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Analysis of Public Service Digitalization in the Creation of Population Identities at Padurenan Village, Bekasi City

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Abstract

Background The digitalization of public services has become one of the most important aspects of modernizing government administration, with the main goal of increasing the efficiency, transparency, and accessibility of services to the public.

Methods This research uses a descriptive qualitative method with a case study approach, involving interviews with relevant parties at the village level, such as government officials and local residents.

Results The research results show that digitalization provides convenience in terms of time efficiency, queue reduction, and ease of access to information through an integrated system. However, this study also identifies a number of constraints that are still faced, such as limited access to technology in some segments of society, low levels of digital literacy, and a lack of training and understanding of how to use existing digital systems.

Conclusions The digitalization of public services in the creation of population identities in Padurenan Village has had a positive impact on improving the efficiency of public services. The implementation of the Digital Population Identity (IKD) system allows citizens to verify their identity quickly and easily without needing to carry a physical ID card. Therefore, the successful implementation of digitalization depends not only on technological development but also on strengthening digital education for the public and improving supporting infrastructure.

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Introduction

Population identity is one of the most fundamental and important elements for every citizen. Population identity as proof of legality not only serves as a means of identification but also as a legitimate tool in various social, economic, and governmental administrative interactions. In modern governance systems, population identity has become a primary prerequisite for accessing various public services, such as healthcare, education, and other social rights. Without a valid national identity, it will be difficult for someone to obtain basic services that should be the right of every citizen.

Not only as a means of self-identification, population identity also makes it easier for the government to design more targeted policies. With accurate and integrated data, the government can plan and distribute social assistance more efficiently, as well as monitor population development in various regions. This identity also serves as a tool for every citizen to access various public services and facilities that are indeed their basic rights. Therefore, a well-organized and efficient identity creation system is crucial for achieving more transparent and effective governance.

However, despite the vital role of population identity, many citizens still face obstacles in obtaining valid documents. These challenges, such as limited access to technology or low digital literacy in some areas, prevent them from obtaining population identification. This is where digitalization plays an important role, namely by utilizing technology, the government can accelerate the process of creating and distributing population identities. This digitalization is expected to solve existing problems while also increasing efficiency and transparency in public services (Jopang & Supranoto, 2023).

The rapid development of technology is causing various sectors of human life to change, including the way governments provide public services. One of the significant impacts of this technological advancement is the emergence of online application-based public service systems (Burhanuddin & Ardiputra, 2023). Not only that, mobile technology also allows people to access population documents in digital form directly through their mobile devices. Through this application, identity information can be obtained quickly, and it supports various daily transactions and services. To address the various problems that often arise in slow, complex, expensive, and uncertain public services, the government has begun implementing an e-government system. In this concept, services are no longer provided face-to-face, but entirely thru electronic media (Yamin & Nur Fietroh, 2024).

One form of e-government implementation carried out by the Bekasi City Population and Civil Registration Office is the application of the Digital Population Identity (IKD) application. Based on the Ministry of Home Affairs Regulation Number 72 of 2022 Article 13 Paragraph 2, it is stated that "The digital form of the e-ID card as referred to in paragraph (1) is contained in the Digital Population Identity, which represents the Population in a digital application attached to a person registered as a Resident and ensures that the identity belongs to the person concerned." In this regulation, Digital Population Identity refers to the form of population identity presented in digital format, which stores a person's personal data in a form integrated with information technology systems. This identity is an electronic representation of a person registered as a resident in the population administration system, which can be accessed thru a digital application attached to that individual. Thus, Digital Population Identity serves as official and authentic

verification to ensure that the individual using the identity is the person concerned, based on the data recorded in the national population system.

Several studies have examined the digitalization of public services and the implementation of digital population identity (IKD) from different perspectives. Recent research at the policy and regional levels emphasizes that e-government and IKD initiatives improve administrative efficiency, reduce document printing costs, and facilitate public access (Permadi & Rokhman, 2023; Zainurrochim & Widia Nurdiani, 2024). Other studies focus on the technical and governance aspects, such as device specifications, data standards, and data protection under Permendagri No. 72/2022 (Permadi & Rokhman, 2023). Some research highlights practical challenges such as low digital literacy, limited device ownership, and poor internet connectivity as barriers to digital service adoption at the community level (Tamimatul Hasanah, 2024; Trisantosa, 2022). However, most of these studies are conducted at the district or city level and tend to focus on policy or technical analysis. Empirical documentation that captures the implementation process and citizen experiences at the village level remains limited.

