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Implementation of Smart Governance in Population Administration Service Innovation: A Narrative Literature Review and Contextualization

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Abstract: The implementation of *smart governance* has become increasingly important in transforming population administration services to make them more efficient, transparent, responsive, and accessible to the public. However, digital transformation in public services does not merely involve the adoption of technology but also requires institutional capacity, data integration, competent human resources, public participation, and collaboration among stakeholders. This study aims to analyze the implementation of *smart governance* in population administration service innovation and contextualize its relevance to Cilacap Regency. This study employed a *narrative literature review* approach by analyzing relevant publications published primarily between 2021 and 2026 and retrieved from Google Scholar and SINTA databases. Six studies were selected based on their relevance to *smart governance*, digital government, public service innovation, and population administration. The findings indicate that *smart governance* implementation is reflected in service digitalization, data integration, information technology utilization, transparency, public participation, and inter-agency collaboration. Although these innovations improve service accessibility, efficiency, and responsiveness, several challenges remain, including infrastructure limitations, system integration, digital literacy, human resource capacity, and unequal access to digital services. In Cilacap Regency, innovations such as "Dolan Teluk Penyu" and "Maria Mercedes Jaritan" demonstrate progress toward more accessible population administration services. Nevertheless, limited online queue capacity and high demand for electronic identity card services indicate that digitalization has not fully guaranteed equitable access. Therefore, strengthening technological infrastructure, institutional capacity, data integration, and inclusive service mechanisms is essential for sustainable *smart governance* implementation.

Keywords: Smart Governance, Population Administration, Public Service Innovation, Cilacap Regency

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INTRODUCTION

Advances in technology have fundamentally transformed how people access information, communicate, and conduct their daily activities. Humanity is now living in an era characterized by globalization and rapid digital transformation, which have significantly affected various sectors, including government administration. These developments have encouraged

governments to reconsider conventional administrative practices and respond to growing public expectations for services that are faster, more effective, responsive, and accessible to all members of society (Pandika, Firman, & Sangalang, 2025). In Indonesia, the adoption of information and communication technology (ICT) has increasingly been directed toward improving the effectiveness and efficiency of public services while expanding public access to government information (Delvi, 2024).

Government Regulation No. 59 of 2022 on Urban Affairs describes *smart governance* as an approach to effective public service delivery. This concept developed from *e-government*, which emphasized the extensive utilization of technology to improve public service quality and administrative effectiveness. However, limitations in the implementation of *e-government* encouraged the emergence of *smart governance* as a broader governance approach. According to Mellouli, Luna-Reyes, and Zhang (2014), as cited by Nurlita, Addinari, Herlambang, and Darmawan (2024), "Smart governance refers to the extensive use of technology by the government to carry out governmental tasks." Similarly, Anisa, Nawawi, and Rusdin (2025) explain that "Smart governance is a new approach to government administration that emphasizes the use of information and communication technology (ICT) to support the creation of a smart, open government that involves public participation." Thus, *smart governance* can be understood as an administrative approach that integrates ICT with effective, efficient, transparent, responsive, and participatory governance. It extends beyond service digitization by emphasizing public participation, stakeholder collaboration, and data-driven decision-making.

The increasing demand for accessible and high-quality public services has further strengthened the relevance of *smart governance*. The public expects government services to effectively fulfill basic needs while improving administrative performance (Nurlita, Addinari, Herlambang, & Darmawan, 2024). Through digital technology, governments can simplify service procedures, expand access, and strengthen interaction with citizens. Ryu, Kim, and Hong (2022) demonstrate that *smart governance* can encourage public service innovation through technological utilization and public engagement in service delivery. Nevertheless, the implementation of digital public services in Indonesia continues to encounter challenges, particularly concerning infrastructure readiness, human resource capacity, institutional preparedness, and unequal digital access.

At the local government level, Cilacap Regency provides a relevant context for examining the implementation of *smart governance* in population administration services. Its extensive geographical area and diverse population require service innovations capable of simplifying administrative procedures and expanding public access. The Cilacap Regency Population and Civil Registration Office has introduced various digital-based service innovations to improve public service quality (Cilacap, 2024). One of these initiatives is online civil registration, which enables residents to apply for population and civil registration documents without relying entirely on face-to-face services. Such innovation demonstrates efforts to integrate technology into local public administration while improving accessibility and efficiency. Consequently, Cilacap Regency offers an important context for examining the relationship between *smart governance* and innovation in population administration services (Cahyani & Amarini, 2023).

