

The Process of Sustainable Innovation in Healthcare Services: Evidence from I Lagaligo Regional General Hospital, East Luwu Regency

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Abstract

This study aims to analyze the sustainability process of healthcare service innovation at RSUD I Lagaligo, East Luwu Regency, by examining the role of individual actions, organizational management systems, and contextual approaches. The study employed a qualitative approach, with data collected through observation, in-depth interviews, and documentation. Eight informants were involved, representing local government, hospital management, innovators, and healthcare service users. Data analysis was conducted through data collection, reduction, presentation, and conclusion drawing. The findings indicate that healthcare service innovation in its initial stage was driven by individual initiatives as a response to local government policies requiring innovation in every regional government organization. However, the sustainability of innovation remains highly dependent on leadership policies and has not yet been fully institutionalized within the organizational system. From a management system perspective, innovation has been supported through planning, budgeting, and monitoring and evaluation, but it is still oriented toward fulfilling annual innovation competitions rather than long-term sustainability strategies. In addition, limited integration of information systems with external systems and low technological literacy among some service users constitute major obstacles to innovation sustainability. The study identifies leadership dependency and digital interoperability as two critical determinants influencing the sustainability of healthcare innovation in local public healthcare organizations. This study concludes that the sustainability of healthcare service innovation at RSUD I Lagaligo has not yet been optimal and requires strengthening of institutional management, technological integration, and alignment with local social conditions.

Keywords: Innovation Sustainability; Healthcare Services; Organization Management.

Introduction

Public healthcare organizations are increasingly required to provide fast, accessible, and high-quality services, encouraging continuous innovation in public service delivery. Public sector innovation includes changes in services, organizational processes, and policies aimed at

improving public value (Wiktorska-Święcka, 2021). However, many innovations fail to continue beyond the implementation stage due to weak institutionalization and organizational support (Randma-Liiv, 2023). The I Lagaligo Regional General Hospital (RSUD I Lagaligo) in East Luwu Regency is a referral hospital; therefore, its role is highly vital in providing quality health services. This is reflected in the relatively high number of patient visits. The types of services available at RSUD I Lagaligo include outpatient services, inpatient services, a general emergency unit (ER), and a specialized emergency unit for maternity care. The significant role of RSUD I Lagaligo as a referral hospital is reflected in the number of patient visits across the various types of services it provides. To examine this situation in greater detail, the following figure presents data on patient visits by type of healthcare service at RSUD I Lagaligo.

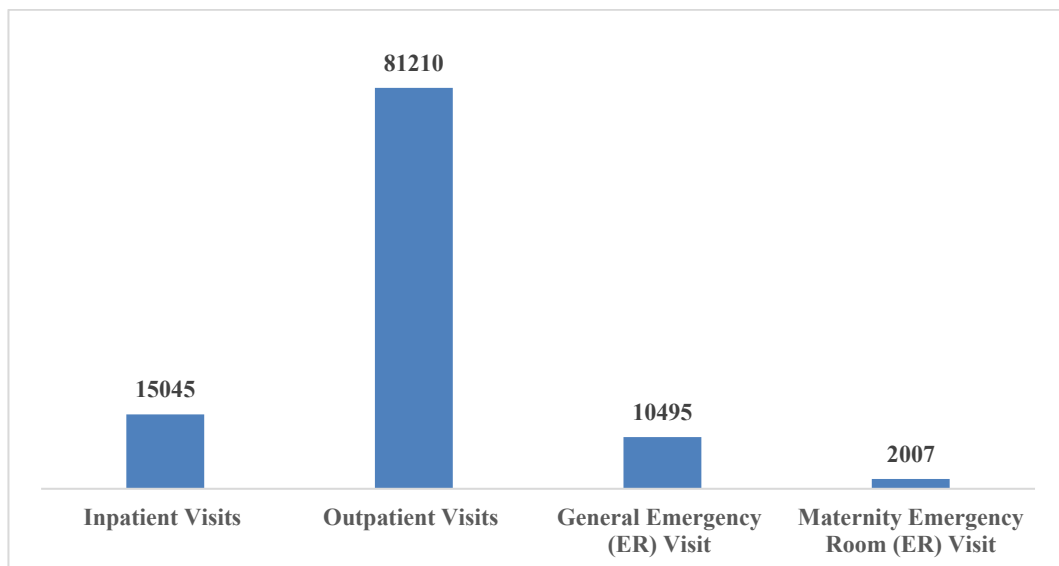


Figure 1. Patient Visit Numbers in 2025
Source : Processed by the author based on RSUD I Lagaligo data (2026)

