

## **Research Article**

# **Understanding ICT's role in Microfinance to improve Financial Inclusion in Northern Sri Lanka**

**Mithula Guganeshan, Perampalam Suthaharan**

### **Abstract**

Microfinance industry has faced an exponential growth within developing regions over the last two decades. Sri Lanka has jumped on the microfinance bandwagon just like its South Asian counterparts. MFI's elusive focus was to provide affordable financial services to the poor, low-income households. As a result, microfinance has been firmly established as one of the main contributors towards achieving Financial Inclusion. Microfinance interest rates are high in Sri Lanka mostly ranging from 20% to 72%. This is due to the high risks involved and high transaction costs. MFI's customers are mostly rural dwellers residing in geographically dispersed areas with a sparse population is one of the leading causes of high transaction costs. Based on thirty women micro-loan borrowers who were interviewed through qualitative focus group discussion and in-depth interviews conducted within Northern Province of Sri Lanka, It was seen that majority of the microfinance agents/officers followed time consuming, costly and manual practices. Such as manually filling the forms, conducts regular weekly meeting to collect repayments and visits the head office to update information and handover the repayments collected. This paper aims to discuss on how ICT usage can reduce transaction costs and streamline loan management practices by improving efficiency and effectiveness. This paper further seeks to explicate microfinance's role to achieve financial inclusion within the Northern Province, Sri Lanka.

**KEYWORDS:** Financial Inclusion, Microfinance, Gender, ICT, Digital Literacy

### **Problem Statement/Policy Relevance**

This paper identifies that significant ICT intervention can reduce transaction costs and provide financial services at an affordable cost. From this, policy makers can understand the ways through ICT diffusion can help mitigate the challenges faced by microfinance institutions.

## 1.0 Introduction

Sri Lanka's financial sector consists of formal, semi-formal and informal institutions. Customers holding collaterals are catered through the formal financial institutions such as the licensed banks, leasing & finance companies. Semi-formal including the NGO's, co-operatives etc. and microfinance institutions provide financial services to the poor, low-income households without any collateral. Informal sector includes the pyramid structures, loan sharks etc. which are difficult to access and regulate.

Microfinance is the provision of affordable financial services to low-income households with an intended objective to finance income-producing activities, build assets, protect against risk and thereby fight against poverty (Brau and Woller 2004:3, Duvendack et al. 2011, Robinson 2001, Yunus 1999). Microfinance industry has significantly evolved with an exponential growth over the past decade, following the sustainability of the model – to finance the poor. A substantial expansion of outreach is essential to supply to the poor's demands and alleviate poverty. As a result, commercialization of microfinance is widely practiced and well accepted as a sustainable expansion of outreach by the various industry stakeholders. Commercialization of Sri Lanka's microfinance industry has introduced a relatively large and diverse institutional types compared to other countries in the region.

A substantial increase in the number of commercial entrants within the microfinance industry made it even more competitive. Increase in competition leads to an increased pressure to improve operational efficiency, improve services, introduce cost saving measures and most importantly use technology to remain competitive in the marketplace.

Globally, microfinance has been used as a tool to provide financial services to rural poor without any financial institution within the close vicinity. Generally, MFI's customers are mostly rural dwellers residing in geographically dispersed areas with a sparse population. It is estimated that only 10% of the rural population and 5% of the rural poor have access to formal financial services (Nanyonjo and Nsubuga, 2004). However, within a Sri Lankan context especially within the Northern Province access to banks/financial institutions isn't a problem. Branch density, the number of bank branches per 100,000 populations in the Northern Province was 21.66 in 2014. Branch density in the Northern Province was even higher than the mostly populated Western Province.

However, due to the poor infrastructure in place MFI's transactions and operations costs are high. MFI's in Sri Lanka need to be efficient through the use of technological innovations to succeed. ICT promotes Microfinance's dual objective, such as sustainability and outreach to

poor. Currently, the locally based MFI's are incurring high costs due to the extensive use of paperwork and travelling costs such as from the borrowers place to head office to update information.

The existing literature shows that other developing countries have incorporated the use of Information & Communication Technologies to improve efficiency of the processes. The commonly used ICTs include Management Information Systems (MIS), automated teller machines (ATMs), personal digital assistants (PDA), mobile phones and smart cards (Ssewanyana, 2008). Management Information Systems (MIS) is considered as the backbone of any ICT innovation as it effectively supports the transactions, loan portfolio, decision making, transparency, operational growth and time management (Turaga, 2004). Personal digital assistants can help to save time on micro lending, lower operational costs and reduce human errors. In addition to that also allows the loan officers to increase outreach, reduce paper work and standardize credit processes (Turaga, 2004). Microfinance industry is expected to even grow further with the incorporation of Information Communication Technology (ICT), such as mobile banking.

