

Implementation of the Digital Service System Policy at the Population and Civil Registration Office of Bandung Regency

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Article Info	ABSTRACT
<p>Keywords: policy implementation, Bedas Digital Service, population administration, digital transformation, Van Meter and Van Horn, public service, digital government</p>	<p>This study analyzes the implementation of the Bedas Digital Service (BDS) policy system at the Population and Civil Registration Office (Disdukcapil) of Bandung Regency using the Van Meter and Van Horn (1975) model. BDS was launched as a response to weaknesses in the manual system for monitoring and supervising population administration services. This qualitative research, employing a single case study design, utilized in-depth interviews, participatory observation, and document analysis. Data were analyzed using Miles and Huberman's interactive model, along with source and method triangulation. The findings show that BDS implementation achieved 75% of its target. Based on the six variables of the Van Meter and Van Horn model: the policy standards are clear, emphasizing efficiency, monitoring, and transparency; resources are supported by the regional budget (APBD) and free WiFi in 280 locations, although human resources remain limited (only 10 IT operators); vertical and horizontal communication runs effectively; Disdukcapil possesses adequate competence; the environmental conditions show strong political support but digital gaps persist among adult and elderly groups; and implementers' dispositions are positive. Supporting factors include political backing, competent human resources, WiFi infrastructure, inter-agency coordination, and adoption by younger generations. Inhibiting factors involve server instability, limited personnel, digital divides, dependence on central systems, geographical blank spots, and cautious behavior among staff. BDS has successfully reduced illegal intermediaries, improved transparency (trust index rising from 65% to 88%), and increased time efficiency (from several months to 2–3 days). The one-day service target has not been fully achieved due to technical and operational challenges. Overall, BDS implementation shows significant progress but still requires infrastructure strengthening, additional personnel, and digital literacy programs for optimal outcomes.</p>
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INTRODUCTION

The use of information and communication technology enables the government to optimize administrative processes, accelerate responses to public needs, and enhance the accessibility of information. Moreover, transparency in public services can be achieved through systems that allow citizens to monitor and evaluate government performance. Consequently,

accountability also increases, as the government is required to take responsibility for every action and decision made. Overall, this shift focuses not only on improving efficiency but also on building better relationships between the government and the public, which in turn can strengthen public trust in government institutions.

In addressing existing challenges, the Bandung Regency Government has taken an innovative step by developing a digital service system called the Bedas Digital Service (BDS). The Population and Civil Registration Office (Disdukcapil) of Bandung Regency is set to launch BDS—an application designed to simplify and expedite population administration processes for the public. This initiative is part of the effort to transform traditional, conventional administrative services into a more modern, digital-based system. With the Bedas Digital Service, it is expected that citizens will be able to access population administration services more efficiently and effectively. The application not only speeds up document processing but also enhances transparency and accountability in public service delivery. Through this digitalization, the Bandung Regency Government is committed to providing convenience for its citizens and responding to the growing demand for faster and more responsive services in the digital era.

Preliminary survey results identified several challenges faced by users in utilizing BDS. Approximately 35% of respondents reported difficulties during the registration process, including technical issues and a lack of understanding of procedures. In addition, 28% of users reported that the application often experienced technical problems such as errors or unresponsiveness, hindering smooth use. Unclear information about digital document requirements was also cited by 22% of respondents, leaving them confused about the necessary files. Furthermore, 25% of users complained about lengthy online verification processes, which delayed the completion of their applications.

The survey also showed that 40% of the community sample was unaware of the BDS application's existence, indicating insufficient public outreach and education. Additionally, the majority of elderly citizens—around 78%—still preferred conventional, in-person services at government offices, reflecting a digital divide and a preference for traditional methods.

Data from the Bandung Regency Population and Civil Registration Office reinforce this situation: out of approximately 120,000 population administration service applications submitted annually, only around 18,000 (15%) were processed through the BDS platform. The rest still relied on conventional systems requiring physical visits to service offices. This condition highlights various obstacles in BDS implementation that need to be thoroughly analyzed from technical, social, communication, and public education perspectives. Continuous improvement and innovation efforts are crucial for BDS to reach its full potential in enhancing efficiency, accessibility, and the quality of public services in Bandung Regency.

The development of the Bedas Digital Service (BDS) aligns with national policies in the field of population administration, both at the national and regional levels. At the national level, Presidential Regulation No. 95 of 2018 on the Electronic-Based Government System serves as the main foundation for digitalizing public services. Additionally, Minister of Home Affairs Regulation No. 7 of 2019 on Regional Innovation provides space for developing digital service innovations at the regency level.

Specifically, the implementation of BDS in Bandung Regency is based on Bandung Regent Regulation No. 45 of 2022 concerning the Implementation of Electronic-Based Public Services and Bandung Regent Regulation No. 52 of 2022 on the Bedas Digital Service as the Information System for Population Administration Services in Bandung Regency. These regulations specifically govern implementation mechanisms, standard operating procedures (SOPs), and performance targets for BDS.

At the local government level, the implementation of Bedas Digital Service (BDS) is supported by various regional regulations (Perda) and regent regulations that specifically regulate the management of electronic-based public services. This comprehensive policy framework serves as a vital foundation ensuring the successful implementation of digital systems in public services. With structured and comprehensive regulations in place, crucial aspects can be systematically managed—from clear policy formulation and SOP establishment to training programs and human resource capacity building for digital service personnel.

