



# Analysis of the Effectiveness of the Integrated Public Service Information System at the Department of Population and Civil Registration (Dukcapil)

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DOI:

<https://doi.org/10.53697/jkomitek.v5i1.2803>

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Received: 06-04-2025

Accepted: 17-05-2025

Published: 28-06-2025



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**Abstract:** *The development of information technology has encouraged government agencies, including the Population and Civil Registration Service (Dukcapil), to adopt a digital-based public service information system. This study aims to analyze the effectiveness of the integrated public service information system at Dukcapil using the DeLone & McLean model which includes six dimensions: system quality, information quality, service quality, usage, user satisfaction, and net benefits. The research method used is descriptive qualitative through interviews and observations. The results of the study indicate that the information system has helped speed up the service process and increase transparency, but there are still obstacles such as an unfriendly system interface, data errors, low adoption of Digital Population Identity (IKD), and literacy gaps. digital access in the community. This study recommends improving system quality, training officers, expanding IKD socialization, and strengthening digital education for vulnerable groups to ensure equitable and optimal access to services.*

**Keywords:** Information Systems, Public Services, Dukcapil, DeLone & McLean, IKD

## Introduction

The digital era has transformed the paradigm of public services in Indonesia. Effective and efficient public services are a key indicator of government quality. The Population and Civil Registration Service (Dukcapil) plays a strategic role in providing population administration services such as issuing ID cards (KTP), family cards (KK), birth certificates, and other services. However, in its implementation, various issues remain that hinder the effectiveness of these services.

Several issues have emerged in the implementation of the Civil Registration and Population (Dukcapil) service. One frequent issue is the low level of implementation of Digital Population Identity (IKD). Many residents have not yet registered for their KTP (National Identity Card) due to a lack of public knowledge about IKD and the perceived complexity of the activation process. Another frequent issue relates to data errors in population documents, such as names that do not match those on KTPs and birth certificates. This problem is caused by limited human resources. If these emerging issues

are not addressed promptly, the impact will be far-reaching. Inaccurate population data can hamper development planning and government decision-making.

Furthermore, the public will have difficulty accessing other public services, such as education, health care, and social assistance, which require valid population documents. This aligns with the mandate of Law Number 24 of 2013 concerning Population Administration, which states that the government is obliged to guarantee the accuracy of population data and provide services that are fast, precise, and without discrimination. Public dissatisfaction with Dukcapil services can also reduce public trust in the government. As indicated by the public satisfaction index (IKM) (2020), Dukcapil, which is still at 75.2, is in the good but not optimal category. To date, the performance of government public services is still considered inadequate in the eyes of the public. However, in the current era of regional autonomy, the government is closer to and understands the needs of the community, and is more responsive to serving.

There are various studies that have been conducted related to the effectiveness of public service information systems, such as research conducted by (Paskalis, 2024) entitled "Design and analysis of population administration service information systems as e-government development in Lowokwaru District" concluded that the creation of a population information system can help in processing population data, with the existence of such an information system can facilitate population reports based on data that has been input into the information system. Another study by (Amanda, 2021) entitled "Testing the Success of the SIPADES Application Information System in Situbondo Regency with the DeLone McLean Model". This study shows that system quality, information quality, and service quality have a significant effect on user satisfaction and the overall success of the system. The DeLone and McLean models are used to measure the overall level of success of the information system.

The next study, entitled (Azizul Kholis, 2020) "Analysis of the DeLone and McLean Model on the Implementation of the Medan City Government Accounting Information System," showed that the dimensions of system quality and service quality have a positive relationship with user satisfaction, which ultimately impacts the success of the information system. The study, which directly discusses the Quality of Public Services at the Population and Civil Registration Service (Disdukcapil) of Magelang Regency, concluded that the results of this study indicate that the quality of public services at the population and civil registration service in the assessment dimension is still lacking, and the public hopes for more digitalized services and increased human resources.