ICT usage can help to reduce the costs of coordination, communication and information processing and to enable efficient service provision at lower cost (Brynjolfsson and Hitt, 2000). Even though ICT can help the microfinance institutions to help reduce transactional costs, market expansion and provide affordable and flexible services to customers. Yet, most of the MFI's in Sri Lanka continue to rely on inefficient manual data processing systems (Parikh, 2006). Existing literature in Sri Lanka includes a plethora of studies understanding MFI's impact on poverty. However, none of the studies focus on MFI's and ICT usage in Sri Lanka.

In this context this paper attempts to find answers for following research question from a Qualitative survey conducted in Sri Lanka 2016. This paper seeks to establish the extent to which ICT has been used within Microfinance institutions in Sri Lanka.

### **Principal Research Question**

1. What are the current micro finance practices in Sri Lanka and how has it helped to achieve financial inclusion?
2. What is the current level of ICT intervention in micro finance practices?
3. What are barriers in ICT intervention and thereby reducing transaction cost in micro finance operation?

## 2.0 Literature Review

Information Communication Technology (ICT) is transforming the old economy into a new one and radically changing the world. The real potential lies in creating a New Society that will allow all of its member's unprecedented opportunities to unleash their creativity and ingenuity. Poverty can be overcome if this potential is realized (Yunus, 2001a). ICT can be used to eliminate various social and economic barriers hindering the poor and help them to gain opportunities to discover their potential (Yunus, 2001a).

Human Development report states, around 70 percent of the people from South Asia & Sub-Saharan Africa are earning less than US\$1 a day and have the lowest access to ICT (World Bank, 2000a). The gap in access to ICT is defined as the 'digital divide', the gap between individual, households, business and geographic areas in different socio-economic level with regards to access to opportunities and ICT (OECD, 2000). Major part of exclusion and poverty are due to the digital divide (Molina, 2003 & Pigato, 2001).

Microfinance Institutions (MFI's) plays a dual role of financial and social advocacy to provide assistance to groups without any access to traditional sources of funding and other essential resources (Lable, 2001). Generally, microfinance program needs to have four objectives, poverty alleviation, women empowerment, employment generation and enterprise development (ADB, 2000).

The obstacles to the success of MFI's in developing countries are the scalability, sustainability, outreach and the impact of various microfinance initiatives (Kashyap, 2009). However, the obstacles can be overcome through the usage of ICT, which would serve as an enabler of affordable solution to the microfinance institutions (Gibson and Meehan, 2002; Kashyap, 2009). ICT could help MFI's access the remotely located rural clients using an effective low-cost avenue. In addition to that ICT will be able to alleviate the problems faced by MFI's by providing secure, low-cost and reliable means of transactional data capture (Filpo, 2006). According to Rao (2003), the transaction costs of the MFI's are one of the crucial blockages to increase profits and long-term sustainability.

One of the most crucial and urgent need for ICT applications are within the micro-credit and financial services industry, especially targeting the poor women. ICT can easily facilitate the transaction between the borrowers and the MFI by servicing the credit and savings needs of the poor. The MFI's can provide ICT based solutions to their users and promote savings, formal banking services and deposit and loan facilities to the rural poor. (CICI Bank & Bellman, E. 2004)

A study conducted in indigenous Australia reveals that participants preferred face to face banking and paid higher amounts for account keeping and transaction fees. Even though many

had access to mobile phones, mobile banking was not considered very popular within the area (Godinho & Singh, 2013).

Microfinance institution's usage of ICT within microfinance business is low in Uganda. The usage was relatively fair in terms of process automation but none with regards to professional skill development (Bada, 2012).

Whereas, In Peru voice prompts from phone-based systems are being used to provide financial services within rural areas. Technology is used as part of the financial transactions in South and East Africa as well. In Kenya, Safaricom caters to more than 7 million users with agent network which is much higher than the number of bank branches in the country (Kinyanjui, 2009).

A voice operated system capable of interacting with the user has been developed, so that the illiterate people can learn to read and write by talking with the computer. Such practices would open a world of possibilities for ICT based learning opportunities in the near future. However, for the system to be effective a basic educational infrastructure and physical facilities are required (Asia Society, 2000; Quibria & Tschang, 2001). This would directly influence the income and help reduce vulnerability of the poor. ICT usage can help micro- and small scale entrepreneurs to better access the market information, input price and forecasting (Crowder, 1997)

The ATM machines are tailored to meet the rural customer's needs (USAID, 2005). The customers are provided with SMART Cards where the customer's identifies can be verified through the ATM's and complete transaction without having to electronically connect with the head office. Financial transactions can be completed with the use of biometric ATMs with smart card rather than entering personal identification numbers. Machines are capable of speaking to the customers in their local language, thus educating the digitally illiterate customers. Customers are able to deposit and withdraw money without going through the hassle of filling out slips or going to meet agents to handover the cash (USAID, 2005)