Despite continued digitalization, however, civil registration services still face several implementation challenges. Previous research indicates that the success of digital-based civil registration depends on human resource readiness, infrastructure availability, regulatory support, institutional capacity, and the government's ability to provide technology that can be effectively utilized. At the same time, differences in digital literacy and access among citizens may

create new inequalities for groups with limited technological capabilities or resources. Therefore, digitalization should not merely be understood as transferring conventional services to online platforms (Hidayat, 2025). Instead, *smart governance* requires the integration of technology with transparency, responsiveness, public participation, collaboration, and institutional capacity. This perspective is important for understanding whether digital innovations genuinely contribute to better civil registration governance (Isma, Nasution, Akmal, KN, & Fadhilah, 2026).

The importance of examining *smart governance* in civil registration services is increasing alongside public demands for services that are fast, simple, transparent, and responsive to community needs. Although previous studies have discussed digitalization and public service innovation, research integrating technological dimensions with governance principles—particularly participation, transparency, collaboration, and responsiveness—in civil registration remains necessary. Accordingly, this study employs a *narrative literature review* to synthesize findings from relevant studies on *smart governance* and innovation in civil registration services and subsequently contextualize them within the Cilacap Regency setting.

As part of its efforts to improve civil registration services, the Cilacap Regency Population and Civil Registration Agency (Disdukcapil) has introduced digital services, including the "Dolan Teluk Penyu" platform, which enables residents to submit applications for various civil registration documents online. Nevertheless, the implementation of these services continues to encounter accessibility problems. For example, in February 2025, residents reported difficulties obtaining online queue slots for e-ID card printing, with the queue reportedly remaining full despite repeated attempts over several months. The Population and Civil Registration Office explained that the problem was related to the limited daily printing quota. This condition demonstrates that although digitalization has progressed, the availability of digital platforms does not necessarily guarantee equitable and convenient access for all citizens.

Based on this background, this study examines how *smart governance* can promote innovation in civil registration services. The analysis focuses on the application of *smart governance* principles, the forms and benefits of resulting innovations, and the challenges associated with their implementation. It also contextualizes findings from the literature within civil registration services in Cilacap Regency. Specifically, the study aims to analyze the implementation of *smart governance* in civil registration service innovation based on relevant literature; identify the forms, benefits, and challenges of *smart governance*-based innovations; and examine their relationship with effective, transparent, responsive, and participatory governance. Ultimately, this study seeks to provide a clearer understanding of the relevance of *smart governance* in strengthening public service innovation and improving population administration at the local government level.

LITERATURE REVIEW

Public Administration

Public administration refers to the implementation of government responsibilities in meeting community needs through policies, institutions, and public services. Service quality is an important component, including accessibility, waiting time, cost, convenience, employee competence, responsiveness, and complaint handling (Amir, 2026). Similarly, Rawinarno (2026) emphasizes the importance of clear requirements, simple procedures, fast services, reasonable costs, competent staff, complaint mechanisms, and adequate facilities. Public administration should therefore uphold public interest, professionalism, participation, transparency, accountability, equality, timeliness, convenience, and affordability.

Smart Governance

Concept of *Smart Governance*

Smart governance is a government administration paradigm that integrates digital technology to create governance that is efficient, transparent, accountable, responsive, and participatory. Its implementation involves technologies such as artificial intelligence (AI), big data, open data, data science, and digital platforms to support decision-making, resource management, and public services (Alamsyah, Ibnayasha, Nabilah, Saputra, & Adnan, 2026).

Smart Governance in Public Administration

In public administration, *smart governance* applies information and communication technology to improve service quality and administrative efficiency. Digital platforms also enable citizens to submit needs, opinions, complaints, and feedback more quickly, strengthening public participation in governance. However, effective implementation requires adequate infrastructure and competent human resources (Dahlawi, Syahputra, Khalil, & Munadi, 2023).

Smart Governance in Population Administration Services

Smart governance in population administration involves digitalizing document submission, simplifying procedures, integrating population data, and providing accessible information (Alamsyah, Ibnayasha, Nabilah, Saputra, & Adnan, 2026). Service quality must also be supported by clear requirements, simple procedures, transparent costs, definite completion times, responsive officials, complaint channels, and adequate facilities (Rawinarno, 2026). Furthermore, citizens should be active participants rather than passive recipients of services (Delvi, 2024). As Amane et al. (2026) state, "Smart governance in public administration is not merely about digitizing government processes; rather, it must leverage technology to create governance that is more transparent, accountable, inclusive, and community-oriented."