Based on patient visit data in 2025, there were 15,045 inpatient visits, 81,210 outpatient visits, 10,495 general emergency room (ER) visits, and 2,007 maternity emergency visits. Given the diverse types of services available at RSUD I Lagaligo and the relatively high number of patients across each service category, the hospital management has sought to

provide high-quality services by introducing innovations that support patients as service recipients. The innovations developed include the Armada Sehat program and the Pelangi innovation, which was later developed into a Hospital Management Information System (SIMRS). However, at present, the Pelangi innovation has been transferred to another vendor, and it now serves only as a backup system for RSUD I Lagaligo.

However, the existing condition shows that several innovations that have been implemented have not been fully designed with a long-term sustainability strategy. Many of these innovations have not been permanently integrated into the hospital service system due to limitations in the organizational structure and internal capacity of the hospital. As a result, these innovations often remain at the implementation stage and do not continue after the initial innovation program ends. This condition indicates that innovation in the public service sector, particularly in healthcare organizations, does not solely depend on the organization's ability to generate new ideas, but also on its capacity to sustain and institutionalize these innovations within the service system.

This issue is consistent with the study conducted by Isik (2025) which examined "Innovation Interrupted: The Gap between Value Creation and Evaluation." The findings indicate that many innovations are discontinued because their evaluation primarily focuses on short-term outcomes rather than long-term benefits. Similarly, a study published in *Kybernology: Journal of Government Studies* investigating the innovation program Gerakan Serentak Pemanfaatan Pekarangan Organik (Gertak Petani) found that public sector innovations are indeed capable of creating public value. However, their sustainability remains highly dependent on the role of government and has not been strongly institutionalized within organizational systems. As a result, these innovations are vulnerable to discontinuation when policy support weakens (Rahma et al., 2021). In addition, another indication is that the innovations designed or formulated are often not

adaptive to highly dynamic regulations and policy changes. This issue is consistent with the study conducted by Louredo et al. (2024) in “Meaning of Sustainability of Innovations in Healthcare Organizations: A Systematic Review.” The study shows that innovations in healthcare organizations frequently discontinue due to challenges in sustaining change, emphasizing the importance of integrating sustainability strategies from the early stages of the innovation process, including the involvement of individuals and organizations. Similarly, the Capacity for Change theory suggests that the success and sustainability of innovation are largely determined by an organization’s ability to adapt to change (Almazrouei et al., 2024). Furthermore, Kuchenmuller explain that one of the primary barriers to innovation in the public sector is the limited organizational capacity, including constraints in human resources, organizational structures, and system support (Kuchenmüller et al., 2022).

Public sector innovation refers to the development of new ideas, processes, and services aimed at improving public value and governance effectiveness (Waheduzzaman, 2026). Within healthcare organizations, innovation encompasses not only technological change but also transformation in service systems and organizational governance (Lehoux et al., 2022). Furthermore, recent studies emphasize that innovation sustainability refers to the ability of an innovation to survive, adapt, and continuously generate long-term value within dynamic organizational environments (Louredo et al., 2024). The sustainability of innovation in healthcare organizations is influenced by various factors, including organizational capacity, leadership support, digital technology integration, organizational culture, and collaboration among stakeholders (Moss et al., 2022). Therefore, innovation in healthcare services does not solely emphasize the novelty of programs or technologies, but also the institutional capability to sustain and further develop innovations in order to remain relevant to changing societal needs and the dynamics of healthcare policy.

This study adopts the sustainable innovation framework proposed by Blowfield et al. (2008), which emphasizes the role of individual action, management systems, and contextual adaptation in sustaining innovation. Referring to the framework of Blowfield et al. (2008), the process of sustainable innovation in public organizations can be understood through interconnected stages, starting from individual initiation, institutionalization through management systems, and alignment of innovation with the social context and the needs of service users. This framework is used as an analytical foundation to understand the sustainability process of healthcare service innovation at RSUD I Lagaligo, East Luwu Regency.

