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Journal of Mathematics Instruction, Social Research and Opinion
Vol. 5, No. 1, March 2026, pp. 975 – 989, https://doi.org/10.58421/misro.v5i1.1288
ISSN 2962-7842

Collaborative Governance and New Public Service in Realizing a Single Source of Truth: Evidence from the SIPEDULI and JSDDD Programs in Jembrana Regency

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Article Info

Article history:

Received 2026-02-11
Revised 2026-03-19
Accepted 2026-03-31

Keywords:

Collaborative Governance
Data Governance
Jembrana One Data from the Village
New Public Service
Single Source of Truth
SIPEDULI

ABSTRACT

In the era of digital disruption, an agile and responsive bureaucracy is essential to improve governance and public service delivery. The Government of Jembrana Regency has implemented the Online Population Administration Service System (SIPEDULI) and the Jembrana One Data from Villages program to support digital services and village-level data governance. This study aims to evaluate the effectiveness of SIPEDULI, assess the quality of population data, and analyze collaborative governance dynamics in achieving a Single Source of Truth at the village level. Using a descriptive qualitative approach, data were collected through interviews, observation, and document analysis. The analysis integrates perspectives on e-government effectiveness, data quality, collaborative governance, and New Public Service principles. The findings show that SIPEDULI has improved service accessibility and efficiency. However, its contribution to enhancing data validity remains limited due to weak system integration and insufficient coordination among stakeholders. Collaborative governance has not been fully institutionalized, and community participation in data updating is still largely administrative rather than substantive. These results imply that achieving a reliable Single Source of Truth requires stronger system integration, improved inter-organizational collaboration, and enhanced digital capacity at the village level. Additionally, reinforcing participatory and citizen-centered service principles is crucial to ensure sustainable data governance and higher data accuracy in public administration.

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1. INTRODUCTION

Digital transformation has shifted government governance from hierarchical models toward more collaborative, participatory, and data-driven approaches. E-government is no longer limited to digitizing services, but also reshapes how governments interact with citizens and manage information [1]. In this context, valid, consistent, and reliable data

becomes a key foundation for evidence-based policymaking. However, the expansion of digital systems has also introduced challenges, particularly data fragmentation and inconsistencies across institutions, which hinder integrated governance [2].

Despite the implementation of the One Data Indonesia (SDI) policy to promote accurate, integrated, and shareable data, many regions still face obstacles such as weak coordination, sectoral silos, and differences in data standards. This indicates that data governance issues are not solely technical but also institutional and collaborative in nature [3]. This policy aims to produce government data that is accurate, up-to-date, integrated, and shareable among institutions [4], [5]. The implementation of SDI also represents a strategic step toward realizing the concept of a Single Source of Truth (SSoT), namely an integrated data architecture that enables stakeholders to access and utilize consistent and reliable data as a basis for decision-making[1]. Nevertheless, the implementation of SDI in many regions still faces several challenges, such as differences in definitions and data collection methods among institutions, sectoral ego that hinders information system integration, and weak coordination and accountability across levels of government. Therefore, effective data governance requires collaboration among various cross-sector actors [6].

One type of data that holds a strategic position in government governance is population data. Based on Undang-Undang Republik Indonesia Nomor 24 Tahun 2013 Tentang Perubahan Atas Undang-Undang Nomor 23 Tahun 2006 Tentang Administrasi Kependudukan [7], population data is used for various purposes, including public services, development planning, budget allocation, democratic development, law enforcement, and crime prevention. This provision emphasizes that population data managed by the Directorate General of Population and Civil Registration serves as the primary source of valid and reliable data for various government services. Individual, family, and territorial data play an important role in improving development effectiveness because they serve as the foundation for planning and policymaking processes [8]. However, several studies indicate that issues related to the validity and consistency of population data remain a challenge that affects both the quality of data collection and the accuracy of development planning [9]. These problems are generally caused by fragmented information systems among institutions and weak mechanisms for continuous data updating.

