

TECH-ENABLED MICROFINANCE AND INDIGENOUS WOMEN: A STUDY OF ADOPTION AND EMPOWERMENT

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ABSTRACT

The debate over women's usage of and access to digital information and communication technology in microfinance has not yet produced concrete results. In contrast, some contend that women passionately embrace digital communication in empowering tribal women. This article conducts an empirical study to resolve this question. The study explored many technological developments upturn in the use of digital services has created enormous potential and advantages such as anytime and anywhere banking facilities, immediate payment, and settlement mechanisms that help in faster transactions. Protecting the environment through green banking help banks manage customer relationship management and contribute to the evolution of financial inclusion and connective problem, which are needed with sensitive and attentive supervision. The findings are startlingly consistent and enlightening: working women in microfinance, more favorable employment, educational, and financial circumstances directly affect how little they access and use ICT. When these factors are considered, Tribal women use digital tools more frequently through microfinance. This study adds to our theoretical knowledge of technology adoption and empowerment among indigenous women while also giving policymakers, microfinance institutions, and non-governmental organizations practical advice on how to improve financial inclusion and empowerment using technology-enabled solutions.

Keywords: Technology, Adoption, Empowerment, Microfinance, Indigenous Women.

INTRODUCTION

Women are key to society, significantly impacting the world and benefiting the family and society. According to the most recent census in 2011, the overall female sex ratio in India is 940 per 1000 females (Salunke *et al.*, 2020). Women account for around 43% of the economically engaged population in agriculture worldwide (Hill, 2011). Women conduct 60 percent of farming tasks in India (Chayal & Dhaka, 2016). Furthermore, women make significant contributions to agricultural allied sectors like animal husbandry and fishing, and they bear the majority of the burden of home labor (Amu, 2005). Most of the work done by women, particularly in our nation, is regarded as thankless, hence the need for women's empowerment is universally acknowledged. Women's empowerment includes several aspects such as social, cultural, and economic empowerment (Reshi & Sudha, 2022). Economic empowerment via entrepreneurship may be a solution to many of the difficulties that rural women encounter. Shanthi & Ganpathi (2012) found in their study that there is a significant relationship between the amount of loan borrowed by the respondents and their level of satisfaction with the empowerment of self-help groups, and it is concluded from the study that the level of satisfaction is dependent on the amount of loan borrowed by the respondents. Many facets of women's entrepreneurial growth can benefit from improved information and communication (Ameen *et al.*, 2021).

Microfinance plays a key role in empowering rural (Rajendran & Raya, 2011) and indigenous women and has undergone significant transformation since the growth of ICT and the adoption of newer technologies (Diniz *et al.*, 2008). Thirty years after Yunus' breakthrough insight, microfinance is becoming increasingly commonplace worldwide. Due to the numerous new prospects, it is also rapidly evolving, primarily brought on by innovations (Bakker *et al.*, 2014). Communication technology services are important developments of the modern era. ICT includes a wide range of technologies in both goods and services, including telecom capabilities as well as computer hardware, software, and services. Distribution channels & methods then locations for creating goods and services have undergone major changes due to the rapid distribution of ICT (Madudova, 2016). Parviainen *et al.* (2017) mentioned that technological advancement entails digitalization, or the conversion of data into a digital format, due to using newer technology. Newer technology also enhances intelligence with a strong database that aids banks in remaining competitive and effectively approaching customers by offering quality customer services like home banking, rapid transactions, and faster resolution.

ROLE OF ICT IN EMPOWERING INDIGENOUS WOMEN

The world has changed due to technology, which is mainly considered a game-changer for women who face significant barriers to accessing, utilizing, and owning technology (Bhat, 2019). New technologies have enormous potential to expand

economic prospects (Arora & Athreye, 2002), from mobile and digital technologies that enable access to local and international markets and trade to the expansion of high-tech enterprises that support and generate skilled jobs (Saxena & Yadav, 2013). More often than not, indigenous women are the primary factors of new technology. Indigenous women may use ICT to gain access to information on their rights, health, education, and economic prospects. By offering access to e-commerce platforms, banking services, and online markets, ICT may assist these women in starting and growing their enterprises (Mathew, 2010). This might boost their income and enhance their financial situation. They may have access to online education and training programmes using ICT (Chinapah & Otero, 2016), allowing them to gain new skills and information that will boost their employment and economic prospects. They can use ICT to connect with other women, communities, and organizations working on topics that are important to them (Nath, 2001). This may foster a feeling of community while also providing chances for collective action and lobbying.

