

Determining Management Information Systems in Supporting E-Government Transformation in Ciamis Regency

Irfan Nursetiawan¹, Afishah binti Alias², Kiki Endah³

^{1,3}Universitas Galuh, Ciamis, Indonesia

²Universiti Tun Hussein Onn Malaysia, Batu Pahat, Malaysia

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ABSTRACT

This study aims to analyze the role of Management Information Systems (MIS) in supporting e-government transformation in Ciamis Regency. The approach used was qualitative, with data collection techniques through in-depth interviews, observations, and documentation studies of local government stakeholders. The results indicate that the implementation of a management information system plays a strategic role in strengthening the electronic-based government system, particularly in data integration, public service efficiency, and increased transparency. Furthermore, the MIS encourages the acceleration of the Smart City program through the optimization of digital infrastructure and data-driven decision-making. At the village level, support for Smart Village is reflected in the use of digital applications for administrative services and local potential management. The digital bureaucratic transformation is also characterized by changes in work patterns that are more adaptive, collaborative, and technology-based. However, challenges remain in aspects of human resource capacity, system interoperability, and the sustainability of digital innovation within the local government environment.

Keywords: management information system; e-government; smart city; smart village

INTRODUCTION

Digital transformation in the public sector is inevitable in meeting public demands for fast, transparent, and accountable services. Local governments, including Ciamis Regency, are required to systematically adopt information technology by strengthening their Management Information Systems (MIS). MIS serves not only as an administrative tool but also as a strategic instrument for data-driven decision-making, service integration, and improving government organizational performance [1]. In this context, the existence of MIS is a crucial foundation for supporting the effective and sustainable implementation of e-government.

E-government, as a new paradigm in digital-based governance, is driving significant changes in interaction patterns among the government, the public, and the business world, as well as among government agencies [2], [3]. This implementation aligns with the impact of e-government policies on bureaucratic performance [4] and the improvement of public service quality through robust digital administrative platforms [5]. In Ciamis Regency, e-government development efforts have shown progress through various public service applications. However, this implementation still faces challenges, including system fragmentation, limited data integration, and suboptimal use of the MIS as a coordinated, integrated system. This condition indicates that the MIS's determination to support e-government is not yet fully optimal. This is also relevant to Indonesia's digital society index, especially in West Java, as follows:

Table 1. Indonesia's Digital Society Index In West Java in 2025

No.	Regency/City	Digital Society Index	Infrastructure and Ecosystem	Digital Skills	Empowerment	Employment
1.	Kota Bandung	64,77	89,91	65,67	53,39	48,66
2.	Bandung Barat	59,31	66,98	65,85	55,13	45,84

3.	Tasikmalaya	57,92	64,14	64,48	52,83	47,92
4.	Purwakarta	57,79	68,29	60,27	52,71	48,36
5.	Sumedang	56,68	73,87	59,45	45,37	48,30
6.	Kota Tasikmalaya	56,24	66,26	63,32	48,52	44,78
7.	Ciamis	55,63	63,27	60,27	50,84	46,21

Source: www.imdi.sdmdigital.id, 2026.

Data shows that Ciamis Regency has the lowest Digital Society Index (55.63) compared to other regions in West Java, with relative weaknesses in the infrastructure and ecosystem pillars (63.27) and digital skills (60.27), although empowerment (50.84) and employment (46.21) aspects are still within the average range. When correlated with the Management Information System (MIS) and e-government transformation, this condition indicates that the capacity of the MIS in Ciamis is not yet fully capable of functioning as an enabler of digital service integration and data-driven decision-making. Infrastructure limitations impact low system interoperability and access to SPBE services, while the digital skills of officials and the community affect the optimal use of government applications. Compared with Bandung City, which excels in infrastructure (89.91) and the overall index, it appears that the maturity of the MIS is directly proportional to the success of the e-government transformation. Therefore, strengthening the MIS in Ciamis Regency needs to focus on system integration, increasing digital human resource capacity, and developing a technology ecosystem that supports the implementation of SPBE, Smart City, and Smart Village more effectively and sustainably.