E-government innovations at the local level, including Jembrana's JSDDD program, are not only aimed at improving service efficiency and public access but must also be capable of producing valid and integrated data as a reliable basis for policymaking [10]. Through JSDDD, the local government developed an integrated data system covering individual, family, and territorial data down to the village level, which supports development planning and enhances the statistical capacity of village officials. In this framework, villages function not only as data producers but also as data users in decision-making processes. In parallel, the SIPEDULI system was introduced to improve the efficiency and accessibility of population administration services. While it enables online applications, tracking, and document printing, its lack of integration with JSDDD raises concerns about its effectiveness in ensuring the validity and consistency of population data.

Conceptually, the issue of population data validity is not only related to the technological aspects of information systems but also to data governance and public

governance. Therefore, the approaches of Collaborative Governance and New Public Service (NPS) become relevant in explaining how various actors, local governments, village governments, technical agencies, and communities collaborate in producing valid and reliable data. The concept of collaborative governance emphasizes the importance of cross-actor collaboration in public decision-making processes [11], while the NPS approach highlights that citizens should be viewed as active partners in the delivery of public services [12]. In the context of population administration, the participation of citizens and village governments in reporting population events becomes a key factor in maintaining data validity.

Most existing studies examine e-government effectiveness, data quality, and collaborative governance separately. E-government research tends to focus on system performance and user satisfaction, while data quality studies emphasize technical aspects of governance. Meanwhile, collaborative governance and New Public Service (NPS) perspectives highlight participation and actor collaboration but rarely connect them to data validity as a strategic outcome. This fragmentation reveals a clear research gap. This study addresses that gap by integrating the evaluation of e-government effectiveness, data quality, collaborative governance, and NPS principles within a unified data governance framework to achieve a Single Source of Truth at the village level. Specifically, it aims to evaluate the effectiveness of SIPEDULI, assess the quality of population data in the JSDDD program, and analyze the dynamics of collaboration and public service principles in supporting data validity. Theoretically, this research contributes by bridging multiple perspectives into a more comprehensive data governance approach. Practically, it provides insights for policymakers to strengthen system integration and optimize data-driven governance, enabling more effective and sustainable policy implementation.

2. METHOD

This study employs a descriptive qualitative approach to examine the effectiveness of system implementation and the interaction dynamics among actors in village-level population data governance. The research was conducted in Warnasari Village, Jembrana Regency, from November to December 2025, using interviews, observation, and document analysis.

Primary data were obtained through in-depth interviews with 10 informants selected using purposive sampling based on their direct involvement in SIPEDULI and JSDDD implementation. The informants represent key institutional actors at both the regional and village levels.

Table 1. Research Informants

No	Category of Informants	Number
1	Department of Population and Civil Registration officials/operators	3
2	Department of Communication and Informatics officials	2
3	Central Statistics Agency (BPS) officials	1
4	Village Head (Perbekel) of Warnasari	1
5	Village-level system operators	3
	Total	10

Additional data were collected through participatory observation and official documents, including regulations, technical guidelines, and institutional reports. Ethical considerations were strictly applied throughout the research process. All informants provided informed consent prior to participation, after receiving clear explanations regarding the research objectives, procedures, and use of data. Confidentiality and anonymity were ensured by not disclosing personal identities in the reporting of findings. Informants were also given the right to withdraw at any stage of the research.

Data validity was ensured through triangulation of sources, techniques, and time. Data were analyzed using the interactive model of Miles, Huberman, and Saldaña, involving data reduction, data display, and conclusion drawing. This approach enables a comprehensive and credible understanding of system effectiveness, data quality, and collaborative governance dynamics.

3. RESULTS AND DISCUSSION

3.1. Results

Effectiveness Analysis of SIPEDULI from the DeLone & McLean Perspective

The results of this study indicate that SIPEDULI demonstrates generally strong effectiveness when analyzed using the DeLone and McLean Information System Success Model [13]. Empirically, the system performs well across key dimensions, particularly system quality, system usage, user satisfaction, and net benefits.

