

Digital Transformation of Deed Printing Services Through the Population Administration Information System (SIAK) at the Population and Civil Registration Office of Badung Regency

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ABSTRACT

The digitization of population administration services has become an urgent need to enhance the effectiveness and efficiency of public services in today's information technology era. The Population Administration Information System (SIAK) implemented in Badung Regency demonstrates significant changes in the process of printing certificates and other population documents, with technology utilization that facilitates access and accelerates service completion. The implementation of various innovations such as the integrated service package "Badung Aku Sapa" and the mobile service "Go Laying Adminduk" has successfully increased inclusivity and convenience for the community in managing population administration, especially for vulnerable groups such as the elderly and people with disabilities. Efforts to develop smart villages and the implementation of Digital Population Identity (IKD) further strengthen service access down to the village level, reducing geographical and social barriers. However, this digital transformation process also faces various challenges, ranging from limited network infrastructure, low digital literacy among some communities, to data security issues and cultural resistance to new technology. Addressing these challenges through strengthening human resources, community education, and the development of reliable security systems are important aspects in supporting the sustainability of digitization in population administration services. Overall, the implementation of SIAK in Badung Regency illustrates an effective and inclusive model of public service digitization, which can serve as a reference for other local governments in optimizing modern and sustainable population administration services.

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1. INTRODUCTION

Digital transformation in public services is a strategic response to global dynamics that demand efficiency, transparency, and accountability in

governance. Along with the development of information and communication technology (ICT), various countries, including Indonesia, have begun to integrate digital systems in government administration processes. This is

in line with the vision of the Indonesian government in realizing an Electronic-Based Government System (SPBE) as stated in Presidential Regulation No. 95 of 2018. SPBE aims to create a clean, effective, efficient, and reliable bureaucracy. In the context of population services, digitalization is crucial considering the high public demand for fast, precise, and free administrative services from maladministration practices.

One form of SPBE implementation in the field of population administration is through the Population Administration Information System (SIAK). SIAK is a digital platform developed by the Directorate General of Population and Civil Registration, Ministry of Home Affairs, which aims to manage population data nationally and provide online population document services. This system has been used by more than 500 districts/cities throughout Indonesia, including Badung Regency in Bali Province. The existence of SIAK not only allows the collection and updating of population data in real-time, but also supports the issuance of documents such as birth certificates, death certificates, and marriage certificates digitally.

Badung Regency is one of the regions that is actively implementing digital transformation in public services, especially in terms of deed printing through SIAK (SIAC Integration.), whose access is specifically intended for civil servants. As one of the districts with a high urbanization rate and a national tourism center, Badung faces challenges in providing population services that are responsive and adaptive to the needs of a dynamic community. Data from the Population and Civil Registration Office of Badung Regency shows that in 2023 there will be an increase of 35% in online birth certificate applications compared to the previous year. This shows that people are increasingly aware and comfortable using digital services for administrative purposes.

Digital transformation in deed recording services not only impacts time and cost efficiency, but also improves data accuracy and document security. Previously, the process of printing deeds manually was

prone to recording errors, service delays, and illegal collection practices. Through SIAK integration, the entire process can be tracked systematically, from submission to printing, with a shorter turnaround time. Based on the results of an internal survey conducted by the Badung Dukcapil Office at the end of 2023, the level of public satisfaction with digital birth certificate services reached 87%, an increase from 72% in 2021. This shows a significant increase in public perception of service quality.

However, the implementation of digital transformation is inseparable from various challenges. One of the main obstacles is the digital literacy gap, both among the user community and service officers. Some residents, especially from the elderly or people in rural areas, still have difficulty accessing and operating online systems. In addition, technical problems such as internet network disruptions and unstable systems are also often obstacles in the implementation of services. According to the Ombudsman of the Republic of Indonesia's report, a number of regions in Indonesia are still facing digital infrastructure inequality that has an impact on the quality of electronic-based services, including in the population system.

