

SUMMARY OF THESIS

Varga Dávid

Conceptualising Sustainability in the Fintech Sector

Ph.D. dissertation

Supervisor:

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1. Background of the research

1.1. Context of the research

More than 50 years ago, in *The Limits to Growth*, the Club of Rome published a warning. The authors forecasted that if the present growth trends in the world population, industrialization, pollution, food production, and resource depletion continued unchanged, the limits to growth on this planet would be reached within the next one hundred years (Meadows et al., 1972). The report received considerable attention. Environmentalists applauded the report, but other stakeholders, such as politicians, companies, and economists, were less enthusiastic about the concept of a zero-growth economy (Colombo, 2001). The report's key message was that the continued growth of the global economy would lead to overshooting planetary limits by the twenty-first century, leading to a potential collapse of the population and economy (Turner, 2008).

The Limits to Growth attracted attention to the importance of 'sustaining' but the term sustainable development (SD) became popular only 15 years later. The United Nations, in its report "Our Common Future", made sustainable development its core principle. The report, known as the "Brundtland Report", proposes long-term strategies for achieving sustainable development. The report defined sustainable development as development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Brundtland, 1987).

Lélé highlighted the importance of taking a holistic approach to sustainable development and that corporations and society must work together (Lélé, 1991). Businesses need to support sustainable development, irrespective of their operating sector. To do so, they must reinvent how they create and deliver value (Cooper, 1994). Elkington created the triple-bottom-line (TBL) concept to help corporations operationalize the concept of sustainability. The triple-bottom-line concept assumes that a company's strategy should rely on three main pillars: economic, environmental, and social value creation. Sustainable organizations understand that pursuing financial profit involves obligations toward internal and external stakeholders, society, and the environment (Elkington, 1997).

Sustainable development has become key to changing the unsustainable structure of the current economy structure and more sustainably distributing resources (Van den Bergh, 2007). Sustainable development requires a complex approach to balancing economic growth and environmental and social improvements (Charter et al., 2008; Hall et al., 2010). Social expectations and customer demand play an important role in how companies conduct their business. To meet customer demand, companies must include sustainable development considerations in their strategy-making and day-to-day activities (Birkin et al., 2009). All stakeholders must support sustainable development to achieve systemic changes. Stakeholders include the public and private sectors and developed and developing countries (Perrini and Tencati, 2006; Ashoka, 2010; Fisac Garcia et al., 2013).

Banks are a key part of the private sector. Banks significantly affect sustainable development through their social and environmental impact and intermediary role between savers and borrowers. A bank's mission is critical to its social and environmental impact, as it has a cascading effect on its strategy, business models, and executable business roadmaps (Dees, 1998). Several banks have recognized the increase in demand for social and environmentally conscious services and strategically shifted to integrate more sustainability-related aspects into their businesses (Neven and Droge, 2001).

The scope of the responsibility of banks is widening, from social inclusion and environmental protection considerations to providing their products and services to socially and economically underprivileged groups. There is a critical need for a more integrated and sustainable financial system that includes new mechanisms for enhancing global financial security (Peeters, 2005).

Changing stakeholder expectations, such as an increase in the attention to labor practices, the preservation of cultural heritage, addressing climate change and wealth inequality, require banks to broaden their understanding of sustainability-related areas and their role in the process (Bromund, 2014). Banks have both direct and indirect social and environmental impacts. Banks have a direct impact via their operational activities. Direct impacts, for example, include the environmental impact of office buildings, brick-and-mortar branch networks, physical IT infrastructure, travel, paper use, waste management, and energy consumption. Their indirect impacts are more significant. These include the criteria they use for project finance, the development of new financial products and services, and the bank's impact on social inclusion, environmental protection, and preservation (Jeucken and Bouma, 2017).

Banks also play an important role in supporting sustainable development via their financing activities. Sustainable development requires significant mobilization of capital. The United Nations continues to play an important role in sustainable development with several key initiatives. The 2030 Agenda for Sustainable Development highlights the need to create an efficient and sustainable economy for supporting sustainable development and defines 17 Sustainable Development Goals (SDGs) and 169 targets (Mika and Farkas, 2017). The SDGs will play an important part in global sustainability-related initiatives and rely on public and private financing. SDGs include both social and environment-related goals.

The Paris Agreement, which targets a subset of sustainability – climate change – was concluded in 2015 to limit the maximum rise in global temperature to a maximum of 1.5-2 degrees Celsius. Scholars estimate that approximately three trillion USD in green investments are required globally in a year to reach the ambitious target (Schmidt-Traub, 2015; Schmidt-Traub and Sachs, 2015; Puschmann et al., 2020; Bhowmik, 2022). Estimations of the total amount of investment required vary from 20 to 23 trillion USD (Ethical Markets Media, 2011), to 53 trillion USD (Dhungel, 2022) until 2030.