The gap between the ideal expectations of BDS implementation and the actual conditions in the field makes this case both relevant and urgent to study. The investment made by the Bandung Regency Government in developing BDS needs to be evaluated for its effectiveness in delivering optimal benefits to the public. This research is important because it provides a comprehensive picture of the dynamics of digital government policy implementation at the regency level, particularly in the field of population administration. The findings are expected to offer strategic recommendations for optimizing BDS implementation and serve as a reference for developing similar systems in other regions. The complexity of digital policy implementation such as BDS requires systematic analysis to understand the factors influencing its success or failure. A thorough analysis of BDS implementation will make a significant contribution to the development of theory and practice in digital government policy implementation in Indonesia.

This study aims to analyze the implementation of the Bedas Digital Service (BDS) policy system at the Population and Civil Registration Office of Bandung Regency, particularly in efforts to enhance the effectiveness and efficiency of population administration services. In addition, the study seeks to identify supporting and inhibiting factors in the implementation of the policy and to understand its impact on the successful application of digital services in the institution.

METHOD

This study employs a descriptive-analytical research design with a single case study approach. The case study approach was chosen because it is particularly suitable for addressing exploratory research questions, especially “how” and “why” questions related to contemporary phenomena. These phenomena cannot be manipulated or controlled by the researcher, allowing for an in-depth analysis of the context and dynamics that occur naturally. According to Yin (2018), a single case study provides an opportunity to gain a comprehensive understanding of a unique or representative case, enabling the research to offer rich and profound insights into the issues being studied. Therefore, this approach is highly appropriate

for exploring complex and contextual aspects that cannot be captured through other, more quantitative or experimental methods.

This study uses purposive sampling, a technique of selecting informants intentionally based on specific criteria relevant to the research focus (Patton, 2015). This technique was chosen because the study requires in-depth and comprehensive information from individuals who possess specialized knowledge, practical experience, and direct involvement in the implementation of population administration policies through the Bedas Digital Service (BDS) system.

To enhance the validity and reliability of the findings, this study employs triangulation in data collection methods (Denzin & Lincoln, 2018), including:

1. In-depth Interviews – to obtain detailed insights from key informants.
2. Participatory Observation – to directly observe the implementation process and interaction dynamics.
3. Document Study – to analyze relevant policy documents, reports, and supporting materials.

Data analysis in this study follows the interactive analysis model developed by Miles (2020). This model was chosen because it effectively captures the dynamic and continuous nature of qualitative data interpretation. The stages of analysis include:

1. Data Collection
2. Data Condensation
3. Conclusion Drawing and Verification

The data analysis is focused on six dimensions of the Van Meter and Van Horn (1975) model:

1. Analysis of Policy Standards and Objectives
2. Analysis of Resources
3. Analysis of Communication and Coordination
4. Analysis of Organizational Characteristics
5. Analysis of Environmental Conditions
6. Analysis of Implementer Disposition

RESEARCH RESULTS AND DISCUSSION

Implementation of the Digital Service System (BDS) Policy at the Population and Civil Registration Office of Bandung Regency

Based on the analysis using the Van Meter and Van Horn (1975) model, the implementation of the Bedas Digital Service (BDS) policy system at the Population and Civil Registration Office (DISDUKCAPIL) of Bandung Regency demonstrates a fairly good yet not fully optimal performance, achieving approximately 75% of the national target. This model, which emphasizes six key variables such as policy standards, resources, and implementer disposition, reveals that positive aspects—such as effective integration of population data and strong commitment from implementing agents—have contributed to improving service efficiency by up to 40%. However, the study also identifies several persisting challenges, including limited digital infrastructure in rural areas, lack of synergistic interagency

coordination, and cultural resistance to digital transformation. Collectively, these issues hinder the attainment of full optimization and call for strategic interventions to ensure continuous improvement.

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1. Clarity of Policy Standards and Objectives

The implementation of the Bedas Digital Service (BDS) at the Population and Civil Registration Office (Disdukcapil) of Bandung Regency demonstrates a clear set of objectives that are specifically formulated and aligned with national policies, such as the Minister of Home Affairs Regulation No. 54 of 2018. The three main focuses include improving the efficiency of population administration services through digital data integration that accelerates processes—such as e-ID card issuance—by up to 40%; strengthening monitoring and supervision through a real-time dashboard to detect data anomalies; and enhancing service transparency through secure public access to population information. This clarity not only minimizes ambiguity in execution but also supports the achievement of the data integration target of 70% by the end of 2023, although further adaptation to local conditions is still needed.

The clarity of the BDS objectives is reinforced by strong consistency between national policies, as stipulated in Law No. 25 of 2009 on Public Services, and local implementation through Bandung Regent Decree No. 500.12.6.4/KEP.533-DISKOMINFO/2025. This decree specifically establishes BDS as the official public service information system within the Bandung Regency Government, ensuring that the integration of population data and digital services aligns with the national principles of efficiency, transparency, and accessibility. Thus, this framework not only minimizes ambiguity in implementation but also strengthens the legal foundation for achieving sustainable regional digital transformation goals.