Table 1. Summary of Empirical Findings

Dimension	Key Findings
System Quality	Easy to use (web & mobile), accessible, secure; handles ±100 requests/day; minor slowdowns at peak hours
Information Quality	Information is complete and relevant; occasional input errors from users; no automated validation.
Service Quality	Training and informal support are available; complaint channels exist; support remains reactive.
System Usage	Stable usage (2022–2024); significant increase in 2025 due to digitalization policy
User Satisfaction	Generally positive; users highlight efficiency and ease of access
Net Benefits	Faster services, reduced costs, improved administrative efficiency, and real-time monitoring

In terms of system quality, SIPEDULI is characterized by ease of use, accessibility, and reliability, supported by dual access through web and mobile platforms. The system is capable of processing more than 100 service requests per day, although minor technical constraints still occur during peak hours. From the information quality perspective, SIPEDULI provides relevant and comprehensive information; however, data accuracy is occasionally affected by user input errors and the absence of automated validation mechanisms.

Service quality is maintained through training programs, informal communication channels, and complaint services, although these remain reactive and not yet fully institutionalized. System usage data show a stable trend from 2022 to 2024, followed by a significant increase in 2025, indicating that SIPEDULI has evolved into the primary platform

for population administration services. However, disparities in usage across villages persist due to differences in digital literacy, infrastructure, and socio-demographic conditions.

User satisfaction is reflected in consistent system utilization and positive feedback, particularly regarding efficiency and ease of access. Furthermore, SIPEDULI generates substantial net benefits at both organizational and societal levels, including improved administrative efficiency, faster service delivery, reduced costs, and enhanced accessibility.

Despite these strengths, the findings also reveal that SIPEDULI's effectiveness remains limited in supporting data integration and validation. This suggests that while the system is operationally effective, further improvements in system integration, automated validation, and digital capacity are necessary to optimize its role in data-driven governance.

Data Quality of JSDDD and Challenges in Realizing a Single Source of Truth

Based on the data quality framework proposed by Wang and Strong [14], the findings show that the JSDDD program has established a comprehensive village-based data system integrating individual, family, territorial, and business data. As a bottom-up data initiative, it positions villages as primary data producers and provides a strong foundation for regional data-driven governance.

Table 2. Summary of JSDDD Data Quality Findings

Dimension (Wang & Strong)	Key Findings
Intrinsic Quality	Data is highly detailed (218 family variables; 194 individual variables), but discrepancies exist with official data (220,000 vs 329,399 population)
Contextual Quality	Highly relevant for planning; includes socio-economic, health, and education variables not available in national data.
Representational Quality	Standardized and structured; follows SDI principles; easy to interpret and integrate
Accessibility & Security	API-based interoperability; basic data security implemented

Empirically, JSDDD demonstrates strong performance in contextual and representational dimensions. The dataset is highly relevant for development planning due to its richness and inclusion of socio-economic indicators beyond standard administrative data. Its standardized structure also supports consistency and ease of use across institutions. However, critical challenges emerge in the intrinsic dimension, particularly data accuracy and coverage. A significant discrepancy between JSDDD census data and official population records indicates limitations in data collection, influenced by time constraints, logistical barriers, and high population mobility. Despite strong initial validation supported by trained statistical personnel, data reliability over time remains a concern.

The main issue lies in the lack of continuous data updating mechanisms. JSDDD data are relatively static, while population data are dynamic, creating risks of inconsistency and fragmentation. This condition weakens its role in achieving a Single Source of Truth.

The findings suggest that system integration is a key solution, particularly through linking JSDDD with SIPEDULI. As a real-time service platform, SIPEDULI can provide continuous data updates. Integrating both systems would enable automatic synchronization, improving data validity and ensuring the sustainability of a unified population data system.