From an institutional perspective, the readiness of human resources in public service agencies is also an important factor in the success of digital transformation. Employees of the Dukcapil Service are required not only to master the administrative aspect, but also to understand the technical operations of the information system. Therefore, training and capacity building of human resources are absolutely necessary. The Badung Regency Government itself has conducted a series of SIAK technical trainings for its staff periodically since 2022, to ensure that services run optimally and in accordance with the standard operating procedures that have been set by the Ministry of Home Affairs.

In addition, the security of citizens' personal data is an increasingly crucial issue in the digital era. The deed printing service through the SIAK system manages highly

sensitive data, such as birth, death, and marital status information. If not managed properly, the data can be misused for purposes that are detrimental to the community. Therefore, the SIAK system must be equipped with strong cybersecurity protocols and in accordance with the principles of personal data protection as mandated in Law No. 27 of 2022 concerning Personal Data Protection. The implementation of technology must go hand in hand with ensuring the protection of citizens' rights as data subjects.

In the global context, the digitization of population administration is part of the commitment to the Sustainable Development Goals (SDGs), especially goal number 16 on peace, justice, and resilient institutions. Access to legal identity through official documents such as birth and death certificates is an important indicator in measuring social inclusion and civil rights. Therefore, efforts to digitize deed registration in Badung Regency are not only relevant locally, but also contribute to the global agenda in strengthening the basic rights of citizens through more fair and equitable public services.

Through this study, the researcher aims to analyze in depth how digital transformation through the SIAK system is implemented in deed printing services at the Population and Civil Registration Office of Badung Regency. The focus of the research includes aspects of effectiveness, efficiency, challenges, and their impact on community satisfaction. This research is expected to make a theoretical and practical contribution, both in the development of digital-based public service policies and in enriching the academic literature on the digital transformation of local government in Indonesia.

2. LITERATURE REVIEW

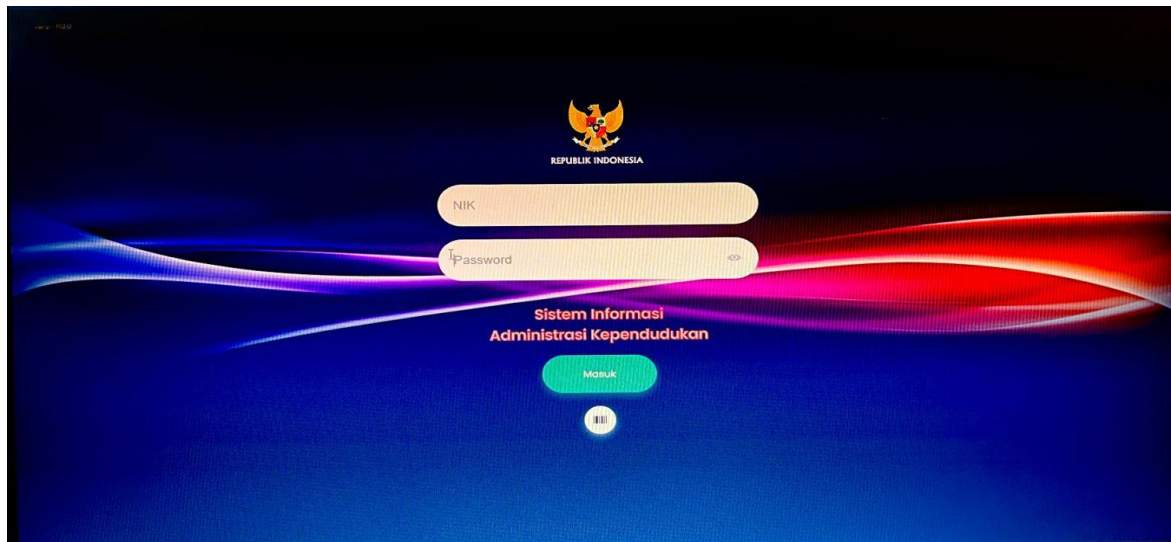
2.1 The Concept of Digital Transformation in Public Services

