Microenterprises, Financial Innovation and Green Practices: Qualitative Case Studies from Finland

Authors:

Asif Ruman

Postdoctoral Researcher, Department of Economics, Accounting and Finance, Oulu Business School, University of Oulu, Finland. Corresponding author Email: asif.ruman@oulu.fi.

Ahmad Arslan

Professor, Department of Marketing, Management & International Business, Oulu Business School, University of Oulu, Finland. Email: ahmad.arslan@oulu.fi

Petri Sahlström

Professor, Department of Economics, Accounting and Finance, Oulu Business School, University of Oulu, Finland. Email: petri.sahlstrom@oulu.fi

Shlomo Tarba

Professor, Birmingham Business School, University of Birmingham, UK. Email: s.tarba@bham.ac.uk)

This is an author accepted manuscript (AAM) version of the chapter published by Springer in the book "Green Digital Finance and Sustainable Development Goals".

Kindly cite this chapter as:

Ruman, A., Arslan, A., Sahlstrom, P., & Tarba, S. (2022). "Microenterprises, Financial Innovation and Green Practices: Qualitative Case Studies from Finland" in F. Taghizadeh-Hesary & S. Hyun (Ed), ***Green Digital Finance and Sustainable Development Goals,*** pp. 187-204. Springer. Available online at https://link.springer.com/chapter/10.1007/978-981-19-2662-4_9

Microenterprises, Financial Innovation and Green Practices: Qualitative Case Studies from Finland

Summary

This chapter is one of the first academic studies to highlight the critical role of FinTech microenterprises in linking financial innovations and sustainability. Based on the qualitative assessment of three Finnish microenterprises, we show that FinTech can develop unique technology-based sustainable (green) offerings to microenterprises. These offerings provide opportunities for other firms to engage with sustainability-conscious consumers, allow consumers to invest in sustainable firms at reasonable rates of return, and remove the need for paper receipts for credit or debit card transactions. Despite the different fields of operation, the case studies show that FinTech offers a unique market opportunity for the case firms to compete with prominent financial service providers and companies in other service sectors, which was not possible earlier. We found that the innovative offerings by these microenterprises create value for a range of stakeholders, including their customers, which sometimes also includes large financial sector players.

Key Words: Green, FinTech, Finland, Microenterprises, Sustainability

1 Introduction

Financial innovation technologies (FinTech) have gained the interest of academics from multiple disciplines in recent years because of their potential for significant influence on all aspects of the economy, whether at micro or macro levels (Chishti and Barberis 2016; Fischer 2021). At the same time, sustainability has become one of the most important research topics in all social sciences because of visible environmental degradation and increased emphasis on all stakeholders to do their part in this concern (Heikkurinen and Ruuska 2021). To date, research on FinTech has focused on contemporary issues like cryptocurrencies (Lee and Deng 2018), blockchain technology (Fosso Wamba et al. 2020), or relatively well-known FinTech startups like Revolut or Transferwise (Arslanian and Fischer 2019; Pedersen 2020) and the potential of FinTech for sustainable development (Migliorell and Dessertine 2019). It needs to be further highlighted that micro-firms generally (Arslan et al. 2020) and specifically in the FinTech context are less researched. At the same time, micro-firms are very important in all sectors because, according to one estimate, around 93% of firms in Europe are microenterprises (EUSTAT 2019). Prior literature has also established that microenterprises tend to have significantly different strategies and operational dynamics because of their agility and resilience linked to small size, entrepreneurial orientation, and relative lack of resources (Chan et al. 2019; Arslan et al. 2020; Fazal et al. 2021).

Given that microenterprises are almost unresearched in the context of FinTech, there is a theoretical gap that this chapter aims to fill. This chapter aims to undertake an in-depth qualitative assessment of three micro-FinTech startups from Finland, where their financial innovation and green practices will be described in depth with reference to relevant literature, highlighting the uniqueness and novelty of the case firms in the chosen context. The choice of Finland is justified given that it has been referred to as one of the front runners of climate change awareness and sustainable business practices along with its other Nordic counterparts (Bauer et al. 2018; Arslan et al. 2021). To the best of the authors' knowledge, there are no specific empirical studies (whether qualitative or quantitative) on Nordic FinTech microenterprises (startups) and their operational dynamics. Hence, there is a visible contextual (empirical) gap as well, which our chapter aims to fill. This chapter contributes to the extant literature in two ways. First, it is one of the pioneering studies highlighting the operational dynamics of sustainable micro-FinTech firms from the Nordic region. Second, it is one of the few studies that also explain the value chain of micro-FinTech firms by offering a descriptive explanation of use cases of a range of services offered by the FinTech firms. This approach specifies to the readers (especially policy audience) the larger role of FinTech for sustainability than merely focusing on technicalities and analysis of immediate outcomes like a specific service (and its uses).

The rest of the chapter is organized so that the next section offers a brief discussion on methodology and case overview. This is followed by an in-depth description of case micro-FinTech firms and their operations, linked to prior literature wherever applicable. The chapter concludes with a presentation of implications, limitations, and future research directions.