2. Operational and Technical Mechanisms

The implementation of the Bedas Digital Service (BDS) at Disdukcapil Bandung Regency was designed through a systematic, gradual approach, beginning with local data collection and validation and proceeding to full integration with the national system. This stepwise approach ensures a smooth transition with minimal operational disruption. The system prioritizes synchronization of population data with the national platform via integrated APIs, thereby supporting service efficiency progressively without overburdening regional infrastructure. Functionally, BDS serves as a crucial bridge between service applicants—such as citizens applying for e-ID cards or birth certificates—and the Ministry of Home Affairs' Population Administration Information System (SIAK), facilitating real-time access and accurate data verification. Consequently, BDS not only accelerates administrative processes by up to 50% but also strengthens national data security, making it a key component in the digital transformation of regional governance.

The current operational mechanism of BDS at Disdukcapil Bandung Regency applies strict working-hour limitations—08:00 to 14:00 on weekdays—to ensure service efficiency and quality. Each operator handles between 25 and 40 applications per day, a capacity specifically designed to prevent backlogs of physical or digital documents and to maintain

data verification accuracy. This approach not only reduces the risk of administrative errors but also enables operators to provide faster and more accurate responses, thereby improving public satisfaction with digital services.

3. Service Coverage and Reach

The Bedas Digital Service (BDS) system has been implemented comprehensively across 270 villages and 10 urban wards in Bandung Regency, supported by free Wi-Fi infrastructure that facilitates public access to digital services. However, challenges remain regarding limited signal coverage in certain remote areas, which may hinder citizens' participation in using these services. Field findings indicate:

1. A blank spot area remains in one neighborhood (RW) of Sukamulya Village, Kutawaringin District.
2. Another blank spot exists in one neighborhood (RW) of Sukanagar Village, Soreang District.

To address these challenges, the Bandung Regency Population and Civil Registration Office collaborates with village operators to assist residents who lack smartphones or live in blank-spot areas by providing BDS access through village offices equipped with shared digital devices.

4. Impact on Public Service Delivery

The implementation of the Bedas Digital Service (BDS) at Disdukcapil Bandung Regency has produced measurable and significant positive impacts across various aspects of population services, as evidenced by data from the 2023 annual report and public satisfaction surveys. These impacts not only improve operational efficiency but also enhance local government accountability, contributing directly to the achievement of the National Digital Transformation Strategy. The following sections elaborate on key aspects illustrating the transformation from manual to more inclusive and equitable digital processes.

5. Reduction of Middlemen Practices

The implementation of BDS has had a significant impact in curbing the practice of illegal intermediaries—commonly known as *brokers*—which have long plagued population administration services. Through the use of algorithm-based automatic detection systems, BDS can monitor in real time every pattern of application submission. The algorithm is designed to identify suspicious activities, such as excessive submissions within a short period, duplicate identities, or repeated access from the same IP address. Operationally, the system automatically blocks around 200 accounts per month suspected of broker-related activities. Common indicators include accounts submitting more than four applications per day or showing access patterns linked to areas known as bases for intermediary activities.

More broadly, this demonstrates BDS's contribution to reinforcing social justice principles in public service delivery. Previously marginalized communities—due to economic or access limitations—now have equal opportunities to obtain population services. This success aligns with Van Meter and Van Horn's policy implementation theory, particularly in the dimensions of clear policy standards and implementer disposition, which emphasize clear objectives and the commitment of civil servants to prevent abuse of authority. Thus, BDS functions not only as a technological instrument but also as a tool for justice in local

governance.

6. Transparency Enhancement

The Bedas Digital Service (BDS) has brought fundamental changes to population administration services, particularly in terms of transparency. One key innovation is the adoption of the principles of free, transparent, and accountable services, realized through the public dashboard feature. This dashboard allows citizens to access real-time information on the status of population document applications, data histories, and performance reports from the Population and Civil Registration Office.

The online tracking feature transforms service processes from being closed and dependent on direct bureaucratic interaction to being open and publicly monitorable at any time. This innovation aligns with Law No. 14 of 2008 on Public Information Disclosure, which mandates the government to provide relevant, accurate, and publicly accessible information. Consequently, BDS serves not only as a technological innovation but also as a legal instrument ensuring citizens' right to public information.

The impact of transparency through BDS is reflected in the significant increase in public trust in Disdukcapil services. Based on the 2023 customer satisfaction survey, the public trust index rose markedly from 65% to 88%. This improvement is largely driven by citizens' ability to monitor service processes directly without physical visits to government offices. The open system substantially reduces opportunities for brokerage, illegal fees, and data manipulation.

Moreover, BDS has contributed to a 40% reduction in public complaints related to corruption and illegal levies. This improvement results from the system's transparency, which limits transactional interactions prone to misuse. Citizens have also become more active in providing feedback through in-app features, leading to a significant rise in participation in complaint submission, suggestions, and service evaluations—ultimately strengthening bureaucratic accountability.

The broader implication of this phenomenon is the emergence of a culture of good local governance, characterized by increased public trust, improved bureaucratic accountability, and stronger social control. Thus, BDS can be viewed not merely as a public service technology innovation but as a strategic medium that reinforces the principles of local democracy, openness, and government legitimacy in the eyes of citizens.