METHOD

Research Design

This study employs a *narrative literature review* to examine and synthesize previous research concerning *smart governance*, public service innovation, and the digitalization of civil registration services. A narrative literature review is appropriate because it enables researchers to integrate findings from diverse studies and develop a broad conceptual understanding of a particular research issue. Nahdiyin (2023) explains that this method involves compiling, reviewing, and summarizing previous studies on a specific topic and synthesizing their findings into a coherent discussion. Similarly, Li et al. (2018) state that "A narrative literature review is a method used to collect, examine, and integrate various research findings or literature sources to provide a broad and in-depth understanding of a topic." Unlike a systematic review that generally follows highly structured procedures, a narrative review provides greater flexibility in selecting literature, perspectives, and relevant findings.

The use of a narrative approach is also supported by Green, Johnson, and Adams (2006), who explain that narrative literature reviews synthesize findings obtained through database searches, manual searches, and authoritative sources to construct an integrated understanding of a research topic. Furthermore, Snyder (2019) emphasizes that literature review can function as a research methodology for synthesizing fragmented knowledge and identifying the development of knowledge within a particular field. Therefore, the present study uses the narrative approach

to identify patterns, similarities, differences, and research gaps concerning the implementation of *smart governance* in public services.

Literature Search and Selection

The literature search focuses primarily on publications concerning *smart governance*, public administration, public service innovation, digital governance, and civil registration services. The selected publications were obtained from Google Scholar and the SINTA database, with priority given to studies published between 2021 and 2026. The emphasis on recent publications is intended to ensure that the review reflects current technological developments and contemporary practices in digital government. Nevertheless, older publications are retained when they provide important theoretical, conceptual, or methodological foundations. Kraus et al. (2022) emphasize that recent literature is important for capturing developments in rapidly changing research fields, although seminal sources should not be excluded when they remain theoretically relevant.

The literature selection process follows several stages. First, publications were identified using keywords related to *smart governance*, digital public services, public service innovation, and population administration. Second, titles and abstracts were screened to determine their relevance to the research focus. Third, publications that did not correspond to the research topic were excluded. Finally, relevant studies were analyzed based on their research focus, methodological approach, major findings, and contribution to the understanding of *smart governance*.

This process is consistent with the review framework proposed by Grant and Booth (2009), who identify Search, Appraisal, Synthesis, and Analysis (SALSA) as important processes in conducting literature reviews. The search process identifies relevant literature, appraisal determines its suitability, synthesis integrates findings, and analysis interprets the resulting evidence.

Data Analysis and Synthesis

The analysis in this study is conducted qualitatively through thematic identification and narrative synthesis. After the relevant publications have been selected, information is organized according to several analytical dimensions: the concept of *smart governance*, its implementation in public administration, forms of digital public service innovation, benefits of digitalization, implementation challenges, and the relationship between technology and public participation. Machi and McEvoy (2022) identify research interest, research topic, literature review, and research thesis as important stages in developing a literature-based study.

The findings from each selected study are then compared to identify recurring themes and differences in perspectives. The analysis does not simply describe individual studies but integrates their findings to develop a broader interpretation of how *smart governance* can support effective, transparent, responsive, and participatory public services. The narrative synthesis is particularly relevant because the selected studies may employ different research designs and examine different institutional or geographical contexts. Grant and Booth (2009) note that narrative synthesis is commonly used to organize literature thematically, conceptually, or chronologically, depending on the purpose of the review.

Journal Data Analyzed

Table 1. The literature selected for analysis consists of six relevant publications:

No.	Journal/Article

1	"Examining Practice Smart City in Local Government: A Smart Governance Perspective" (Kamil, Muhammad, Roziqin, Sari, & Kismartini, 2025)
2	"Smart Governance for Smart Societies: A Narrative Review of Digital Models" (Fitriani, 2025)
3	"Professional Considerations for Audit Risk in Creating Smart Governance in Indonesia" (Sudarma & Kumalawati, 2022)
4	"Penerapan Smart Governance dalam Penggunaan Aplikasi Sistem Administrasi Online Masyarakat (SIDEMANG) di Kelurahan Talang Kelapa" (Napitupulu, 2026)
5	"Transformasi Pelayanan Publik Menuju Smart Governance di Era Digital Studi pada Pemerintah Daerah Kota Surabaya" (Anam, Widyawati, & Fatah, 2025)
6	"Public Service Innovation Using Smart Governance" (Ryu, Kim, & Hong, 2022)

These six publications were selected because they directly address *smart governance*, digital government, or public service innovation. The selected articles were subsequently compared according to their research objectives, methods, findings, and relevance to civil registration services. The results of this synthesis are then contextualized with the conditions of population administration services in Cilacap Regency.