However, in line with this, there is research that (Nesdi Evrilyan Rozanda, 2024) shows something different, because according to the results of this research, there is no influence of information quality on user satisfaction.

Thus, the novelty of this research lies in the understudied local context of South Nias Regency, an island region in North Sumatra Province, which faces various challenges in providing effective population services. Therefore, this research is crucial to analyze the effectiveness of the integrated public service information system at the Civil Registration and Civil Registration Agency (Dukcapil), with the aim of identifying emerging problems

and providing recommendations for appropriate solutions to improve the quality of service to the public.

## Literature review

### Public Service Information System

An information system is a system in an organization that meets daily needs that support the organization's operational functions that are managerial in nature, processing transactions with the strategic activities of an organization to be able to provide certain external parties with the information needed to make decisions (Mahendra jaya, 2021).

Information system-based public services have special characteristics that distinguish them from information systems in the private sector. Where public service information systems must consider broader aspects of accountability, transparency, and accessibility. Public service is not just a single activity, but can consist of several steps or sequential processes as Fulfillment of basic service needs that Public services aim to meet the basic needs of the community, such as the need for education, health, and security. (Natika, 2024). Dukcapil is a structured government organization that involves information technology in providing services. The use of information technology in general plays a very important role in the development of the organization. Likewise, if the development of information technology can be applied to the small and medium business sector, it can increase the selling value of the sector (Asrul Sani, 2019).

This, of course, also impacts public sector services. The use of this technology significantly impacts the quality of public services. Convenience, speed, accuracy, and security are the four main indicators of information quality that the public focuses on when accessing information within a public institution's dashboard system. (Aang Subiyakto, 2021).

Public service information systems can fulfill public service needs so that human resource performance, service quality, and competitiveness between public sectors can increase (Nur Nawaningtyas Pusparini, 2020).

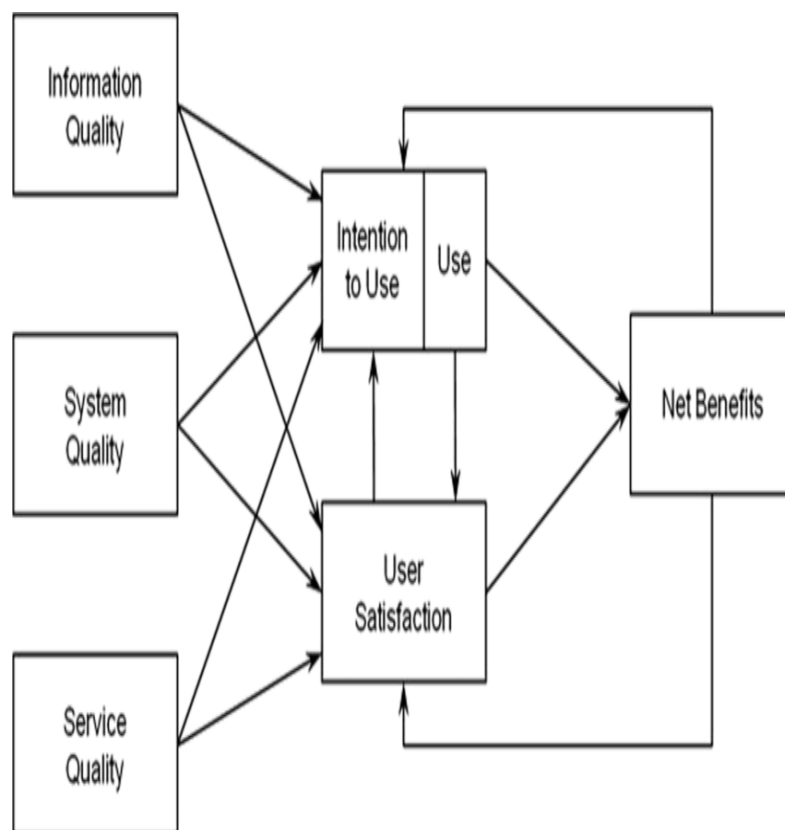
### DeLone & McLean Information Systems Success Model