Although the literature on public sector innovation continues to grow, most studies remain focused on innovation creation, adoption, and performance, while the sustainability dimension has received relatively limited attention (Haley, 2016; Raffer et al., 2022). In fact, innovation sustainability requires a process of institutionalization through integration into organizational routines, formal structures, and inter-organizational systems. Failure in this process may lead to the premature discontinuation of innovations and hinder the creation of long-term value in healthcare services (Chicoine & Straus, 2025). Furthermore, previous studies have provided limited explanation regarding how the interaction between individual actors, management systems, and socio-institutional contexts shapes innovation sustainability. Therefore, this study contributes to the literature by offering a process-oriented perspective on healthcare innovation sustainability through the integration of individual, managerial, and contextual dimensions within a regional public hospital, particularly RSUD I Lagaligo.

Furthermore, this study contributes to the sustainable innovation literature by identifying leadership dependency and digital interoperability as additional determinants that influence innovation sustainability beyond the dimensions proposed by Blowfield et al. (2008). These factors provide

a deeper understanding of how innovation continuity is shaped within local public healthcare organizations operating in dynamic political and technological environments.

Research Methods

This study employed a qualitative approach with a case study design to examine the sustainability process of healthcare service innovation at RSUD I Lagaligo, East Luwu Regency. The case study design was selected because the research focused on a specific phenomenon within the context of a public service organization. Informants were selected using purposive sampling based on their involvement, experience, and knowledge related to healthcare service innovation. The study involved eight informants consisting of the Regional Secretary of East Luwu Regency, the Head of the East Luwu Regency Health Office, the Head of BAPPERIDA of East Luwu Regency, the Head of the Development and Human Resources Division at RSUD I Lagaligo, the hospital innovator, a general patient, a BPJS patient, and a BPJS officer at RSUD I Lagaligo. The informants were selected based on their direct involvement in the sustainability process of healthcare service innovation and were determined using the principle of data saturation.

Data collection was terminated when no new themes, categories, or relevant information emerged from subsequent interviews, indicating that data saturation had been achieved. Data collection was conducted through observation, semi-structured in-depth interviews, and documentation. Data were analyzed using an interactive analysis model consisting of data condensation, data display, and conclusion drawing/verification (Miles et al., 2014). The data analysis process involved data simplification, categorization, data presentation, and conclusion drawing based on patterns and relationships identified from the research findings. To ensure data validity and reliability, this study applied source triangulation, technique triangulation, and member checking. Source triangulation was conducted

by comparing information obtained from different informants, while technique triangulation was carried out by comparing the results of observations, interviews, and documentation. Member checking was conducted by reconfirming interview results with the informants to ensure the accuracy and consistency of the data with actual conditions.

Results and Discussion

The findings of this study reveal that the sustainability of healthcare service innovation at RSUD I Lagaligo is shaped by the interaction between individual initiatives, organizational management systems, and contextual adaptation to community needs. Referring to the sustainable innovation framework proposed by Blowfield et al. (2008), this study analyzes innovation sustainability through three interconnected dimensions: individual actions, management systems, and contextual approaches. These dimensions are used to explain how healthcare innovations are initiated, implemented, and sustained within the organizational and social context of RSUD I Lagaligo, East Luwu Regency. Furthermore, the discussion integrates empirical findings with previous studies in order to provide a more comprehensive understanding of innovation sustainability in local public healthcare organizations.