2 Cases Studies

We gathered a sample of 30 FinTech startup firms based in Finland from different relevant databases. After going through those 30 firms, we chose 3 startups that fulfilled the criteria of being a microenterprise and having a visible green (sustainable) outlook in their strategies and operations. We present their business focus, financial innovation, value addition for existing firms, especially small businesses, and green practices. Our analysis and case firms' operations description are based on publicly available information about the case microenterprises from their websites and other relevant resources. Table 9-1 presents a summary overview of the case firms.

Table 1. Case microenterprises overview

Name	Industry classification	Firm type	Number of employees	Inception year	Business description
Bankify oy	Software design and development	Micro	10	2016	IT consulting, IT services
Cooler Future oy	Management consulting	Micro	10	2019	Management consulting and investments
ReceiptHero oy	Software design and development	Micro	3	2018	IT consulting, IT services

3 Bankify

Bankify is a technology microenterprise focused on software development that started operations in 2016. It unlocks digital banking opportunities by providing services driven by customers' needs for personalization, social impact, and gamification. Bankify believes in the courage to change and in intelligent financial choices today for a better and sustainable tomorrow. The Bankify platform brings together everything required to build sustainable finances for customers. It uses open banking and artificial intelligence (AI) to improve the customer experience and increase revenues through personalization and automation. The case firm believes that the world must limit global warming to within 1.5 °C of pre-industrial levels to prevent severe and irreversible damage to our planet. This can be achieved by reducing global annual carbon emissions to net-zero by 2050. To achieve a net-zero carbon emission goal, we must reduce our current emissions and extract out carbon that has already been released into the environment (Bankify 2021a).

Financial markets could play an essential role in achieving the carbon emission goal. There are over US $30 trillion worth of sustainable investment assets that are available for investment in the next 2 years. Before 2030, investments toward sustainable projects worldwide to meet UN sustainable goals should total more than UD $ 90 trillion. About 81% of Millennials and Gen Z want their wealth to be invested responsibly. In the past year, sustainable products worth more than US $500 billion were sold and over US $10 trillion worth of sustainable products were produced. Even though most consumers believe that their purchases should be sustainable, over 72% of consumers want them to be affordable as well (KPMG 2019; Bankify 2021a). At the same time, there is evidence in extant literature that a growing number of consumers support sustainable business initiatives, which ultimately strengthens the legitimacy of those businesses (Arslan et al. 2021). Bankify's sustainable product offering strives to help its customers enable sustainable transformation by providing personalized recommendations for greener products, daily actions, offset opportunities, and sustainable investments to their end customers (Bankify 2021a).

3.1 Business Focus

Bankify provides data-driven recommendations of investment products based on user preferences, demographics, and risk profiles while focusing on sustainable options and utilizing open banking to analyze customer affordability metrics. Users can automate their investments by setting up rules according to which Bankify initiates payments through open banking. Bankify aims to make sustainable investing effortless with personalized recommendations and automated rules while increasing recurring sales. Bankify's customers are companies that build successful end-user solutions and accelerate the change toward innovative sustainable finances. Their partners provide capabilities to enhance their offering and help create holistic end-to-end solutions for Bankify's customers. Bankify's products aim to empower marketplaces, FinTech, retail banks, and other financial institutions to drive user engagement and increase revenues (Bankify 2021a).

3.2 Financial Innovation

Bankify creates a social and marketing channel for finance as an electronic space where their customers can add posts, comments, and likes to build a community and use it to bring more visibility to their corporate clients' products and partners. Moreover, clients do not need to manually enter expense claims because Bankify can automatically extract the necessary information from receipts or other documents. Through organizational open banking partners, the case firm aggregates the product and customer data to provide actionable insights and personalized recommendations that promote sustainable and financially healthy choices (Bankify 2021b). Hence, this specific case firm has the attributes of environmental and financial sustainability, both of which have been stressed by recent studies to be important in the context of financial innovation and sustainability (Deng et al. 2019; Bogle et al. 2020).

3.3 Green Practices

Bankify's green engine helps users switch to sustainable alternatives by providing personalized evaluations of costs and environmental impact. It aims to engage the emerging environmentally conscious customer segment. It further aims to increase sales of sustainable vehicles and financial products by helping customers switch to sustainable alternatives. Bankify brings together everything that is required to build sustainable financial services and empower users to invest sustainably. For example, "smart investments" empower customers with personalized recommendations of green investment opportunities and make regular investing effortless with automated rules.

Bankify believes that carbon emissions are at the core of the issues that cause global warming. Therefore, they have created a software application called "Lehti" that allows its clients to track their carbon footprint. *Lehti* means leaf in the Finnish language. This app allows users to see the impact of their investments on global warming. Moreover, the app also offers suggestions about how clients can offset to compensate for their carbon footprint. Clients can contribute to offsetting projects or complete certain tasks that reduce their carbon footprint. The basic version of this application is offered free to Bankify's clients. Bankify aims to educate consumers about their investment decisions. For example, once an individual owns shares of a company that has a large carbon footprint, that individual owner should also take the respective ownership in the carbon footprint of that company.

In addition, Lehti digs deep into so-called ESG-labeled funds and provides a detailed carbon footprint for these green funds. This allows clients to figure out the true "green-ness" of their investments. Overall, Bankify allows its clients to work on their carbon footprint and make their investments 100% sustainable.

