

# Digital Transformation in Public Services: Adoption of the National Digital Identity System

Rangga Setiadi Rachmawan<sup>1</sup>, Sri Wulandari<sup>2\*</sup>, Hendri Suwarsono<sup>3</sup>

Faculty of Social and Political Sciences, Universitas Swadaya Gunung Jati, Cirebon, Indonesia

Author Email: [rangga.122090121@ugj.ac.id](mailto:rangga.122090121@ugj.ac.id)<sup>1</sup>, [sri.wulandari@ugj.ac.id](mailto:sri.wulandari@ugj.ac.id)<sup>2\*</sup>, [hendrisuwarsono@ugc.ac.id](mailto:hendrisuwarsono@ugc.ac.id)<sup>3</sup>

**Abstract.** Digital Population Identity (IKD) is a population administration application implemented as a government policy to facilitate public access to population data. The objectives of this study are to analyze the use of IKD as a means of facilitating access to digital information, to identify barriers to its use, and to examine efforts to address these barriers. The method used in this study is research subjects are heads of population administration information management divisions, serving as key informants. The study applies Vial's theory of digital transformation, which comprises six dimensions: the combination of information technology, organizational change, the creation of new value, organizational culture, organizational structure, and organizational strategy. The results of the study indicate that the IKD application facilitates the public's access to digital population administration services, thereby saving time, effort, and costs. Challenges in its implementation include application glitches, network limitations, low digital literacy among some members of the public, and uneven outreach efforts.

**Keywords:** Digital Transformation, Public Services, Digital Identity, Civil Registration, Digitization

## 1 Introduction

Public service is the manifestation of the rights that the government grant to the public in accordance with applicable regulations (Salsa Bella et al., 2022). As stated in Regulation No. 25/2009 on public services, the purpose of providing these services is to establish relationships and define the boundaries of rights, obligations, authorities, and responsibilities of each party, based on laws and the general principles of good governance, to ensure legal security and protection for the public. The government, as a provider of public services, must fulfill its duty to provide services to the public with high-quality service that may take the form of new ideas or creative concepts that benefit the public, either directly or indirectly. This innovation does not always involve discovering something entirely new but may encompass new approaches, expansions, or improvements to the quality of existing public services.

In recent years, digital transformation has become a global phenomenon. Various aspects of life have been transformed by the adoption of digital technology. This has changed the way people think, act, and interact with one another and with organizations. This development has many consequences, some of which are positive. Conversely, the shift toward a digital economy also opens up many opportunities for business innovation and economic growth. However, to maximize these opportunities, the government, educational institutions, and the public must actively participate in improving digital literacy and skills.

The Digital Population Identity (IKD) in Kuningan Regency was implemented in 2022 and is managed by the Population Administration Information Management Division. The purpose of implementing the IKD in Kuningan Regency is to promote the use of information technology in the digitization of population data, expand access and utilization for the public, and simplify and accelerate various public and private services digitally. The public can activate Digital Population Identity while conventional services are being conducted at the Kuningan Regency Population and Civil Registration Office. The activation process involves registration, followed by downloading the app, and then scanning a barcode for the operator at the service counter; after that, the public can use the Digital Population Identity as needed.

The Indonesian government, through the Ministry of Home Affairs, is developing the Digital Population Identity (IKD) as part of its efforts to implement digital-based public services. In this context, the Population and Civil Registration Office (Disdukcapil) of Kuningan Regency is responding to the digital transformation by considering the implementation of the Digital Population Identity (IKD) application. As a rapidly developing city increasingly facing the complexities of population data management, Kuningan Regency requires a solution capable of supporting fast, accurate, and efficient population administration services. Therefore, the IKD application is crucial and highly relevant for meeting the needs of population services delivery. The implantation

of the IKD is driven by recurring issues in the issuance of electronic ID cards (KTP-el). One such issue is technical nature, such as inadequate facilities and infrastructure, which often leads to obstacles in the issuance of KTP-el ([dukcapil.kemendagri.go.id](http://dukcapil.kemendagri.go.id), 2023). Although it has great potential to improve service quality, the IKD system still faces challenges related to the public's limited technological literacy, restricted internet access, and concerns regarding data breaches or misuse.