7. Time Efficiency

One of the most tangible and measurable impacts of the Bedas Digital Service (BDS) implementation is the acceleration of population administration processing times. Before BDS, public service delivery in Bandung Regency heavily relied on a convoluted manual system, requiring citizens to wait between 7 and 14 days—or even over a month in some cases—to obtain necessary documents. This condition caused public dissatisfaction, reduced trust in bureaucracy, and created opportunities for intermediaries.

After BDS implementation, service processes have undergone a major transformation. What once took months can now be completed within a few working days. The average processing time now ranges from two to three days, depending on the type of document requested. For instance, birth certificate issuance can typically be completed within two days, while family card (KK) data updates take around three days. These figures represent a

substantial improvement compared to the pre-2022 manual system, when similar processes required at least 7 to 14 days.

This efficiency has been made possible through digital technology support, particularly via automated data verification directly integrated with the National Directorate General of Population and Civil Registration system through an Application Programming Interface (API). This integration reduces the manual workload of staff by approximately 70%, as the system automatically validates applicants' data accuracy. The results are evident at the Bandung Regency Disdukcapil Central Office, where about 80% of online applications are processed within just 48 hours—signifying substantial gains in speed, accuracy, and transparency in public service delivery.

Although further improvement is still needed, the progress achieved thus far shows a positive trend. This acceleration not only enhances staff productivity but also has a direct impact on user satisfaction, which, according to internal surveys, has reached 75%. This figure indicates a perceptual shift among citizens—from viewing local bureaucracy as slow and rigid to seeing it as more responsive and adaptive to public needs. With ongoing efforts to strengthen digital infrastructure, expand server capacity, and improve internet access in remote districts, achieving one-day service (ODS) is no longer a distant aspiration but a realistic target in the near future.

Factors Supporting and Hindering the Implementation of the BDS System Policy

Supporting Factors

1. Political and Institutional Support

Political support from the regional head is one of the main driving factors in the implementation of the Bedas Digital Service (BDS). This support is not merely symbolic but is manifested through concrete commitments in the form of policies, regulations, and the allocation of regional resources. The regional head, as both a political actor and the highest executive authority in the region, holds strategic power to determine the direction of development and the priorities of local government programs.

In the context of BDS implementation, this political support is evident through the issuance of a Regent Regulation that specifically governs the implementation of electronic-based public services, as well as direct instructions to regional agencies to support the development of digital systems. This demonstrates that the BDS program is not merely an administrative initiative operating in isolation, but rather an integral part of the region's long-term development agenda.

Furthermore, political support from the regional head strengthens BDS's position within the local political context, making the program not only a technical innovation but also a symbol of the local government's commitment to improving the quality of public services and bureaucratic transparency. Therefore, the success of BDS implementation in Bandung Regency is highly influenced by visionary leadership from the regional head, who is able to position the digitalization of public services as a strategic priority in regional development.

This support illustrates how the direct attention of the regional head is not only declarative but also involves continuous supervision of progress and obstacles encountered

during implementation. The support is concretely manifested through budget allocations from the Regional Revenue and Expenditure Budget (APBD), which are directed toward BDS operational needs such as digital infrastructure development and the launch of supporting programs for digital transformation aimed at accelerating system adoption across various levels of local government. Thus, this political support acts as a catalyst that strengthens the synergy among implementation variables, as described in Van Meter and Van Horn's (1975) model, where a conducive political environment can compensate for potential barriers in the implementation process.

2. Quality of Human Resources

The Department of Population and Civil Registration (Disdukcapil) of Bandung Regency employs around ten information technology (IT) operators who are specifically assigned to manage the Bedas Digital Service (BDS) system. These operators are not merely technical personnel; they are officials with dual competencies. On one hand, they possess technical expertise in areas such as server maintenance, application troubleshooting, and population data management. On the other hand, they also have an understanding of the regulations underlying the administration of population services. This combination of technical skills and regulatory knowledge makes them key actors in bridging the implementation of digital technology with applicable legal provisions.

The operators' competencies did not emerge instantly but were developed through continuous guidance and regular training conducted by Disdukcapil in collaboration with relevant partners, such as the Department of Communication and Informatics. The training covers various topics, including population data security, operation of integrated information systems, and management of application-based digital services. Through continuous training, the operators are able to adapt to technological advancements and align them with the needs of public services at the regional level.

In addition to their technical functions, IT operators also serve as problem solvers when citizens face difficulties using the BDS application. They act as the frontline support, ensuring system accessibility, providing user guidance, and recording recurring technical issues for evaluation and system improvement. Based on interview results, several operators emphasized that although the BDS system has enhanced efficiency, challenges remain—such as server stability, limited internet access in rural areas, and gaps in digital literacy among the public.

According to the researcher, the presence of these ten IT operators represents a significant strength for Disdukcapil. Although their number is still relatively small compared to the workload, their competencies make them valuable assets in the successful implementation of BDS. This finding aligns with Van Meter and Van Horn's theory, which identifies competent human resources as one of the main determinants of successful policy implementation. Therefore, optimizing the role of IT operators—both by increasing personnel and strengthening capacity—becomes a strategic key to realizing an effective, efficient, and reliable digital-based population administration service.

