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Addressing Financial and Digital Literacy Challenges for Inclusive Finance: Insights from Microfinance Institutions and FinTech Organisations

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Preface

The EIF supports Europe's SMEs by improving their access to finance through a wide range of selected financial intermediaries. To this end, the EIF primarily designs, promotes and implements equity and debt financial instruments which specifically target SMEs. In this role, the EIF fosters EU objectives in support of entrepreneurship, growth, innovation, research and development, and employment.

The EIF has been involved in the European inclusive finance sector - including microfinance - since 2000, providing funding (equity and loans), guarantees and technical assistance to a broad range of financial intermediaries, from small non-bank financial institutions to well established microfinance banks to make inclusive finance a fully-fledged segment of the European financial sector. The EIF has become an important pillar of this segment, by managing specific initiatives mandated by the European Commission, the EIB, and other third parties, as well as by setting up operations using own resources.

This working paper results from a research project on "Strengthening Financial Inclusion through Digitalisation" (SFIDE), initiated by EIF's Research & Market Analysis division. The project is funded by the EIB Institute under the EIB-University Sponsorship Programme (EIBURS). EIBURS supports university research centres working on research topics and themes of major interest to the EIB Group. Digitalisation and financial innovations in the European SME finance sector is strategically relevant to the EIF and to the EIB Group - supporting financial innovation can enhance and disrupt funding instruments, including inclusive finance, and improve their ability to contribute to the achievement of social policy targets.

The aim of the SFIDE project is to investigate the potential of technological and financial innovation to increase the efficiency of the inclusive finance sector, through the identification and promotion of best practices. This paper investigates the strategies European microfinance institutions (MFIs) and inclusive FinTech organisations use to address financial and digital illiteracy among vulnerable customer segments in the EU. It reveals that both MFIs and FinTech organisations focus on personalised financial education, training, and coaching, whereas FinTech organisations underscore intuitive user experiences and real-time insights. MFIs are leaning towards onsite educational activities and narrative-drive approaches. The study highlights the crucial role of support teams in enhancing literacy and recommends a balance between digitalisation and human interaction, alongside advocating for governmental and EU educational initiatives.

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Abstract

In the ever-changing landscape of digital finance and FinTech, this study explores how European microfinance institutions (MFIs) and inclusive FinTech organisations tackle the persistent challenges of financial and digital illiteracy. Despite the widespread use of digital financial services in the European Union, these literacy issues continue to affect vulnerable customer segments. Through qualitative research, the paper uncovers various strategies employed by MFIs and FinTech firms to enhance customer financial and digital literacy, including financial education, personalised information delivery, and support teams. These approaches vary depending on the organisation's nature and digitalisation strategy. The findings offer practical recommendations for MFIs, stressing the importance of maintaining a human element in the digitalisation process. The paper also calls on governments and the European Union to prioritise educational initiatives to address these literacy challenges effectively.

Highlights

- Financial Literacy Solutions: MFIs emphasise personalised financial education, training courses, and coaching to enhance financial literacy. The "just-in-time" approach, tailored to specific needs, is recommended. Coaching by financial advisors is seen as effective in improving financial literacy.
- Digital Literacy Solutions: Information provision and explanation are critical for addressing digital illiteracy. MFIs educate by combining in-person and digital methods. They focus on integrating narrative-driven approaches, such as storytelling, onsite education and digital methods such as webinars. FinTech organisations emphasise an intuitive user experience to make digital financial services more accessible.
- Support Teams: Both financial and digital literacy benefit from support teams. Loan officers, coaches, and customer service centers play a vital role in assisting customers, fostering long-term relationships, and addressing literacy challenges.

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1 | Introduction

The financial sector has become increasingly technology-driven. The rise of digital finance and FinTech positively influences financial inclusion through resolving several barriers to financial inclusion. Financial inclusion is positively influenced by digital finance and FinTech, which can overcome various barriers faced by underserved communities (Arner et al., 2020; Demir et al., 2020). These innovations have the potential to indirectly reduce poverty, inequality, stimulate economic growth, and contribute to Sustainable Development Goals (SDGs) (Arner et al., 2020). However, vulnerable customer segments continue to face financial and digital illiteracy challenges, which impede their ability to access (digital) financial services (Grohmann, Klühs, & Menkhoff, 2018; Hu, Ding, Li, Chen, & Yang, 2019; Radovanović et al., 2020; Shen, Hu, & Hueng, 2018).

Financial literacy is defined as the knowledge, skills, and ability to make appropriate financial decisions (Arner et al., 2020; Shen et al., 2018). Digital literacy refers to the knowledge and ability to manage information effectively through digital devices and networked technologies (UNESCO, 2018). In the European Union, 48% of the population is financially illiterate, and 41.7% is digitally illiterate (European Commission, 2020; Klapper, Lusardi, & Van Oudheusden, 2015). These illiteracies act as significant barriers to financial inclusion (Arner et al., 2020; Corrado & Corrado, 2015; Demirgüç-Kunt et al., 2018; Fernández-Olit et al., 2019).

This research aims to explore how microfinance institutions (MFIs) and inclusive FinTech organisations address the challenges of financial and digital literacy within their digital financial services to promote inclusive finance. MFIs are selected because they aim to increase financial inclusion by offering microfinance to underserved communities (Chen, Chang, & Bruton, 2017; Corrado & Corrado, 2017; Mushtaq & Bruneau, 2019). FinTech organisations are chosen as they are at the forefront of digital finance and disruptive technology adoption (Gomber et al., 2017).

The primary research question guiding this qualitative research is: "How do MFIs and FinTech organisations address the challenges of financial illiteracy and digital illiteracy in their digital financial services with the aim of inclusive finance?" This research fills a gap in the existing literature. While previous research has examined the relationship between digital finance, financial inclusion, and the role of MFIs (Arner et al., 2020; Demir et al., 2020; Mushtaq & Bruneau, 2019), limited research has explored what inclusive finance organisations, such as MFIs and FinTech entities, can do to strengthen the link between digital finance and financial inclusion through addressing financial and digital literacy.

Research on improving financial and digital literacy has not yet reached a mature stage, yielding mixed findings (Fernandes, Lynch Jr, & Netemeyer, 2014; Meyers, Erickson, & Small, 2013; Stolper & Walter, 2017). This study seeks to extend knowledge in these areas and provide practical recommendations for improving financial and digital literacy to enhance financial inclusion. By proposing solutions to the challenges of financial illiteracy and digital illiteracy, this research addresses an important aspect of financial inclusion and its impact.

2 | Theoretical background

2.1 | Financial inclusion

Financial inclusion and financial exclusion are binary terms referring to one's access to financial services (Fernández-Olit et al., 2019). Financial exclusion can be defined as the inability to access financial services in an appropriate form (Carbo et al., 2007). Whereas, financial inclusion is defined as having access to financial services at affordable terms to all parts of the society (Arner et al., 2020; Corrado & Corrado, 2017; Fernández-Olit et al., 2019). Financial inclusion roughly consists of the following dimensions: account ownership, savings, borrowings, and insurances at formal institutions (Demirgüç-Kunt et al., 2018; Diriker, Landoni, & Benaglio, 2018; Grohmann et al., 2018).

Across the globe, research has consistently demonstrated that those who are impoverished, unemployed, less educated, women, elderly, residing in rural areas, or belonging to ethnic or religious minorities often face challenges achieving financial inclusion (Carbo et al., 2007; Corrado & Corrado, 2015; Demirgüç-Kunt et al., 2018). The prominent factors contributing to financial exclusion among these demographics include financial illiteracy, the costs associated with financial services, and the stringent requirements imposed by financial institutions. Financial illiteracy implies difficulties in comprehending and using financial services (Corrado & Corrado, 2015), which acts as a major deterrent to financial inclusion, as it discourages people from utilising financial services (Arner et al., 2020; Ozili, 2018). Moreover, the costs associated with financial services can be a significant barrier to financial inclusion, particularly among underserved communities with limited resources to cover these expenses, often due to low incomes (Corrado & Corrado, 2015; Demirgüç-Kunt et al., 2018). Additionally, financial institutions tend to prioritise profits and shareholder value maximisation, making underserved communities less attractive, resulting in marketing exclusions, access barriers, and unfavorable terms for financial services (Carbo et al., 2007). When underserved communities fail to meet these requirements (e.g., credit checks, documentation, minimum income), their access to financial services is denied (Corrado & Corrado, 2015; Demir et al., 2020). Other reasons for financial exclusion include inadequate financial infrastructure, distrust in financial institutions, the convenience of cash, and voluntary exclusion (Corrado & Corrado, 2015; Demir et al., 2020)

The consequences of financial exclusion and inclusion significantly impact an individual's well-being. Financial exclusion implies the inability to save, borrow, invest, or obtain insurance, resulting in poor financial management and financial distress. This leads to challenges in social and economic integration and contributes to inequality, social exclusion, and poverty (Carbo et al., 2007; Corrado & Corrado, 2017).

