

# **Analysis of Digital Population Identification (IKD) Administration at Dukcapil**

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## **Abstract**

This reseach aims for the purpose analyze these administration of Digital Population Identity (IKD) managed by Dukcapil, with a primary focus on improving the efficiency and quality of population administration services in Indonesia. The technique employed in this analysis follows a qualitative descriptive approach, intended to identify the challenges in the implementation of the IKD application. These challenges include technological infrastructure limitations, lack of public awareness regarding the use of the application, as well as issues concerning data security and privacy protection for citizens. Data collection was conducted through direct observations, interviews with employees in the SIAK Dev Dukcapil division, and documentation from various secondary sources, such as journals, books, and relevant literature. This research also explores how the IKD application helps simplify administrative processes, particularly in the management of digital ID cards, which is expected to increase public trust in more modern and efficient public services. The findings show that although the IKD application brings significant benefits, especially in terms of accessibility and efficiency, there are several obstacles that need to be addressed, such as uneven implementation and limited public acceptance. Efforts to improve infrastructure, provide training, and conduct more extensive public outreach are crucial factors in ensuring the successful implementation of IKD across Indonesia. Thus, IKD can function optimally as a digital solution for population administration.

**Keyword:** Digital Population Identity (IKD), Population Administration, Dukcapil, Digital ID Card, Data Security.

## 1. Introduction

Due to Indonesia's large population, every resident is required to possess an identity document issued by the implementing agency, valid throughout the territory of the Unitary State of the Republic of Indonesia, known as the National Identity Card (KTP). The National Identity Card (KTP) is mandatory for Indonesian citizens (WNI) and foreign nationals (WNA) holding a Permanent Stay Permit (ITAP) who are 17 years old or older, or who are married (Elen, 2022). Thus, the National Identity Card (KTP) serves as an essential document for Indonesians, both domestically and abroad, as proof of identity.

In the current digital era, the Government of Indonesia has also enhanced the utilization of information technology. Digitalization has become a key innovation capable of improving efficiency, effectiveness, transparency, and the quality of public services. Innovations in technology, such as the use of digital platforms for public services, real-time data monitoring, and digital resource management, offer significant opportunities to enhance the performance of government services. (Ramadhan, 2024).

The utilization of information technology can be observed in various aspects of daily life, including education, business, and organizations. This drives governments and information providers to continuously develop information systems and technologies. The digitalization era has triggered profound transformations in management processes, with one of the key driving factors being the rapid advancements in information technology (Hendro Prabowo et al., 2023).

The Digital Population Identity (IKD) application is one such innovation developed by Dukcapil and launched in 2022, aimed at facilitating public access to digital versions of National Identity Cards (KTP). This application provides convenience for individuals with digital identity cards. However, like most innovations, the Digital Population Identity (IKD) also faces several challenges in its implementation.

Previous studies on the digitalization of population identity generally indicate that pilot projects for the Digital Population Identity (IKD) activation program have been carried out in accordance with the provided guidelines. However, various issues persist, particularly among residents in Kelurahan Kepara, Surabaya. These challenges include smartphones that are not compatible, residents without smartphones, low community enthusiasm, and slow devices used for the Population Administration Information System (SIAK) (Studi et al., 2023).

If successfully implemented, digitalization of population identity can benefit all stakeholders. The government can reduce costs by minimizing the need for physical electronic

ID card (e-KTP) blanks, while the public will experience greater convenience as physical e-KTPs are no longer required for administrative processes (Permadi et al., 2023).

In earlier research on service innovations by Dukcapil, the digitalization of population administration, such as e-KTP, has been shown to improve administrative efficiency and public services. Opinions from Generation X tend to be more optimistic and proactive in adopting this innovation. This generational difference highlights the need for tailored approaches when implementing the Digital Population Identity across different age groups (Yahya et al., 2024).

Other research shows that public service innovations in Bangka Regency have made significant progress in development. However, findings from the study indicate that these innovations have not been optimally implemented (Rahayu & Ibrahim, 2023).

The purpose of this research is to analyze the Digital Population Identity (IKD) application in Dukcapil's administration. This study examines the usefulness of IKD in improving administrative processes, identifies challenges in its implementation, and explores efforts made by Dukcapil to enhance the application's quality, such as feature development, data security, and user adoption.