Overall, the methodology enables this study to develop a comprehensive understanding of *smart governance* without being restricted to a single empirical setting. By combining recent literature with relevant foundational sources, the study identifies the forms, benefits, implementation challenges, and governance principles associated with digital public service innovation. This approach also provides a conceptual basis for understanding the relevance of *smart governance* to the improvement of civil registration services at the local government level.

RESULTS AND DISCUSSION

Result

Results of the Literature Review

The narrative literature review identified six studies that are directly relevant to the implementation of *smart governance* in public services. The selected studies were published between 2022 and 2026 and represent different geographical, institutional, and methodological contexts. Although the studies differ in their research designs and areas of application, they demonstrate a common tendency: *smart governance* is no longer understood merely as the digitalization of administrative procedures. Instead, it increasingly represents a broader transformation involving institutional capacity, human resources, infrastructure, data integration, transparency, citizen participation, accountability, and collaboration.

The six studies provide complementary perspectives. Kamil, Muhammad, Roziqin, Sari, and Kismartini (2025) examine *smart governance* in the context of digital transformation in Malang and emphasize institutional factors, human resources, and infrastructure, particularly the importance of SPBE. Fitriani (2025), through a narrative literature review, highlights the potential of digitalization to improve transparency, efficiency, participation, and sustainability while recognizing the continuing problem of the digital divide. Sudarma and Kumalawati (2022) focus on auditor professionalism and demonstrate the importance of competent human resources and professional judgment in supporting governance and risk management. Napitupulu (2026) examines the SIDEMANG application and shows that digitalization can increase service convenience, although system reliability, verification, and digital literacy remain important challenges. Anam, Widyawati, and Fatah (2025) analyze the transformation of public services toward *smart governance* in Surabaya and show that digitalization can improve efficiency and service quality but continues to face challenges involving integration and inclusivity. Finally, Ryu, Kim, and Hong (2022) demonstrate that digital data and public opinion can be utilized to identify community needs and support innovation in public services.

Table 2. Summary of the Reviewed Studies

No.	Researcher(s)	Research Theme	Method	Main Findings
1	Kamil et al. (2025)	Smart governance and digital transformation in Malang	Qualitative case study	Institutional capacity, human resources, and infrastructure are important factors in implementing SPBE and *smart governance*.
2	Fitriani (2025)	Digital governance and government transformation	Narrative literature review	Digitalization can improve transparency, efficiency, participation, and sustainability but may intensify the digital divide.
3	Sudarma & Kumalawati (2022)	Auditor professionalism and governance risk	Experiment, One-Way ANOVA	Professional certification contributes to better professional judgment in risk assessment.
4	Napitupulu (2026)	Smart governance through SIDEMANG	Qualitative case study	Digital applications improve convenience but face system, verification, and digital literacy challenges.
5	Anam et al. (2025)	Public service transformation toward smart governance in Surabaya	Qualitative	Digitalization improves efficiency and service quality but faces integration and inclusivity challenges.
6	Ryu et al. (2022)	Smart governance, public opinion, and service innovation	Case study	Digital data and public opinion can support decision-making and public service innovation.

The findings indicate that the development of *smart governance* has moved from a technology-centered approach toward a governance-centered approach. This interpretation is consistent with recent international research. The OECD (2024) emphasizes that digital transformation requires reliable digital public infrastructure, adaptable governance arrangements, and a human-centered approach rather than technology adoption alone. Similarly, recent research on digital governance identifies infrastructure, digital literacy, accountability, citizen participation, and institutional capacity as interconnected dimensions of successful digital public service transformation.

Thus, the six reviewed studies collectively demonstrate that *smart governance* should be understood as a multidimensional governance framework. Technology functions as an enabling instrument, while institutional arrangements, competent human resources, integrated data, public participation, transparency, and inclusive service design determine whether technology can generate meaningful public value.

Development of Smart Governance Research in Public Services

The literature demonstrates a significant development in the conceptualization of *smart governance*. Earlier approaches to digital government commonly emphasized the computerization of administrative processes and the delivery of online services. However, recent studies increasingly associate *smart governance* with the transformation of government decision-making, institutional relationships, and interactions between government and citizens. Fitriani (2025) demonstrates that digital governance has the potential to strengthen transparency, efficiency, participation, and sustainability, while Ryu, Kim, and Hong (2022) show that digital information and public opinion can be transformed into knowledge for public decision-making.

