

Analysis of The Needs of Local Government Information Systems in The Digital Era**Putri Balqis¹⁾, Puji Aloina Br Ginting²⁾, Rara Dena Suganda³⁾, Meriana Buulolo⁴⁾, Sela Indriani⁵⁾, Galih Supraja^{6*)}**^{1,2,3,4,5,6)}Accounting Study Program, Faculty of Social Sciences, Panca Budi University of Development, Indonesia.

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E-mail : galih@dosen.pancabudi.ac.id**Abstract**

Digital transformation provides opportunities as well as challenges for local governments to improve efficiency, transparency, and quality of public services. This study aims to analyze the needs of the Regional Government Information System (SIPD) by approaching a literature review of 10 journals. The focus of the analysis includes three main aspects: information technology infrastructure, data security, and human resource (HR) capacity building. Based on the results of the study, there were 8 selected journals that showed significant contributions, while 2 journals were used as comparisons. The results of the study show that adequate infrastructure development, solid data security policies, and improvement of human resource competencies are the keys to the successful implementation of SIPD. This study recommends improving policy strategies to support the digitalization of local government and there is still a need for periodic evaluation and monitoring of information systems.

Keywords: Local Government Information Systems, Digital Transformation, Technology Infrastructure, Data Security, Human Resources

INTRODUCTION

The development of information technology (IT) has brought major changes in various aspects of life, including the government sector. In the digital era, technology is no longer an option but a necessity that must be integrated in the public service process. Local governments, as government units that interact directly with the community, face demands to improve the efficiency, transparency, and quality of their services. This is important to answer the public's increasingly high expectations for fast, accurate, and responsive services (Nasution, 2023).

The Local Government Information System (SIPD) is one of the strategic initiatives designed to support modern governance. SIPD functions as a platform that integrates various types of data and information from various work units in local governments (Nasution et al, 2024). With SIPD, data management becomes more structured and can be used as a basis for data-driven decision-making. In addition, SIPD also allows transparency in the management of finances and resources, which in turn can increase the accountability of local governments.

Although the potential of SIPD is enormous, its implementation faces a number of challenges that cannot be ignored. One of the biggest challenges is the limited information technology infrastructure in many regions, especially in remote areas. Many regions still experience obstacles in terms of internet access, hardware quality, and the availability of appropriate software (Nasution & Welly, 2023). This condition hinders the optimization of SIPD as a management and service tool.

In addition to infrastructure, data security is also a critical issue. In the digital era, cyber threats are increasingly complex and diverse, ranging from data theft to ransomware attacks that can paralyze government information systems. Data security is non-negotiable, considering that

SIPD manages sensitive information, including regional financial data, population data, and other strategic information (Nasution et al, 2021).

Another aspect that is no less important is the competence of human resources (HR). The implementation of SIPD requires a workforce that not only understands technology but is also able to integrate it into daily work processes. Unfortunately, many local governments still lack human resources with adequate expertise in the IT field. Lack of training and capacity building of human resources is one of the main obstacles to the effective implementation of SIPD.

In this context, it is important to conduct an analysis of local government needs related to IT infrastructure, data security, and human resource capacity development. This analysis aims to identify the obstacles faced, formulate relevant strategies, and recommend steps that can be taken to optimize the implementation of SIPD (Nasution et al, 2024).

The development of information technology (IT) infrastructure is the main foundation in supporting the successful implementation of the Regional Government Information System (SIPD). The journal reviewed by Ade Yaya Suryana (2020) emphasizes that a strong IT infrastructure enables large-scale data management needed in strategic decision-making at the regional level. The main challenge identified is the limited internet access in remote areas that hinders the optimal operation of SIPD. This is a reminder that the development of IT infrastructure must include the provision of equitable and stable internet connectivity.

