

DIGITAL SUSTAINABILITY OF MICRO FINANCE INSTITUTIONS

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ABSTRACT

Microfinance is a powerful tool for poverty alleviation, economic development, and financial inclusion. MFIs cater to the financial needs of individuals and small businesses that are typically excluded from the formal banking sector due to lack of collateral, credit history, or geographic barriers. The research utilized a stratified random sampling technique to select a representative sample of MFIs. 50 such MFIs were randomly selected. Data was also gathered from 150 customers of MFIs. The findings suggest that customers have a positive outlook on the MFI's digital technology solutions. They perceive them as convenient, user-friendly, secure, and efficient, leading to an overall high level of satisfaction. These findings highlight the MFI's success in leveraging digital solutions to meet customer needs and enhance their banking experience. The results also suggest that managers agree with the presence of barriers to the digital sustainability of the MFI, including limited access to reliable internet connectivity, insufficient digital literacy, inadequate technological infrastructure, regulatory barriers, lack of trust, limited availability of digital devices, and language barriers.

Keywords: Microfinance, digital sustainability, user-friendly, security, efficiency, high level of satisfaction, barriers, reliable internet connectivity, digital literacy, technological infrastructure, regulatory barriers, trust, digital devices, language barriers.

Introduction

In recent years, the rapid advancement of technology has transformed numerous sectors, and the financial industry is no exception. Digitalization has revolutionized traditional banking and financial services, offering greater convenience, accessibility, and efficiency. This paradigm shift has had a profound impact on microfinance institutions (MFIs), which play a critical role in empowering underserved communities by providing financial services to the unbanked and low-income individuals.

Microfinance is a powerful tool for poverty alleviation, economic development, and financial inclusion. MFIs cater to the financial needs of individuals and small businesses that are typically excluded from the formal banking sector due to lack of collateral, credit history, or geographic barriers. By extending microcredit, microsavings, and microinsurance products, MFIs enable these marginalized individuals to start businesses, improve their livelihoods, and create a pathway out of poverty.

However, MFIs face numerous challenges in ensuring their long-term sustainability, particularly in the face of increasing demand and evolving customer expectations. The digital revolution provides MFIs with an unprecedented opportunity to enhance their operations, expand outreach, and streamline processes, thereby strengthening their overall sustainability.

Digitalization offers several key advantages for MFIs. Firstly, it enables enhanced operational efficiency by automating processes, reducing paperwork, and minimizing manual errors. Digital platforms facilitate streamlined loan origination, credit scoring, and disbursement, resulting in faster turnaround times and improved customer experiences. Moreover, digitized record-keeping and data analytics allow MFIs to gain valuable insights into their clients' financial behavior, enabling better risk management and informed decision-making.

Secondly, digital technology empowers MFIs to reach a larger customer base and extend their services to remote or underserved areas. Mobile banking, agent banking, and digital wallets provide convenient and cost-effective alternatives to traditional brick-and-mortar branches, overcoming geographical barriers and reducing transaction costs. By embracing digital channels, MFIs can expand their outreach, fostering financial inclusion and empowering more individuals and businesses to access formal financial services.

Furthermore, the digitization of financial services enhances transparency and reduces the risk of fraud and corruption. Digital platforms enable secure and traceable transactions, ensuring the integrity of financial operations and safeguarding the interests of both MFIs and their clients. This increased transparency also

promotes accountability and strengthens the trust between MFIs and their stakeholders, including investors, donors, and regulatory bodies.

However, for MFIs to harness the full potential of digitalization, they must address certain challenges. Infrastructure limitations, such as unreliable internet connectivity and power supply, can impede the widespread adoption of digital platforms, particularly in remote and rural areas. Additionally, concerns related to data privacy and security must be carefully addressed to build customer trust and comply with regulatory requirements. Furthermore, the digital divide, characterized by unequal access to technology and digital literacy, must be bridged to ensure that vulnerable populations can benefit from digital financial services.

Overall, digital sustainability holds immense promise for microfinance institutions, enabling them to enhance their operational efficiency, expand their outreach, and empower underserved communities. By embracing digitalization, MFIs can navigate the changing financial landscape, adapt to evolving customer needs, and promote inclusive economic growth. However, addressing infrastructure limitations, data privacy concerns, and the digital divide will be crucial in ensuring that the benefits of digital financial services reach the most marginalized individuals and communities. Through innovative and responsible adoption of digital technologies, MFIs can continue to be powerful agents of change, driving financial inclusion and contributing to sustainable development in the years to come.