The theory used in this study is the DeLone & McLean system success model created by William H. DeLone and Ephraim R. McLean, published in 1992 and updated in 2003. (Mclean, 2014) This model aims to evaluate the extent to which an information system provides benefits to its users. The DeLone & McLean model has 6 main dimensions for weighing the success of an information system, namely:

1. *System Quality*: Assesses the extent to which an information system is reliable, easy to use, responsive, and flexible.
2. *Quality*: Measures the accuracy, completeness, relevance, and timeliness of the information generated by the system.
3. *Service Quality*: Relates to technical support and services from system providers to users.
4. *Use (Usage)*: The frequency and way users use the information system in their activities.

5. *User Satisfaction*: The level of user satisfaction with an information system based on user experience.
6. *Net Benefits*: The positive impact that the system has on work effectiveness, decision-making, and public services in general.

*DeLone & McLean's* theory is relevant because it provides a structure for measuring the success of information systems, encompassing various dimensions such as system quality, information quality, service quality, system usage, user satisfaction, and net benefits. This theory has certainly been widely applied in various public sectors to evaluate the effectiveness of government information systems. In this study, this theory will be used to identify the strengths and weaknesses of the digital-based public service system used at the Civil Registration Agency (Dukcapil).



**Figure 1. DeLone & McLean Information Systems Success Model**

*Source: The DeLone and McLean Model of Information Systems Success: A Ten-Year Update(2003)*

From the figure above, we can conclude that the quality of information systems and services influences user behavioral tendencies and satisfaction, where user tendencies will lead to actual use. Users and user satisfaction will contribute to net benefits, and from this, net benefits can provide positive feedback on satisfaction and usage intentions.

### **Challenges of Implementing Public Information Systems**

The implementation of digitalization of public services, particularly in population information systems, is inevitably fraught with challenges. The most common challenge

encountered is low digital literacy among the public. In his research, (Reynalda Resty Wila, 2024) The East Sumba region found that adoption of Digital Population Identity (IKD) remains very low due to a lack of public understanding of digital technology. This is in line with research (Irfan Rifandi Rahmat, 2024) which states that the effectiveness of online services depends heavily on the community's readiness to use digital devices and the availability of supporting infrastructure. Inequality in access to technology is also a major cause of the unequal distribution of benefits from information systems in remote areas.

(Amirulkamar, 2024) explained that low public digital literacy hinders the public's ability to understand and use government digital services. Ethical structures are also a consideration when citizens encounter digital service technology. In the era of the Industrial Revolution 4.0, the implementation of information systems in public services faces various complex challenges. (Roman Hadi Saputro, 2021) highlighted that one of the main challenges is limited access to public services for people living in remote areas. Digitalization is expected to be a solution to the problems of limited time and distance, but its implementation is not yet fully equitable. Many people still feel disappointed with the quality of public services provided, both in person and online, because services are not fully optimal. On the other hand, the readiness of human resources (HR) is also a major obstacle. Without the support of HR capable of operating and understanding digital technology, the information systems developed will only be a formality without any real benefits felt by the public.

## Research methods

This study uses a qualitative approach with a descriptive type to understand and explore in depth the experiences, perceptions, and obstacles of users, both the public and Dukcapil officers, regarding the use of an integrated public service information system using the DeLone & McLean (2003) model as an analytical framework. According (Sugiyono, 2020) to obtain qualitative data, data collection is carried out in a translanguaging manner, the data analysis used is also inductive based on the facts found in the field. Qualitative methods are applied to examine the conditions of natural objects that emphasize meaning rather than generalization. In this study, a descriptive qualitative approach is used because humans are the main research instrument and the written results are in sentences that are in accordance with the facts.