The Indonesian Digital Society Index (IMDI) framework demonstrates that digital transformation rests on four main pillars: digital literacy, empowerment, employment, and integrated infrastructure and ecosystems. Digital literacy is fundamental to shaping communities' ability to access and utilize technology-based services, including e-government and SPBE [6], [7]. Empowerment emphasizes increasing community capacity in social, economic, and public participation aspects through the use of digital technology, particularly in supporting the development of Smart Cities and Smart Villages [8], [9]. The employment pillar illustrates the impact of digitalization on job opportunities and the need for new skills in the digital economy era. Meanwhile, infrastructure and ecosystems serve as the primary foundations that determine the success of all pillars through the availability of networks, platforms, and digital governance.

In line with national policy, the implementation of the Electronic-Based Government System (SPBE) is a key indicator for assessing the digital maturity of local governments [10]. SPBE emphasizes system integration, information technology governance, and alignment between business processes and technology [11]. In Ciamis Regency, SPBE implementation has been carried out through the development of SPBE architecture and the development of various digital services. Furthermore, the Smart City and Smart Village concepts are integral to driving inclusive digital transformation down to the village level [12]. Ciamis Regency has significant potential for developing both concepts through the use of technology to improve the quality of life. However, without an integrated and adaptive information system, these initiatives have the potential to be fragmented and unsustainable. The role of village management and continuous smart village policies are highly critical in navigating this dynamic phase [13].

Digital bureaucratic transformation is also a key agenda item in public administration reform at the regional level [14], [15]. The shift from manual to digital systems requires a shift in work culture, increased digital competency among civil servants, and a restructuring of government business processes [16]. This paradigm shift is also part of the broader effort in modernizing the state administrative system and contemporary governance practices in Indonesia [17]. In Ciamis Regency, the role of MIS as a key enabler in bureaucratic transformation has not been fully utilized, particularly in terms of integration across regional agencies and strategic data utilization.

The novelty of this research lies in the development of an integrative model of a Management Information System (MIS) based on a local government ecosystem that simultaneously connects the dimensions of SPBE, Smart City, and Smart Village within the framework of digital bureaucratic transformation at the district level. This research is crucial to identify and analyze the determination of MIS in supporting the comprehensive digital transformation of local government.

Based on the above description, the urgency of this research is the crucial role of Management Information Systems in supporting the success of e-government, SPBE implementation, Smart City and Smart Village development, and digital bureaucratic transformation in Ciamis Regency. However, various challenges such as limited system integration, low interoperability, and human resource readiness are obstacles that require in-depth study. Therefore, this research is crucial to identify and analyze the determination of MIS in supporting the comprehensive digital transformation of local government.

METHODS

The research method used in this study is a qualitative approach, focusing on the analysis of e-government transformation in Ciamis Regency. This approach was chosen to gain an in-depth understanding of the implementation of Management Information Systems (MIS) in supporting the Electronic-Based Government System (SPBE), as well as the dynamics of digital bureaucratic transformation at the local government level. The research focuses on several Regional Work Units (in Indonesian, SKPD) directly involved in managing digital services and e-government policies.

The research informants were selected using purposive sampling, consisting of 20 structural officials, information system managers, and officials involved in e-government implementation in various regional government agencies. Data analysis was conducted interactively through the stages of data reduction, data presentation, and conclusion drawing [18], [19], [20]. To ensure data validity and legitimacy, this study employed data triangulation techniques, which compare and confirm information from various sources, methods, and data collection times. Thus, the research results are expected to provide a comprehensive overview of the role of MIS in supporting e-government transformation in Ciamis Regency, both contextually and empirically.

RESULTS

The research results indicate that the digital literacy of the public and officials in Ciamis Regency is at an intermediate level, reflected in basic skills in operating digital devices and accessing e-government services. However, in the context of digital bureaucratic transformation, digital literacy has not been fully internalized as a strategic competency to support the optimization of the Management Information System (MIS). This has resulted in the system's suboptimal utilization in supporting digital-based public services and data-driven decision-making.