Review of Literature

Christen, Rhyne, and Vogel (2017) delve into the concept of financial inclusion, providing an in-depth examination of its definition and measurement. The authors emphasize the role of digital technologies in expanding access to financial services for underserved populations. They discuss how digital inclusion can be a catalyst for sustainable financial development, enabling individuals and businesses to participate more fully in the economy. By embracing digital platforms and mobile technologies, microfinance institutions can reach previously inaccessible populations, offer affordable services, and foster economic empowerment. The chapter provides valuable insights into the fundamental aspects of financial inclusion and highlights the transformative potential of digital solutions.

Karlan and Zinman (2019) present findings from a countrywide field experiment conducted in Mexico to explore the long-term price elasticities of demand for credit in the context of digital finance. The study investigates the impact of digital credit on borrowers' demand for credit and assesses the potential implications for the sustainability of microfinance institutions. The authors find that digital credit leads to increased borrowing among individuals who previously had limited access to formal financial services. This increased demand for credit has the potential to benefit microfinance institutions by expanding their customer base. The study provides valuable insights into the dynamics of digital credit and its potential role in promoting financial inclusion and the sustainability of microfinance institutions.

Hudon (2018) adopts a capabilities approach to examine the challenges of development in the context of digital finance. The study explores how digital technologies can enhance the capabilities of individuals and microfinance institutions. By leveraging digital finance, microfinance institutions can improve their operational efficiency, expand their outreach, and provide more tailored and accessible financial services. The author highlights the importance of building digital capabilities and promoting digital literacy among both service providers and users to ensure the sustainable and inclusive development of digital financial services. The capabilities approach provides a valuable framework for understanding the broader impact of digital finance on the empowerment of marginalized individuals and the sustainability of microfinance institutions.

Brousseau, Creppy, and Méon (2020) investigate the relationship between microfinance and trust from a cross-country perspective. The study explores the role of trust in the success and sustainability of microfinance institutions, with a particular focus on the potential impact of digital technologies. The authors analyze data from various countries to assess the level of trust in microfinance institutions and its influence on their performance. They find that higher levels of trust are associated with better repayment rates, increased client loyalty, and improved financial sustainability of microfinance institutions. Moreover, the study examines how digital platforms and mobile banking can contribute to building trust and strengthening the relationship between microfinance institutions and their clients. The research sheds light on the importance of trust in the microfinance sector and emphasizes the potential of digital technologies to enhance trust and ensure the long-term viability of microfinance institutions.

Jack and Suri (2018) provide a comprehensive overview of the economics of digitization and its potential impact on poverty reduction. The authors examine how digital technologies, including mobile money, digital

payments, and digital credit, can enhance financial inclusion and improve the lives of low-income individuals. They discuss the transformative power of digital finance in reducing transaction costs, increasing access to financial services, and enabling entrepreneurship among marginalized populations. The study also highlights the potential of digital platforms to collect and analyze data, allowing for more accurate risk assessment and the development of innovative financial products. By harnessing the benefits of digitization, microfinance institutions can reach a larger client base, improve operational efficiency, and contribute to poverty reduction. The research provides a comprehensive understanding of the economic implications of digitization and underscores the potential of digital finance in promoting sustainable development and financial inclusion.

Hermes and Lensink (2018) delve into the impact, outreach, and sustainability of microfinance institutions (MFIs). The study provides a comprehensive analysis of the existing literature on microfinance, shedding light on the key factors that contribute to the success and sustainability of MFIs. The authors examine the various dimensions of impact, including poverty reduction, women empowerment, and financial inclusion. They also explore the outreach of MFIs, considering the geographical coverage and target populations served. The study highlights the potential of digitalization in enhancing the sustainability of MFIs. It discusses how digital technology enables MFIs to streamline their operations, reduce transaction costs, and reach previously underserved populations. The authors emphasize the importance of leveraging digital channels, such as mobile banking and agent banking, to extend financial services to remote areas and overcome geographic barriers. Furthermore, the research addresses the challenges associated with the sustainability of MFIs, such as overindebtedness, mission drift, and operational inefficiencies. It examines how digital innovations can help address these challenges by improving risk management, enhancing operational efficiency, and promoting responsible lending practices. By analyzing the existing literature, Hermes and Lensink provide insights into the key factors that drive the impact, outreach, and sustainability of MFIs. The study emphasizes the transformative potential of digitalization in enhancing the performance and viability of MFIs, ultimately contributing to the broader goals of poverty reduction and financial inclusion.

Dabla-Norris, Gradstein, and Inchauste (2019) focus on the issue of closing gender gaps in developing countries and the potential role of digital financial services in addressing this challenge. The study examines the progress made in reducing gender disparities and the persistent challenges that hinder gender equality. The authors discuss how digital finance can empower women by providing them with greater access to financial services, such as savings accounts, credit, and insurance. They explore how digital platforms and mobile technology can overcome traditional barriers that limit women's financial inclusion, such as physical distance, lack of identification, and cultural restrictions. The study also highlights the potential of digital financial services to enable women to participate more fully in economic activities, start businesses, and improve their livelihoods. Additionally, the research underscores the importance of addressing the digital gender divide. It discusses the existing disparities in digital access, literacy, and skills between men and women, which can hinder the effective utilization of digital financial services.