Data analysis in this study used a thematic approach that follows the stages according to (Matthew B. Miles, 2014), namely data reduction, data presentation, and conclusion drawing/verification. This process was carried out systematically to explore the meaning of qualitative data obtained through interviews and observations.

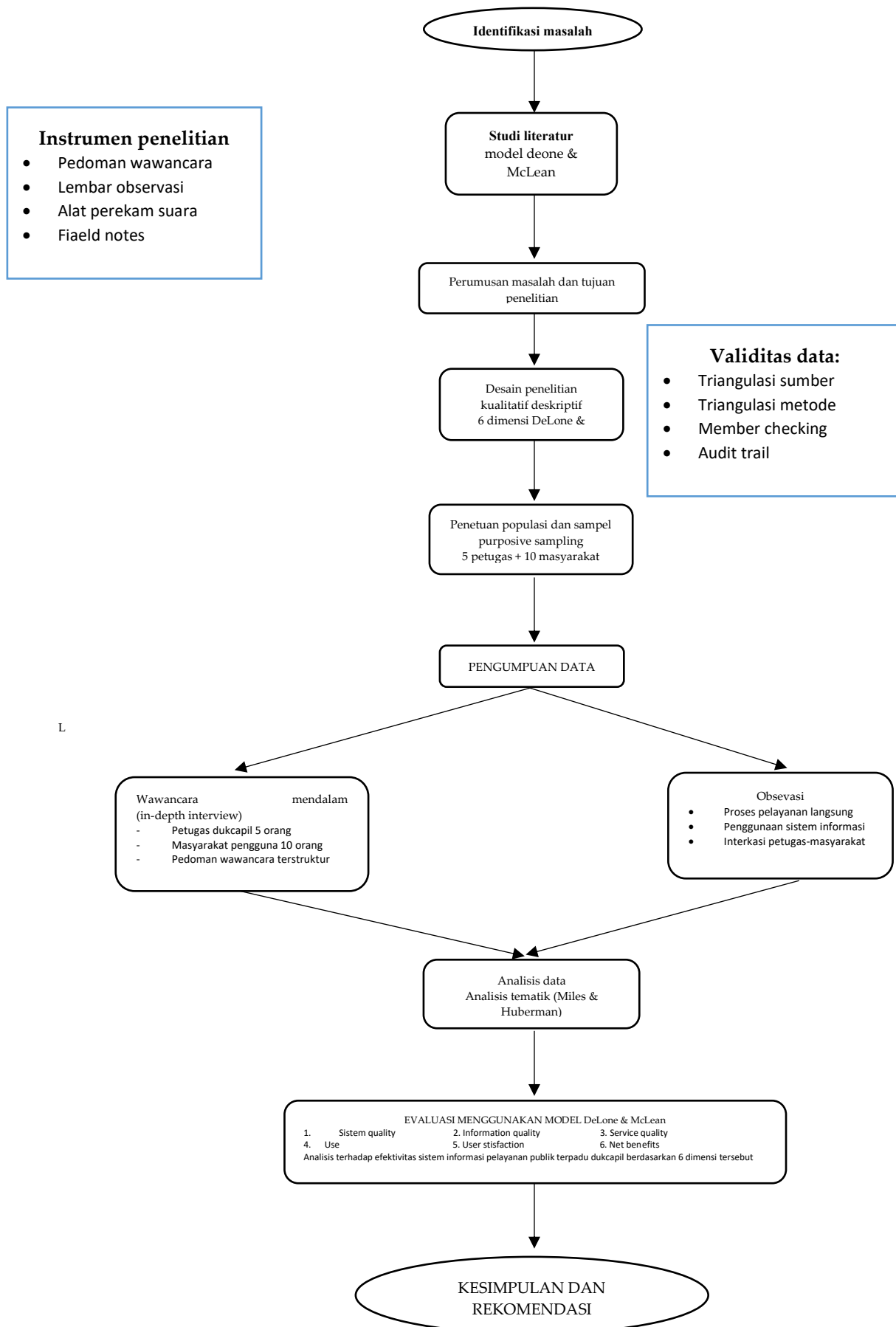


Figure 2. Research Method Flowchart

## Population and Sample

The population in this study were Dukcapil officers and community service users. The research sample used a purposeful sampling technique with the criteria, 5 officer informants had experience using the system for at least 1 year, and represented various service areas (KTP, KK, Birth Certificate, etc.). The selection of informants from the community was 10 people, who had experience using Dukcapil services at least 3 times in the past year.

