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**When Microfinance goes digital:
Opportunities, challenges and dangers for
the microfinance institutions and their clients.**

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RESEARCH PAPER

***INTERNATIONAL MASTER IN MICROFINANCE FOR ENTREPRENEURSHIP
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**WHEN MICROFINANCE GOES DIGITAL:
OPPORTUNITIES, CHALLENGES AND DANGERS FOR
MICROFINANCE INSTITUTIONS AND THEIR CLIENTS**

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ABSTRACT

Until what point and in what ways can microfinance institutions (MFIs) go digital, without losing the relationships which they have built with their clients?

The increasing use of digital tools has had an impact across all sectors of the economy. The financial sector has also seen itself driven into this new digital era, and microfinance is not an exception. As digital tools are introduced by MFIs as new information-gathering and communication channels, to interact with their clients and to deliver their services, the face-to-face long-term relationships between the clients and the MFI, which have been the main innovation in microfinance, may be affected.

This paper analyzes the importance of trust in microfinance, and how this trust has helped reduce barriers to financial transactions. Trust has assisted in reducing information asymmetries and in creating compatible incentives, which have helped MFIs succeed in the provision of financial services, especially credit, to the low-income sectors of the population.

This research effort contributes to an analysis of how digital tools may interfere in the personal relationships MFIs have built with their clients and it evaluates if these tools may help or hinder in the development of trust. Thanks to several interviews conducted with experts in microfinance and with experts who are closely working with information and communication technologies in the financial sector, we aim to assess the opportunities, challenges and threats for MFIs and their clients in this digitalization process.

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ACRONYMS

AFI: Alliance for Financial Inclusion

ATM: Automated Teller Machine

DFA: Digital Field Applications

GSMA: Groupe Speciale Mobile Association

ICTs: Information and Communication Technologies

IMTFI: Institute for Money, Technology and Financial Inclusion

KYC: Know-Your-Client

MFI: Microfinance Institution

RCT: Randomized Control Trial

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1. INTRODUCTION

In recent years, global and national-level policymakers have been embracing financial inclusion as an important tool for socio-economic development (Levine, 2005). Based on this premise, policymakers expect that financial inclusion may help improve the livelihoods of poor households and spur economic activity, despite the growing debate on the actual effectiveness of microfinance products and services in alleviating poverty.

Indeed, while the numerous ways in which access to institutional financial services may influence livelihoods are complex (at times, maybe even in conflicting directions) and while the channels through which these impacts may take place are multiple, dynamic, and interdependent, it is widely accepted that financial inclusion matters (Demirgüç-Kunt, Beck and Honohan, 2008).

The rigorous measurement of generalizable impacts of microfinance has proven, nevertheless, to be a formidable and as of yet unsatisfactory task. In any case, the sparse pieces of empirical evidence available, both at the micro and at the macro levels, and the associated methodological controversies on how much and in what specific ways (micro)finance matters cannot be fully addressed here (Banerjee, Karlan and Zinman, 2015; Rahman *et al.*, 2015; Odell, 2015; Deaton, 2016; Heckman, 2016, among others).

Despite these controversies, in this post-2015 period, the promotion of financial inclusion as a catalyst for development has been placed high on the policy agenda, as is highlighted in the United Nations sustainable development goals for 2030 (UNDP, 2015). For this reason, in order to foster the financial inclusion of the two billion people who do not yet have access to institutional financial services, according to the Global Findex (Demirgüç-Kunt *et al.*, 2015), many still propose microfinance to be at the forefront of reaching this target. Additionally, for microfinance institutions (MFIs) to increase their breadth and depth of outreach, many believe that the incorporation of information and communication technologies within these organizations is inevitable.

In this research paper, we address the potential impacts of digitalization on the ways in which microfinance may accomplish the proposed task. While there has been some research on related topics, the latent tension between digital technologies and microfinance (based on relationships) is only beginning to be thoroughly explored.

Indeed, the level of success of microfinance in promoting a number of desired results has been studied rigorously over the years, with several randomized control trials (RCTs) being implemented to determine if there exists a direct correlation between access to microcredit and poverty reduction (Banerjee *et al.*, 2013; Karlan *et al.*, 2015).

The results of these RCT exercises have been diverse and contested and several alternative or complementary approaches have been proposed to address issues related to the measurement of impact (Gutierrez and Suarez, 2011; Vaessen *et al.*, 2014). Additional methodological and empirical efforts will be required for policy-relevant results about microfinance impacts to be obtained.

Similarly, the nexus between microfinance and social capital has been studied by many authors (Gomez and Santor, 2001; Sanyal, 2009). Some authors, in conducting their research, have taken trust as the main variable of study (Sriram, 2005; Basargekar, 2010; Moller, 2013).

Additionally, the impact of digitalization in increasing efficiency and customer satisfaction has been recently closely looked at. Some authors have identified that one of the potential challenges from digitalization could be the disintegration of the MFI-client relationships (Campion and Halpern, 2001; Chen and Faz, 2015). However, the impact digitalization may have on relationships and on the creation of trust through information gathering and face-to-face interactions has been scarcely analyzed. For this reason, we develop here a desktop study on this issue, to contribute to the burgeoning discourse on the impacts of digitalization on the microfinance sector.

Given that the role of microfinance in fostering financial inclusion is a hot topic, in this paper we aim to assess the role of trust in microfinance and how this nexus could be maintained as microfinance institutions become more innovative and introduce digital technology and tools in their day-to-day operations. We mostly consider trust, as one aspect of social capital, and investigate its importance in microfinance and how it could be affected by the introduction of technological innovations within and across the institutions. By conducting interviews and analyzing secondary sources, we aim to study if the use of digital technologies either helps or hinders the development of trust, and how the implementation of these new information and communication technologies, henceforth ICTs, can be done in a way to overcome the inherent dangers.

The paper is structured as follows. In the first part, we define the concept of trust and identify its role in microfinance. The importance of trust across different financial products is studied, and the critical role it plays when it comes to microcredit is identified. In the second part of the paper, we look at the creation of trust in microfinance through local information gathering and how the knowledge so gained has been necessary for the success of MFIs. In the third part, we examine the digitalization of processes and services, as it influences trust and the relationships between microfinance institutions and their clients. Finally, we examine the nexus between ICTs and trust in microfinance, addressing questions related to who gains and who loses with the adoption of new technologies.

The key question is whether the new information and communications technologies and tools can serve as a substitute for face-to-face human interactions or whether they should be adopted as a complement.

2. THE ROLE OF TRUST IN MICROFINANCE

Many authors have identified the importance of trust, which is a vital dimension of social capital, in the dynamics of economic transactions (Hans-Hermann and Welter, 2005). It is, therefore, important to examine the role it plays in microfinance, how institutions use trust to facilitate their risk management and business activity, and how each product the MFIs offer relies on different levels of trust. Indeed, each type of service requires different mechanisms in the creation of trust.

2.1 Defining Trust

In its simplest form, social capital is an intangible asset that is embodied in the relations among people. In the same way in which physical capital and human capital facilitate productive activity, social capital also contributes to income generation (Coleman, 1990).

The term social capital was initially introduced by Bourdieu (1986). This author defined social capital as “the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition – or in other words, to membership in a group – which provides each of its members with the backing of the collectivity-owned capital, a ‘credential’ which entitles them to credit, in the various senses of the word” (Bourdieu, 1986: 248-49). Later, Putnam defined social capital as the “features of social organization, such as networks, norms and trust that facilitate coordination and cooperation for mutual benefit.” (Putnam, 1993: 2).

There are three main dimensions of social capital usually considered in the empirical literature: networks, trust, and norms (Paldam, 2000). Thus, it can be argued that trust is an integral part of social capital. This view is supported by the likes of Coleman (1988) and Fukuyama (1995), who argue that trust is indeed a vital element in social capital creation.

Conversely, Woolcock (1998) and Field (2003) argue that, rather than it being an element of social capital, trust is a product and a consequence of social capital. That said, for the purposes of this essay, trust is referred to as a vital element of social capital that is integral to microfinance processes. This is the dimension we study in this paper.

Indeed, many authors have tried to define the term ‘trust’ throughout the years (Coleman, 1990; Fukuyama, 1995; Hardin, 2002; Uslaner, 2002; Sztompka, 2007). However, it is hard to capture its meaning in a single definition, as trust is a rather complex, multifaceted concept. Ultimately, as stated by Sztompka (2007), “trust is a bet on some uncertain future actions of others” (p.7).