Evidence shows that banks have not fully lived up to their expected role in supporting sustainable development. It is estimated that in 2021, 632 billion USD was invested into green initiatives, far less than the required three trillion USD a year (Clark, Reed, Sunderland, 2018; Dhungel, 2022). Banks have also failed to reach and involve a significant part of society in the financial sector. In 2013, the World Bank Group set the challenging target that all of the two billion unbanked adults should have a bank account by 2020 (Michael et al., 2022). This goal was not met: Demirgüç-Kunt et al. estimate there are still 1.4 billion unbanked adults worldwide (Demirgüç-Kunt et al., 2022).

Sustainable development requires systemic innovation (Boons et al., 2013). Newly emerging financial technology companies – Fintechs – have started filling the gap by leveraging information and communications technology (ICT) and new financial business models. Fintechs started gaining momentum almost fifteen years ago as a result of the global financial crisis in 2008, when traditional banks held back from providing financial services (Arner et al., 2016). Since then, Fintechs have become a powerful driver of technological change in the financial sector. Fintechs have grown significantly in the past years, and today there are almost

19,000 Fintechs globally (CB Insights database, 2022). Total investment into Fintechs reached approximately 214 billion USD between 2010 and 2021 (Statista.com, 2022), and now almost 300 Fintech companies have been valued at at least one billion USD (FintechLabs.com, 2022).

Fintechs have successfully entered many core areas previously dominated by banks and could change the public perception of financial services. Research by PwC, an international professional services firm, confirmed that one in every three Millennials does not think they will need a traditional bank to help manage their finances (PwC, 2016).

The social impact of Fintechs has already become evident. Fintechs have seen the market opportunity in the currently underbanked population. The perceived lack of empathy and proximity of traditional banks to underbanked users creates a market opportunity for financial inclusion, where Fintech companies may prosper (Tate and Bals, 2016). There are already more than twenty Fintech companies with an active user base of more than one million users, and some Fintech companies have more than 100 million users (CB Insights Database, 2022).

A recent global event further highlighted the need for fully digital financial services. COVID-19 resulted in a global pandemic, and people needed to stay home. As coronaviruses can survive for several days on the surfaces of items, including fiat money, customers started to use cashless payment methods more often. The pandemic resulted in substantial growth in Fintech services (Singh and Sharma, 2022). COVID-19 has increased the need for digital financial services and highlighted the need for digital financial inclusion (Tay et al., 2022). Due to the pandemic and the ongoing climate, inequality, and sustainability crisis, the importance of SD has further increased. It has also become more obvious that finance needs to become more resilient and have means of supporting SD efficiently. COVID-19 has also reinforced the importance of technology and the digitalization of processes (Arner et al., 2022).

1.2. Relevance of the research

The literature highlights that while a large body of knowledge is available about the role of corporations and traditional financial institutions, such as banks in supporting sustainable development, our understanding of the sustainability implications of Fintechs is still limited.

The research also identified numerous definitions of Fintechs, demonstrating an overlap between Fintechs and traditional banks. Most definitions focus on the technological aspect of Fintechs, and do not distinguish Fintechs from traditional banks. However, this distinction is necessary for examining the environmental and social performance of Fintechs separately from traditional banks. The author addresses the shortcomings of current definitions of Fintech in the research by providing the following definition:

Fintech refers to ventures without a banking license whose goal is to develop and provide novel, technology-enabled financial services with a value-added design that will transform current financial practices.

The literature review also revealed that while numerous sustainability frameworks have been designed for traditional banks, there is no detailed understanding of the social and environmental impact of Fintechs and their role in supporting sustainable development. Arner et al. provide a comprehensive overview of how Fintechs have emerged from an actor-based evolutionary perspective (Arner et al., 2015). The present author has published a complimentary resource-based evolutionary perspective (Varga, 2017). These articles are useful from a sector evolution perspective, but they do not provide a conceptual understanding of the sustainability performance of Fintechs.

Researchers have examined the banking sector's environmental and social impact. Banks' direct environmental impact is primarily due to the physical conditions of banking operations, the branch networks of banks, their energy and paper usage, and the environmental burdens that are generated during their operations. The indirect impacts are more difficult to measure. Banks have an indirect social and environmental impact via their products and services. To whom funds are provided, under what conditions, and for what purpose affect the indirect social and environmental impact (Jeucken and Bouma, 2017). Several international organizations have issued guidelines for banks to help them standardize sustainable lending methods, such as the Equator Principles and the Global Alliance for Banking on Values. Banks can voluntarily join an organization and start implementing the guidelines provided by them. More than ten major international organizations have created a sustainability framework for banks to increase their direct and indirect social and environmental performance (Varga, 2018).

