

# The Implementation of Electronic Certificates in Public Administration: Towards a Legal Framework that Supports Digital Inclusivity

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## Abstract

The digital transformation of state administration requires a robust and inclusive legal infrastructure, including the use of electronic certificates as a legal instrument in the digitization of public services. This study aims to analyze how Indonesia legal framework regulates and supports the use of electronic certificates in state administration and to what extent these regulations promote digital inclusivity across all segments of society. A normative juridical approach is employed, focusing on the analysis of relevant legislation such as the Electronic Information and Transactions Law (ITE Law), Government Regulation No. 71 of 2019, and related derivative regulations concerning digital signatures and electronic certificates. This research also examines implementation challenges, including digital access disparities, technological literacy, and infrastructure readiness. The findings indicate that while Indonesia has a sufficient normative legal foundation for the use of electronic certificates, technical, social, and geographic barriers remain that hinder inclusive implementation. Therefore, affirmative policy reinforcement and regulatory updates responsive to technological changes and societal needs are essential to ensure that digital transformation in public administration is truly inclusive and does not marginalize vulnerable groups.

**Keywords:** *digital transformation, electronic certificate, state administration, digital inclusivity, legal framework.*

## INTRODUCTION

Digital transformation has become a strategic agenda in the effort to modernize state administration in various parts of the world, including Indonesia. The digitalization of public services aims not only to enhance efficiency and transparency but also to expand public access to faster, more accurate, and more effective state services. One important aspect of this transformation is the use of electronic certificates as a legal instrument that legitimizes digital transactions and documents, especially in the context of electronic signatures and identity authentication [1].

In Indonesia, the implementation of electronic certificates has a strong legal foundation, as outlined in Law Number 11 of 2008 concerning Electronic Information and Transactions (ITE), which was later amended by Law Number 19 of 2016, as well as Government Regulation Number 71 of 2019 concerning the Implementation of Electronic Systems and Transactions. Electronic certificates serve as the backbone in ensuring the security, validity and authenticity of electronic transactions, making them crucial in building public trust in digital government systems [2].

However, the implementation of electronic certificates in Indonesia still faces various challenges, both technical, social, and geographical. Inequitable access to technology, low digital

literacy in certain regions, and infrastructure readiness are real obstacles that have the potential to create new gaps in public services. This raises a fundamental question: to what extent is the existing legal framework able to promote digital inclusivity and ensure that digital transformation in state administration is truly accessible to all layers of society, including vulnerable groups?

Based on this background, this study aims to analyze how the legal framework in Indonesia regulates and supports the use of electronic certificates in state administration, as well as to assess the extent to which these regulations consider aspects of digital inclusivity. This research will also identify the main obstacles in implementation and formulate policy recommendations that can encourage the fair and equitable utilization of technology.

### 1. Research Approaches

This study employs several approaches, including:

- a. Legislative Approach, used to examine relevant laws and regulations such as Law Number 11 of 2008 concerning Electronic Information and Transactions (ITE), Law Number 19 of 2016 as an amendment to the Electronic Information and Transactions Law (ITE), and Government Regulation Number 71 of 2019 concerning the Implementation of Electronic Systems and Transactions. This approach also includes technical regulations from related agencies such as the National Cyber and Crypto Agency (BSSN) or the Ministry of Communication and Information Technology [3].
- b. Conceptual Approach, used to understand key concepts such as “electronic certificate,” “electronic signature,” “digital transformation,” and “digital inclusivity” in the context of state administration [4].
- c. Comparative Approach (if necessary), used to compare Indonesia’s legal framework with those of other countries that have earlier adopted and effectively implemented electronic certificate systems in an inclusive manner [5].

### 2. Legal Materials

The legal materials used in this study include:

- a. Primary Legal Materials, consisting of laws and regulations governing electronic information and transactions, electronic certificates, and their implementing regulations [6].
- b. Secondary Legal Materials, consisting of legal literature, scientific articles, journals, and official documents from state institutions that support the analysis of primary legal materials [7].
- c. Tertiary Legal Materials, consisting of legal dictionaries, encyclopedias, and other references that provide additional explanations of legal terms or concepts [8].

### 3. Legal Material Collection Techniques

The collection of legal materials is conducted through literature review by tracing legal sources in both printed and digital forms, including official government documents, legislative, databases, academic journals and policy reports from relevant institutions.

#### 4. Legal Material Analysis Techniques

The analysis is carried out qualitatively by interpreting, examining, and correlating relevant legal provisions to address the research questions. This study also evaluates the effectiveness of regulations in promoting digital inclusivity and formulates normative recommendations for the development of fairer and more responsive legal policies to the challenges of digitalization in state administration [9].