MFI's in India have developed low-cost village ATMs where the illiterate users can use the finger print scanning instead of using a personal identification number. Cambodia launched cash by code service, where the service is accessible by using the mobile device through the internet and transfer money to other customers not holding an ATM card. (USAID, 2005)

80% of the Peruvians are financially excluded with 65% of mobile ownership, the national strategy has focused on this and developed ways to connect customers to financial services through digital payments catering to the needs of the population. The poor from a small town in Andhra Pradesh participated by attending literacy training facilitated through computer-based learning packages. Online educational systems have been developed to provide knowledge on demand for the households. (USAID, 2005)

In various parts of the world, infusing ICT into MFI's have offered various benefits such as access to convenient banking services, faster loan processing, reduced transaction costs, less fraud, improved financial information quality (Hishigsuren,2006). Branchless banks are possible with the use of ICT through various channels such as automated teller machines (ATMs), Point

of Sales networks are some of the options for micro-loan borrowers can access financial services.

A study by CGAP (2006) highlights diffusion of ICT in MFI's operations within developing countries is fast growing. However, some challenges faced are due to limited infrastructure such as mobile network and Internet bandwidth to reach rural areas. Illiterate clients without access to personal identification and credit history poses significant challenges to MFI's and requires sophisticated methods and technologies to cater to their need. Computer illiteracy of the borrowers along with the infrastructure related investments are some of the other challenges. There could be high costs incurred by facilitating small transactions leading to low profit margins (Amin, 2007, Hishigsuren, 2006, and Mathison, 2005)

### **3.0 Methodology**

The data collection for this research was qualitative and involved 30 respondents from Northern Province, Sri Lanka. The methodology involved Focus Group Discussions (FGD) involving around 5 participants per FGD which lasted for around 1.5 hours. Researchers visited the respondent's house to conduct the in-depth interviews which lasted approximately 2 hours.

Fieldwork was conducted in Tamil Language in December 2016 by the authors. A structured questionnaire, sample and screening criteria were designed by authors. The sample included female borrowers from both urban and rural areas ranging from the ages 25 to 45 and representing SEC D & E.

In addition to the above in order to understand the supply side factors of Microfinance. We conducted 4 in-depth interviews with prominent microfinance practitioners including Berendina Microfinance and Lanka Microfinance Practitioners Association.

### **4.0 Results/synthesis**

- 1. What are the current micro finance practices in Sri Lanka and how has it helped to achieve financial inclusion?**

#### **Woman are the main Targets of MFI**

According to Lanka Microfinance Practitioner's Association, 90% of microfinance loan borrowers in Sri Lanka are women. A similar portfolio exists within the Northern Province as well. Therefore, we have conducted the Focus Group discussions amongst women micro-loan borrowers.

Majority of the respondents did not have a clear understanding on the reasons for providing the micro-loans for women only.

*“I don’t know why it given to women only. I have never seen a man obtain a microloan, as the companies provide loan only for the women in our areas”  
(Micro Loan Borrower)*

*“I am handling 15 women from my areas because I have been instructed to bring 15 women when I wanted to borrow some money, few years back. Men from our areas don’t request for micro-loans because that’s not allowed by the companies. If there is any financial requirement, they would send their wives or mother to obtain the loan”  
(Micro Loan Agent & borrower)*

### **Majority of the borrowers aren’t entrepreneurs**

Microfinance provides financial assistance to women, so that they can invest the money on income-producing activities, build assets, protect against risk and thereby fight against poverty. Employment generation and enterprise development is essential in any microfinance program. However, only 35% of the respondents were engaged in entrepreneurial activity. They were engaged in business like starting a small grocery store within their neighborhood, tailoring business, selling eggs, growing chickens and selling clothes during festive seasons. A few women have borrowed money and provided loans to their neighbors and relatives at higher interest rates.

*“I have obtained a micro loan of Rs.120, 000 and used around Rs.50, 000 to sell clothes during festive seasons. The clothes that I sell within my neighborhood are purchased from Colombo. I used the remaining money to fund my day to day or urgent needs”*

### **High interest rates are charged due to the high risks involved is a myth**

One of the main reasons towards increased interest rates is due to the risks involved by lending money to people without any collateral. However, respondents mentioned that there were very rare cases of default in payments. The loans are provided based on the agent’s recommendation, who usually knows the borrower’s background and capacity to repay. Default rate is very low amongst woman borrowers. Out of the 25 women borrowers handled by the microfinance agent, only one has defaulted on payments occasionally. MFI’s offers a grace period so the borrower pays the amount they are capable of rather than the required fixed amount to settle the loan outstanding. Only 2

respondents mentioned that they have occasionally defaulted at loan repayment due to the lack of sufficient money.