Digital transformation in the public service sector is a fundamental change

process in the way government agencies provide services to the public, by utilizing information and communication technology to improve efficiency, transparency, and service quality. According to Mergel, Edelmann, and Haug (2021), digital transformation is not just the digitization of existing processes, but involves changing organizational structures, bureaucratic mindsets, and relationships between government and society. In the context of population administration services, digital transformation enables process automation, data integration, and the provision of online-based services that are more easily accessible anytime and from anywhere. This is in line with the opinion of Janssen and van der Voort (2020) who stated that digitalization can speed up service processes, improve data accuracy, and strengthen public trust in the government.

2.2 Population Administration Information System (SIAK)

SIAK is a system designed by the Ministry of Home Affairs of the Republic of Indonesia to facilitate and standardize the management of population data nationally. This system integrates various data components such as birth certificates, family cards, electronic ID cards, and death certificates, allowing for faster and more integrated recording and printing of documents. According to Ardiansyah and Kurniawati (2022), SIAK has become the main instrument in accelerating population administration services in various regions, as well as becoming a foundation in the implementation of digital population identity (IKD). In practice, SIAK not only functions as an administrative recording tool, but also as an important source of data in development planning and social services. Research by Hidayat and Zain (2021) shows that areas that implement SIAK to the maximum have experienced significant improvements in service efficiency and population data accuracy.



2.3 Digital Service Innovation in Local Government

Digital-based public service innovations at the regional level show the important role of local governments in adapting policies to the needs of the community. Badung Regency, as an example of innovative implementation, has developed various digital services such as "Badung Aku Sapa" and "Go Laying Adminduk" which are able to accelerate services and expand reach to vulnerable communities. A study by Rahmawati and Susanto (2025) states that digital service innovation not only has an impact on efficiency, but also increases community participation in the administrative process, as well as encouraging the creation of technologically independent smart villages. In addition, the emergence of Digital Population Identity (IKD) in Badung Regency reflects a shift in service paradigm from conventional to fully digital, where people can access all population documents only through applications on mobile devices. Innovations like this, according to Widiyanti and Pratama (2024), are very important to answer the needs of modern society that demands fast, easy, and responsive public services.

3. METHODS

This study uses a literature study approach (library research) which aims to analyze digital transformation in deed printing services through the Population

Administration Information System (SIAP) at the Population and Civil Registration Office of Badung Regency. Data was collected through searching various relevant literature sources, such as scientific journals, books, official government reports, regulations related to population administration, and publications from the Ministry of Home Affairs and the Dukcapil Office. Search also includes secondary data such as ministry statistics, annual reports, and valid and accountable news articles. Data analysis was carried out qualitatively with a descriptive-analytical approach to interpret findings in the literature and relate them to the theory of digital transformation, e-government, and public services. With this approach, the research seeks to provide an in-depth understanding of the dynamics, challenges, and impacts of digitizing SIAP-based deed printing services without collecting direct field data.

4. RESULTS AND DISCUSSION

4.1 Digital Transformation in Population Administration Services

Digital transformation in population administration services in Indonesia has undergone significant developments in recent years, especially with the implementation of the Centralized Population Administration Information System (SIAP). This system allows for the integration of population data nationally, making it easier for people to access services without having to return to

their home areas. For example, a resident who has a Bekasi ID card and is in Ende, East Nusa Tenggara, can take care of his child's birth certificate online through the Centralized SIAK without having to return to Bekasi. This shows that the adaptation of the digital system is no longer an option, but a necessity in public services.

In Badung Regency, digital transformation is realized through various innovations in information technology-based population administration services. One such innovation is the "I WANTED" program which can be accessed through <https://akudicari.badungkab.go.id> website. This program provides online population administration services, making it easier for people to take care of documents without having to come directly to the Population and Civil Registration Office. In addition, there is also an innovation "Telunjuk Sakti Desa", which is an Online Adminduk kiosk service placed in villages/sub-districts in Badung Regency, allowing people to access services through the AKU DICARI website. These innovations show the commitment of local governments in bringing services closer to the community through the use of technology.

