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IMPLEMENTATION OF STRATEGIC MANAGEMENT IN THE INTEGRATION OF HEALTH INFORMATION TECHNOLOGY IN MUNA REGENCY

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ABSTRACT

Integrating information technology in healthcare services is crucial in enhancing service efficiency and quality, especially in resource-limited areas. In Muna Regency, the Puskesmas Management Information System (SIMPUS) has been implemented as part of efforts to address challenges in health data management and technology-based services. However, several issues, such as data fragmentation, limited infrastructure, and low digital literacy among healthcare workers, hinder the optimal implementation of this system. This study employs a descriptive qualitative approach by collecting data through in-depth interviews with key stakeholders, including health department heads and Puskesmas managers. The results indicate that SIMPUS implementation has improved service efficiency and reduced stunting rates, although infrastructure enhancements and continuous training are still needed. The implications of this research not only provide strategic recommendations for managing technology-based healthcare services but also contribute to the literature on strategic management in the digital transformation of the healthcare sector.

Keywords: data integration; healthcare services; information technology; SIMPUS; strategic management

INTRODUCTION

The application of strategic management in the integration of information technology (IT) in the health sector has become the focus of global attention in efforts to improve the quality of health services. This integration allows for more efficient management of patient data, fast access to medical information, and better coordination of services between various healthcare units. According to Hakam (2016), the analysis, design, and evaluation of health information systems play an important role in improving the operational efficiency of health facilities. In addition, the use of information technology in health promotion for the elderly in Indonesia has shown positive results in improving access and quality of health services (Putri & Sukihananto, 2018). Thus, the integration of IT in healthcare is becoming a vital component in the modern healthcare system.

In Indonesia, efforts to integrate information technology in the health system have been carried out through various initiatives, including the development of the Puskesmas Management Information System (SIMPUS). An evaluation of the implementation of SIMPUS with the HOT-FIT method at the Gatak Health Center shows that technology, organization, and individual aspects play a significant role in the successful implementation of the system (Cahyani et al., 2020). In addition, the implementation of the hospital management information system reviewed from the aspect of education and knowledge of officers at Bhayangkara Hospital Level III of the Bengkulu Police in 2020 shows that the level of education and knowledge of officers affects the effectiveness of the use of information systems (Sari, 2020). This emphasizes the importance of human resource readiness in supporting IT integration in the health sector.

Especially in Muna Regency, Southeast Sulawesi Province, the integration of information technology in health services is a priority in improving the quality of services to the community. The implementation of SIMPUS in health centers in this region is expected to improve the efficiency of patient data management and facilitate access to medical information for health workers. However, challenges such as limited technological infrastructure and skilled human resources in the IT field are still obstacles in this integration process. Therefore, an effective management strategy is needed to overcome these obstacles and ensure the successful implementation of information technology in health services in Muna Regency.

Not all health information systems in Indonesia are well integrated, leading to significant data fragmentation. According to the Ministry of Health (2021), data on primary and secondary health care facilities are scattered and do not meet standards of completeness, consistency, and accuracy, making it difficult to formulate evidence-based policies. In addition, not all health facilities have adequate technological infrastructure, hindering the implementation of digital health services. According to reports, more than 80% of healthcare facilities in Indonesia have not been touched by digital information system technology for the operational management of health services, The absence of uniform data standards causes difficulties in exchanging information between systems, hindering interoperability. This condition is exacerbated by the large number of health applications that are developed without standardization, resulting in overlapping data and difficulty in integrating. Not all health workers have adequate digital literacy, resulting in low adoption of technology in health services. According to research, limited knowledge and skills in the use of information technology are a challenge in the implementation of digital health services

The absence of comprehensive regulations related to patient data protection increases the risk of privacy violations in digital healthcare. This is a major concern in the implementation of digital technology for public health services, which requires a clear and up-to-date regulatory framework to protect personal data. In Muna Regency, not all health centers have implemented the Health Center Management Information System (SIMPUS) optimally, causing inefficient patient data management. The limitations of infrastructure and skilled human resources in information technology are the main obstacles in the implementation of SIMPUS in the area. It is hoped that the findings of this study can be a reference for other regions that have similar characteristics in implementing information technology in the health sector. In addition, the results of this research can also contribute to the development of literature on strategic management and information technology in the context of health services in Indonesia. Thus, effective IT integration is expected to improve accessibility, efficiency, and quality of health services for the community, especially in remote areas such as Muna Regency.

