

Research Article

Empowering Local Health Systems through Digital Financial Inclusion: A Qualitative Study of North Sumatra's Community Clinics

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Abstract. The research examines how digital financial inclusion strengthens local health systems in North Sumatra through its effects on community health clinic accessibility, and operational efficiency, and sustainability of puskesmas and independent clinics. A qualitative research method enables this study to explore financial innovation effects on healthcare delivery through interviews and field observations with health administrators, and local fintech actors, and OJK-affiliated institutions. The research will identify how mobile payment systems and microfinancing, and digital banking platforms operate to maintain business operations and support healthcare funding at the community level. The research identifies three main barriers to financial innovation in healthcare which include digital literacy issues and regulatory challenges. Inadequate infrastructure while suggesting practical solutions for OJK and regional governments to enhance financial innovation in healthcare. The paper supports Indonesia's Sustainable Development Vision 2045 by presenting policy discussions which unite financial access with regional health system development.

Keywords: Financial Inclusion, Digital Finance, Community Health, OJK, North Sumatra

INTRODUCTION

Strengthening local health systems is becoming a key pillar of Indonesia's sustainable development focus, especially in North Sumatra. The province has performed fairly well, achieving 5.03% year-on-year economic growth in 2024, but health-care access and financing inequities continue to be problematic, particularly in rural and peri-urban areas (Otoritas Jasa Keuangan [OJK], 2025). Many community clinics (puskesmas and small private health centers) continue to operate under poorly integrated cash-based systems, and due to underdeveloped digital systems, limited financial literacy, and thin credit markets, they encounter severe financial management challenges (Badan Pusat Statistik [BPS], 2024).

Fast digitalization of Indonesia's finances opens new avenues to bridge existing gaps. From the OJK Roadmap 2024–2028 documents, digital finance and financial inclusion will be the primary focus to build innovative equity in the financial ecosystem (OJK, 2024). Furthermore, the 2024 National Survey of Financial Literacy and Financial Inclusion (SNLIK) indicated Indonesia's financial inclusion index has achieved 80 percent; however, financial literacy remains stagnant around 66 percent (BPS & OJK, 2024). This gap in understanding the financial systems is more critical for community health organizations to strategize system adoption and for the management of digital payments, credits, and insurance to be effective.

Innovative and integrated digital solutions from new financiers are contributing to the health sector and expanding the bounds of digital financial inclusion. Indonesian fintechs, for instance, offer services around medical payments, insurance microcredits, and even financing for telemedicine (Yuliani & Pratama, 2024). This service digitally includes financially distressed consumers and economically empowers health service providers. Innovations in digital finance for health services improve the liquidity of operational cash and cash-flow management and facilitate real-time budgeting and accountability to health service regulators and patients (World Health Organization [WHO], 2023).

The adoption of these new ideas and systems is not universal. Some of North Sumatra's local health institutions continue to struggle with infrastructural shortcomings, underdeveloped digital systems, and health-financing systems that are poorly integrated with financial-service platforms (Ministry of Health Republic of Indonesia, 2023). Some research and studies document the experiences of clinics with digital payment systems and note such systems are often hindered by weak organizational and technical foundations, such as unreliable internet access, a lack of trust in digital cash systems, and a weak hand of local governance (Bank Indonesia, 2024; Rahmawati & Siregar, 2024). Moreover, initiatives like electronic medical records and mobile health applications, which certainly improve health system efficiencies, do not achieve full community adoption as a result of poorly coordinated initiatives and a lack of funding (Kurniawan et al., 2024).

These challenges highlight the importance of qualitatively understanding the potential of digital financial inclusion on local health systems. This research seeks to understand the institutional dynamics, behavioral patterns, and partnership

ecosystems that make sustainable change possible by looking at community clinics that use innovative financial practices. The research aligns with Indonesia's Vision 2045, as well as the Sustainable Development Goals, and more directly SDG 3 (Good Health and Well-Being) and SDG 9 (Industry, Innovation, and Infrastructure), by illustrating the role of financial innovation in complementing social and economic regional resilience (United Nations Development Programme [UNDP], 2024).