### **METHOD**

This study is normative legal research, which relies on literature review to examine the applicable positive legal norms. Normative research is used to analyze the legal provisions governing the use of electronic certificates in state administration, as well as to assess the extent to which these regulations accommodate the principle of digital inclusivity in Indonesia.

### **RESULTS AND DISCUSSION**

#### **1. Legal Framework for the Use of Electronic Certificates in State Administration in Indonesia**

The use of electronic certificates in state administration in Indonesia is supported by a fairly comprehensive legal basis, which includes:

- a. Law Number 11 of 2008 concerning Electronic Information and Transactions (ITE), as amended by Law Number 19 of 2016, which serves as the main foundation legalizing electronic documents and transactions, including the use of electronic signatures and electronic certificates as legally valid evidence.
- b. Government Regulation Number 71 of 2019 concerning the Implementation of Electronic Systems and Transactions, which strengthens the position of certified electronic signatures within the electronic government system and emphasizes the importance of state-recognized Electronic Certificate Providers (CA).
- c. Regulations from the Minister of Communication and Informatics and technical regulations from the National Cyber and Crypto Agency (BSSN) that set technical standards, certification procedures, and the management of electronic signatures.

From these regulations, it can be concluded that the state has provided legal recognition of electronic certificates as instruments for authentication and validation within digital government systems. This establishes a strong legal foundation for various forms of electronic public services, such as e-office, e- signature, e-government, and digital identity.

Additionally, there is institutional support through the appointment of electronic certificate providers (PSrE), both from government agencies and private sectors that meet technical and administrative requirements.

#### **2. Support for Digital Inclusivity in Regulations**

Although the legal framework is fairly solid in supporting the use of electronic certificates, attention to digital inclusivity within these regulations remains limited. Some important findings in this context include:

- a. The regulations do not explicitly mention vulnerable groups or communities with limited access as priority targets in the implementation of electronic certificates.

- b. Aspects of digital literacy and public readiness to use electronic certificate services have not been a primary focus in policy formulation. There are no specific provisions that mandate the government to conduct widespread public education regarding electronic signatures and their use.
- c. The gap in information and communication technology (ICT) infrastructure in underdeveloped or remote areas is not directly addressed by regulations on electronic certificates. Although the government has programs to equalize digital access, these efforts have not been systematically integrated with regulations concerning Electronic Certificate Providers (PSrE) and electronic signatures.
- d. The implementation of electronic certificates in local government services varies greatly depending on the fiscal capacity and technical capabilities of each region, resulting in disparities in services across regions.

### **Critical Analysis**

The existing legal framework tends to focus on aspects of security, legality, and technical reliability, but it has not been sufficiently responsive to the principle of digital equity. Inclusivity, as an important principle in digital transformation, has not been adequately internalized into the regulations governing the administration of electronic certificates.

Without more explicit regulations concerning inclusivity, there is a risk that the implementation of electronic certificates could actually widen the service gap between digitally literate communities with access to ICT and those in underdeveloped areas or with limited resources.

The current legal framework regulating electronic certificates in Indonesia is indeed adequate in terms of security, legality, and technical reliability. Regulations such as the Electronic Information and Transactions Law (ITE Law) and the Government Regulation on the Implementation of Electronic Systems and Transactions have established strict standards to ensure that electronic transactions using electronic certificates have valid legal force and an adequate level of security. This is crucial to build public and business trust in the government's digital systems.

However, despite the well-regulated technical and legal aspects, these regulations have yet to adequately adopt the principle of digital inclusivity as an integral part of electronic certificate administration. The principle of digital equity requires that all layers of society, without exception, have equal access and the ability to optimally utilize digital services. Unfortunately, current regulations lack explicit provisions that govern efforts to equalize access, provide digital literacy training, or offer special protections for vulnerable groups such as communities in remote areas, persons with disabilities, or economically disadvantaged groups.

As a result, there is a risk that the implementation of electronic certificates will deepen the digital divide. Those who are digitally literate and have access to adequate technology infrastructure will find it easier to use services based on electronic certificates, while those living in areas with limited internet access or lacking technological understanding will fall behind. This gap can lead to inequality in accessing public services and exacerbate socio-economic disparities.

Furthermore, the readiness of local governments to implement electronic certificates varies significantly. Regions with limited fiscal and technical resources struggle to fully adopt this technology, causing greater access limitations for their populations. Without a legal framework that mandates and facilitates inclusivity, the development of infrastructure and digital literacy will not proceed evenly.

