



# *The Legal and System Security Hurdles in Implementing Electronic-Based Government System at the Department Population and Civil Registration in Indonesia*

**Diky Pratama Putra**

Faculty of Law, Universitas Sebelas Maret, Surakarta, Indonesia  
Ir. Sutami street, No. 36 Ketingan, Jebres, Surakarta, Jawa Tengah, Indonesia 57126  
[diky.pratama@student.uns.ac.id](mailto:diky.pratama@student.uns.ac.id)

**Pujiyono Suwadi**

Faculty of Law, Universitas Sebelas Maret, Surakarta, Indonesia  
Ir. Sutami street, No. 36 Ketingan, Jebres, Surakarta, Jawa Tengah, Indonesia 57126  
[pujifhuns@staff.uns.ac.id](mailto:pujifhuns@staff.uns.ac.id)

**Abstract**—The adoption of the Electronic-Based Government System (SPBE) at the Department of Population and Civil Registration (Disdukcapil) seeks to improve the efficiency, transparency, and accountability of public services, therefore transforming good governance. The key topics analyzed include legal conformity, safeguarding of personal data, availability of services, security of systems, adherence to technological norms, and governance of risk management. This study employs a normative juridical approach to examine various laws, such as the Republic of Indonesia Law Number 19 of 2016, which deals with modifications to Law Number 11 of 2008 on Electronic Information and Transactions, Presidential Regulation Number 95 of 2018 on Electronic-Based Government Systems, and Minister of Administrative and Bureaucratic Reform Regulation Number 5 of 2020, which offers guidelines for SPBE risk management. The main focus is to protect data using security techniques and processes to ensure information privacy, accuracy, and availability. As a result of this research, protecting personal data requires balancing the government's and society's interests. These actions involve fulfilling public administration service obligations while protecting confidentiality and data. Various studies show that the legal structure for safeguarding personal data must be more specific and different in various laws and regulations. Under the SPBE's legislative framework in Indonesia, further enhancement of the implementation of a set of comprehensive and specific laws to provide legal protection for personal data is needed.

**Keywords**—Data Integrity and Confidentiality; Efficiency and Effectiveness of Governance; Electronic-Based Government System.

## I. INTRODUCTION

Technological advancements have significantly modified numerous facets of human existence, including the social, cultural, economic, political, and legal domains.[1] Similarly, technology has brought about enormous changes in how people connect and communicate and how governments provide services to their inhabitants.[2] In the government sector, there is a transformation, namely, "e-Government" or an Electronic-Based Government System (SPBE) that uses technology to manage government and provide services to the community.[3] Indonesia and other nations have adopted e-government programs since the early 2000s to enhance their governmental institutions' efficiency, openness, and responsibility. The Indonesian government's policy on adopting e-Government is detailed in Presidential Instruction Number 6 of 2001 and Presidential Instruction Number 3 of 2003. The instructions thoroughly outline the national policies and plans for developing e-government. They also give a detailed explanation of the development and use of telematics. These recommendations aim to promote the use of technology in government processes to enhance the efficiency and efficacy of public services.[4] In accordance with this, Presidential Regulation Number 95 of 2018 regarding Electronic-Based Government Systems establishes a legal foundation for the integration of SPBE into government governance. There are several primary urgencies associated with the implementation of SPBE at Disdukcapil, including[5]:

1. Efficiency and Effectiveness. SPBE allows Disdukcapil to carry out administrative processes more efficiently and effectively, reducing costs and time spent providing services to the community.
2. Increase service accessibility. An electronic system allows people to access population and civil registration services more easily and quickly without having to come to a service office, which is especially important for people in remote areas or with limited mobility.
3. Transparency and Accountability. SPBE helps increase transparency and accountability in government governance, minimizing the potential for corrupt practices and abuse of authority.
4. Improved Data Quality. Population data management becomes more structured and accurate, essential for decision-making and sustainable development planning.
5. Enhancement of Public Services. The implementation of Strategic Public Business Entity (SPBE) leads to an enhancement in the quality of public services offered by Disdukcapil, resulting in a rise in public contentment and confidence in the government.
6. Compliance with Presidential Decree 95/2018. Enforcing SPBE via Presidential Decree 95/2018 guarantees that the government adheres to relevant legislation and enhances the quality of public services in accordance with defined benchmarks.