The increasingly closer combination of financial technology and the Indonesian health sector pose some of the most significant questions regarding how such technologies can be used to empower local health systems in North Sumatra. Since the region has been showing both positive and negative advancements in digital transformation, this study takes a qualitative approach to examine the multidimensional correlation between financial inclusion and the delivery of health services in the community.

In that regard, the study is informed by the following general question:

What is the impact of digital financial inclusion on community-based health system empowerment and sustainability in North Sumatra?

In order to operationalize this question, three sub-questions are formulated, which are interrelated:

1. How do community health clinics in North Sumatra use digital financial services to improve efficiency, access, and accountability in the delivery of healthcare?
2. What barriers to the successful implementation of digital financial innovations exist in these clinics in terms of organizational, technological, and behavioral factors?
3. What could be enhanced to enable the OJK, local governments, fintech institutions, and healthcare stakeholders to work together to help achieve inclusive and sustainable regional health financing?

The questions are structured to bring out rich and contextual information on how digital financial inclusion informs the working realities of local health institutions. The study will help produce grounded evidence by focusing on the lived experiences of stakeholders and institutional dynamics to inform regional policy on finance and the advisory services of OJK regarding the inclusion of economic growth.

RESEARCH METHODS

To study how digital financial inclusion helps strengthen community-based health systems in North Sumatra, this study employs a qualitative research design. This research topic calls for qualitative understanding because of the need to appreciate the institutional and individual actors within the context of the phenomena under study. This includes institutional behavior, individual perceptions, and experiences, which cannot be sufficiently described or measured through quantitative approaches (Creswell & Poth, 2018). This study is of an exploratory and descriptive nature, and it is interested in interpreting the adoption, adaptation, and experiences of local clinics with financial innovations in their daily operations.

The research was conducted in community health centers (puskesmas) and small private clinics in three areas of North Sumatra precincts: Medan City, Deli Serdang Regency, and Toba Regency. Places were chosen with diverse socio-economic

and infrastructure health context ranges in the urban digital ecosystem health to semi-rural and rural ecosystems. The focus was on the relationships between financial innovation, institutional management, and the provision of health services, which corresponds with OJK's aim of enhancing the linkage of the financial sector to regional economic development (OJK, 2024).

The study incorporates primary and secondary data. primary data was gathered by conducting semi-structured interviews and carrying out field observations. the interviewees included clinic administrators, finance officers, local fintech representatives, OJK provincial officials, and health-department policymakers. Including these stakeholders guarantees a broad set of regulatory and operational insights. My interview questions sought to understand specific experiences regarding digital payment systems, microfinance products, credit accessibility, and partnerships with fintechs or banks.

The research also uses secondary data by retrieving publicly accessible documents such as the OJK Financial Inclusion Blueprint 2021–2025, OJK Roadmap 2024–2028, Financial Inclusion Reports, BPS regional statistics, and publications by the WHO on digital health financing. I reviewed and analyzed scholarly articles and other working papers published from 2020 to 2025 to gain the necessary contextual background and provide triangulation (Demirgüç-Kunt et al., 2023; Kurniawan et al., 2024).

This study employs purposive sampling to identify organizations and people who provide direct insights related to the use of digital financial instruments in the health sector (Patton, 2015). I anticipate about 15 to 20 interviews to be conducted, divided as follows: 5 community clinic personnel, 5 representatives from financial institutions or fintechs, and 5 participants from regulatory or policy institutions. I will continue sampling until I reach data saturation to support the dependability of the prevailing themes.

The sequence begins with (1) a preliminary document review, followed by (2) participant recruitment, (3) interviews, and (4) observation of the clinic's financial processes. Both in-person and remote interviews, lasting about 45–60 minutes, are conducted and recorded with the participants' permission and are later transcribed. To annotate other relevant information for the clinic, including its physical facilities and the operational patterns in place, contextual observations are made and recorded.