*“I repay Rs.5500 ever week for the loan of Rs.200, 000. I was not able to pay once or twice as I dint have enough cash during that particular week. It was during the time that my husband was unemployed as well so they gave me two weeks’ time to settle the loan. I borrowed money from relatives and repaid as there will be a case filed if we there is default in payment for a month”*

### **Human interaction is essential for microfinance operations**

Group lending model is the backbone of the microfinance operations and requires constant human interaction. This is one of the main reasons for MFI’s reluctance to introduce technological practices. The current systems involve two key people, Loan officer & microfinance agents. The microfinance agent is the primary group leader for a particular area and is also a borrower. All the borrowers are instructed to visit the microfinance agent and handover their repayments prior to the loan officers visit. Thereafter, the loan officer would visit the Microfinance agent’s house every week to collect the total repayments. If the borrower fails to pay before the loan officer’s visit, they have to travel to the branch and settle the dues.

### **Microfinance agents are engaged in exploitative forms of labor**

Microfinance agent in each village plays a vital role to effectively implement and disburse microfinance loan among beneficiaries. The roles played by the microfinance agents are listed below:

1. Woman from the village approach microfinance agent if have a requirement to borrow money
2. Microfinance agent would assess if the applicant’s profile is credible and trustworthy. Thereafter the agent obtains the required forms from the branch/loan officer. Assists in filling the required forms, arranges for documentation such as the Grama Sevaka certification and obtain signature from two guarantors.
3. Thereafter hands over the application to the loan officer at the branch/head office and arranges for the loan facility for the applicant.
4. Microfinance agent held responsible and needs to ensure that the weekly repayments for each and every beneficiary under her is collected. In order to collect, numerous follow-ups need to be made in order to ensure that the payment is ready. This also involves multiple visits to the borrower’s house to push for the weekly repayment.



5. If there are few members defaulting their re- payment, MFI agent has to collect the money in the next few days and visit the branch/head office to settle the payments.

Microfinance agent's role is essential and crucial for the effective implementation of the microfinance operation with the respective areas. They even have to incur expenses in the form of making multiple phone calls and transport costs such as visiting the houses/branches to ensure that payments are settled. In addition to the monetary costs, they invest a lot of time and efforts to ensure a smooth operation. Microfinance Institutions doesn't provide any payment for their services or reimbursement for the costs incurred. Some of the MFI's in Sri Lanka are using exploitative forms of cheap labor for loan disbursement and barely incurs ant costs to administer the smooth operations except for the weekly visit to collect the repayments from the microfinance agent.

Therefore, MFI's cost of serving customers is minimal compared to a bank which provides immense infrastructure facilities.

*"I am working as a microfinance agent for the past three years and currently, handling around 25 accounts within my area. However, I have not obtained any benefit besides being able to take part in the annual raffle draw. I haven't received any gift through the annual raffle draw but my friend has got a rice cooker. I have continuously requested the loan officer to reimburse my telephone bills and transportation costs but no action has been taken yet"*

#### **4. What is the current level of ICT intervention in micro finance practices?**

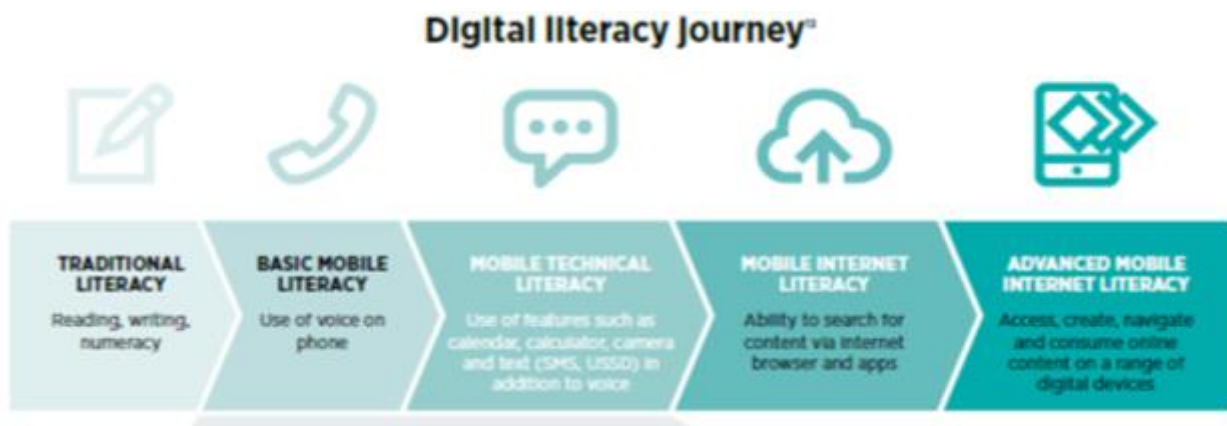
As highlighted in the literature review, ICT has been diffused as part of the microfinance operations in countries with a poor digital infrastructure than in Sri Lanka. However, the conventional type of group lending is widely practiced in Sri Lanka. Despite MFI's earning profit in billions, there is lack of interest to invest in ICT intervention. The microfinance agents and Loan officers are following the pen and paper method and their operations does not involve any device to update the information. Hard methods are enforced even though there are easier and better ways to make payments through the digital technology. If the beneficiary has missed to make payments on the due date, the borrower or the microfinance agent has to visit the office to make payments even though they have the capacity to transfer money through the nearby ATM.