However, several legal issues related to the implementation of SPBE need to be considered, namely, Legal Compliance.[6] The execution of SPBE will ensure compliance with pertinent legal regulations, including Presidential Decree 95 of 2018 and other legislation, such as Law Number 11 of 2008 on Electronic Information and Transactions, as amended by Law Number 19 of 2016.. In addition, regarding the protection of personal information owned by individuals. The use of electronic systems for population data management necessitates the implementation of robust procedures and methods to protect personal data from illicit access or exploitation. In accordance with the directive of Minister of Communication and Information Technology Regulation Number 4 of 2016, this pertains to the administration of information security systems. Additionally, the third factor to evaluate is equality and accessibility. SPBE shall ensure that all members of society have access to services in a fair and equitable manner, while also actively preventing any form of discrimination or injustice. Next, we will address the security of the system. To prevent cyber-attacks that could compromise the integrity and dependability of the system and compromise the confidentiality of data, it is essential to ensure the security of information systems. Also, the fifth need is the comprehensive satisfaction of technical standards. According to Presidential Regulation Number 39 of 2019, the SPBE system must comply with the technological standards for security and interoperability that are defined in One Indonesian Data. The sixth component is Governance and Risk Management. In order to comply with Regulation of the Minister for Empowerment of State Apparatus and Bureaucratic Reform of the Republic of Indonesia Number 5 of 2020, institutions are obligated to establish a well-defined system for the identification, assessment, and management of risks associated with the use of information technology in electronic-based government systems.

Several cases of data leaks in Indonesia show the importance of protecting personal data in implementing SPBE; for example:

<i>NO.</i>	<i>CASE</i>	<i>CASE DETAILS</i>
1.	NIK and KK Data Leak in SIM Card Registration (2018)	NIK and KK data were leaked during the SIM card registration process, indicating weaknesses in the data protection system.
2.	Ilham Bintang Account Hacking	Senior journalist Ilham Bintang experienced an account breach because his data registered in the Financial Services Authority (OJK) online system was misused.
3.	Data Leak of 2.3 Million Permanent Voters for 2014 Election	Population data held by the KPU was leaked, raising concerns about the security of data managed by the government.
4.	Covid-19 Patient Data Leak.	The Covid-19 patient data leak case is not just a privacy issue, but a matter of public health concern. The breach highlights the risks of data security in the government health system, potentially leading to the misuse of sensitive health information.

**Table 1.** Data Leak Cases in Indonesia

Use (sharing) and cases of data leakage, it is crucial to examine the legal framework for PDP in the SPBE context.[5] Even though currently, Indonesia has specific and comprehensive laws regulating PDP, such as the PDP Act 2010 in Malaysia, the PDP Act 2012 in Singapore, and the General Data Protection Regulation (GDPR) in the European Union, there are still several weaknesses in the law. The discourse on establishing a PDP Law has been emerging since 2014, and the latest draft of the PDP Bill has been ratified as the PDP Law, Law Number 27 of 2022. Therefore, cooperation between related institutions, comprehensive policy development, and regular monitoring and evaluation are essential. It is necessary to ensure the compliance and effectiveness of SPBE implementation with Disdukcapil governance. Thus, implementing SPBE can achieve the desired transformation of good governance by the Presidential Decree 95/2018. Based on this background, two problems were raised in

this research. First, examine the implementation of an electronic-based government system that can increase efficiency, transparency, and accountability in public services at the Disdukcapil Office; and Second, legal and security challenges in implementing the Electronic-Based Government System at Disdukcapil and how to overcome the need to be identified and handled effectively.