In contrast, financial inclusion holds numerous advantages. It allows individuals to save money in financial institutions, making them more resilient to macroeconomic shocks by providing a safety net during times of income loss (Carbo et al., 2007). It also opens up opportunities for investments in education and pensions, thereby facilitating long-term financial planning (Arner et al., 2020; Ozili, 2018). Access to borrowing from financial institutions supports education and entrepreneurial activities, stimulating income generation and improving opportunities for underserved communities (Arner et al., 2020; Demir et al., 2020; Ozili, 2018). Additionally, financial inclusion offers highly vulnerable communities access to insurance, enhancing their ability to handle macroeconomic shocks and diversify long-term risks (Arner et al., 2020).

The benefits of financial inclusion encompass job creation, income growth, educational opportunities, resilience against economic shocks, risk diversification, and pension building. Over time, these positive outcomes contribute to higher economic growth, poverty reduction, reduced socio-economic inequality, and improved financial well-being at both individual and macroeconomic levels (Arner et al., 2020; Corrado & Corrado, 2017; Demir et al., 2020; Ozili, 2018). Consequently, financial inclusion plays a pivotal role in advancing the achievement of the Sustainable Development Goals (SDGs) (Arner et al., 2020; Demirgüç-Kunt et al., 2018).

2.2 | Digital Finance and Financial Inclusion

In recent years, significant innovations in financial technology (FinTech) and digitalisation have transformed the financial sector. This evolution toward digital finance and FinTech is seen as a promising pathway to achieving financial inclusion and sustainable development (Arner et al., 2020; Demir et al., 2020; Mushtaq & Bruneau, 2019; Ozili, 2018).

Digital finance serves as a comprehensive term encompassing the broad digitalisation of the financial industry. It is often defined as "all products, services, technology, and/or infrastructure that enable access to payments, savings, and credit facilities via the internet (online) without the need to visit a bank branch" (Ozili, 2018, p.330). This includes a spectrum of digital financial services such as credit cards, ATMs, home banking, and mobile app services (Gomber et al., 2017). The digitalisation of the financial sector is an ongoing process, marked by continual introduction of new innovations and the increasing transformation of financial services. The latest and most disruptive technologies within digital finance are often referred to as FinTech solutions. FinTech, a portmanteau of financial technology, involves integrating innovative internet-related technologies with established financial services to offer these services in innovative ways (Gomber et al., 2017; Lee & Shin, 2018). Examples of such technologies include blockchain, Near Field Communication (NFC), Big Data, machine learning, and open banking (Gomber et al., 2017; Lee & Shin, 2018, Preziuso et al., 2023).

Several research studies have examined the impact of digital finance on financial inclusion and the SDGs. Ozili (2018) investigated the relationship between digital finance and financial inclusion, while Arner et al. (2020) and Demir et al. (2020) analysed the effect of FinTech on financial inclusion and its impact on income inequality and the SDGs. Mushtaq and Bruneau (2019) explored the connection between Information and Communication Technology (ICT), particularly mobile phone penetration, and its effects on financial inclusion and inequality. These studies consistently concluded that digital finance, including both FinTech and mobile phone penetration, has a positive effect on financial inclusion. Furthermore, digital finance indirectly influences the achievement of the SDGs, contributing to poverty reduction and reduced income inequality. However, the strength of these relationships varies depending on factors such as the country, income levels, degree of income inequality, and economic development. These findings underscore the importance of digital finance as a means to promote financial inclusion as well as to achieve the SDGs (Arner et al., 2020; Demir et al., 2020; Mushtaq & Bruneau, 2019).

The Global Findex of 2017 also reinforced the potential of digital technology in promoting financial inclusion, stating that "mobile phones and the internet could go a long way toward helping to overcome some of the barriers that unbanked adults say prevent them from accessing financial services" (Demirgüç-Kunt et al., 2018, p.91). Digital finance addresses various barriers to financial inclusion. Firstly, it makes access to financial services possible through digital devices with internet access, thereby increasing the outreach and availability of these services to anyone with internet connectivity (Demir et al., 2020; Mushtaq & Bruneau, 2019; Ozili, 2018). This significantly reduces the geographical gap between individuals and their financial services, from the nearest financial institution to their mobile phones or personal computers. Secondly, the costs associated with making and receiving payments decrease with the use of digital finance, which, in turn, alleviates cost-related barriers (Demirgüç-Kunt et al., 2018; Ozili, 2018). The cost savings in financial services are achieved through increased efficiency, automation, and reduced paperwork. Thirdly, digital finance offers users convenience by enhancing the efficiency and speed of payments, which can be conducted at any time of the day using one's digital device. Moreover, digital finance improves the security of payments by reducing cash circulation and the associated issues of counterfeit currency and corruption (Demirgüç-Kunt et al., 2018; Ozili, 2018). This enhanced convenience and security of financial services build trust among users.

Despite the numerous advantages, an essential concern arises from the growing influence of digital finance. The successful implementation of digital financial services necessitates that users possess the required skills to understand and utilise new technologies (Demirgüç-Kunt et al., 2018). In situations where individuals are unable to comprehend or use digital technologies due to complexity or inadequate numeracy skills, they become digital illiterate (Demirgüç-Kunt et al., 2018; Mushtaq & Bruneau, 2019; Ozili, 2018). Digital illiteracy can be a significant hindrance to financial inclusion, especially as more financial services transition to digital platforms (Demirgüç-Kunt et al., 2018; Ozili, 2018).

2.3 | Financial Literacy

Financial literacy can be defined as the knowledge, skills, and ability to independently make informed financial decisions related to financial planning, wealth accumulation, debt management, and pension planning, ultimately leading to financial well-being (Arner et al., 2020; Lusardi & Mitchell, 2014; Shen et al., 2018). Financial literacy encompasses not only understanding financial services but also the ability and confidence to apply financial knowledge to make effective financial decisions (Huston, 2010).

Whether someone is financially literate is often indicated by one's knowledge and understanding about risk diversification, inflation, compound interest and numeracy related to interest rates (Klapper et al., 2015; Lusardi & Mitchell, 2014; Stolper & Walter, 2017). To effectively use financial services, individuals should possess at least a basic understanding of these four dimensions of financial literacy. Understanding risk diversification entails comprehending the difference in risk between investing in a single stock and investing in a diversified portfolio of stocks. Inflation knowledge encompasses understanding the impact of price and income increases on purchasing power. To understand compound interest, one must grasp the concept of cumulative interest on savings. Lastly, numeracy related to interest rates relates to the ability to calculate interest payments on loans (Huston, 2010; Lusardi & Mitchell, 2014).

Several antecedents influence an individual's level of financial literacy. Demographic, socio-economic, personal, and cultural characteristics all play a role (Goyal & Kumar, 2021; Lusardi & Mitchell, 2014). Age, gender, ethnicity, income, employment status, and geographical attributes are particularly influential (Lusardi & Mitchell, 2014).

Conversely, an individual's level of financial literacy significantly affects their day-to-day financial management skills (Lusardi & Mitchell, 2014). Low financial literacy, when combined with the use of financial services, can lead to high-cost borrowing, inadequate wealth accumulation, expensive credit card behavior, and financial insolvency, driven by erroneous decision-making that results in financial distress (Klapper et al., 2015; Lusardi & Mitchell, 2014). Higher financial literacy, on the other hand, positively influences financial planning decisions, borrowing decisions, investment decisions, and financial well-being. This is facilitated through knowledge of the four dimensions of financial literacy (Goyal & Kumar, 2021).

As elucidated in the earlier sections, financial illiteracy can be a substantial barrier to financial inclusion, as a lack of knowledge discourages and impedes people from using financial services (Arner et al., 2020; Corrado & Corrado, 2015; Demirgüç-Kunt et al., 2018; Fernández-Olit et al., 2019; Ozili, 2018). Numerous researchers have concluded that financial literacy has a positive influence on financial inclusion (Grohmann et al., 2018; Shen et al., 2018). For instance, Grohmann et al. (2018) examined the effect of financial literacy on financial inclusion, accounting for variations in financial depth, which pertains to the availability of financial infrastructure. This research determined that financial literacy exerts a positive influence on financial inclusion across all contexts, controlling for financial infrastructure, financial institutional characteristics, and country. At lower levels of financial depth, financial literacy serves as a substitute for financial depth, while at higher levels, it functions as a complementary factor (Grohmann et al., 2018). Shen et al. (2018) also affirmed the positive relationship between financial literacy and financial inclusion. Their study not only explored the impact of financial literacy on financial inclusion but also analysed the effects of digital financial product usage (i.e., the utilisation of digital financial services) and internet usage on financial inclusion. The research established that digital financial services and internet usage collectively mediate the positive connection between financial literacy and financial inclusion. This is attributed to internet usage promoting the adoption of digital financial services by expanding their accessibility, with digital financial services serving as the means by which individuals become financially included (Shen et al., 2018).

All in all, heightened financial literacy is associated with increased financial inclusion. This positive correlation is underpinned by enhanced knowledge and awareness of financial behavior, which is imperative for sound financial decision-making and the utilisation of financial services (Grohmann et al., 2018; Oggero, Rossi, & Ughetto, 2020). Therefore, boosting financial literacy is essential to promote greater financial inclusion and improved financial management (Goyal & Kumar, 2021; Grohmann et al., 2018; Shen et al., 2018).