## 2. What are opportunities for ICT intervention and thereby reducing transaction cost in micro finance operation?

### Access to a Mobile Phone & Digital literacy levels

70% of the women interviewed had access to a mobile phone. 40% of the women had access to internet and watched news on YouTube and communicated with friends through WhatsApp. Digital Literacy journey starts with learning the mechanics of using a mobile device, with a gradual transition towards use of more advanced features such as the internet. Thus, indicating that the women in Sri Lanka are gradually transitioning from Basic Mobile literacy to Mobile Technical literacy as defined by GSMA's Digital Inclusion Journey. Mobile Technical Literacy involves the use of features such as calendar, calculator, camera and text in addition to voice. Few respondents do not understand what is meant by internet, but they claim to have regularly used Youtube and WhatsApp.

Figure 1 : Digital Literacy Journey



Source: GSMA's Digital Inclusion Journey

*"My 8 year old daughter taught me to chat on whatsapp with my friends and also to watch news on YouTube. But I can't don't have access to the internet and don't know how to search for content on Internet"*

At least one computer was available in 24.6 percent of households in 2015, means that one out of every five households in Sri Lanka has a computer, according to the Department of Census and Statistics (DCS), Sri Lanka. Computer ownership within the urban sector was at 36%, 20.4% within rural sector and 4.6% within the estate sector.

### Opportunity to use existing financial services channel

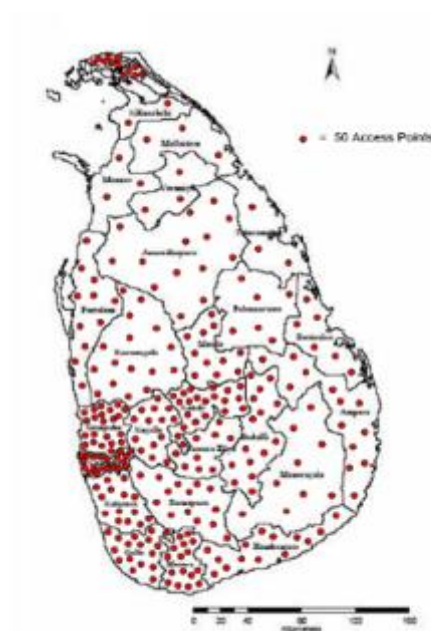
Around 80% of the respondents interviewed had a bank account in the commercial banks. 32% of the respondents had multiple bank accounts. Respondents had easy access to financial Institutions or ATM's in their village/town. Majority had visited the bank within a weeks' time.

*"I visited Banks last week to withdraw some money using my Husband's ATM card. After my husband gets his salary deposited to the bank, I visit the bank to take money whenever there is a need."*

Sri Lankan ATM market is growing, in 2015 there were around 17.16 ATMs per 100,000 populations, relatively higher than in South Asia holding around 8.88 ATM's.

14,000 access points including banks, co-operative society, MFI's etc. were identified in the CGAP study "Building financial services to the poor" (CGAP, 2006).