Fintech companies also have a direct and indirect environmental and social impact. On the one hand, Fintechs typically operate with less physical infrastructure and fewer offices and do not

operate branch networks. Their processes are primarily digital and paperless. On the other hand, Fintechs can have a large indirect impact. Fintech successes – such as M-PESA – show that Fintech products and services can effectively reach younger generations and serve as payment infrastructure for entire countries (Mas and Radcliffe, 2010).

The present research aims to fill a gap in the current literature concerning the understanding of how Fintechs incorporate environmental and social aspects into their operations, products, and services. The literature review validates the relevance of the research questions. In terms of impact understood from a sustainable development perspective, it is important to distinguish Fintech companies from banks: Fintechs are normally a different organizational size, have different resources, and operate in different regulatory environments (Jagtiani and John, 2018). The literature review reveals that:

1. No studies have comprehensively examined the social and environmental impact of Fintechs in terms of their operations and product and service development;
2. Few researchers have examined how Fintechs incorporate social and environmental aspects into product and service development;
3. No qualitative exploratory research is available on Fintechs and their impact on sustainable development.

1.3. Research questions

The author developed two main research questions to fill the gaps:

- Research question 1: How does the triple-bottom-line concept appear in the operations (direct impact) and the products and services (indirect impact) of Fintech companies?
- Research question 2: What are the motivations for and barriers to incorporating triple-bottom-line aspects into the operations and product and service development of Fintech companies?

2. Research methodology

2.1. Problem statement

The following summary provides a rationale for conducting the research:

- The economic, social, and environmental impact of banks is already well researched. Banks can receive support in their sustainability journey as many international

organizations provide sustainability frameworks that banks can adopt. In the case of Fintech companies, such frameworks are not available, and the focus on the sustainability-related performance of Fintechs is still an under-researched area.

- The literature review demonstrates that for Fintech companies no such comprehensive knowledge is available about the social and environmental impact of Fintechs as for banks.
- In terms of social and environmental impact, Fintechs can be regarded as David, versus Goliath, the latter referring to larger traditional banks. Yet smaller does not necessarily mean less capable. From a social and environmental impact perspective, case studies have already demonstrated that Fintechs can effectively reach the younger generations and significantly enhance access to financial services and the use of capital in many countries.
- It is important to understand how Fintechs perceive and integrate social and environmental considerations into their operations, products, and services. Fintechs have the ability to increase the financial inclusion of 1.4 billion people globally who still do not have access to financial services (Demirgüç-Kun et al., 2022).
- Unlike banks, Fintechs are not bound to publish detailed reports about their financial and non-financial activities, unlike most private companies. No similar data is available for Fintech companies as there is for banks. There is a gap in current knowledge about how the Fintech sector impacts society and the environment. This knowledge is required, as there are potential risks associated with the uncontrolled growth of the Fintech sector.
- It is justifiable to differentiate banks from Fintechs, as banks and Fintech companies have different organizational sizes and resources, and they are subject to different regulations which can significantly affect the appearance of social and environmental aspects in their product and service development processes.
- The research is exploratory as there is an insufficient amount of information about how social and environmental considerations appear in the operations, products, and services of Fintech companies. The conceptualisation of sustainability in the Fintech sector is required.

2.2. Research methodology

The research is exploratory as there is currently an insufficient amount of detailed research available about the workings of Fintech companies concerning social and environmental aspects. The papers that are available are mostly case studies, where the researcher tries to draw conclusions by observing a Fintech company from the outside. Due to the research topic's novelty and the insufficient amount of literature sources, the author chose a qualitative research method.

Due to their exploratory nature, qualitative methodologies provide an opportunity to learn more about and get a better understanding of the subject and lay the foundations for future research. The exploratory nature of qualitative research helps to understand the topic in depth (Sajtos and Mitev, 2007).

The author chose to follow the approach of other articles in the area of finance and technology where the researchers faced a similar challenge after realizing that there is an insufficiency of structured assessments and research on the topic. For example, Pramani and Iyer found a gap in the understanding of why the adoption of payment banks in India is not growing as fast as was expected and used grounded theory to reveal some answers (Pramani and Iyer, 2022).

Grounded theory became the forerunner of qualitative research as a result of work by Glaser and Strauss in 1967. The purpose of creating grounded theory methodology (GTM) was to provide researchers with a methodology that would enable them to create smaller, substantive theories. Such a substantive theory can contribute to a more comprehensive, conceptual-level understanding of Fintechs. Glaser and Strauss described substantive theory as the formulation of concepts and their interrelation into a set of hypotheses associated with a given substantive area. They underlined the importance of substantive theories, as these are required to establish baseline knowledge within a substantive area, motivate researchers to create formal theory, and can help overcome the difficulties of empirical research in unknown research domains (Glaser and Strauss, 1965).