This development is also visible in local government contexts. The cases of Malang, Surabaya, and Talang Kelapa demonstrate that digital transformation is increasingly integrated into everyday administrative services. The objective is not simply to make services available online but to make government services faster, more accessible, responsive, and easier to monitor. This finding is supported by the OECD (2024), which reports that governments are increasingly developing public services around user needs, digital infrastructure, innovative technologies, and more personalized and proactive forms of service delivery.

The development of *smart governance* can therefore be understood through three interconnected stages. The first is service digitization, in which conventional procedures are transferred to online platforms. The second is digital integration, in which different systems, institutions, and databases are connected to improve coordination and service continuity. The third is intelligent and participatory governance, in which data, analytics, citizen feedback, and digital communication are used to support decision-making and policy innovation.

The third stage is particularly important because it changes the position of citizens. Citizens are no longer viewed merely as recipients of administrative services but as sources of information, feedback, and knowledge. Ryu, Kim, and Hong (2022) demonstrate that public opinion obtained from digital sources can be analyzed to identify issues and community needs. Recent research by Sharma, Kar, and Gupta (2024) similarly shows that digital citizen empowerment is associated with participation and accountability, indicating that the quality of digital participation depends not only on the availability of technology but also on the mechanisms through which citizen input is recognized and acted upon.

In the Indonesian context, this issue is particularly relevant. Noviawati, Affandi, and Suparmana (2025) found that formal digital participation mechanisms may exist but their actual use can remain limited when platforms do not adequately correspond to citizens' expectations. Citizens may instead use social media to express opinions and aspirations. This finding strengthens the argument that *smart governance* should not equate digital government with the mere availability of official applications. Government must ensure that digital platforms are understandable, accessible, responsive, and connected to actual decision-making processes.

Therefore, the literature indicates a shift from technology-oriented government toward citizen-oriented digital governance. The success of *smart governance* should consequently be evaluated not only by the number of applications developed or services digitized but also by whether digital transformation produces greater accessibility, responsiveness, transparency, accountability, participation, and public value.

Forms of Smart Governance Implementation

The literature review identifies six major forms of *smart governance* implementation: (1) service digitalization, (2) data integration, (3) information technology utilization, (4) transparency, (5) public participation, and (6) stakeholder collaboration. These dimensions are closely interconnected and should not be treated as independent components.

Service Digitalization

Service digitalization represents the most visible form of *smart governance*. It involves transforming conventional face-to-face procedures into online services through applications, websites, electronic systems, and digital platforms. Napitupulu (2026), for example, shows that the SIDEMANG application facilitates administrative services at the local level. Similarly, Anam, Widyawati, and Fatah (2025) identify digital public services in Surabaya as an important mechanism for improving efficiency and service quality.

The principal benefit of digitalization is the reduction of administrative barriers. Citizens can submit documents, obtain information, monitor applications, and communicate with government institutions without always having to visit government offices. Digitalization can therefore reduce travel time, waiting time, administrative costs, and dependence on physical service counters.

However, digitalization should not automatically be interpreted as successful *smart governance*. A digital platform may exist but still provide poor services if the system frequently fails, has limited capacity, is difficult to use, or does not accommodate citizens with limited digital

literacy. Napitupulu (2026) demonstrates this tension through challenges involving system operation, verification, and user capability. Therefore, the quality of digitalization depends on both technological performance and user experience.

The OECD (2024) similarly emphasizes that digital government services should be human-centered and designed around users' needs, preferences, and rights. This perspective is particularly relevant to population administration because population documents are essential public services. A digital system that is technically advanced but difficult for citizens to use cannot fully achieve the objectives of *smart governance*.

Data Integration

The second important dimension is data integration. Digital services require accurate, synchronized, and interoperable information. The existence of several separate applications does not necessarily create an integrated government system. Kamil et al. (2025) indicate that institutional and infrastructure factors influence the implementation of SPBE, while Napitupulu (2026) demonstrates the importance of coordination and verification in digital administrative services.

Data integration becomes particularly important in population administration because population data are used across multiple government services. If databases are not synchronized, citizens may be required to repeatedly submit information that the government already possesses. Such duplication reduces efficiency and increases the administrative burden.

The OECD (2024) identifies interoperable digital public infrastructure and data-sharing systems as important foundations for coherent digital government. Such infrastructure can include digital identity, data-sharing mechanisms, and core government data registries. Therefore, data integration is not merely a technical matter but also a governance issue involving institutional coordination, data standards, privacy, security, and accountability.

In the context of Cilacap Regency, data integration is particularly relevant to civil registration services. Online applications such as “Dolan Teluk Penyu” can provide greater convenience, but their effectiveness depends on the ability of the system to connect application processes with verification, document processing, and relevant population databases. Without integration, citizens may experience delays despite having access to online services.