## **2. Literature Review**

### **2.1 Application System**

Application design is a process carried out using various approaches to create a program interface that aligns with user needs (Azis et al., 2020). According to Romney and Steinbart (2016:3), a system can be defined as a collection of two or more interconnected components that interact to achieve specific objectives. Most systems consist of smaller subsystems that support the continuity and operation of the larger primary system (Cahyanti & Purnama, 2017).

The existence of application systems in the modern world is highly significant, especially in supporting various sectors such as business, education, healthcare, and government. In the business sector, for example, application systems are often utilized to manage sales processes, inventory, accounting, and customer relationships. By leveraging advanced technology, these systems can automate processes previously performed manually, saving time and reducing operational costs.

Application systems are designed with attention to several key aspects, including usability, reliability, security, and scalability. Usability refers to the ease of use of the interface, allowing users from diverse backgrounds to operate the system without requiring extensive technical expertise. System reliability pertains to the application's ability to function consistently without interruptions or malfunctions, ensuring workplace productivity. Data

security is a crucial factor, especially in today's digital era, where threats to personal and organizational data are increasingly prevalent.

## **2.2 National Identity Card (KTP)**

The National Identity Card (KTP) is an official identification document for every resident, issued by the authorized agency and valid throughout the Unitary State of the Republic of Indonesia. It is mandatory for Indonesian citizens (WNI) and foreign nationals (WNA) holding a Permanent Stay Permit (ITAP) who are 17 years old or older, or who are married or have been married. Additionally, children of WNA parents holding ITAP who are 17 years old are also required to possess a KTP.

The validity period of the KTP differs based on the holder's status. For WNI, it is valid for five years, with the expiration date adjusted to the holder's birth date and month. Meanwhile, for WNA, the validity aligns with their permanent stay permit duration. Specifically, individuals aged 60 and above are granted a lifetime KTP, which does not require renewal every five years (Permadi et al., 2023).

The purpose of the National Identity Card (KTP) is to serve as an official identification document and a formal declaration that an individual has reached adulthood. The KTP facilitates various matters, such as improving the accuracy of Indonesia's population data, simplifying administrative processes, ensuring legal certainty and protection for individuals, and safeguarding residents' personal data.

## **2.3 Digital Population Identity (IKD)**

The Digital Population Identity (IKD) application is an innovative solution enabling Indonesian citizens to have their National Identity Card (KTP) in digital form. The development of this application stems from the Ministry of Home Affairs, through the Directorate General of Population and Civil Registration (Dukcapil), which has set a target for 25% of Indonesia's population, amounting to 275,361,267 people, to adopt the Digital Population Identity (IKD). It is the responsibility of all Dukcapil offices at the regency or city level to encourage the public to transition to the Digital KTP (Alfarizi, 2023).

The IKD application serves as a legally recognized digital identity. It utilizes digital technology to replace, complement, and innovate traditional physical identity cards. The digital population identity comprehensively includes personal and biometric information unique to each individual, such as name, date of birth, address, identity number, photo, fingerprints, and more (Zakiy et al., 2024).

As a newly launched application, the IKD was officially introduced to the public in 2022. Initially, its use was limited to employees of Dukcapil offices at the regency and city

levels. However, since 2023, the IKD has been made available to all citizens. Despite its availability, the IKD still requires extensive socialization efforts to ensure widespread adoption of the Digital National Identity Card (Zakiy et al., 2024).

### **3. Material and Method**

#### **3.1 Design Study**

The design of this research uses a qualitative approach. The validity of qualitative research data highly depends on the information sources and the methods used to obtain the data. The information sources and data as research subjects are individuals who are most knowledgeable about the situation and conditions in the research background (Basrowi and Suwandi, 2008; Moleong, 2014). Therefore, in determining the research subjects, several factors need to be considered, including individuals who have been involved in the activities being researched for a long time and have sufficient time to provide the necessary information for the research (Wakarmamu & Si, 2022).

The location of this research is in the Dukcapil SIAK Dev Office, South Jakarta, Special Capital Region of Jakarta. The reason for this research is to analyze the administrative phenomenon for population management through the Digital Population Identity (IKD) application at Dukcapil.