## II. LITERATURE REVIEW

### A. Good Governance Concept

Dwight Waldo defines "good governance" as the effective, efficient, and responsive administration of public resources and issues in accordance with the community's requirements and desires.[7] Mark Bovens emphasizes that good governance centers on accountability. He asserts that effective accountability is the fundamental cornerstone of good governance, requiring leaders and institutions to be held responsible for their actions and policies in front of the public.[8] Government Regulation Number 101 of 2000 the principles of good governance, which encompass professionalism, accountability, transparency, exceptional service, democracy, efficiency, efficacy, the rule of law, and societal approval, are delineated. It emphasizes the significance of optimizing and implementing these principles in government operations.[9] Good governance can be broadly defined as the activities and actions of a government institution that are conducted in accordance with the interests of the people and societal norms. The ultimate goal is to achieve the ideals of the state, where power over the people is regulated at different levels of government, including the country level. This concept encompasses the socio-cultural, political, and economic aspects of a nation.[10] Good Governance encompasses how the government and public institutions carry out their obligations and duties to the public in a manner that is effective and efficient while also being open and responsible. Since the 1998 reform, Indonesia has seen several changes in its political and economic Governance, leading to improvements in the quality of public services and the development of good Governance. The Indonesian government has improved the quality of public services via the implementation of bureaucratic reform efforts and the enhancement of education and training standards for public workers. It has improved the effectiveness and efficiency of delivering public services. Indonesia has had significant advancements in its public services in recent years. The Indonesian government has undertaken several attempts to improve public services in the country. The Indonesian government's commitment to improving the quality of life for its citizens is seen in its recent endeavors to strengthen public services via several strategic initiatives.

The government services industry has undergone a digital transition, which has brought about a new age characterized by the introduction of e-Gov or e-government. This is not only a trendy term, but a concrete expression of the government's dedication to use information and communication technology to improve government operations.[11] The introduction of terms like SPBE as an equivalent of e-Gov, as stated in PP No. 95 of 2018, further underscores the country's confidence in its digital transformation[12].

1. The government has implemented electronic platforms, including the Population Administration Information System (SIAK), to improve public access to public services, particularly those provided by the Population and Civil Registration Service, as part of the E-Government initiative. Additionally, Kemendagri Regulation Number 72 of 2022 governs the standards and specifications for hardware, software, and electronic identity card forms, as well as the implementation of digital population identity.
2. In the health sector, the government has expanded the reach of health services in remote areas and provided free services through the National Health Insurance (JKN) program, which can be accessed via Android devices. Apart from that, in the education sector, the government focuses on improving the quality of education with support for inclusive education and increasing teacher competency.
3. Meanwhile, in the transportation sector, the government is improving public transportation services by expanding transportation networks such as the MRT, LRT, and Bus Rapid Transit.
4. In licensing services, the government is speeding up the licensing process and reducing bureaucracy by developing an electronic licensing system (Online et al./ OSS) integrated with various relevant government agencies.

All of these efforts, rooted in the principles of good Governance, are driving a transformation towards better, transparent, accountable, participatory, efficient, and data-based Governance. This is not just a bureaucratic shift but a change that positively impacts the progress and welfare of the Indonesian people, instilling a sense of hope and optimism for the future.

### B. Regulations and Policies for Electronic-Based Government Systems (SPBE) at Disdukcapil

Presidential Regulation of the Republic of Indonesia Number 95 of 2018 concerning Electronic-Based Government Systems is an essential foundation for transforming public services in Indonesia.[13] The main goal is to create efficient, effective, transparent, and accountable work processes, with the vision of creating a high-performance, integrative, dynamic, transparent, and innovative bureaucracy.[14] Then, Presidential Regulation Number 132 of 2022 became an important milestone in regulating the National SPBE Architecture in Indonesia, setting policy directions and strategies for developing electronic-based government systems efficiently and effectively throughout the country. Presidential Decree Number 132 of 2022 includes the National SPBE