Trust is, in any case, of huge importance for economic activity. As Fukuyama (1995) explores in his book, *Trust: The Social Virtues and The Creation of Prosperity*, high levels of trust in a society can lead to prosperity, as the costs of economic transactions are reduced. For example, trust lowers the costs related to making inspections, concluding contracts, settling disputes and executing formal agreements (Inglehart, 1997). This view is supported by North (1987), who believes that one of the main causes of stagnation and underdevelopment comes from the inability to create an appropriate environment for decreasing transactions costs.

It is along these premises that Sriram (2005) delineates the importance of trust in the microfinance process. This author argues for the key significance of having an environment that promotes trust, in order for microfinance institutions to overcome high transaction costs, information asymmetries, and the lack of collateral among the poor. Furthermore, Sriram claims that not only is trust vital for overcoming the aforementioned challenges, but it is also vital for the overall success of the MFIs. This is supported by Van Bastelaer (1999), who argues that the success of microfinance institutions may be influenced by the capitalization of the existing social capital in communities and the creation of social capital between clients and institutions. With this in mind, we next examine the role of trust in microfinance.

2.2 Microfinance and Trust

The literature on trust highlights the contributions it makes towards the success of microfinance institutions (Karlan *et al.*, 2005; Epstein and Yuthas, 2011; Moller, 2013). In the past few decades, several practitioners across the world have trusted the poor, by giving them small loans with the aim of lifting them out of poverty (Leikem 2012). This is how microfinance was born. Trust in the clients was the first step towards the creation of this initiative, which has taken so much importance throughout the years.

Traditional bankers had never been able to reach these clienteles, typically characterized by low, irregular and unpredictable income flows and by the lack of traditional collateral. Bankers found it impossible to reach them because this effort was perceived as too costly and too risky, given the existing information imperfections and absence of contract enforcement institutions and, particularly, given the repressive regulatory framework in place in those days (González-Vega, 2003).

However, microfinance pioneers were able to create a new business model, introducing a number of innovations for increasing their proximity to the clients, the management of information and the development of new sets of incentives to repay, which reduced transaction costs for both the institutions and the clients and overcame barriers in such a way that offering financial services to the poor became viable. From this perspective, microfinance should be seen ultimately as a series of **innovations** that have made it possible to offer financial services to certain clienteles that would have otherwise not been reached by traditional banking (González-Vega, 2013).

Moreover, according to this author, microfinance institutions have developed a set of particular financial technologies (sometimes referred to as methodologies) to reduce risks and costs, making it not only possible, but in some cases even sustainable, to offer credit services, deposit facilities, insurance products, and more recently even more complex products, such as micro leasing, to poor people who would have otherwise been excluded from the formal financial system.

To make this possible, microfinance builds upon trust. Institutions use trust to reduce transaction costs in the same way trust is used to facilitate exchanges and economic growth (Siriam, 2005). If we look, for example, at Grameen Bank, as Dowla (2006) studied the case of this institution in building social capital, he found that it was created in a spirit of strong trust in the clients and on hiring trustworthy loan officers. He also suggests that the fact that the bank had placed its trust on the poor created strong bonds between the MFI and the clients, who responded by paying back on time. This MFI, as has also been the case of many others in several continents, has been able to become sustainable, reaching millions of clients (Reed, 2011).

With this in mind, all microfinance institutions acknowledge the importance of building bonds of trust with their customers, as is typically vital for most parties to engage in any economic transaction (Hans-Hermann and Welter, 2005). Especially, as Coulter and Coulter (2003) point out, “the development of trust is particularly important within services industries because of the abstract nature of most service products”.

Microfinance institutions fall in this category, as most of the services they offer possess intangible attributes, which contribute to firm productivity and household welfare, and, as is typically the case in all kinds of finance, they rely on uncertain promises about future behavior (*i.e.*, repayment, the delivery of a remittance or insurance compensations) and on the incentives created by the present value of an expected stream of future transactions. In microfinance, the value of these promises relies heavily on the observation of intangible features and dimensions of behavior of the clients (González-Vega, 2016).

When it comes to building trust, we must ask ourselves, how do we trust? As a research conducted by the Institute for Money, Technology and Financial Inclusion (IMFTI, 2016) shows, to answer this question we should not focus just on who or what we trust since, in our day-to-day lives, we show trust towards many different individuals, groups and institutions. This is observed in many different situations: when we turn on our shower, we trust that water will be running in the following seconds; when we get on an airplane, we trust that the pilot will fly diligently, and the like. Therefore, we do show trust towards people and institutions on a daily basis but, how did we get to this point? And how do we get microfinance clients to trust the new digital tools and the institutions that adopt them? We will address this in the coming pages.

Furthermore, trust is not something that institutions or individuals can immediately and directly create, but it is rather something that builds through time and experience (Mas, 2016). It develops as the relationship between the institution and the client deepens through direct experience as well as indirectly, through experiences lived by others (Haliburton and Poenaru, 2010).

Thus, as in the case of learning, the development of trust takes time, which creates advantages for incumbents over new entrants (Gonzalez-Vega, 2013). Moreover, while it is challenging to develop it, trust can also be very easily and quickly eroded, as a number of financial crises have shown (Reinhart and Rogoff, 2009). Through their proximity and frequent contact with their clients, MFIs have developed strong bonds of trust that give them competitive advantages in their segments of the market. The fear is that changes that might dispense with these intangible dimensions of their relationships with their clients may rapidly erode trust and these competitive gains.

MFI clients traditionally encounter several loci of contact (touch points) with the institution, through which their customer experience is created. These diverse channels of communication, such as ATMs, physical branches or loan officers, are the channels through which customers build their experience with the institution, and therefore are the windows for developing trust. Nevertheless, in today's context, where ICTs are changing the way in which institutions interact with their clients, we must take into account that each new channel is an opportunity and, at the same time, a potential threat for the development of trust (Campion and Halpern, 2001).

In microfinance, the deployment of loan officers as the main touch point with the clients has been the most widely used mechanism to create these bonds (Drexler and Schoar, 2014). This has traditionally been achieved through face-to-face, human contact. The institutions have interacted in this way with the clients and have built relationships, which, as Drexler and Schoar (2014) have shown, have been decisive in client retention and in the avoidance of default.

Indeed, González-Vega (2013) has claimed that the creation of direct and mutually beneficial long-term relationships has been the most critical innovation in microfinance, as these relationships have represented the cornerstone of the structure of compatible incentives that has governed the behavior, frequently exemplary, of the parties in the microfinance contract. However, the fear now is that, with the increasing use of digital financial services and remote information gathering and communication tools, while the number of touch points may increase, they will become more impersonal. As a result, the face-to-face contact with the loan officer may decrease (Churchill and Frankiewicz, 2006). This might pose several dangers and challenges for MFIs, as will be analyzed below.

A number of initiatives and interventions have attempted to create an environment that enhances trust. From a global perspective, the importance of transparency as a way to increase trust, not only from the clients towards the MFIs, but also from governments, donors and all stakeholders in the microfinance industry, has been widely debated. In 2008, in an effort to enhance trust towards the sector, the Smart Campaign was created. The Smart Campaign works to provide institutions with the tools and resources they need to deliver transparent, respectful, and prudent financial services to all clients. The Campaign's long-run vision is to create a 'trust-mark' that clients can use in selecting their financial service provider (Smart Campaign, 2016).

Additionally, as digital financial services begin to gain importance, other actors are starting to show their commitment towards building awareness, develop better practices, and introduce standards to protect consumers and mitigate risks in the use of these new digital tools. Some of the promoters of this approach have been the Alliance for Financial Inclusion (AFI) and the Global Partnership for Financial Inclusion (GPMI) of the G20. These international networks have been undertaking important actions to improve the regulation and supervision of the institutions involved in the delivery of financial services, in ways that would help foster this new digital era, by improving client protection and reducing risks, which might be the reasons why some clients mistrust digital financial tools (McKee *et al.*, 2015).