These specific green practices by the case firm to enhance the user's knowledge of green alternatives, including financial ones result in empowering them (Tan et al. 2020). Prior research has also highlighted that such a process develops a competitive pressure for other firms in the same market or value chain that are not yet fully focused on the sustainability dimension (Navaretti et al. 2018). Hence, despite being a microenterprise, the case firm's implications for sustainability can potentially be very strong.

3.4 Services by Bankify

Bankify offers seven services and charges its business clients in three price brackets ranging between 250 euros per month and 750 euros per month. The starter subscription charges 50 cents per month per active user, whereas a scaled subscription that charges 750 euros per month includes 1500 monthly active users. Lastly, Bankify offers enterprise a customized solution that is fully customized in terms of active users, price, and technical support services required (Bankify 2021d).

1) Financial Goals:

Bankify offers its clients a virtual vault that helps them make their personalized financial goals. By setting clear financial goals, clients kick-start their saving or investing journey. This service increases user motivation to save or invest by utilizing gamified, educative, and social elements. It aims to empower users to save or invest by decreasing the barrier to getting started (Bankify 2021d). The financial goals service can be linked to various products, including savings accounts, investment funds, term deposits, or loans.

2) Transaction Rules:

This service offers customizable automated rules enabling users to save or invest on autopilot with customizable data-driven rules. These automated rules allow users to invest with ease, make personalized rules, make saving effortless, and lower barriers to investing (Bankify 2021d). Users can add multiple personalized rules, link savings to their spending behavior, and fully automate their investments and savings. These rules can be set to be periodical, transactional, or income based. Periodical rules allow users to move money or execute transactions each period (e.g., each week or month). Transactional rules allow users to execute a saving or investing transaction with every purchase they make at selected merchants. For example, the consumers can save the spare change by rounding up each transaction. Income-based rules allow users to move a portion of their income to savings or investments. Transactions rules service can be linked to financial products such as current accounts, savings accounts, investment funds, or loans.

3) Daily Sustainable Actions:

This service encourages users to save money while helping the environment by performing sustainable actions from a library of sustainable actions with estimations of their financial impact. Moreover, clients can suggest their own sustainable actions that can be shared with the community. Clients can keep a record of the progress of those sustainable actions while marking the actions as completed each day. Daily actions service enriches the Smart Savings use case and helps users reach their goals by making sustainable actions (Bankify 2021d).

4) Financial Recommendations:

This service provides clients with personalized tips and offers of the best financial products available. Financial recommendations help drive digital sales with data-driven recommendations that match the client's budget and financial and sustainable goals. It brings more visibility to business products and helps increase revenues. This service can improve digital sales efficiency for a wide range of financial products such as exchange-traded funds, leasing, loans, credit cards, savings accounts, investments funds, and subscriptions (Bankify 2021d).

5) Automotive Recommendations:

This service offered by Bankify provides personalized, sustainable alternatives for vehicles. It helps increase sales of green and environmentally sustainable vehicles with data-driven recommendations that match the client's budget. This use case engages a new environmentally conscious group of clients and thus helps increase sales of green vehicles and sustainable financial products. It also provides recommendations that help clients to switch to sustainable alternatives. Automotive recommendation has an AI-powered recommendation engine that selects sustainable, personalized alternatives. It has a built-in calculator of total costs and environmental impact evaluation that helps clients evaluate sustainable alternatives instead of non-green alternatives. This use case supports sustainable alternatives for vehicles and can be used for other durable goods.

6) Social Feed:

This service is an interactive peer-to-peer feed and marketing channel (Bankify 2021d). It drives customer engagement with a feed that enables clients to interact with their peers, and it can also act as a tool for marketing. This service brings more visibility to the products offered by the business, increases revenues, and builds trust among clients and businesses.

7) Smart Scanner:

Bankify offers a smart scanner service using cloud-based optical character recognition (OCR). OCR technology is a business solution for automating data extraction from printed or written text from a scanned document. It then converts the text into a machine-readable form so that it can be used for data processing. Bankify’s smart scanner detects all the required information from financial documents, increases the speed and accuracy of data, and is highly customizable and scalable. This service is used to build the expense management use case of Bankify. The smart scanner has numerous features such as scanning, multiple export methods, detects multiple formats and languages, and reads barcode, text, and multiple line detection (Bankify 2021d).

3.5 Use Cases of Bankify’s Services

The challenge for tech startups is to justify the uses of their platform. In this regard, Bankify has four main use cases that are built on seven services described earlier. These use cases are Smart Savings, Green Engine, Social Finance, and Expense Management (Bankify 2021b). We briefly explain each use cases as follows.

Smart Savings: Businesses using Bankify's smart savings platform can help their clients reach their financial goals effortlessly with automated rules, sustainable actions, and personalized recommendations. Moreover, businesses can keep their customers engaged while helping them to reach their financial goals through data-driven offers and tips. Using smart savings can empower users to reach their financial goals in a sustainable way, increase revenues by cross-selling financial products, and increase customer engagement by building habits with actions (Bankify 2021b). Bankify uses four services to build the smart savings use case. (a) Financial goals: helps the clients of a business to turn their dreams and wishes into real savings goals. This is achieved by creating personalized financial goals. (b) Transaction rules: clients can add data-driven automated transaction rules that clients can add to their savings goals. (c) Daily actions: encourages clients to save by completing sustainable actions with positive social impact. (d) Financial recommendations: utilizes transaction data from open banking to provide personalized tips and offers related to financial products.