Digital Literacy

In the basic digital literacy subpillar, most informants already possess basic operational skills. However, their critical thinking skills in evaluating digital information remain limited. This limited analytical ability directly impacts the low quality of data utilization within the government ecosystem, which in turn hinders the effectiveness of strategic decision-making [21]. From a MIS perspective, this phenomenon emphasizes that the success of digital transformation depends heavily on improving the cognitive capacity of users as the primary subjects who manage and transform data into valuable information [22]. Overall, the research findings related to digital literacy in Ciamis Regency are as follows:

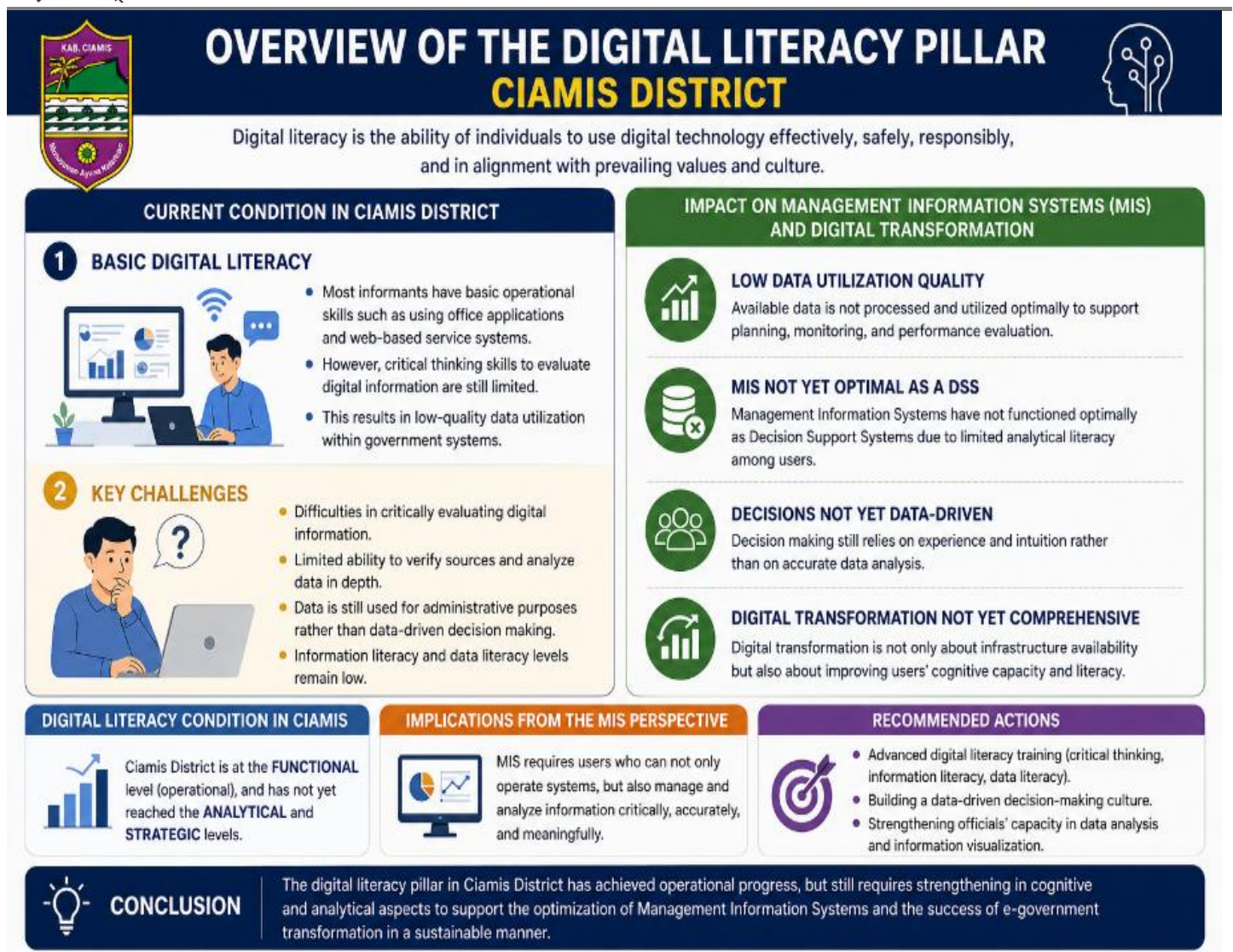


Figure 1. Pillars of Digital Literacy in Ciamis Regency

Source: Research Results, 2026.