Architecture framework, which provides guidelines for operationalizing electronic-based government systems and references regarding standards and guidelines that must be followed in their development. This presidential regulation also maps relevant domains in the context of the National SPBE and identifies strategic initiatives to advance electronic-based technology in government. Furthermore, the Directorate General of Dukcapil, Kemendagri, is preparing to implement Digital Population Identity (IKD) nationally in June 2024. This is a significant step in transforming public services in Indonesia, in line with Presidential Regulation No. 82 of 2023 concerning the Acceleration of Digital Transformation and Integration of National Digital Services. IKD will be the base for various SPBE priority services, such as health services, education, and social assistance. Dukcapil focuses on strengthening infrastructure, including information technology, networks, and system security, to achieve this target. Apart from that, improving the quality of human resources is also the main focus, with efforts to develop, organize, and foster functional positions and increase service innovation. Dukcapil also views the need to update e-KTP recording equipment, with the hope of support from regional heads to support this through the APBD. As of February 18, 2024, the population that has activated IKD has reached 8,101,771 people, but an increase in the number of activations is still needed to achieve the set target. Therefore, Dukcapil invites all levels of the Dukcapil Service throughout West Java to pursue the IKD activation target to support the transformation of public services to be more efficient and effective in the future.

### C. *Legal Framework for Personal Data Protection (PDP)*

PDP is the term used to describe the comprehensive measures that are implemented to protect Personal Data during its processing, with the objective of preserving the constitutional rights of the individuals whose data is the subject of the processing.[15] Law Number 27 of 2022 regulates many facets of the safeguarding of personal data. The document encompasses fundamental principles, various categories of personal data, the rights of individuals whose data is being processed, the responsibilities of those in charge of processing personal data, the transfer of personal data, penalties imposed by administrative bodies, the institutions involved, international collaboration, community engagement, mechanisms for resolving disputes, procedural regulations, limitations on the utilization of personal data, and criminal provisions pertaining to the safeguarding of personal data.[16] Creating a solid legal structure to protect personal data is essential for effectively implementing an Electronic-Based Government System in Indonesia. Protecting personal data is crucial due to the increasing risk of data breaches and unlawful use of personal information in the digital era. The primary regulatory framework for this is governed by Law Number 11 of 2008, explicitly addressing Information and Electronic Transactions. Law Number 19 of 2016 has amended this law. Moreover, the debate on enacting specific laws to protect personal data has emerged since 2014. Implementing the proposed PDP Bill is a praiseworthy step that strengthens Indonesia's legal framework for protecting personal data. However, Law No. 27 of 2022, regarding PDP, has certain aspects that need development. Chapter IX of Law Number 27 of 2022 on PDP is essential for guaranteeing the effective implementation of PDP in Indonesia. However, shortcomings in executing the PDP Law might significantly impact the SPBE at the Population and Civil Registration Service or the Kemendagri. The effectiveness of PDP may be affected by the uncertainty surrounding international legal jurisdiction and the priority of sanctions in dispute settlement, as shown by the handling of population data (as mentioned in Article 59 of the PDP Law).

Moreover, more clarity in the legal protections for persons with personal data in other countries might provide challenges in handling scenarios involving data movement over international boundaries (as mentioned in Article 56 of the PDP Law). An incongruity between the provisions of the PDP (PDP) Law and the data management practices inside the SPBE environment at Disdukcapil or the Kemendagri might exacerbate the consequences of these shortcomings, resulting in an increased probability of personal data breaches.[17]

### III. METHOD

Utilizes a normative juridical approach as their methodology for legal study. This method involves a thorough analysis of pertinent legislation, including both laws that directly relate to the subject area and those that have an indirect impact on it.[18] This study employs methodologies to analyze the legislative framework governing the establishment of SPBE at the Ministry of Home Affairs (Kemendagri) and the legal framework governing the protection of personal data under Law Number 27 of 2022 on Personal Data Protection (UU PDP). This analysis comprehensively examines pertinent laws and regulations, including Presidential Instruction Number 6 of 2001, Presidential Instruction Number 3 of 2003, Presidential Regulation Number 95 of 2018 regarding SPBE, and Minister of Communication and Informatics Regulation Number 4 of 2016 regarding Information Systems Security Management. This research is focused on the regulations concerning the execution of SPBE to protect personal data. This research emphasizes the need to implement a Single Point of Entry (SPBE) in Disdukcapil, the significance of fulfilling technical prerequisites, and the relevance of governance and risk management in information technology that employs this methodology. This study evaluates the adherence and effectiveness of SPBE implementation at the Disdukcapil or Ministry of Home Affairs using normative juridical approaches to analyze the existing legislative and regulatory framework. It addresses the safeguarding of personal

data in certain circumstances. This methodology enables scholars to provide policy recommendations grounded on a comprehensive law examination.