Green Engine: This use case of Bankify allows clients to help switch to sustainable alternatives (Bankify 2021c). The green engine offers a personalized, actionable evaluation of total costs and environmental impact, helping clients shift to a financially viable sustainable vehicle. By doing this, the green engine increases sales of sustainable vehicles apart from facilitating cross-selling of financial products. Bankify uses automotive recommendations and financial recommendations to build green engine use case. Automotive recommendations leverage vehicle and user data to provide personalized recommendations of sustainable alternatives for vehicles. Financial recommendations make the shift to sustainable vehicles easier by providing viable financing options to the clients (Bankify 2021c).

Social Finance: Bankify uses social finance by creating a digital space where clients can add posts, comments, likes to build a community, and use it as a marketing channel that brings visibility to a company's products and partners. This is done by integrating an interactive peer-to-peer feed that acts as a marketing channel to enable cross- and up-selling with personalized content. Bankify powers this use case through the Social Feed Service that provides the backend functionality allowing users to interact.

Expense Management: Clients can use this use case to claim expenses instantly instead of having to manually enter expenses or extract the needed information from receipts or other documents. Smart Scanner Service powers expense management and it provides fast, accurate, and reliable scanning of financial documents and enables users to extract data in preferred formats. The main uses of expense management are no manual input, fast approvals, and a single solution to all kinds of expenses (Bankify 2021b).

4 Cooler Future

Cooler Future is a management consulting and investment-focused microenterprise that started operations in 2019. According to its financial statements, the company reported an operating loss of 695,000 euros in 2020. The management of Cooler Future believes in mixing sustainability and finance. It encourages investing in a sustainable portfolio to drive returns and fight climate change at the same time such that it is good for the client's finances and the planet. The case firm views investing as similar to a democratic process like voting. With each investment decision, clients either vote for or against the planet. According to the organizational mission, everyone should be able to invest without having to harm the planet. The mission of Cooler Future is to help clients generate positive climate impact while earning fair financial returns. The case firm has an international and passionate team of finance, sustainability, technology, marketing, and hyper-growth experts (Cooler Future 2021a).

Many sustainable investment funds are fossil fuel-heavy or simply greenwashed, as highlighted in prior relevant research (Yu et al. 2020). That is why Cooler Future strives to do things differently. Pairing their investment know-how and climate change expertise, the case firm plans to outvote carbon emitters and make it easy for clients to invest in the "green options" that are committed to reducing their emissions and are serious about fighting climate change. The core values of Cooler Future are positivity, responsibility, and honesty. By positivity, Cooler Future means that reversing climate change is urgent, and believes this is still possible. They take responsibility in ensuring visible impact and financial performance of the companies where they invest. Another value is that they believe in being honest about what they can and cannot do. Recognizing the complexity around investments and climate change, they try to be transparent about their decisions and choices (Cooler Future 2021a).

4.1 Business Focus

Cooler Future is an investment fund that takes climate change as seriously as investing (Cooler Future 2021a). They assure their clients to invest in companies that have future-proof climate strategies and ambition to cut down greenhouse gas emissions. The Cooler Future investment strategy is built on maximizing financial returns while prioritizing Mother Earth. Their portfolio is made up of a diversified mix of investments chosen to help clients grow their money by investing in stocks and bonds that contribute to reducing or avoiding greenhouse gas emissions (measured in carbon dioxide emissions).

4.2 Financial Innovation

The Cooler Future global portfolio consists of public listed companies from all over the world. They offer a unique mix of green bonds and large-, mid-, and small-cap equities in a variety of sectors (Cooler Future 2021b). Their specialty lies in their investment methodology, which is called, “Impact-first methodology.” It consists of the following steps (Cooler Future 2021c):

- Impact analysis: Cooler Future screen, filter, and narrow down a list of thousands of companies to select the strongest climate forerunners and future winners with climate-aligned strategies and ambition to reduce emissions. Impact analysis implies that they sort investment options based on highest impact for the climate. They choose the strongest climate forerunners and future winners with climate-aligned strategies and plans. On the other hand, they ignore the companies that would otherwise be a sound investment opportunity but have a bad climate impact. In the financial analysis step, they choose investment options with the best positive climate impact and sort them based on their financial fundamentals. They conduct a detailed financial review to ensure returns are in line with asset class-specific market expectations.
- Unique portfolio: The unique Cooler Future portfolio includes best-in-class companies and securities regarding climate targets, ambition level, overall performance, and competitive return. The portfolio is formed in line with the theoretical and empirical understanding of modern portfolio theory. A unique portfolio is formed from chosen investment options based on steps one and two and specific weights are allocated to each qualified investment option. In the final step, they monitor returns on the unique portfolio for a quarter and rebalance the portfolio accordingly. This continuous monitoring ensures consistent progress and performance in both climate metrics and financial variables.
- Financial analysis: Detailed financial review is performed to ensure that returns are in line with asset class specific market expectations. Cooler Future perform in-depth analysis because their model is built on rigorous multiple-step research to ensure that clients will be able to grow their money and track the CO_2 equivalent (CO2e) emissions of companies they invest in. Potential investment selection is based on multiple databases by creating a pool of thousands of companies across sectors and geographies to form the starting investable universe, which is then narrowed down by applying their risk appetite filters. Then they perform screening for carbon disclosure using the data from the Carbon Disclosure Project (CDP). They screen the companies that have a solid and transparent process set up to report their climate impact. Next, they pick companies that have science-based emission reduction targets that have already been approved. They also assess companies that are in the process of validating targets with Science Based Targets (SBT). In the next phase, companies that have passed SBT and CDP screening are reviewed further to ensure their overall business model is aligned with their climate targets. Moreover, to check the company’s reputation, they review NGO reviews and media coverage from the past 5 years. As the next step, they run