Research by Hidayat et al. (2022) highlights the importance of interoperability between agencies as an integral part of IT infrastructure. This interoperability ensures that various information systems used by government agencies can be interconnected, allowing for efficient data exchange and reducing information redundancy. For example, the implementation of interoperability allows data from health offices, education offices, and regional planning agencies to be integrated to support more holistic development planning.

In addition, research by Budi Santoso (2021) identified that many regions face challenges in adopting the latest technology due to budget constraints. To overcome these obstacles, collaboration with the private sector or the central government is needed to fund the development of IT infrastructure. Another step that can be taken is to take advantage of cloud-based technology that is more cost-effective compared to traditional physical infrastructure.

Data security is a critical aspect in the implementation of SIPD, especially given the increasing cyber threats faced by government agencies. Jurnal Ratnasari (2022) noted that threats to confidentiality, integrity, and data availability continue to increase along with the increasing reliance of local governments on digital technology. The study recommends the implementation of an Information Security Management System (ISMS) as a framework for protecting sensitive government data.

Setiawan and Rizky (2021) added that in addition to the application of security technology such as data encryption, cybersecurity training for government staff is very necessary. Many security breaches occur not because of a lack of technology, but because of a lack of user awareness of cyber risks. For example, simple practices such as the use of strong passwords or phishing email detection are often overlooked.

Another journal by Tanjung (2020) highlights the importance of regulations that support data security, including national policies governing the protection of personal data. In the context of local governments, this regulation must be adapted to ensure that data managed by SIPD, both financial data, population data, and other public service data, is protected from unauthorized access.

Human resources (HR) are a vital component in the successful operation of SIPD. Without a competent workforce, even a sophisticated IT infrastructure will not deliver optimal results. Research by Kartika and Putra (2021) shows that continuous training is essential to ensure that local government staff can master the new technologies applied in SIPD.

This training includes not only technical mastery, but also an understanding of how to integrate technology in daily work processes. For example, staff should be trained to use the analytics dashboard generated by SIPD to support data-driven decision-making.

Wahyuni's research (2022) emphasizes the need for human resource involvement in the planning and implementation of SIPD. When staff are engaged from an early stage, they not only have a better understanding of the system, but also feel responsible for the success of the program. This can increase their commitment to the optimal use of SIPD.

However, Suryono's journal (2021) revealed that one of the main obstacles in developing human resource capacity is the lack of budget allocation for training programs. Local governments often prioritize spending on physical infrastructure over HR training, although both are equally important. To overcome this, a more balanced budget policy is needed.

Overall, this discussion shows that the successful implementation of SIPD is highly dependent on the interaction between three main aspects: IT infrastructure, data security, and HR capacity. These three aspects must be designed and managed synergistically to ensure that local governments can harness the full potential of digital transformation.

RESEARCH METHODS

This study uses a literature review method which aims to analyze the needs of Regional Government Information Systems (SIPD) in the digital era. This approach was chosen because literature review allows researchers to dig into in-depth information from various studies that have been conducted before, identify patterns of findings, and evaluate the relevance and contribution of each source in answering the issues that the research focuses on.

A total of ten scientific journals relevant to the research topic were analyzed in depth. Of these, eight journals were selected based on their significant contribution to the discussion of strategic issues, such as information technology infrastructure development, data security, and human resource (HR) development. These journals were selected because they provide empirical data, case studies, or policy recommendations that are relevant and applicable in the context of local government in Indonesia. For example, some journals outline the technical challenges of building infrastructure in remote areas, while others discuss strategies to improve HR competencies to manage modern technology.

The other two journals were selected even though their contributions to the main topic were considered less relevant. These journals are used as a comparison to provide additional perspective and complement the analysis. For example, one journal focuses on data security in the context of private companies, while the other focuses more on human resource development in general without linking it to the needs of SIPD. Nevertheless, these journals still provide insights that can be adapted to the context of local government.

The analysis of these journals is carried out thematically, which includes several important stages. First, the main findings presented in each journal are identified. These findings cover various aspects, such as challenges in the application of information technology, data security risk mitigation strategies, and the best approach for human resource development.