#### IV. RESULT AND DISCUSSION

##### *A. SPBE to Increase Efficiency, Transparency, and Accountability in Disdukcapil*

Implementing the Electronic-Based Government System (SPBE) at the Population and Civil Registration Service (Disdukcapil) highlights various vital aspects contributing to efficiency, transparency, and accountability in public services.[19] By digitizing administrations, the regulatory preparation at Disdukcapil becomes more proficient and successful, permitting candidates to require line numbers using computerized applications or WhatsApp, diminishing time and costs. Electronic Marks (TTE) also speeds up the creation of populace archives by remotely empowering marks using electronic gadgets such as smartphones. This electronic framework gives individuals easy access to induce administrations without coming to the benefits office, which is exceptionally useful for individuals in further ranges or with constrained portability. Indeed, even though there are still deterrents, such as insufficient innovative framework and an uneven level of technological understanding in society, the "Dukcapil Go Advanced" program could be a critical step in expanding the openness of populace administrations.

In addition, SPBE helps increase transparency and accountability in government governance by recording every transaction and activity digitally, facilitating monitoring and auditing of service processes, and minimizing the potential for corrupt practices and abuse of authority.[4] Population data management becomes more structured and accurate, supporting more precise and efficient decision-making by authorities for sustainable development planning. The transformation of good governance through SPBE also significantly improves the quality of public services provided by Disdukcapil, thereby increasing public satisfaction and trust in the government. With more efficient, transparent, and accountable services, the public feels more appreciated and supported by the government in meeting their administrative needs, reinforcing the positive impact of digital transformation on public services.

Legal discussions regarding the implementation of Digital Population Identity (IKD) and the acceleration of the government's digital transformation have several relevant aspects.[20] The steps taken in presenting IKD and accelerating digital transformation must be in strict accordance with applicable legal mandates, as regulated in Presidential Regulation Number 82 of 2023 concerning the Acceleration of Digital Transformation and Integration of National Digital Services as well as Kemendagri Regulation Number 72 of 2022. It is of utmost importance to ensure that IKD implementation is not only effective but also fully compliant with legal provisions. The aspect of PDP and information security is crucial, considering that the existence of personal data in the IKD requires adequate protection of this sensitive information. Therefore, the system must ensure that data security and user privacy are well maintained through the integration of security principles in planning and implementation. Digital transformation must also pay attention to accessibility and inclusivity, ensuring that not all levels of society have sufficient access or understanding of digital technology. Steps in providing IKD and digital services must be inclusive and accessible to all levels of society without exception, ensuring that every citizen benefits from the digitalization of services.[21] The readiness of infrastructure, human resources and operational processes also needs to be seriously evaluated in implementing IKD and digital transformation. The readiness of the Kemendagri and related institutions in providing digital services and ensuring interoperability with various public service platforms must be considered critically. In addition, digital service users, including IKD users, must have adequate legal protection for their rights in the context of using digital technology, including the right to privacy, data security and consumer rights in digital transactions. By considering all these aspects, the implementation of SPBE and IKD at Disdukcapil is expected to improve the quality of public services, support good governance, and ensure strict compliance with applicable regulations, thereby reassuring the reader about the government's commitment to legal and ethical practices in digital transformation.

The theory of effectiveness proposed by Lawrence M. Friedman, including legal structure, legal character, and legal culture,[22] may be used to assess the application of the SPBE system in population and population services (Disdukcapil). The legal framework encompasses the institutions and legal mechanisms responsible for executing SPBE, including the technology infrastructure used, the applied management system, and the personnel of Disdukcapil. The findings of this study indicate that the efficacy of SPBE is significantly impacted by the desire and capability of Disdukcapil personnel to adopt novel technology, together with sufficient infrastructure. Insufficient technical infrastructure and disparities in technological literacy across society provide significant challenges that must be addressed. The rules and policies that dictate the execution of SPBE are regarded as legally obligatory. The implementation of Population Digital Identity (IKD) must adhere to relevant legal obligations, such as Presidential Regulation 82 of 2023 regarding expediting digital transformation and integrating national digital services, as well as Minister of Home Affairs Regulation Number 72 of 2022. Research indicates that adhering to these legal obligations is of utmost significance. It is crucial to guarantee that the implementation of IKD is efficient and compliant with legislative requirements. The system must guarantee personal data privacy (PDP) protection and maintain information security, which are crucial elements. Legal culture encompasses the