The implementation of SIAK is also supported by strong regulations, such as Permendagri Number 95 of 2019 concerning Population Administration Information Systems. This regulation provides a legal basis for local governments in developing and implementing an integrated population information system. However, in its implementation, there are still challenges, such as limited human resource capacity and technological infrastructure. Most of the SIAK operators in the regions are still contract employees, which requires increasing competence through training and appointment to become State Civil Apparatus (ASN) in order to be more optimal in carrying out their duties.

Digital transformation in population administration services also has an impact on increasing service efficiency and transparency. With a digital system, the document management process becomes

faster and more accurate, and reduces the potential for non-transparent practices. In addition, integrated population data makes it easier for the government to design data-based public policies. However, to ensure the sustainability of this digital transformation, commitment from all parties is needed, including increasing people's digital literacy and strengthening technology infrastructure throughout Indonesia.

4.2 Efficiency and Ease of Service Access through SIAK

The implementation of the Population Administration Information System (SIAK) in Badung Regency has brought significant changes in the efficiency of population administration services. Through digitization, the process of managing documents such as birth certificates, family cards, and electronic ID cards becomes faster and more accurate. For example, the innovation of the "Badung Aku Sapa" service with a 3 in 1 service package allows people to get several documents at once in one service process, thereby reducing the time and costs required (Antaranews Bali, 2020). This shows that digitalization not only speeds up the process, but also increases people's comfort in accessing public services, as well as optimizing service resources (Putra et al., 2021).

The ease of access to services is also further improved through the "Go Laying Adminduk" program, which is a mobile population administration service that targets people in all corners of Badung Regency. This program reaches residents in villages/sub-districts, banjars, to door-to-door services for the elderly, sick, and ODGJ (People with Mental Disorders) (badungkab.go.id, 2020). Research by Santoso and Wulandari (2022) states that this mobile service ensures that all levels of society, especially those with mobility limitations, can still access population administration services easily and inclusively. This effort also reduces the digital gap between regions in Badung.

In addition, the Population and Civil Registration Office of Badung Regency encourages villages to become "Smart

Villages" with digital-based administrative services. As of 2023, as many as 52 out of 62 villages in Badung have adopted smart village services, supported by free internet networks that reach all regions from north to south (Antaranews Bali, 2023). This strategic step expands the reach of digital services to the village level, allowing people to take care of population documents from the nearest location without having to come to the head office. This is in line with the results of Handayani et al.'s (2023) research which emphasizes the importance of strengthening digital infrastructure to support integrated administrative services.

The implementation of Digital Population Identity (IKD) is also part of efforts to improve efficiency and ease of access to services. With IKD, people can store all population documents in one application on their smartphones, which facilitates various purposes such as tax reporting, BPJS, and other public services (badungkab.go.id, 2024). This digital approach is not only practical, but also reduces the risk of losing physical documents and accelerates the identity verification process, as supported by the Widiyanti and Pratama (2024) study which emphasizes the importance of technology in maintaining data integrity and accelerating administrative services.

Overall, digital transformation through SIAK in Badung Regency has significantly improved the efficiency and ease of access to population administration services. The innovations carried out not only speed up and simplify the service process, but also ensure inclusivity by reaching all levels of society without exception. The success of digitizing these services can be the best model that can be adopted by other regions in implementing digital transformation to improve public services effectively and sustainably (Rahmawati & Susanto, 2025).

4.3 Level of Community Satisfaction and Response to SIAK Digital Services

The digital transformation of population administration services through SIAK in Badung Regency has had a significant positive impact on the level of community

satisfaction. Research by Rahmawati and Susanto (2025) shows that the implementation of digital services increases the ease and speed of access to population documents, which directly contributes to increasing user satisfaction. A community satisfaction survey conducted by the Badung Regency Population and Civil Registration Office in 2024 recorded a satisfaction rate of 87%, a significant increase compared to 72% in 2021 before digitalization was massively implemented (Dukcapil Badung, 2024). This indicates that the public responds positively to the ease of access, faster turnaround times, and ease of use of information technology-based services.