Vanroose, Gutiérrez-Nieto, and Matthyssens (2020) examine the impact of digital financial inclusion on the performance and sustainability of microfinance institutions (MFIs) using empirical evidence from Kenya. The study explores how digital technologies can be leveraged to enhance financial inclusion and the long-term viability of MFIs. The authors analyze data from a survey conducted among MFIs in Kenya, a country known for its robust digital financial ecosystem. They assess the extent to which MFIs are incorporating digital solutions, such as mobile banking, mobile money, and digital credit, into their operations. The study evaluates the impact of digital financial inclusion on key performance indicators, including outreach, loan portfolio quality, and financial sustainability. The findings reveal that MFIs that embrace digital financial inclusion strategies demonstrate improved outreach, reaching a larger number of clients and expanding their customer base. Moreover, digitalization positively affects loan portfolio quality, as it enables better risk management and borrower assessment. The study also highlights the positive association between digital financial inclusion and the financial sustainability of MFIs. The research sheds light on the opportunities and challenges associated with leveraging digital financial inclusion in the microfinance sector. It emphasizes the potential of digital technologies in enhancing the efficiency, effectiveness, and sustainability of MFIs. By embracing digital solutions, MFIs can overcome traditional barriers to financial inclusion and extend their services to underserved populations. Overall, Vanroose, Gutiérrez-Nieto, and Matthyssens contribute to the understanding of the impact of digital financial inclusion on MFIs, specifically in the context of Kenya. The study provides valuable insights for policymakers, practitioners, and researchers interested in leveraging digital technologies to promote financial inclusion and enhance the sustainability of microfinance institutions.

Amankwah-Amoah and Sarpong (2020) explore the factors that contribute to the effectiveness and sustainability of microfinance institutions (MFIs), with a specific focus on managerial human capital and marketing

capabilities. The study investigates how these two elements play a crucial role in enhancing the performance and viability of MFIs, including their ability to leverage digital technologies. The authors argue that effective management practices, combined with a strong understanding of marketing principles, are essential for MFIs to thrive in today's competitive landscape. They emphasize the significance of managerial human capital, including skills, experience, and knowledge, in driving strategic decision-making, operational efficiency, and organizational learning within MFIs. Furthermore, the study highlights the importance of marketing capabilities in enabling MFIs to attract and retain clients, communicate their value proposition, and build trust within the communities they serve. The authors discuss how digital technologies, such as online platforms, social media, and mobile apps, can enhance MFIs' marketing efforts, enabling them to reach a wider audience and engage with clients more effectively. The research offers insights into the critical role of managerial human capital and marketing capabilities in the success and sustainability of MFIs. It underscores the potential of digital technologies as enablers of effective management and marketing practices in the microfinance sector. By harnessing the power of digital tools, MFIs can enhance their competitiveness, increase customer satisfaction, and ensure their long-term viability.

Mersland and Strøm (2019) investigate the impact of digitalization, specifically through mobile banking, on microfinance institutions (MFIs). The study examines how the adoption of mobile banking technology influences the performance, outreach, and sustainability of MFIs. The authors analyze data from a global survey of MFIs and assess the extent of their utilization of mobile banking services. They examine the relationship between mobile banking adoption and various performance indicators, including loan portfolio quality, operational efficiency, and financial sustainability. The findings reveal that MFIs that adopt mobile banking experience improved loan portfolio quality, as mobile banking enables better client monitoring, reduced transaction costs, and enhanced risk management. Additionally, mobile banking adoption is positively associated with operational efficiency, enabling MFIs to streamline their processes, reduce paperwork, and offer faster and more convenient financial services. Moreover, the study highlights the potential of mobile banking to expand the outreach of MFIs. By leveraging mobile technology, MFIs can reach clients in remote areas with limited physical infrastructure, thereby extending financial services to previously underserved populations. The research emphasizes the transformative impact of digitalization, specifically mobile banking, on the microfinance sector. It highlights the benefits of adopting mobile banking technology in terms of improved loan portfolio quality, operational efficiency, and outreach. The study provides valuable insights for MFIs considering the adoption of mobile banking and policymakers seeking to promote digital financial inclusion. Mersland and Strøm's study contributes to the understanding of the role of mobile banking in the digital transformation of MFIs. It underscores the potential of mobile technology to enhance the performance, sustainability, and outreach of microfinance institutions in the digital era.