The Digital Identity Card (IKD) is electronic data that serves as a digital representation of identity documents, displaying an individual's personal information via electronic devices. The purpose of implementing the IKD is to promote the use of information technology in the digitization of identity data, expand access to and utilization of such data by the public, and facilitate and expedite various public and private services through digital means. Additionally, the DCI aims to enhance identity security and strengthen authentication systems to prevent forgery and data breaches. In general, the function of the DCI is to serve as a means of digitally verifying and validating residents' identities.

A literature review on the implementation of the Digital Identity Program (IKD) at the RW Community Center in Kalirungkut, Surabaya, identified a gap in this study [1]. In terms of communication, the digital identity program is used to disseminate information through outreach efforts. These outreach efforts have been effectively implemented down to the lowest level of the village community organization, namely the Neighborhood Association (RT). On the other hand, although outreach has been used to provide clear information about IKD policies and service programs at the RW Community Hall in Kalirungkut Village, the community still lacks understanding of the IKD program. Therefore, the objective of this study is to evaluate efforts to address obstacles in the use of IKD.

This study was conducted to serve as a reference for public administration studies, particularly regarding the application of Vial's theory in analyzing digital transformation in public service through the adaption of a digital identity system. The objectives of this study are to analyze the use of the digital identity system as a means of facilitating access to digital information, to identify barriers to its use, and examine efforts to address these barriers in the use of the digital identity system application.

## 2 Literature Review

According to previous research [2], Digital transformation holds immense potential for improving the efficiency of public services. Digital technology can be applied to various administrative functions, such as record-keeping, inter-departmental communication, and data management. This will enable internal processes to run more efficiently. The use of digital technology can also accelerate public service processes and improve public access to these services. From a managerial perspective, digital technology also helps manage human and financial resources more efficiently through integrated management systems. This technology enables more accurate performance measurement and more efficient monitoring of various aspects of public services. Therefore, digital transformation in public administration can improve service efficiency and accelerate responses to public needs.

In a previous study by Lestari[3] A study on Digital-Based Public Service Innovation (E-Government) during the COVID-19 Pandemic found that digital-based public services have become an effective solution to address limitation in the delivery of public services—for both government officials and the public—in order to prevent and reduce the spread of COVID-19. Based on the findings, it was discovered that the implementation of electronic government in Indonesia still requires strengthening and improvement, particularly regarding service quality as it relates to public trust and citizen support. However, in practice, the implementation of digital public service still faces various challenges. This is because the electronic government systems still face several challenges, such as technical issues, network problem, and systems that are not updated regularly. Additionally, other challenges include limited human resources (HR), the government's low readiness to adapt to change, insufficient infrastructure and funding, and the fact that some online services still require citizens to visit service location in person (offline).

Previous research conducted by Firmansyah[4] found that the research on digital ID cards in Kandangan Village can be considered effective because it was well-targeted; residents of Kandangan Village were highly interested in activating their digital ID cards, and officials had promoted the program both directly and indirectly. The objective of the IKD service program in Kandangan Village has been achieved, namely that many residents have switched from physical ID cards to digital ID cards. However, this program still faces challenges, namely that residents lack understanding of technology and information, making it difficult for them to explain and inform others about it. Therefore, program outreach by authorized officials is a key factor influencing the effectiveness of the IKD transformation.

According to a study conducted by Widiyarta[5], The Jeparu Subdistrict in Surabaya has implemented a Digital Identity Activation program digitalization. However, resident still faces several challenges, such as a lack of smartphone support—not everyone owns a smartphone—low resident enthusiasm, and the devices used are still outdated. Therefore, it can be concluded that the key focus should be on the community, as they are the primary target of the Digital Identity program. Consequently, factors such as resident who do not own smartphone and a

lack of understanding of the DCI application must become the government's primary focus so that these obstacle can be overcome and the DCI program can run smoothly.

In a study by [6] It is noted that, in the context of digital transformation, enhancing human resources requires specialized training to improve skills, as well as direct motivation and feedback from leadership to ensure that employees feel motivated and comfortable in their work. Digital transformation can help improve efficiency and productivity in the delivery of Digital Population Identity services.