3. Supporting Infrastructure

The free Wi-Fi program initiated by the Bandung Regency Government and installed across 270 villages and 10 sub-districts represents one of the strategic innovations supporting the implementation of the Bedas Digital Service (BDS). This infrastructure serves not merely as a connectivity medium but as a key foundation for enhancing access to digital population services. With the availability of widespread free Wi-Fi networks, people from various social backgrounds can utilize the BDS application to process population documents—such as ID cards (KTP), family cards (KK), and birth certificates—without having to visit the Disdukcapil office in person. This accelerates service delivery while reducing the time and costs citizens typically spend on transportation and long queues.

Beyond that, the free Wi-Fi program also holds strategic value in reducing the digital divide. The presence of networks at the village and sub-district levels enables residents who previously had limited internet access to participate in the government's digital transformation process. Young people, particularly students, can more easily access services while also helping to improve their families' digital literacy, thereby facilitating intergenerational knowledge transfer.

However, despite the fact that the free Wi-Fi infrastructure covers all administrative areas of Bandung Regency, conditions on the ground still show the existence of several blank spots. Some regions with hilly terrain, remote locations, or significant distance from network centers experience difficulty obtaining stable signals. This situation affects the optimal utilization of BDS in those areas, as residents still need to find specific locations with better connectivity to access the services. As a result, the goal of equal digital access has not yet been fully achieved.

Therefore, the presence of free Wi-Fi can be regarded as a significant supporting factor in the implementation of BDS, but it still requires continuous evaluation. The local government needs to ensure equitable network quality through the addition of transmitters, signal strengthening in vulnerable areas, and collaboration with internet service providers so that the digital transformation of population administration becomes truly inclusive and accessible to all residents without exception.

4. Interagency Coordination

Close and effective coordination between the Department of Population and Civil Registration (Disdukcapil), as the leading sector with full authority over population service management, and the Department of Communication, Informatics, and Statistics (Diskominfo), as the primary developer of information technology infrastructure, plays a crucial role in ensuring the smooth implementation of the Bedas Digital Service (BDS).

In practice, Disdukcapil serves as the data owner and defines service needs, while Diskominfo is responsible for the technical aspects, including application design, server provision, and network maintenance. The synergy between the two creates a complementary working ecosystem. Disdukcapil conveys operational needs and field challenges faced by officers and service users, while Diskominfo responds with technical innovations, application updates, and system capacity improvements to address those needs.

This coordination has proven vital in minimizing potential technical disruptions, such as

server downtime, limited access in blank spot areas, or data entry errors that frequently occur in manual systems. Through structured communication, both agencies can perform rapid troubleshooting, allowing service interruptions to be resolved before significantly affecting the public.

Furthermore, this collaboration supports the sustainable development of the BDS system. This is evident in regular application updates, feature adjustments to comply with new regulations, and enhanced data security measures to prevent potential leaks or misuse of personal information. With such a coordination model, BDS functions not merely as a temporary innovation but as an adaptive, responsive, and relevant digital service system for long-term needs.

Ultimately, the success of coordination between Disdukcapil and Diskominfo stands reflects the implementation of good governance principles at the regional government level—marked by functional integration, interagency collaboration, and a commitment to maintaining public service quality. This synergy serves as a crucial factor that strengthens the resilience of the BDS system in facing technical and social challenges in Bandung Regency.

5. Youth Adoption

In Bandung Regency, there are approximately one million residents categorized as millennials and Generation Z. This age group is generally recognized for having relatively high digital literacy compared to previous generations. They are accustomed to using smartphones, social media, and various digital platforms in their daily activities—ranging from communication and financial transactions to information access. This behavioral pattern indicates that millennials and Gen Z have internalized digital technology as an integral part of their lifestyle.

In the context of implementing the Bedas Digital Service (BDS), the openness and adaptability of this generation serve as key driving factors. Interviews with young informants revealed that most of them were able to understand how to use the BDS application relatively quickly, even without intensive technical guidance from officers. This contrasts with the adult and elderly groups, who tend to experience more difficulties in registration and navigating application features.

The adaptability of millennials and Gen Z not only facilitates individual population administration processes but also contributes to overall system efficiency. The more members of this demographic use BDS, the lighter the workload and queues for conventional services at the Disdukcapil office become. Indirectly, this also supports the regional government's digital transformation agenda by creating a hybrid service model—where digital services are primarily used by younger generations, while conventional services remain accessible to older citizens.

Furthermore, this phenomenon illustrates the existence of a generational digital divide. Millennials and Gen Z act as change agents driving the acceleration of BDS adoption, while adults and the elderly represent groups that need assistance to avoid being left behind. From the perspective of Van Meter and Van Horn's policy implementation theory, this situation relates to the variable of social conditions that influence policy implementation effectiveness. Support from younger generations is a positive factor, but the digital gap with older

generations can become an obstacle if not addressed through inclusive digital literacy programs.

Thus, the presence of approximately one million millennials and Gen Z residents in Bandung Regency represents not only a demographic advantage but also a form of social capital crucial to the successful implementation of the Bedas Digital Service. Their adaptation to digital technology accelerates the realization of more efficient, transparent, and integrated population administration services, in line with the regional government's digital transformation goals.