2.4 | Digital Literacy

Digital literacy is defined as “the ability to access, manage, understand, integrate, evaluate and create information safely and appropriately through digital devices and networked technologies for participation in economic and social life” (UNESCO, 2018, p.21). Individuals lacking the skills to appropriately understand and use digital devices and networked technologies are digital illiterate.

To possess basic digital literacy, one must encompass proficiency across four key dimensions: information processing skills, communication skills, problem-solving skills, and software skills for content manipulation (Eshet-Alkali & Amichai-Hamburger, 2004; European Commission, n.d.-a). Information processing skills entail the ability to identify, locate, organise, and analyse digital information effectively. Communication skills involve engaging, interacting, and sharing resources in digital environments. Problem-solving skills encompass understanding digital needs, making informed decisions, solving conceptual problems, and addressing technical challenges. Additionally, software skills for content manipulation refer to the capability to create, edit content, produce creative outputs, and navigate intellectual property rights (European Commission, n.d.-b).

Digital skills are strongly influenced by socio-demographic factors such as age, education, employment status, numeracy skills, and technological complexity (European Commission, 2020; Demirgüç-Kunt et al., 2018; Mushtaq & Bruneau, 2019; Ozili, 2018). These differences in digital proficiency have led to a digital divide, exacerbating inequality across communities (Radovanović et al., 2020). Bridging this divide is imperative, as enhanced digital literacy promotes digital inclusion, enabling more individuals to access technology and empowering communities socially (Radovanović et al., 2020).

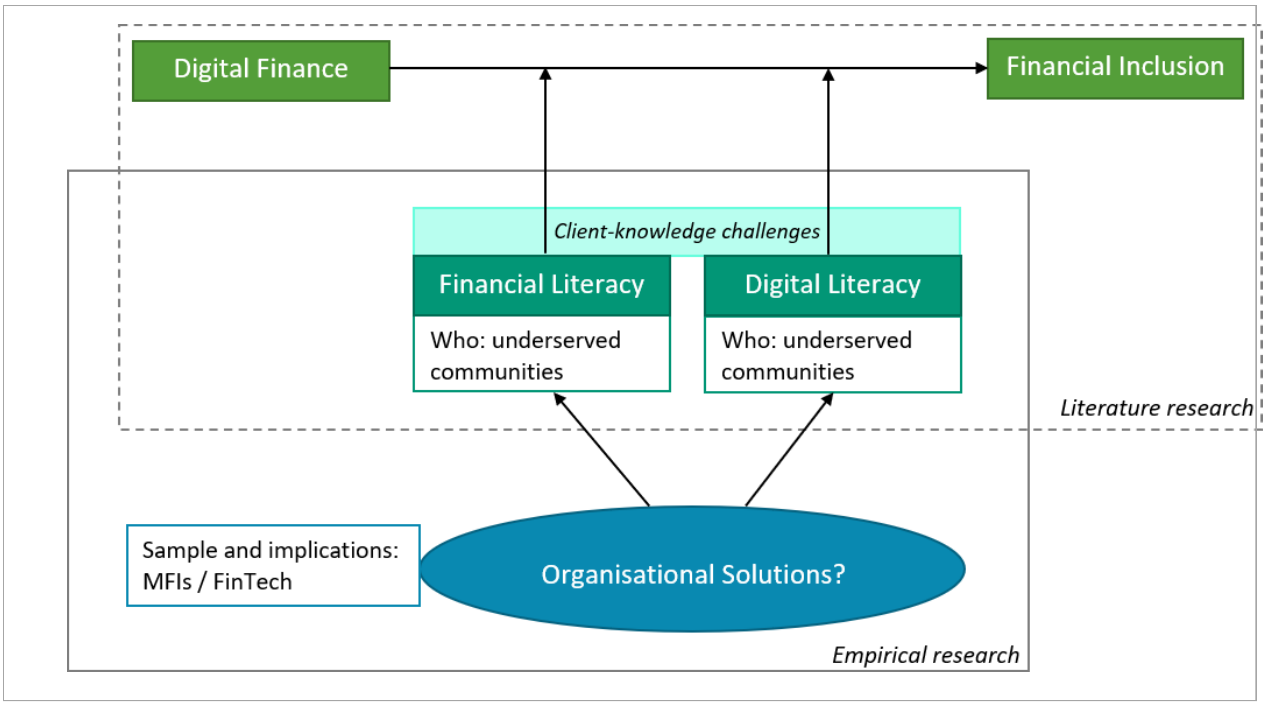
Digital finance plays a critical role in understanding and utilising digital technologies (Demirgüç-Kunt et al., 2018; Mushtaq & Bruneau, 2019; Ozili, 2018). As financial services increasingly rely on digital platforms, having a basic level of digital literacy becomes essential for comprehending and effectively using digital financial services to make informed financial decisions (Demirgüç-Kunt et al., 2018; Gomber et al., 2017; Mushtaq & Bruneau, 2019). Therefore, digital literacy becomes a pivotal factor on the path toward achieving financial inclusion through digital financial services.

3 | Methodology

3.1 | Framework

This research aims to uncover practical solutions for microfinance institutions (MFIs) and FinTech companies to enhance the financial and digital literacy of underserved communities, thereby promoting financial inclusion. Through inductive qualitative research, we seek to identify solutions as visualised in the conceptual framework in Figure 1.

Figure 1: Visualisation of conceptual framework



3.2 | Sample

The data is collected from a sample existing of 12 inclusive finance organisations, of which the headquarters are located in 8 different countries. In total, 20 organisations have been reached out to, the response rate towards scheduling an interview is 60%. The selected sample exists of 7 MFIs and 5 inclusive FinTech organisations. At each organisation, one interview with a representative of the organisation has been conducted. Table 2 gives an overview of the sample.

The MFIs and FinTech organisations that are included in the sample (as presented in Table 2), are selected because these organisations adhere to the selection criteria that were set up before determining the sample. The selection criteria (see Table 1) are developed to ensure that the sample aligns with the topic and goals of this research. For example, it is important that the sample strives to inclusive goals, offer financial services to businesses or individuals, serve underserved communities (MFIs) or make use of innovative technologies (FinTech). The inclusive finance organisations selected in the sample comply with the selection criteria, and are therefore suitable to research for this paper.

This qualitative study adopts a holistic approach to analyse the experiences of the sample participants. It aims to assess the current state of the inclusive finance industry and derive recommendations for addressing the issues of financial and digital illiteracy. To achieve this, the sample is intentionally diverse, including a wide array of inclusive finance organisations from various countries. The sample comprises an almost equal representation of Microfinance Institutions (MFIs) and FinTech organisations.

Table 1: Selection criteria for MFIs and FinTech organisations

Sample	Selection criteria
The MFIs should:	target underserved communities as their customer segment; focus on increasing the financial inclusion of underserved communities; strive to sustainable and social outcomes; provide borrowing, savings, investment and/or bank account financial services, either for personal and/or entrepreneurial outcomes.
The FinTech organisations should:	target individual consumers or small enterprises; prioritise the customer by, for example, striving to ease the use of financial services for the customers; strive to social and/or inclusive goals, or strive towards the SDGs; provide financial services related to borrowings, savings, investments, provision of bank accounts, and/or financial management; offer their financial services to the customers digitally and with the use of innovative technologies. The customers make use of these technologies to access and use the financial services.

Table 2: Overview of selected sample of inclusive finance organisations

No.	MFI / FinTech	Country of HQ/ representative	Financial services
1.1	MFI	Romania	Business microloans for small enterprises.
1.2	MFI	Greece	Business microloans for entrepreneurs and non-financial support.
1.3	MFI	Bosnia and Herzegovina	Business and personal microloans to consumers.
1.4	MFI	Romania	Microloans to farmers and small businesses.
1.5	MFI	The Netherlands	Business microcredit to SMEs, and non-financial support.
1.6	MFI	France	Microcredit and micro-insurance to entrepreneurs and individuals, and non-financial support
1.7	MFI	Italy	Business loans, personal loans, and insurances to entrepreneurs and families/individuals.
2.1	FinTech	United Nations / United Kingdom	Invoice financing platform for SMEs.
2.2	FinTech	United States	Data-driven financial management tools for SMEs.
2.3	FinTech	Sweden / The Netherlands	Open banking platform with data-driven user experience solutions to financial institutions.
2.4	FinTech	The Netherlands	Data-driven financial management tool for personal usage.
2.5	FinTech	The Netherlands	Easy money investing through the app for consumers.