Opponents of qualitative methods may prefer the use of positivist research techniques, but grounded theory is a well-accepted research methodology for exploratory research. Grounded theory research has been supported and published by leading academic journals, including but

not limited to the Journal of Business Ethics, Journal of Financial Services Marketing, Journal of Evolutionary Economics, Journal of Management Inquiry, the Academy of Management Journal, and the American Economic Review.

2.3. Research process

Substantive theories can only be interpreted in a typically limited social context, thus, these are separated from the formal, conceptual level. Grounded theory can deepen the understanding between theory and practice. Therefore, the grounded theory methodology is particularly applicable in areas related to management research, such as decision-making or the process of creating financial innovation and the associated criteria thereof (Glaser and Strauss, 1967, Horváth and Mitev, 2015).

Grounded theory is suitable for exploring the research questions thoroughly because it is structured according to the following guidelines (Charmaz, 2006; Horváth and Mitev, 2015):

- GTM makes the research process transparent and thus traceable, which makes the results that are obtained authentic and credible.
- GTM is agile and based on continuous analysis of the data, which determines the next step of the research.
- GTM supports research in new areas where the researcher does not have comprehensive information in advance, so the given area can be discovered by them during the research.
- GTM research develops dynamically; the big picture is built from collected data using a step-by-step approach.

In order to ensure the validity of the research, the author followed the grounded theory methodology as constructed by Glaser and Strauss (Glaser, Strauss, 1967). The author also reviewed and leveraged guidance from leading grounded theory practitioners such as Charmaz (Charmaz, 2006). It is important to highlight that grounded theory is not a sequential research method, but the theory is formed through an iterative approach, in which many of the steps outlined below are continuously repeated (Urquhart et al. 2010):

1. Interview preparation: gather expert feedback in connection with the research plan, the research questions, and the target group of the research.

2. Pilot period: Zohrabi suggested using pilot interviews to manage the validity-related risks of the research and to ensure respondents understand the research area (Zohrabi, 2013).
3. Initial sampling: start the sampling process based on the researcher's decision guided by their pre-existing knowledge of the research area and the literature review findings.
4. Memo creation: memos capture the author's ideas during data collection and analysis. Memos are used to help identify gaps in the collected data and guide decisions about the theoretical sampling process (Charmaz, 2006).
5. Continuous comparison of data: According to Glaser, the formation of categories cannot be the result of coercion, so the former requires, among other things, the continuous comparison of cases, of data, and of different interviews and views.
6. Coding process:
 - a. Open coding: this is the initial phase where the goal is to create the categories. In open coding, the sentences and paragraphs in the interview transcripts are first labeled in a way that describes the given case or idea. Similar cases are given the same name (comparison).
 - b. Axial coding: this is the middle phase where the categories are linked. This phase helps to define a relationship between the categories.
 - c. Selective coding: the final creation of the categories and determination of the core categories.
7. Theoretical sampling: a flexible research phase depending on the data that is obtained. The next step of the research is based on previous data until the theoretical saturation necessary for creating the theory is achieved.
8. Theoretical saturation: data collection continues until reaching the point of theoretical saturation. Theoretical saturation is achieved when further interviews do not contribute new information to the theory that has emerged.
9. Theory, concept development: developing a theory or concept that can be applied in practice and appropriately interpreting the subject of the research.

3. Research results

The research made it apparent that the evaluation of Fintechs from a resource-based theory and key value drivers perspective alone provides a narrowed view of Fintechs. The research

allowed for more holistic learning about the direct and indirect social and environmental impact of Fintechs and helped to conceptualise sustainability in the Fintech sector.

3.1. Findings of Research Question 1

Research Question 1 was formed to elicit feedback from respondents to understand: How does the triple-bottom-line concept appear in the operations (direct impact) and the products and services (indirect impact) of Fintech companies?

The results can be summarized as follows:

- The research question resulted in three core categories: the impact of company operation, product and service development, and the impact of Fintech products and services.
- The **direct economic impacts** of Fintechs are most apparent in their pursuit of increasing company revenues. Fintechs are for-profit organizations. To maximize the value created by utilizing internal resources, Fintech respondents highlighted the importance of continuous prioritization of work and avoiding spending resources on non-critical, low-value-added items. Fintechs also take pride in creating a fair distribution and motivation model within their organization. Employees receive shares during employment or obtain rights to purchase company shares at a discounted price.
- Fintechs have **indirect economic impacts** through their products and services. Most of Fintechs' indirect economic impacts are positive: improving market efficiency, democratizing access to financial markets, supporting ecosystem development and partnerships, and improving the financial fitness of corporations and the economy. The new economic models also introduced negative indirect impacts, such as illegal activity and fraud.
- The operational activities of Fintechs are responsible for their **direct environmental impacts**. Some of the key direct environmental impacts of Fintechs can be grouped into the following areas: IT infrastructure, office space, employee traveling, digital processes, and environmental awareness.
- The **indirect environmental impacts** of Fintechs can be attributed to their products and services. Digitalization and supporting green project development have a largely positive environmental impact. Digitalization brings significant efficiency to Fintech's products and services. Digital payments are reducing cash usage and the costs and

environmental impact of maintaining cash. Digital products eliminate the need to mail and transport documents and reduce the time, energy, and money required to travel to a physical bank branch to manage finances.