## Data collection technique

In-depth interview (in depth interview) Interviews will be conducted with employees or key informants to obtain in-depth information about the implementation of the system according to the DeLone & McLean model. Interviews will be conducted based on questions that have been prepared.

## Observation

Observations were conducted to directly observe the service process and use of the system to facilitate the provision of services to the public, and were conducted during working hours to obtain a more realistic picture.

Data analysis techniques

Data analysts use thematic analysis techniques with stages of data transcription, cross-case analysis, interpretation and triangulation.

## Results and Discussion

### System quality

Interviews and observations revealed that the integrated public service information system at the Civil Registration and Registration Office (Dukcapil) has fairly good system reliability. Dukcapil officers stated that the system rarely experiences fatal disruptions, but they still encounter challenges in accessibility and system response speed. Several officers stated that the system still needs interface improvements to make it easier to understand. *"The existing system is actually quite helpful, because data is stored immediately. Sometimes we have to use manual methods again due to system errors or slow networks. Some of us are also confused about system updates."* (P1, KTP service officer)

From a technical perspective, employees complained about the user interface being less intuitive and requiring additional training for officers, and regular training to keep pace with system developments.

### Information Quality

Regarding public complaints about different names on birth certificates and ID cards, it can be said that there are still shortcomings in the synchronization between data.

*"The current system doesn't automatically correct entries, so each entry has to be checked individually, as duplicate data or name errors are often found during manual input."* (P 2, birth certificate officer)

*"When I made a family card, my child's name was written incorrectly, so I had to go back and forth to the office to fix it." (M1, resident)*

This clearly indicates the need for improvements in the automatic data validation and updating mechanisms. Overall, the system is quite accurate in storing data, but improving quality requires integration.

### **Service quality**

Interviews with the public showed that the service provided by officers was quite friendly, but the limited number of officers was an obstacle to fast service.

*"The staff are friendly, but the queue is still long, often the solution that occurs when there is a data error is to come back another day." (M3, Resident)*

*"Sometimes we forget our account, so we go to the helpdesk. We have to wait a long time because there's only one person on staff." (M4, Resident)*

Information systems don't yet fully support automated problem-solving, requiring officers to perform numerous manual processes. This prevents public complaints from being resolved quickly, as reliance on officers remains high.

### **System Usage (Use)**

Observations have shown that the system is routinely used in service processes, from registration to document printing. Digital population identity (IKD) adoption remains low due to limited public awareness and understanding.

*"My child helps me take care of everything, so I don't understand anything about digital identity." (M2, Resident)*

*"I'd rather have it printed manually, I'm afraid the digital version will lose data or I won't be able to open the application." (M6, Resident)*

In addition, parallel use of digital systems and manual recording is still found, which indicates that the digitalization transition has not been maximized.

### **User Satisfaction**

Many people complain about dissatisfaction regarding waiting times, data errors and complicated data correction processes.

*"The system is fast, but correcting the data is still difficult, requiring me to bring a lot of documents and wait quite a long time to change my incorrect name." (M5, Resident)*

However, some people also appreciate the digital system because it speeds up the administration process compared to manual methods. User satisfaction has a strong impact on service speed and data accuracy.

### **Net Benefits**

While not yet fully optimized, the Civil Registration and Civil Registration (Dukcapil) service information system has provided significant benefits, such as increased transparency of processes that can be checked through the app. However, these benefits have not been felt equally by all residents due to disparities in technology use, which tends to be more pronounced among the elderly.