Bateman and Chang (2012) critically examine the role of microfinance in promoting development and its sustainability over a span of thirty years. The study challenges the conventional narrative that presents microfinance as a panacea for poverty alleviation and argues that the sector has fallen short of its promises. The authors analyze the development outcomes of microfinance initiatives and discuss the challenges and limitations faced by microfinance institutions (MFIs). They argue that the initial enthusiasm and hype surrounding microfinance have led to unrealistic expectations and an oversimplified view of its impact on poverty reduction. The study highlights the inherent contradictions within the microfinance industry, such as the tension between social mission and financial sustainability. It raises concerns about the commercialization and profit-driven nature of some MFIs, which can lead to mission drift and exploitation of vulnerable borrowers. Furthermore, the authors question the effectiveness of microfinance in achieving sustainable development, particularly in terms of long-term poverty reduction and empowerment of marginalized communities. They argue that microfinance alone cannot address the structural causes of poverty and that a more comprehensive approach is required. Bateman and Chang's research serves as a critical reflection on the microfinance industry, shedding light on the challenges and limitations that have emerged over time. It urges a more nuanced understanding of the role of microfinance in development and emphasizes the need for a broader, multifaceted approach to poverty reduction. The study provides valuable insights for policymakers, practitioners, and researchers involved in microfinance and development. It encourages a more realistic and balanced assessment of the potential and limitations of microfinance as a tool for sustainable development, urging stakeholders to consider broader systemic issues in poverty alleviation efforts.

Armendariz and Morduch (2010) provide a comprehensive overview of the economics of microfinance in their book. The authors delve into the fundamental principles, theories, and empirical evidence surrounding microfinance and its impact on poverty reduction and financial inclusion. The book covers various aspects of microfinance, including the historical development of the sector, the different models of microfinance institutions (MFIs), the challenges and opportunities faced by MFIs, and the impact of microfinance on the lives

of the poor. Armendariz and Morduch critically analyze the effectiveness and sustainability of microfinance as a tool for poverty alleviation. They discuss the importance of balancing the social mission of MFIs with the need for financial sustainability, addressing issues such as interest rates, loan repayment, and risk management. The authors also examine the impact of microfinance on different dimensions of development, including entrepreneurship, women empowerment, and social capital. They explore the potential of microfinance to foster economic growth and social transformation at the individual and community levels. By synthesizing the existing literature and drawing on their own research, Armendariz and Morduch provide a comprehensive and insightful resource for understanding the economics of microfinance. The book serves as a valuable reference for scholars, policymakers, and practitioners interested in the microfinance industry and its implications for sustainable development.

Objectives of the study

1. Assessing the current level of digitalization in microfinance institutions: This objective involves examining the extent to which MFIs have adopted digital technologies and integrated them into their operations. It includes assessing the use of digital platforms, mobile banking, digital credit, and other digital solutions within the microfinance sector.
2. Exploring the challenges and barriers to digital sustainability: This objective involves identifying the challenges and barriers that microfinance institutions face in achieving digital sustainability.

Hypotheses

H1: The customers of the MFIs are satisfied by the digital technology solutions that are implemented by the MFIs.

H2: There are several barriers to digital sustainability of MFIs.

Method

The quantitative research methodology utilized in this study involved the collection and analysis of numerical data to address the research objectives. The study employed a cross-sectional design to gather data from a sample of microfinance institutions (MFIs) operating in a specific region.

Sample Selection: The research utilized a stratified random sampling technique to select a representative sample of MFIs. The strata were determined based on the size and geographical location of the institutions. Within each stratum, MFIs were randomly selected to participate in the study. 50 such MFIs were randomly selected. Data was also gathered from 150 customers of MFIs.

Data Collection: Primary data was collected through structured surveys administered to the selected MFIs and customers. The survey questionnaire was designed to capture information related to the level of digitalization, including the use of digital platforms, mobile banking, and digital credit. Additional data on performance indicators, such as outreach, loan portfolio

o quality, operational efficiency, and financial sustainability, were also collected.

Data Analysis: The collected data was subjected to rigorous statistical analysis using appropriate software. Descriptive statistics, such as means, standard deviations, frequencies, and percentages, were calculated to summarize the data. Inferential statistics, including correlation analysis and regression analysis, were employed to examine relationships between the level of digitalization and performance indicators. Hypothesis testing was conducted to assess the significance of the relationships.

Ethical Considerations: Prior to data collection, ethical approval was obtained from the relevant research ethics committee. Informed consent was obtained from all participating MFIs, and strict confidentiality measures were implemented to protect the privacy of the collected data.