For the analysis of the data, Braun and Clarke's (2019) thematic analysis framework is applied. This entails (a) data familiarization, (b) coding salient statements, (c) theme identification, (d) thematic structure review and refinement, and (e) cross-stakeholder groups pattern interpretation. Emerging themes are organized according to three core dimensions: (1) the adoption and use of digital financial instruments, (2) institutional and behavioral hurdles, and (3) policy and collaborative frameworks. To analyze and code qualitative data, NVivo software is adopted.

This research adopts a triangulated approach using several sources of data and types of participants to assist with credibility. For accuracy and authenticity of interpretations, the researcher subscribes to member checking by sharing the preliminary findings with participants. For dependability, the comprehensive

documentation of all the processes of research serves to replicate and audit the steps taken (Lincoln & Guba, 1985).

The research observes ethical principles at all stages. Participation is voluntary, and all respondents provide informed consent. For confidentiality, data are anonymized. Before the research begins, institutional approval will be obtained from the OJK Provincial Office and local health departments.

The analytical framework is based on a combination of institutional theory and the theory of innovation diffusion. Digital financial inclusion is understood as an 'institutionalized process' (Rogers, 2003), shaped by regulatory frameworks, technology availability, and the willingness of a society to adopt a practice. This perspective explains the diffusion of innovations and the adaptive capacity of institutions within the health-financing ecosystem as the digital economy and its technologies evolve.

RESULTS AND DISCUSSION

The results of this qualitative investigation will be framed based on three broad analytical themes that were identified during interviews, observations, and the review of documents: (1) the present situation and financial operations of community clinics; (2) impact of digital financial inclusion and its integration; (3) institutional and policy issues influencing adoption and sustainability. Such themes give a consistent image of how digital financial innovation is reshaping, but limited in, the health-financing ecosystem in North Sumatra.

Community Health Financing Landscape

Even today, community clinics (puskesmas and smaller, privately-run health facilities) in North Sumatra are still largely dependent on manual budgeting, payments, and procurement. Patient fees and medical supply purchases have remained cash transactions in most clinics, even though digital-payment systems like QRIS and mobile-banking apps have expanded (Bank Indonesia, 2024). All the participants in the interviews continuously complained about time delays when transferring funds in or out of district health offices and ineffectiveness in balancing financial documents.

A number of administrators in Medan City and Deli Serdang observed that although the financial management guidelines have started favoring electronic systems, there is slow implementation at the local level. This delay indicates a lack of digital ability and literacy of personnel. Most health officers, especially in rural subdistricts, consider digital tools as cumbersome and time-consuming instead of promoting efficiency (Kurniawan et al., 2024). As a result, such clinics experience liquidity restrictions and low accountability in financial reporting, which contributes to a cycle of less transparency and resource reliance (BPS, 2024).

Digital Financial Inclusion

Irrespective of such obstacles, the report finds a promising trend of slow adoption of digital systems. Specifically, urban and semi-urban clinics, particularly in Medan, have started to implement QRIS-based payment support, mobile banking,

and microcredit fintech services to fund operations. Collaborating with local fintech platforms has helped a number of clinics to secure short-term working-capital facilities to buy medical supplies and meet payroll shortfalls. These arrangements have minimized informal borrowing and enhanced liquidity when there are delays in budgets (Rahmawati & Siregar, 2024).

Digital payment systems have also made transactions for patients easier, especially for middle-income families who use e-wallet services like OVO and GoPay. A number of participants emphasized that they were in a better position to trace clinic revenues and reduce the administrative load after switching from manual receipt systems. The results can be attributed to international experiences showing how digital financial mechanisms enhance operational transparency and resource efficiency in primary health care (World Health Organization [WHO], 2023).

Moreover, the introduction of digital micro-insurance products, settling the fintech-bank connections, has started to transform the risk management of clinics. Other private clinics said that they used micro-insurance to help them overcome cash-flow hiccups associated with late foundation loans by the national health insurance agency (BPJS Kesehatan). This innovation is in line with other developing areas, where digital financial inclusion is linked to enhanced institutional resilience and financial planning (Demirgüç-Kunt et al., 2023).

Obstacles and Organizational Problems

On one hand, there is great potential of digital inclusion as it is adopted, but differently across the province. Interpretation of the interviews by thematic analysis indicates three interconnected barriers, namely: (a) infrastructural, (b) institutional, and (c) behavioral.