societal beliefs, attitudes, and views about the law and its implementation. The findings of this research indicate that individuals' comprehension and willingness to embrace digital technology play a crucial role in the successful implementation of SPBE at the Disdukcapil Office. Implementing SPBE is anticipated to enhance public service efficiency, transparency, and accountability. The efficacy of implementing SPBE will be enhanced by a favorable regulatory culture in which the public has faith in and actively promotes digital transformation. Challenges include guaranteeing equitable access to digital services for all sectors of society and promoting enhanced comprehension of technology within society. The introduction of the Single Point of Entry (SPBE) system at the Disdukcapil office has not achieved complete success. While considerable advancement has been made in some domains, substantial barriers must be surmounted to achieve optimal efficiency. Additional measures are required to enhance staff preparedness, enhance technological infrastructure, guarantee legal adherence, safeguard personal data, and enhance the use and availability of digital technologies in society.

#### *B. Legal and Security Challenges in SPBE at Disdukcapil: Identification and Solutions*

Implementing the Electronic-Based Government System (SPBE) at the Population and Civil Registration Service (Disdukcapil) faces several legal and security challenges that must be overcome to ensure effectiveness, efficiency, and compliance with applicable regulations.[14] The first challenge is ensuring compliance with regulations and legality. Every step in implementing SPBE and Digital Population Identity (IKD) must be by Presidential Regulation Number 82 of 2023 concerning the Acceleration of Digital Transformation and Integration of National Digital Services as well as Kemendagri Regulation Number 72 of 2022 concerning Standards and Specifications for Hardware, Software and Identity Card Blanks Electronic Population and Implementation of Digital Population Identity. Non-compliance with this regulation may result in legal violations and administrative sanctions by the provisions stipulated in Articles 36 and 37 of the Presidential Regulation. To overcome this challenge, it is necessary to increase legal compliance by integrating the regulatory framework into every SPBE planning and implementation stage and providing regular training for Disdukcapil employees regarding relevant regulations. In addition, challenges related to PDP and information security are also very significant. PDP is regulated in Law Number 27 of 2022 concerning PDP, which stipulates the principles of data privacy and security that must be adhered to by every electronic system operator. In the SPBE context, personal data must be protected from leaks and unauthorized access, which can be subject to criminal and civil sanctions under Articles 61 and 62 of the PDP Law. Solutions to these challenges include strengthening security systems by adopting technologies such as data encryption and multi-factor authentication and conducting regular security audits to identify and fix vulnerabilities in the system. In addition, increasing security awareness through employee training programs is critical to protecting sensitive information.

The next challenge is the accessibility and inclusivity of digital services.[19] Even though digital transformation brings many benefits, not all levels of society have sufficient access or understanding of digital technology. It is regulated by the Minister of Communication and Information Technology Regulation Number 7 of 2018 concerning implementing digital literacy. Solutions that can be taken include providing adequate technological infrastructure in all regions, including remote areas, and digital education and literacy programs to increase people's understanding of digital technology. Alternative services must also be provided for people who cannot access digital services directly.

Infrastructure and human resource readiness are challenges that include information technology readiness and employee ability to manage digital systems.[20] Articles 12 and 13 of Presidential Regulation Number 95 of 2018 concerning Electronic-Based Government Systems regulate the obligations of government agencies to ensure the readiness of infrastructure and human resources. The proposed solution includes investment in the development and maintenance of technological infrastructure as well as training and competency development programs for Disdukcapil employees.[21] Finally, challenges related to accountability and transparency in public services through SPBE are regulated in Articles 15 and 16 of Law Number 30 of 2014 concerning Government Administration. To overcome this challenge, we must develop an integrated monitoring and audit system to ensure that all transactions and activities can be tracked and audited transparently. Furthermore, it is necessary to provide transparent performance reports to enhance public confidence in Disdukcapil services.