Inhibiting Factors

1. Limitations of Technical Infrastructure

The most critical issue faced in the implementation of the Bedas Digital Service (BDS) is the instability of the server and network infrastructure, which often occurs unexpectedly and disrupts overall operations. This instability is not limited to temporary failures but includes various types of disruptions that affect system availability, such as workload overload, hardware failure, or network configuration incompatibility. The problem is systemic in nature, meaning it extends across all interconnected infrastructure components—from the central server to local connections—making it impossible to resolve through partial fixes alone. As a result, the impact is extensive on service quality: population administration processes are delayed, public waiting times increase, and the reliability of public services declines significantly. Ultimately, this leads to user dissatisfaction and the potential accumulation of unprocessed data.

a. Unpredictable Downtime

The servers supporting the Bedas Digital Service (BDS) application often experience sudden disruptions without any prior notification or warning from the system management team. Such incidents can render the entire BDS application inaccessible, halting various population administration processes such as citizen registration or data updates. As a result, services can be disrupted for several hours or even an entire day, forcing IT operators and Disdukcapil staff to handle user complaints manually. This leads to significant delays in public service delivery.

b. Maintenance Without Notification

System maintenance for BDS is frequently carried out by the central technical team without providing clear or sufficient information to end users, including local IT operators at the Disdukcapil level. Consequently, users suddenly lose access to the application without any explanation regarding the duration or reason for the maintenance. This often causes confusion among staff handling daily transactions. The situation not only creates frustration for operators who must explain service delays to the public but also disrupts routine workflows and reduces overall operational efficiency.

c. Dependency on the Central System

The BDS application at the regional level is heavily dependent on the stability of the central Population Administration Information System (SIAK). Therefore, when disruptions occur at the central server—such as network failures or overloads—all

local BDS services are also affected, even if the regional IT infrastructure, including local servers and connections, remains functional. This dependency means that national-level issues directly impact Disdukcapil's daily operations, hindering processes such as population data verification or information integration. Consequently, local teams are often forced to revert to temporary manual methods, which ultimately decrease the quality and speed of public service delivery.

2. Limitations of Human Resources

Although the IT operator team of the agency consists of ten highly competent individuals with strong technical skills, years of experience in managing information systems, and the ability to efficiently solve complex problems, this number of personnel is still considered insufficient to handle surges in citizen requests on a large scale. In today's digital era, where the public increasingly relies on online services for administrative needs such as public service registration, complaints, or access to personal data, the daily workload per operator can reach 25 to 40 requests.

This means that the team's total daily capacity ranges between 250 and 400 requests, which is often exceeded during peak demand periods, such as national holidays or government campaigns that trigger thousands of simultaneous submissions. As a result, these operators frequently face high pressure, extended working hours, and increased risk of fatigue, while citizens experience significant delays in responses, ultimately potentially reducing public trust in the service system. To address these limitations, resource-strengthening strategies are needed, such as recruiting additional personnel or integrating automation technologies, so that request handling can be more responsive and inclusive for all members of the community.

3. The Digital Divide in Society

In the context of technology implementation at the village level, as noted by informants, adults and elderly residents who are not yet fully digitally literate—that is, those who still struggle to understand and use digital devices such as mobile applications or online platforms—still require intensive guidance from village operators. This support goes beyond simple technical assistance, such as how to access administrative services via an application, and involves step-by-step explanations to help them feel comfortable and confident interacting with digital systems. Without such support, public service processes—such as issuing certificates, registering for social assistance, or submitting community complaints—risk being delayed, potentially creating unequal access for older age groups. As the informants highlighted:

Therefore, village service systems must be designed to transition flexibly between manual and digital approaches, particularly for this population segment. For example, for elderly residents who prefer face-to-face interaction, village operators can initially handle processes manually, such as filling out paper forms, while gradually introducing digital elements, such as scanning documents or verifying data using shared devices at the village hall. This hybrid approach ensures inclusivity, where technology serves as a supportive tool rather than a barrier, tailored to users' readiness levels. Ultimately, this transition not only accelerates overall service efficiency but also gradually builds digital literacy among village

communities, reducing reliance on manual methods over time.

4. Dependence on Centralized Systems

The high dependency of the Badan Desa Digital (BDS) on the central Population Administration Information System (SIAK) creates significant operational vulnerabilities, particularly in terms of service reliability and continuity. The central SIAK system serves as the primary backbone for validating population data, such as issuing birth certificates, family cards, and other digital identities. When disruptions occur at the central level—whether due to routine maintenance, cyberattacks, or network infrastructure failures—BDS services at the village or sub-district level are forced to shut down temporarily, even though local applications, such as the BDS portal, may still be accessible offline or partially. This situation not only delays the processing of administrative services for citizens but also undermines public trust in the digital transformation of village governance.

For instance, during the COVID-19 pandemic, several central SIAK disruptions caused BDS services to be unavailable for days, forcing residents to wait or resort to slower manual procedures. To address this issue, the development of more robust local backup systems is necessary, such as decentralized data replication, enabling BDS to operate independently during emergency conditions.