- Fintechs have a **direct social impact** on their internal stakeholders: founder-managers and employees. Respondents discussed the company culture and structure as key resources to achieve their business objectives. The culture of Fintechs includes a large number of positive elements: anti-harassment, equal treatment, ethical leadership, lead by example, no blame culture, transparency, dare to be vulnerable were some of the terms respondents used to illustrate the work culture, where employees are treated as the biggest asset of the company.
- Fintechs have a significant **indirect social impact**. Some of the key indirect social impacts of Fintechs are financial inclusion, financial education, impact on the labour market, raising environmental awareness, transitioning towards a digital society, and democratization of finance. From the negative side, increased fraud and speculation and a potential negative impact of deepening indebtedness can be mentioned.

3.2. Findings of Research Question 2

Research Question 2 was formed to elicit feedback from respondents to understand: What are the motivations for and barriers to incorporating triple-bottom-line aspects into the operations and product and service development of Fintech companies?

The interviews made it apparent that Research Question 2 can be structured as the interactions between Fintechs and their stakeholders.

- From the **external stakeholders'** perspective, customers, regulators, standard organizations, suppliers, society, external auditors, and the United Nations emerged as key stakeholders.
- Founder-managers, employees, and company investors were the important **internal stakeholders** with strong motivational factors in Fintechs.
- **Global events**, such as COVID-19, the war in Ukraine, and the financial crisis in 2008, were mentioned as important motivational factors.
- The research also confirmed that **technology** is a key enabler for Fintechs. New technologies such as blockchain, smart contracts, cloud technology, APIs, and artificial

intelligence were the foundational enablers of the development of new Fintech products and services.

The research also provided an opportunity to explore how Fintechs develop their products and services. The key product and service development related areas mentioned by respondents were the value proposition, product development principles, new business models, innovation, product marketing, ecosystem and partnerships, and the development of the actual products: payment, lending, capital markets, green and ESG, crypto, and Web 3.0.

3.3. Triple-bottom-line concept map of Fintechs

By combining the research results and applying stakeholder theory, a detailed ‘Triple-bottom-line concept map of Fintechs’ could be created. The ‘Triple-bottom-line concept map of Fintechs’ gives a comprehensive framework on the TBL impact of Fintech companies from their operations, products, and services perspective.

- The building blocks of the ‘Triple-bottom-line concept map of Fintechs’ can be categorized into three main groups: 1) internal factors, 2) external factors 3) triple-bottom-line impacts. Internal factors are the ones that Fintechs have the sole power to manage. It includes the internal stakeholders, company operations, product and service development, and the products and services.
- External factors are motivating and enabling elements that influence the direction of Fintechs. Fintechs cannot survive long without finding the right balance between their internal and external influences. External factors include external stakeholders, global events, and technology.
- Triple-bottom-line impacts include the impact of Fintechs from their direct and indirect economic, social and environmental perspective. The ‘Triple-bottom-line concept map of Fintechs’ can provide the basis for theoretical and practical approaches toward the TBL impact of Fintechs. Fintechs can use the concept map to assess and improve their internal operation and product and service development; meanwhile, external stakeholders, such as regulators, can use the concept map to create a pro-innovation and pro-TBL regulation of Fintechs.