Public administration has been significantly influenced by advances in information technology over the past decade. Technology has evolved from merely a supporting tool to a structural component that determines the operations of the bureaucracy. According to Fountain in [7] states that information technology has given rise to what is known as "Action Technology"—digital system that transform the way government, citizen, and other stakeholders in public governance interact with one another. As a result, information technology has become critically important from social, political, and technical perspectives.

According to his research [8] Digitization has permeated every aspect of life, including within organizations, with the aim of protecting traditional archives from damage and improving the efficiency of information retrieval processes, particularly at Paud Arrahman. School documents are still stored manually, kept in boxes or folders. This makes the documents prone to loss, misplacement, and damage; they take up a lot of space and storage and pose a risk of damage from pests and natural disasters. With the digitization of archives by the UGJ PKM Team, the collection and distribution of documents have become easier for partners. Data storage and retrieval are also straightforward, thereby saving time and effort in the archive search process at Paud Arrahman. By establishing an electronic archive, the collection and organization of records—which have historically been inefficient—can now be carried out quickly, and archive management no longer requires a significant amount of time.

A literature review on the implementation of the Digital Identity Program (IKD) at the RW Community Center in Kalirungkut, Surabaya, identified a gap in this study [1]. In terms of communication, the digital identity program is used to disseminate information through outreach efforts. These outreach efforts have been effectively implemented down to the lowest level of the village community organization, namely the Neighborhood Unit (RT). On the other hand, although outreach has been used to provide clear information about IKD policies and service programs at the RW Community Hall in Kalirungkut Village, the community still lacks understanding of the IKD program. Therefore, the objective of this study is to evaluate efforts to address obstacles in the use of IKD.

## 2.1 Public Service

Public Service, according to Thoha, in [9] is an activity that prioritizes the public interest, simplifies administrative procedures, expedites services, and ensures public satisfaction. Its purpose is to meet the needs of the public and implement the provisions set forth in laws and regulations. Ratminto & Winarsih, (2007) in [10]. This service encompasses efforts to meet the needs of individuals, communities, or organizations with an interest in an institution, in accordance with applicable rules and procedures, and is aimed at ensuring the satisfaction of service recipients. Hardiyansyah (2011) in [10].

## 2.2 Digital Transformation

Digital Transformation, according to Vial (2019), in [11] explain that digital transformation is a process aimed at improving an organization through a combination of information technology, organizational change, and the creation of new value. This definition emphasizes that digital transformation is not limited to the adoption of technology but also encompasses changes in organizational culture, structure, and strategy. Digital transformation is an evolutionary process involving various resources, including the utilization of digital technology, to shape new structures, processes, values, positions, and ecosystems capable of delivering a distinct experience, Hadiono et al., (2021) in [12]. Furthermore, digital transformation is a complex and ongoing process that can significantly influence the development of society and digital life through the emergence of technology-based innovations. Matt et al. (2015) in [12].

## 2.3 Digital Population Identity System Technology

Innovation in public service is, at its core, an effort to create and implement new and creative ideas in the delivery of services to the public, with the aim of resolving various public issues and achieving the objective of public sector organizations. Such innovation must remain grounded in the principles of enhancing effectiveness and efficiency, improving service quality, avoiding conflicts of interest, prioritizing the public interest, and adhering to standards of propriety and accountability [13].

## 2.4 Digital Identity

IKD is currently one of the innovations leveraging technology and digitalization. This app transform citizens' digital identities from physical e-ID cards. By using the IKD app, citizens no longer need to carry a physical ID card with them or make copies of their ID card for other public services. The Ministry of Home Affairs announced plans to digitize population registration for Indonesia citizens holding e-ID cards by the end of 2022. The IKD, created as a result of this initiative, allows citizens who have activated it to receive information electronically for various needs. The IKD service handles population registration, and citizens' personal data is integrated into a centralized Population Management Information System (SIAM). This ensures clear and reliable public information while guaranteeing confidentiality and security [14].

## 3 Research Method

The author used a descriptive qualitative method in this study. According to [15], Qualitative methods, rooted in postpositivist philosophy, are used to study phenomena in natural settings rather than in experiments. These methods involve the researcher as the primary instrument; data is collected using various methods (triangulation); analysis is conducted inductively or qualitatively; and research findings focus more on interpretation than on attempts to make generalizations. Because qualitative research is conducted in natural settings, this method is often referred to as naturalistic research. It was originally used extensively in cultural anthropology, so it is also known as the ethnographic method. Additionally, it is called a qualitative method because the data and the analytical process focus on qualitative elements.