In addition, the comfort aspect is also an important factor in people's response to digital services. The study of Santoso and Wulandari (2022) states that people feel more free to access administrative services without having to come to the office in person, especially for vulnerable groups such as the elderly and people with disabilities who get services on the go through the "Go Laying Adminduk" program. Door to door services and services in smart villages increase inclusivity and equity in access to services, thereby strengthening public trust in local governments (Santoso & Wulandari, 2022).

However, not all public responses are positive without challenges. Research by Widiyanti and Pratama (2024) revealed that some communities still face obstacles related to digital literacy and uneven internet access in several areas of Badung Regency. This obstacle is an obstacle in the optimal use of SIAK services, especially for residents who are not familiar with technology. Therefore, local governments continue to conduct socialization and training on the use of technology to the community to overcome this digital gap and ensure that all levels of society can make maximum use of services (Widiyanti & Pratama, 2024).

Furthermore, the security and data privacy aspects are important concerns for the public in using population administration digital services. According to research by Handayani et al. (2023), personal data

protection through an integrated and secure system is the key to building public trust in digital services. Badung Regency has implemented strict data security protocols in SIAK to ensure the confidentiality and integrity of population data, so that the public feels safer in using these digital services (Handayani et al., 2023).

Overall, despite some challenges, the community's response to the digital transformation of population administration services in Badung Regency has been very positive and shows a significant trend of increasing satisfaction. This success strengthens the position of service digitalization as a strategic step for local governments in improving the quality of public services that are fast, easy, and inclusive. Therefore, the sustainability and development of SIAK's digital services is an important focus to ensure that all people can benefit from this innovation equally and sustainably (Rahmawati & Susanto, 2025).

4.4 Challenges and Obstacles in the Implementation of Digitalization of SIAK Services in Badung Regency

Although digital transformation in population administration services through SIAK in Badung Regency provides various benefits, its implementation is not spared from significant challenges and obstacles. One of the main obstacles faced is the limitation of technological infrastructure in some areas, especially areas that are still not fully accessible to stable and fast internet networks. According to research by Widiyanti and Pratama (2024), this inequality of internet access hinders the optimization of digital services, especially for people in remote villages who are not yet included in the coverage of adequate internet networks. This causes some people to still have to rely on conventional services which are more time-consuming and costly (Widiyanti & Pratama, 2024).

In addition, digital literacy obstacles are also significant obstacles in the optimal use of SIAK services. The study of Santoso and Wulandari (2022) revealed that not all citizens, especially the elderly and people

with low education, have sufficient ability and understanding to use digital applications and systems. This lack of understanding leads to a reliance on third parties or officers to access services, which can ultimately pose a risk of data errors or process delays. Local governments need to continue to pursue more intensive training and socialization programs to improve people's digital literacy (Santoso & Wulandari, 2022).

Another problem that arises is related to data security and privacy. Although SIAK has implemented strict security protocols, public concerns about the potential misuse of personal data are still an issue that must be watched out for. Handayani et al. (2023) emphasized that data protection is the main key in building public trust in digital services. Data leak cases in several other areas add to vigilance, so Badung must continue to strengthen the cybersecurity system and transparency of data use to ensure maximum protection for service users (Handayani et al., 2023).

In addition, human resource constraints are also an obstacle in the implementation of SIAK digitalization. According to the Dukcapil Badung report (2023), even though continuous training has been carried out, there is still a shortage of experts who are able to manage and develop the system optimally. These limitations can hinder innovation and quick response to technical issues that arise, affecting the overall quality of service. Strengthening capacity and recruiting competent IT human resources is a priority to ensure the smooth operation of SIAK in the future (Dukcapil Badung, 2023).