Indigenous women still rely on traditional methods and techniques because of a lack of modern technology for production. Rural and indigenous women use outdated technology for agriculture, provide managing for livelihood, etc (Davies, 2008). Although numerous governments interested in the economic empowerment of rural women (Secore Levis, 2011) have worked to introduce and increase access to contemporary technology, its adaption, and sustainability have been significant problems. Modern technology is expensive to import, but that expense is insignificant compared to the time and money required for ongoing education, training, and maintenance of such equipment (Ozturk, 2008).

The microfinance sector has emerged as a driving factor behind the inclusion of underserved people by the current financial service providers, even when other non-traditional and commercial farming opportunities are available (Mammen & Paxson, 2000). With more than 3000 microfinance companies, the microfinance industry in India is fragmented (Sharma, 2015). Digital innovations have broadened prospects provided us with enhanced communication channels and boosted productivity for people, organizations, and governments. With technical developments in the banking industry, the global microfinance business is also fast expanding. Information Technology involvement increases the overall efficiency of the microfinance sector (Daowdet *al.*, 2021). According to Purohit & Mishra (2017), the rise in financial inclusion throughout the years (2010-2015) has been relatively gradual, supporting the government's choice to direct Payment Banks toward financial inclusion. Banks and Microfinance Institutions have contributed substantially to advance the use of IT for the loan process, which simplifies the task and aids the institutions in expanding the reach of their offerings (Harelimana, 2017). Regular sessions, awareness campaigns, and workshops that instruct clients on how to use IT services will enable the sector to gain significantly from the country's movement.

REVIEW OF LITERATURE

Over the last ten years, a rising body of work on ICT and its expansion has demonstrated the importance of ICT's role in social and economic advancement. Similarly, data shows that improved access to money can help to alleviate poverty and boost household well-being. According to Kendall *et al.* (2010), industrialized nations have more people using money compared to emerging economies, and MFI is crucial to increasing financial inclusion. Adewoye (2013) stated that ICTs may assist banking activities the ability to obtain timely, affordable details, and increased interaction with microloan officials are just a few of the ways that the poor are being helped. According to Mishra & Bisht (2013), in remote areas mobile technology provides a powerful tool for advancing financial inclusion. Kpodar&Andrianaivo (2011) had identical results for a selection of African countries, showing the value of ICT for economic growth through the inclusion of the finance route. Warren (2017) believed that the disadvantaged and the main contributors to technological progress are rural communities. According to Bhavnani *et al.* (2008), mobile telephony has greater social and economic advantages in rural regions and has the potential to reduce poverty. Also, Sarma&Pais (2011) stated that there is a favorable relationship between human growth and financial inclusion. They also confirmed the beneficial influence of ICT and assisting with infrastructure that will increase financial stability.

May &Diga (2015) examined studies on ICT and its progression in measuring its influence. Before 2002, they observed that the majority of studies focused on connections between Technology at the macro level and little emphasis on its impact on reducing poverty at local levels. Similarly, Mbiti& Weil (2011) contended that the impoverished in Kenya benefit economically from mobile banking. Furthermore, the authors reported the positive ICTs' effects on the underprivileged and economic growth, with examples of rural India (Cecchini& Scott, 2003), utilizing panel data (Shamim, 2007), and from MENA and Asian nations (Sassi&Goaied, 2013) and (Pradhan *et al.*, 2015). According to Okello *et al.* (2014), ICT might have a constructive role in improving particularly among the poor, obtaining information, healthcare, educational opportunities, management, and banking services. Mushtaq&Bruneau (2019) found a favorable relationship connection between ICT adoption and economic growth. They asserted that increased Internet and cell phone usage would promote a financial base, which ultimately helps total economic development. Berger & Nakata (2013) disclosed that MFIs are moving towards ICT-based solutions from the old labor-intensive and costly network system. According to Yusuf (2015), MFIs should prioritize ICT since it promotes staff productivity, reduces information and job duplication, allows for faster decision-making, and lowers transaction costs. Hishigsuren (2006) stated that bad information technology systems had a direct effect on every aspect of the institution's functioning, from effectiveness in operation to strategic decision-making, as MFIs have come to understand. Microfinance institutions recognize the