The importance of information technology integration in health services is very urgent, especially in remote areas such as Muna Regency, which faces geographical challenges, limited infrastructure, and low digital literacy of health workers. This condition hinders the efficiency of patient data management, service accessibility, and coordination between health service

units. Previous findings show that limited interoperability and lack of competence of human resources are the root of problems in the implementation of health information systems in many regions (Fitriantini et al., 2019; Sari, 2020). This research is important because it provides strategic solutions to overcome these challenges through the application of strategic management designed to improve efficiency, accuracy, and security in the integration of information technology. In addition, the results of this study are expected to strengthen evidence-based health policies that are relevant to the needs of the community in Muna Regency. Therefore, this study aims to explore the application of strategic management in the integration of health information technology in Muna Regency. This research also aims to identify the strategies implemented, analyze the obstacles faced, and evaluate the impact of the application of information technology on the quality of health services. By examining these various aspects in depth, this study is expected to be able to provide applicable recommendations for policymakers in the health sector. The results of this study are not only relevant to improve the quality of health services in Muna Regency, but also become a reference for other regions with similar conditions. This research is expected to contribute to strategic management literature in the field of health information technology and support the sustainability of digital transformation of the health sector in Indonesia.

RESEARCH METHODS

This research was conducted using a qualitative descriptive research design that aims to describe the application of strategic management in the integration of health information technology in Muna Regency. This approach was chosen to gain an in-depth understanding of the phenomenon being studied through direct data collection from key informants. This method is relevant to analyze the strategies, challenges, and impacts of the application of information technology in the health sector as explained by Fitriantini et al. (2019). Data were collected through structured interviews with questions designed based on the theoretical framework of strategic management. This research was conducted by considering ethical aspects, including the consent of the informant to participate in the interview process.

The research instruments used include interview guidelines consisting of a list of open-ended questions to reveal information from various points of view. Interviews were conducted with five informants who were selected purposively, including the Acting Head of the Health Office, the Head of the Health Center, the Head of Bappeda, the Acting Head of the Communication and Informatics Office, and the Head of Health Resources in Muna Regency. The selection of informants is based on the relevance of their position in the implementation of health information technology in the area. All interviews are recorded to ensure data accuracy and are analyzed thematically to identify emerging patterns or categories. This instrument is designed to ensure that the data obtained supports the research objectives with adequate validity and reliability.

The research procedure involves several stages that are carried out systematically. The initial stage includes the preparation of interview guidelines based on relevant literature, as conducted by Fitriantini et al. (2019). Furthermore, interviews are carried out face-to-face at the informant's location or through online media if needed. The data obtained was analyzed using a thematic approach by grouping information based on the main theme relevant to the research topic. The results of this analysis are then compared with the findings from previous studies to provide a broader perspective. This procedure is designed to produce data that is trustworthy and relevant to the context of the implementation of health information technology in Muna Regency.

RESULTS AND DISCUSSION

Results

The application of strategic management in the integration of health information technology in Muna Regency shows significant development with various structured approaches. Acting Head of the Muna Regency Health Office, S.T., explained that the main focus lies in the digitization of health services through the Puskesmas Management Information System (SIMPUS) which is integrated in all health facilities. This aims to improve operational efficiency and accuracy of patient data. In the interview, S.T. revealed, "We are focusing on digitizing health services by introducing SIMPUS which is integrated in all health facilities." This effort reflects the Muna Regency Government's commitment to utilize technology as the main instrument in improving the quality of health services. However, this integration process is not separated from challenges. Information obtained from interviews with S.T. indicates that the limitations of technological infrastructure and unskilled human resources in the field of information technology are the main obstacles. "The biggest challenge is the limitation of technological infrastructure and skilled human resources in IT," said S.T. This challenge is overcome through intensive training for health workers and the gradual improvement of technological facilities. This strategy aims to ensure the sustainability of the implementation of information technology in the health sector of Muna Regency.