Individual Actions In The Sustainability Of Innovation At RSUD I Lagaligo, East Luwu Regency

The formulation of innovation within a public organization often begins with individual actions and initiatives in responding to phenomena occurring in the field. According to Blowfield et al. (2008), innovation originates from individual action; however, its sustainability largely depends on structural and institutional organizational support. The findings of this study indicate that the formulation of innovation at RSUD I Lagaligo was carried out as a governmental response to the increasing public demand for quality healthcare services. It was also influenced by a direct policy from the Regent of East Luwu, requiring each Regional Apparatus Organization

(OPD) to create innovations. Individual actions in the formulation process at RSUD I Lagaligo were undertaken by structural officials, the innovation team, and technical staff directly involved in service delivery and information system management. As explained by the Head of the Development and Human Resources Division of RSUD I Lagaligo:

“We were instructed to create innovations, and later there would be an innovation competition among OPDs. In fact, the current policy of the Regent of East Luwu requires every employee to propose an innovation, which is then submitted to the Development and Human Resources Division.” (Interview, January 20, 2026)

These findings indicate that innovation at I Lagaligo Regional General Hospital still tends to be top-down in nature and primarily oriented toward fulfilling the administrative demands of the local government. Although the policy has successfully encouraged employee participation in generating innovations, the sustainability of innovation has not yet been fully developed as a long-term organizational transformation strategy. Since 2021, several innovations introduced by RSUD I Lagaligo have not been sustained, with only the Healthy Armada innovation remaining operational. This condition indicates that innovation continuity remains highly dependent on leadership policies and has not yet been strongly institutionalized within the hospital system. Although most of the innovations introduced since 2021 have not been sustained, patient visit rates remain a key indicator for assessing hospital service performance. Figure 2 shows the trend in patient visits at RSUD I Lagaligo during the 2021–2025 period.

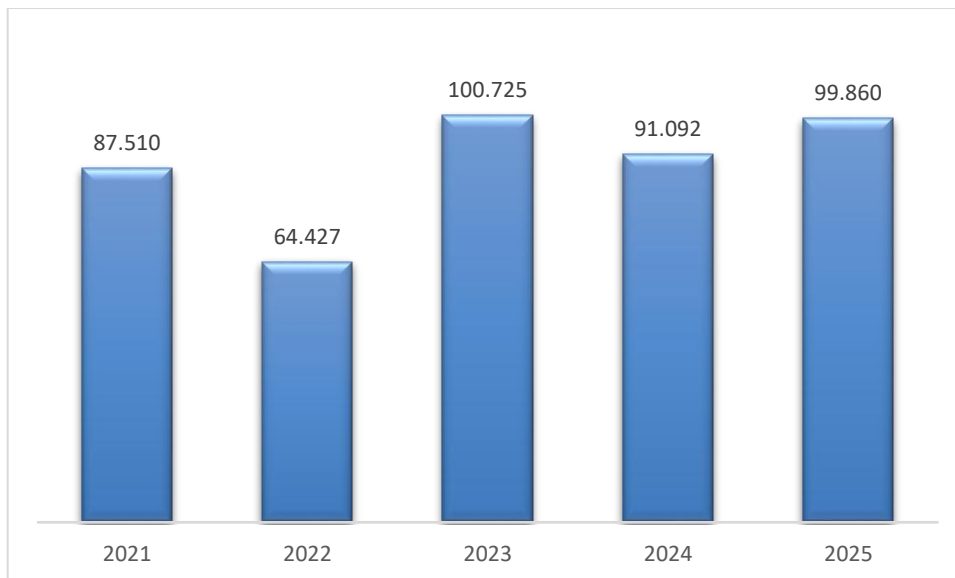


Figure 2. Patient Visits at RSUD I Lagaligo, 2021–2025

Source : Processed by the author based on RSUD I Lagaligo data (2026).

The data above indicate that in 2021, a total of 87,510 patients received treatment at the hospital, while in 2022 the number decreased to 64,427 patients. Although there was a decline, the overall number of patient visits remained relatively high. Despite the decline, patient visits remained relatively high, encouraging the hospital to develop innovations aimed at improving healthcare service quality. Furthermore, the innovation team also stated that:

“Specifically for the Pelangi innovation, it is currently no longer continued due to policies and regulations from the leadership, and now it only functions as a backup system.” (Interview, January 20, 2026)

These findings indicate that innovation sustainability depends not only on individual initiatives, but also on the organizational capacity to institutionalize and integrate innovations into the healthcare service system. In this study, leadership change emerged as a dominant factor influencing innovation continuity. This is reflected in the change of regional leadership in 2024, which resulted in several previous programs no longer being continued. Previous studies have emphasized institutional support as the

primary determinant of innovation sustainability (Brandtner & Suárez, 2021). Emphasize institutional support as the primary determinant of sustainability, this study demonstrates that leadership dependency remains more dominant within local public healthcare organizations. These findings suggest that the sustainability of innovation within a decentralized governance context is shaped not only by institutionalization, but also by political-administrative dynamics.

