

The Role of PeduliLindungi as a Digital Governance Instrument in Indonesia During the COVID-19 Pandemic: A Literature Review

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ABSTRACT

Rapid advances in information technology, along with the increasing volume and diversity of data, have prompted the government to utilize data analytics as a governance tool. One concrete example of this is the launch of the PeduliLindungi app by the Ministry of Communication and Information Technology in collaboration with the Ministry of Health as a tool for detecting, tracking, and controlling the spread of COVID-19. This article aims to examine the role of the PeduliLindungi app in supporting digital governance in Indonesia during the pandemic by analyzing aspects of population data integration, compliance with the “One Data Indonesia” policy, and the challenges of its implementation. This study employs a literature review method with a descriptive-qualitative approach to relevant academic sources and policy documents. The findings indicate that PeduliLindungi has made a significant contribution to supporting screening, contact tracing, and the determination of Community Activity Restriction (PPKM) levels through data integration with the National Identity Number (NIK), in line with the spirit of Presidential Regulation No. 39 of 2019 on “One Data Indonesia”. However, previous studies have also identified weaknesses in service connectivity and the protection of users’ personal data. This article concludes that the success of data-driven applications such as PeduliLindungi in supporting digital governance depends heavily on service quality, infrastructure reliability, and consistent data security governance.

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1. INTRODUCTION

The digital age has fundamentally transformed the way information is generated, managed, and distributed. The ever-increasing volume of data, if managed properly, can become a strategic resource for decision-making, including in the administration of government (Reja et al., 2025). This transformation has also prompted governments in various countries, including Indonesia, to integrate data analytics into governance practices to produce more responsive and evidence-based policies.

The urgency of utilizing this data became increasingly apparent when the COVID-19 pandemic struck Indonesia in early 2020. The government faced an urgent need to monitor the spread of the virus in real time amid the geographic and demographic complexities of an archipelagic nation with a population of over 270 million. In response to this need, the Ministry of Communication and Information Technology of the Republic of Indonesia now known as the Ministry of Communication and Digital Affairs (Kemkomdigi) and the Ministry of Health (Kemenkes), in partnership with PT Telkom Indonesia (Persero) Tbk as the technical developer, They launched the PeduliLindungi app, a data-driven digital tool designed to support contact tracing, health screening, and the management of travel documents and vaccination status (Istiqoh et al., 2023).

PeduliLindungi is designed to allow users to share their location data while traveling so that their contact history with confirmed COVID-19 patients can be traced, while also providing notifications if users are in a high-risk zone. This app also serves as a concrete example of implementing the “smart living” concept within the framework of smart cities across various regions in Indonesia, as it provides quick access to digital health services (Nurmandi et al., 2023; Rachmawati et al., 2021).

What distinguishes PeduliLindungi from other pandemic response policies is its integration with the population database via the National Identification Number (NIK), thereby creating a more integrated data ecosystem. This integration aligns with the spirit of Presidential Regulation No. 39 of 2019 on One Data Indonesia (SDI), which mandates that government data be managed in a standardized, accurate, up-to-date, and integrated manner, and that it be accountable and shareable across agencies (Ministry of Communication and Information Technology, 2019; Syahpitri et al., 2025). The SDI policy serves as the legal foundation enabling cross-sectoral data integration including health data during the pandemic so that the government can utilize it for evidence-based planning, evaluation, and policymaking (Andiyan et al., 2023).

Nevertheless, a number of studies indicate that the effectiveness of mobile app-based government services (mobile government), such as PeduliLindungi, does not always function optimally. Yuliantini et al. (2023), for example, found that the quality of PeduliLindungi’s services, as measured by the Service Quality for Mobile Government (SQ mGov) indicators which include connectivity, interactivity, authenticity, and understandability still exhibits significant weaknesses in the area of connectivity, although the aspect of authenticity was rated relatively well. These findings indicate a gap between digital policy design and the user experience on the ground, which warrants attention in the evaluation of digital governance.