Utilization of Information Technology

The third dimension is the strategic use of information technology. Fitriani (2025) identifies technologies such as digital platforms, *big data*, and *text mining* as instruments for improving digital governance. Ryu, Kim, and Hong (2022) further demonstrate that *text mining*, sentiment analysis, and topic modeling can process public opinions obtained from digital platforms.

This represents an important transformation because technology is no longer used merely as a communication channel. It can also function as an analytical instrument. Governments can potentially use data from complaints, social media, service transactions, and other digital interactions to identify recurring problems and determine community priorities.

Recent research confirms that digital government increasingly connects service delivery with governance capacity. A 2024 national-level study found that online service technology, institutional frameworks, content provision, e-participation, service provision, and innovation can jointly strengthen governance capacity. This supports the findings of Ryu et al. (2022) that digital information can become a foundation for public service innovation.

Nevertheless, greater reliance on data also creates responsibilities concerning privacy, cybersecurity, data accuracy, and ethical use. Therefore, technological sophistication must be accompanied by appropriate institutional safeguards.

Transparency

Transparency is another essential dimension of *smart governance*. Digital platforms can provide citizens with information about service requirements, procedures, application status, schedules, and complaints. Such access can reduce information asymmetry between government institutions and citizens.

In population administration, transparency is particularly important because citizens need clear information about document requirements, processing times, service quotas, and

procedures. If information is unclear, citizens may have to repeatedly contact government offices or make unnecessary visits.

Fitriani (2025) demonstrates that digital governance has the potential to strengthen transparency and accountability. This is consistent with the broader OECD (2024) perspective that digital government should be trustworthy, user-oriented, and capable of improving public-sector responsiveness. Transparency therefore should not be understood simply as publishing information but as ensuring that relevant information is understandable, accessible, timely, and useful to citizens.

Public Participation

Public participation represents a fundamental difference between conventional *e-government* and more advanced *smart governance*. In conventional digital service models, citizens primarily consume services. In *smart governance*, citizens can also provide feedback, complaints, opinions, and information that influence government decisions.

Ryu, Kim, and Hong (2022) demonstrate how public opinion can be collected and analyzed to support public service innovation. Sharma et al. (2024) similarly emphasize the importance of digital citizen empowerment and accountability mechanisms in strengthening meaningful e-participation.

However, participation cannot be assumed simply because a government provides an online complaint or feedback mechanism. Noviawati et al. (2025) show that formal digital participation platforms in Indonesia may experience low usage when they do not sufficiently meet citizen expectations, while social media may become a more attractive alternative for expressing public opinions.

Therefore, effective digital participation requires at least three conditions: accessibility, responsiveness, and institutional follow-up. Citizens need to be able to communicate easily, believe that their input will be considered, and observe evidence that their feedback contributes to service improvement. Without these conditions, digital participation risks becoming symbolic rather than substantive.

Stakeholder Collaboration

The sixth dimension is collaboration among stakeholders. *Smart governance* requires cooperation between government institutions, technical agencies, local government units, citizens, private organizations, and other relevant actors. Kamil et al. (2025) demonstrate the importance of institutional capacity and coordination, while Napitupulu (2026) illustrates the need for coordination in verification and administrative processing.

Collaboration is also important because digital transformation requires resources and expertise that may not exist within a single institution. Governments may need technological expertise, infrastructure, data management capabilities, cybersecurity capacity, and user-centered design knowledge.

The OECD (2024) identifies public-private collaboration and governance safeguards as important considerations in building digital public infrastructure. Thus, collaboration should be supported by clear responsibilities, data governance arrangements, accountability mechanisms, and protection of public interests.

Implementation Challenges

Although the literature demonstrates substantial benefits, *smart governance* also involves significant challenges. The most prominent challenges identified across the six studies include infrastructure limitations, system integration, digital literacy, human resource competence, cybersecurity, data privacy, institutional coordination, and unequal access.

First, infrastructure readiness is essential. Digital services require reliable internet connectivity, adequate servers, system capacity, and technical support. When infrastructure is inadequate, service disruptions can directly affect citizens.

Second, human resource capacity is equally important. Sudarma and Kumalawati (2022) demonstrate that professional competence influences professional judgment in risk assessment. Although their study focuses on auditors, the finding is relevant to *smart governance* because digital transformation requires government employees who understand both administrative

responsibilities and technological systems. Kamil et al. (2025) similarly identify human resources as an important factor in implementing SPBE.