In summary, trust is critical for microfinance institutions, and as these institutions incorporate digital tools in their relations with clients, this trust must be taken care of. Not only is client-MFI trust necessary for the robustness of all financial transactions. In addition, for each of the diverse products offered by financial institutions, the clients require and exhibit different levels of trust. Moreover, for some of the products offered by MFIs, the main concerns may be how the MFIs will be able to sustain their trust in and from their clients and if the new digital tools can help them increase the bonds of trust built into their long-term relationships or if they will threaten them.

2.2.1 Trust Requirements of Microfinance Institutions across Financial Products

Universally, elements of trust are present in all financial products. In turn, the wide array of diverse financial services can be ordered along a continuum, along which the dynamics of trust vary, as shown for some of them in Figure 1. We examine here the main products offered by MFIs; payments and remittances, deposits, insurance, and loans as well as some of the different risks that are associated with each product for which either the client will need to trust the MFI or vice-versa.

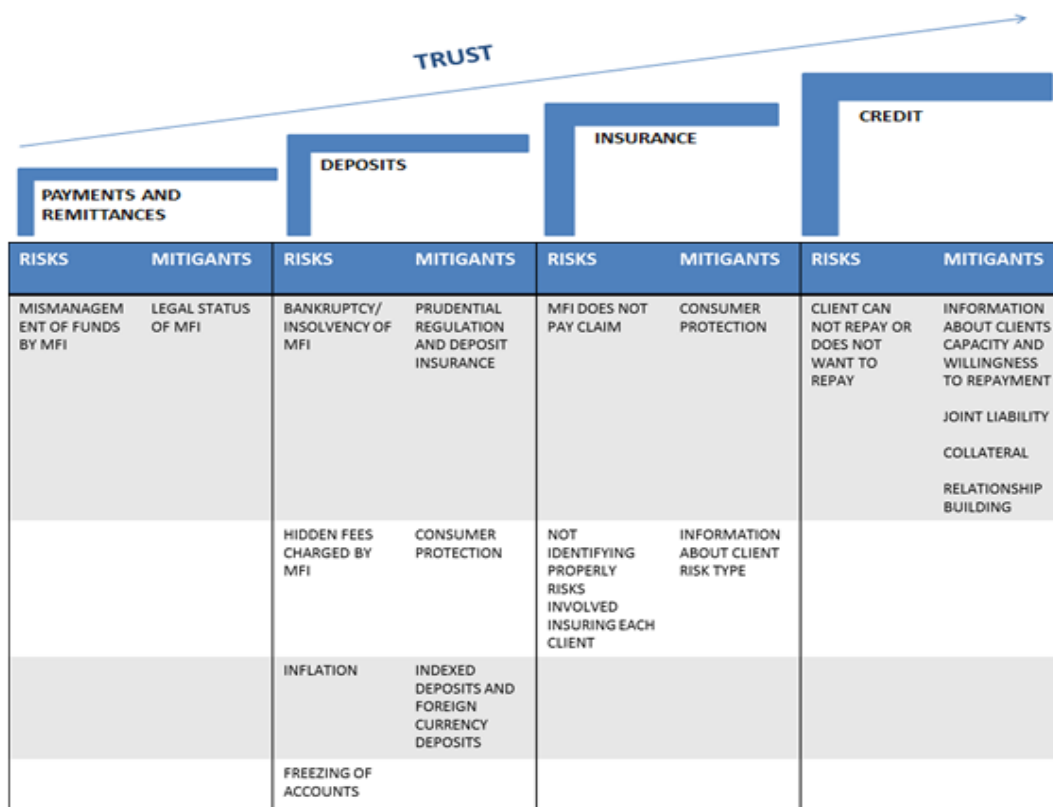


Figure 1: Trust Requirements across Financial Products

In the case of **payments and remittances**, located at the beginning of the continuum (*i.e.*, at the lower end, as services are ranked according to the importance of trust), clients entrust the participating institution with their money and trust that the payment or transfer will reach the respective recipient (Donner, 2007). This creation of trust is facilitated by the **legal status** of the institutions and the regulatory framework created for these products as well as by the experiences reported by friends and relatives in dealing with different providers.

With regards to **deposits**, the creation of trust is not as straightforward as it is with payments and remittances, and the relevance of trust increases with the

length of the term to maturity of the deposit. From the perspective of the client, there are several risks involved with entrusting institutions with their money. These risks include insolvency, bankruptcy, hidden fees and charges, inflation, and the freezing of the client's accounts, amongst others (Christen and Mas, 2009). Although some of these may be outside the control of the institution, such as inflation and the freezing of account balances (*corralito*), they conceivably reflect the lack of trust in the macroeconomic management of the corresponding government in power. However, some of these risks could be mitigated by indexing deposits to the inflation rate and by denominating deposits in foreign currencies, which would consequently aid in the creation of trust between the clients and the institutions (González-Vega, 2003).

In turn, to minimize the risks of insolvency and bankruptcy of the institution, clients are assured by the quality of the prudential regulation and supervision framework (Chaves and Gonzalez-Vega, 1994; Rock and Otero, 1997; Christen and Rosenberg, 2000) and, in some cases, are offered deposit insurance, frequently up to a maximum amount (Conroy, 2000; Demirgüç-Kunt and Huizinga, 2004). The level of trust will also be directly related to the legal status of the institution, as the more formal the intermediary, the higher the level of trust involved in depositing the money saved with a particular deposit-taker (CGAP, 2005). Finally, for clients to be protected against hidden charges when depositing their savings, consumer protection schemes have been created to enhance trust. As in all other cases, their own experience and the experience of their peers in dealing with particular intermediaries will enhance or deteriorate their level of trust (Storow *et al.*, 2014).

In the case of **insurance products**, trust is also a very important element, which needs to be present in this transaction. Clients must trust that the institution will pay their claims when there is a legitimate cause and that these payments will correspond to the actual magnitude of the damages suffered (Dercon *et al.*, 2011). In order to increase trust there are also client protection principles. Moreover, the insurance institution must trust that the client is providing the information in good faith (in order to avoid adverse selection), both at the moment when the service is contracted, and in case the contract has to be enforced. It must also be able to trust that sufficient incentives have been created for the client not to behave opportunistically; *i.e.*, to avoid moral hazard (Morsink and Geurts, 2011).

For **credit products**, the main challenge lies in the hands of the institution, as it is the institution that must trust the client's ability and willingness to repay. To put it simply, the final decision to lend is made by the institution, on the basis of trust in the value of the borrower's promise to repay, at the agreed terms, in the future.

The borrower must contribute, however, to the evolution of such trust. On the one hand, in order to enhance its creditworthiness, the borrower must behave in ways that encourage the lender's trust (*e.g.*, transparent information reporting and

punctual amortizations). On the other hand, the client's trust in the MFI also becomes significantly relevant when it comes to repayment decisions. Clients will not repay if they do not trust that the institution will be there in the future. In the end, therefore, the construction of trust is a joint exercise. Both parties in the transaction must invest in building the levels of trust that underpin a long-term relationship (González-Vega *et al.*, 2006).

Traditionally, in the case of credit, the level of trust shown by banks was inversely related to the value of collateral (González-Vega, 2016). Traditional banks have used collateralized loans to ensure repayment from their clients; therefore, the amount of money with which they would trust a client would be directly dependent on the value of the mortgaged asset, which would serve as guarantee, in case of default.

However, in the case of microcredit, as the poor usually lack assets that can be used as traditional collateral, many institutions rely on trusting their clients and do not ask for this type of collateral. Instead, they use other mechanisms to ensure repayment, such as social collateral or giving value to the relationships between clients and institutions (Karlán *et al.*, 2009; Armendariz and Morduch, 2010; Berggren and Burzynksa, 2014). More importantly, microfinance institutions have used the accumulated direct knowledge about their clients to determine their ability and willingness to repay in greater detail. The quality of information, a function of proximity to the client and of a lending technology that can appreciate intangible features, is therefore critical for the credit decision (Gonzalez-Vega, 2013).

In summary, from the financial services continuum described above, we can see that trust is needed in order to successfully deliver all products and services. We have also reviewed different mechanisms that facilitate the creation of trust, at different levels of complexity of the financial service. We can see that the more transactional the operation, like payments and remittances, the lower the level of trust required. In contrast, when the service is delivered over a longer period of time, such as loans that are amortized over a longer term to maturity or of insurance, for which the client has to pay in the present trusting that in the future the institution will cover its claims, higher levels of trust are required. In general, trust is related to the nature and magnitude of the risk involved and the duration of inter-temporal transaction. We have also noted that the burden of trust falls differently according to the product. In particular, for insurance and credit, the MFI will be facing higher levels of risk, which are dependent on the behavior of the client. Therefore, as we will analyze in the following section, more information about the client will be required to mitigate these risks.