carbon stress tests and economic scenario analyses to understand how the company valuation changes when it executes its CO2e reduction plan. This process is known as climate hedge analysis. Finally, to perform fundamental analysis of selected firms, they assess the overall business model, capital structure, earning quality and forecasts, and more, to ensure the financial return alongside the CO2e reduction. Those organizations that successfully pass each step of the process make it to the Cooler Future fund.

- Quarterly monitoring: Cooler Future continuously monitor each investment to secure constant progress and performance in both climate and finance metrics.

This detailed methodology is unique to this case microenterprise and addresses the challenges highlighted by prior scholars, including lack of specific climate impact assessment in some cases (Newman et al. 2017), lack of continuous tracking (Marcke 2018), and lack of clarity or transparency (Tuhkanen and Vulturis 2020) with green investments including bonds.

4.3 Green Practices

The Cooler Future portfolio currently consists of public equity and green bond holdings that are selected based on the impact-first investment approach. Every stock or bond they invest in has a future-proof climate strategy to reduce emissions. Many sustainable investment funds are fossil fuel-heavy or simply greenwashed. That is their main motivation to use the impact-first methodology in investing (Cooler Future 2021c). Pairing their investment know-how and climate change expertise, they aim to outvote carbon emitters and make it easy for clients to invest in the "good firms," which are committed to reducing their emissions and are serious about fighting climate change.

Some examples of these firms are explained below. Moreover, Cooler Future believes in transparency, and they are quite transparent by allowing their clients to track the performance of companies in a portfolio in terms of CO_2 emissions. Their portfolio consists of public equity and green bond holdings, selected based on the impact-first investment approach. With their global portfolio, listing companies from all over the world, they offer a unique mix of green bonds and large-, mid-, and small-cap equities in a variety of sectors. Every stock or bond has a future-proof climate strategy to reduce emissions. They invest in best-in-class companies that show their commitment to fighting climate change (Cooler Future 2021b). Some of the examples are provided as follows.

Signify: is a world leader in lighting. The company provides professional customers and consumers with quality products, systems, and services. Their connected lighting offerings bring light and the data they collect to devices, places, and people; redefining what light can do and how people use it. Signify serves customers worldwide.

Ørsted A/S: provides utility services. The company engages in the development, construction, and operation of offshore wind farms and generates power and heat from power stations. Ørsted serves customers worldwide.

Verbund AG: provides integrated electric generation, transmission, and distribution services. The company produces power through the operation of hydro-electric, thermal, and wind power generators. Verbund transmits and distributes power to customers worldwide.

Schneider Electric SE: manufactures electrical power products, serving customers worldwide. The company offers car chargers, home security goods, light switches, access control, sensors, valves, circuit breakers, cables, accessories, signaling devices, fuses, motor starters, and voltage transformers.

UPM-Kymmene Oyj: manufactures forest products. The company focuses on magazine papers, newsprint, and fine and specialty papers, and also makes self-adhesive labels, siliconized papers, industrial wrappings, and packaging papers. In addition, its wood products division produces sawn products, plywood, and other building materials.

Telefonica SA: operates as a telecommunications company and offers fixed and mobile telephone, broadband, and subscription television services, as well as cybersecurity, IOT, big data, and cloud solutions. Telefonica serves customers worldwide.

Owens Corning: produces residential and commercial building materials, glass-fiber reinforcements, and engineered materials for composite systems. The company offers its products globally to various industries.

Apart from being thorough in their investment selection as explained earlier, Cooler Future strives to be transparent. Their transparent approach allows clients to track performance of companies in a portfolio in terms of CO2e. To highlight the quality of their selection and investment approach, they compare what ESG scoring firms offer and what Cooler Future offers. In terms of impact, six factors are mentioned: carbon footprint, CO2e reduction pathways, assessment of bonds' environmental impact, ESG analysis, continuous impact monitoring, and tracking of climate performance. Out of these six, ESG covers only one factor and Cooler Future covers all six impact factors. Moreover, in terms of investments, they mention two factors, namely, diversification and transparent dialogue with the community. ESG addresses neither of these factors while Cooler Future addresses both. For example, Cooler Future performs diversification based on impact drivers and ESG performs diversification based on financial drivers (Cooler Future 2021c). It has been highlighted earlier as well that this transparency is very important, especially in the context of sustainable (green) finance (Lee and Shin 2018; Marcke 2018). In addition, the classification of Cooler Future as a microenterprise is helpful because there is evidence in prior literature that firms with small size, agility, and lack of compartmentalization and bureaucratic structures tend to be more transparent as well as innovative (Forssbeck and Oxelheim 2014; Pompella and Matousek 2021). These traits also provide such microenterprises with a competitive advantage against large well-established players in the market (Munoz 2010; Arslan et al. 2020).

