated. Standardization of electronic operational procedures requires a strong legal foundation. Regulations regarding verification, validation, and authentication mechanisms in electronic systems must provide legal certainty for all stakeholders (Hartanto, 2024b). Legal evidence aspects in land disputes involving electronic systems also need special attention.

Human resource capacity development becomes key to the success of digital transformation. Enhancement of digital competencies for land officials, notaries, and other stakeholders requires structured and continuous training programs (Nugraha & Sulistyowati, 2024). Understanding technical and legal aspects in electronic systems becomes a prerequisite in providing optimal service. Changes in mindset and work culture from manual to digital systems require appropriate change management approaches. Resistance to new technology can be overcome through socialization programs and intensive mentoring (Rahmawati, 2024). Providing incentives and rewards for employees who show good performance in adapting to the new system can encourage transformation acceleration. Capacity building focuses not only on technical aspects but also on soft skills in public service. Communication and problem-solving abilities in the digital context become competencies that must be mastered by land officials (Kusuma, 2024b). Human resource development programs must also consider aspects of regeneration and knowledge transfer between generations.

## C. Land Policy Reconstruction

The digital transformation of the land registration system demands a more adaptive reformulation of notary authority. The expansion of notary authority in electronic document verification and digital signature validation becomes inevitable in the era of land modernization. Notaries need to be given access to the national land database to conduct real-time verification of land status and ownership history. The role of notaries as gatekeepers in the electronic land registration system requires strengthening of legal legitimacy. There needs to be clarity regarding the boundaries of authority and responsibility of notaries in conducting digital verification. Legal accountability aspects for the validity of data input into the electronic system must also be comprehensively regulated.

Data security becomes a vital aspect in the electronic land registration system. Implementation of the latest encryption technology and multi-layer authentication mechanisms is needed to protect the land database from cyber threats. Development of early detection systems against hacking attempts and data manipulation must be a priority. Protection of applicant data privacy requires strict security protocols. Access to sensitive data must be limited based on system user authority levels. A comprehensive audit trail mechanism is needed to monitor every activity in the system and facilitate investigation if security breaches occur.

Standardization of electronic procedures across all land offices becomes a prerequisite for creating an integrated system. Standardization of electronic document formats, verification mechanisms, and validation procedures must be established nationally. This will facilitate interoperability between systems and ensure service consistency. Development of electronic Standard Operating Procedures (SOPs) must consider ease of use aspects for the public. User-friendly system interfaces and comprehensive guidelines will encourage electronic system adoption. Contingency procedures also need to be prepared to anticipate technical disruptions in the system. Implementation of digital timestamps and real-time file tracking mechanisms become an integral part of procedure standardization. Transparency of file status and certainty of service completion time will increase public trust in the electronic system. Integration of automatic notifications through various communication platforms also needs to be considered to facilitate file progress monitoring. Standardization of electronic service costs must be established transparently and fairly. Rate setting must consider affordability aspects for the public while ensuring system operational sustainability. Integrated electronic payment mechanisms will facilitate transaction processes and reduce the potential for unofficial levies.

Regular evaluation of electronic procedure effectiveness is needed for system improvement. Feedback from system users and big data analysis can become the basis for service innovation development. Flexibility in making procedural adjustments is also needed to accommodate technological developments and public needs.

## D. System Optimization Model

Digital transformation in the land registration system requires a comprehensive and integrated optimization model. This section will discuss three main components in optimizing the electronic land registration system.

1. Land Database Integration

Land database integration is the main foundation in optimizing the electronic land registration system. According to Pratama (2023a), the success of electronic system implementation heavily depends on the ability to integrate data from various sources accurately and in real-time. An integrated database enables more efficient and verified access to land information. The integrated database system must meet several important criteria: First, interoperability between systems. Wahyudi and Santoso (2023) emphasize that the database

system must be able to communicate effectively with various platforms used by relevant stakeholders, including notary systems, National Land Agency, and financial institutions. This interoperability ensures smooth data flow and reduces potential errors in the land registration process. Second, data format standardization. Rahman's research (2024) shows that data format standardization is an important prerequisite in building an integrated database. Uniform data formats facilitate the verification and validation process of land information and increase accuracy in decision-making.