importance of establishing an effective integrated information system to manage all of their assets and operations as their organization grows. ICT-based solutions may be used to maintain up-to-date credit registries, manage related risks, and enable microfinance institutions should interact with prospective clients more skillfully (Kauffman & Riggins 2012). According to Hoque (2022), blockchain may be used to construct trustworthy financial profiles for micro-borrowers, which are expected to boost lenders' trust. Furthermore, the usage of blockchain can reduce the cost of financing for the poor. However, coordination problems and the lack of a standard for data exchange across different participating organizations continue to be significant barriers to the use of blockchain technology in microfinance. Lalitha&Soujanya (2019) introduced a new public ledger technology called blockchain technology for maintaining liquidity and safety of the funds supplied to microfinance borrowers so that timely loan assistance could be provided and also the transaction cost could be reduced. Liu *et al.* (2023) found that ICT integration in mobile banking positively impacts MFIs' efficiency, expansion, loan payback rates, and financial inclusion, despite challenges like lack of ICT infrastructure, technical skills, and understanding. Garg (2021) mentions that Fusion Microfinance Private Limited is a start-up firm with an aim to develop a professionally managed MFI that can reach a healthy fusion of social and financial sustainability. Fusion recognized the value of information technology and eventually utilized it to aid in the automation of numerous activities. Fusion wishes to improve its organizational outreach to rural clients by merging its primary function with IT.

RESEARCH GAP

Despite increased interest in the convergence of technology, microfinance, and women's empowerment, there remains a significant study vacuum regarding indigenous women's particular experiences and problems in embracing technology-enabled microfinance solutions. While studies have researched women's empowerment in diverse situations and explored technology adoption in microfinance more broadly, there is a lack of research that digs into the complicated dynamics of technology adoption and its influence on empowerment among indigenous women. This gap is especially important since indigenous women frequently confront specific cultural, social, and economic constraints that may impact their use of technology-enabled financial services in ways that other demographic groups do not. Therefore, the motivation for this study stems from the need to address this crucial research gap by considering a focused study that takes into account the unique context of indigenous people, their traditional practices, and how technology intersects with their indigenous identities in the realms of microfinance and empowerment. This type of study might yield useful insights for the creation of more culturally appropriate and successful interventions to promote financial inclusion and empowerment among indigenous women in the digital era.

OBJECTIVES

1. To examine the benefits delivered to indigenous women beneficiaries of microfinance through ICT adoption.
2. To analyze the extent of empowerment of indigenous women using ICT.

METHODOLOGY AND DATA SOURCES

Primary and secondary data were used. Secondary data sources included reports from the Utkarsh Microfinance branch's regional headquarters. A non-banking finance company (for profit), Utkarsh Microfinance Private Limited is an MFI. It offers unbanked and underprivileged customers microloans under a joint responsibility structure. Although it began with micro-loans, it has since expanded into insurance, savings, and solar power initiatives. India's northern and central regions are its intended audience. On November 25, 2015, the Reserve Bank of India issued the business a permit to function as a Micro Financing Banks, subject to terms and conditions. The primary data source was collected from 60 indigenous women beneficiaries of Utkarsh Microfinance Private in Annupur Districts. The core data set included answers from microfinance institution (MFI) clients and indigenous women who used the services of specific MFIs. Their feedback was asked on technologically advanced financial services offered by the branches. Open-ended questions were employed to collect data, on factors included in the study, notably ICT-related difficulties, were gathered from MFI authorities. The acquired data were tabulated and statistically analyzed in SPSS 22 utilizing methods such as correlation and ANOVA testing.

APPLYING INFORMATION TECHNOLOGY TO MICROFINANCE

A globally unprecedented rise in financial activity has been made possible by the growth of the digital economy. Global money transfers are now much more affordable due to the advancement of technology and the resulting globalization of networks (Kushida&Zysman, 2009). Indian banking is the industry that digital innovations have most significantly impacted. Because the lack of new technology could lead to poor management decisions and eventually corporate collapse, it has become a crucial resource for business (Phiriet *al.*, 2019). Labie (2001) emphasized that MFIs may both affect and influence one another by technological fertilization. Information and communication technology is a vital force behind the microfinance sector's development. For-profit banks and non-profit MFIs provide financial amenities for the underbanked to end poverty and advance economic growth in developing countries. Using mobile phones can improve transactional efficiency throughout the entire value chain and promote the development of insurance coverage in low-income countries. Technology may be a less expensive alternative to creating basic accounts to serve people who had previously been denied financial services from the formal financial system (Ivatury, 2009).

Numerous studies show the industry's ongoing expansion, indicating a new banking business model (Kumar *et al.*, 2010; Srivastava, 2014). M-special banking's success has almost wholly entered the market, proving to be a game-changer (Ehrbeck, 2013).