5 ReceiptHero

ReceiptHero is a software design and development firm that uses a marketing motto of "rethink the receipt." The firm started operations in 2018. The company reported a loss of 571,000 euros in its financial statements for the 2020 financial year. It strives to develop digital receipts that add value to client purchases and privacy, and at the same time, helps businesses to master their customer experience and loyalty. It is a digital and safe home for managing client purchase data and a next-level platform for businesses to engage with their clients. The management of ReceiptHero considers itself a small ingredient of the future of digital sustainable finance: a small team comprised of entrepreneurs, tech visionaries, and coders turn data to a better functioning tomorrow. Their business is sustainable because they are trying to minimize the usage of paper receipts and replace paper receipts with digital ones (ReceiptHero 2021a).

ReceiptHero plans to rewrite the rules of the data economy and support the shift to more sustainable and mindful consumption. It takes a high level of respect for sustainable solutions from both consumers and businesses to choose a digital alternative to paper receipts. This step asks for bold solutions and powerful technology capabilities. ReceiptHero provides a safe space for consumers, merchants, and banks to turn traditional transactions into meaningful interactions (ReceiptHero 2021a).

The process of using ReceiptHero uses two steps. First, a customer can create an account with ReceiptHero and shop at stores supported by the company. Second, the customer pays with a personal payment card and receives a digital receipt automatically, in real time and with full privacy. From the perspective of consumers, a receipt is more than just a piece of paper. It represents data about the individual and their consumption (patterns) of products and services. Furthermore, the receipt is a form of private property that only the consumer should control. For example, one individual user of ReceiptHero (Ville) shares his experience (ReceiptHero 2021b) as follows: “Why is it that after making a contactless payment, we still have to wait for a physical receipt to be printed? I signed up to ReceiptHero because I like having my receipts digitally and in one place. More and more stores are now joining in thanks to ReceiptHero.”

From the perspective of businesses, ReceiptHero presents an opportunity to utilize unique individual consumer data and patterns efficiently. ReceiptHero believes that the era of big data has kicked consumer privacy to the curb, with no regard for how much data collection is too much. By taking ReceiptHero’s products into use, a business can manage consumer data in a privacy-focused way and still have the benefits of a direct marketing connection to a business's customers (ReceiptHero 2021c). One business client of this firm, R-Kioski, shares their experience with ReceiptHero. Maria Sjoroos, IT director of R-Kioski says that "Our customers visit an R-Kioski location about 80 million times every year. This naturally generates a large number of receipts, and so implementing modern digital receipt service with ReceiptHero is (sustainable, efficient and) a natural next step for us” (ReceiptHero 2021c).

Similarly, Tomi Hakari, a senior business developer at Nordea Bank in Finland believes that the ability to digitize clients’ receipts, as provided by ReceiptHero, gives clients greater insight into their spending habits, and a less cluttered financial life. Tomi believes that working with ReceiptHero to build this feature for Nordea clients is an exciting step into the future of finance (ReceiptHero 2021c).

5.1 Business Focus

ReceiptHero works with banks, merchants, payment service providers (PSPs), and app developers and delivers receipts automatically from merchants to customers’ banking and accounting apps. They are building a digital ecosystem for receipts to be created and distributed across multiple channels. The case firm describes the basic process in three steps: 1) the customer pays with a bankcard at over 500+ ReceiptHero activated locations globally, 2) the customer’s bankcard is matched against the itemized transaction, and 3) the customer views the digital receipt within one of the partner bank apps. Purchase data that is generated by customers’ purchase patterns are valuable yet underutilized sources of trends and financial health. Banks are building budgeting features without clear access to how their customers spend their money. For business customers, filing expenses is still incredibly cumbersome (ReceiptHero 2021a). ReceiptHero has developed solutions to address these issues.

5.2 Financial Innovation

ReceiptHero is building a fully digitalized receipt platform where merchants, banks, and customers can use receipt data. They integrate into point-of-sale systems and payment solutions to build digital receipts, which are then passed into accounting software and banking apps. ReceiptHero delivers digital receipts automatically from merchants to customers' banking and accounting applications. The data sent via ReceiptHero's application programming interface includes the same information seen on a paper receipt, the tax levels, the company information, and the product level data. For banks and PSPs, ReceiptHero is one of the most advanced PCI DSS (payment card industry data security standard) compliant partners for digital receipts. Hence, it is obvious that ReceiptHero's financial innovation offers benefits to both businesses and individual consumers while maintaining the sustainability (no paper usage) element. Hence, this case firm's financial innovation includes value creation for multiple stakeholders, the importance of which has been stressed in prior studies on FinTech dynamics (Gozman et al. 2018; Gasmi 2020).