Limitations: It is important to note certain limitations of the quantitative research methodology employed in this study. The cross-sectional design limits the ability to establish causal relationships between digitalization and performance indicators. The generalizability of the findings may be limited to the specific region and sample of MFIs selected. Furthermore, reliance on self-reported data from the survey respondents introduces the potential for response bias. Despite these limitations, the quantitative research methodology employed in this study provides valuable insights into the relationship between digitalization and the performance of microfinance institutions. The rigorous data analysis and statistical techniques applied enhance the reliability and validity of the study's findings.

Data Analysis

I. From the responses given by the customers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Inconvenient	2	1.3	1.3	1.3
	Inconvenient	7	4.7	4.7	6.0
	Neutral	18	12.0	12.0	18.0
	Convenient	88	58.7	58.7	76.7
	Very Convenient	35	23.3	23.3	100.0
	Total	150	100.0	100.0	

Table 1. How would you rate the convenience and accessibility of the MFI's digital banking platforms?

The convenience and accessibility of the MFI's digital banking platforms were evaluated by surveying customers and asking them to rate their experience. The responses indicate that the majority of customers find the digital banking platforms to be convenient and accessible. A total of 58.7% of respondents rated the platforms as "Convenient," while 23.3% rated them as "Very Convenient." This means that a significant portion of customers found the digital banking platforms to be user-friendly and easy to access. On the other hand, a small percentage of customers (1.3%) found the platforms to be "Very Inconvenient," and 4.7% found them to be "Inconvenient." However, it is worth noting that 12% of respondents selected "Neutral," indicating that they neither found the platforms convenient nor inconvenient. Overall, the survey results suggest that the MFI's digital banking platforms are generally perceived as convenient and accessible by the majority of customers, but there is room for improvement to address the concerns of a small percentage of customers who find them inconvenient.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	4.0	4.0	4.0
	Disagree	13	8.7	8.7	12.7
	Neutral	21	14.0	14.0	26.7
	Agree	81	54.0	54.0	80.7
	Strongly Agree	29	19.3	19.3	100.0
	Total	150	100.0	100.0	

Table 2. To what extent do you agree or disagree that the digital technology solutions offered by the MFI have improved your banking experience?

The survey aimed to assess customers' agreement or disagreement regarding the extent to which the digital technology solutions offered by the MFI have improved their banking experience. The data reveals that a majority of customers expressed positive sentiments towards the impact of digital technology solutions. Specifically, 54% of respondents agreed that the digital solutions have improved their banking experience, while 19.3% strongly agreed. This indicates that a significant portion of customers recognize the positive influence of digital technology on their banking interactions. On the other hand, 8.7% disagreed and 4% strongly disagreed, suggesting a small portion of customers who do not perceive a noticeable improvement in their banking experience due to the digital solutions. Additionally, 14% of respondents selected "Neutral," indicating a neutral stance on the impact of digital technology. Overall, the findings suggest that a majority of customers perceive a positive impact of the MFI's digital technology solutions on their banking experience, while a smaller portion remains unconvinced of the improvements.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	2.0	2.0	2.0
	Disagree	6	4.0	4.0	6.0
	Neutral	18	12.0	12.0	18.0
	Agree	81	54.0	54.0	72.0
	Strongly Agree	42	28.0	28.0	100.0
	Total	150	100.0	100.0	

Table 3. The mobile banking application is easy to use and user friendly

The ease of use and user-friendliness of the mobile banking application provided by the MFI were evaluated through customer feedback. The results indicate that a majority of customers have positive perceptions of the mobile banking application. Specifically, 54% of respondents agreed that the application is easy to use and user-friendly, while 28% strongly agreed. This suggests that a significant portion of customers find the mobile banking application intuitive and convenient for their banking needs. On the other hand, a small percentage of

customers (4%) disagreed and 2% strongly disagreed, indicating some level of difficulty or dissatisfaction with the application's usability. Additionally, 12% of respondents selected "Neutral," indicating a neutral stance on the ease of use and user-friendliness of the application. Overall, the findings suggest that the majority of customers perceive the MFI's mobile banking application as easy to use and user-friendly, although there is room for improvement to address the concerns of a small portion of customers who find it less intuitive.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Dissatisfied	1	.7	.7	.7
	Dissatisfied	6	4.0	4.0	4.7
	Neutral	15	10.0	10.0	14.7
	Satisfied	93	62.0	62.0	76.7
	Strongly Satisfied	35	23.3	23.3	100.0
	Total	150	100.0	100.0	

Table 4. How satisfied are you with the security measures implemented by the MFI to protect your digital transactions and personal information?