Finally, cultural constraints and resistance to change cannot be ignored either. Some communities and service workers are still comfortable with the manual system and show resistance to the use of new technology. This requires an effective communication and change management approach to change mindsets and increase acceptance of digitalization. Research by Rahmawati and Susanto (2025) shows that the success of digital transformation is highly dependent on organizational culture adaptation and the

active participation of all stakeholders (Rahmawati & Susanto, 2025).

The challenges and obstacles in the digitization of population administration services in Badung Regency are complex and multidimensional issues. However, with the right strategy, local government commitment, and active community participation, these obstacles can be minimized so that digital transformation can run optimally and provide maximum benefits for all levels of society (Widiyanti & Pratama, 2024; Rahmawati & Susanto, 2025).

5. CONCLUSION

The digital transformation of population administration services through the Population Administration Information System (SIK) in Badung Regency has brought significant changes in improving efficiency, ease of access, and quality of public services. With the implementation of innovations such as the integrated service "Badung Aku Sapa" and the mobile service program "Go Laying Adminduk," the community can take care of population documents more quickly, accurately, and inclusively, reaching all levels of society,

including vulnerable groups. The increasingly equitable support of digital infrastructure and the development of smart villages have also expanded access to services to the village level, while the implementation of Digital Population Identity makes it easier for people to store and use population documents practically. However, challenges such as limited internet networks in remote areas, low digital literacy among some citizens, and concerns about data security are obstacles that need to be addressed in an ongoing manner. Limited human resources and cultural resistance are also inhibiting factors in accelerating digital transformation. Therefore, the commitment of the local government in strengthening infrastructure, increasing human resource capacity, and conducting intensive education and socialization is the key to the success of the digitization of population administration services in Badung Regency. Overall, SIK's digital transformation has become an important milestone in the modernization of public services that can be used as a model for other regions in improving the quality of population administration services effectively, efficiently, and sustainably

REFERENCES

- [1] Antaranews Bali. (2020). *Digitalisasi layanan administrasi kependudukan di Badung percepat pengurusan dokumen*. Antaranews Bali.
- [2] Badung Kabupaten. (2020). *Program Go Laying Adminduk: Pelayanan Keliling Administrasi Kependudukan*. Badungkab.go.id.
- [3] Badung Kabupaten. (2024). *Implementasi Identitas Kependudukan Digital (IKD) di Kabupaten Badung*. Badungkab.go.id.
- [4] Dinas Kependudukan dan Pencatatan Sipil Kabupaten Badung. (2023). *Laporan pelaksanaan digitalisasi layanan administrasi kependudukan*. Dukcapil Badung.
- [5] Handayani, R., Putri, A., & Nugroho, S. (2023). Keamanan data dalam sistem administrasi kependudukan digital: Studi kasus Kabupaten Badung. *Jurnal Teknologi Informasi dan Sistem Informasi*, 12(1), 45-60.
- [6] Putra, I. G. N., Wijaya, A. B., & Santoso, D. (2021). Efektivitas layanan digital dalam administrasi kependudukan: Studi di Kabupaten Badung. *Jurnal Administrasi Publik*, 9(2), 78-92.
- [7] Rahmawati, S., & Susanto, H. (2025). Transformasi digital layanan publik: Analisis kepuasan masyarakat di Kabupaten Badung. *Jurnal Manajemen Pelayanan Publik*, 15(1), 112-130.
- [8] Santoso, T., & Wulandari, D. (2022). Literasi digital dan inklusivitas layanan administrasi kependudukan di era transformasi digital. *Jurnal Kebijakan Publik dan Administrasi*, 8(3), 99-115.
- [9] Widiyanti, L., & Pratama, F. (2024). Tantangan digitalisasi administrasi kependudukan: Studi literatur dan implementasi di daerah terpencil. *Jurnal Teknologi dan Inovasi Pemerintahan*, 10(2), 123-139.