The second stage is the evaluation of the research methods used in these journals. Researchers pay attention to the research design, data validity, and relevance of research results to the needs of SIPD. Journals that use direct case studies on local governments in Indonesia are considered more relevant than journals that only discuss theory or generalization without practical application.

The third stage is the synthesis of findings and recommendations that are considered relevant for the development of SIPD. This synthesis was carried out by mapping the relationship between the findings in each journal and the main focus of the research. For example, the results of the analysis show that the development of IT infrastructure and interoperability between agencies is one of the main prerequisites in supporting the successful implementation of SIPD. These findings are then associated with the need for budget policies that support infrastructure development in remote areas.

In addition, this study also considers local contexts, such as local government budget limitations, people's digital literacy levels, and relevant national policies, such as the Electronic-Based Government System (SPBE) policy. This local context is an important element in analyzing journals that focus on strategic issues related to SIPD.

The results of this analysis not only aim to provide an overview of the main needs of SIPD in the digital era, but also to prepare recommendations that can be implemented by local governments. With this approach, the research is expected to be able to make a real contribution in supporting the creation of more effective, efficient, and responsive governance to the demands of the digital era.

RESULTS AND DISCUSSION

Based on the results of the analysis, there are several research results and discussion rooms to further explore this research with the following research results:

1. Adequate information technology infrastructure is an important foundation for the successful implementation of the Local Government Information System (SIPD).
2. Data security is a critical aspect that requires serious attention, especially in the face of cyber threats.
3. Capacity building of human resources (HR) through training and increasing digital literacy is very important for the successful implementation of SIPD.
4. These three aspects (IT infrastructure, data security, and human resource development) must be managed holistically and continuously to achieve optimal results.

Thus, the results of our discussion, namely this research, show that the implementation of SIPD in the digital era requires a comprehensive approach involving information technology infrastructure, data security, and human resource development. The results of this study are in line with the theory of information technology management which emphasizes the importance of integrating technology, security, and human resources.

The development of information technology infrastructure must consider the specific needs of remote areas and ensure equitable internet access. Data security must be a top priority to protect data confidentiality and integrity. Human resource development through training and increasing digital literacy will improve the ability of government staff to manage SIPD.

Based on the discussion, we recommend the following:

1. Adequate budget allocation for the development of SIPD.
2. Collaboration between central and local governments to strengthen IT infrastructure and data security.
3. Formulation of policies that support the development of SIPD as a whole.
4. Human resource development through continuous training and increasing digital literacy.

Also, this research cannot be separated from the limitations that affect the results in the form of a limited number of journal samples, lack of empirical data from the field and limitations of analysis on technology and human resources aspects, without considering social and political factors.

CONCLUSION

Based on the results of literature analysis of ten scientific journals, this study concludes that the success of the implementation of the Local Government Information System (SIPD) in the digital era is highly dependent on three main aspects, namely information technology infrastructure, data security, and human resource capacity development (HR).

The development of information technology infrastructure is a foundation that must be strengthened to support efficient data management and inter-agency communication. This research shows that equitable internet access, system interoperability, and investment in appropriate hardware and software are urgent needs, especially in remote areas that still face infrastructure limitations.

Data security is also a critical issue that cannot be ignored. With the rise of cyber threats, the implementation of security policies such as data encryption, Information Security Management Systems (ISMS), and security training for government staff is urgently needed. This effort aims to protect the confidentiality, integrity, and availability of data managed in SIPD.

The human resources aspect plays a central role in the successful implementation of SIPD. This research emphasizes the importance of human resource capacity development through continuous training, digital literacy improvement, and active involvement in the planning and implementation process of SIPD. Without competent human resources, even sophisticated IT infrastructure will not provide optimal results.

Of these three aspects, it is important for local governments to take holistic and sustainable strategic steps. This study recommends adequate budget allocation, collaboration between the central and regional governments, and the formulation of policies that support the development of SIPD as a whole.

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