5.3 Green Practices

ReceiptHero's mission is to eliminate the paper receipt. At least 50% of paper receipts are made using bisphenol A, a substance classified as toxic to humans and wildlife by the EU. Two out of every three paper receipts are eventually thrown away unused, and at least 50% of paper receipts are almost impossible to recycle. ReceiptHero also donates $1 to OneTreePlanted (a conservation charity) for every new merchant that joins the digital receipt platform, setting a 5-year goal to plant one million trees (ReceiptHero 2021d). Hence, this case firm is playing an important role in the significant reduction of paper use (slowing deforestation), which is an aspect that has been highlighted as a major sustainability concern (Shenoy and Aithal 2016).

A comparative summary of the operations of the three case firms is presented in Table 2.

Table 2. Summary of operations and attributes of case firms examined in this study

Firm name	Operational direction	Sustainability/green emphasis
Bankify	The firm augments the banking service needs of clients of businesses that utilize Bankify services.	Provides green alternatives for consumer decisions. For example, green vehicle choices, and carbon impact of other consumer choices.
Cooler Future	The firm provides investment services to its clients.	Green and sustainable investment methodology that prioritizes climate impact over profitability of an investment.
ReceiptHero	Digitizes and automates consumer receipts and utilizes	Prioritizes sustainable actions by encouraging consumers to

	individual consumer spending data efficiently.	use digital receipts rather than paper receipts. Donate specific dollar amounts to OneTreePlanted, which plants one tree per dollar donated.

6 Conclusions and Policy Implications

This chapter has examined the roles of FinTech microenterprises in sustainability. Based on qualitative assessments of three Finnish microenterprises, this chapter shows that FinTech allows microenterprises to develop unique technology-based offerings, including the ability to link other firms with sustainability conscious consumers, investing in sustainable firms at good rates of return, and to remove the need for paper receipts for credit or debit card transactions. Despite the different fields of operations, the case studies showed that FinTech offers a unique market opportunity for the case firms to compete with large players in the financial sector and in other services, which was not possible earlier. This role of FinTech as a disruptive innovation that changes the rules of the game in the financial sector is being increasingly acknowledged by scholars (Palmié et al. 2020). It is apparent from the case studies that the influences of FinTech go beyond the immediate stakeholders of the firms and can have implications for the whole services ecosystem and business models. Based on the analysis and findings, this chapter offers both theoretical and managerial implications.

A major theoretical implication relates to the need for specific conceptual work to develop relevant theoretical models explaining FinTech, sustainability, and microenterprise interrelationships at strategic and operational levels. Despite the emergence of an increasing number of academic studies on FinTech, with some also focusing on smaller firms (although rarely microenterprises), the lack of such frameworks is a critical hindrance in conceptual development and enhancement. A key takeaway for the managerial audience from this chapter is the importance of looking at the entire value chain while thinking about designing a specific service because the financial and sustainability-related outcomes go beyond immediate stakeholders. It has been highlighted earlier that agility and lack of bureaucratic structure are key strengths of microenterprises, which also foster innovation. Because of the changing and increasingly tough competitive outlook of the FinTech sector, microenterprise managers should continue with this innovative service offering approach and try to be part of the value chain of large enterprises to drive change toward sustainability. The findings of this study suggest that, as a policy, businesses should present a carbon footprint of each consumer decision and place higher importance on sustainable alternatives. Microenterprises, small to medium-sized enterprises, and large corporations can adopt small but powerful sustainable actions, such as reforestation using profits, educating their customers about climate impact and green alternatives, and realizing that every investment decision or consumer choice is a vote in favor of the environment or against it.

Like any other academic study, this study has its limitations. The first limitation relates to the reliance on published secondary data sources while presenting the case firms. However, despite the lack of primary data (e.g., by interviews), we have been able to highlight the financial innovations of microenterprises as well as how they influence sustainability drive directly as well as indirectly in their larger value chain. Finnish (Nordic) FinTech enterprises have not been prominent in the academic discourse on FinTech and sustainability. This chapter has highlighted their important roles. Future studies can build on this work and undertake primary research to untangle the specific processes and strategies of FinTech microenterprises in relation to sustainability by focusing on a specific function or stakeholder. Given that this chapter is exploratory in nature with the goal of highlighting novel technologies used by FinTech (startup) microenterprises, we presented the cases in a more descriptive manner, which can be considered another limitation. However, future studies can take a more analytical approach and highlight sectoral, size, or national differences among the operations of FinTech firms in different contexts.

References

Arslan A, Golgeci I, Haapanen L, Tarba S, Cooper C, Degbey WY (2020) Cause-related marketing, legitimacy and internationalization of professional service firms: a case study of a football talent scouting microfirm. International Marketing Review 37(5)885–899

Arslan A, Haapanen L, Hurmelinna-Laukkanen P, Tarba SY, Alon I (2021) Climate change, consumer lifestyles and legitimation strategies of sustainability-oriented firms. European Management Journal 39(6), 720-730.