The integration of information technology also has a significant impact on public health achievements, especially in reducing stunting rates. S.T. revealed that the use of real-time data from digital systems allows for quick intervention in monitoring children's growth. "With the existence of a digital system, monitoring children's growth becomes more effective," he added. This contributed to the reduction of the stunting rate to 12.65% in Muna Regency. This achievement shows how information technology can support preventive and promotive health efforts in a more targeted manner.

At the primary service level, the Head of the Tampo Health Center, R., explained that the implementation of the electronic medical record system has improved accessibility and coordination between health workers. R. emphasized, "We have implemented an electronic medical record system that facilitates access to patient information." The system also speeds up health services, reduces patient waiting times, and ensures health data is stored properly for follow-up needs. In addition, the Tampo Health Center overcomes infrastructure constraints and internet network limitations with regular training for staff, so that the implementation of the health information system runs optimally.

In terms of planning, the Head of Bappeda Muna Regency, A.Y.B., highlighted the importance of the role of strategic planning in supporting the development of health information technology. In an interview, A.Y.B. stated, "Bappeda plays a role in formulating policies and allocating budgets for the development of technological infrastructure in the health sector." The main priority of Bappeda is to build an integrated information system between health centers, hospitals, and the Health Office. Evaluations of current implementation show positive results, although improving infrastructure and human resources are still a major concern.

Acting Head of the Communication and Information Service (Kominfo) of Muna Regency, H.M., added that the development of network infrastructure is a strategic step to support the digitalization of health services. "We are building network infrastructure, including expanding internet access to health centers in remote areas," said H.M. In addition, Kominfo ensures the security of patient data by implementing strict data protection protocols. This step shows synergy between sectors in ensuring the implementation of information technology that is sustainable and safe for the community.

Based on the results of the research, the integration of information technology in health services in Muna Regency has had a positive impact, both in terms of services and public health

outcomes. The implementation of strategic management involving various stakeholders is the key to the success of this initiative. However, challenges in the aspects of infrastructure and human resources still need to be overcome to ensure the sustainability and optimization of the program in the future. These results make an important contribution to the strategic management literature and can be a reference for other regions with similar conditions.

This study reveals that digitalization of health services is a top priority in the implementation of strategic management in Muna Regency. The use of an integrated Puskesmas Management Information System (SIMPUS) is one of the concrete steps to improve the efficiency and accuracy of patient data management. The Head of the Health Office stated that this system is designed to ensure the availability of fast and accurate data for health workers. This effort shows a strong commitment from related parties in utilizing technology to improve the quality of health services. The SIMPUS system is also a strategic element in supporting data-based decision-making.

However, the implementation of this information technology faces various challenges, especially related to infrastructure and human resources. The Head of the Health Office identified that limited internet access in several remote areas is the main obstacle. In addition, the lack of health workers who have competence in the field of information technology requires special attention. To overcome this, periodic training is carried out to improve the skills of health workers in utilizing digital systems. This approach shows progressive efforts in dealing with technical and human resource constraints.

The positive impact of information technology integration is evident, especially in reducing the stunting rate in Muna Regency. The use of real-time data through digital systems facilitates monitoring of children's growth and allows for quick intervention. This supports the achievement of the stunting rate which has decreased to 12.65%, as confirmed by the Head of the Health Office. These results reflect how information technology can be an effective tool in supporting public health programs. This effectiveness can be a model for other regions facing similar challenges.

At the primary service level, the implementation of electronic medical record systems shows promising results. The Head of the Tampo Health Center explained that this system speeds up the service process, improves coordination between health workers, and facilitates access to patient data. This system also helps in maintaining the continuity of health services, especially for patients with chronic diseases. To ensure the effectiveness of the system, regular training and strengthening infrastructure are priority steps taken by health centers. This proves the importance of cross-sector collaboration in optimizing health information technology.

The role of strategic planning carried out by Bappeda is also the key to the implementation of information technology integration in Muna Regency. Bappeda is responsible for formulating strategic policies, allocating budgets, and monitoring the implementation of programs. The Head of Bappeda emphasized the importance of synergy between local governments and the health sector in creating an integrated information system. This allows for better coordination between health centers, hospitals, and health offices. These priorities are the basis for more structured data-driven decision-making.