Third, digital literacy remains a major challenge. Citizens differ in their ability to access, understand, and use digital services. A fully digital service system can unintentionally disadvantage elderly citizens, residents with limited education, people with disabilities, or communities with weak connectivity.

Fourth, system integration and interoperability remain significant problems. Separate applications may create fragmented services rather than integrated government. The OECD (2024) emphasizes interoperable digital public infrastructure as a foundation for coherent digital transformation.

Fifth, data security and privacy become increasingly important as governments collect and process more personal information. The 2024 study on *smart governance for smart cities and nations* identifies data privacy and security as among the major challenges accompanying digital governance, alongside policy reform, budgeting, and infrastructure.

Finally, there is a participation and inclusion challenge. Digital platforms may increase participation for connected citizens while excluding those who lack digital access. Recent research on smart governance warns that technological development can coexist with limited citizen involvement, particularly when digital systems substitute for rather than strengthen meaningful participation.

Therefore, *smart governance* should be implemented through a balanced strategy. Digital services should be accompanied by physical service alternatives, assistance mechanisms, digital literacy programs, reliable infrastructure, trained personnel, and inclusive communication channels.

Contextualization in Cilacap Regency

Population Administration Services

The findings of the literature review are highly relevant to population administration services in Cilacap Regency. The local government has moved toward digitalization and service decentralization through Disdukcapil Technical Implementation Units (UPT) and online services. These initiatives demonstrate an effort to bring government services closer to citizens and reduce dependence on centralized services.

However, the presence of digital platforms does not eliminate service-access challenges. The public complaints concerning limited online queue availability for e-ID card printing in 2025 illustrate an important distinction between digital availability and effective accessibility. A service can be digitally accessible in principle but remain difficult to obtain when demand exceeds system capacity or when quotas are limited.

This situation reinforces the findings of Napitupulu (2026), which show that digital service applications can improve convenience while still facing system and verification challenges. It also corresponds with Fitriani's (2025) observation that digital transformation can generate benefits while simultaneously producing new forms of inequality.

From the perspective of *smart governance*, the issue is therefore not simply whether Cilacap has digital services, but whether those services are capable of responding to actual community demand. System capacity, queue management, transparency regarding quotas, and alternative access mechanisms become essential components of service quality.

"Dolan Teluk Penyu" as a Smart Governance Innovation

One of the important innovations developed by the Cilacap Regency Population and Civil Registration Office is "Dolan Teluk Penyu," or *Dokumen Online Tekan Telunjuk Permohonan Nyusul Metu*. The platform enables citizens to submit applications for various civil registration documents online, including population data changes, population movement registration, birth certificates, and death certificates (Cilacap, 2024).

From the perspective of *smart governance*, the platform represents the first dimension of transformation, namely service digitalization. Citizens can initiate administrative processes without necessarily visiting the Disdukcapil office. This can reduce travel costs, waiting time, and administrative burdens.

However, the platform can produce stronger *smart governance* outcomes if it is connected to other dimensions. First, the system should integrate population databases and verification processes. Second, citizens should receive transparent information about application status and completion time. Third, complaints and feedback should be incorporated into service improvement. Fourth, the system should remain accessible to citizens who have limited digital literacy.

Consequently, "Dolan Teluk Penyu" should not be evaluated merely based on its existence as an online application. Its success should be assessed according to whether it improves accessibility, responsiveness, transparency, efficiency, and citizen experience.

Community-Based Population Administration Services

The launch of the "Community Aware of Population Administration" initiative in 2025 further demonstrates the importance of combining digitalization with decentralized and community-based services. The initiative aims to promote orderly population administration by establishing population administration service counters at the village/subdistrict level, bringing services closer to residents (Jateng, 2025).

This initiative is particularly important when viewed through the digital divide perspective. If some citizens cannot effectively use online platforms, village-level service counters can function as complementary mechanisms. In this sense, digital transformation does not necessarily mean eliminating conventional services. Instead, *smart governance* should combine digital channels with accessible community-based mechanisms.

This approach is consistent with the OECD's (2024) emphasis on inclusive and human-centered public services. It also responds to the concerns identified by Noviawati et al. (2025), who demonstrate that the availability of formal digital participation mechanisms does not automatically ensure meaningful citizen engagement.

Discussion

The overall findings demonstrate that *smart governance* is best understood as a transformation of the relationship between government, technology, data, institutions, and citizens. The six reviewed studies show that digital applications are necessary but insufficient. The implementation of *smart governance* depends on the interaction between technological capability and institutional readiness.