Arslanian H, Fischer F (2019) The future of finance: the impact of FinTech, AI, and crypto on financial services. Springer, Cham

Bankify (2021a) Introduction to Bankify. https://bankify.io/about-us/

Bankify (2021b) Use cases of Bankify. https://bankify.io/smart-savings/

Bankify (2021c) Sustainable use case offered by Bankify. https://bankify.io/green-engine/

Bankify (2021d) Services offered by Bankify. https://bankify.io/financial-goals/

Bauer B, Watson D, Gylling AC (2018) Sustainable consumption and production: an analysis of Nordic progress towards SDG12, and the way ahead. Nordic Council of Ministers. http://norden.diva-portal.org/smash/get/diva2:1231011/FULLTEXT01.pdf

Bogle M, Scott K, González J, Theodos B (2020) Leveraging Fintech for financial health. https://www.urban.org/sites/default/files/publication/102404/leveraging-fintech-for-financial-health_0.pdf

Chan YE, Denford JS, Wang JJ (2019) The co-evolution of IT, knowledge, and agility in micro and small enterprises. Journal of Information and Knowledge Management 18(3):1950027

Chishti S, Barberis J (2016) The Fintech book: the financial technology handbook for investors, entrepreneurs and visionaries. Wiley, Hoboken, NJ

Cooler Future (2021a) Introduction to Cooler Future. https://coolerfuture.com/en/page/about-us

Cooler Future (2021b) How Cooler Future works. https://coolerfuture.com/en/page/how-it-works

Cooler Future (2021c) Impact first methodology of Cooler Future. https://coolerfuture.com/en/page/investment-approach

Deng X, Huang Z, Cheng X (2019) FinTech and sustainable development: evidence from China based on P2P data. Sustainability 11(22):6434

EUSTAT (2019) Small and medium-sized enterprises: an overview. https://ec.europa.eu/eurostat/web/products-eurostat-news/-/edn-20191125-1

Fazal SA, Al Mamun A, Ahmad GB, Al-Shami SSA (2021) Entrepreneurial competencies and microenterprises sustainability. Vision. https://doi.org/10.1177/0972262920983997

Fischer M (2021) Fintech business models: applied canvas method and analysis of venture capital rounds. De Gruyter, Berlin

Forssbaeck J, Oxelheim L (2014) The Oxford handbook of economic and institutional transparency. Oxford University Press, New York

Fosso Wamba S, Kala Kamdjoug JR, Epie Bawack R, Keogh JG (2020) Bitcoin, Blockchain and Fintech: a systematic review and case studies in the supply chain. Production Planning and Control 31(2-3):115–142

Gasmi N (2020) Corporate innovation strategies: corporate social responsibility and shared value creation. Wiley, Hoboken, NJ

Gozman D, Liebenau J, Mangan J (2018) The innovation mechanisms of fintech startups: insights from SWIFT's innotribe competition. Journal of Management Information Systems 35(1):145–179

Heikkurinen P, Ruuska T (2021) Sustainability beyond technology: philosophy, critique, and implications for human organization. Oxford University Press, Oxford

KPMG (2019) Responsible investing. https://home.kpmg/xx/en/home/campaigns/2019/06/responsible-investing.html

Lee D, Deng RH (2018) Handbook of blockchain, digital finance, and inclusion: Cryptocurrency, FinTech, InsurTech, and regulation. Academic Press, London

Lee I, Shin YJ (2018) Fintech: ecosystem, business models, investment decisions, and challenges. Business Horizons 61(1):35–46

Marke A (2018) Transforming climate finance and green investment with blockchains. Academic Press, London

Migliorelli M, Dessertine P (2019) The rise of green finance in Europe. Opportunities and challenges for issuers, investors and marketplaces. Palgrave Macmillan, Cham

Munoz JMS (2010) Contemporary microenterprise: concepts and cases. Edward Elgar, Cheltenham

Navaretti GB, Calzolari G, Mansilla-Fernandez JM, Pozzolo AF (2018) Fintech and banking. Friends or foes? SSRN. http://dx.doi.org/10.2139/ssrn.3099337

Newman P, Beatley T, Boyer H (2017) Resilient cities: overcoming fossil fuel dependence. Island Press

Palmié M, Wincent J, Parida V, Caglar U (2020) The evolution of the financial technology ecosystem: an introduction and agenda for future research on disruptive innovations in ecosystems. Technological Forecasting and Social Change 151:119779

Pedersen N (2020) Financial technology: case studies in Fintech innovation. Kogan Page, London

Pompella M, Matousek R (2021) The Palgrave Handbook of FinTech and Blockchain. Palgrave Macmillan, Cham

ReceiptHero (2021a) Introduction to Receipt Hero. https://www.getreceipthero.com/about-us/

ReceiptHero (2021b) Consumer feedback about Receipt Hero. https://www.getreceipthero.com/consumers/

ReceiptHero (2021c) Consumer feedback about Receipt Hero. https://www.getreceipthero.com/businesses/

ReceiptHero (2021d) Green practices offered by Receipt Hero. https://www.getreceipthero.com/news/replanting-the-global-forest-with-one-tree-planted/

Shenoy P, Aithal PS (2016) A study on history of paper and possible paper free world. International Journal of Management, IT and Engineering 6(1):337–355

Tan T, Zhang Y, Heng CS, Ge C (2020) Empowerment of grassroots consumers: a revelatory case of a Chinese FinTech innovation. Journal of the Association for Information Systems 22(1):article 3

Tuhkanen H, Vulturius G (2020) Are green bonds funding the transition? Investigating the link between companies' climate targets and green debt financing. Journal of Sustainable Finance and Investment. https://doi.org/10.1080/20430795.2020.1857634

Yu EPY, Van Luu B, Chen CH (2020) Greenwashing in environmental, social and governance disclosures. Research in International Business and Finance 52:101192