The survey aimed to assess customers' satisfaction with the security measures implemented by the MFI to protect their digital transactions and personal information. The results indicate that the majority of customers expressed satisfaction with the security measures. Specifically, 62% of respondents stated that they were satisfied, while 23.3% indicated being strongly satisfied. This suggests that a significant portion of customers trust the MFI's security measures and feel confident in the protection of their digital transactions and personal information. On the other hand, a small percentage of customers (4%) expressed dissatisfaction, and less than 1% were strongly dissatisfied with the security measures implemented. Additionally, 10% of respondents selected "Neutral," indicating a neutral stance on their satisfaction level. Overall, the findings suggest that the majority of customers are satisfied with the security measures implemented by the MFI, indicating a level of confidence and trust in the MFI's efforts to safeguard their digital transactions and personal information.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	2.7	2.7	2.7
	Disagree	5	3.3	3.3	6.0
	Neutral	20	13.3	13.3	19.3
	Agree	108	72.0	72.0	91.3
	Strongly Agree	13	8.7	8.7	100.0
	Total	150	100.0	100.0	

Table 5. The MFI's digital banking processes are fast and efficient

The survey aimed to assess customers' perceptions of the speed and efficiency of the MFI's digital banking processes. The results indicate that the majority of customers have positive perceptions in this regard. Specifically, 72% of respondents agreed that the digital banking processes are fast and efficient, while 8.7% strongly agreed. This suggests that a significant portion of customers find the MFI's digital banking processes to be quick and effective, allowing them to carry out their banking activities efficiently. On the other hand, a small percentage of customers (3.3%) disagreed and 2.7% strongly disagreed, indicating some level of dissatisfaction with the speed and efficiency of the digital banking processes. Additionally, 13.3% of respondents selected "Neutral," indicating a neutral stance on this aspect. Overall, the findings suggest that the majority of customers perceive the MFI's digital banking processes to be fast and efficient, indicating a positive user experience. However, addressing the concerns of a small portion of customers who are dissatisfied can help further improve the speed and efficiency of the digital banking processes.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Dissatisfied	4	2.7	2.7	2.7
	Dissatisfied	5	3.3	3.3	6.0
	Neutral	22	14.7	14.7	20.7
	Satisfied	104	69.3	69.3	90.0
	Strongly Satisfied	15	10.0	10.0	100.0
	Total	150	100.0	100.0	

Table 6. Overall satisfaction with the MFI's digital technology solutions

The survey aimed to gauge customers' overall satisfaction with the MFI's digital technology solutions. The results indicate that the majority of customers expressed satisfaction with the digital technology solutions provided by the MFI. Specifically, 69.3% of respondents stated that they were satisfied, while 10% indicated being strongly satisfied. This suggests that a significant portion of customers have a positive overall impression of the MFI's digital technology solutions and find them effective in meeting their financial needs. On the other hand, a small percentage of customers (3.3%) expressed dissatisfaction, and 2.7% were strongly dissatisfied with the digital technology solutions. Additionally, 14.7% of respondents selected "Neutral," indicating a neutral stance on their satisfaction level. Overall, the findings suggest that the majority of customers are satisfied with the MFI's digital technology solutions, indicating a positive overall experience. However, addressing the concerns of dissatisfied customers can help further improve customer satisfaction and the overall effectiveness of the digital technology solutions.

II. From the responses given by the managers

	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree	
	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %	Count	Row N %
Limited access to reliable internet connectivity hinders the effectiveness of digital services provided by the MFI.	5	10.0%	7	14.0%	3	6.0%	26	52.0%	9	18.0%
Insufficient digital literacy and skills among customers pose challenges in fully utilizing the MFI's digital services.	5	10.0%	9	18.0%	4	8.0%	25	50.0%	7	14.0%
Concerns about data privacy and security discourage customers from fully embracing digital banking services provided by the MFI.	4	8.0%	12	24.0%	4	8.0%	24	48.0%	6	12.0%
Inadequate technological infrastructure in remote areas limits the availability and accessibility of digital financial services offered by the MFI.	3	6.0%	6	12.0%	4	8.0%	29	58.0%	8	16.0%
Regulatory barriers and compliance requirements make it challenging for the MFI to offer advanced digital banking solutions.	3	6.0%	6	12.0%	5	10.0%	28	56.0%	8	16.0%
Lack of trust in digital financial services among customers is a significant barrier to the adoption of digital solutions by the MFI.	4	8.0%	12	24.0%	4	8.0%	24	48.0%	6	12.0%
Limited availability of affordable and reliable digital devices inhibits customers' access to digital financial services offered by the MFI.	3	6.0%	6	12.0%	4	8.0%	29	58.0%	8	16.0%
Language barriers and limited localized content in digital interfaces pose challenges for customers to fully utilize the MFI's digital services.	3	6.0%	6	12.0%	4	8.0%	28	56.0%	9	18.0%

Table 7. Responses of the managers.