3.3 | Data Collection

The data is collected by conducting semi-structured interviews with the representatives of the MFIs and FinTech organisations. This approach is chosen for its flexibility and ability to yield diverse insights into how these organisations address financial and digital illiteracy in their digital financial services. Semi-structured interviews enable open dialogue and spontaneous responses from respondents, facilitating the discovery of valuable, unexpected insights (Kallio, Pietilä, Johnson, & Kangasniemi, 2016). The interviews will follow a qualitative interview protocol, a guide ensuring rigorous and reliable data collection (Jacob & Furgerson, 2012; Kallio et al., 2016). This protocol will encompass pre-interview communication, a structured interview script, and a set of predetermined open-ended questions. Prompts will also be used to maintain focus. Ad hoc follow-up questions will be asked for clarification and depth (Kallio et al., 2016).

As shown in Annex 1 the pre-determined interview questions and prompts are led by overarching concepts. Interview questions will delve into aspects of the business model, the contributions to financial inclusion (specifically for MFIs), the use of digital technologies, approaches to financial literacy, and strategies for improving digital literacy. These inquiries aim to uncover insights into the organisations' actions and their impact on these vital aspects, ultimately shedding light on their approaches to financial and digital inclusion.

3.4 | Data Analysis

Data analysis in this research follows the Gioia method, an inductive qualitative approach known for its rigor (Gioia et al., 2013). This method involves structuring data into first-order concepts, second-order themes, and aggregate dimensions. A graphical model illustrates the dynamic relationships among these elements. The analytical process comprises several steps, starting with transcribing interviews and coding them. These codes, made up of relevant keywords, are then reviewed, merged, or refined to form first-order concepts. These concepts are further examined for similarities and differences, leading to second-order themes that represent the interview topics. The second-order themes are then distilled into aggregate dimensions, describing the main discussion points. The resulting data structure provides a visual representation of the transformation of raw data into themes and dimensions.

In the next phase, a graphical model is developed to depict the relationships between second-order themes, aggregate dimensions, and key research concepts, specifically focusing on organisational solutions to financial and digital literacy. This 'boxes-and-arrows' model elucidates the connections and explains the phenomenon under investigation (Gioia et al., 2013). The data structure and graphical model are presented in the Results section, along with an interpretation of the findings.

4 | Results

Utilising the data collected and analysed, a data structure depicted in Figure 2 has been constructed[1]. Within this structure, the initial 30 first-order concepts have evolved into 30 second-order themes and 12 aggregate dimensions. This chapter's subsections aim to elucidate and expand upon aggregate dimensions: Business model and financial inclusion, digital finance, financial literacy, and digital literacy. The aggregate dimensions play a central role in narrating the primary storyline, complemented by second-order themes, first-order dimensions, and relevant quotations to present a comprehensive view of the results.

[1] Acronyms used in Figure 2: API: Application Programming Interface; PSD2: Payment Services Directive 2; UX: User experience.

Figure 2: Data structure

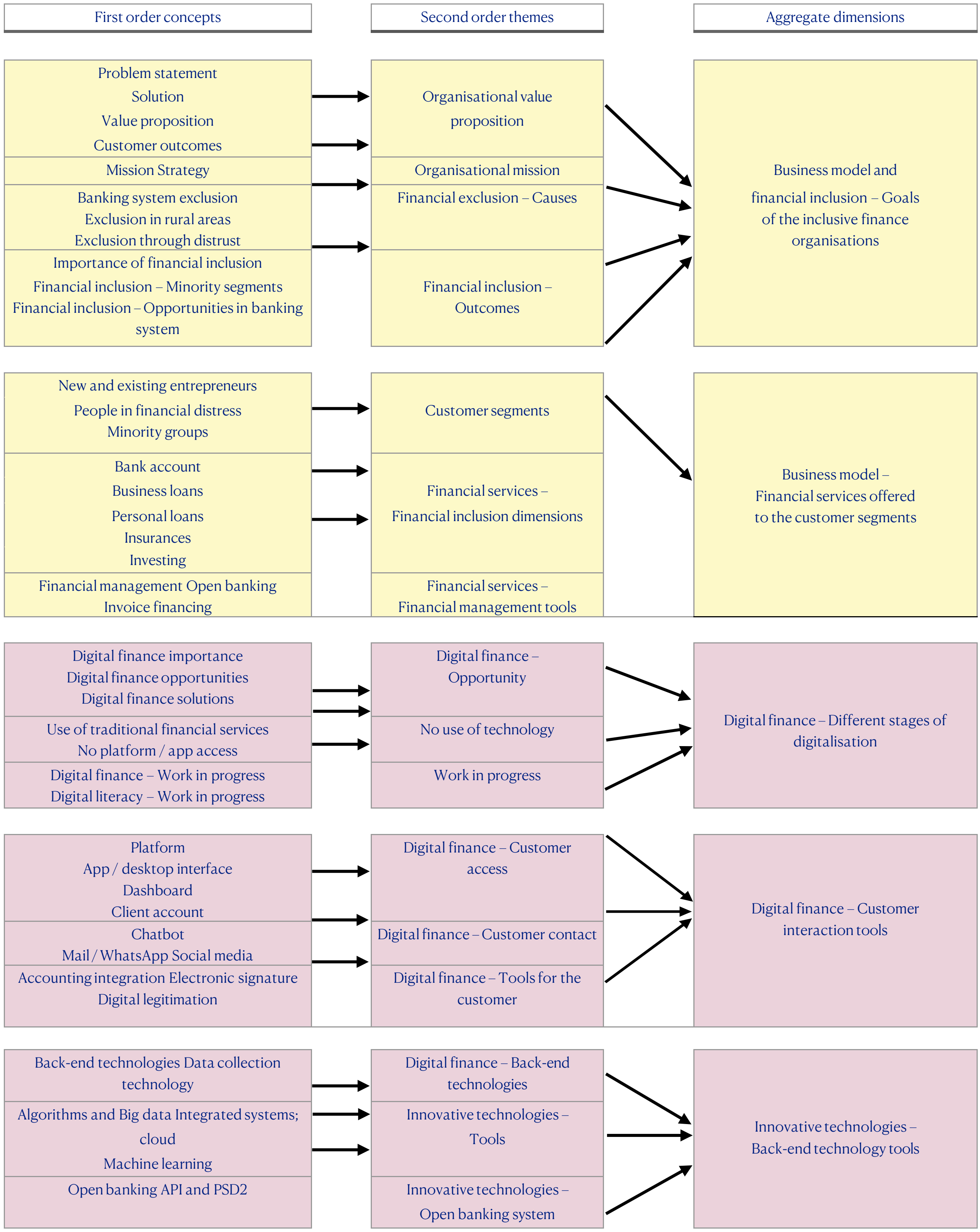
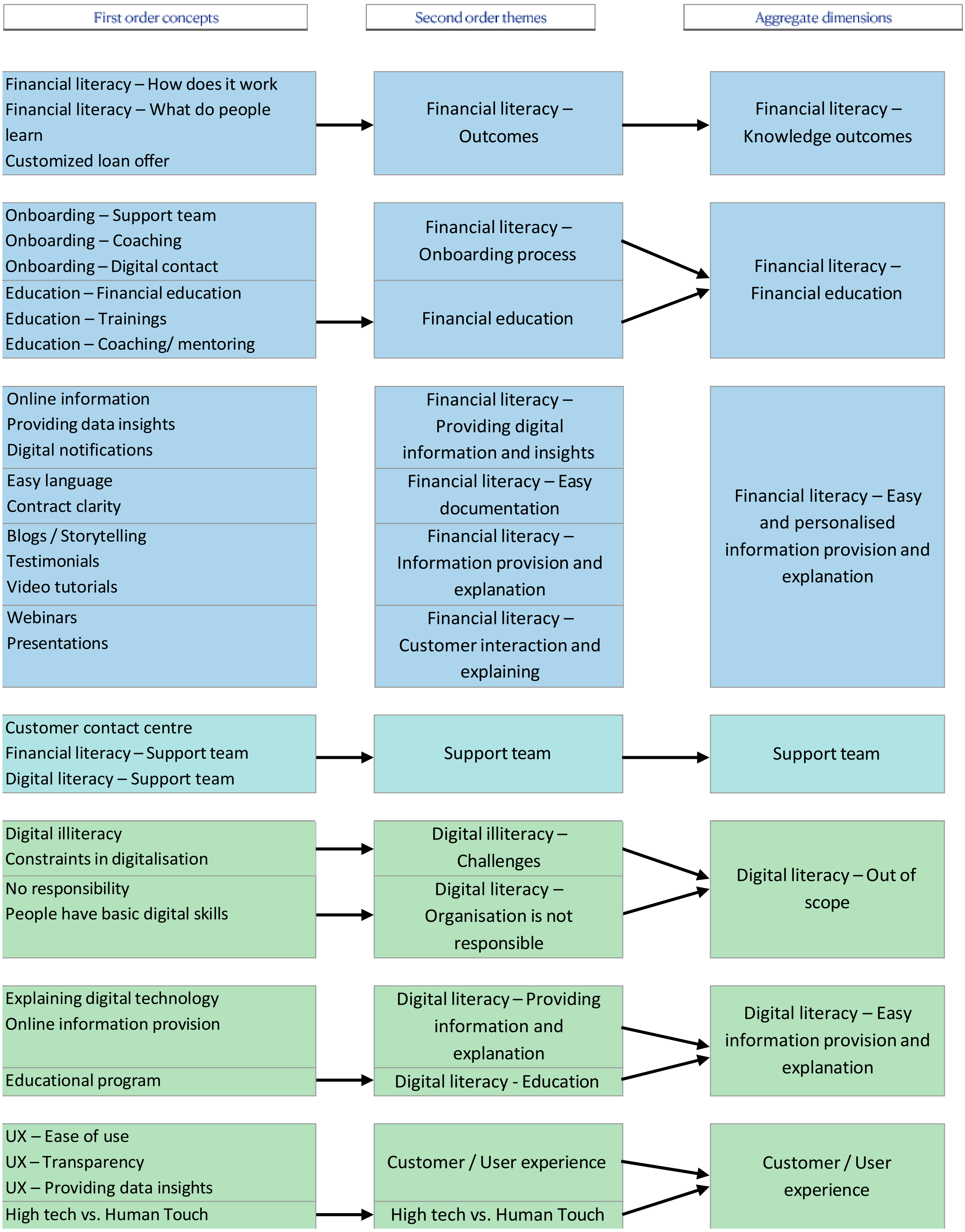