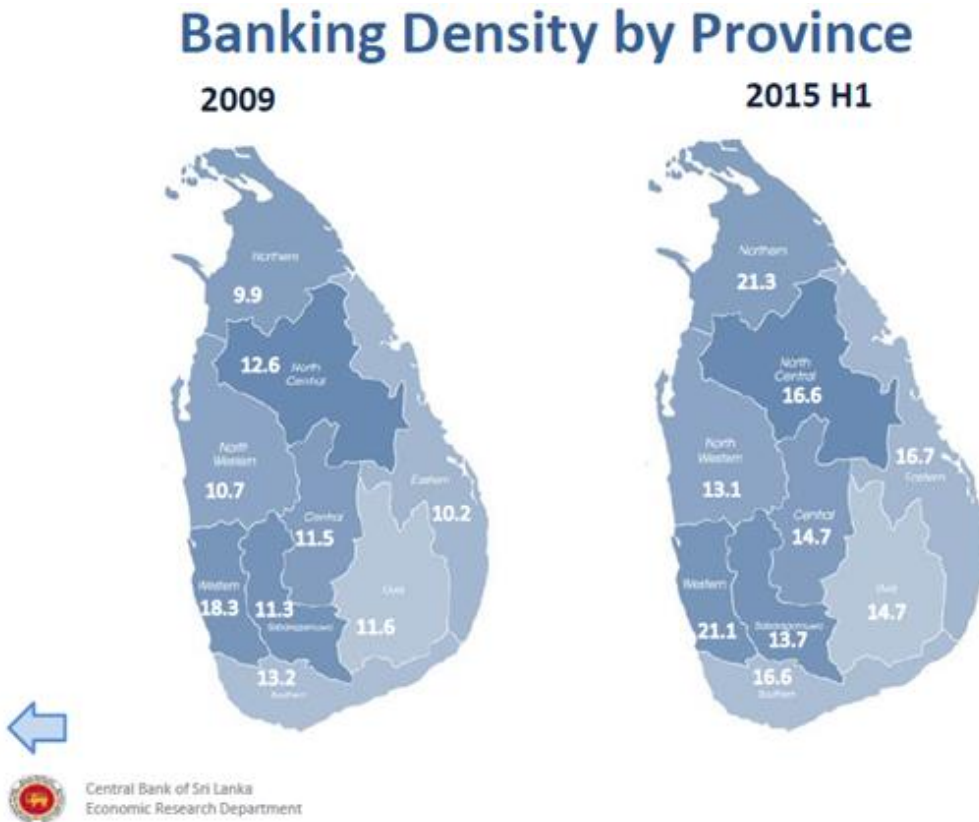
Figure 2: Financial Services Access point distribution



The report further revealed that there is one service point for each 1.3 inhabitants. With the increase in bank density in 2014 compared to 2009, there certainly would be more service points for each inhabitant.

Over the past 6 years, banking density within the Northern Province has increased from 9.9 to 21.3. The banking density is even higher in the Northern Province than the Western Province even though it has a large number of populations. In addition to the growth of the banking sector, there has been a massive growth within the finance and leasing sector. The number of leasing and finance companies has almost doubled within the country.

Figure 3: Banking Density by Province



Source: CBSL (2015) Sri Lanka Macroeconomic Development

Table 1 :Facts on financial Inclusion

Accounts (% age 15+)	Sri Lanka: Country Data	South Asia	Lower Middle Income	World
All adults	82.7	46.4	42.7	61.5
Women	83.1	37.4	36.3	58.1
Adults belonging to the poorest 40%	79.8	38.1	33.2	54.0
Young adults (% ages 15 -24)	85.2	36.7	34.7	46.3
Adults living in rural areas	83.4	43.5	40.0	56.7

Source World Bank (2015), the Little Data Book on Financial Inclusion

Around 79.8% of the adults belonging to the poorest 40% including both men and women have access to accounts in commercial financial institutions.

Microfinance institution can easily use this financial channel to improve their service dimension, particularly for disbursement of loan and getting back loan repayment.

### 3. What are barriers for ICT intervention and thereby reducing transaction cost in micro finance operation?

#### **MFI's reluctance despite existing Financial Infrastructure**

Microfinance Institution's ICT usage can help increases efficiency and outreach at a lower cost to the borrowers. Technology usage supports various operational functions, improves staff productivity and reduces operating costs.

However, the Microfinance Institutions in Sri Lanka follow the traditional group lending model primarily. Frequent human interaction is crucial in order to reach the borrowers. A number of existing infrastructures, such as the Banks, ATM's, Mobile Phones, Smart Cards etc. can be used to reduce operational costs, risks and therefore reduce the interest rates charge. ATM's, mobile phones and EPOS are only being utilized by the banks and not the MFI's in Sri Lanka. The table listed below depicts the use of technological platforms within the banks and MFI's in Sri Lanka.

	<b>Banks</b>	<b>MFI's</b>
<b>MIS</b>	Yes	Yes
<b>PDA</b>	Yes	No
<b>ATM</b>	Yes	No
<b>Mobile Phones</b>	Yes	No
<b>EPOS (Electronic Point of Sale)</b>	Yes	No
<b>Smart Card</b>	No	No

Despite the use of technology in various industries to lower the operating costs, ICT usage has been minimal within the context of MFI's. However, some of the industry leaders have started testing the potential benefits of incorporating technology to improve business operations.

PDA's and Smart cards can be used to record client transactions and use to improve data accuracy, operational efficiency, staff productivity and lowered costs especially within rural settings involving large amount of travel involved. Tabs can be used as a substitute for paper based methods; however the MFI's have not incorporated technology to reduce costs.

Technology intervention would store critical data, manage the information stored are some of the advantages associated with the use of technology. Majority of the MFI's operations lack technical capacity and resources to understand, adopt and invest in technology related solutions.