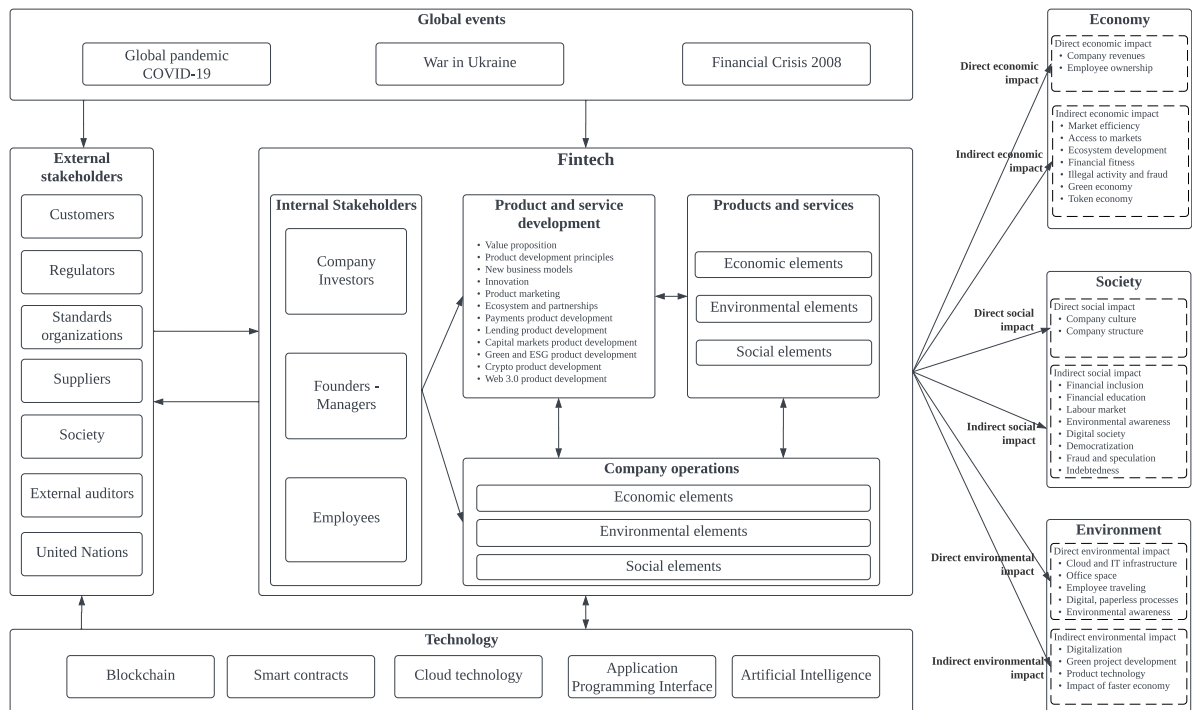


Figure: Triple-bottom-line concept map of Fintechs

The concept map supports researchers to have first-time access to a comprehensive map created based on the responses of a large assortment of global Fintechs with a dispersed geographical distribution. The ‘Triple-bottom-line concept map of Fintechs’ allows future studies to be strategically focused in specific directions of the research about Fintechs and their TBL impact.

The ‘Triple-bottom-line concept map of Fintechs’ can be a valuable tool for Fintechs and traditional banks. Companies can use the concept map to analyze their TBL impact based on the building blocks. In such a sense, the concept map can also be regarded as a canvas representing the primary building blocks of Fintechs from a sustainability performance perspective.

3.4. Recommendations for future research

The focus of the research was to conceptualize sustainability in the Fintech sector. The research only covered Fintechs and not the entire financial system. The research did not aim to generate a formal theory that is applicable to the whole sector, rather to develop a substantive theory that – together with further research – could contribute to a more comprehensive understanding of Fintechs and their social and environmental impact. The research is the first to utilize

grounded theory methodology to increase understanding of Fintechs and their impact on sustainable development.

The ‘Triple-bottom-line concept map of Fintechs’ summarizes the research results using a holistic approach. Based on these findings, the following steps are suggested for future research:

1. Create a formal theory by extending the detailed research design used in the current research to a sample representative of the global Fintech sector;
2. Leverage the learnings of the current research and future formal theory to create a Fintech-specific TBL value-creation framework that provides guidance and benchmarks for Fintech to ensure they can maximize their positive TBL impact while minimizing negative ones;
3. Undertake focused research in the areas that emerged during the current research where Fintechs have a potential negative TBL impact, and use the findings to create executable action plans to ensure that Fintechs positively contribute to economy, society, and the environment. Some potential risk areas that have been identified are i) a lack of regulation and a common taxonomy for Fintechs with a particular focus on the emerging crypto market, ii) a lack of understanding of the potential impact of Fintechs and BigTech on the stability of the wider financial market;
4. Create a permanent forum wherein the stakeholders identified in the current research can evaluate and discuss the directions of research regarding Fintechs and their involvement in SD on a regular and recurring basis. Discussions between the key stakeholders need to be captured in the form of an executable global roadmap in which progress meeting goals is continuously measured.

4. Main references

Arner, D. W., Barberis, J. N., & Buckley, R. P. (2015). The Evolution of Fintech: A New Post-Crisis Paradigm? Available at SSRN 2676553.

Arner, D. W., Barberis, J., & Buckley, R. P. (2016). FinTech, RegTech, and the reconceptualization of financial regulation. *Nw. J. Int'l L. & Bus.*, 37, 371.

Arner, D. W., Buckley, R. P., & Zetsche, D. A. (2022). FinTech and the Four Horsemen of the Apocalypse. This is a copy-edited version of the contribution accepted for publication in the *Banking and Finance Law Review*:(2022), 39.