The researcher conducted the research at the Population and Civil Registration Office (Dukcapil). The time frame for this research includes observation, interviews, and documentation, starting from July 2024 to November 2024.

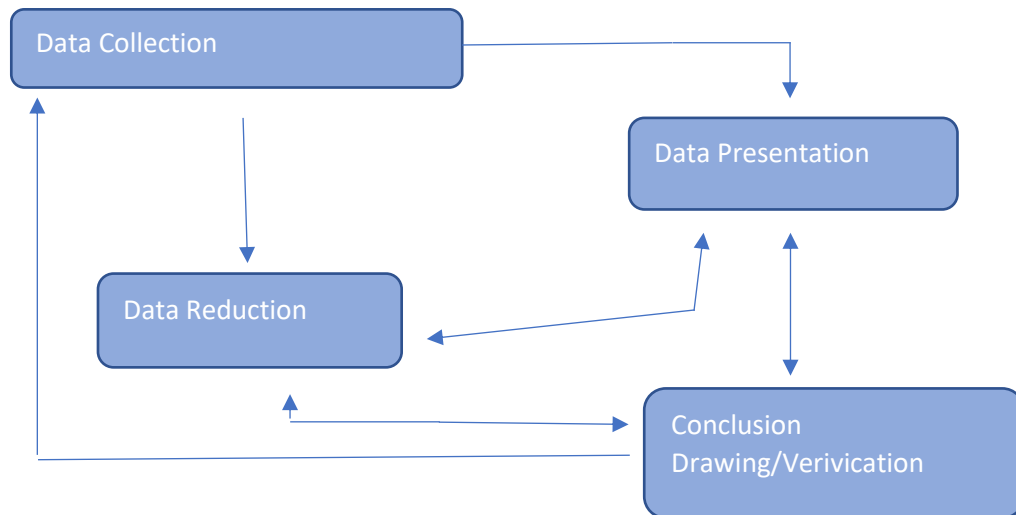
The sampling technique in this research uses non-probability sampling with a purposive sampling approach to obtain samples that meet the established criteria. Purposive sampling, as part of non-probability sampling, is a technique where each element or member of the population does not have an equal opportunity to be selected as a sample. This technique is used to select samples based on specific objectives, focusing on the population and specific goals of the research (Kotajawa & Santoso, 2024).

Based on this theory, the researcher selected four samples related to the research topic. These four samples provided the researcher with information and various aspects to enhance understanding and insights into the perspectives being studied.

#### **3.2 Data Analysis**

Primary data were obtained through interviews, observations, and documentation. Secondary data can come from various sources, such as books, reports, journals, and other information sources (Fadilla & Wulandari, 2023). The data analysis technique involves

grouping the data into units, creating descriptions, identifying patterns, selecting important information, and drawing conclusions so that the results can be easily understood by both the researcher and others (Jarlah et al., 2023).

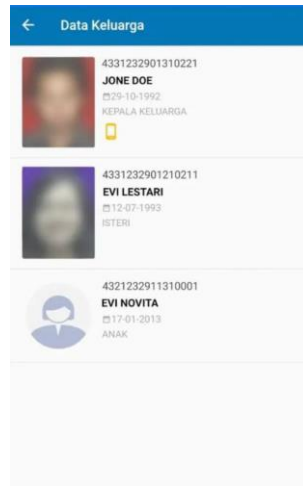


**Figure 1.** Research Model

#### **4. Result**

##### **Administration in the Digital Population Identity (IKD) Application**

The Digital Population Identity (IKD) application plays a crucial role in the administration of population data by enhancing efficiency, security, and accuracy in data management. This application stores and manages population data electronically, facilitates digital identity verification and validation, and reduces the risk of physical document forgery.



**Figure 2.** Population Administration

Source: IKD Application

The results of the researcher's observations and interviews reveal various perspectives from the participants:

- Participant A: Administration has improved due to the new service channel that allows document processing from remote locations.
- Participant B: Administration has decreased as physical documents are replaced with digital ones.
- Participant C: Administration has improved due to the new service channels opened by Dukcapil.
- Participant D: Services have become more efficient as offline services have been reduced, decreasing congestion at Dukcapil offices with limited capacity.