Digital Security

In the digital security sub-pillar, the study found that awareness of data protection and system security remains suboptimal. The findings on digital security have significant implications for the development of smart governance, which relies heavily on secure, reliable, and integrated digital systems [23]. A low level of awareness regarding data protection can hinder the implementation of smart governance initiatives [24]. Smart governance requires government institutions to establish robust cybersecurity frameworks and cultivate a culture of digital responsibility among public officials [25].

Digital Ethics

In the digital ethics subpillar, most officials have demonstrated fairly good behavior in using technology. However, the understanding of intellectual property rights and personal data protection still needs improvement. Strengthening digital ethics is also closely related to the concept of digital citizenship, requiring public officials to demonstrate responsible and ethical behavior [26], [27]. In the context of public administration, digital citizenship supports the development of trustworthy relationships between government institutions and communities [28], [29]. A strong ethical foundation is essential within the complex dynamics of decentralized local government and modern public administration [30].

Empowerment

In the empowerment pillar, research results indicate that the use of digital technology by the Ciamis community has grown, particularly in the use of e-commerce platforms. However, most users remain positioned as consumers rather than producers, indicating that the economic benefits of digital transformation are concentrated on consumption activities [31]. To support inclusive digital empowerment, local governments need to strengthen digital entrepreneurship programs [32]. Participatory empowerment models at the village level can further bridge this gap by enabling rural communities to engage directly in local policy-making and productive economic systems [33].

Digital Finance

In the digital finance subpillar, people are increasingly adopting services such as mobile banking, contributing to greater financial inclusion. However, limited digital financial literacy remains a barrier to optimal utilization.

Digital Product Services and Creation

The digital product creation and services subpillar shows that the use of technology for productive activities has begun to grow. However, participation in creating digital products remains low. The low level of participation in creating value-added digital services has important implications for both digital government development and the realization of a Society 5.0 ecosystem [34]. Digital government depends on the capacity of citizens to actively contribute to the digital ecosystem through innovation [35]. Opportunities for co-creation between government, academia, businesses, and communities are still limited. Collaborative governance models must be actively applied to optimize this co-creation ecosystem, ensuring that policies and waste/environmental management, as part of Smart City initiatives, are managed collectively [36]. The limited involvement of the community in developing applications, digital content, and other technology-based products suggests that the potential for citizen-driven innovation remains underutilized. As a result, opportunities for co-creation between government, academia, businesses, and communities in supporting public service innovation are still relatively limited.