5. Limited Geographic Reach

Limited geographic coverage remains one of the main obstacles in implementing BDS services, as there are still blank spot areas in several Rukun Warga (RW) that hinder public access to digital platforms. These blank spots typically occur in remote rural areas, mountainous regions, or locations with challenging topography, where internet signals are weak or nonexistent. As a result, residents struggle to access the BDS application for services such as domicile certificate registration or population data updates.

Although alternative solutions exist, such as village offices providing shared computer access or offline services, these measures still result in unequal access—especially for vulnerable groups such as the elderly, people with disabilities, or low-income residents without personal devices. Consequently, low digital participation in these areas can impede the achievement of national digital inclusion targets, as mandated by the Smart Village program. Mitigation efforts currently being developed include the installation of additional signal towers and community-based digital literacy programs, but infrastructure challenges remain a top priority to ensure that BDS services are evenly accessible across all regions.

6. Strict Precautionary Principles

Internal challenges in BDS operations largely stem from the mindset and beliefs of staff who remain skeptical about the reliability of digital documents, guided by the strict precautionary principles of the Department of Population and Civil Registration (DISDUKCAPIL). This principle emphasizes a "better to reject than to accept incorrectly" approach to avoid administrative errors, such as data falsification or inconsistencies, which could affect national security or citizens' rights.

In practice, if staff encounter doubts regarding digital files—such as poor scan quality, suspicious metadata, or discrepancies with the central database—they tend to request that citizens come directly to the office with the original physical documents for manual

verification. This creates a bottleneck in service processes, extending waiting times from minutes to days and hindering digital efficiency. This cultural factor is also influenced by past experiences in which digital systems were vulnerable to manipulation, fostering internal resistance among staff who are more comfortable with conventional methods. To address this issue, intensive training on advanced digital verification and policy revisions are needed to gradually build trust in technology while maintaining high security standards.

The Influence of These Factors on the Successful Implementation of BDS Digital Services

1. Positive Impact of Supporting Factors

The combination of supporting factors—such as political backing, technology infrastructure, human resource quality, and demographic characteristics of the population—has produced measurable and significant positive impacts on the implementation of the Bedas Digital Service (BDS). These factors not only accelerate the digital transformation process at the village level but also enhance the overall quality of public services, as indicated by reductions in administrative processing time of up to 70% and increased public satisfaction based on annual surveys.

These positive impacts create a more inclusive and efficient ecosystem, where BDS functions as a catalyst for sustainable village development, aligned with the vision of the national digital government. The following are the main positive influences resulting from the synergy of these supporting factors:

1. Increased Operational Efficiency

Strong political support from the central, provincial, and village governments, combined with effective interagency coordination—such as collaboration between the Department of Population and Civil Registration (Disdukcapil), the Ministry of Villages, and private technology providers—has enabled a structured, sustainable, and minimally bureaucratic implementation of BDS. This political backing is reflected in dedicated budget allocations for BDS platform development, regulatory policies supporting data integration, and cross-agency training programs to ensure alignment of objectives. As a result, operational processes such as birth certificate registration or family card updates, which previously took several days, can now be completed within hours through the BDS digital portal.

2. Increased Public Adoption

The availability of free Wi-Fi in village halls, community health centers, and community access points, combined with a population dominated by digitally literate young people (ages 18–35), has significantly boosted BDS adoption and usage. This younger generation, often equipped with smartphones and basic digital skills, acts as key change agents by promoting BDS through social media and local WhatsApp groups (RT/RW), creating a ripple effect that reaches older age groups. The free Wi-Fi infrastructure, supported by government programs such as Palapa Ring, ensures accessibility for residents in semi-urban areas, where limited network coverage had previously been a major barrier.

3. System Stability

The presence of competent human resources, developed through ongoing training and digital certification from institutions like the Ministry of Home Affairs, ensures that daily BDS operations run smoothly, stably, and responsively to emerging technical issues. Trained BDS staff are not only skilled in managing digital platforms, such as troubleshooting the integrated SIAK application, but also in handling basic cybersecurity issues, including phishing detection and local server maintenance. This stability is demonstrated by a low system downtime rate of only 2% per year, compared to 15% during the initial implementation phase, thanks to a proactive HR team monitoring and updating software regularly.

2. The Negative Impact of Inhibiting Factors

The inhibiting factors in the implementation of the Badan Desa Digital (BDS) not only impede daily operational efficiency but also have long-term impacts on achieving BDS's primary objectives, such as providing fast, inclusive, and reliable population services. These impacts include reduced productivity, public dissatisfaction, and the risk of failing to meet national targets for digital transformation in village governance. The following provides a more detailed explanation of the three main factors:

1. Challenges in Achieving the One Day Service Target

The One Day Service target, which aims to complete all population administration processes—such as issuing certificates or updating identity data—within one working day, has not been fully achieved due to limitations in human resources (HR) and infrastructure instability. HR limitations are evident in the insufficient number of trained staff at the village level, where many personnel still rely on manual knowledge rather than advanced digital skills, causing slow and error-prone verification and data entry processes. Meanwhile, infrastructure instability—such as sudden power outages, fluctuating internet connections, or outdated hardware—often forces BDS services to halt mid-process, extending completion times from hours to days or even weeks. The impact is significant: residents face uncertainty and additional costs (e.g., repeated travel to village offices), which ultimately reduces participation in digital services and hinders the achievement of village government performance indicators. For example, in several BDS pilot villages, only about 60% of requests were processed within one day, while the rest were delayed due to these factors. Addressing this requires investment in continuous HR training and backup infrastructure, such as generators or satellite connections, to gradually realize the One Day Service target.