These findings demonstrate that leadership plays a dual role in innovation sustainability. While leadership encourages innovation through policy support, excessive dependence on leadership preferences also creates institutional vulnerability, as innovation continuity becomes highly affected by political and managerial changes. This condition indicates that innovation sustainability at RSUD I Lagaligo has not yet reached the stage of organizational routinization, where innovation is embedded into formal work mechanisms independent of leadership turnover. In this regard, the findings of this study extend the argument of Wiltsey Stirman et al by showing that in local public healthcare organizations, leadership dependency constitutes a dominant factor influencing the continuity or discontinuation of innovation (Rossiter et al., 2017).

Management System in the Process of Innovation Sustainability at RSUD I Lagaligo, East Luwu Regency

The management system plays a crucial role in an organization, as it determines the achievement of organizational goals. In public organizations, the management system aims to ensure that public services are delivered effectively, accountably, transparently, and in alignment with public interests. In the context of innovation sustainability, management concepts emphasize that innovation must be strategically planned, not merely implemented but also institutionalized through formal organizational systems. Blowfield et al.(2008) explain that integrating innovation into Standard Operating Procedures (SOPs), internal policies, and strategic

planning is a key prerequisite for sustaining innovation within an organization. The innovations designed and formulated by RSUD I Lagaligo have been incorporated into the hospital's annual planning and development agenda. On the other hand, the East Luwu Regency Government has also provided support for these innovations.

This was explained by the Regional Development Planning, Research, and Innovation Agency of East Luwu Regency (BAPPERIDA) of East Luwu Regency as follows:

“Existing innovations are encouraged to be based on community needs. Therefore, every Regional Apparatus Organization (OPD) that proposes an innovation must consult with BAPPERIDA to receive input, after which the innovation will be budgeted if deemed feasible. Subsequently, we conduct monitoring and evaluation.” (Interview, January 12, 2026)

This explanation indicates that the innovations initiated by the local government are based on community needs. Therefore, regional government agencies (OPDs) proposing innovations are required to consult with the Regional Development Planning, Research, and Innovation Agency of East Luwu Regency (BAPPERIDA). Although innovation has been integrated into the organization's planning and budgeting processes, the orientation toward innovation sustainability remains administrative and short-term in nature. Innovation tends to be positioned as part of the annual innovation competition agenda rather than as a strategy to strengthen the healthcare service system sustainably. This condition indicates that managerial support has not yet been fully directed toward institutional sustainability innovation.

Limited system integration and leadership changes have weakened innovation continuity, making healthcare service innovations difficult to sustain consistently within the hospital system. The achievements of the public service standards at I Lagaligo Regional General Hospital are presented as follows:

Type of Service (SPM)	Number of SPM Indicators	Achieved	Percentage (%)
Service Scope	68	57	83.8
Emergency Services	8	6	75.0
Outpatient Services	10	9	90.0
Inpatient Services	14	10	71.4
Central Surgery	11	11	100.0
Maternity & Perinatology	12	11	91.7
Intensive Care	7	6	85.7
Infection Prevention & Control		4	66.7
Supporting Services	72	58	80.6
Radiology Services	7	6	85.7
Laboratory & PK Services	10	9	90.0
Blood Transfusion Services	5	4	80.0
Medical Records Services	6	2	33.3
Pharmacy Services	8	6	75.0
Nutrition Services	6	5	83.3
Medical Rehabilitation Services	5	5	100.0
Waste Management Services	5	5	100.0
Mortuary Services	7	4	57.1
Laundry Services	7	7	100.0
Hospital Facility Maintenance	6	5	83.3
Administration & Management Services	29	26	89.7
Administration & Management Services	16	16	100.0
Ambulance Services	7	6	85.7
Security Services	8	4	66.7
Average SPM Achievement – Hospital	169	141	83.4

Table 1. Achievement of Service Standards at RSUD I Lagaligo, East Luwu Regency, 2023
 Source : Processed by the author based on RSUD I Lagaligo data (2026).