The Dynamics of Collaborative Governance and the Application of New Public Service Principles in Data Governance

The findings reveal that the development of data governance in Jembrana Regency is strongly shaped by collaborative governance involving multiple actors. These include Bappeda as the data coordinator [15], BPS as the data supervisor [16], Kominfo as the data custodian, village governments as data producers, academics as partners, and the community as the primary source of data. This structured division of roles enables coordination and supports the implementation of an integrated, village-based data system.

Table 3. Summary of Collaborative Governance and NPS Findings

Aspect	Key Findings
Actors & Roles	Clear role distribution among government agencies, villages, academics, and the community
Institutional Framework	Supported by formal regulations and cross-sector coordination forums
Trust Building	Villages have strong ownership as active data producers.
Leadership	Facilitative leadership strengthens coordination and reduces sectoral ego.
NPS Implementation	Citizen-oriented services; inclusive access (web & mobile)
Community Participation	Present but still administrative; not yet fully active
Key Challenges	Limited system integration; uneven digital capacity

Empirically, collaboration is supported by formal regulations and coordination forums that facilitate alignment among stakeholders. The existence of trust between the regency and village governments is evident, as villages are actively involved in data production, fostering a sense of ownership and shifting governance from a fragmented to a more integrated approach. This process is further strengthened by facilitative leadership that encourages cross-sector collaboration.

From the New Public Service perspective, SIPEDULI reflects a citizen-centered approach by providing inclusive access and improving service transparency and efficiency. The system accommodates different levels of digital literacy, ensuring broader accessibility. In addition, the involvement of communities and village governments in JSDDD demonstrates the application of public interest principles, where citizens act not only as service users but also as data contributors.

However, the findings also indicate that community participation remains largely administrative, as data updates are typically conducted only when required for administrative purposes. This suggests that the role of citizens as active data producers has not been fully optimized. Furthermore, disparities in digital capacity among village officials and incomplete system integration pose challenges to sustaining collaborative governance. Overall, the study highlights that achieving a Single Source of Truth requires not only strong collaboration and institutional support but also continuous improvement in system integration and digital capacity. Without these, the risk of data fragmentation and inconsistency remains.

https://doi.org/10.58421/misro.v5i1.1288

3.2. Discussion

Effectiveness Analysis of SIPEDULI from the DeLone & McLean Perspective

The effectiveness of SIPEDULI can be understood through the framework of the Information System Success Model developed by DeLone and McLean [13], which emphasizes the interaction between system quality, information quality, service quality, system use, user satisfaction, and net benefits. The findings of this study indicate that SIPEDULI demonstrates relatively strong technical performance, particularly in the dimensions of system quality and service accessibility, although several challenges remain in terms of data accuracy and institutional support mechanisms.

The inclusive design of SIPEDULI, which provides both web-based access and mobile application (Android) access, reflects an effort to accommodate different levels of digital literacy among citizens. This approach aligns with the principle of user-centered digital public services, where system accessibility and ease of use are considered critical determinants of successful technology adoption in public administration [17]. The system's ability to process more than 100 service requests per day indicates a relatively strong level of system reliability and operational capacity. These findings confirm the argument of DeLone and McLean [13] that system quality measured through usability, accessibility, reliability, and system functionality plays a central role in determining the overall success of an information system.

Furthermore, the high level of accessibility and interoperability found in SIPEDULI, particularly its integration with the JSDDD population data platform, reflects the growing trend of integrated digital governance systems in public administration. Interoperability allows different information systems to communicate and exchange data effectively, which improves administrative coordination and data management efficiency [18]. The findings of this research are also consistent with the study by Widyaningrum et al. [19], which highlights that system quality and ease of use significantly influence user satisfaction in digital service ecosystems.

Despite these positive aspects, minor technical constraints still occur, particularly in the form of system slowdowns during peak service hours due to heavy internet traffic. Such challenges are common in digital public service systems where infrastructure capacity and network stability become important determinants of system reliability [20].