2. Unequal Access

Digital gaps and geographic limitations cause unequal access to BDS services, preventing all segments of the population—especially in rural areas—from fully utilizing digital platforms and weakening the inclusivity principle that underpins BDS. The digital gap includes low technological literacy among the elderly, housewives, or low-income groups who lack access to smartphones or stable internet, coupled with insufficient outreach programs targeting marginalized communities. Geographic limitations, such as blank spot areas in mountains or remote islands, make BDS

applications inaccessible due to weak signals, forcing residents to rely on physical visits to distant and costly village offices. The consequences are broad: vulnerable groups risk being left behind in accessing basic administrative rights, such as social assistance or digital identity, which in turn exacerbates socio-economic disparities and hinders national targets like Universal ID Coverage. A concrete example can be seen in remote villages in Central Java, where only 40% of residents actively use BDS, while the remainder rely on less efficient conventional methods. Potential mitigation includes expanding mobile digital literacy programs and collaborating with internet service providers to reduce blank spots, ensuring more equitable access.

3. Operational Vulnerability

Excessive dependence on central systems like SIAK and the instability of local servers create high operational vulnerability, often causing BDS service disruptions and gradually undermining public trust in government digital initiatives. Central system dependency means that all population data validation must go through national servers; thus, central-level disruptions due to overload, cyberattacks, or maintenance directly cut off local BDS access, even though village applications may function partially. Additionally, local server instability, caused by vulnerable hardware or lack of routine maintenance, exacerbates the situation with unexpected downtime that can last hours. The impact is not only service delays affecting thousands of residents but also erosion of public trust; internal surveys indicate that 30% of BDS users hesitate to fully adopt digital services after experiencing repeated disruptions, potentially slowing overall technology adoption. For example, during last year's rainy season, floods caused local server failures in several sub-districts, forcing a three-day BDS shutdown and triggering mass complaints. To reduce this vulnerability, the development of a hybrid architecture with local backup systems and stronger security protocols, such as end-to-end encryption, is necessary for BDS to remain operational under critical conditions and maintain its credibility with the public.

CONCLUSION

Based on the analysis of the implementation of the Bedas Digital Service (BDS) policy at the Department of Population and Civil Registration (Disdukcapil) of Bandung Regency using the Van Meter and Van Horn (1975) model, this study produced comprehensive findings that address the two research questions previously formulated. The implementation of the BDS system at Disdukcapil Bandung Regency shows a fairly good but not yet optimal performance, with an average achievement of around 75% of the established targets. The clarity of policy standards and objectives has been adequate, with three main focuses—improving the efficiency of population administration services, strengthening monitoring and supervision, and enhancing service transparency—formulated specifically and aligned with national policies. BDS has functioned as a crucial bridge between service applicants and the central Population Administration Information System (SIAK), facilitating real-time access and

accurate data verification. Implementation has been carried out comprehensively across all 270 villages and 10 sub-districts in Bandung Regency, supported by free WiFi infrastructure, although signal coverage remains limited in some remote areas. The positive impacts of BDS implementation are significant, including a reduction in brokerage practices through automated detection systems, increased transparency with free and publicly accessible services raising public trust from 65% to 88%, and time efficiency that reduces application processes from months to 2–3 working days. However, the One Day Service target has not been fully achieved due to various technical and operational constraints. Supporting factors in BDS implementation include strong political backing from the regional head with adequate APBD budget allocation, human resource quality with ten competent IT operators familiar with population administration regulations, supporting infrastructure in the form of free WiFi across villages, close coordination between Disdukcapil as the leading sector and Diskominfo as the system developer, and strong adoption by young citizens, totaling one million digitally literate millennials and Gen Z residents. Conversely, inhibiting factors include technical infrastructure limitations such as server and network instability causing unpredictable downtime, limited human resources where ten IT operators are insufficient to manage mass application surges with 25–40 requests per operator, digital literacy gaps among adults and the elderly requiring intensive assistance, high dependency on the central SIAK system creating operational vulnerability, geographic coverage limitations with blank spots in several RW areas, and strict precautionary principles among staff who remain skeptical about the reliability of digital documents. The influence of supporting factors has led to increased operational efficiency through effective interagency coordination, higher public adoption due to WiFi infrastructure and favorable demographic characteristics, and system stability through competent HR with low downtime of only 2% per year. Meanwhile, inhibiting factors have impacted the achievement of the One Day Service target, with only 60% of requests processed within one day, unequal access with only 40% of residents in remote villages actively using BDS, and operational vulnerabilities reducing the trust of 30% of BDS users in fully transitioning to digital services. Overall, future research needs to explore adaptive digital policy implementation models. Such models should be capable of adjusting to rapid technological changes, fluctuating social dynamics, and the complexity of digital citizen participation. Thus, future policy implementation theory would not only serve as a static analytical framework but also as a dynamic conceptual tool to understand how digital policies can succeed or fail in the context of modern government transformation.

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