3. THE IMPORTANCE OF KNOWLEDGE AND INFORMATION IN MICROFINANCE

Information and knowledge play a critical role in the provision of financial services, especially in the credit decision. Thus, the success of microfinance institutions depends highly on their ability to learn. This involves learning about the markets they are serving, their clients' needs and preferences, each client's ability and willingness to repay; learning from and about the clients will be vital for the survival of MFIs, as the sector evolves and competition increases (González-Vega, 2015).

Moreover, as many experts in the field point out (for example, Moury, 2016; Gómez, 2016), there is not such a thing as “*el pobre*” (“the poor”), but we should rather talk about “*los pobres*” (“the differentiated poor”). Indeed, one of the central characteristics of people living in poverty is the high level of heterogeneity observed among them. Each case is very different and, thus, every client requires different products and services.

Given this heterogeneity, what may work in one place might not work in another location. Thus, location-specific knowledge is needed to understand demands in different segments of the market, the expected behavior of clients, and the implications of access to finance in their lives. Therefore, microfinance institutions will have to keep experimenting and learning by doing, and they will have to be able to use their accumulated knowledge to find ways through which they can assist in the alleviation of poverty and in the increased welfare of their clients. In essence, microfinance is knowledge-intensive.

The concept of knowledge has been approached in different ways throughout time. For the purposes of our paper, we understand knowledge as useful knowledge, a concept that was first used by Simon Kuznets (1955) and which was later extensively used by Joel Mokyr (2003). These authors look at the kind of knowledge that can be seen as an economic resource, and they make a distinction between local and universal knowledge, depending on the context (Ferreira, 2011). This distinction is critical in understanding the role of knowledge in microfinance.

For MFIs, these two types of knowledge, local and universal, will be required for their success. Universal knowledge in microfinance is related to conceptual frameworks, methods of analysis, internal control procedures, information systems or management practices. In turn, local knowledge refers to the understanding of the clients' risk profiles, value chains and production cycles, payment flows, business habits, social relations, preferences and other dimensions of their cultural and political environment (González Vega, 2015).

To acquire local knowledge about their clients, MFIs have traditionally relied on high-touch, face-to-face interactions. Through the deployment of loan officers in close proximity with the clients, MFIs have been able to gather information in order to assess credit risk whilst building relationships and creating trust with their clients (Dellien and Schreiner, 2005).

This information, gathered from the frequent personal contact of loan officers and clients over time is what is known as soft information, mostly because it refers to the identification of intangible client characteristics (Berger and Udell, 2002). Given the nature of their clients, MFIs make use of personal contacts to create relationships that foster mutual trust between them and their clients. These relationships represent one of the most important assets for MFIs (Brown *et al.*, 2011).

The personal relationships and the information gathered from the face-to-face interactions with clients are beneficial in understanding their needs, which ultimately strengthens these relationships and builds up more trust. For instance, in Bolivia Prodem leveraged on knowledge of their clients to innovate and create personalized repayment schedules that fit their specific needs and capacities (González-Vega *et al.*, 2003). This is also the intent of the mobility initiative being developed by the BBVA Microfinance Foundation in several other Latin American countries (Da Costa, Celis and Latorre, 2016). By doing so, microfinance institutions can strengthen the relationships with their clients.

Moreover, leveraging on these relationships, in the process of product development and adaptation, is especially important, given the heterogeneity of microfinance clients. This not only does it allow the institutions to evaluate the demands and capabilities of their clients, but it also gives them the opportunity to avoid mis-selling, consequently indebted and further impoverishing their clients (Njagi, 2014).

By and large, it is thus clear that microfinance is information and knowledge intensive. While information is important for understanding clients and crucial in the creation of relationships and building of trust between MFIs and their clients, it is a costly process. As a result, the operational and transaction costs resulting from traditional lending can be very high (ELLA, 2013). Thus, it is against this backdrop that some enthusiasts are promoting the use of digital tools in microfinance, as will be discussed later.

Nonetheless, it was demonstrated earlier that the dynamics of trust vary across different financial products. The same applies to the information requirements associated with each product, across the same continuum. In Figure 2, we illustrate the different information requirements for delivering various types of financial products.

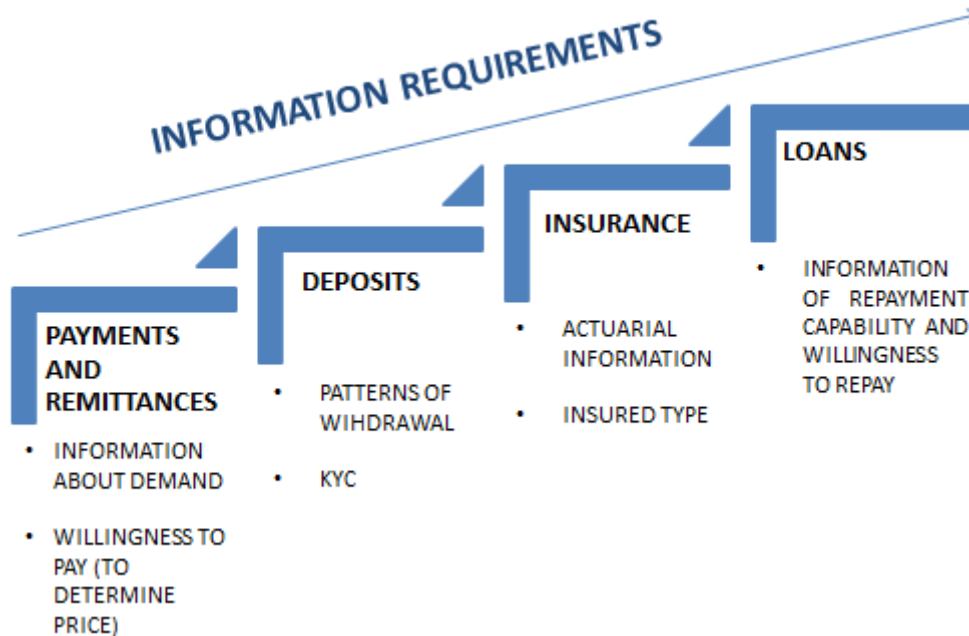


Figure 2. *Information Requirements across Financial Products*

3.1 Information Requirements of Microfinance Institutions across Financial Products

First, for **payments and remittances**, the institution requires general data regarding demand, so as to determine the type of products and the specific attributes the clients require, the price they are willing to pay, and the location and means through which it is more convenient to offer these services (Isern *et al.*, 2008). In particular, the institution needs to understand the fears and concerns that clients may have and develop mechanisms to address them.

In the case of **deposits**, MFIs must implement know-your-client (KYC) practices to avoid, for example, the financing of terrorism and money laundering issues (Karlan *et al.*, 2014; Dos Santos and Espinatto, 2015). Moreover, MFIs need to understand the clients' patterns of deposits and withdrawals, as this will be vital for the liquidity management of the institution (Brom, 2012). For instance, MFIs that mobilize deposits use these savings to give out loans, at different terms to maturity, holding only a small proportion of the deposits as either required or voluntary reserves. Therefore, they must understand the peak periods for withdrawals, to ensure that there is enough liquidity for those who intend on withdrawing their money and avoid a loss of trust (Abakaeva and Glisovic-Mezieres, 2009). Otherwise, to acquire the liquidity needed, they may incur excessive costs (*e.g.*, drawing on lines of credit from other institutions, selling assets, and the like).

For **insurance** products, information plays a significant role in the creation of trust between the client and the institution. In order to design the best products and ensure client insurability, as well as avoid adverse selection, it is essential that the institution gather information about the individual clients and prevent them from hiding critical details, so as to accurately determine their “client type” or “risk type” (Miller and Northrip, 2001). This will aid in the minimization of information asymmetries and avoid problems of moral hazard (Ernst & Young, 2014). Most importantly, insurance companies require varied and at times difficult-to-get information, to determine behavioral patterns and long-term trends, in order to develop their actuarial models. They need these models to design the terms and conditions of each product, according to each client and risk type and offer just compensation (Latortue *et al.*, 2003; Gómez Herrera and Estellés Colom, 2016).