From the perspective of information quality, SIPEDULI has been able to produce information that is relatively complete, relevant, and understandable for users during the service process. However, the study also reveals that information accuracy may be compromised during the self-data input process by citizens, which often requires manual verification by officers at the Department of Population and Civil Registration. According to Wang and Strong [14], data quality is strongly influenced by dimensions such as accuracy, completeness, consistency, and timeliness. The absence of an automated validation mechanism within SIPEDULI increases the risk of data inconsistency and delays in service processing, indicating that improvements in data verification mechanisms are necessary to enhance information quality.

The service quality dimension reflects the level of technical support and responsiveness provided by system administrators. In the case of SIPEDULI, technical

support is provided through regular training and mentoring activities for village operators, communication groups between operators and system managers, and complaint channels for citizens. These mechanisms help ensure that technical issues can be addressed relatively quickly. However, the study also found that the current support system is still largely reactive and has not yet been institutionalized through a formal helpdesk structure or standardized service documentation. Within the DeLone and McLean framework, service quality is expected to include not only responsiveness but also structured and sustainable support mechanisms. Therefore, although the existing support system helps maintain operational continuity, the absence of a formal institutional helpdesk involving both the Department of Population and Civil Registration and the Department of Communication and Informatics limits the long-term sustainability of service quality.

The statistical data on SIPEDULI service requests from 2022 to 2025 illustrate a dynamic pattern of system utilization. During the first three years of implementation, the system experienced relatively stable usage, indicating that SIPEDULI successfully passed the initial adoption stage and had been integrated into routine population administration services at the village level. According to the theory of information system adoption, stable usage patterns reflect a stage in which users begin to integrate digital systems into their daily administrative practices [21].

A significant increase in system usage occurred in 2025, largely driven by policy support from the Regent of Jembrana to accelerate village digitalization within the framework of the Jembrana Smart City initiative. The government also conducted intensive socialization programs and evaluations for villages with low levels of system usage. From a theoretical perspective, this surge indicates the emergence of increased user dependency, where users no longer perceive the system as optional but rather as the primary channel for public service delivery.

Nevertheless, the research findings reveal disparities in system utilization across different villages. Some villages show significant increases in system usage, while others experience relatively stagnant levels of adoption. Previous studies have shown that the success of technology adoption is strongly influenced by factors such as digital literacy, infrastructure availability, institutional support, and socio-demographic conditions [22], [23]. In this study, villages with lower levels of SIPEDULI usage tend to have lower digital literacy levels and a stronger reliance on conventional face-to-face administrative services.

Within the DeLone and McLean model, user satisfaction is directly influenced by system quality, information quality, and service quality. The sustained usage of SIPEDULI over four years without a significant decline indicates that users generally perceive the system positively. Informants reported that the system significantly reduces administrative processing time, simplifies document submission procedures, and improves access to population administration services. High levels of user satisfaction create a positive feedback loop, encouraging other users to adopt the system and contributing to the overall growth of system utilization.

The final dimension in the DeLone and McLean model is net benefits, which represent the overall contribution of the system to individuals, organizations, and society. At the organizational level, SIPEDULI provides several benefits for the Department of Population

and Civil Registration of Jembrana Regency, including improved service efficiency, faster administrative processes, better digital document management, expanded service access for citizens, and reduced face-to-face interactions at service counters. The system also allows organizational leaders to monitor service performance in real time through application-based statistical dashboards, thereby supporting data-driven decision-making processes [24].

In addition, SIPEDULI's interoperability with other digital platforms, such as JSDDD, contributes to improving the validity and consistency of population data, which is essential for effective governance and policy formulation. For citizens, the system provides tangible benefits such as reduced transportation costs, shorter service waiting times, and easier access to civil administration documents that represent fundamental civic rights. However, the study indicates that these benefits could be further optimized if several implementation challenges, particularly those related to digital literacy, infrastructure capacity, and automated data validation, are addressed through continuous system development and institutional support.