#### **Challenges in Administration on the Digital Population Identity (IKD) Application:**

The main challenge in implementing the IKD application is the low level of public awareness regarding the installation and use of the application. This is due to an inadequate system, which complicates the digital administration process and adds to the workload at the Dukcapil office.

Interview results with participants:

- Participant A: The complex system increases the workload at Dukcapil and prolongs service duration.
- Participant B: Challenges in system security and accessibility for all age groups.

- Participant C: The workload at the regional Dukcapil offices increases with the introduction of the IKD application.
- Participant D: A long time is needed to encourage all Indonesian citizens to use the IKD.

#### Dukcapil's Efforts to Maintain the Security of the IKD System

- Participant A: Data security is regulated following NIST standards, but overly strict systems can complicate public access and contradict the social justice principle of Pancasila's fifth principle. It is also important to raise public awareness to prevent data breaches due to human error.
- Participant B: The lack of user awareness in protecting personal data is the main challenge.
- Participant C: The internal governance and data security SOPs at Dukcapil need to be updated, and public awareness regarding data security must be improved.
- Participant D: Security and privacy standards are in line with international practices, but the public needs to understand the importance of maintaining their privacy and data security.

### **How Dukcapil Can Improve the Quality of the Digital Population Identity (IKD) Application to Facilitate Administration for the Public**

Based on the data above, a key barrier for Dukcapil in managing population administration is the inadequate system, which leads to a lack of public interest in installing the Digital Population Identity (IKD) application. To address this, the researcher interviewed participants A, B, C, and D:

- Participant A: "Continuously accepting and applying feedback from regional Dukcapil offices while also keeping up with developments in digital identity technology."
- Participant B: "Enhancing system security, expanding online services for handling population documents, as there are currently only 9 services, and improving the ease of use of the application for all age groups and individuals with disabilities."
- Participant C: "Developing a good and secure e-KYC or online onboarding feature so that the public can more easily create IKD accounts, and adding more population document services to the existing 9 service modules."
- Participant D: "Through development, by adding other useful features and maintaining the effectiveness of the application."

### **How Dukcapil Conducts Socialization of the Digital Population Identity (IKD) Application to the Public**

- Participant A: "The 'door-to-door' program, where Dukcapil visits regions directly for e-ID and/or IKD recording, has been very effective in increasing IKD registration and socialization. By increasing the frequency of this program and offering residents the opportunity to register for IKD after e-ID recording or when handling population documents at local offices, IKD socialization to the public can be expedited."
- Participant B: "More door-to-door programs should be held for registration and socialization about the importance of IKD in simplifying the management of population data."
- Participant C: "Making IKD a necessity for handling population documents, creating videos, digital media, and printed media to educate the public about using IKD."
- Participant D: "Socialization between Dukcapil offices and the community should also use the 'door-to-door' approach."

## 5. Discussion

### Administration in the Digital Population Identity (IKD) Application

The Population and Civil Registration Office (Disdukcapil), through digital services such as IKD, aims to improve administrative efficiency, expedite the processing of documents such as ID cards (KTP), family cards (KK), and birth certificates, and reduce queues at Dukcapil offices (Felix et al., 2024). The Population Administration Information System (SIAK) supports online data management, providing strategic benefits in policy formulation and population management (Jai et al., 2016).

The challenges faced include low public participation due to a lack of awareness in reporting population events, which can lead to inaccurate data (Aprilia & Nur, 2023). Therefore, the government is expected to design strategies that simplify population administration services (Romadhona & Nawangsari, 2023). The Disdukcapil service policy declaration demonstrates a commitment to improving the quality of public services (Kurniawan & Indrayana, 2024).

Based on interviews, participants A and C share similar views that administration has improved due to the new service channels through IKD. This makes it easier to manage documents without having to visit the Dukcapil office, especially for people who live far away. On the other hand, participant B states that administration has become lighter due to the shift from physical to digital documents. This change reduces the burden of conventional administration, such as printing, storage, and archiving physical documents, ultimately increasing work and service efficiency.

Participant D highlights the reduction of offline services as a positive impact of the implementation of IKD. This reduction helps decrease crowding at the Dukcapil offices, especially those with limited capacity. As a result, services become more optimal, and the public does not have to wait long to receive services.