PERSPECTIVE OF THE SMART SOCIETY 5.0 PILLAR

Supporting Digital Government Transformation in Ciamis Regency

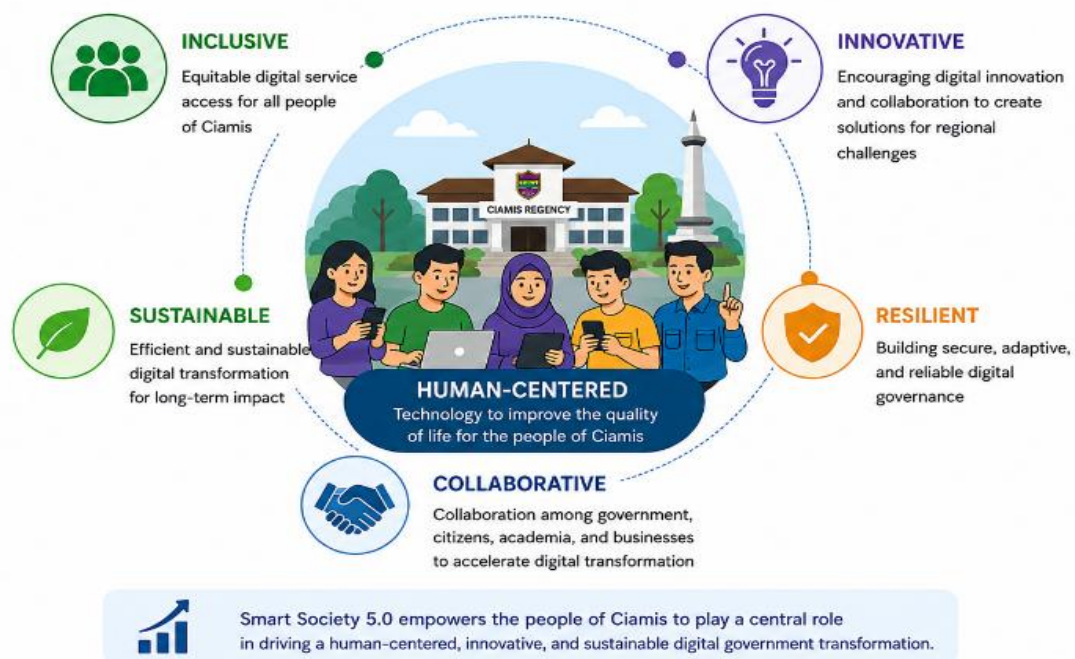


Figure 2. Perspective of The Smart Society 5.0 Pillar

Source: Research Results, 2026.

Pillars of Work

In the employment pillar, the research findings indicate a gap between the demand and supply of digital skills. The demand subpillar reflects the increasing need for digital competencies in government, while the supply subpillar indicates that the availability of workers with these skills remains limited. This situation confirms that e-government transformation in Ciamis Regency requires a digital human resource strengthening strategy integrated with the development of MIS.

In the employment pillar, the research findings indicate a gap between the demand and supply of digital skills. The demand subpillar reflects the increasing need for digital competencies in government and the economic sector, while the supply subpillar indicates that the availability of workers with these skills remains limited. This situation confirms that e-government transformation in Ciamis Regency requires a digital human resource strengthening strategy integrated with the development of a digital skills management system (MIS), thereby creating an adaptive, innovative, and competitive bureaucracy in the digital era.

The findings of this research are related to e-government transformation in Ciamis Regency, as follows:

Table 2. E-Government Transformation Research Findings in Ciamis Regency

Pillar	Sub-Pillar	Key Findings	Scientific Analysis	Implications for MIS & E-Government
Digital Literacy	Basic Digital Literacy	Most officials and citizens possess basic operational skills, but critical thinking in evaluating digital information remains limited	Indicates literacy is still operational, not yet analytical	MIS is not optimally utilized as a data-driven decision support system
Digital Literacy	Digital Security	Awareness of data protection and privacy is still low; basic security practices are inconsistent	Weak digital security culture increases risk of data breaches	Reduces public trust and affects the reliability of e-government systems
Digital Literacy	Digital Ethics	Technology usage behavior is relatively good, but the understanding of intellectual property and data protection is limited	Digital ethics is not fully internalized in digital governance practices	May affect accountability and quality of digital governance
Empowerment	Retail/E-Commerce	Community participation in e-commerce is increasing, but mostly as consumers	Digital economic empowerment is not yet productive or innovative	MIS has not been leveraged to support the local digital economy
Empowerment	Digital Finance	Use of e-wallets and mobile	Financial inclusion is growing, but not	MIS integration with digital financial services is still limited

		banking is increasing, but financial digital literacy remains limited	supported by an adequate understanding	
Empowerment	Digital Services & Product Creation	Use of digital services is growing, but the creation of digital products remains low	The local digital innovation ecosystem is underdeveloped	MIS has not functioned as a platform for innovation and collaboration
Employment	Demand	Demand for digital skills is increasing in the government and economic sectors	Digital transformation drives higher demand for digital competencies	MIS requires adaptive and digitally skilled human resources
Employment	Supply	The availability of a digitally skilled workforce is still limited	There is a gap between the supply and demand of digital talent	Slows down the acceleration of the MIS-based e-government transformation

Source: Research Results, 2026.

The e-government transformation in Ciamis Regency still faces challenges in digital literacy, empowerment, and digital workforce aspects, which have a direct impact on the optimization of the Management Information System (MIS). The digital literacy of civil servants and the public is generally still at the operational level, resulting in suboptimal utilization of the MIS as a data-based decision support system. This is exacerbated by low digital security awareness, which has the potential to undermine public trust in e-government services. In terms of digital ethics, although technology usage behavior is relatively good, the understanding of data protection and intellectual property rights remains limited.