Technological advancements have made new distribution channels like UPI, Automated Teller Machines, Internet Banking, Mobile Banking, etc. It was necessary to create an organization that could offer IT support to banks and financial institutions during the initial phase of the Indian banking sector reform. The most popular ICT applications for microfinance are listed below in brief:

1. ATMs and POS strategies handle various banking tasks that would otherwise need staff involvement, including providing account information, accepting deposits, withdrawing from pre-approved loans, and transferring money. These are the primary ICT uses in microfinance.
2. Internet banking enables clients to perform the same functions as phone banking (including checking account balances and looking for the closest branch location).
3. Smart cards, among other things, may be used to administer savings accounts, distribute loans, and make transfers. There are various methods of identifying a person, including fingerprints and biometrics. Similar to an electronic passbook, smart cards work.
4. UPI is a mechanism that allows several bank accounts to be operated in a single application that caters to the "Peer to Peer" collection request and scheduled and paid money as per the convenience and requirement of the customers.
5. Aadhaar Enabled Payment System (AePS): For speedy financial inclusion in the country, AePS has been developed, allowing interoperable online transactions at PoS (Point of Sale system) using the Aadhaar authentication through the business correspondent of any bank.
6. IMPS is used aimed at the transfer of money in real-time and offers instant 24*7 interbank electronic fund transfers, which can be accessed on multiple channels.
7. Electronic Fund Transfer is a system of fund transfer between the banks without the involvement of the bank staff and done over a computerized network.

According to Mishra & Bisht (2013), there is a necessity for a favorable environment, including a supportive central bank and strong financial and retailing industries, effective communication, then an overall supportive strategy situation. Karwan & Markland (2006) discussed the effects of new technology on the banking industry and indicated that the technology is altering how business is conducted and opening up new avenues for carrying out comparable tasks more efficiently. He claimed that telebanking and internet banking are making incursions that branch banking may give to home banking. Uppal (2011) emphasized the importance of

bank transformation and discovered that technology plays a decisive role in facilitating banking sector transactions. The influence of technology implementation has led to the development of new goods and services by various financial institutions in India. In their study, Muhammad *et al.* (2020) found that traditional interactions with bank employees and other daily window transaction workloads have decreased due to e-banking technologies like ATMs, the Internet, and mobile and telephone banking.

Higher average microloan amounts boost asset return (Mersland& Strom, 2009). Departing from the microfinance paradigm of micro-loans to assist as many low-income consumers as possible, MFIs driven by performance metrics often give fewer loans in higher amounts (Kar, 2012). Measuring outreach MFIs' performance used depth and breadth dimensions, repeating the suitability and sufficiency of their targeting criteria. According to the study, higher leverage, or a lower capital-to-assets ratio, results in higher profit efficiency. Cost efficiency declines as the capital-to-assets ratio rises. Similar issues have been discussed by Parikh (2006), who emphasizes how both profit-making and not-for-profit MFIs are compelled to adopt formal governance structures and cutting-edge information technology as a result of the following: raised monetary services regulation, having to expand their clientele, and the desire to achieve economies of scale. In the future, organizations deploying and utilizing contemporary ICTs will better survive in this newly susceptible market environment. According to various reviews of the research, the benefits of ICT use in microfinance can be predicted as follows:

1. Availability of banking services
2. There is a more convenient service
3. Field MFIs handle loans more quickly
4. Lower cost of transactions
5. Reduced fraud
6. Better financial information (improved performance as a result of faster and more accurate data processing)
7. Wider reach
8. Costly property decreased
9. A more professional appearance
10. Boosting client loyalty and satisfaction (new services i.e., money transfers and direct deposits).

RESULTS & DISCUSSIONS:

In addition, to know how to increase ICT adoption and use, this study considered the significance of generational preferences. ICTs utilized as a tool for knowledge translation and evaluation technologies that can assist microfinance operations in adjusting interventions in various situations. The operationalization involves the development of a standardised method for measuring women's sense of

empowerment, which was lacking in the research. Account opening and transactions are done via a Personal Digital Assistant (PDA), however, most transactions are done through phone or online banking. MIS and smart cards are useful for risk management, account maintenance, product creation, and marketing.