Overall, the implementation of the digital system through IKD brings positive changes. Whether through improving administration by opening new service channels or reducing the burden of physical administration and offline services, these changes indicate a significant shift in the management and service of population documents, which is expected to enhance the efficiency and quality of public services.

### **Challenges in Administration on the Digital Population Identity Application (IKD)**

However, the implementation of the digital population identity faces several challenges and obstacles. One of the main issues is data security, as the public still feels uncertain about the government's data security due to news of cyberattacks in the public sector. Additionally, there is resistance to change, with people reluctant to switch to digital systems, perceiving digitalization as complex. Infrastructure problems also play a significant role and need to be addressed. The policy introduced since 2022 is still relatively new, and the public is not yet fully familiar with this service innovation (Nurdiana & Ayumi, 2024). As observed in the research conducted in Semampir District, another contributing factor to the low activation rate of the Digital Population Identity in Semampir is the limited acceptance of the Digital Population Identity by private institutions. Nia Audina, a Semampir District employee, revealed that this often becomes a barrier for the public in using the Digital Population Identity for various transactions or dealings with private institutions (Wati & Pradana, 2024).

A portion of the population is still out of reach of this program, especially those with limited access to technology. Therefore, maintaining the sustainability of this program becomes crucial by integrating digital literacy into the educational curriculum and ensuring continuous access to training and outreach for the public (Sugandini & Novaria, 2024).

Several issues found include unattractive interface design, complicated menus, the activation process that still requires in-person visits to the Population and Civil Registration Office, and low image quality (Yulanda & Frinaldi, 2023). Efforts to address these challenges include increasing outreach and education to the public and providing direct assistance with the installation and activation of IKD in public places (Nuraeni & Syahrudin, 2024).

Based on the interview results, several challenges and key issues related to the implementation of the Digital Population Identity Application (IKD) at Dukcapil are identified. Participants A and C expressed that the IKD application system has increased the workload at

Dukcapil, particularly in rural areas, due to the complexity of the system, which makes it difficult for people to process population documents. This results in longer service durations and highlights the need for system simplification to make it easier for people to access services. Furthermore, Participant D noted that the process of encouraging users across Indonesia to adopt the IKD application takes time, and therefore, adoption is not yet widespread, especially in areas with low digital literacy.

Participant B emphasized the importance of making the IKD application usable by all age groups, considering the technological skill gaps between generations in Indonesia. Public awareness also remains a key challenge in ensuring data security, as pointed out by Participants A, B, and C. They highlighted the low awareness among the public in protecting population data, which could lead to data breaches due to user errors. Additionally, Participant C stressed that Dukcapil needs to improve internal governance related to the IKD application and update data security standard operating procedures (SOPs) to keep up with the latest technological developments.

Although Dukcapil has followed international security standards, such as NIST, Participant A revealed that overly strict security implementations could make it difficult for users to access the IKD application, which conflicts with the principle of social justice in the fifth principle of Pancasila. Therefore, it is necessary to strike a balance between safeguarding data security and ensuring the application remains accessible to all people. From these interviews, it is recommended that Dukcapil improve the usability of the IKD application, conduct outreach to raise public awareness about personal data security, strengthen internal governance, and balance security with ease of access. The success of the IKD application's implementation depends not only on technological development but also on the public's ability and understanding of how to utilize the technology effectively.

### **How Dukcapil Can Improve the Quality of the Digital Population Identity Application (IKD) to Facilitate Administration**

The Digital ID (IKD) application offers several advantages in supporting the digitization of population data through the application of information and communication technology. This application enhances the use of digital identity for the public, accelerates and simplifies the process of public and private service transactions digitally, and protects citizens' identities through authentication systems to prevent fraud and data breaches (Ali et al., 2023). In the process of population document services, the public has expectations and demands for these services to be delivered with high quality. This drives local governments, particularly Dukcapil, to continuously innovate in providing population document services (Sasongko,

2023). Our community service activities aim to provide education and outreach to the public regarding the activation and information related to the Digital Population Identity Application (IKD) (Nursyarif et al., 2024).