Figure 2: Data structure (continued)



4.1 | Business Model and Financial Inclusion

In this section, we delve into the customer segments, problem statements, and value propositions of inclusive finance organisations, including microfinance institutions (MFIs) and FinTech companies (see Figure 2). These elements are key to understanding how these organisations contribute to financial inclusion. We will start by discussing MFIs, followed by FinTech organisations.

MFIs in our sample primarily target customer segments that face financial exclusion, vulnerability, or financial difficulties. These segments encompass a wide range, from aspiring and existing entrepreneurs, small and medium-sized enterprises (SMEs), and farmers to minority groups, individuals in financial distress, and those with low incomes.

One major challenge faced by these customer segments is the reluctance of commercial banks to provide loans or financial services due to the high operational costs associated with serving them. Commercial banks often focus on profit maximisation, and the costs associated with granting smaller loans can outweigh the revenues. Consequently, many underserved customer segments fail to meet the access requirements set by these banks, such as track records, positive revenue, and risk scoring (Quote 1). This constraint, referred to as the "access gap," has been acknowledged in existing literature as well (Carbo et al., 2007; Corrado & Corrado, 2015; Demir et al., 2020).

> **Quote 1 (MFI 1.2):** *"The mainstream banking system does not provide any financial instruments for financial needs up to €25.000. So, if there is even an existing organisation who wants a small working capital loan of €20.000, they will be rejected by the mainstream banking system. So, there is absolutely no alternative for small amounts to be serviced in the economy. There is absolutely no other alternative financial instrument, let alone, the banks do not have such small loans on their radar."*

Other factors contributing to financial exclusion include the convenience of using cash, especially in rural areas, and distrust of (digital) financial services. In response to these challenges, MFIs have emerged to provide an alternative to underserved customer segments. By granting access to financial services, MFIs aim to promote financial inclusion (Quote 2), which, in turn, can empower individuals to generate additional income through job creation, self-employment, or entrepreneurship (Quote 3). This mission aligns with broader goals of creating positive economic and social impacts, as well as financial empowerment for vulnerable groups.

> **Quote 2 (MFI 1.7):** *"The mission is to reach as many unbankable as possible and let them reach social inclusion throughout financial inclusion."*

> **Quote 3 (MFI 1.6):** *"The mission is to make entrepreneurship available for those who have an idea but do not necessarily have the diplomas or the financial means to do so."*

The primary value proposition of MFIs revolves around providing financial services to financially excluded customer segments. These services often include business microloans that can be used to develop or expand businesses, personal microloans to improve individuals' quality of life or generate additional income, micro-insurance products, and non-financial services designed to educate customers about financial services and business development.

FinTech organisations, on the other hand, have more diverse value propositions. Each of the five FinTech organisations in our sample offers unique financial solutions. One focuses on invoice financing for SMEs to stabilise their cash flows. Another provides a financial management tool to SMEs, enabling them to gain real-time insights into their financial situation, access business loans, and use invoice financing. Additionally, this organisation offers digital financial advice to enhance customers' financial management.

A third FinTech organisation caters to individuals in financial distress due to debt or low incomes, offering an app that provides insights into their financial situation and guides budgeting to alleviate financial distress. The fourth is an open-banking platform, delivering technology solutions to financial institutions to improve end-user experiences through data-driven financial services. The fifth offers investment services through an app, simplifying the process and making investing accessible to everyone. Regardless of their specific focus, these FinTech organisations share the common goal of making financial services accessible and empowering their customer segments using innovative technologies while ensuring ease and sustainability in service usage.

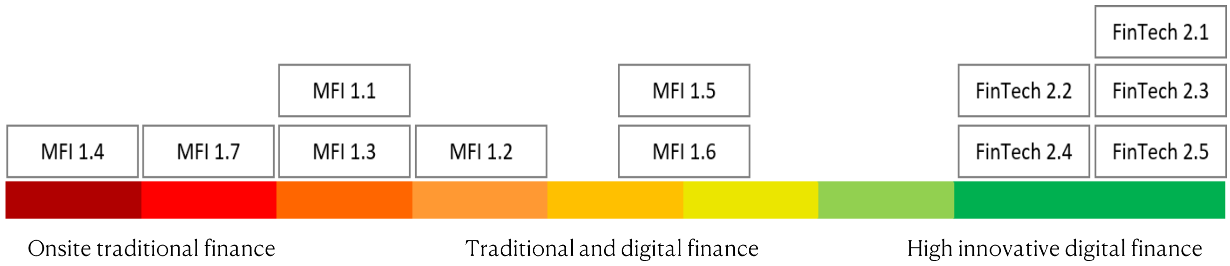
4.2 | Digital Finance

This section provides insights into the utilisation of digital finance within our sample of inclusive finance organisations, shedding light on the digital tools and innovative technologies that enhance the digital customer experience (see Figure 2)

The extent to which organisations incorporate digital finance varies. FinTech companies are typically fully technology-driven, while MFIs adopt digitalisation to differing degrees (see Figure 3). Some MFIs still arrange almost everything manually and are working towards standardised email procedures, while other MFIs have a digital application process and are developing an online platform. Multiple factors influence the digitalisation progress within MFIs, including the national digital ecosystem, resistance to change, digital illiteracy, and customer distrust. However, the COVID-19 pandemic has highlighted the importance and opportunities presented by digital finance. Many MFIs acknowledge that digitisation is essential to remain competitive and expand their services. Consequently, they are committed to advancing digitalisation efforts (Quote 4).

> **Quote 4 (MFI 1.2):** *"And now with all this surfacing of digital tools, we can actually give access to finance and training to everybody in the country."*

Figure 3: Degree of digital finance within the inclusive finance organisations



For those inclusive finance organisations that embrace innovative technologies and digital finance, several digital tools are used to facilitate customer access and interaction with financial services. FinTech organisations offer platforms or portals accessible through mobile apps or desktop interfaces. These platforms are powered by automated processes, open-banking, big data analysis, and algorithms, providing real-time insights into financial services, contract information, and educational resources (Quote 5).

> **Quote 5 (FinTech 2.4):** *"What the app displays is actually just: what is your budget for the month, what is your budget per day to the end of the month? And what are your fixed charges? And what is your income? There are of course a lot of things around that, to present that nice, as such that the user can always see this."*

In an illustrative instance, one of the FinTech companies (FinTech 2.2) offers a financial management tool tailored to SMEs through a user-friendly platform. This platform empowers customers with a comprehensive dashboard, granting them insights into their financial transactions, invoices, business loans, and contract information. Users can efficiently manage their finances, including tasks like invoice management and loan requests. Additionally, the FinTech organisation deploys push notifications, ensuring customers remain well-informed about incoming funds and invoice payments, thus providing a clear view of their financial situation.

Within our sample, two MFIs have already introduced online platforms. These platforms enable customers to apply online for microloans, access loan status information, manage repayments, schedule training sessions, and access educational resources (Quote 6). While some other MFIs currently offer portals primarily containing educational content and lack login options, they express their intent to develop online platforms in the near future. These platforms will grant customers online access to their financial status, training opportunities, and the ability to digitally apply for loans (Quote 7). In the interim, customers can reach out to loan officers or support teams through conventional communication channels, which include email, social media, SMS, and WhatsApp.

> **Quote 6 (MFI 1.6):** *"So when the client once has the loan, they can log in to a personal platform, and then they can see, for example, where they stand in their reimbursements, if there is an event in their area, for example, they can get access to the event and they can know when it takes place. They can also pay down one reimbursement of the loan via credit card through this platform."*

> **Quote 7 (MFI 1.2):** *"We will have soon a portal for our customer base to check up on the status of the loan, to see future trainings, et cetera."*

To facilitate digital finance, inclusive finance organisations leverage innovative back-end technologies. These include cloud computing, big data analytics, algorithms, machine learning, and open-banking. Cloud computing streamlines internal processes, making documentation readily accessible and enabling efficient updates. Big data solutions consolidate data from various sources, such as financial transactions, customer information, and credit bureaus. Algorithms analyse this data, enhancing risk scoring and "know your customer" analysis. Machine learning ensures that algorithms continuously enhance their capabilities over time. Open-banking enables a direct connection between customer bank accounts and the platform, expediting onboarding and offering real-time financial insights. This process adheres to the PSD2 regulation, ensuring data protection.