To enhance the effectiveness and efficiency of SPBE implementation at Disdukcapil, it is crucial to address these difficulties using suitable solutions. This approach will ensure compliance with relevant rules and ultimately improve public services and increase public confidence. Establishing the Electronic Based Government System (SPBE) at Disdukcapil also needs help safeguarding personal data. Personal data protection (PDP) is a crucial element governed by Law Number 27 of 2022, which explicitly addresses PDP. Within the framework of SPBE, personal data include confidential details such as an individual's KTP number, residence, and biometric data. Non-compliance with the Personal Data Protection (PDP) may lead to administrative, civil, or criminal penalties as outlined in the PDP Law. In order to address the challenges of PDP, Disdukcapil must take concrete measures. These include encrypting stored or transmitted data to prevent unauthorized access, implementing a multi-factor authentication system to ensure only authorized users can access personal data, ensuring technology vendors have sufficient security measures in place to protect personal data, deleting unnecessary or irrelevant personal data to

minimize the risk of data leaks, providing regular training for Disdukcapil employees on the importance of protecting personal data and proper handling procedures, and conducting regular system security inspections to identify and rectify vulnerabilities in data protection. By employing these measures, Disdukcapil can guarantee the security and protection of public data throughout the administrative service process using the SPBE system. Doing this would enhance the general public's trust in government services and guarantee adherence to relevant Personal Data Protection (PDP) rules.

## V. CONCLUSION

By introducing an e-government system (SPBE) to Disdukcapil, public services' effectiveness, openness, and responsibility are greatly enhanced. It is accomplished using digital services, such as electronic signatures and digital applications (TTE). Because of this revolution, people in far-flung places may now have easier and faster access to services. In addition to digitally recording and allowing scrutiny of all transactions and activities, SPBE ensures that power abuse and fraud are prevented. Improving data security, promoting digital culture education, and complying with applicable legislation are all ways to overcome the challenges of public knowledge of technology, technological infrastructure, and PDP. Disdukcapil SPBE employs this tactic to improve the quality of public services and increase public trust in government.