With respect to **loans**, the use of information to ensure repayment capacity and to determine the clients’ future willingness to repay involves different levels of complexity, depending on the type of loan. For instance, it is significantly easier to accumulate information for formal commercial loans, whereby the collection of hard, tangible information (such as volumes of sales and amounts of inventories) can be achieved more easily (Caire, 2004). However, in the case of credit to **informal, self-employed microentrepreneurs**, there is a challenge in terms of collecting information, as most of the information involved may not have been formally recorded (there are no financial statements), may be volatile (subject to seasonality and unexpected shocks), and a substantial portion of it is intangible (Schreiner, 2004).

Indeed, informal microentrepreneurs usually do not possess audited financial statements or other documents which can be analyzed to determine repayment capacity. One of the innovations in microfinance has been, precisely, to create ways of understanding (typically in situ) the clients’ cash flows and habits and attitudes and other relevant soft information, through in-depth analysis on the part of the loan officer. This requires getting to know the household-firm’s cash flows, the personality of the client, the potential of the client’s business. This information will help the institution to determine if the client can use a loan in a profitable productive activity and, therefore, repay and generate a surplus that improves his income flows, what is the loan amount that the client requires and has a high probability of repaying, and under which terms and conditions will the client be able and willing to repay (González-Vega, 2016).

Interestingly, management information systems are not sufficiently developed yet to put a quantitative value on such intangible information (honesty, creativity, diligence, habits and values, among others); hence, the importance of face-to-face interactions and the accumulation of soft information as the viable mechanisms via which useful information is accumulated and trust is created between the clients and the institutions.

In microfinance, on-site information is of vital importance for institutions engaged in disbursing individual loans, as it is for this typology that the institution is entirely responsible for the screening and monitoring of heterogeneous clients. This means that the institution is in charge of collecting all the information needed to determine the credit eligibility of each client. In group lending, in contrast, the information requirements in the lending decision are not as critical a task for the institution, as the group undergoes a natural selection process by which they use their inside personal knowledge to select the group members and follow up on their behavior, thus doing the screening and monitoring for the institution (Armendáriz and Morduch, 2010; Kodongo and Kendi, 2013). In order to make sure that this “delegated” screening and monitoring is efficient, the institution must offer the group members an appropriate structure of incentives (e.g., joint liability).

The information requirements and knowledge accumulation about the clients are closely related to the levels of trust required for each type of financial product. The higher the level of trust required by the MFI, the more information the institution needs about its clients to design contracts and mitigate risks. Institutional knowledge is of critical importance for insurance and credit services, as information asymmetries are present and thus higher risks and instances of market failure (due to adverse selection and moral hazard) may arise.

However, for the provision of payments and remittance products, which are much more transactional, institutional knowledge about each client's characteristics is not as critical. Similarly, in savings and deposit products, MFIs will not require as much information about the individual clients, but they will rather need general data on demand and withdrawal patterns. Interestingly, however, knowledge about the depositing behavior of individual clients may assist the financial intermediary in its credit decisions, thus generating potential economies of scope (Gonzalez-Vega, 2003). Actually, in payments and deposit services, the burden of information gathering falls more on the client, who has to rely on and trust the institution's promise of returning the funds in the future. Indeed, in this case, the depositor is the creditor.

Up till this point, we have examined the significance of the role of trust and of information in microfinance. We have seen that through the processes of local information gathering, microfinance institutions leverage face-to-face interactions and personal contacts with their clients to create personalized relationships that build mutual trust. In the next section, we examine the pros and cons of digitalization in the microfinance sector, focusing particularly on its potential effect on trust, the quality of information, and, most importantly, on the robustness of the long-term relationships that are central to traditional microfinance practices.

4. WHEN MICROFINANCE GOES DIGITAL

Technology changes our day-to-day lives constantly. Today, several technological innovations have made it possible for us to interact with friends and relatives miles and miles away with a click of a button. However, although convenient, these 'online' interactions will never replace the face-to-face human interactions with friends and families that we cherish. This analogy mirrors the broader issues of the discourse on the impact of digitalizing financial services in the microfinance arena, as will be demonstrated in this section.

The use of digital tools in the interaction with clients presents opportunities as well as dangers and challenges for MFIs. As institutions adopt new technologies throughout their operations, a key challenge for them will be to find ways to preserve the relationships they have built with their clients whilst aiming to increase outreach and achieve sustainability. In this section, we explore the digitalization of microfinance and examine its strengths, weaknesses, threats and opportunities. For the purposes of this paper, digitalization refers not to the back-room automation that occurs in every institution, but to the "customer facing automation", as termed by Wilson (2014), in reference to the use of technology to interact with the clients as opposed to face-to-face interactions.

4.1 Digitalization of Financial Services

Marker *et al.* (2002) define ICTs as "technologies that facilitate communication and the processing and transmission of information by electronic means" (p.4). In recent years, development practitioners have been hopeful that ICTs could be a powerful tool for economic development, facilitating income generation and alleviating poverty in the developing world (Warschauer, 2004; Dewan and Riggins, 2005; Hishigsuren, 2006).

The same view is held by many in the microfinance sector. The revolutionary use and prevalence of ICTs, such as mobile phones and tablets, globally, presents microfinance institutions with endless opportunities to enhance efficiency and productivity as well as improve customer services, by providing a range of affordable, convenient, and secure financial services (Radev, 2015). According to Wensley (2015), the provision of financial services via digital platforms empowers the user to borrow, save and transfer money relatively easily. Moreover, the digitalization of financial services has become especially important for the acceleration of financial inclusion (Klapper and Singer, 2014).

Globally, two billion people remain financially excluded, with no access to institutionalized financial services (Demirgüç-Kunt *et al.*, 2015), partly due to the cost of delivery, given the small size of the transactions and the barriers of distance (Sharma, 2002). The inability to develop cost-effective ways to deliver products and services to these low-income, financially excluded clientele prevents microfinance institutions from reaching more people.

Table 1: A Snapshot of Technological Innovations in the Microfinance Sector

Payments and Remittances	Microsavings	Microinsurance	Microcredit
<p>Mobile money (e.g., BiM)</p> <p>E-payment cards (e.g., Brazil Bolsa Familia payments)</p> <p>Peru's fully interoperable mobile money platform</p>	<p>Mobile savings (e.g., M-Shwari in Kenya)</p> <p>Biometric Analysis for KYC (Aadhaar Initiative in India)</p>	<p>Mobile insurance (e.g., <i>mi-Life</i> MTN Ghana in partnership with Hollard Insurance, MicroEnsure, and MFS Africa)</p> <p><i>Kilimo Salama</i> in Kenya Safaricom and UAP Insurance</p>	<p>Mobile credit (e.g., M-Pesa Musoni in Kenya)</p> <p>Branchless banking (e.g., Zoono with Vision Fund in Zambia; Bancamia in Colombia)</p> <p>Digital Field Applications (e.g., BBVA loan officer tablets and MFBBVA mobility project)</p> <p>Use of Big Data (e.g., Lenddo)</p>

Source: GSMA (2014) & various other sources

Such high transaction costs and the resulting limitations are especially acute in Africa, where population densities are relatively lower than in Asia, for example (Mokaddem, 2009). It is for this reason that microfinance institutions in this region are currently heavily investing in the digitalization of financial services, albeit, some more than others (Table 1). Important examples have been rapidly emerging, however, in other parts of the world, particularly as regulation frameworks have more effectively defined the roles that various actors (not necessarily banks) can play in this process. In the future, further acceleration of the adoption of ICTs in banking and microfinance should be expected

In any case, it could be argued that given the current state of continuous advancements in ICTs, a new wave of technological innovation in the microfinance industry is inevitable, and that in order to compete and survive, all MFIs, at some point, will be obliged to digitalize their information gathering processes or their delivery channels (Kauffman and Higgins, 2012).

That said, in the microfinance sector, digitalization occurs in two different ways. It can take the form of automating the information gathering process, also known as digital field applications, DFAs (Accion, 2015a). Alternatively, it can take the form of automating the channels through which the financial services are delivered (Breul and Tar, 2015).