Based on this review, two major gaps emerge: (1) the lack of in-depth qualitative studies exploring the implementation of IKD at the village level, focusing on the actual registration, verification, and interaction between village operators and citizens; and (2) limited analysis linking administrative efficiency (time, cost) with social inclusion dimensions such as digital literacy, device accessibility, and data security trust. This research fills the gap by conducting a descriptive qualitative case study in Padurenan Village, exploring operational processes, supporting and inhibiting factors, and the real impacts on service accessibility and equity. The contribution of this study lies in its focus on the village as a unit of analysis to understand the interconnection between technical, social, and administrative aspects of IKD implementation.

This study is grounded in two main conceptual frameworks: (1) the concept of e-government and digital public service transformation, which emphasizes how the adoption of information technology enhances efficiency, transparency, and accessibility in public administration; and (2) the concept of digital inclusion and digital divide, which highlights the necessity of access, digital literacy, and public trust to ensure equitable benefits of digitalization. The e-government framework helps explain how IKD transforms administrative processes (verification, document reduction, cost efficiency), while the digital inclusion perspective frames the analysis of enabling and constraining factors (device access, literacy, connectivity, and data security concerns) that shape adoption and social outcomes. Data analysis employs the interactive model of (Miles, 2020) for data reduction, presentation, and conclusion drawing.

The objectives of implementing IKD, as stated in Article 14 of Permendagri Number 72 of 2022, are not limited to adopting technology in the population administration system, but also include efforts to optimize the benefits of digitalization for society. One of the main goals to be achieved is to increase the utilization of digital technology in population data management, thereby making it easier for the public to access various administrative services, both public and private. In this context, the digitalization of population identities is not merely replacing physical ID cards with a digital format, but also serves to provide convenience for the public in verifying their identities without having to carry a physical ID card, accelerate access to public services, and make it easier for the public to obtain information related to personal data and family members (Yamin & Nur Fietroh, 2024). The Digital Population Identity application, although designed to make it easier for the public to access population document information, still receives negative feedback from some users. Some members of the public expressed concerns about the security of personal data

recorded in the system. This concern has the potential to lower public trust, which could hinder the achievement of the established goals. Therefore, efforts are needed to identify and address various factors that can support the successful implementation of this application so that it is more widely accepted and provides optimal benefits to the community.

The objectives of this study are to identify the process of public service digitalization in the creation of population identities in Padurenan Village, to examine the factors influencing the implementation of digitalization, and to evaluate the impact of digitalization on the ease and efficiency of service.

Methods

The method used in this study is a qualitative approach with a descriptive analysis method, where the researcher will approach the research object objectively and collect information based on the views of the researcher and informants (Yuliani, 2018). This data collection process can evolve with the interactions established during the interview. The data collection methods used by the researcher include interviews, observations, and inferences. Data analysis was conducted thru the stages of data reduction, data presentation, and drawing conclusions using the interactive model developed by Miles and Huberman (2013) in (Yamin & Nur Fietroh, 2024). Data Collection Data collection was carried out using various techniques, namely interviews, observation, and documentation regarding the implementation of population identity digitalization in Padurenan Village.

Data Reduction After the data is collected, the next step is to reduce the available information. This data reduction involves sorting and focusing on information relevant to the research topic. Data Presentation The reduced data is then presented in a structured format, making relevant information easier to analyze. This data presentation process aims to organize information so that relationships between data elements can be found, making it easier for researchers to understand existing patterns and gain a deeper understanding of technology implementation in public services in the field of population identity.

Results and Discussion
Digitalization of Public Services

Digitalization is the process of transforming data from a non-digital format to a digital one (Tamimatul Hasanah, 2024). This process involves converting information initially stored in physical form, such as written documents or manual archives, into a format that can be read and processed using computer technology. Digitization allows data to be stored in electronic systems, making it easier to access, manage, and distribute information more efficiently and effectively (Walo, 2021). In the context of public service, digitalization is not just about changing data formats, but also includes improvements in how services are delivered to the public (Reviandani et al., 2023).