Ashoka. 2010. Ashoka fellows changing systems. *Global Study 2009*, <http://sfs.ashoka.org/sites/sfs/files/2010%20Ashoka%20Impact%20Study.pdf>

Bhowmik, D. (2022). An Introduction to Climate Fintech. *European Journal of Science, Innovation and Technology*, 2(4), 24-35.

Birkin, F., Polesie, T., & Lewis, L. (2009). A new business model for sustainable development: an exploratory study using the theory of constraints in Nordic organizations. *Business Strategy and the Environment*, 18(5), 277-290.

Boons, F., Montalvo, C., Quist, J., & Wagner, M. (2013). Sustainable innovation, business models and economic performance: an overview. *Journal of Cleaner Production*, 45, 1-8.

Brundtland, G. H. (1987). *World Commission on Environment and Development (1987): Our Common Future*. World Commission for Environment and Development.

CB Insights Database (2022). Accessed via: <https://www.cbinsights.com/>

Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. sage.

Charter, M., Gray, C., Clark, T., & Woolman, T. (2008). Review: the role of business in realising sustainable consumption and production. *System Innovation for Sustainability: Perspectives on Radical Changes to Sustainable Consumption and Production*, 46-69.

Clark, R., Reed, J., & Sunderland, T. (2018). Bridging funding gaps for climate and sustainable development: Pitfalls, progress and potential of private finance. *Land Use Policy*, 71, 335-346.

Colombo, U. (2001). The Club of Rome and sustainable development. *Futures*, 33(1), 7-11.

Cooper, R. G. (1994). Perspective third-generation new product processes. *Journal of Product Innovation Management*, 11(1), 3-14.

Dees, J. G. (1998). *The meaning of social entrepreneurship*.

Demirgüç-Kunt, A., Klapper, L., Singer, D., & Ansar, S. (2022). *The Global Findex Database 2021: Financial inclusion, digital payments, and resilience in the age of COVID-19*. World Bank Publications.

Dhungel, D., Gyawali, S., & Jutidamrongphan, W. (2022). A Systematic Review On Green Finance A Measure For All Environmental Problems. *NVEO-NATURAL VOLATILES & ESSENTIAL OILS Journal*| NVEO, 2032-2042.

Elkington, J. (1997). *Cannibals with forks. The triple bottom line of the 21st century*, 73.

Ethical Markets Media (2011) Report on the Green Transition Scoreboard® February 2011
Authors: Rosalinda Sanquiche Hazel Henderson Timothy Jack Nash

FintechLabs.com (2022). Accessed via: <https://fintechlabs.com/>

Fisac Garcia, R., Acevedo Ruiz, M., Moreno Romero, A. M., & Kreiner, T. (2013). The role of ICT in scaling up the impact of social enterprises. *Journal of Management for Global Sustainability*, 1(2), 83-105.

Glaser, B. G., & Strauss, A. L. (1965). Discovery of substantive theory: A basic strategy underlying qualitative research. *American behavioral scientist*, 8(6), 5-12.

Glaser, B. G. – Strauss, A. L. (1967): *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Chicago: Aldine

Hall, J. K., Daneke, G. A., & Lenox, M. J. (2010). Sustainable development and entrepreneurship: Past contributions and future directions. *Journal of Business Venturing*, 25(5), 439-448.

Horváth, D. - Mitev, A. (2015): *Alternatív kvalitatív kutatási kézikönyv*. Budapest: Alinea Kiadó

Jagtiani, J., & John, K. (2018). Fintech: the impact on consumers and regulatory responses. *Journal of Economics and Business*, 100, 1-6.

Jeucken, M., & Bouma, J. J. (2017). The changing environment of banks. In *Sustainable Banking* (pp. 24-38). Routledge.

Mas, I., & Radcliffe, D. (2010). Mobile payments go viral: M-PESA in Kenya.

Meadows, D. H., Meadows, D. L., Randers, J., & Behrens III, W. W. (1972). The limits to growth-club of rome.

Michael, B., Koroleska, N., Tai, A., & Wong, D. W. H. (2022). A critical look at using financial technology policy to promote the sustainable development goals. *Sustainable Development*.

Mika, J., & Farkas, A. (2017). On Synergies And Conflicts Between The Sustainable Development Goals (2016-2030) And Renewable Energy Sources For Education Of And By Sustainability. *Problems of Education in the 21st Century*, 75(2).

Neven, D., & Droge, C. L. M. (2001). A diamond for the poor? Assessing Porter's Diamond Model for the analysis of agro-food clusters in the developing countries. In *Proceedings of the 11th Annual World Food and Agribusiness Forum and Symposium* (pp. 25-28).

Lélé, S. M. (1991). Sustainable development: a critical review. *World development*, 19(6), 607-621.

Peeters, H. (2005). Sustainable development and the role of the financial world. In *The World Summit on Sustainable Development* (pp. 241-274). Springer, Dordrecht.