Table: 1.1 Demographic Profile of the Respondents

Variables	Groups	Anuppur	Kotma	Total
Age	Below 25	12	6	18
	26 - 30	17	7	24
	31 - 40	10	8	18
Educational Information	Can read and write	11	7	18
	Primary	15	8	23
	High school	13	6	19
Marital Status	Married	37	19	56
	Unmarried	2	2	4
Number of Children	2	13	6	19
	3	12	7	19
	4	14	8	22
Type of Family	Joint	25	12	37
	Nuclear	14	9	23
Total Family Members	Up to 2	4	3	7
	From 3 - 5	14	8	22
	From 6- 8	10	8	18
	Above 8	11	2	13
Number of Members Earning	1	10	5	15
	2	8	7	15
	3	13	4	17
	4	8	5	13
Monthly Income	Up to 5,000	7	4	11
	6,000 - 10,000	8	3	11
	11,000 - 15,000	11	5	16
	16,000 - 20,000	6	4	10
	Above 20,000	7	5	12
Place of Residence	Rural	30	14	44
	Urban	9	7	16

Sources: Primary Survey

As shown in Table 1.1, 40% of the respondents are between the ages of 26 and 30. The educational information shows that there are more primary than other groups, it is also understood that the majority of the respondents 93.33% are married whereas just 36.7% are having more than 4 children. The table indicates that 61.7% are in a joint family, 73.3% of respondents reside in rural and 28.3% of respondents are having 3 members of earning 36.7% are 3 to 5 total family members. The majority of the beneficiaries are getting monthly income of Rs. 11,000 to Rs. 15,000.

H01: No linear relationship between microfinance ICT applications and variable operations

Table: 1.2 Correlations Between the ICT Applications in Microfinance and Variable Operations

	1	2	3	4	5	6	7	8	9
Applications of Technology in Mfi Activities	1								
Data entry for loan applications	.433* (0.027)	1							
Recording payment transaction	.421* (0.032)	.971** (0.000)	1						
Disbursing cash	.413* (0.036)	.953** (0.000)	.970** (0.000)	1					
Money transfer between accounts	.426* (0.030)	.983** (0.000)	.970** (0.000)	.979** (0.000)	1				
Taking deposits	.414* (0.035)	.956** (0.000)	.908** (0.000)	.901** (0.000)	.935** (0.000)	1			
Checking account balance/other inquiries	.424* (0.031)	.980** (0.000)	.965** (0.000)	.949** (0.000)	.956** (0.000)	.956** (0.000)	1		
Managing loan portfolio/other financial analysis	.429* (0.029)	.990** (0.000)	.945** (0.000)	.931** (0.000)	.971** (0.000)	.981** (0.000)	.966** (0.000)	1	
Credit risk assessment	.421* (0.032)	.973** (0.000)	.980** (0.000)	.995** (0.000)	.982** (0.000)	.930** (0.000)	.972** (0.000)	.954** (0.000)	1

**Correlation is significant at the 0.01 level (2- tailed) and at the 0.05 level (2 - tailed),

Sources: *Primary Survey*

Correlations were calculated to investigate the interaction between applications of information and communication technology in microfinance and major variable operations are evident from the pattern of correlations presented in Table 1.2. All the calculated variables along with application and among microfinance operations were 0.027, 0.032, 0.030, 0.035, 0.031, 0.029 and 0.032 respectively (rounded up). All were significant ($P < 0.05$, 2-tailed) and the variables were highly significant ($P < 0.01$, 2-tailed). Don't accept the null hypothesis. Because each of their correlation values is substantially distinct from 0. there is a strong linear relationship between MFI ITC applications and variable operations.

H02: there is sufficient evidence to accomplish that not all the means of application of ICT in microfinance and variables operation are equal.

Table: 1.3 ANOVA Test among the ICT Applications in Microfinance and Variable Operations

Variables		Sum of Squares	df	Mean Square	F	Sig.
Entering information for a loan application	BG	41.538	1	41.538	5.538	0.027
	WG	180	24	7.5		
Keeping a record of payments	BG	25.488	1	25.488	5.160	0.032
	WG	118.55	24	4.94		
Transferring money	BG	27.704	1	27.704	4.927	0.036
	WG	134.95	24	5.623		
Inter-account transfer of funds	BG	34.904	1	34.904	5.310	0.030
	WG	157.75	24	6.573		
Depositing money	BG	31.2	1	31.2	4.966	0.035
	WG	150.8	24	6.283		
Account balance check and additional enquiries	BG	37.488	1	37.488	5.275	0.031
	WG	170.55	24	7.106		
Managing a loan portfolio or conducting other financial analysis	BG	37.488	1	37.488	5.402	0.029
	WG	166.55	24	6.94		
Analysis of credit risk	BG	30.012	1	30.012	5.184	0.032
	WG	138.95	24	5.79		

Sources: Primary Survey

ANOVA-tests were calculated to examine the mean differences between the ICT Applications in Microfinance and all major variable operations scores for entering information for a loan application, keeping a record of payments, transferring money, Inter-account transfer of funds, Depositing money, Account balance check and additional inquiries, managing a loan portfolio or conducting other financial analysis and analysis of credit risk and between 'ICT applications in microfinance. The mean scores of all the variables between ICT Applications in Microfinance and variables operations differ significantly. However, the mean scores of the variables entering loan application data were higher than that of their counterpart. To conclude the group means are not all equal.