The infrastructural issues are lack of steady internet access, insufficient availability of strong digital tools, and lack of in-built management tools to connect financial records with patient data. The latter is especially severe in rural areas like Toba and Humbang Hasundutan, where connectivity is low and power is intermittent, thus making regular use of the system difficult (Ministry of Health Republic of Indonesia, 2023).

Institutional issues arise as a result of the lack of coordination between the financial and health sectors. Despite the developed inclusive framework by OJK, the local implementation largely relies on district-based health offices, with many having no formal partnership with financial-service providers. The respondents observed that there is no single regulatory guideline that governs digital financial transactions within community clinics at the moment, which creates uncertainty in procedures. The same is observed in other provinces, highlighting the necessity of harmonizing intersectoral policies (OJK, 2024).

Some behavioral barriers include low trust in digital systems and risk aversion. Health administrators had issues with data privacy, fraud, and perceived complexity of digital tools. Such views are usually based on insufficient training opportunities and negative experiences with digital reporting systems in the past. Consequently, there is a tendency to adopt digital financial solutions superficially, i.e., to use them

only to complete transactions with patients and not to manage the budget and procurement in general.

Empowering Factors and New Opportunities

Irrespective of such limitations, the paper concludes that there is some evidence of institutional preparedness for digital transformation. The clinics that were supported by the provincial outreach activities of OJK and the Gerakan Nasional Literasi Keuangan (National Financial Literacy Movement) also demonstrate a greater degree of confidence regarding the use of digital tools. Moreover, financial institutions and local universities have begun collaborating to introduce pilot projects on digital-literacy capacity building among the clinic administrators.

Peer-to-peer lending platforms, which are also a type of fintech innovation, have contributed to the catalytic role in funding access for small-scale health providers. In comparison to traditional banking, participants stated that fintech is fast, flexible, and has low barriers of entry. This is in line with international results showing that fintech adoption minimizes the complexity of credit applications and transaction expenses for small institutions (Ozili, 2022).

Policy-wise, the 2024–2028 roadmap of the OJK encourages cross-sectoral collaboration among regulators, financial institutions, and public services by making digital finance a facilitator of social welfare (OJK, 2024). As the example of North Sumatra proves, with adequate infrastructure and literacy-related support, digital financial inclusion can play a significant role in enhancing the governance, transparency, and sustainability of community health systems.

Interpretive Synthesis

Comprising all these findings, it is clear that digital financial inclusion is both an enabler and a reflection of institutional capacity. Fully digital and institutionally supported clinics report better financial management, a higher level of accountability, and patient satisfaction. Those who do not have these capabilities, on the other hand, are marginalized by the digital ecosystem. Triple investments in infrastructure, human resources, and regulatory coordination are therefore key to the success of digital transformation in health financing.

This discussion indicates that the advisory role of OJK at the provincial level may be one of the mechanisms to harmonize financial and health policies. The partnership between local governments, fintech innovators, and educational institutions can also be facilitated, which will more rapidly spread digital-financial adoption, ensuring that the digitization of the health sector becomes part of overall economic stability and inclusive growth in the region. **Figure 1** presents the clinic-level financial flow from patient payment to fund reconciliation and reporting.