Infrastructure support and data security are a special concern managed by the Communication and Information Service. The Head of the Communication and Informatics Service said that the construction of internet networks in remote areas is a strategic step to support technology-based health services. In addition, patient data protection protocols are implemented to ensure the security of sensitive information. This step shows the commitment of the local government to provide safe and reliable digital health services. Data security is one of the aspects that cannot be ignored in the implementation of information technology in the health sector.

Table 1 aspects and explanation of informants

Aspects	Explanation
Digitalization Strategy	Digitization of health services with an integrated Puskesmas Management Information System (SIMPUS) improves the efficiency of patient data.
Integration Challenges	Limited technological infrastructure and unskilled health workers are the main obstacles in the application of technology.
Positive Impact	Real-time data helps reduce stunting rates by up to 12.65%, increasing the effectiveness of public health interventions.
Implementation at the Puskesmas Level	Electronic medical records speed up services, improve coordination of health workers, and facilitate access to patient data.
The Role of Strategic Planning	Bappeda formulates strategic policies, allocates budgets, and prioritizes the integration of health information across services.
Infrastructure Development and Security	Kominfo builds an internet network in remote areas and ensures the security of patient data with strict protection protocols.

The table displayed provides a summary of the research results based on six main aspects, namely digitalization strategies, integration challenges, positive impacts, implementation at the health center level, the role of strategic planning, and infrastructure and security development. Each aspect is complemented by a relevant explanation to provide a comprehensive overview of the research findings. This table is designed to help readers understand the essence of each finding in a concise and systematic manner. If additional data is needed, the table elements can be expanded to include specific examples of interview results.

Discussion

The implementation of the Puskesmas Management Information System (SIMPUS) in Muna Regency has succeeded in improving the integration of health data, overcoming fragmentation that was previously a significant obstacle. This is in line with the findings that show that the implementation of SIMPUS can improve the efficiency and quality of health services in Puskesmas. With an integrated system, data collection and processing becomes more consistent and accurate, supporting evidence-based policy formulation. In addition, this integration allows for a more effective exchange of information between healthcare facilities, as expected in the digital transformation of the healthcare sector. Thus, SIMPUS plays an important role in improving the quality of health services in Indonesia.

However, challenges related to technology infrastructure and digital literacy of health workers are still an obstacle in the implementation of SIMPUS in several health centers. Limited internet access and lack of training for health workers have resulted in low adoption of technology in health services. To overcome this, efforts are needed to improve infrastructure and sustainable training programs for health workers. In addition, support from local governments and other stakeholders is very important to ensure the successful implementation of SIMPUS. Thus, the integration of information technology in health services can run optimally and provide maximum benefits for the community.

In addition, uniform data standards and interoperability between health information systems are still challenges that need to be overcome. The absence of a standard standard causes

difficulties in the exchange of information between systems, hindering effective data integration. For this reason, it is necessary to develop national standards for health data and improve interoperability between health information systems. Thus, the quality of healthcare services can be improved through better data integration.

Patient data security is also a crucial issue in the implementation of SIMPUS. Without comprehensive regulations regarding data protection, the risk of privacy breaches increases. Therefore, a clear and up-to-date regulatory framework is needed to protect patients' personal data in health information systems. In addition, the implementation of strict security protocols and increased awareness of health workers regarding the importance of data protection are also urgently needed. Thus, integrity and trust in the health information system can be maintained.

Overall, the implementation of strategic management in the integration of health information technology in Muna Regency has shown positive results. Although there are still challenges that need to be overcome, efforts to improve infrastructure, train health workers, develop data standards, and protect data security are important steps to ensure the successful implementation of SIMPUS. Thus, it is hoped that the quality of health services in Muna Regency can continue to be improved through effective information technology integration. This is in line with the digital transformation efforts of the health sector that are being promoted in Indonesia

Efforts to integrate information technology in the health sector can also have a long-term impact on improving the operational efficiency of the overall health system. The findings of this study show that the digitization of health data through SIMPUS has simplified the process of data collection and analysis at the level of primary health facilities. This supports research conducted by Sujarwo et al. (2021), which stated that digital information systems are able to reduce the administrative time of health workers by up to 30%. This time saving allows healthcare workers to focus more on essential medical services. Therefore, digitalization not only improves the quality of services but also supports the efficiency of available resources.