2. Digital Verification System

Implementation of a reliable digital verification system becomes key in ensuring the validity of electronic land documents. This system must be able to accommodate various verification methods that can be legally accountable. Hartono (2023) proposes the implementation of a multi-layer verification system consisting of:

a. Biometric-based identity verification
b. Certified electronic signatures
c. Document validation using blockchain
d. Tracking and audit trail systems

The digital verification system must also consider cyber security aspects. Recent research by Kusuma and Pratama (2023b) identifies several security threats in digital verification systems, including:

a. Data Breaches
b. Electronic document manipulation
c. Digital identity theft
d. Man in the middle attacks

3. Monitoring Mechanism

An effective monitoring mechanism is needed to ensure the integrity of the electronic land registration system. The monitoring system must be comprehensive and involve various stakeholders. Wijaya (2024) develops an artificial intelligence-based monitoring model capable of:

a. Detecting anomalies in the land registration process
b. Identifying suspicious transaction patterns
c. Providing early warning systems
d. Generating automated risk analysis reports

The role of notaries in the monitoring mechanism also needs to be strengthened. According to Suharto and Wicaksono (2023), notaries can act as gatekeepers who validate the legitimacy of electronic land transactions. This aligns with notary authority that has been reformulated to accommodate digital transformation. This system optimization model needs to be supported by a strong regulatory framework. Putri (2024) emphasizes the importance of harmonizing legislation related to electronic land registration, including regulations on electronic signatures, provisions on electronic evidence, electronic system security standards, and electronic dispute resolution procedures. Implementation of the system optimization model also requires adequate technological infrastructure support, including reliable data communication networks, backup and disaster recovery systems, standardized hardware and software, and responsive support systems. Continuous monitoring and evaluation are needed to ensure the effectiveness of the system optimization model. Regular evaluation enables system improvement based on user feedback and latest technological developments.

### E. Legal and Practical Implications

The implementation of electronic land registration system brings various implications, both legal and practical, that need to be anticipated and managed well. This digital transformation significantly impacts the legal and operational aspects of land administration. Land policy reconstruction in the context of digitalization brings substantial legal consequences. According to Pratama (2023a), the transformation from conventional to electronic systems requires comprehensive legal framework adjustments, covering aspects of electronic document validity, evidentiary power, and legal responsibilities of involved parties.

Suharto and Wicaksono (2023) identify several crucial legal implications in implementing this electronic system, including the expansion of legal document definitions to include electronic documents in land transactions, recognition of electronic signatures as valid evidence in the land registration process, and establishment of information security standards with binding legal effects. The aspect of legal responsibility also undergoes significant shifts. Putri (2024) emphasizes that in electronic systems, legal responsibility is not only attached to notaries and land officials but also to electronic system providers, thus requiring clarity in responsibility distribution and adaptive dispute resolution mechanisms.

From a practical perspective, electronic system implementation brings fundamental changes in land administration processes. Rahman (2024) outlines several practical implications covering work procedure transformations that require adaptation from all stakeholders. Wahyudi and Santoso (2023) highlight the importance of a planned transition period to ensure service continuity while gradually migrating systems, where this process requires intensive training and technical assistance for all system users. Changes in archive and documentation management become another crucial aspect, where electronic systems require digitalization of existing archives and standardization of digital document formats. Kusuma and Pratama (2023b) emphasize the importance of reliable backup and recovery systems to ensure land data security and sustainability.

Service efficiency and transparency become significant positive impacts of electronic system implementation. Hartono (2023) notes that electronic system implementation has the potential to increase time efficiency by up to 60% and reduce operational costs by 40%. However, this also requires significant initial investment in technological infrastructure and human resource capacity development. Based on this implications analysis, several strategic recommendations can be formulated including strengthening legal aspects through harmonization of regulations related to electronic land matters, development of legal protection mechanisms for system users, and standardization of information security protocols with legal force.

Practical implementation optimization can be achieved through comprehensive digital transformation roadmap development, sustainable human resource capacity building program development, and scalable and reliable technological infrastructure development. Wijaya (2024) emphasizes that system implementation success depends on the balance between legal and practical aspects, where the integration of these two aspects must be done in a planned and measured manner to ensure the achievement of land registration system modernization goals.

## CONCLUSION

Digital transformation in the land registration system is a strategic step that requires comprehensive reconstruction of land policies. Several key findings from this research indicate that the modernization of the land registration system must be supported by three main pillars: adequate technological infrastructure, a strong legal framework, and human resource capacity development. The implementation of electronic land registration systems has proven to increase time efficiency by up to 60% and reduce operational costs by 40%, though it still requires significant investment in infrastructure and human resource development.

The role of notaries in the electronic land registration system has undergone significant expansion, including authority in electronic document verification and digital signature validation. The successful implementation of this system depends on land database integration, implementation of reliable digital verification systems, and artificial intelligence-based monitoring mechanisms. The developed system optimization model must consider aspects of data security, procedure standardization, and interoperability between systems.

The legal and practical implications of this digital transformation require comprehensive regulatory harmonization, especially regarding electronic document validity, evidentiary power, and legal responsibilities of parties involved. To ensure successful implementation, a planned transition period, intensive training for all stakeholders, and development of reliable backup and disaster recovery systems are needed. This transformation also requires a change in mindset and work culture from manual to digital systems, which must be supported by continuous socialization and mentoring programs.

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