Figure 1. Clinic-level finance lifecycle

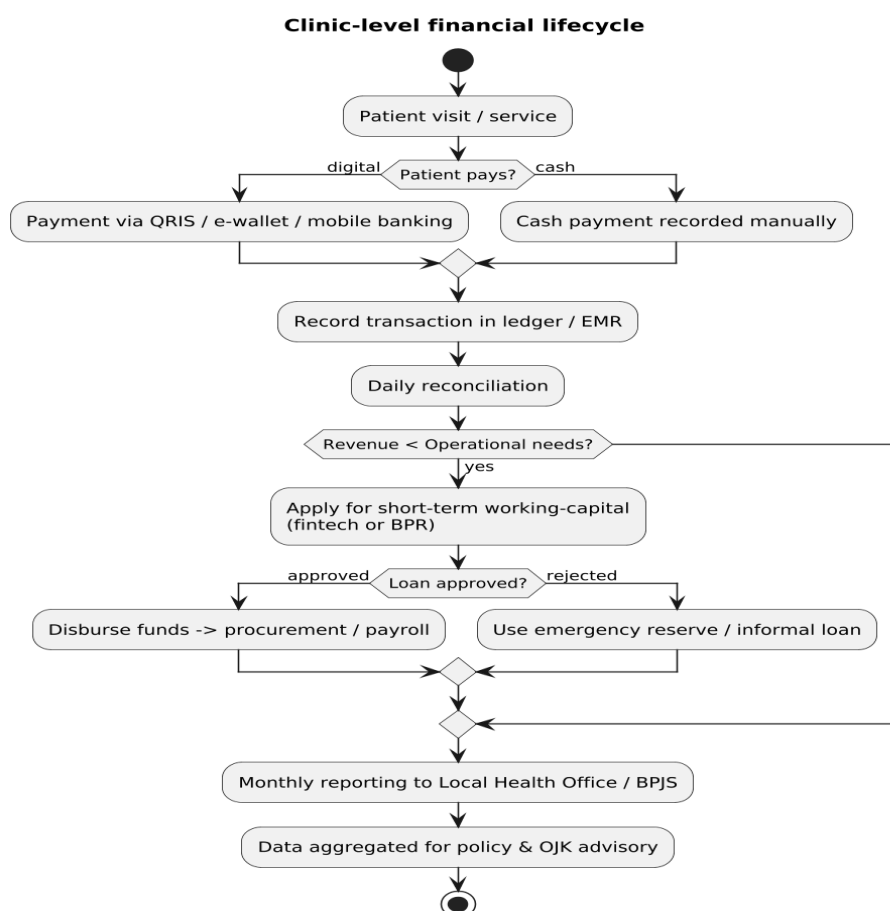


Figure 1. Financial transaction and reporting cycle within community clinics integrating digital systems.

Authors own Illustration (2025)

CONCLUSION

This paper has discussed that digital financial inclusion has played a role in empowering and sustaining community-based health systems in North Sumatra. It sheds light on the operational and financial frameworks of the community clinics by showing that financial innovation, specifically digital payment systems, the use of fintech-based microcredit, and digital micro-insurance, has already started changing them. These innovations have increased efficiency in transactions, enhanced liquidity management, and improved transparency in financial reporting. Nevertheless, adoption is still inconsistent and reliant on infrastructural preparedness, institutional capacity, and stakeholder partnerships.

The results prove that digital financial inclusion is both a structural challenge and a transformative instrument. Although it assists in modernizing healthcare financing, it also reveals flaws in digital literacy, coordination, and governance. In urban centers like Medan, clinics show greater integration and use of financial institutions, but in rural centers, technology and human-capital factors limit

integration. Policy alignment and collaboration between OJK, local governments, and health institutions are of critical importance, as demonstrated by this disparity.

Another finding of the analysis is that the sustainability of digital inclusion initiatives requires an enabling ecosystem, which includes high-quality digital infrastructure, financial literacy training, and readily available fintech adapted to the local context. Under such circumstances, community clinics are not only capable of managing resources more efficiently but also providing equitable and affordable healthcare access. The research therefore supports the overall agenda of OJK in enhancing financial inclusion as a pillar of inclusive economic growth and sustainable human development.

Recommendations

Based on the main findings and the realities of North Sumatra, the research makes the following strategic recommendations:

Consolidate a Digital Health Financing Regional Task Force

Through the joint efforts of OJK alongside the Provincial Health Office and local governments, a coordinated platform should be established where reforms to healthcare services are aligned with financial inclusion programs. This task force may manage fintech and microfinance integration and insurance products specific to community clinics.

Raise Digital and Financial Literacy Initiatives

Clinic administrators and financial officers should be provided with specific training modules that reinforce their ability to work with digital platforms, enhance awareness of cybersecurity, and improve financial data analysis. Partnerships with universities and training facilities can help institutionalize continuous learning programs.