From the results of the interviews and observations that I conducted, there were opinions from visitors who said, " *Now the process is more open, it can be checked in the application, but not everyone can use it, especially parents.*" (P3, Helpdesk Officer)

This situation clearly demonstrates the urgent need for digital education so that all levels of society can enjoy the benefits of information systems. (T. Husain, 2020) It states that if consumers receive good service, as a form of their rights, it adds value to a company, leading to consumers continuing to transact with that company. This also applies to government services; good service will encourage people to continue using government services and not switch to private sector services.

**Table 1. Summary of Findings Based on the DeLone & McLean Model**

<b>Dimensions</b>	<b>Field Findings</b>	<b>Important Issues</b>	<b>Recommendation</b>
<b><i>System Quality</i></b>	The system is quite reliable, used routinely by officers.	Need technical training.	Regular training for officers
<b><i>Information Quality</i></b>	The data is quite accurate, but there is a discrepancy in the names on the documents.	Data validation is not yet automatic, causing weak synchronization between systems.	Strengthening integration and automatic data validation.
<b><i>Service Quality</i></b>	Friendly staff, existing systems help speed up service.	The number of officers is limited, the system cannot yet automatically handle complaints.	Add human resources, and develop automated handling features.
<b><i>Use</i></b>	Routine systems are used, covering various stages of service.	Digital Population Identity (IKD ) is not fully utilized.	Accelerate the digital transition, and actively socialize IKD.
<b><i>User Satisfaction</i></b>	The system speeds up service, some people are satisfied.	Complaints about data correction and long waiting times.	Optimizing service flow.
<b><i>Net Benefits</i></b>	Increased transparency makes services more efficient.	The digital gap is still felt, especially among the elderly.	Creating inclusive digital literacy for the community about IKD.

## Conclusion

Based on research conducted on the effectiveness of the integrated public service information system at the Population and Civil Registration Service (Dukcapil), it was concluded that the implemented information system has had a positive impact on accelerating the service process and increasing transparency in population administration. The analysis applied to the DeLone & McLean model shows that the six dimensions of

system quality, information quality, service quality, usage, user satisfaction, and net benefits contribute differently to the overall system effectiveness.

The system quality is considered quite reliable, but still requires improvements in terms of user interface and technical training for officers. Information quality still faces challenges in terms of validation and data synchronization between documents. Service quality is hampered by the limited number of officers and the suboptimal automation features in the system. System use is widespread, but adoption of the Digital Population Identity (IKD) remains low due to a lack of public understanding and socialization. User satisfaction varies; some feel the system is helpful, while others still complain about waiting times and the data correction process. In terms of net benefits, the system has increased transparency, but the benefits have not been felt evenly due to the digital literacy gap, especially among the elderly and vulnerable groups.

Thus, the success of an integrated public service information system depends not only on the technology currently in use, but also on the readiness of human resources, the inclusiveness of digital literacy, and the continuity of evaluation and development of the system as a whole. This study emphasizes the importance of strengthening the technical, social, and educational aspects so that the digital transformation of public services truly has a broad and equitable impact on all levels of society, particularly in South Nias Regency.

## Recommendation

To improve the effectiveness of the service information system at the Civil Registration and Population Administration (Dukcapil), the system's appearance needs to be improved to make it easier for officers and the public to use and understand. Officers also need regular training to operate the system optimally. Data synchronization between documents must be improved to minimize data errors. Furthermore, public awareness campaigns about Digital Population Identity (IKD) must be expanded, especially for those unfamiliar with digital services. Dukcapil also needs to develop automation features to handle service processes and complaints more quickly without always relying on officers. Digital education efforts for vulnerable groups, such as the elderly, are crucial to ensure that all levels of society can enjoy the benefits of this system equitably.

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