Based on this discussion, this article aims to systematically examine the role of the PeduliLindungi app in supporting digital governance in Indonesia during the COVID-19 pandemic by analyzing three main aspects: (1) the app’s functions in collecting and integrating population and health data; (2) its alignment with the “Satu Data Indonesia” policy; and (3) implementation challenges that affect the quality of digital-based public services. This study is expected to make an academic contribution to the development of the literature on digital governance in Indonesia, particularly in the context of policy responses to public health crises.

2. METHOD

This study employs a literature review method with a descriptive-qualitative approach. This approach was chosen because the study's objective is conceptual-analytical in nature namely, to synthesize findings from various academic sources to understand the role and effectiveness of the PeduliLindungi app in supporting digital government governance without collecting primary data from the field.

The data sources used fall into two categories. First, academic sources in the form of indexed journal articles and national and international scientific proceedings discussing the PeduliLindungi app, mobile government, digital service quality, and the "Satu Data Indonesia" policy, obtained through searches of databases such as Google Scholar, ResearchGate, and university open-access journal portals (OJS). Second, official documents, specifically laws and regulations particularly Presidential Regulation No. 39 of 2019 on "Satu Data Indonesia" as well as official publications from the Ministry of Communication and Information Technology of the Republic of Indonesia.

The analysis process was conducted in three stages. The first stage involved identifying and searching for literature relevant to the keywords "PeduliLindungi," "mobile government," "data governance," and "Satu Data Indonesia." The second stage involves selecting and screening sources based on thematic relevance, publisher credibility, and the recency of the publication (with priority given to the 2019–2025 period). The third stage is thematic synthesis, which involves grouping findings from various sources into broad themes, namely: (a) application functions and features, (b) data integration and regulatory compliance, and (c) service quality and implementation challenges, which are then discussed narratively in the results and discussion section.

3. RESULTS AND DISCUSSION

In the context of digital government governance, PeduliLindungi was developed not only as an app to monitor the public's health status, but also as a digital tool that supports the government in carrying out various functions related to the control and management of the COVID-19 pandemic. The integration of various features within the app enables the collection, processing, and utilization of health data in a more structured manner to support the implementation of data-driven policies.

3.1. Functions and Features of the PeduliLindungi App in COVID-19 Management

As a technology-based policy tool, PeduliLindungi has a number of core, integrated features, including COVID-19 test results, the Electronic Health Alert Card (eHAC), telemedicine services, COVID-19 statistical information, and vaccination registration and certificates (Istiqoh et al., 2023). The QR code scanning feature at every entry point to public facilities enables the government to conduct mass screening efficiently, while also serving as the basis for contact tracing should a confirmed case be identified (Herdiana, 2021).

The data collected through this app is then used as one of the factors the government considers when determining the level of Community Activity Restrictions (PPKM) in each region. Thus, PeduliLindungi functions not only as a tool for monitoring individual health but also as an instrument supporting data-driven policy-making at both the national and regional levels.

3.2. Data Integration and Alignment with the "One Data Indonesia" Policy

One of the key features of PeduliLindungi is its linkage to the National Identification Number (NIK), which ensures that each user's health data is individually verified and can be integrated with the national population database. This integration model aligns with the principles of the "One Data Indonesia" policy as stipulated in

Presidential Regulation No. 39 of 2019, which emphasizes data standards, standardized metadata, interoperability, and the use of reference codes and a single master dataset across government agencies (Ministry of Communication and Information Technology, 2019).

The “One Data Indonesia” policy essentially arose from the need to address data fragmentation and overlap among government agencies, so that the resulting data can serve as a single reference for planning, implementation, evaluation, and control of development (Syahpitri et al., 2025). In the context of the pandemic, data integration through PeduliLindungi demonstrates how national data governance policies can be operationally implemented to respond to public health crises quickly and in a coordinated manner.