Digitalization can be applied in various sectors, including population administration, which has become key to improving the quality of public services (Permadi & Rokhman, 2023). This process reduces reliance on manual systems prone to errors and makes access easier for the public, even in previously difficult-to-reach areas (Catherine Panggabean & Nur Laila Meilani, 2023). In the creation of population identities, such as ID cards, digitalization provides ease in the collection, verification, and management of population data, ultimately increasing time and effort efficiency.

Population Identity

Population identity is a document used to record the status and identity of a citizen in state administration. This population identity includes a National Identity Card (KTP), Family Card (KK), Birth Certificate, Marriage Certificate, and other documents related to a citizen's administrative status. For example, the electronic ID card, which is the official identity card for residents equipped with a chip, issued by the Implementing Agency as a form of self-identification (Tamimatul Hasanah, 2024).

The implementation of digitalization in the creation of population identities aims to accelerate the population administration process, minimize data errors, and facilitate data integration between agencies (Yumame, n.d.). Additionally, with an integrated digital system, population identities can also be more secure and difficult to forge, given the presence of biometric data verification (Dewi, 2020).

Process of Digitalizing Population Identity Card Services

IKD (Digital Population Identity) is a digital version of population data, such as an electronic ID card, which can be easily displayed using a smartphone (Zainurrochim & Widia Nurdiani, 2024). Based on Article 15 of the Minister of Home Affairs Regulation (Permendagri) Number 72 of 2022, it is stated that Digital Population Identity (IKD) has the following functions:

a) Proof of identity, which aims to prove who the owner of the Digital Population Identity is. This proof is done by verifying the registered identity data, so it can be ensured that the identity does indeed belong to the person concerned.

b) Identity authentication, which is used to verify the authenticity of a person's identity. The process involves several methods, such as checking identity data, biometric scanning (like fingerprints or facial recognition), and using verification codes or QR codes. All of this is aimed at ensuring that the person accessing the digital identity is truly its owner.

c) Identity authorization, which grants the owner of Digital Population Identity the right to control who can access their identity data. Digital identity owners can grant permission or authorization to other parties to access their data as needed (Regulation of the Minister of Home Affairs of the Republic of Indonesia Number 72 of 2022 Concerning Standards and Specifications for Electronic Identity Card Hardware, Software, and Blanks, as well as the Implementation of Digital Population Identity, 2022).

The implementation of digitalization in the creation of population identities in Padurenan Village began with the development of an application-based system directly connected to the Bekasi City Population and Civil Registration Office. This initial digitalization process begins by downloading the Digital Population Identity (IKD) application from the Playstore or Appstore. Next, the applicant accesses the application to fill in personal data, namely their National Identification Number (NIK), phone number, and active email address. After filling in the data, applicants are then asked to perform facial verification, which will be matched with the registered NIK data (Nawang, 2023). After the photo verification stage, applicants are directed to enter the operator room at the village office to scan the barcode associated with their data. After that, the applicant will receive an email containing a password to access the Digital Population Identity (IKD) application.

Figure 1. Appearance of the Population Identity Application (IKD)

Source: (Nawang, 2023)

Supporting and Inhibiting Factors of Digitalization

The implementation of digitalization in the creation of population identities in Padurenan Village is supported by several factors that contribute positively to the smooth process. One of the main factors supporting the successful implementation of digitalization is the availability of adequate facilities and infrastructure (Trisantosa, 2022). Padurenan Village has been equipped with the necessary technological devices, such as computers and a fairly stable internet network, which supports the smooth operation of the digital system. In addition, the availability of training for village officials also plays an important role in facilitating the transition from a manual to a digital system. Trained officials can easily operate the existing applications, there by increasing the efficiency of service to the community.