The first important finding is that technology functions as an enabling instrument rather than the final objective. Kamil et al. (2025), Napitupulu (2026), Khoiruman et al., (2025), Irawan et al., (2026) and Anam et al. (2025) all demonstrate that technological applications can improve public service processes, but their effectiveness depends on infrastructure, institutional coordination, human resources, and inclusion. This finding is reinforced by OECD (2024), which views digital infrastructure as a foundation that must be accompanied by governance arrangements, security, interoperability, and inclusive access.

The second finding is that data have become a strategic governance resource. Ryu et al. (2022) demonstrate that public opinion and digital information can support decision-making and service innovation. This means that the value of digitalization lies not only in making services available online but also in the government's capacity to learn from data. In the context of Cilacap, complaints concerning online queues, service demand, application patterns, and citizen feedback could potentially be transformed into evidence for improving service capacity.

The third finding is that citizen participation is a core dimension of smart governance. Fitriani (2025) and Ryu et al. (2022) highlight participation, while Sharma et al. (2024) demonstrate the relationship between digital empowerment, accountability, and participation. Therefore, government platforms should provide mechanisms through which citizens can express problems and receive responses. Participation becomes meaningful when government institutions demonstrate that citizen feedback influences service improvement.

The fourth finding is that inclusivity must accompany digital innovation. Digitalization can unintentionally create new inequalities when citizens differ in internet access, digital literacy, socioeconomic resources, or technological confidence. The findings from Cilacap regarding online queue limitations demonstrate that access problems can persist even after services have been

digitized. Therefore, a hybrid service model combining online and offline mechanisms is more consistent with the principles of inclusive *smart governance*.

The fifth finding is that institutional capacity determines sustainability. Smart governance requires coordination between different government units, technical staff, service providers, and communities. Without institutional integration, applications may operate as isolated systems. OECD (2024) emphasizes interoperability and shared digital infrastructure as foundations for coherent digital government.

Finally, the findings indicate that smart governance should be oriented toward public value. Recent research on digital governance identifies transparency, accountability, participation, and social inclusion as important outcomes of digital transformation. Thus, the ultimate measure of *smart governance* is not technological sophistication but its ability to produce services that are more accessible, reliable, transparent, responsive, equitable, and aligned with community needs.

In Cilacap Regency, the innovations developed by Disdukcapil demonstrate that the foundations of *smart governance* are already emerging. "Dolan Teluk Penyu" represents service digitalization, while village-level population administration service counters provide complementary mechanisms for inclusion. Nevertheless, the continuing challenges involving online queues, service capacity, digital access, and system integration indicate that further development is required.

Accordingly, the implementation of *smart governance* in Cilacap's population administration should be directed toward an integrated model consisting of digital service innovation, interoperable data, competent human resources, transparent service information, meaningful citizen participation, institutional collaboration, and inclusive access. Such an approach would move Cilacap beyond the simple digitalization of administrative procedures toward a more mature form of *smart governance* in which technology, institutions, and citizens jointly contribute to the improvement of public services.

CONCLUSION

The findings of this study demonstrate that *Smart Governance* in civil registration services extends beyond the digitization of administrative procedures and represents a broader transformation of governance. Based on the narrative literature review of six relevant studies, effective *Smart Governance* integrates digital technology, data management, human resource capacity, institutional coordination, transparency, public participation, and stakeholder collaboration. Its implementation can be reflected through digital service platforms, integrated population data, information technology utilization, transparent service processes, accessible public feedback mechanisms, and collaboration among government institutions. Therefore, the success of *Smart Governance* should not be measured solely by the availability of digital applications but also by their ability to improve service quality, accessibility, efficiency, responsiveness, accountability, and public value.

In Cilacap Regency, the implementation of *Smart Governance* has been demonstrated through innovations such as "Dolan Teluk Penyu," which facilitates online applications for population and civil registration documents, and "Maria Mercedes Jaritan," which brings administrative services closer to communities through village- and subdistrict-level service counters. These innovations indicate the local government's commitment to expanding access and improving the convenience of civil registration services. Nevertheless, challenges such as limited online queue quotas, high demand for e-ID card printing, digital access disparities, and the need for stronger system integration show that digitalization has not yet fully guaranteed equitable and convenient services. Accordingly, the development of *Smart Governance* in Cilacap Regency should focus on strengthening system capacity and data integration, improving civil servant competencies, enhancing transparency and public participation, and maintaining inclusive service channels. These efforts are essential to ensure that digital transformation produces civil registration services that are accessible, efficient, transparent, responsive, equitable, and genuinely oriented toward community needs.

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