### **3. Identification of Barriers in the Implementation of Electronic Certificates**

Based on an analysis of existing regulations and related literature studies on the implementation of electronic certificates in Indonesia, several key barriers have been identified that hinder comprehensive and inclusive implementation:

- a. **Inequality in Information and Communication Technology (ICT) Infrastructure.** Uneven availability of digital infrastructure across various regions, especially in frontier, outermost, and underdeveloped areas, constitutes a fundamental barrier. Limited internet access and low network quality complicate the verification process and the use of services that require stable connectivity, such as digital signatures.
- b. **Low Digital Literacy among the Public.** Many people, particularly vulnerable groups and rural residents, do not understand how electronic certificates work or their benefits. The lack of education and socialization causes reluctance or inability to use digital services independently.
- c. **Lack of Integration Across Agencies and Local Governments.** Not all government agencies, both central and regional, have implemented system interoperability standards, resulting in the use of electronic certificates that are not integrated. This causes system duplication and inefficiency, slowing the widespread adoption of digital technology.
- d. **Limited Number of Affordable Electronic Certificate Providers (PSrE).** Most PSrEs are still located in urban areas and primarily serve central government sectors and large corporations. The affordability of PSrE services, both geographically and financially, remains a challenge for SMEs, local governments, and individuals in peripheral areas.
- e. **Suboptimal Digital Inclusivity Policy Framework.** Although regulations on electronic certificates exist, there are no affirmative policies mandating digital inclusion efforts, such as subsidized services for vulnerable groups, digital capacity development in regions, or incentives for providers reaching remote areas.

### **4. Policy Recommendations to Promote Fair and Equitable Use of Technology**

Based on the identified barriers, the following policy recommendations can encourage inclusive use of electronic certificates:

- a. **Strengthening Digital Infrastructure Equitably.** The government needs to accelerate the development of ICT infrastructure evenly, reaching remote areas through national programs such as Palapa Ring or regional initiatives based on public-private partnerships.
- b. **Nationwide Digital Literacy Programs.** Training and educational programs targeting various community groups are necessary, especially the elderly, persons with disabilities, MSME actors, and rural communities. These programs must be tailored to local contexts and involve local governments, educational institutions, and civil society

- organizations.
- c. Implementation of System Standardization and Interoperability. The central government should promote the adoption of interoperability standards across agencies and platforms so that electronic certificates can be used efficiently across systems. This includes integration with population administration systems and other digital public services.
  2. d. Development of Regional Electronic Certificate Providers (PSrE) and Incentives for Local Innovation. The government can provide fiscal incentives or regulatory facilitation for local PSrEs capable of reaching remote areas and underserved groups. Additionally, regional PSrEs can be established through inter-regional cooperation to expand service coverage.
  - a. Formulation of Regulations Guaranteeing Digital Inclusivity. Regulations on electronic certificates should be expanded to include the principle of digital inclusivity. This includes mandatory service clauses for marginalized groups, special assignments for certain institutions to serve underdeveloped areas, and mechanisms for oversight of implementation.

## CONCLUSION

Based on the research results regarding the legal framework for the use of electronic certificates in state administration in Indonesia and the analysis of digital inclusivity aspects, it can be concluded that:

1. Indonesia's legal framework has provided a strong foundation for the use of electronic certificates in state administration through the ITE Law, Government Regulations, and supporting technical regulations. This establishes electronic certificates as legally valid instruments for digital transactions and documents, thus supporting the modernization of public services digitally.
2. However, existing regulations have not adequately accommodated the principle of digital inclusivity. The regulations tend to focus on security and technical legality aspects, while attention to vulnerable groups, digital literacy and equitable access to technology is still insufficiently regulated explicitly.
3. The implementation of electronic certificates faces significant barriers, especially related to ICT infrastructure disparities, low public digital literacy, lack of integration among agencies and local governments, limited availability of affordable electronic certificate providers, and minimal affirmative policies for inclusivity.
4. To promote fair and equitable use of electronic certificates, more comprehensive policies are needed, including strengthening digital infrastructure evenly, nationwide digital literacy programs, system standardization and interoperability, development of regional electronic certificate providers, and formulation of regulations prioritizing digital inclusivity.

Thus, the digital transformation in state administration through the use of electronic certificates can only succeed optimally if regulations and policies are designed holistically not only ensuring security and legality but also guaranteeing access and the capability of all layers of society to participate in the digital era.

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