Among the former, some of these innovations include the use of tablets or other smart devices by loan officers to collect and handle information about the clients, mostly in the early stages of the loan process. For the latter, the most cutting-edge innovation that has revolutionized the delivery of microfinance services is the use of the mobile phone, pioneered by M-Pesa in Kenya, thus giving birth to the branchless banking approach.

It is important to note that the literature on trust and ICTs in developing countries is quite limited and that it is non-existent in the microfinance area (Jagun *et al.*, 2005). However, some studies have attempted to examine the relationship between ICTs and social capital. In their contribution, Pigg and Crank (2004) find that “[ICTs have...] the capability to contribute to enhancing and extending social networks, [...] enhancing solidarity in social groups, and supporting mechanisms of enforceable trust and reciprocity in transactions” (p. 69).

Similarly, Aminuzzaman *et al.* (2003) find that the adoption of new technologies may positively contribute towards the development of trust between different parties. With this in mind, it seems that the general theme in the literature, although limited, is that the adoption of new technologies encourages the strengthening of trust. Nonetheless, this is not to say, henceforth, that the relationships between MFIs and their clients will be not be jeopardized with the introduction of these new technologies. This will be examined further in the remainder of the paper. We will present a snapshot of the technological innovations currently affecting the microfinance sector and implement a SWOT analysis in order to analyze the impact of going digital on MFIs.

4.2 SWOT Analysis of Going Digital

4.2.1 Strengths

Several reasons have been outlined as the explanations behind why the provision of services in the microfinance sector is increasingly becoming digitalized. It has been argued that one of the underlying concepts driving the provision of digital financial services traces back to the **sustainability** versus **outreach** discourse that has been heavily debated in the microfinance literature (Morduch, 2000; Schreiner, 2000). On the one hand, it is asserted that automating the delivery of financial services will ultimately improve the level of outreach, and consequently giving people, who would otherwise be excluded, access to institutional financial services (Sswenyana, 2009).

A possible explanation for the increase in outreach as a consequence of digitalization is the 'death of distance', a term coined by Cairncross (2001). As previously stated, distance (related to geographic, social, cultural, ethnic, linguistic and other circumstances) is one of the key determinants of transaction costs, which makes it challenging and costly both to deliver and to access financial services (González-Vega, 2013). However, according to Cairncross (2001), successfully introducing ICTs in the provision of financial services may reduce or even eliminate the distance factor as a key barrier to outreach, as the accompanying reduction in transaction costs would facilitate the delivery of and access to these services. For instance, by overcoming the distance barrier, innovations like M-Pesa have been able to increase outreach and financial inclusion in Kenya (King, 2012).

On the other hand, many experts hold that automating the information gathering process may help **increase efficiency**, and that this would positively contribute to the overall sustainability of the MFI (Klapper and Singer, 2014). According to Churchill and Frankiewicz (2006), by successfully implementing new technologies, time spent on everyday transactions is reduced, which results in extra time for the staff. This allows for more clients to be served and it ultimately contributes to the overall efficiency and productivity of the staff. For instance, when Banco del Estado de Chile infiltrated the microcredit market, by using ICTs, it successfully reduced the costs of microcredit loans by 18 percentage points (Kauffman and Riggins, 2012). Similarly, when Ujjivan, a microfinance institution in India, equipped its loan officers with tablets, the institution saw a 134 percent increase in loan officer productivity (Accion, 2015b).

Additionally, not only do MFIs find it costly to reach these segments of the market, due to distance and the small size of the transactions, but it is also risky to offer their financial services, in particular credit and insurance, as banks and microfinance institutions face greater problems of information asymmetry in these segments of the market, in large part because of the heterogeneity of the clientele. This problem is also in part due to the lack of credit histories, which makes it challenging to determine capacity and willingness to repay (Yum and Lee, 2012). Distance also creates problems of state verification and makes it more difficult, therefore, to prevent moral hazard, when it comes to loan repayments and insurance claims (Banerjee *et al.*, 1994; Simtowe and Zeller, 2006; Cason *et al.*, 2011).

For this reason, Kauffman and Higgins (2012) propose that the adoption of the new digital technologies could potentially **minimize information asymmetries and moral hazard** and consequently improve overall efficiency. However, to the extent to which the new technologies may standardize credit decision criteria and 'separate' potential clients less, inducing more of a pooling equilibrium, they may actually increase the threat of adverse selection and moral hazard (Gonzalez-Vega, 2013).

Furthermore, Churchill and Frankiewicz (2006) posit that **digitalization enhances customer satisfaction and gives microfinance institutions a competitive edge**. These authors argue that increased customer satisfaction is achieved through the inherent reduction in transaction costs, due to improved convenience and accessibility of the services provided, a view supported by Ivatury and Mas (2008), who found that branchless banking has substantially reduced client transaction costs, in different cases.

Similarly, Allen *et al.* (2012), in a financial inclusion study of 123 countries, found that digital platforms that lower costs and increase the convenience of transactions have resulted in the upsurge of the use of the service. That is to say, microfinance clients value products with minimal transaction costs, a point to be remembered when developing digital products and services.

Another key benefit for offering digital financial services is the improvement in the **speed of delivery of the services** and, therefore, their timeliness. This goes hand-in-hand with the reduction in the distance barriers that prevent many low-income people from asking for financial services from formal institutions. Due to their extreme vulnerability to external shocks, it is often the case that emergencies will arise which will require money to be readily available (Klapper and Singer, 2014).

Moreover, as aforementioned, the microfinance sector is knowledge and information intensive. In traditional microfinance, bringing services to the clients has involved an extensive, lengthy and costly manual information gathering process, susceptible to errors and fraud (Accion, 2015a). However, with the adoption of DFAs, “loan officers equipped with these devices can process loan applications and answer client inquiries in the field, eliminating paper forms, digitizing data, and saving time and money for organizations and their clients” (Accion, 2015b: 4). For example, the use of DFAs in the case of Ujjivan, not only **increased loan officer productivity**, but it also improved client experience, as they needed to devote less time to the loan application process (Accion, 2015b). Consequently, it could be argued that **digitalization fosters the availability of real time information**, which in itself is a trust building exercise, and credit risks are reduced (Mas, 2016).

Equally important, many traditional microfinance institutions tend to offer products and services that are standardized and fail to take into account the heterogeneity of their clients. The use of digital tools might permit the institutions to automatically develop individualized profiles that **facilitate the creation of tailor-made products** fitted to the particular needs of the clients (Moury, 2016). However, the case of Banco ADEMI highlights the need for there to be trust because, as Marker *et al.* (2002) point out, the clients of microfinance services may be hesitant towards jumping on the bandwagon if there is no trust in the new technology, despite its efficiency in delivering a myriad of services.

It may also be the case that the digital product is not attractive to the clients because of its attributes. Moreover, different clienteles have diverse preferences for different combinations of attributes. Given their heterogeneity, a good case is made, for example, for the differentiation in the provision of financial services for urban and rural clients. Trust is particularly key in the customer engagement in rural areas, as they rely heavily on their social networks and community norms (Peake, 2012). For this reason, Peake points out the role NGOs or village leaders can play in mitigating the issues of trust. In Haiti, the author also notes that “the poor felt more comfortable engaging in the mobile money program because Mercy Corps, an NGO, was involved” (p.17).

Similarly, in rural areas, from their research Souter *et al.* (2005) suggest that ICTs enable farmers to increase the **availability of relevant information** to their practices, which contributes to improved market performance. However, “on prices, in particular, reliable information relies on trust and this usually requires a face to-face relationship, even when ICT is employed to relay the information” (Molony, 2006: 73)

4.2.2 Weaknesses and Threats

Be that as it may, several weaknesses and dangers have been highlighted in the discourse. Clients of microfinance institutions generally have lower incomes, are less educated, and have limited knowledge about financial services and about technology, in particular Lack of information, transparency or understanding accentuates the lack of trust. Therefore, adopting new digital technologies may pose a significant challenge for MFIs (Saxena, 2009). According to Campion and Halpern (2001), the clients **may be resistant to change and hesitant towards accepting new technologies**. For instance, in Banco ADEMI in the Dominican Republic, some clients demonstrated a lack of trust towards the ATMs, as they feared that the machines would not provide them with the correct amount of money. Similarly, in a customer market research conducted by Accion in Peru, Guatemala, Ghana, China, and India, many cited lack of trust in new technologies as the reason for hesitation towards adoption, especially in cases where human interaction was limited (Saxena, 2009).