DISCUSSION

The digital literacy pillar in Ciamis Regency remains at the functional stage, with the majority of officials able to operate digital-based technology and service systems, but lacking adequate analytical skills. Limitations in critical thinking and data literacy have resulted in the suboptimal use of Management Information Systems as decision support systems, leading to decision-making that tends to be based on intuition rather than data. Furthermore, security and digital ethics have not been fully internalized, which poses risks in information governance. Therefore, strengthening digital literacy, particularly in cognitive, analytical, and data-driven aspects, is a key prerequisite for driving effective and sustainable e-government transformation in Ciamis Regency.

By strengthening digital security capacities, local governments can enhance the resilience of digital infrastructure, protect sensitive public information, and ensure that technology-driven governance innovations operate effectively, transparently, and sustainably.

The integration of digital ethics and digital citizenship contributes significantly to the realization of citizen-centered digital governance. Government officials who practice ethical digital behavior are better positioned to foster transparency, accountability, and public trust in digital public services. As governments increasingly rely on digital platforms for service delivery, communication, and decision-making, the ability of public servants to act as responsible digital citizens becomes a critical determinant of governance quality. Therefore, continuous capacity-building initiatives focusing on digital ethics, data privacy, cybersecurity awareness, and responsible digital participation are essential to strengthen both institutional performance and the broader ecosystem of democratic digital citizenship.

Such efforts can encourage communities to move beyond passive technology use and become active contributors to the digital economy, thereby supporting local economic growth, job creation, and the broader objectives of sustainable digital development.

In the digital finance subpillar, people are increasingly adopting services such as mobile banking and digital wallets, contributing to greater financial inclusion. However, limited digital financial literacy remains a barrier to optimal utilization of these services. In the context of Smart Villages, strengthening this capacity is crucial to fostering technology-based community economic independence.

From the perspective of the smart society 5.0 pillar, these findings indicate that technology utilization has not yet fully evolved from consumption-oriented activities to human-centered innovation and problem-solving. Society 5.0 emphasizes the integration of digital technologies with human creativity to generate social and economic value while addressing community challenges. Therefore, strengthening digital innovation capacities through digital skills training, entrepreneurship development, innovation hubs, and collaborative platforms is essential to encourage citizens to become creators rather than merely users of technology. By fostering a more vibrant local digital innovation ecosystem, communities can contribute more actively to digital government initiatives, support data-driven governance, and accelerate the transition toward a smart society where technology serves as an enabler of inclusive, sustainable, and citizen-centered development.

In the empowerment dimension, the use of technologies such as e-commerce and digital finance has developed, but remains primarily consumptive and has not yet optimally driven digital economic productivity, indicating that MIS has not yet acted as an innovation platform. Meanwhile, in the employment dimension, there is a gap between the need for and availability of digital skills, which hinders the acceleration of digital bureaucratic transformation. Therefore, strengthening human resource capacity, system security, and strategic MIS integration are needed to effectively and sustainably support the implementation of e-government, SPBE, and the development of Smart Cities and Smart Villages.

CONCLUSION

The e-government transformation in Ciamis Regency has shown progress in technology utilization and digital service implementation, but has not yet reached an optimal level systemically. The Management Information System (MIS) has served as an operational support instrument, but has not yet fully functioned as a strategic enabler for data-driven decision-making. This is influenced by limited digital literacy, particularly in analytical and critical aspects, as well as low awareness of digital security and ethics. Furthermore, although the use of technology in community empowerment is growing, its orientation still tends to be consumptive and has not significantly boosted digital economic productivity.

Furthermore, the digital bureaucratic transformation also faces structural challenges in the form of a gap between the need for and availability of digitally competent human resources. This limitation impacts suboptimal system integration, data interoperability, and the development of a digital ecosystem that supports the implementation of SPBE, Smart City, and Smart Village. Therefore, a comprehensive strategy is needed that includes strengthening digital literacy capacity, enhancing information security and governance, and developing adaptive digital human resources. Thus, the MIS can be optimized as a primary foundation for driving effective, integrated, and sustainable e-government transformation in Ciamis Regency.

Declarations

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