The government continues to improve the quality of administrative services by transitioning population identification data from a physical format to a digital format. Through the digitalization policy of the Electronic Identity Card (KTP), this data can now be accessed through an application in the Play Store on specific smartphones (Widianis & Sukraaliawan, 2024). Adequate facilities include good technological infrastructure, such as fast and stable internet networks, appropriate hardware like computers or smartphones, and a conducive environment for the activation process (KHAIRIL & Dr. Gatingsih, 2024).

From the interview results, it appears that improving the implementation of the Digital Population Identity Application (IKD) requires several steps of development and effective outreach. Participant A emphasized the importance of receiving and applying feedback from regional Dukcapil offices and keeping up with the developments in digital identity technology. Participant B highlighted the need to enhance system security and expand online services, hoping to make it easier for all age groups, including people with disabilities. Additionally, Participant C suggested developing secure e-KYC or online onboarding features so that the public could more easily create an IKD account and expand the current nine population document service modules. Participant D added that adding new features and maintaining the application's effectiveness are also crucial.

Regarding outreach to the public about the IKD application, participants agreed that the "door-to-door" program implemented by Dukcapil is very effective. Participant A explained that by directly visiting communities for KTP-el and IKD recording, the registration and outreach numbers can be increased. By increasing the frequency of this program and offering residents the opportunity to register for IKD after the KTP-el recording, Dukcapil can accelerate the outreach of the application to the public. Participant B added that more door-to-door programs are needed for registration and outreach on the importance of IKD in facilitating population data management. Participant C emphasized the importance of making IKD a necessity for population document processing and using both digital and print media to educate people on how to use IKD. Finally, Participant D noted that the "door-to-door" approach between regional Dukcapil offices can be an effective strategy in introducing the application to the public.

Overall, these steps reflect Dukcapil's commitment not only to develop the application but also to ensure that the public understands its benefits and how to use it, thus making the population administration process more efficient and inclusive.

## **6. Conclusion, Implication, and Recommendation**

Based on the analysis conducted, it can be concluded that the Digital Population Identification (IKD) application has had a positive impact on population administration at the Population and Civil Registration Office (Dukcapil). IKD has facilitated public access to population documents digitally, reduced the burden of manual administration, and increased the efficiency of population data management. However, despite the significant benefits, the implementation of IKD still faces several challenges. The main challenges include the lack of public understanding about the importance of IKD, limitations in technological infrastructure in some areas, and concerns about the security of personal data, which have caused the public to be reluctant to use the application. These factors affect the smooth operation of administration at Dukcapil.

In addition, the quality of the IKD application still needs to be improved, particularly in terms of user-friendliness, response speed, and data security. The public requires more socialization regarding this application, as well as improvements in the internal governance of Dukcapil concerning the use and security of data. It is hoped that this will increase public trust in the application, allowing the population administration process to be more efficient and secure.

Theoretically, this research contributes to the development of theories related to the digitalization of population administration, particularly in enriching the understanding of the application of information technology in public services. These findings can serve as a basis for further research in this field, both in the context of administrative digitalization theories and in case studies related to the implementation of other digital systems. Practically, this research shows that the implementation of IKD can improve Dukcapil's services by reducing manual workloads and providing easier access for the public. Dukcapil can use these findings to expand the use of IKD, strengthen internet connectivity in hard-to-reach areas, and improve the security of the application to gain greater public trust. These efforts are expected to improve the quality of public services and enhance public confidence in digital administrative services.

The researcher acknowledges that this study has several limitations that need to be addressed. One of the limitations is the limited data sources, as it only relied on interviews with four Dukcapil participants, which may not fully represent all operational aspects and challenges from various regions in Indonesia. Additionally, this study lacks respondent variation, as it only involved Dukcapil employees without direct involvement from the public as end users of the IKD application. The short research period also constitutes a limitation, as it may affect the depth of data collection, particularly in understanding broader challenges faced by society.

Based on the discussion and conclusions presented, the researcher provides several recommendations for future studies. First, future research should involve a broader range of respondents, both from Dukcapil's internal staff and from the public in various regions, to provide more comprehensive results. Second, future research could focus on further exploration of data security in the IKD application, conducting case studies on risk mitigation

efforts related to security issues. Finally, testing the effectiveness of socialization programs should be conducted to assess the level of public understanding and acceptance of the IKD application. This could provide deeper insights into how the public accepts and utilizes this digital service.

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