Moreover, emerging tools for direct customer interaction include digital identification and electronic signatures, already being implemented by certain MFIs. These tools facilitate digital loan application processes, further simplifying customer experiences.

4.3 | Financial Literacy

In interviews, inclusive finance organisations emphasised the importance of a fundamental level of financial literacy for customers to comprehend and effectively use financial services. Customers, especially those seeking microloans, need to fully grasp the nature of a microloan, its purpose, implications, and repayment terms. To ensure customer financial literacy, these organisations are committed to imparting essential knowledge, as exemplified by the following statements:

> **Quote 8 (MFI 1.1):** *"It is customary to explain and discuss with the client all implications of the loan contract: when is the payment due? What does it imply? What happens if they do not pay in due time? What happens if they pay earlier? What happens if they want to withdraw from the loan contract?"*

> **Quote 9 (MFI 1.2):** *"So by the time somebody actually takes up a loan, they do understand totally what it means to have a microloan, what the impact is in the personal budget, in the business budget, et cetera."*

Activities undertaken by these organisations to enhance financial literacy can be distilled into several key solutions, encompassing financial education, personalised information provision and explanation, and the presence of a dedicated support team (selected quotations on financial literacy see Annex 2).

4.4 | Onboarding Process and Financial Education

The financial education aspect of this endeavour primarily takes place during the onboarding process, encompassing training courses and coaching. During this initial engagement, often conducted in one-on-one meetings with loan officers, customers receive valuable financial education. They learn about the nature of microloans, their purposes, implications, and proper utilisation. The primary aim of these meetings is to equip customers with the knowledge needed to use microloans responsibly.

In contrast, FinTech organisations employ fully digital onboarding processes designed for ease and speed. These processes offer step-by-step guidance, ensuring customers receive all necessary information to understand the financial services. Open banking capabilities expedite the onboarding process by automatically extracting data from customers' financial transactions.

Additionally, some MFIs extend their offerings to include non-financial services aimed at enhancing customers' financial literacy and fostering business development. These services encompass training courses and one-on-one coaching:

- Training courses are typically delivered in physical group settings, although during the COVID-19 pandemic, digital platforms became the primary channel. These courses, though voluntary, are strongly encouraged to improve customers' knowledge and strengthen their businesses. The topics covered range from business modelling to marketing strategies, and even financial education.
- Coaching services involve one-on-one mentoring, with coaches offering tailored support to entrepreneurs. This personalised approach covers a wide range of topics relevant to the customer's needs, including financial management.

4.5 | Information Provision and Explanation

Analysis of the data underscores the importance of delivering personalised information in an easy manner to ensure a comprehensive understanding of financial services. Inclusive finance organisations employ a variety of tools to effectively communicate with their customers.

First and foremost, FinTech organisations employ digital notifications, including push notifications and information boxes, to actively provide customers with vital information through their apps, platforms, or email. These digital notifications serve to bolster customers' financial knowledge and increase their awareness of their financial standing. Information boxes, for instance, can contain explanations of financial services, personalised tips and tricks, or intriguing articles related to the subject matter. Leveraging apps and platforms enables the customisation of information according to individual customer circumstances through algorithm-driven personalisation. Real-time insights into the financial services offered by FinTech organisations prove instrumental in enhancing financial literacy, making customers more conscious of their financial situation.

Additional methods for disseminating information and explanations about financial services include storytelling, testimonials, and video tutorials. Storytelling takes the form of blogs, brochures, and articles, in which MFIs and FinTech organisations publish content about financial services, financial education, and customer-relevant topics. The aim of storytelling is to enrich customers' financial knowledge and actively engage them in managing their finances. Testimonials and video tutorials are shared on websites and social media platforms, with testimonials highlighting success stories from existing customers, underlining the value of the financial services provided. Video tutorials, on the other hand, clarify how financial services should be utilised to enhance customers' financial literacy. Tools that facilitate customer interaction, such as webinars and presentations, are also employed. Through these web-based mediums, organisations deliver information and explanations, enabling customers to seek clarifications and pose queries.

To ensure that customers easily comprehend the provided information and explanations, inclusive finance organisations emphasise the avoidance of complex language and legal terminology, which can create confusion. Instead, all documentation and communication prioritise simplicity, ensuring that contracts are transparent, providing accessible information on all aspects of the financial services. For instance, one FinTech organisation streamlines its contracts into an aggregated summary, offering customers a clear and straightforward overview of their loan details and obligations.

4.6 | Support Team

To address the challenge of financial literacy and digital literacy, inclusive finance organisations have established dedicated support teams. These teams consist of customer service centers and loan officers, accessible through multiple communication channels such as phone, email, WhatsApp, and social media. Customers can reach out with questions ranging from password resets to queries about loan details or digital tool usage. Furthermore, when customers have assigned loan officers, they benefit from consistent, personalised support and guidance, essentially functioning as mentors. This multifaceted approach ensures that customers receive comprehensive assistance and can make informed financial decisions with confidence.

4.7 | Digital Literacy

Some of the MFIs in our sample have limited engagement with digital finance, leading them to overlook the digital literacy of their customers. Others, including certain FinTech organisations in our sample, consider digital illiteracy to be beyond their responsibility and thus do not provide specific digital literacy support (quote 10). They often assume their customers possess a fundamental level of digital literacy skills (quote 11).

Quote 10 (FinTech 2.3): *"I think, when it comes to the generation of digital illiterate people, let me put it this way, ehm yes, I think that that is a problem that we [the organisation] actually cannot solve."*

Quote 11 (FinTech 2.2): *"We work with a set of people that at some level have basic digital literacy skills, right, where you can access through all different means, mobile, tablet, computer."*

Conversely, several inclusive finance organisations recognise the importance of addressing digital illiteracy and have introduced tools to bolster their customers' digital literacy. These tools fall into three main categories: the support team, information provision and explanation, and the user experience (as depicted in Figure 4). The following sections delve into these strategies in more detail, and Annex 3 includes selected quotes related to these approaches.

4.8 | Information Provision and Explanation

Our analysis underscores the role of information provision and explanation in nurturing adequate digital literacy, which is also integral to improving financial literacy. As discussed earlier, it is evident that the support team plays a pivotal role in helping customers overcome their challenges related to digital financial services. This support is key to enhancing customers' digital literacy. Providing information and explanations about digital technologies, their benefits, data storage, and data protection plays a vital role in aiding customers' comprehension and building trust in digital financial services. It's imperative to ensure that information is complete and transparent, making all essential details readily accessible to customers.

4.9 | User Experience

FinTech organisations and select MFIs also emphasise the paramount importance of user experience (UX). User experience refers to how customers interact with and perceive digital financial services throughout their entire digital customer journey. These organisations strive to offer an intuitive, easy, and seamless user experience that considers customers with basic digital skills. Within the realm of user experience, three aspects are prioritised: ease of use, transparency, and real-time data insights.

Firstly, prioritising ease of use is crucial for enhancing the user experience. The goal is to create a user experience that is simple, swift, easy to navigate, and effortless to use. When the user experience aligns with these principles, customers with varying levels of digital proficiency can navigate the processes smoothly. Ease of use should be evident across the entire customer journey and can be facilitated through means such as automation, open banking, and straightforward language.