## REFERENCES

- [1] J. M. Conejero, J. C. Preciado, A. J. Fernández-García, A. E. Prieto, and R. Rodríguez-Echeverría, "Towards the use of Data Engineering, Advanced Visualization techniques and Association Rules to support knowledge discovery for public policies," *Expert Syst. Appl.*, vol. 170, p. 114509, 2021, doi: <https://doi.org/10.1016/j.eswa.2020.114509>.
- [2] Z. A. Polat and M. Alkan, "The role of government in land registry and cadastre service in Turkey: Towards a government 3.0 perspective," *Land use policy*, vol. 92, p. 104500, 2020, doi: <https://doi.org/10.1016/j.landusepol.2020.104500>.
- [3] M. I. Santoso, "Applying Interactive Planning on Public Service Leadership in the Directorate General of Immigration Indonesia," *Procedia - Soc. Behav. Sci.*, vol. 169, pp. 400–410, 2015, doi: <https://doi.org/10.1016/j.sbspro.2015.01.326>.
- [4] H. Haerofiatna, J. Chaidir, and others, "Regional Regulations: Implementation of Electronic-based Government System," *Eur. J. Bus. Innov. Res.*, vol. 11, no. 3, pp. 61–69, 2023.
- [5] A. Isdwianto, "Application of the Reform of the Criminal Law System in Presidential Regulation No. 95 of 2018 Concerning Electronic-Based Government Systems Against Online Parole for Prisoners," in *The 2nd International Conference of Law, Government and Social Justice (ICOLGAS 2020)*, 2020, pp. 261–263.
- [6] B. K. Putra and C. B. Dhanuarta, "Transformation of Public Services Through Electronic-Based Government System in Malang City," *Int. J. Educ. Inf. Technol. Others*, vol. 4, no. 3, pp. 452–459, 2021.
- [7] H. Addink, *Good governance: Concept and context*. Oxford University Press, 2019.
- [8] N. P. T. Widanti, "Konsep Good Governance dalam Perspektif Pelayanan Publik: Sebuah Tinjauan Literatur," *J. Abdimas Perad.*, vol. 3, no. 1, pp. 73–85, 2022.
- [9] S. L. Mitchell, M. D. Packard, and B. B. Clark, "Good governance, bad governance: a refinement and application of key governance concepts," *Int. J. Bus. Gov. Ethics*, vol. 17, no. 4, pp. 471–494, 2023.
- [10] W. A. F. W. Husain, "Insights: the Conceptual Framework for Buiding the World Class Good Governance Ethics," *J. Gov. Integr.*, vol. 4, no. 1, pp. 1–5, 2020.
- [11] R. L. Karunia, "West Lombok Towards Smart Government (Case Study of E-Government Implementation at the Population and Civil Registration Services Office)," *Polit. Indones. Indones. Polit. Sci. Rev.*, vol. 8, no. 1, pp. 63–90, 2023.
- [12] S. Makmur, "Implementation of Archives Digitization Policy as a Form of Implementation of an Electronic-Based Government System," *J. Soc. Res.*, vol. 2, no. 6, pp. 1847–1852, 2023.
- [13] I. Yudhiantara, L. Antarini, A. P. Putra, and I. Putu, "Analysis of E-Governance Program 'Badung Smart City' at the Department of Population and Civil Registry Office of Badung District, Bali, Indonesia".
- [14] S. Ragani, A. Rompis, and M. Amirullah, "IMPLEMENTATION OF LEGAL CERTAINTY PRINCIPLE AND ECONOMIC ANALYSIS OF LAW REGARDING ONLINE SERVICES OF DEMOGRAPHIC ADMINISTRATION IN BANDAR LAMPUNG IN IMPLEMENTING AN ELECTRONIC BASED GOVERNMENT SYSTEM," *Cepalo*, vol. 7, no. 2, pp. 117–128, 2023.
- [15] S. Quach, P. Thaichon, K. D. Martin, S. Weaven, and R. W. Palmatier, "Digital technologies: Tensions in privacy and data," *J. Acad. Mark. Sci.*, vol. 50, no. 6, pp. 1299–1323, 2022.
- [16] G. Malgieri and J. Niklas, "Vulnerable data subjects," *Comput. Law Secur. Rev.*, vol. 37, p. 105415, 2020.
- [17] E. Ismagilova, L. Hughes, N. P. Rana, and Y. K. Dwivedi, "Security, privacy and risks within smart cities: Literature review and development of a smart city interaction framework," *Inf. Syst. Front.*, pp. 1–22, 2022.



- [18] A. M. S. Gaudêncio, “Rationality and/as reasonableness within formal-theoretical and practical-dialectical approaches to adjudication: Semiotic and normative perspectives,” *Int. J. Semiot. Law-Revue Int. Sémiotique Jurid.*, vol. 33, no. 4, pp. 1033–1041, 2020.
- [19] A. F. Nasution, M. Sihombing, H. Ridho, and others, “The Impact of Bureaucratic Reform Policy on Public Services at the Population and Civil Registration Service of North Padang Lawas Regency,” *PERSPEKTIF*, vol. 13, no. 1, pp. 231–243, 2024.
- [20] I. P. A. Jayasinga and A. Triono, “Digitalization of Population Administration to Facilitate Public Services in the Era of Regional Autonomy,” *Int. J. Multicult. Multireligious Underst.*, vol. 10, no. 5, pp. 484–490, 2023.
- [21] G. Rahayu and J. Jumiaty, “Implementation of the Dukcapil Go Digital Programs at the Payakumbuh City Government,” *J. Stud. Ilmu Pemerintah.*, vol. 4, no. 2, pp. 83–94, 2023.
- [22] A. P. H. Syam, “Effectiveness of implementation of interlocutory decision in The Gresik District Court/Industrial Relations Class IA: Lawrence Friedman’s legal effectiveness theory study,” Universitas Islam Negeri Maulana Malik Ibrahim, 2021.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