## **5.0 Policy Options, next steps**

This paper has strived to understand ICT's role in Microfinance to improve Financial Inclusion in Northern Sri Lanka. The current practices, levels of ICT usage, barriers in ICT adaption within the microfinance institutions were examined. ICT usage has been growing through the application of different technologies within the Microfinance operations across the developing countries.

MFI's are mainly formed with the aim of providing affordable financial services to the rural poor community without any access to traditional banks. However, in the Sri Lankan context, the population has access to a range of financial products and services offered by the traditional banking. This is mainly because of high bank density within the region, holding savings account in financial institutions and increased number of ATM's within the close vicinity. As a result, innovative operating methods could be used to save costs, time and improve efficiency and productiveness.

Microfinance customers could be provided with the facility to access the current ICT technologies used by the traditional banking systems such as EPOS, ATMs, mobile transfer money and Smart Cards. Mobile Banking and Agent/borrower related banking services can be provided by the MFI's by partnering with the commercial banks. Thus, minimizing the costs related to setting up new financial/technological related infrastructures.

Establishing branches, physical visits incur a very high cost which can be replaced by the mobile technologies to reach more clients without opening new physical branches. ICT should be recognized as part of the core business and include ICT related expansions as part of the strategic planning of the MFI's. Policy makers, governments and other stakeholders should encourage MFI's to adopt ICT. Grants can be provided by the Government to encourage and support local MFI's to develop ICT based microfinance businesses.

Some of the barriers to ICT usage include MFI's reluctance to incorporate technology, high costs of setting up the infrastructure and training related costs. Martin and Matlay (2001) has highlighted that the capacity to manage technologies is a key usage in ICTs in MFI's. There is a need for policy makers to develop policies that increases the digital literacy amongst the women micro-loan borrowers, encouraging the financial institutions to provide ICT related training with appropriate ICT skills relevant to the needs of the MFI's

Operational costs can be reduced with comprehensive automated operation & management practices. By using the relevant technology to centralize the information regarding the client and loan, monitor portfolio, impact and results. Information systems can be effectively used to capture data, process relevant information for decision making at both the operational and strategic level at a cost effective and timely manner. However, the current practice has only managed to equip the headquarters and the loan officers have to physically visit the head office or communicate the loan portfolio information through phone. The setup cost which includes the establishment of the software support, maintenance costs are high only in the beginning or while establishing.

Usage of devices such as the laptops and tabs in the field has contributed to a substantial reduction in paperwork. In addition to that the agents are able to access/enter the relevant and necessary client information, calculate and take key financing decisions on a real time basis or the collected information can be uploaded into the MFI's server at a convenient time much later. The tabs are light, easy to carry and less expensive than the laptops etc. The size of the tab is more suitable for its mobility and its adaptability. Incorporating automation through using tabs/PDA for data collection practices, paperwork would be substantially reduced, productivity will be increased and portfolio can be easily managed. However, majority of the MFI's are unwilling to adapt technology for the following reasons such as high costs, digital illiteracy amongst the borrowers and the MFI agents. The MFI's are reluctant to adopt technologies mainly due to the fear of failure to manage technological systems, lack of time for long-term planning, clients are digital illiterates.

Additional research is required as this study was conducted amongst a small sample size that could have influenced the nature of the findings. A similar research study can be carried out in other developing countries. Further research needs to be conducted in order to obtain a comprehensive conclusion regarding the relationship between ICT's and MFI's within the context of microfinance Institutions in Sri Lanka.

## References

Amin, N. (2007). Enabling the expansion of microfinance using information and communication technologies. IGI Publishing. Retrieved on 27/8/2016 from Website: <http://new.igiglobal.com/Gateway/DisplayDocbook.aspx?theID=19872&IsPdf=1>

Asian Development Bank, (2000). Finance for the Poor: Microfinance Development strategy. Retrieved on 20/10/2016 from Website: <http://www.adb.org/Documents/Policies/Microfinance/financepolicy.pdf>

Asia Society, (2000), Micro Credit Gone Global- An ASIP Panel Discussion (<http://www.asiasociety.org/speeches/microcredit.html>)

*Bada, J.K, (2012), ICT for Business Services: The case of Uganda Microfinance Institutions. Makerere University Business School, Volume 1, Issue 1, retrieved on 01<sup>st</sup> March 2017*  
<https://pdfs.semanticscholar.org/9ad8/8b210195986bc7cc88b95d501bf575af1976.pdf>

CICI Bank; Bellman, E. 2004. Cashing in on the Masses. Far Eastern Economic Review, 8 July 2004.