However, the challenge of ensuring the sustainability of the application of information technology in the health sector still requires attention. This study reveals that the lack of consistent technical support is an obstacle for health workers in Muna Regency. This is relevant to the research of Nasution and Amri (2020), which showed that the availability of reliable technical support contributes significantly to the adoption of new technologies. The continuous training strategy carried out by the Health Office in Muna Regency is a positive step, but its effectiveness can be improved through collaboration with educational institutions and professional organizations. This approach can create a more structured and sustainable learning cycle.

The implementation of strict data security protocols in Muna Regency also shows progress that needs to be appreciated. In an interview, the Head of the Communication and Informatics Service emphasized that the security of patient data is a top priority. This is consistent with the view of Smith et al. (2022), who emphasized the importance of data protection as a foundation for building public trust in health information systems. However, data protection regulations at the local level still need to be synchronized with national policies. This effort is important to ensure that the system developed in Muna Regency can follow national and international standards.

The results of this study also underscore the importance of the role of strategic management in ensuring that the integration of information technology can run in harmony with the needs of the local community. Focusing on strategies centered on user needs, as seen in Muna Regency's approach, has yielded positive results. This is in line with the theory of User-Centered Design put forward by Norman (2013), which states that effective technology solutions must be rooted in a deep understanding of user needs and behaviors. Thus, strategic

management is not only an implementation tool but also a mechanism to create relevant and sustainable solutions.

In addition, the reduction in stunting rates through the use of real-time data from SIMPUS reflects how information technology can contribute to the achievement of health development targets. According to a WHO report (2021), a data-driven approach has great potential to support more targeted public health interventions. This study shows that digital-based monitoring has increased the accuracy and speed of intervention in child nutrition programs in Muna Regency. These results are a good example for other regions in Indonesia to adopt a similar approach, especially in addressing urgent public health issues.

Taking into account the various challenges and opportunities faced, this study confirms that the integration of information technology in the health sector requires a holistic approach. A combination of mature management strategies, infrastructure development, and investment in human resources is the key to success. This provides an important lesson for policymakers in the health sector, that digital transformation depends not only on technology but also on deep structural and sustainability support. These findings can be a foothold for further research and development in the field of health information technology in Indonesia.

CONCLUSION

This study demonstrates that the application of strategic management in integrating health information technology in Muna Regency, through the Puskesmas Management Information System (SIMPUS), has significantly improved the efficiency of patient data management and the quality of healthcare services. The adoption of SIMPUS has addressed data fragmentation, supported data-driven decision-making, and contributed to reducing the stunting rate to 12.65%. However, challenges such as limited technological infrastructure, low digital literacy among healthcare workers, and inconsistent technical support remain. To ensure the sustainability of these efforts, it is imperative to enhance human resource capacities, develop robust infrastructure, establish standardized data frameworks, and implement comprehensive data protection measures.

Overall, the integration of health information technology in Muna Regency serves as an effective model for digital transformation in healthcare, particularly in resource-limited and geographically challenged areas. The findings of this study provide critical recommendations for policymakers in the healthcare sector to adopt holistic approaches that support the digitization of healthcare services. With cross-sectoral collaboration, adequate investment, and well-directed strategic management, the integration of health information technology can sustainably improve public health outcomes.

RECOMMENDATIONS FOR FUTURE RESEARCH

1. Future research should explore the effectiveness of health information technology integration in regions with varying geographical and socio-economic conditions to broaden the understanding of its applicability and scalability.
2. Longitudinal studies are recommended to assess the long-term impact of health information technology integration on the quality of healthcare services and the operational performance of healthcare facilities.

3. Investigating the role of organizational culture and community engagement as moderating factors in implementing health information technology could provide deeper insights into enhancing adoption and effectiveness.
4. In-depth studies on the development of patient data protection regulations at both national and local levels will strengthen the legal framework supporting digital transformation in the healthcare sector.

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