Overall hospital service standards reached 83.4%, although several service units still remained below the expected target, indicating that healthcare service quality has not yet been fully optimized. Furthermore, the Head of the Health Office also stated that:

“Every year, funding is allocated for innovations, as there is also an annual innovation competition organized by the government. The

budget comes from both the hospital's internal funds and government support." (Interview, January 22, 2026).

The explanation above shows that innovations at RSUD I Lagaligo have received regular budgetary support, both from the hospital's internal funds and additional funding from the local government. However, innovation budgeting is still heavily influenced by the need to meet the annual innovation competition, which tends to make innovation sustainability oriented toward the short term.

Although innovation budgeting is carried out routinely every year and monitoring and evaluation are conducted, the innovations created do not continue. The study found that the discontinuation of innovations is due to weaknesses in the RSUD I Lagaligo innovation information system provider, which has not been able to keep pace with the BPJS e-claim external technology provider. As stated by the innovator:

"The innovation did not continue because our system is weak and has not yet been bridged with the BPJS E-Claim system." (Interview, January 20, 2026).

These findings indicate that the primary challenge to innovation sustainability lies in weak digital interoperability between internal hospital systems and external healthcare platforms. Unlike previous studies that mainly emphasize financial and policy factors, this study demonstrates that technological integration constitutes a more critical barrier to sustaining healthcare innovation. This finding aligns with previous studies emphasizing that limited interoperability and weak system integration constitute major barriers to healthcare innovation sustainability and service effectiveness (Casprini & Palumbo, 2022).

Overall, innovation at RSUD I Lagaligo has formally been supported through planning, budgeting, monitoring, and evaluation mechanisms. However, weak technological integration and the absence of a long-term institutional orientation continue to hinder innovation sustainability,

particularly due to the limited integration between hospital innovations and the BPJS Kesehatan E-Claim system.

Contextual Approach to Innovation Sustainability at RSUD I Lagaligo, East Luwu Regency

Innovation sustainability cannot be applied uniformly across all organizations. Innovations must be adapted to the social and cultural conditions, community needs, and institutional capacity of the organization. This means that an innovation that succeeds in one region or institution may not be effective if implemented in a different context without proper adaptation. According to Blowfield et al. (2008) sustainable innovation must align with the social, cultural, and institutional context of the organization.

RSUD I Lagaligo is a referral hospital in East Luwu Regency that provides a variety of healthcare services. The hospital management, in collaboration with the local government, strives to deliver effective and efficient service quality by implementing several policies and the latest innovations. There are two types of registration at this hospital: online and manual. Online patients reported that:

“So far, with the online registration, we as patients feel much more facilitated because we can register from home. This allows us to predict what time to arrive at the hospital without having to queue from early in the morning.” (Interview, January 20, 2026)

The explanation above shows that online registration at RSUD I Lagaligo provides tangible benefits for service users, particularly in terms of ease of access and time efficiency. Patients no longer need to arrive early and queue physically at the hospital; instead, they can register from home and better estimate their arrival time. This reflects an improvement in service effectiveness and convenience, which are important indicators of public service quality. However, not all patients are able to use the digital system, so some still rely on manual registration. This condition indicates that digital transformation in healthcare services also creates new challenges related to disparities in service access. Therefore, the

sustainability of innovation is determined not only by technological sophistication, but also by the ability of the innovation to adapt to the social conditions of service users. As stated by a counter service staff member:

“There are still some patients who register manually, in fact, more patients register manually due to their limited understanding, so they prefer manual registration.” (Interview, January 19, 2026)

This indicates that, in practice, the RSUD management has implemented online registration through the Mobile JKN system; however, not all patients are able to use this system. As a result, manual registration remains more dominant than online registration at RSUD I Lagaligo.

Type of Registration	Number of Patients
Online Registration	422
Manual Registration	3041

Table 2. Patient Registration Data, December 2025

Source : Processed by the author based on RSUD I Lagaligo data (2026).