Nevertheless, Reja et al. (2025) caution that the “One Data Indonesia” policy which currently exists only as a Presidential Regulation and lacks a legal framework at the level of a law has the potential to create vulnerabilities in terms of data security and protection, including that of sensitive health data. This is particularly relevant in the context of PeduliLindungi, given that the app manages personal data on a national scale and has been a major public concern regarding cybersecurity during the pandemic.

3.3 Service Quality and Implementation Challenges

From the perspective of mobile government service quality, Yuliantini et al. (2023) analyzed PeduliLindungi using four Service Quality for Mobile Government (SQ mGov) indicators: connectivity, interactivity, authenticity, and understandability. The results of the study show that the authenticity indicator received the highest rating, indicating that the government in this case, the Ministry of Health together with the National Cyber and Cryptography Agency (BSSN) is considered sufficiently responsible for ensuring the security of user data transactions. Conversely, the connectivity indicator received the lowest rating, reflecting user complaints regarding network disruptions, slow loading times, and failures to display vaccination certificates when required for travel or access to public facilities.

Similar findings were also confirmed by a study on e-service quality conducted in DKI Jakarta, which showed that the quality of the PeduliLindungi e-service generally falls into the “good” category, although certain aspects remain in the “unsatisfactory” category particularly regarding the speed of response to user complaints (Sherissa & Anza, 2022). Furthermore, a study on the use of this app by college students in Jakarta also identified that the successful use of PeduliLindungi is influenced by factors such as ease of access and users’ level of digital literacy, highlighting the importance of public education as part of the implementation strategy (Nurmansyah et al., 2022).

Challenges related to connectivity and system reliability are critical to address, given that the use of PeduliLindungi is mandatory for the public to access public spaces and transportation during the pandemic. Technical disruptions in a mandatory app not only affect user convenience but also have the potential to hinder broader socioeconomic activities (Yuliantini et al., 2023). Within the framework of digital governance, these findings underscore that the success of technology-based policies cannot be measured solely by policy design but must also take into account the reliability of technical infrastructure and the end-user experience.

3.4 Implications for Digital Government Governance

Overall, a review of the literature indicates that PeduliLindungi represents a concrete manifestation of the transformation toward data-driven governance in Indonesia. This application demonstrates how the government can leverage a combination of data analytics and digital technology to respond to a health crisis in a more coordinated manner, while also setting an important precedent for the development of mobile government services in other sectors as later adopted in similar applications such as JAKI in DKI Jakarta and Mobile JKN by BPJS Kesehatan (Nurmandi et al., 2023).

However, the sustainability of these benefits depends heavily on three key factors: first, strengthening the legal framework for data governance to better ensure the security and privacy of citizens' data (Reja et al., 2025); second, improving the reliability of information technology infrastructure to address connectivity issues, which have long been a major complaint among users (Yuliantini et al., 2023); and third, enhancing the public's digital literacy so that the use of app-based government services can proceed in an inclusive and equitable manner, including in areas with limited infrastructure such as coastal regions and logistics buffer zones.

4. CONCLUSION

This study concludes that the PeduliLindungi app plays a strategic role in supporting digital governance in Indonesia during the COVID-19 pandemic, particularly through the integration of health data with the National Identification Number (NIK), which enables the government to conduct screening, contact tracing, and implement policies restricting public activities in a more targeted manner. This integration model aligns with the spirit of Presidential Regulation No. 39 of 2019 on "One Data Indonesia," which establishes data as the single, integrated reference for government administration.

Nevertheless, several empirical studies indicate that the effectiveness of PeduliLindungi is still hampered by challenges related to service connectivity, the speed of response to user complaints, and the need to strengthen the legal framework for personal data protection. Therefore, the success of application-based digital governance is determined not only by the sophistication of technological design but also by the reliability of infrastructure, the clarity of data security regulations, and the digital literacy of its user community. Further studies are recommended to empirically examine public perceptions in regions with specific geographic characteristics, such as coastal areas and logistics hubs, to deepen our understanding of disparities in the implementation of digital policies across regions in Indonesia.

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