However, behind the various supporting factors, there are some quite significant obstacles to the implementation of this digitalization. These obstacles include:

a) First, there is a limited understanding of technology among most of the population, especially in older age groups. Many residents are less familiar with technology and digital devices, making it difficult for them to access and use the provided applications. This is a barrier for them to fully utilize the digital system in creating population identities.

b) Second, there is limited access to digital devices. Some residents, especially the elderly or those from economically disadvantaged families, do not have the necessary devices to access digital population identity applications. Although the applications are available, without adequate devices, they cannot use them to obtain population identity efficiently.

c) Third, confusion in using the system. Although digital systems are designed to make things easier, many citizens find it difficult to operate the applications, especially when it comes to uploading documents or filling out forms digitally. Lack of knowledge about the application's usage procedures often leads to anxiety and discomfort, which ultimately hinders the process of technology adoption.

d) Finally, the unstable internet conditions for residents. Although internet access in Padurenan Village is generally quite good, certain providers are still experiencing issues with internet

connection stability. This causes residents in the area difficulty accessing digital services, especially when they need to upload documents or verify their identity online.

Overall, although digitalization in population identity services offers benefits such as time efficiency, the obstacles related to limited technological knowledge, limited access to devices, confusion in using applications, and internet connectivity issues still require serious attention. Therefore, further efforts are needed to overcome these obstacles so that digitalization can be more inclusive and its benefits felt by all segments of society.

The Effectiveness of Digitalization in Public Services

Digitalization in the creation of population identities has brought a significant impact on service efficiency in Padurenan Village. One of the most noticeable benefits is reducing the cost of printing physical documents. Previously, to access public services, citizens had to bring a photocopy of their ID card as a requirement, which was very time-consuming. With the implementation of the Digital Population Identity (IKD), it is now easy to share population data in digital format thru devices with the application installed. Based on information from the Director General of Population and Civil Registration at the Ministry of Home Affairs, if digital population identities are successfully implemented, this will have a positive impact, especially in saving state funds. This saving is estimated to reach between 50 and 100 billion rupiah per year, as the procurement of electronic ID card blanks is no longer necessary (Permadi & Rokhman, 2023).

Comparison Before and After Digitalization Before digitalization.

The administrative process was more time-consuming and full of manual procedures. The public must bring various physical documents and wait for manual verification by the relevant officials. After digitalization was implemented, the procedures became much simpler. The public can directly access the application to upload the necessary data and documents. The data verification process, which previously took a long time, can now be completed in a short period, thanks to the application's integration with a larger system. As a result, the time required to obtain residency identification became shorter, and the public felt more comfortable.

Table 1. Comparison Before and After Digitization

Aspect	Before Digitalization	After Digitalization
Administrative Process	Requires a lot of physical documents and time	More efficient processes with digital applications
Service Access	Must come directly to the office	The service can be accessed online
Community Involvement	Limited to direct interaction	Community involvement increases through digital platforms

Source: Author's observations in 2024

In terms of public satisfaction, although most people welcomed this change positively, there were complaints regarding the difficulty of using the application, especially among residents who are less familiar with technology. Challenges like this highlight the importance of further

socialization and education for the public so they can better understand and maximize the use of this application.

Conclusion

The digitalization of public services in the creation of population identities in Padurenan Village has had a positive impact on improving the efficiency of public services. The implementation of the Digital Population Identity (IKD) system allows citizens to verify their identity quickly and easily without needing to carry a physical ID card. Administrative processes that previously took a long time can now be completed in just minutes. However, despite the convenience this digitalization offers, challenges related to digital literacy, device limitations, and internet connectivity issues still pose obstacles that need to be overcome for this technology to be more widely adopted. Therefore, the successful implementation of digitalization depends not only on technological development but also on strengthening digital education for the public and improving supporting infrastructure.

This research, however, has several limitations. The study was conducted only in one village (Padurenan Village), so the findings may not fully represent the implementation of the Digital Population Identity (IKD) in other regional contexts with different levels of infrastructure or digital literacy. In addition, the qualitative descriptive method focuses more on perceptions and experiences, which may limit the generalizability of the results.

For future research, it is recommended to expand the scope by involving several villages or districts to provide comparative insights into IKD implementation across different socio-economic and geographic conditions. Future studies can also adopt a mixed-methods approach that combines qualitative and quantitative data to measure the level of public satisfaction, efficiency, and inclusion more comprehensively. Moreover, further research could explore the role of digital literacy training and local government innovation in accelerating the adoption and trust of digital identity systems among citizens.

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