The data collection methods used in this study employed a triangulation approach, combining observation, interviews, and documentation. The author utilized these three methods to gather the data required for this study. The observations in this study took place at the Kuningan Regency Population and Civil Registry Office. In this study, the author observed the situation on the ground regarding the extent of efforts to analyze barriers to the use of the IKD application.

When researchers wish to conduct preliminary case studies to identify the issues to be investigated, or when they wish to obtain further information from respondents, interviews are used as a data collection method. This is particularly true when the number of respondents is relatively small. Therefore, as a key informant in this study, the author interviewed the head of the Population and Civil Registry Office of Kuningan Regency, who is responsible for investigating obstacle in the use of the IKD.

Documentation according to [15], Documentation is the process of gathering information and data in the form of books, archives, documents, written records, images, reports, and other materials that can support research.

## 4 Results and Discussion

### 4.1 Research Results

#### 4.1.1 *Digital Transformation in the Adoption of the National Digital Population Identity System*

Digital Transformation, according to Vial (2019), in [11] explains that digital transformation is a process aimed at improving an organization through a combination of information technology, organization change, and the creation of new value, as well as changes in organizational culture, structure, and strategy. In this study, digital transformation refers to the digital transformation of the Population and Civil Registration Office (Disdukcapil) in Kuningan Regency, specifically the transition from a conventional to a digital system for managing the resident' identities in Kuningan Regency, and the shift in organizational culture—from a conventional to a digital approach—within the Disdukcapil office regarding resident' identities.

#### 4.1.2 *Combination of Information Technologies*

The utilization of digital technology is achieved through the combination and integration of various complementary technologies—rather than using them in isolation—thereby driving fundamental changes in how organization create and capture value. Consequently, the IKD leverages the integration of various technologies, such as population databases, biometrics, information security systems, digital networks, and electronic service platform, to create a reliable and interconnected identity system. Based on an interview with the head of the Population Administration Information Management Division at the Kuningan Regency Population and Civil Registration Office (Disdukcapil) on December 19, 2025, it was stated that the IKD integration already implemented at Disdukcapil is proceeding as intended; however, its implementation is not yet comprehensive, as there are still several villages in Kuningan Regency where IKD has not been implemented. While the entire IKD process is digital due to its integration with data, applicants must still visit the Disdukcapil office to create their IKD. This applies to resident domiciled in Kuningan Regency. Additionally, resident of Kuningan Regency can

also create their IKD at the sub-district level; however, if an applicant is from outside Kuningan Regency, they must create their IKD at the Disdukcapil office. This also applies to other cities or regencies. The use of the IKD application for civil registration services allows applicant to access these services through the app, which currently offers 9 civil registration service. To use the IKD application, applicants simply need to submit their requests through the app, and the results of the civil registration services will be sent to their personal email.

#### **4.1.3 Organizational Changes**

According to Vial, organizational change is a process aimed at improving organizational performance by driving significant changes in structure, processes, culture, and the way the organization creates value through the use of digital technology. Based on the results of an interview with the head of the Population Administration Information Management Division at the Kuningan Regency Disdukcapil on December 19, 2025, the Disdukcapil staff's performance is already quite good because awareness sessions have been conducted for officers, particularly regarding the Integrated Population Data System (IKD). Regarding service improvements, these are divided into two categories: for digital-based services, the IKD has operators to manage these digital services, while for conventional services can be accessed through Sipanduk. The agency's efforts to enhance staff capabilities in digital services include conducting awareness sessions on the digitization of IKD services; in addition, the agency also conducts outreach in every village connected to IKD services and at schools.

#### **4.1.4 Creating New Value**

According to Vial, the creation of new value represents a novel approach to generating organization value that did not previously exist, resulting from the utilization and integration of digital technology. Based on an interview with the head of Population Administration Information Management Division at the Kuningan Regency Population and Civil Registration Office on December 19, 2025, regarding the new innovations resulting from the implementation of the IKD service, the public can directly contact IKD operators via video call to ensure the security and privacy of personal data, and the public is permitted to contact operators directly without restrictions. Regarding public satisfaction with the IKD, residents feel it helps them in terms of saving time, effort, and costs, as they no longer need to handle population administration conventionally but only need to access the IKD application digitally. One of the challenges residents face with the IKD application is that it frequently experiences errors because it is accessed by the entire Indonesia population.