At the point of inception, M-Pesa was faced with the dilemma of getting people to trust an intangible service. To overcome this problem, Safaricom leveraged on its branding and, through its non-traditional marketing practices, it was able to demonstrate to clients the value the product aims to offer, which was how it was successful in getting people to trust the product (Mas and Ng’weno, 2010). Nonetheless, one could argue that the reason behind the resistance to accept and trust new technologies is human nature’s reaction towards the ‘unknown’.

However, according to Mas (2016), this problem of resistance could be avoided by presenting clients with value propositions that are attractive and would

motivate them to try the product, in order to learn to trust it. For this reason, offering an added value will be necessary for clients to engage with new digital tools, and trust in new technologies will only grow when they become reliable channels for storing and transferring value (IMFTI, 2016). Equally important, if a client goes to an ATM and cannot withdraw the quantity they need or are charged unexpected fees, this may create distrust. Similarly, as MFIs introduce digital tools, such as mobile phones, to interact with clients, **frustrations of use might** arise and translate into frustrations of belief, which can break trust (IMFTI, 2016).

Moreover, in a study of different digital financial services in Bangladesh, the Philippines, and Uganda, Wright (2015) found that “suboptimal customer service [affects...] customer experience, which in turn reduces their trust and thus the uptake and usage of these services” (p. 3). Of the customer service issues faced, the most problematic across the three countries were service downtime, agent illiquidity, and unauthorized fees or overcharging.

This highlights the need to pay closer attention to these problem areas, in order to avoid distrust amongst the clients and about the digital financial services. It will, therefore, be important for MFIs to have channels through which clients can contact the institutions if issues arise when using the digital tools. Institutions resolving clients’ issues in a quick, effective way can also be an opportunity to build trust (Moury, 2016). Without such channels, trust may erode and it will be difficult to regain it (Koning and Valenzuela, 2015).

Conversely, many providers struggle to develop compelling products that customers actively use. Despite the use of certain digital tools, such as mobile money, many clients still do not trust these channels for value storage, as 87 percent of global transactions are still for just sending money and for buying airtime (Kienzle, 2015). In fact, most clients perceive too many dangers in using this “virtual money” (Baur and Zimmerman, 2016).

Therefore, as experienced by experts in the field, many people withdraw balances (sometimes deposited in their accounts due to government subsidies and conditional cash transfers or from remittances) at the earliest convenience and others, when using ATMs, have to check several times (by making unneeded withdrawals) just to ensure the money is there (Moury, 2016). It is important to highlight that we still live in a cash- centric society. In Kenya, 90 percent of all financial transactions are still made in cash, despite the prevalence of M-Pesa (Collins *et al.*, 2012). This could be a reflection of these fears or a plausible explanation for such behaviors. Nevertheless, there is a pressing need to engage potential users in the innovation process in order to ensure that new technologies brought forward will be used accordingly and at one’s own free will.

Due to the clients’ lack of confidence, a hint of doubt that products are being imposed could negatively affect the trust relationship between the client and the institution, thus resulting in the lack of use and or misuse of the product/service

(Wensley, 2015). For this reason, it is imperative that the innovation process is inclusive.

Furthermore, it is argued that digitalization potentially **disintegrates the loan officer-client relationship** (Campion and Halpern, 2001). These authors delineate that by replacing the human presence with new technologies, such as ATMs or mobile phones, institutions face the risk of dissolving the personal relationships that compel clients to repay loans. As institutions lose touch with clients, the personal contact, the source of information which helps acquire soft information about the client and inform credit decisions, could be lost, and, as Lauer (2016: 1) points out, “less information equals more risk”.

This loss could negatively affect the institution’s gain of local knowledge, which is acquired through direct relationships with its clients. This implies that the institutions will have less ability to design products that are appropriate for the clients’ needs, not understanding their habits, cash flows and other social and cultural aspects of their behavior. Nevertheless, knowing the importance soft information and relationships play towards microfinance success, the likes of the BBVA Microfinance Foundation maintain the personal contact with their clients despite the adoption of digital field applications (Da Costa *et al.*, 2016). Consequently, not only will relationships remain intact, credit decisions would be fast tracked and credit risk reduced (Ibtissem and Bouri, 2013). Moreover, the use of agents (Boada Serret and Rodriguez Ferrari, 2015), which is at the core of many digital financial services, may mitigate and potentially prevent the deterioration of said relationships, as “agents often assist digital financial service customers with transactions and problems, which can build trust and confidence to try something new” (McKee *et al.*, 2015: 3).

4.2.3 Opportunities

Despite the weaknesses and challenges outlined above, there continue to be untapped opportunities for the digitalization of microfinance, not only for financial inclusion, but also for enhancing the overall client experience. First, the access and uptake of mobile technologies by low-income populations is increasingly on the rise (Kelly and Minges, 2012). Mobile phone penetration is increasing, and so is the availability of affordable smartphones; by 2020 it is expected that the number of smartphones will rise to 5.8 billion (GSMA, 2015). This presents endless opportunities for MFIs to innovate and develop new products, which would extend financial services to the two billion people that are yet to be served. Moreover, regulatory bodies are creating environments that are accommodating to the changing circumstances, as microfinance institutions transition to becoming more digital (McKee *et al.*, 2015).

Second, the increasing use of digital footprints and other credit scoring technologies can also accelerate the financial inclusion of those without credit histories (Kumar and Muhota, 2012). Although this is heavily debated (Radcliffe

and Voorhies, 2012), the idea is that with these new technologies, by recording the history and timing of credit and savings transactions, microfinance institutions can leverage their services and positively contribute to both sustainability and outreach, as the main catalysts for the digitalization of financial services. Third, the widespread presence of FinTechs represents opportunities for partnerships and new arenas for delivering microfinance services (Carter, 2016).

Regardless of these opportunities, the threat of disintegrating the client-institution relationships will remain a cause for concern for microfinance institutions. However, current experiences demonstrate how ICTs are being used to strengthen pre-existing relationships and to build new ones, ultimately generating mutual trust. For instance, the *Juntos Finanzas* platform enables the financial services provider to have automated conversations with the clients. Platforms like this ensure that the technology does not undermine the personal relationships that existed prior to its introduction. In fact, in a customer survey conducted in Colombia, it was found that people already started to trust *Juntos Finanzas*, which had spillover effects on the financial services provider (Valenzuela *et al.*, 2015).

It is also important to realize that MFIs engaged in the provision of digital financial services are continually developing practices and procedures aimed at strengthening the trust between them and their clients. Some of these practices include educating the clients through financial literacy programs and building institutional capacity to enhance customer experience (Moury, 2016).

5. DISCUSSION

“It’s unstoppable: digital financial services are the current wave for the banked and unbanked alike” - mobilemoneytime.com

The quote above perfectly depicts the recent hype about the prospects of digital financial services. Not only are they seen as vital for the financial inclusion of the unbanked, they appear inevitable. However, as it is often noted, the very rich and the very poor are who routinely meet with their financial service providers and these meetings enrich their relationships (Kapoor *et al.*, 2007). Therefore, it is not surprising that many microfinance experts have been questioning the effects of digitalization on banking relationships. In this section, we evaluate and analyze the implications of digitalization, with reference to the trust and microfinance nexus, by examining the extent to which digitalization affects the development of personalized relationships and of trust between MFIs and their clients.

Given the analysis of the different trust and information requirements across the microfinance product continuum, it is evident that it is easier to go digital with products at the lower end of the spectrum, namely remittances and payments as well as savings deposits. However, to some extent in the case of insurance and, in particular, in the case of credit for low-income clients, the trust and information

requirements are so high that they make it a steep challenge to automate financial services without encountering problems. For instance, traditionally, MFIs obtain valuable soft intangible information by getting to know the person and by building a relationship based on trust, in order to make credit decisions and encourage the client's loyalty. In addition, the relationship is maintained over time through the constant visits of loan officers for loan monitoring and repayments, in both group and individual lending models. Hence, the challenge is designing digital products without taking away from the institution-client relationships.