CGAP (2006), Using Technology to build inclusive financial systems, Focus Note 32, January 2006. Retrived on 20/4/2017 from Web site: [http://www.cgap.org/gm/document-1.9.2587/FocusNote\\_32.pdf](http://www.cgap.org/gm/document-1.9.2587/FocusNote_32.pdf)

Crowder, V.L. (1997), Marketing information systems for small-scale farmers. Information Development, 13(4): 179-183.

Filpo, J. (2006). Banking the Unbanked: Technology's role in delivering accessible financial services to the poor, Retrieved on 10/10/2016 from Web site: <http://www.gdrc.org/icm/govern/banking-unbanked.pdf>

GSMA Connected Women and Altai Consulting. (2015) Bridging the gender gap: Mobile access and usage in low- and middle-income countries. London:GSMA and Altai Consulting.  
[http://www.gsma.com/connectedwomen/wp-content/uploads/2015/06/DigitalLiteracy\\_v6\\_WEB\\_Singles.pdf](http://www.gsma.com/connectedwomen/wp-content/uploads/2015/06/DigitalLiteracy_v6_WEB_Singles.pdf)

Godinho, Vinita and Singh, Supriya, Technology Enabled Financial Inclusion and Evidence-Based Policy for the Underbanked: A Study of Remote Indigenous Australia (September 5, 2013). CPRsouth8/CPRafrica2013 conference . Available at SSRN: <https://ssrn.com/abstract=2331884>

Gibson, D. and Meehan, J. (2000). The Microcredit Summit's Challenge: Working Towards Institutional Financial Self-Sufficiency while maintaining a Commitment to Serving the Poorest Families (Discussion Paper): Microcredit Summit, June 2000.



Hishigsuren, G. (2006). Information and Communication Technology and Microfinance: Options for Mongolia, ADB Institute Discussion Paper No. 42. Retrieved on 20/04/2017, from Website: <http://www.adbi.org/files/2006.02.dp42.ict.microfinance.mongolia.pdf/>

Kashyap, S. (2009), Microfinance: Leveraging Information Communication Technology. Retrieved on 01/04/2017 from Web site: <http://www.indiamicrofinance.com/microfinance/microfinance-technology/microfinanceleveraging-informationcommunication-technologyict-part-i.html>

Kinyanjui, K. (2009). M-Pesa goes global in battle for mobile cash transfer pie. Retrieved on 01/11/2016 from Business Daily, Nairobi, Kenya Web site: <http://allafrica.com/stories/200910121448.html>

Molina, A. (2003), The digital divide: The need for a global e-inclusion movement. *Technology Analysis & Strategic Management*, 15(1): 137-143.

Martin, L. M., & Matlay, H. (2001). "Blanket" Approaches to Promoting ICT in Small Firms: Some Lessons from the DTI Ladder Adoption Model in the UK. *Internet Research: Electronic Networking Application and Policy*, Vol. 11, No. 5, pp. 399-410

Nanyonjo, J. and Nsubuga, J. (2004). Recognizing the role of MFI in Uganda, Bank of Uganda Working Paper WP/04/01/2004. Retrieved on 10/10/2016, from Web site: <http://www.bou.or.ug/Role.pdf>

OECD (2003). Integrating Information and Communication Technologies in Development Programs. [www.oecd.org/publications/pol\\_brief](http://www.oecd.org/publications/pol_brief), Accessed 20/5/2017.

OECD (2000). *Understanding the Digital Divide*. OECD: Paris.

Pigato, M. (2001), Information and communication technology, poverty, and development in sub-Saharan Africa and South Asia. The Working Paper Series No. 20. World Bank: Africa Region.

Quibria, M. & Tschang, T. (2001), Information and communication technology and poverty: An Asian perspective. ADB institute Working Paper 12. Asian Development Bank Institute: Tokyo, Japan.

Rao C. V. (2003), Taking microfinance to the rural poor doorstep by using ICT in a creative way. Retrieved on 15/8/2016 from Web site: <http://www.icconnectonline.org/Stories/Story.import5121>

Ssewanyana, J. (2009). ICT Usage in Microfinance Institutions in Uganda. *The African Journal of Information Systems*, Volume 1, Issue 3, pp.5-28.

The Global Findex Database 2014: Measuring Financial Inclusion around the World" by Asli Demirguc-Kunt, Leora Klapper, Dorothe Singer, and Peter Van Oudheusden (World Bank Policy Research Paper 7255)

World Bank (2000a), World Development Report 2000/2001. Oxford University Press: New York.

Yunus, M., (2001a), Microcredit and IT for the poor. *New Perspectives Quarterly*, 18 (Winter): 25-26.

USAID (2005), Supporting Gender & ICT : Opportunities for Women in Bangladesh, USAID/Bangladesh

Yunus, M., (2001b), Information Technology and the End of Global Poverty. *Seattle Post-Intelligencer*. Retrieved on Sunday, March 25. <https://hbr.org/2013/03/can-technology-end-poverty>