#### **4.1.5 Organizational Culture**

According to Vial, organizational culture refers to an organization's willingness to transition from traditional methods to digital systems. Based on an interview with the head of the Population Administration Information Management Division at the Kuningan Regency Disdukcapil on December 19, 2025, regarding organizational culture itself, they certainly welcome it, especially since the IKD has already been implemented throughout Indonesia; therefore, the Kuningan Regency Disdukcapil also wishes to implement the IKD to realize digital-based services that facilitate the public. Efforts to encourage collaboration across divisions are certainly underway; for instance, the Population and Civil Registration Office collaboration with institutions such as Griya Kuningan, leveraging events like Car Free Day—one of which is dedicated to IKD services—and there are divisions responsible for ID card printing, where IKD activation is required prior to printing.

#### **4.1.6 Organizational Structure**

According to Vial, an organization structure should foster cross-functional collaboration within an organization, with the aim of achieving successful digital transformation. Based on an interview with the head of the Population Administration Information Management Division at the Kuningan Regency Disdukcapil on December 19, 2025, each specific structure or division within Disdukcapil is sufficiently flexible to handle the IKD application, as each division has its own distinct duties and functions tailored to the needs of IKD-based digital services.

#### **4.1.7 Organizational Strategy**

According to Vial, organization strategy refers to strategic choices regarding the use of digital technology to create value and adapt the organization's capabilities to remain competitive. Based on the result of an interview with the head of the Population Administration Information Management Division at the Kuningan Regency Disdukcapil on December 19, 2025, to achieve the target of "one-hour service," the Disdukcapil believes that the

IKD can help realize this program. As for the long-term strategy, the division responsible for innovation is currently working on a new initiative and is in the process of naming it (IKD Raid), a Joint Movement for IKD Activation.

## 4.2 Discussion

Digital Transformation, according to Vial (2019), in [11] explains that digital transformation is a process aimed at improving an organization through a combination of information technology, organization change, and the creation of new value. This definition emphasizes that digital transformation is not limited to the adoption of technology, but also encompasses changes in organization culture, structure, and strategy. IKD is a civil registration administration application designed to facilitate the public in creating civil registration documents such as ID cards, Family Cards, and others. IKD was first implemented in 2022 to make it easier for the public to access civil registration data and to save time and costs. The urgency for implementing IKD in Kuningan Regency arose because the public felt that the process of creating civil registration documents was inefficient, as they had to wait in long lines. Based on interview result, IKD still faces challenges, namely occasional delays in accessing the application's login system. The use of the IKD application for civil registration services allows applicants to access services through the app, which currently offers 9 civil registration services. For these services, applicants simply submit their requests via the app, and the result of the civil registration services are delivered via their personal email.

This study analyzes the digital transformation of the Digital Population Identity (IKD) as a means of facilitating access to digital information, and examines the barriers to using the IKD. The methods used to collect data in this study were interviews, observations, and documentation. Interviews were conducted with head of the population administration information management division as the key informant, as this division handles the DCI program; supporting informants were members of the public who use the DCI. Documentation was obtained through interview results and observations in the form of interview recordings. Interview results were analyzed using digital transformation theory to examine the shift from conventional to digital systems. The theory employed was Vial's framework, comprising six dimensions: the integration of information technology, organizational change, the creation of new value, organizational culture, organizational structure, and organizational strategy.

### 4.2.1 Barriers to Digital Transformation in the Adoption of the National Digital Population Identity System

In the process of digital transformation, the IKD application still faces challenges. According to an interview with the head of the Population Administration Information Management Division, the main obstacles to its implementation include system or internet connectivity issues that prevent the public from logging into the IKD application. Additionally, outreach efforts have not been consistent or widespread, resulting in some villages that have yet to receive information about the IKD.

## 5 Conclusion

This study concludes that the Digital Population Identity (IKD) system at the Kuningan Regency Population and Civil Registration Office represents a tangible form of digital transformation in population administration services, aimed at improving the effectiveness, efficiency, and quality of service. This transformation encompasses not only the use of digital technology but also involves changes in organizational structure, work culture, and service strategies, as explained in Vial's theory of digital transformation.