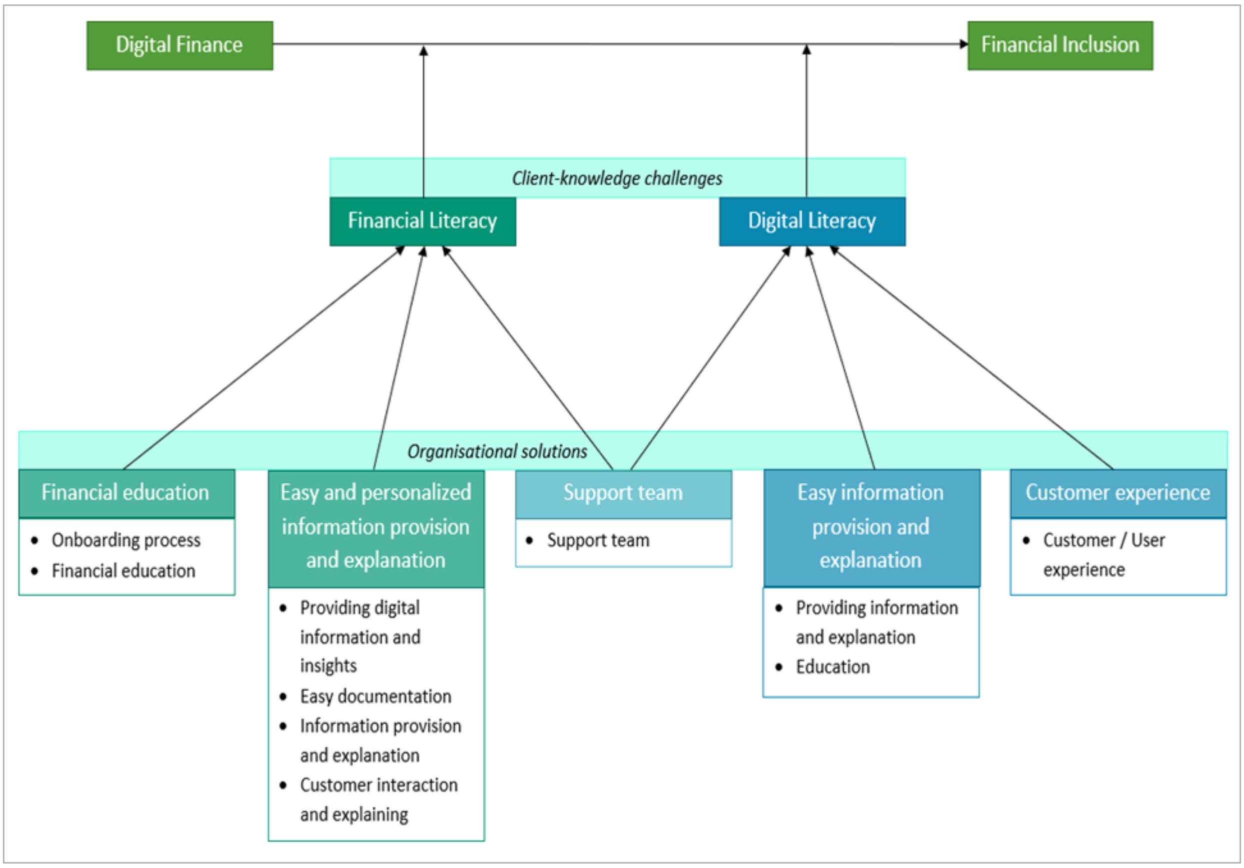
Transparency is another key component of the user experience. Transparency implies that organisations openly and honestly share all necessary information about the financial service with customers to facilitate their understanding, use, and trust in the digital financial service. This openness contributes to an intuitive user experience, as customers can better grasp how to utilise the digital financial service. Digital information provision can be achieved through methods like digital notifications and information boxes.

Furthermore, FinTech organisations' platforms provide real-time insights into customers' financial situations. An intuitive and straightforward overview of a customer's financial situation enhances the user experience, making digital financial services more comprehensible to customers. This leads to increased financial awareness and better financial management practices. An intuitive financial overview can be created by developing a user-friendly front-end.

5 | Discussion and conclusion

The strategies implemented by inclusive finance organisations to tackle the obstacles related to financial literacy and digital literacy are depicted in Figure 4. This visual representation showcases the research model, featuring the identified solutions for addressing these literacy challenges and illustrating the connections between these organisational remedies and the knowledge gaps faced by clients.

Figure 4: Research model including the outcomes from the research



Financial literacy plays a pivotal role in achieving financial inclusion, ultimately leading to improved financial well-being and sustainable development (Goyal & Kumar, 2021; Grohmann et al., 2018; Oggero et al., 2020; Shen et al., 2018). In response to this challenge, inclusive finance organisations have implemented various activities aimed at educating and informing customers, focusing on three key areas: financial education, easy and personalised information provision and explanation, and support teams (see Figure 4).

Financial Education

Financial education is designed to provide customers with a comprehensive understanding of financial services and management. It is essential in enhancing financial literacy, as evidenced by the positive impact of the onboarding process, training courses, and coaching.

While the broader literature presents mixed findings regarding the efficacy of financial education within school programs (Fernandes et al., 2014; Hastings et al., 2013; Stolper & Walter, 2017), this research supports the view that personalised, just-in-time financial education can be highly effective. Customised approaches that address specific customer needs, as well as the incorporation of coaching and expert advice, further strengthen its impact.

Easy and Personalised Information Provision and Explanation

Inclusive finance organisations utilise various channels to provide information and explanations to customers, ensuring a better understanding of financial services. While existing literature emphasises the significance of financial education and financial advice in improving financial literacy (Fernandes et al., 2014; Hastings et al., 2013; Migliavacca, 2020; Stolper & Walter, 2017), the unique approach of providing information and explanation, as observed in this research, is a relatively unexplored avenue. This solution offers new possibilities for addressing financial literacy, but its precise impact warrants further investigation.

Support Teams

Support teams, including loan officers and coaching, are instrumental in resolving customer challenges and improving their knowledge of financial services. This approach aligns with findings from Migliavacca (2020), which highlight the positive impact of financial advisors, particularly when they play an educational role. Establishing long-lasting relationships with customers and offering expert guidance enhances the effectiveness of this solution.

Overall, the various activities implemented by inclusive finance organisations are geared toward increasing the financial literacy of their customers, involving information, explanation, and education. These activities differ between traditional MFIs and technology-driven FinTech organisations, reflecting the variance in their digitalisation strategies.

Digital finance contributes to financial inclusion by removing barriers and indirectly contributing to the Sustainable Development Goals (SDGs) and poverty reduction (Arner et al., 2020; Demir et al., 2020; Mushtaq & Bruneau, 2019; Ozili, 2018). However, the adoption of digital finance varies widely among the sampled inclusive finance organisations, as well as among the countries in the study, with Western-European countries exhibiting greater adoption than Eastern-European nations.

The variance in digital finance adoption can be attributed to several constraints and opportunities faced during the digitalisation process. Key constraints include the readiness of the national digital ecosystem, resistance to change among customers, distrust of digital technologies, and digital illiteracy. These challenges deter the digitalisation process, particularly in regions with underdeveloped digital ecosystems and customers accustomed to traditional financial services. However, the advantages of digital finance, such as increased outreach, cost reduction, and real-time insights into financial situations, motivate organisations to persevere in their digitalisation efforts.

The perception of digital illiteracy varies among inclusive finance organisations, with some viewing it as a government's responsibility to address and others acknowledging it as being also their responsibility. Ultimately, the extent to which digital illiteracy is perceived as a problem is influenced by the national context, particularly the degree of digital technology adoption.

Solutions to address digital illiteracy encompass support teams, information provision and explanation, and the user experience.

Support Teams

Similar to addressing financial literacy, support teams, including customer service centers and loan officers, play a crucial role in enhancing digital literacy. They assist customers by answering questions and ensuring that they understand how to use digital tools. This approach adds a human touch to a digitally driven process, making it more accessible to those with limited digital skills.

Information Provision and Explanation

Information provision and explanation are primarily employed by MFIs to address digital literacy. This approach helps customers understand how digital technologies work and should be used, ultimately improving their digital literacy. The existing literature highlights the importance of digital literacy in an increasingly digital-driven economy and suggests various approaches to teaching it, including at informal educational locations such as community organisations (Meyers et al., 2013).

User Experience

FinTech organisations emphasise the importance of a user-friendly, intuitive, and effortless user experience to encourage the adoption of digital financial services. The existing literature underscores the significance of technology acceptance models (TAM) and user experience (UX) in influencing customers' attitudes toward using digital technologies (Liébana-Cabanillas et al., 2016). The user experience must prioritise perceived usefulness, perceived ease of use, social influence, and the experience of use to stimulate the adoption of digital financial services.

5.1 | Practical recommendations

Practical recommendations for MFIs and FinTech organisations can be derived from the solutions for financial literacy and digital literacy discovered in this research. First, we outline suggestions for MFIs to enhance customer financial literacy and digital literacy within their digitalisation process, followed by insights for FinTech organisations.

Many MFIs have room for growth in their digitalisation efforts. It is advisable for them to digitise their loan application process and create a platform that offers insights into customers' financial situations, facilitates repayments, provides financial education, and delivers personalised notifications. However, it's crucial for MFIs to maintain a balance between technology and personal support from their teams, loan officers, and coaches. To effectively address financial and digital literacy, the following recommendations are drawn from this research:

For Financial Education

To boost customers' financial literacy, it is recommended to retain aspects like onboarding processes, training courses, and coaching in an onsite setting. This personalised financial education allows customers to gain relevant "just-in-time" knowledge and engage in interactive learning, fostering the opportunity to ask questions and receive feedback.

For Information Provision and Explanation in Financial Literacy

Supplement financial education with information provision and explanation methods such as storytelling, video tutorials, and webinars. Incorporate this within the digital platform to ensure easy access to information through digital notifications and articles. Use simple and straightforward language in all materials.

For Support Teams in Financial and Digital Literacy

Maintain the personal touch by assigning dedicated loan officers or coaches to support customers throughout their engagement with financial services. Building long-term relationships facilitates a more effective learning process in financial literacy and business development. Ensure that the customer service center is readily available to answer inquiries on business development, financial literacy, and digital literacy.

For Information Provision and Explanation in Digital Literacy

Introduce tools for information provision and explanation concerning digital literacy, employing digital notifications, video tutorials, and articles. The support team and loan officers should be accessible to address customers' digital technology-related queries, aiding their digital literacy improvement.