From the data above, the number of patients registering online through the Mobile JKN application was 422, while 3,041 patients registered manually. These findings indicate that hospital management and staff need to further improve outreach and education for patients regarding the use of the Mobile JKN online registration system. The dominance of manual registration compared to online registration indicates that digital innovation has not yet been fully inclusive. Although the innovation has succeeded in improving service efficiency for some members of the community, low digital literacy causes many patients to remain dependent on conventional systems. This finding demonstrates that the sustainability of healthcare service innovation requires social support and public education so that innovation can be adopted more broadly and sustainably. The contextual approach indicators suggest that the hospital has generated public value by improving the quality of services at RSUD I Lagaligo. However, the sustainability of the innovation has not yet been fully achieved due to limited technological literacy among service users. Therefore, stronger support from the hospital’s management system is required, particularly in terms of

technology integration, system stability, and policy frameworks that are responsive to the social context in order to enhance adaptability. Without such support, the benefits of the innovation may not be sustained in the long term.

Overall, this study demonstrates that the sustainability of healthcare service innovation at RSUD I Lagaligo remains constrained by limited institutionalization, weak system integration, and inadequate contextual adaptation. These findings support previous studies emphasizing that public sector innovations remain vulnerable to discontinuation without strong organizational capacity and system integration (Moullin et al., 2020; Wiltsey Stirman et al., 2012).

Moreover, these results corroborate existing literature emphasizing that innovation sustainability is not solely contingent upon the generation of new ideas, but rather on the organization's capacity to embed such innovations within routines, formal structures, and inter-organizational systems (Brandtner & Suárez, 2021). In this regard, Moullin et al. (2020) further emphasize the importance of implementation processes and organizational alignment in ensuring that innovations are not only adopted but also sustained over time. From a management systems perspective, although innovation at RSUD I Lagaligo has been supported through formal mechanisms such as planning, budgeting, and monitoring, its orientation remains predominantly short-term and administratively driven.

This condition indicates that innovation practices remain oriented toward administrative compliance rather than long-term institutionalization. A key finding of this study is the limited integration between the hospital's internal innovation system and external platforms, particularly the BPJS Kesehatan E-Claim system, which has become a major barrier to innovation sustainability. In line with Casprini and Palumbo (2022), healthcare innovation requires strong collaboration and system integration to function effectively and sustainably. Furthermore, the inability of existing systems to

adapt to external technological developments indicates that digital transformation in healthcare requires not only technology adoption, but also system compatibility and integration (Ferreira & Fernandes, 2026)

In addition to technological integration, contextual factors such as limited digital literacy among patients also significantly influence innovation sustainability. These findings demonstrate that sustainable healthcare innovation requires alignment between organizational systems, technological capacity, governance mechanisms, and socio-contextual conditions. Without such alignment, innovations remain vulnerable to discontinuation despite initial implementation success.

Overall, the three dimensions identified in this study are interrelated and mutually reinforcing in determining innovation sustainability. Individual initiatives may stimulate innovation; however, without institutional support through management systems and contextual adaptation to user capacity, innovations remain vulnerable to discontinuation. Therefore, sustainable healthcare innovation should be understood as an integrated governance process requiring alignment between actors, systems, governance mechanisms, and socio-contextual conditions.

Conclusion

This study found that the sustainability of healthcare service innovations at RSUD I Lagaligo remains limited due to weak institutionalization, strong dependence on leadership, and insufficient integration with external systems, particularly the BPJS Kesehatan E-Claim system. Although innovations have been incorporated into planning and budgeting processes and have improved service accessibility through online registration, their sustainability is constrained by short-term policy orientations and limited digital literacy among service users. Therefore, strengthening institutional support, technological integration, and adaptive governance is essential to ensure long-term innovation sustainability.

Theoretically, this study extends the sustainable innovation framework of Blowfield et al. (2008) by identifying leadership dependency and digital interoperability as additional determinants of innovation sustainability in local public healthcare organizations. These findings suggest that sustainable innovation depends not only on individual actions, management systems, and contextual adaptation, but also on the ability to maintain innovation continuity across leadership transitions and technological changes.

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