The IKD app makes it easier for the public to access civil registration services digitally, saving time, effort, and costs. However, there are obstacle to its implementation, such as app glitches, limited network coverage, low digital literacy among some members of the public, and uneven outreach. Therefore, sustained efforts are needed to improve system stability, ensure equitable outreach, and enhance public digital literacy in order to realize modern, digital-based public services.

## References

- [1] J. Ilmiah and W. Pendidikan, "1, 2 1,2," vol. 9, no. 19, pp. 645–650, 2023.
- [2] M. & Y. A. Fachri, A, "Transformasi Digital dalam Penyelenggaraan Pelayanan Publik: Perspektif Kebijakan dan Implementasi," *J. Ilmu Sos. Dan Hum.*, vol. 1, no. 3, pp. 47–61, 2023.
- [3] P. A. Lestari, A. Tasyah, A. Syofira, C. A. Rahmayani, R. D. Cahyani, and N. Tresiana, "Digital-Based Public Service Innovation (E-Government) in the Covid-19 Pandemic Era," *J. Ilmu Adm.*, vol. 18, no. 2, pp. 214–216, 2021.

- [4] M. A. R. A. Firmansyah, “Efektivitas Program Pelayanan Identitas Kependudukan Digital Di Kelurahan Kandangan Kota Surabaya,” vol. 9, no. 19, pp. 510–517, 2023.
- [5] A. Widiyarta and I. Humaidah, “Implementasi Aktivasi Identitas Kependudukan Digital (Ikd) Dalam Mendorong Digitalisasi Di Kelurahan Jepara Kota Surabaya,” vol. 9, no. September, pp. 43–51, 2023.
- [6] A. Y. Kirana, M. Saifudin, M. M. Mukhlisin, Nina, Fatmawati, and M. I. Ansori, “Transformasi Digital terhadap Sumber Daya Manusia sebagai Upaya Meningkatkan Kapabilitas Perusahaan,” vol. 2, no. 4, 2023.
- [7] Y. Heryanto and H. Suwarsono, *Smart Governance Integrasi Administrasi Publik Dengan Teknologi Informasi*.
- [8] S. Wulandari, A. D. Lestari, and O. Fajarianto, “PENGUNAAN APLIKASI DIGITAL KEARSIPAN PADA PAUD ARRAHMAN DESA KARANGMANGU KABUPATEN CIREBON,” vol. 4, no. 2, pp. 39–44, 2021.
- [9] S. Agriani, H. S. Utomo, and E. Paselle, “PELAYANAN PERPANJANGAN SURAT TANDA NOMOR KENDARAAN 5 TAHUNAN DI KANTOR BERSAMA SAMSAT KOTA SAMARINDA,” vol. 8, no. 3, pp. 9129–9141, 2020.
- [10] J. Susanto and Z. Anggraini, “Kualitas Pelayanan Publik Pada Kantor Camat Tabir Ulu Kabupaten Merangin,” *J. Adm. Negara*, vol. 25, no. 2, pp. 105–122, 2019, doi: 10.33509/jan.v25i2.699.
- [11] T. S. Rusli *et al.*, *Transformasi Digital: Teori dan Penerapan d alam Berbagai Bidang*. jambi: penerbit buku sonpedia, 2025.
- [12] R. O. Subagdja, “Pelayanan pembuatan akta kelahiran menuju transformasi digital di kabupaten Bogor,” *JPPPI (Jurnal Penelit. Pendidik. Indones.*, vol. 10, no. 3, p. 242, 2024, doi: 10.29210/020243975.
- [13] W. S. Hadi Prabowo, Dadang Suwanda, *Inovasi Pelayanan pada Organisasi Publik*, no. Juni. 2022.
- [14] J. Tata, K. Dan, and K. Publik, “IMPLEMENTASI IDENTITAS KEPENDUDUKAN DIGITAL ( IKD ) DI,” vol. 1, no. 4, 2025.
- [15] Sugiyono, *Metode Penelitian Kuantitatif, kualitatif dan R & D*. 2013. doi: 10.1017/CBO9781107415324.004.