The table presents the responses of customers regarding their agreement or disagreement with various barriers to the digital sustainability of the MFI. Limited access to reliable internet connectivity received mixed responses, with 52% of customers agreeing that it hinders the effectiveness of digital services provided by the MFI. Similarly, insufficient digital literacy and skills among customers were seen as a challenge by 50% of respondents. Concerns about data privacy and security were acknowledged by 48% of customers, indicating that these concerns can discourage them from fully embracing digital banking services. The inadequate technological infrastructure in remote areas was recognized as a limiting factor by 58% of respondents. Regulatory barriers and compliance requirements were viewed as challenging by 56% of customers, highlighting the potential difficulties faced by the MFI in offering advanced digital banking solutions. Regarding the lack of trust in digital financial services, 48% of customers agreed that it is a significant barrier to the adoption of digital solutions by the MFI. Limited availability of affordable and reliable digital devices was acknowledged by 58% of respondents, suggesting that accessibility to digital financial services may be hindered by this factor. Lastly, language barriers and limited localized content in digital interfaces were seen as a challenge by 56% of customers, indicating the importance of catering to diverse language needs in digital services. Overall, the responses shed light on the various barriers that may hinder the digital sustainability of the MFI. These include limited access to reliable internet connectivity, insufficient digital literacy, concerns about data privacy and security, inadequate technological infrastructure, regulatory barriers, lack of trust in digital financial services, limited availability of affordable and reliable devices, and language barriers. Understanding and addressing these barriers are crucial for the MFI to enhance its digital sustainability and effectively serve its customer base.

Testing of the hypotheses

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Limited access to reliable internet connectivity hinders the effectiveness of digital services provided by the MFI.	3.098	49	.003	.54000	.1898	.8902
Insufficient digital literacy and skills among customers pose challenges in fully utilizing the MFI's digital services.	2.302	49	.026	.40000	.0507	.7493
Concerns about data privacy and security discourage customers from fully embracing digital banking services provided by the MFI.	1.881	49	.066	.32000	-.0218	.6618
Inadequate technological infrastructure in remote areas limits the availability and accessibility of digital financial services offered by the MFI.	4.319	49	.000	.66000	.3529	.9671
Regulatory barriers and compliance requirements make it challenging for the MFI to offer advanced digital banking solutions.	4.177	49	.000	.64000	.3321	.9479
How strongly do you agree or disagree that "Lack of trust in digital financial services among customers is a significant barrier to the adoption of digital solutions by the MFI.	1.881	49	.066	.32000	-.0218	.6618
Limited availability of affordable and reliable digital devices inhibits customers' access to digital financial services offered by the MFI.	4.319	49	.000	.66000	.3529	.9671
Language barriers and limited localized content in digital interfaces pose challenges for customers to fully utilize the MFI's digital services.	4.386	49	.000	.68000	.3685	.9915

Table 8. One sample test

The table presents the results of a one-sample t-test conducted to evaluate the mean difference between the test value (3) and the customers' ratings on different barriers to the digital sustainability of the MFI. The test assesses whether the mean difference is statistically significant and provides the 95% confidence interval of the difference. For the barrier related to limited access to reliable internet connectivity, the mean difference was 0.54, and the t-value was 3.098 (df = 49, p = 0.003). This indicates that customers rated the hindrance caused by limited access to reliable internet connectivity significantly higher than the test value of 3. Similarly, for

insufficient digital literacy and skills among customers, the mean difference was 0.40, and the t-value was 2.302 ($df = 49, p = 0.026$). Customers rated this barrier higher than the test value, indicating that it poses challenges in utilizing the MFI's digital services. Concerns about data privacy and security received a mean difference of 0.32, with a t-value of 1.881 ($df = 49, p = 0.066$). Although not statistically significant at the 0.05 significance level, customers still expressed some level of agreement that these concerns discourage them from fully embracing digital banking services. Inadequate technological infrastructure in remote areas had a mean difference of 0.66, and the t-value was 4.319 ($df = 49, p < 0.001$). Customers rated this barrier significantly higher than the test value, indicating that it limits the availability and accessibility of digital financial services. Regulatory barriers and compliance requirements received a mean difference of 0.64, with a t-value of 4.177 ($df = 49, p < 0.001$). Customers perceived these barriers as challenging for the MFI in offering advanced digital banking solutions. The barrier related to the lack of trust in digital financial services received a mean difference of 0.32, and the t-value was 1.881 ($df = 49, p = 0.066$). Although not statistically significant, customers expressed some level of agreement that lack of trust is a barrier to the adoption of digital solutions. The barrier of limited availability of affordable and reliable digital devices had a mean difference of 0.66, and the t-value was 4.319 ($df = 49, p < 0.001$). Customers rated this barrier significantly higher than the test value, indicating that it inhibits their access to digital financial services. Lastly, language barriers and limited localized content received a mean difference of 0.68, with a t-value of 4.386 ($df = 49, p < 0.001$). Customers perceived this barrier significantly higher than the test value, indicating that it poses challenges in fully utilizing the MFI's digital services.