The significance level is less than 0.05 with the p-value shown in table 1.3. The study found sufficient evidence means of application of ICT in microfinance and all the major variable operations significantly differ. The null hypothesis is rejected. This study suggested a specific link and debate on how empowerment is well-defined and operationalized and how empowerment and ICTs work in concert to promote women's capability to move beyond suffering oppression to experiencing empowerment. It is necessary to have a thorough awareness of how ICTs and empowerment are currently used to promote the multifaceted ideas present in society. ICT's ability to increase income and reduce poverty is becoming increasingly recognized. Promoting involvement in expanding economic networks, enhancing process efficiency, and generating employment prospects helps people in economic opportunities.

CONCLUSION AND RECOMMENDATION

ICT has a lot of potential for providing financial services to indigenous women. However, few microfinance companies have embraced ICT solutions, despite having great potential for providing economic facilities in popular rural areas. This raises the issue of how microfinance institutions fail to put ICT solutions into practice as quickly as anticipated. The ability to address the difficulties that banks are presented with has been made possible by technological advancement. It is an essential component of recent reforms to the financial industry that aim to enhance the banking sector while accelerating and relying on transactions in finance. The correlation analyses among the variables of each scale produced differing levels of relationship. The relationship patterns among all the variables and ICT applications in microfinance and variable operations were strongly related. As for the ANOVA test, microfinance operation and all the variables were positively significant. The study found sufficient evidence to conclude that all the means of application of ICTs in microfinance and variable operations are not equal. Digital dividends are a variety of development benefits made possible by improved connections and technical advances. These benefits could increase growth, extend opportunities, and enhance service delivery. Researchers looked at the fact that numerous digital improvements have already been made.

ICTs may benefit the underprivileged in several ways, such as through mobile banking, etc. Additionally, it facilitates easy and affordable information access, as well as enhanced contact with microloan officials. The influence of IT on financial services also allows customers to execute online transactions more quickly, which increases trust in the financial system, permits IT progress, and gradually provides a more speedy and efficient service. To enhance access to financial services for underserved communities, it's essential to promote the use and adoption of mobile banking apps to develop user-friendly and multilingual interfaces to cater to diverse user groups and to implement data privacy and protection measures to ensure responsible and ethical use of customer data.

Through awareness campaigns and training programmes, microfinance clients need to be aware of the advantages and usefulness of ICT-based financial services. Collaboration with educational institutions and community organizations should be established to integrate financial literacy and digital skills training into current programs. Encourage collaboration among microfinance institutions, technology businesses, and policymakers to develop novel ICT options that fit to meet the particular requirements of microfinance customers. Monitor and then evaluate ICT projects in microfinance regularly to assess their impact and efficacy. Collect feedback from microfinance clients to identify issues and opportunities for development in ICT-based services. Improve internet access and infrastructure in underserved regions to allow ICT-based services to run smoothly.

IMPLICATION OF THE STUDY

This study contributes to our knowledge of empowerment frameworks by projecting light on the interconnectedness of gender, ethnicity, and technology use in marginalized areas. It adds to technology adoption models and social capital theories by shedding light on the particular problems posed by digitalization. On a practical level, from the study it can be said that the study supports policy development by arguing for using technology in indigenous women's microfinance programs, possibly boosting financial inclusion and empowerment results. Microfinance institutions can modify their programs to incorporate technology, while non-governmental organizations and development organizations can focus on capacity-building and creating relationships with technology providers. There is need to considered the valuable criteria for monitoring and assessing tech-enabled microfinance efforts that correspond with issues such as gender equality and poverty eradication. One of the main drivers of the microfinance sector's expansion has been the quick adoption of technology. The above findings may be validated with the creativity, inclusivity, and efficiency have factually been key components of microfinance operations and advances in digital technology may present microfinance institutions with yet another chance to foster development. Further investigation may be carried to developments in digital technology are affecting the microfinance sector, we use examples from the Indian microfinance sector.

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