- Perrini, F., & Tencati, A. (2006). Sustainability and stakeholder management: the need for new corporate performance evaluation and reporting systems. *Business Strategy and the Environment*, 15(5), 296-308.
- Pramani, R., & Iyer, S. V. (2022). Adoption of payments banks: a grounded theory approach. *Journal of Financial Services Marketing*, 1-15.
- Puschmann, T., Hoffmann, C. H., & Khmarskyi, V. (2020). How green FinTech can alleviate the impact of climate change—the case of Switzerland. *Sustainability*, 12(24), 10691.
- PwC (2016). *Global Fintech Report, Blurred lines: How fintech is shaping the financial world*
- Sajtos, L., - Mitev, A. (2007). *SPSS kutatási és adatelemzési kézikönyv*. Alinea.
- Schmidt-Traub, G. (2015) *Investment Needs to Achieve the Sustainable Development Goals, Understanding the Billions and Trillions; SDSN Working Paper, Version 2; Sustainable Development Solutions Network: New York, NY, USA, 2015; Available online: <http://unsdsn.org/wp-content/uploads/2015/09/151112-SDG-Financing-Needs.pdf>*
- Schmidt-Traub, G.; Sachs, J. (2015) *Financing Sustainable Development: Implementing the SDGs through Effective Investment Strategies and Partnerships; Sustainable Development Solutions Network: New York, NY, USA, 2015; Available online: <http://unsdsn.org/wp-content/uploads/2015/04/150408-SDSN-FinancingSustainable-Development-Paper.pdf>*
- Singh, A. K., & Sharma, P. (2022). A study of Indian Gen X and Millennials consumers' intention to use FinTech payment services during COVID-19 pandemic. *Journal of Modelling in Management*, (ahead-of-print).
- Statista.com (2022). Accessed via: <https://www.statista.com/topics/2404/fintech>
- Tate, W. L., & Bals, L. (2016). Achieving shared triple bottom line (TBL) value creation: toward a social resource-based view (SRBV) of the firm. *Journal of Business Ethics*, 1-24.
- Tay, L. Y., Tai, H. T., & Tan, G. S. (2022). Digital financial inclusion: A gateway to sustainable development. *Heliyon*, e09766.
- Turner, G. M. (2008). A comparison of The Limits to Growth with 30 years of reality. *Global environmental change*, 18(3), 397-411.
- Urquhart, C., Lehmann, H., & Myers, M. D. (2010). Putting the 'theory' back into grounded theory: guidelines for grounded theory studies in information systems. *Information systems journal*, 20(4), 357-381.
- Van den Bergh, J. C. (2007). Evolutionary thinking in environmental economics. *Journal of Evolutionary Economics*, 17(5), 521-549.
- Varga, D. (2017). Fintech, the new era of financial services. *Vezetéstudomány / Budapest Management Review*, 48(11), 22-32.
- Varga, D. (2018). Triple-bottom-line impact analysis framework of FinTech companies. *Vezetéstudomány-Budapest Management Review*, 49(11), 24-34.

Zohrabi, M. (2013). Mixed Method Research: Instruments, Validity, Reliability and Reporting Findings. *Theory & practice in language studies*, 3(2).

5. The author's publications in the subject

Varga, Dávid (2017). Fintech, The New Era of Financial Services. *Vezetéstudomány - Budapest Management Review*, 48 (11). pp. 22-32. DOI <https://doi.org/10.14267/VEZTUD.2017.11.03>

Varga, Dávid (2018). Triple-bottom-line Impact Analysis Framework of Fintech Companies. *Vezetéstudomány - Budapest Management Review*, 49 (11). pp. 24-34. DOI <https://doi.org/10.14267/VEZTUD.2018.11.03>

Varga, Dávid (2018). Fintech: Supporting Sustainable Development by Disrupting Finance In: Keresztes, Gábor (editor) *Tavaszi Szél 2018 Konferencia, Spring Wind 2018: Konferenciakötet II*. Budapest, Magyarország: Doktoranduszok Országos Szövetsége (DOSZ) (2018) 563 p. pp. 231-249. , 19 p.

Varga, Dávid (2018). Why Is Corporate Sustainability Still A Dream, And How Can Business Models Close The Gap Between Theory And Practice? In: Bódog, Ferenc; Csizsár, Beáta; Hayden, Zsófia; Kovács, Olivér; Rácz, Tamás (editor) *VII. Interdiszciplináris Doktorandusz Konferencia 2018: Tanulmánykötet 7th Interdisciplinary Doctoral Conference 2018: Conference Book Pécs, Magyarország: Pécsi Tudományegyetem Doktorandusz Önkormányzat* (2018) 492 P. Pp. 460-478. , 19 P.