In any case, despite its importance, the complex nexus between digitalization and microfinance relationships and trust has been barely studied and very little evidence about its evolution is available. For this reason, our analysis must remain inconclusive. However, our research highlights how the use of ICTs in microfinance operations poses a major threat for the pre-existing relationships between institutions and their clients., Therefore, due to the risk of MFI-client relationship disintegration, it is necessary for institutions to find the right balance between introducing digital technology, which is inevitable, and maintaining the loan-officer client relationships unharmed. It is against this backdrop that institutions like CGAP have established guidelines on the provision of digital financial services and the development of mechanisms to mitigate risks and minimize potential losses for the users, namely, the clients of microfinance (McKee *et al.*, 2015).

In contrast, in the traditional banking sector, digitalization has been rapidly taking over most of the operations and delivery of financial products and services. For instance, self-service machines have facilitated the processing of cash and checking deposits, while mobile applications and online banking platforms are facilitating the ways in which we interact with our bank accounts, with information made readily available. All of this is limiting our need to visit bank branches. This progress has been mostly associated, however, with the transactional dimensions of banking interactions.

In the case of the microfinance sector, a CGAP survey conducted in South Africa found that almost half of the respondents preferred to have face-to-face interactions with their banks rather than with an electronic device (Ivatury and Mas, 2008). Here, we argue that digitalization is immensely welcomed in traditional banking services due to the characteristics of the clients, in the sense that they are more technology savvy and more financially educated.

That is to say, the problems of digitalization associated with microfinance clients are much less acute in the case of traditional banking, because the level of trust about the financial services provider is relatively high and the level of financial education of the clients is also higher. Thus, the fading of the human interaction that is essential for low-income clients does not pose the same level of threat as it does in the case of microfinance (Moury, 2016).

At the beginning of the paper, we posed the question: how to get clients to trust digital products? We have seen that, due to the low financial and technological knowledge of microfinance clients, they tend to show resistance towards adopting new digital tools. In addition, we have seen the need for the service providers to develop products that are attractive, in order to fine-tune attitudes towards the new technologies. That said, to respond to the question, our analysis shows that trust is not something that is created out of the blue, but rather it is developed as relationships deepen. On this account, to get clients to fully trust digital tools and jump on the bandwagon, it is essential for the service provider to encourage them to be open to the experience and get them to try the product (Mas, 2016).

Moreover, the use of digital field applications, for example, equipping loan officers with tablets to process client information, induces trust building through the availability of real-time information on any given moment and a reduction in processing and waiting time. The fact that clients will not be compelled to repeat information serves as a way to get them to be open minded about the adoption of ICTs (Da Costa *et al.*, 2016). In the case of M-Pesa, in turn, service providers got the clients' trust by marketing through road shows and taking the products to the clients (Mas and Ng'weno, 2010)

With regards to who gains and who loses and whether technology can serve as a substitute for face-to-face interactions or whether it should be a complement, we find that both the institutions and the clients stand to gain from digital financial services, but the clients who are more familiar with technological tools or those have better connectivity will gain the most, potentially at the expense of those where the local infrastructure does not support several of the digital applications.

For the most part, ICTs should be integrated as a complement to the face-to-face interactions between financial service providers and their clients. For instance, Kapoor *et al.* (2007) note that digital financial services are useful for the disbursement and repayment of loans and that they facilitate access to hard information, but usually at the expense of obtaining less soft information. Therefore, it is important to find ways to retain the use of soft information, by complementing digital technologies with face-to-face interactions, as soft information is imperative in determining client creditworthiness in these segments of the market, where information imperfections are greater and where there is more client heterogeneity.

Additionally, substituting the human touch with ICTs would make it challenging to determine the actual repayment capacity of low-income microfinance clients, as a key step in deciding about loan amounts and in order to avoid indebting the poor, despite the arguments on digital footprints and big data as screening tools (Gonzalez-Vega, 2013; Mas, 2016). For this reason, initiatives like *Juntos Finanzas* are revolutionizing the ways in which financial services providers can maintain the human touch with the clients through the use of ICTs and, notably,

the evidence so far shows that the tool is fostering the deepening of trust between the providers and their clients (Valenzuela *et al.*, 2015).

All in all, we find that there is not a simple solution for determining the right extent to which digitalization does not affect trust and relationships. On the negative side, we find that there is a possibility for digitalization to dissolve the trust and relationships between microfinance institutions and their clients, making it all the more crucial for institutions to establish ways to mitigate this risk. On the more positive side, however, we find that some institutions are already putting in place mechanisms to preserve the relationships and trust whilst successfully adopting new technologies to deliver financial services. Even so, there is still a long way to go in finding the perfect solutions to address the problems of digitalization in regards to its effect on trust and relationships.

6. CONCLUSIONS

The digitalization of financial services is of great importance in the financial inclusion discourse. Despite the concerted efforts to give access to financial services to low-income people in the last two decades, the case still remains that two billion people are unbanked. Hence, the pressing need to promote digital financial services as the key to tackling financial exclusion. In this paper, we have looked at trust and its importance in microfinance, analyzed the role knowledge and information play in the creation of trust, and assessed how the trust and relationship dynamics are affected with digitalization, by carrying out a SWOT analysis. By doing so, we have been able to identify the broader implications of digitalization.

Based on the analysis of this paper, we conclude that trust and information are of critical importance when MFIs lend to people at the base of the pyramid. Indebting a poor person can be very risky for the MFI and also counterproductive for the borrower. Therefore, the credit decision is critical in order to avoid these adverse results. Personal contact in microfinance has traditionally helped in the determination of repayment capacity, but as new digital tools emerge and new ways of determining this capacity arise, some MFIs are leaving aside personal contact. The potential losses, particularly for those groups with less access to the digital world, may be quite substantial.

As we previously mentioned, “less information means more risk”. Therefore, MFIs should consider digital tools as complements rather than substitutes for the acquisition of information and for the development of relationships.

All in all, it is clear that the digitalization of microfinance presents ample advantages and opportunities and challenges for both the supply and demand sides of the market. We identify that the use of digital tools in microfinance can be very useful for the acquisition of universal knowledge and to manage

aggregate information (such as data on market prices, expected yields, weather and other determinants of productive outcomes). However, when it comes to local knowledge, in particular to fully understand the clients' needs, building relations through personal contact might be more effective. Most importantly, we find that when it comes to these relationships, and face-to-face interactions, microfinance clients still prefer some level of human touch when dealing with their financial services providers.

Nevertheless, it would be premature to conclude whether digitalization disintegrates relationships and the trust built between MFIs and their clients. In order to conclude with certainty, a series of experiments need to be conducted, to determine whether the use of digital tools and the delivery of financial services through digital channels lead to the disintegration of the relationships between microfinance institutions and their clients.

All things considered, the study highlights relevant implications, not only for the microfinance services providers but also for other development actors involved in the digitalization of financial services discourse. For one, the challenges and threats of digitalization are real. Therefore, the way in which institutions advance in delivering digital financial services should be scrutinized, keeping in mind the outreach versus sustainability debate as well as the importance of personal contact in information gathering and trust creation. Moreover, this study has shown that the digitalization, trust and relationships nexus is a cause for concern and an area for further future study.

Be that as it may, we recommend that:

- a) For many institutions, digital technology will never be able to replace face-to-face interactions with clients, but it should rather be seen as a complement, as another tool, with which the institution opens a communication channel with clients. Therefore, it is essential to develop platforms that leverage technology, not to replace relationships, but to allow the construction of true and deep relationships, as the MFI knows its customers sufficiently while it increases its scale.
- b) The lack of trust in new technologies coupled with the low level of financial education of typical microfinance clients contribute to the resistance in the uptake and use of digital financial services.
Therefore, institutions need to invest in educating clients about the benefits of digitalization by actually using the digital tools until the customers get used to them. A good example of this approach has been the Fundación Capital's Lista Initiative.
- c) Client heterogeneity is a challenge. Thus, microfinance institutions should adopt a graded delivery of digitalized services, depending on the clients'

digital capability. This could consequently aid in the process of getting clients to trust the new technologies and possibly keep the relationships in place.

- d) Finally, for future research, we recommend that investigators study different institutions, some which are using traditional microfinance lending technologies and others which use ICTs for information gathering and service delivery, to determine whether the levels of trust vary with the institution type. This will help in understanding the real and true effects of digitalization on the trust and relationships between MFIs and their clients.

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