Encourage Public-Private Collaboration in Health Financing

OJK and Bank Indonesia may consider encouraging financial institutions and fintech companies to provide credit, savings, and insurance products to small-scale medical institutions. Blended finance models can be tested to leverage capital from both the public and private sectors.

Establish Regulatory Principles for Online Dealings in Health Care

Standards for electronic payments, data governance, and risk management should be clearly defined to enhance trust and accountability. OJK needs to partner with the Ministry of Health to develop a regulatory framework that protects consumers and ensures compliance with digital-finance operations in the health sector.

Encourage the Integration of Electronic Financial Data into Health Information Systems

Connecting data on financial transactions with health information systems would allow real-time tracking of budget use, increase transparency, and support evidence-based decision-making at the local level.

Promote Local Patterns of Innovation

To develop localized financial solutions, such as micro-investment schemes and community saving programs to ensure the sustainability of the health sector, policymakers need to promote networks among fintech startups, universities, and healthcare associations. **Figure 2** summarizes the phased roadmap led by OJK to integrate digital financial inclusion into regional health financing.

Figure 2. OJK Roadmap for Digital Health Financing Implementation

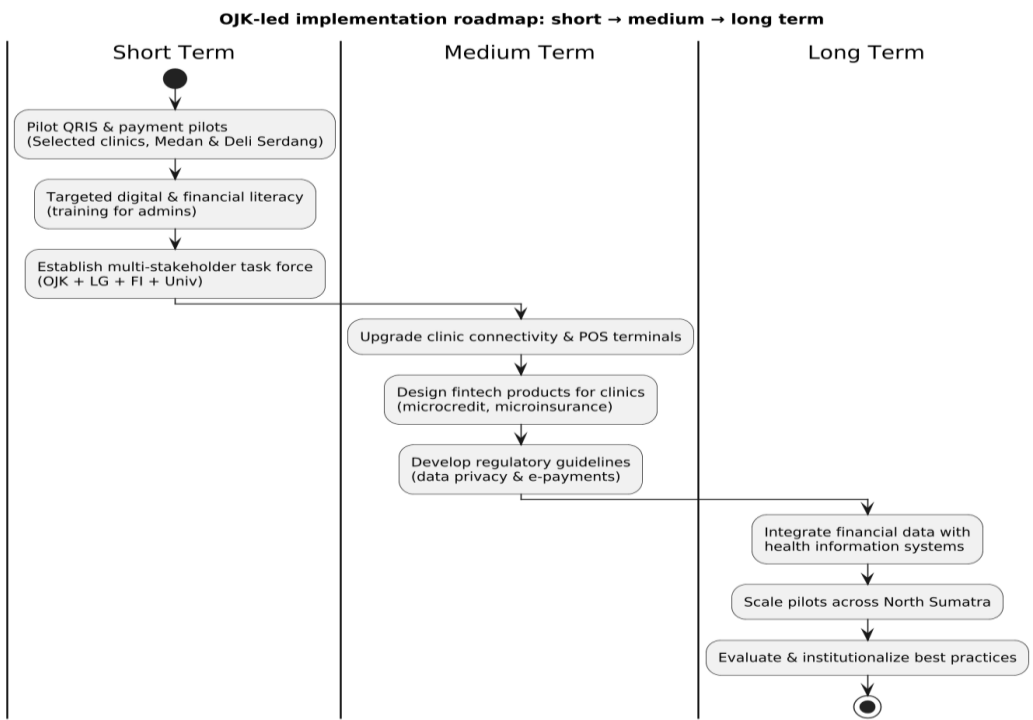


Figure 2. Phased roadmap for implementing digital financial inclusion in the health sector of North Sumatra.

Authors own Illustration (2025)

Digital financial inclusion is not merely a technological development; it is a structural reform agenda that aligns economic and social goals. In the case of North Sumatra, financial innovation can empower community health systems to not only increase the efficiency of service delivery but also enhance the province's role in achieving the long-term vision of Indonesia for equitable growth, as provided in Indonesia Emas 2045. OJK's leadership in facilitating this change will continue to play a central role in ensuring that financial inclusion becomes a key factor contributing to sustainable regional development.

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