For User Experience

When digitising financial services, prioritise an easy, intuitive, and user-friendly experience. A seamless user experience promotes customer adoption of technology and mitigates challenges associated with digital illiteracy, as customers require minimal digital skills to effectively use digital financial services.

The research emphasises the significance of maintaining a balance between technology and human interaction for MFIs, as the personal touch contributes to the customer learning process. FinTech organisations, being technology-driven, should consider evaluating the role of onsite educational activities in enhancing customer financial literacy compared to a fully digital approach. Achieving a balance between high-tech and a human touch is pivotal for MFIs, which value the role of loan officers, coaches, and support teams in facilitating personalised support, enhancing financial empowerment, and fostering digital skills. By contrast, FinTech organisations operate on a fully digital platform, seeking to optimise the user experience.

Finally, a recommendation is extended to national governments and the European Union. Recognise the importance of addressing the challenges of financial and digital literacy and implement suitable educational initiatives to enhance the financial literacy and digital literacy of the population. This endeavour is crucial for promoting financial empowerment, driving economic growth, and achieving Sustainable Development Goals (SDGs).

5.2 | Research limitations

The main limitation of this research is the small sample size, consisting of only 12 inclusive finance organisations. This small sample size raises concerns about the representativeness of the findings for the broader inclusive finance industry. It is possible that different results might emerge with a larger or more diverse sample. The rationale behind this choice of a small sample size is the qualitative nature of the research, which involves in-depth interviews and detailed data analysis. To address this limitation in future research, it is recommended to select a larger sample that better represents the industry.

The qualitative research approach used the Gioia method for data analysis, ensuring rigour and trustworthiness. However, this qualitative method precludes quantitative analysis and hypothesis testing, as there were no statistics available on the research topic. This means that the significance of relationships between identified concepts and causal relationships are challenging to investigate. To conduct statistically rigorous examinations of the findings, future research should incorporate quantitative research methods, employ a larger and more representative sample, and conduct quantitative data analysis.

Interviewer bias is another potential issue that may have influenced the research. Interviewer bias occurs when the interviewer's statements, opinions, tone, or question order impact the responses of the participants. For example, if the interviewer suggested a particular solution, respondents might have been inclined to agree. This bias can distort the collected data, potentially leading to different conclusions. While efforts were made to minimise this bias by using standardised interview protocols and open-ended questions, it remains difficult to completely eliminate interviewer bias in interview-based research.

In summary, future research in this field should prioritise larger and more diverse samples, incorporate quantitative research methods for statistical validation, and continue to work on minimising interviewer bias, thus ensuring more robust and reliable results.

5.3 | Research recommendation

The existing literature on financial and digital literacy remains a work in progress with mixed findings. Consequently, further research is imperative. This study yields two vital recommendations for future research. Firstly, the research scope should be broadened to encompass a larger European sample. This expansion would facilitate a more comprehensive exploration of solutions for financial and digital literacy offered by inclusive finance organisations. Utilising the existing research methodology or employing surveys for efficient data collection can achieve this. Moreover, future research should consider involving customers to gain insights tailored to their specific needs. Secondly, specific solution for financial or digital literacy should be investigated further, in particular its effects in detail, utilising both quantitative research to assess significance and causality, and qualitative research via time-series studies or treatment and control group studies. The involvement of customers is recommended. Additionally, future research should focus on the digitalisation process of Microfinance Institutions (MFIs) and develop a step-by-step guideline to assist MFIs in adopting digital finance and transforming their business processes. Consider how the user experience of digital financial services can be optimally designed. Qualitative research, including interviews with both MFIs and FinTech organisations, may unveil how FinTech solutions can complement microfinance, potentially enhancing contributions to financial inclusion.

Annexes

Annex 1: Interview questions and prompts for MFIs and FinTech organisation

Concepts	Interview questions and prompts	Sample
1. Business model	What products and services does the organisation offer to their customers to create and deliver value? ○ Product usage; ○ Customer segments; ○ FinTech: customer problem statement.	MFIs and FinTech
2. Business model	What are the strategy and mission of the organisation? ○ Goals the organisation strives for.	MFIs and FinTech
3. Financial inclusion	How do the services offered by the organisation contribute to increasing financial inclusion? ○ Dimensions of financial inclusion.	MFIs
4. Financial inclusion	What (other) activities and initiatives are offered by the organisation to increase financial inclusion? And how?	MFIs
5. Digital finance	What technologies are implemented/used by the organisation that are used or experienced by the customers? ○ Customer interaction; ○ Functionalities of the technologies; ○ FinTech: innovative technologies.	MFIs and FinTech
6. Digital finance	How are these technologies related to the financial services that the organisation offers to the customers? ○ Connection between financial services and technologies.	MFIs and FinTech
7. Financial literacy	What activities are undertaken by the organisation to increase the financial literacy of their customers? And how? ○ Activities to improve or support the financial knowledge/ understanding of the customer; ○ Activities to ease the use of financial services; ○ Connection to financial services; ○ Knowledge gained by the customer through these activities.	MFIs and FinTech
8. Financial literacy	What is the role of technology in the activities of the organisation to increase financial literacy? And how?	MFIs and FinTech
9. Digital literacy	What activities are undertaken by the organisation to increase the digital literacy of their customers? And how?	MFIs and FinTech

Annex 2 : Selected quotations on financial littéracies

		○ MFI 1.6: "We provide group training for those who come to our branches and are willing to create a business, but they're not sure on how to start." ○ MFI 1.6: "And then the individual coaching, the topics can be really different, they range from helping clients in order to deal with admin issues related to their business, or how to adapt the marketing strategy, how to change their strategy, how to deal with financial issues."
Financial literacy – Easy and personalised information provision and explanation	Financial literacy – Providing digital information and insights	○ FinTech 2.2: "And so these windows here are examples of push notifications that we can proactively send to customers to show them what's going on in their business when we see a major change in activity." ○ FinTech 2.5: "But we mail a lot of exchange updates, that kind of business, not that they get something every day, but we try to send per month two or three mails to keep you engaged and to keep you talking."
	Financial literacy – Easy documentation	○ FinTech 2.4: "Financial words are sometimes quite difficult and people do not always understand that. But we try to at least ensure that all language is B1 language in the app" ○ FinTech 2.2: "And so we developed this Smart Box, and this Smart Box is presented at the end of the customer experience. And so going through the whole customer experience, we're telling the customer exactly what's going on here to say, look, here's the total amount that you're going to qualify for. Here is what the fees are. Here's how long you want to select on this loan. Here's what that's going to look like for your monthly payments. And then we sum it up in this very US legal looking document. But that's actually quite useful."
	Financial literacy – Information provision and explanation	○ FinTech 2.5: "And we have a blog in which we cover a couple themes. We have there for example interviews and just stories about money." ○ FinTech 2.1: "There's also an introductory video that helps them for their financial literacy."
	Financial literacy – Customer interaction and explaining	○ FinTech 2.1: "What we also have been doing lately is doing webinars, live webinars, where we walk through as a question and answers. So, any company wanting to understand it can then come and understand how the program works." ○ MFI 1.6: "We organise lots of webinars for our entrepreneurs on different topics, and you can find them all online. You can find online like a sort of calendar for all the webinars."

Support team	Support team	○ FinTech 2.2: "And so we have two tiers of customer service representatives, really basic, like, hey, I logged myself out of my account or I forgot my password. And then more advanced stuff, which is really people that know how businesses work." ○ MFI 1.1: "They have a dedicated loan officer. It is a loan officer to look into their business and prepare the documents and that they can address any question that they feel like."

Annex 3: Selected quotations on digital literacy

Aggregate dimension	Second order theme	Quotations
Digital literacy – Easy information provision and explanation	Digital literacy – Providing information and explanation	○ FinTech 2.2: "We try to educate people around what are the protocols, what are the different things that we're doing with our commitments to trust and transparency behind that." ○ MFI 1.3: "many of our clients are not, I mean, still prefer direct contact, and we need to teach them how to use those products that technology allows them, and that our costs will be lower, their costs will be lower, and also interest rates will be lower even if we are able to improve our operational efficiency on that way." ○ FinTech 2.5: "Ensure that the information that you need at that moment, is accessible."
Customer (UX) experience	Customer/ user experience	○ FinTech 2.3: "But I think more important is that they are searching for ways to improve the user experience and how to make their digital services more intuitive and easier." ○ FinTech 2.2: "And it's all done with a simple link on mobile to make it as easy to pay on time as possible. And so we're helping them automate that as well. And so all of that is kind of blending that experience that we're going to do everything for you. But the customers don't necessarily have to be like super tech savvy to do this. That's kind of the whole point of the UX." ○ FinTech 2.5: "We try to take you by the hand, inform you well on the moment that the exchange goes down, we stimulate you to not withdraw, because that is part of the deal. So, because almost nobody has invested earlier, it is very important that the information provision is well." ○ FinTech 2.3: "Yes, we try to increase the financial knowledge and insights by their users."

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