Data Quality of JSDDD and the Challenge of Realizing a Single Source of Truth

The Jembrana Satu Data Dari Desa (JSDDD) program represents an important step toward strengthening data-driven governance at the regional level. By positioning villages as the primary producers of data through a bottom-up mechanism, JSDDD attempts to create a comprehensive data ecosystem that integrates spatial and socio-demographic information at the micro level. Such initiatives reflect the broader shift in public administration toward evidence-based policymaking, where high-quality and integrated data serve as the foundation for effective planning and decision-making [25].

From the perspective of data quality theory proposed by Wang and Strong [14], the findings of this study reveal both strengths and weaknesses in the JSDDD dataset across several dimensions of data quality. In the intrinsic dimension, particularly regarding accuracy and completeness, the discrepancy between the JSDDD population count and the official data recorded by the Department of Population and Civil Registration highlights a critical issue in data validity. The JSDDD survey recorded approximately 220,000 residents, while the official administrative data recorded 329,399 residents. This discrepancy indicates limitations in the coverage and accuracy of the initial data collection process. Field observations suggest that time constraints mainly cause this gap during door-to-door data collection, and the difficulty of documenting residents with high mobility who were temporarily outside the region. Similar challenges are frequently identified in community-based data collection systems, where enumerator capacity, time limitations, and population mobility significantly influence the accuracy of demographic data [26].

Despite these challenges, the completeness dimension of the dataset shows relatively strong performance. The presence of 218 family-level variables and 194 individual-level variables demonstrates that the dataset contains highly detailed socio-demographic information. Such extensive data coverage provides valuable insights for local development planning and social policy formulation. According to Kitchin [27], comprehensive micro-level datasets can significantly enhance the capacity of governments to conduct targeted

policy interventions, particularly when demographic data are linked with socio-economic indicators.

In the contextual data quality dimension, JSDDD shows strong relevance because the dataset includes variables related to health status, educational attainment, and economic conditions that are not typically available in the national population administration database. This broader scope of variables enhances the analytical value of the dataset for development planning and monitoring social welfare conditions at the village level. The integration of such multidimensional data aligns with the principles of integrated data governance, where different types of socio-economic information are combined to support more comprehensive public policy analysis [28].

From the representational data quality perspective, the JSDDD dataset has been structured using standardized data formats that follow the principles of Spatial Data Infrastructure (SDI). Standardization ensures that data are consistently organized, clearly defined, and easily interpreted by system users across different institutions. According to Rajabifard, Feeney, and Williamson [29], SDI frameworks are essential for ensuring interoperability and consistency in spatial and administrative data systems, particularly in multi-agency governance environments.

In terms of accessibility and security, the system has been developed with a technological infrastructure that supports interoperability through Application Programming Interfaces (API). API-based connectivity enables JSDDD to exchange data with other digital platforms and government applications, thereby supporting integrated digital governance. The implementation of security standards also plays an important role in protecting sensitive population data from misuse. As highlighted by Gil-Garcia, Dawes, and Pardo [18], interoperability and secure data exchange mechanisms are fundamental components of modern digital government systems.

To maintain the validity of the initial dataset, the government involved 31 Civil Servant Candidates (CPNS) who graduated from the Statistics Polytechnic (STIS) to supervise data quality during the initial stages of data collection and processing. This quality control mechanism helped ensure that the collected data met minimum standards of accuracy and consistency. However, the research findings indicate that the long-term sustainability of data quality within JSDDD depends heavily on the existence of a continuous data updating mechanism.

Currently, the data stored in JSDDD remains relatively static, while population data are inherently dynamic due to demographic events such as births, deaths, migration, and changes in socio-economic status. If this dynamic nature is not accommodated through regular data updating mechanisms, the system may experience data fragmentation or data silos, where discrepancies emerge between administrative population records maintained by the Department of Population and Civil Registration and analytical datasets stored within JSDDD. Such fragmentation may undermine the reliability of the dataset as a primary reference for policy formulation.