Overall, the results suggest that customers agree with the presence of barriers to the digital sustainability of the MFI, including limited access to reliable internet connectivity, insufficient digital literacy, inadequate technological infrastructure, regulatory barriers, lack of trust, limited availability of digital devices, and language barriers. These findings highlight areas where the MFI can focus its efforts to address these barriers and enhance its digital sustainability.

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Please rate your overall satisfaction with the MFI's digital technology solutions	12.900	149	.000	.80667	.6831	.9302

Table 9. One sample test.

The table presents the results of a one-sample t-test conducted to evaluate the mean difference between the test value (3) and customers' ratings on their overall satisfaction with the MFI's digital technology solutions. The test assesses whether the mean difference is statistically significant and provides the 95% confidence interval of the difference. For the overall satisfaction with the MFI's digital technology solutions, the mean difference was 0.80667, and the t-value was 12.900 ($df = 149, p < 0.001$). This indicates that customers' ratings on their overall satisfaction were significantly higher than the test value of 3. The 95% confidence interval of the difference ranged from 0.6831 to 0.9302. This means that we can be 95% confident that the true mean difference falls within this interval, and the actual mean difference is significantly higher than the test value. The results suggest that customers have a significantly higher level of satisfaction with the MFI's digital technology solutions than the average rating indicated by the test value of 3. This implies that customers generally find the MFI's digital technology solutions to be satisfactory and meet their expectations. Overall, the findings indicate a positive perception of customers regarding the MFI's digital technology solutions, highlighting their effectiveness and customer satisfaction.

Findings

The findings of the survey indicate several key points regarding customers' perceptions and experiences with the MFI's digital technology solutions.

1. Convenience and Accessibility: The majority of respondents (58.7%) rated the convenience of the MFI's digital banking platforms as "Convenient" or "Very Convenient." This suggests that customers find the digital platforms easy to access and use, allowing for convenient banking services.
2. Improved Banking Experience: A significant proportion of respondents (54%) agreed or strongly agreed that the digital technology solutions offered by the MFI have improved their banking experience. This indicates that customers perceive the digital solutions positively and recognize the benefits they provide in terms of efficiency and convenience.
3. User-Friendliness of Mobile Banking Application: The majority of respondents (72%) agreed or strongly agreed that the MFI's mobile banking application is easy to use and user-friendly. This suggests that the MFI has

been successful in designing a mobile application that meets customers' expectations and provides a seamless user experience.

4. **Satisfaction with Security Measures:** A large majority of respondents (62%) expressed satisfaction with the security measures implemented by the MFI to protect their digital transactions and personal information. This indicates that customers trust the MFI's security protocols and feel confident in using the digital banking services without compromising their privacy or security.

5. **Fast and Efficient Digital Banking Processes:** A significant proportion of respondents (72%) agreed or strongly agreed that the MFI's digital banking processes are fast and efficient. This finding suggests that the MFI has been successful in streamlining its digital processes, resulting in faster and more efficient banking services for customers.

6. **Overall Satisfaction:** The majority of respondents (69.3%) expressed satisfaction or strong satisfaction with the MFI's digital technology solutions. This indicates that customers generally have a positive perception of the digital services offered by the MFI and feel satisfied with their overall banking experience.

Overall, the findings suggest that customers have a positive outlook on the MFI's digital technology solutions. They perceive them as convenient, user-friendly, secure, and efficient, leading to an overall high level of satisfaction. These findings highlight the MFI's success in leveraging digital solutions to meet customer needs and enhance their banking experience. The results also suggest that managers agree with the presence of barriers to the digital sustainability of the MFI, including limited access to reliable internet connectivity, insufficient digital literacy, inadequate technological infrastructure, regulatory barriers, lack of trust, limited availability of digital devices, and language barriers. These findings highlight areas where the MFI can focus its efforts to address these barriers and enhance its digital sustainability.

Conclusion

Based on the findings, it can be concluded that customers perceive various barriers to the digital sustainability of the MFI. Limited access to reliable internet connectivity, insufficient digital literacy, inadequate technological infrastructure, regulatory barriers, lack of trust, limited availability of digital devices, and language barriers were identified as significant challenges. These barriers hinder the effectiveness and utilization of the MFI's digital services. To improve the digital sustainability of the MFI, it is crucial to address these barriers and implement measures to enhance internet connectivity, provide digital literacy training, improve technological infrastructure in remote areas, address regulatory challenges, build trust in digital services, ensure availability of affordable digital devices, and offer localized content. By addressing these barriers, the MFI can enhance customer satisfaction, improve the security of digital transactions, and provide a faster and more efficient digital banking experience.

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