This issue poses a major challenge to the realization of the Single Source of Truth (SSoT) concept in Jembrana Regency. According to Putri et al. [30], the effectiveness of digital public services depends not only on technological innovation but also on the validity

and integration of data across government systems. Without systemic synchronization mechanisms, digital innovations risk functioning merely as procedural automation tools rather than instruments for improving substantive data quality. In line with these findings, Hasudungan et al. [31] emphasize the importance of establishing a clear data ownership structure, where specific institutions are assigned responsibility for managing and updating datasets within integrated government information systems. Data ownership helps ensure accountability in data maintenance and prevents inconsistencies caused by overlapping institutional responsibilities.

One potential solution identified in this study is the integration between SIPEDULI and JSDDD through machine-to-machine connectivity. SIPEDULI functions as a real-time population administration service platform that records demographic updates such as new registrations, family status changes, and other administrative events. By integrating SIPEDULI with JSDDD, data generated through service transactions can automatically update the analytical dataset stored in JSDDD. This mechanism would enable JSDDD to maintain continuously updated demographic information while preserving its role as an analytical data repository.

Through such integration, population data collected through administrative services could automatically synchronize with the JSDDD dataset, thereby strengthening data validity and supporting the realization of a Single Source of Truth in population data governance in Jembrana Regency.

The Dynamics of Collaborative Governance and the Application of New Public Service Principles in Data Governance

The successful implementation of the Jembrana Satu Data Dari Desa (JSDDD) program can be understood through the perspective of *collaborative governance*, which emphasizes the involvement of multiple stakeholders in policymaking and public management processes. According to Ansell and Gash [11], the effectiveness of collaborative governance is strongly influenced by three key elements: *starting conditions*, *institutional design*, and *facilitative leadership*. In the case of JSDDD, the initial condition of collaboration was characterized by a strong commitment from the Jembrana Regency Government to develop an integrated, high-quality, and sustainable data system down to the village level. This initiative emerged as a response to the problem of data fragmentation (data silos) that often leads to inconsistencies in information among government institutions, thereby reducing the accuracy of development policies.

The institutional design of JSDDD reflects a structured governance framework supported by formal regulations, namely Peraturan Bupati Jembrana Nomor 7 Tahun 2022 tentang Satu Data Daerah [15] and Keputusan Bupati Jembrana Nomor 131 / BAPPEDALITBANG / 2022 Tentang Tim Forum Satu Data Daerah [16] concerning the Regional One Data Forum Team. These regulations provide a clear division of roles among stakeholders involved in regional data governance. The Regional Development Planning Agency (Bappeda) acts as the regional data coordinator responsible for aligning data lists with development priorities, the Central Statistics Agency (BPS) serves as the data supervisor ensuring data standards and metadata quality, and the Department of

Communication and Informatics (Kominfo) functions as the regional data custodian responsible for managing technological infrastructure, data interoperability, and information security. Meanwhile, village governments act as the frontline actors and producers of sectoral data through direct data collection at the local level. Academics from Udayana University participate as research partners, evaluators, and system developers. In addition, the community plays a crucial role as the producer of individual and household data that form the foundation of the development information system.

The collaborative process observed in the implementation of JSDDD demonstrates the emergence of trust-building between the regency government and village governments. This trust arises because villages are not merely treated as objects of data collection but are actively involved as producers of development data. Such conditions align with the findings of Emerson, Nabatchi, and Balogh [32] who argue that successful cross-sector collaboration depends on the development of trust, shared commitment, and collective understanding among participating actors. By directly involving village governments in the data collection process, the paradigm of data management has shifted from a fragmented and sectoral approach toward a more integrated system that extends to the village level. Furthermore, the success of this collaborative process is supported by facilitative leadership from the regional head, who plays an important role in coordinating cross-sector actors and encouraging them to move beyond sectoral interests in order to establish integrated regional data governance.

However, the study findings also indicate that future challenges lie in strengthening the collaborative process, particularly in maintaining consistent integration among government information systems. Without strong coordination and sustainable system integration mechanisms, the risk of emerging new data silos remains significant. This finding supports the argument of Janssen, Charalabidis, and Zuiderwijk [25] that effective data integration in digital government requires strong institutional coordination, consistent data standards, and interoperability among information systems across government agencies.

From the perspective of the New Public Service (NPS), data governance through JSDDD and the implementation of the SIPEDULI digital service platform reflect the government's effort to position citizens as active participants in public service delivery. The NPS concept introduced by Denhardt and Denhardt [12] emphasizes that governments should not merely function as controllers (*steering*) but rather as servants (*serving*) of citizens through participation and collaboration in governance processes. In this context, the implementation of SIPEDULI through both web and mobile platforms represents an attempt to address the issue of the digital divide within the community. Citizens with adequate digital literacy can access services independently through the mobile application, while those with limited technological skills can still obtain services through assistance from village operators using the web-based system.

The involvement of village governments and communities in the production and utilization of JSDDD data also reflects the application of the principle of prioritizing the public interest (*serving citizens*). Collective dialogue between village authorities and community members in the data management process demonstrates that the system serves not only as an administrative tool but also as a mechanism for empowering citizens. Nevertheless, the study reveals that community participation in updating population data

remains largely administrative, typically occurring only when residents require certain administrative documents. This condition indicates that citizens have not yet been fully internalized as active data producers within the Single Source of Truth (SSoT) ecosystem.

These findings are consistent with the study conducted by Seta et al. [33], which highlights that participatory approaches to updating village data, such as those implemented in the OpenSID system, are crucial for improving data accuracy and strengthening public trust in digital governance systems. Citizen participation in village data governance not only improves data quality but also enhances the legitimacy of data-driven development policies. In the broader context of digital government transformation, the application of the NPS principle of "Serving, not Steering" is essential to ensure that digital platforms such as SIPEDULI do not merely function as bureaucratic monitoring tools through analytical dashboards but also serve as instruments for citizen empowerment. The implementation of this principle within JSDDD places citizens as subjects who hold sovereignty over their personal data, village governments as the frontline actors responsible for data validation and updating, and the regency government as the facilitator that provides technological infrastructure, regulatory frameworks, and institutional coordination.

The synergy among these actors constitutes a fundamental prerequisite for realizing a Single Source of Truth (SSoT) system at the village level. Nevertheless, the effectiveness of SSoT implementation largely depends on the continuous improvement of digital capacities among village officials and the acceleration of technical integration among public service applications. Without adequate human resource capacity and strong system interoperability, the available data may become outdated or inaccurate, ultimately reducing its effectiveness as a foundation for evidence-based development planning and policymaking.

4. CONCLUSION

This study finds that SIPEDULI has achieved a high level of technical effectiveness, particularly in improving service accessibility, efficiency, and user satisfaction in population administration. The system has successfully transitioned into a primary service platform at the local level. However, its contribution to data governance remains partial, as the absence of full integration with JSDDD limits its ability to ensure data validity and consistency. In addition, disparities in system usage across villages indicate uneven digital capacity, while community participation in data updating is still largely administrative rather than proactive.

This study contributes to public administration and digital governance literature by demonstrating that system effectiveness does not automatically guarantee data quality or data integration. By integrating the DeLone & McLean model with the Wang & Strong data quality framework, the study highlights that achieving a Single Source of Truth (SSoT) requires not only technically effective systems but also strong data governance, collaborative coordination, and active citizen participation. Furthermore, the findings extend the New Public Service perspective by showing that citizen involvement in data governance must move beyond passive administrative roles toward active co-production of data.

Several strategic implications emerge from this study. First, strengthening system integration through the development of a Jembrana Data Hub (JDH) is essential to enable interoperability between SIPEDULI and JSDDD. Second, improving digital capacity at the

village level is necessary to ensure more equitable system adoption and data management. Third, fostering proactive citizen participation is crucial to support continuous data updating. Finally, enhancing collaborative governance through stronger coordination and broader stakeholder involvement will be key to ensuring sustainable, accurate, and integrated data governance for data-driven policymaking.

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