



THE ROLE OF FINTECH IN PROMOTING SUSTAINABILITY: A STRUCTURED LITERATURE REVIEW OF ENVIRONMENTAL AND SOCIAL IMPACT APPLICATIONS

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Abstract

This paper provides of a systematic literature review based on the contribution of Fintech to environmental and social sustainability with a special concern on its contribution to the Sustainable Development Goals (SDGs). Fine technology, such as blockchain, artificial intelligence (AI), big data, and mobile payment, provides solutions to the complex environmental and social situations facing the world currently, with the capability of leading sustainable ways of doing business in different sectors. The review looks at how Fintech is enabling green finance, investor impact, financial access, and climate risk management supporting SDGs including SDG 13 (Climate Action), SDG 12 (Responsible Consumption), and SDG 10 (Reduced Inequalities). The development of Fintech in green financing which is a green bond and green crowdfunding democratize access to green investment opportunities, and AI and big data enhance risk analysis and resource exploitation in the context of climate. In addition, thanks to the introduction of Fintech, financial inclusion improved tremendously, and underserved populations can gain access to the most basic financial services and enter the global economy. Moreover, with all the potential of Fintech available, multiple obstacles should overcome to enjoy the advantages of the mentioned form of innovation in terms of sustainability. This paper is concluded with a list of the future research and policy change recommendations that would help address these barriers and further take advantage of Fintech in delivering the SDGs and a more sustainable and inclusive world.

Keywords: Fintech, Sustainability, SDGs, Environmental, Social, AI, Financial Technology

1. Introduction

With the rise of global issues of climate change, resource exhaustion, and social inequality, new solutions to bring about the equilibrium between economic growth and environmental and social responsibility are more in demand than ever before (Gumasing 2024). The development of financial technologies (Fintech) has provided a novelty in the transformation of the existing financial services and generated some new strategies to facilitate sustainability (Kozar and Wodnicka 2024). Fintech has not only changed the way of providing the simple financial services, but it also resolved one of the most burning sustainability issues globally the environmental and social impact applications (Kozar and Padiuszyńska 2024). Utilizing the power of digital innovations, like blockchain or artificial intelligence (AI), big data, and machine learning, fintech firms are introducing new models that could allow businesses,



governments and people to make more sustainable financial choices (Sahid, Maleh, and Asemanjerdi 2023).

As a general term, fintech, or the use of technology in financial services, is becoming a tool to promote sustainability with green finance, impact investments, sustainable banking, and climate risk management (Ja 2025). These groundbreaking solutions will help to secure increased access to capital to environmental and social projects, increased transparency and accountability, and ethical investments in sustainable projects (Tarawneh et al. 2024). Promoting financial inclusion Because fintech applications are reshaping the financial ecosystem to achieve financial inclusion, it is also worth considering that mechanisms provided by fintech app usage such as providing funding, capital, credits be utilized to support SDGs 13 (Climate Action), 7 (Affordable and Clean Energy) and 10 (Reduced Inequalities) (Yusup and Várallyai 2025).

The fintech may facilitate sustainable investments since a new form of assessing and monitoring the environmental and social impact of financial portfolios is available (Kesavan and Polisetty 2025). New technologies, like green bonds, sustainable investment platforms, and crowdfunding of environmental projects have enabled capital to flow in the sustainable development projects, whereas, blockchain technologies would create transparency and accountability, and therefore, would increase the trust over sustainable financial processes (Duan 2024). Along with this, fintech solutions are not only expanding access to financial services to underserved populations, but also are reducing social impact by equalizing financial participation rates (Biasin and Foglie 2024).

Although the level of importance of fintech in sustainability is growing, the use of the technologies in different industries has only just begun (Basdekidou 2024). Regulatory frameworks, technological implementation, and the necessity of additional research to comprehend the extent of what fintech can do to maintain environmental and social sustainability are some of the challenge areas (Kanojia and Kaur 2024). The paper provides an organized literature review to assess the existing body of knowledge explaining how fintech can be used to promote sustainability, outlining environment and social impact applications at the same time (Suryono and Budi 2020). The paper intends to provide valuable information on the contributions of fintech to the reach of the sustainable development outcomes and the future trend of this fast-developing sphere by synthesizing results of several researches (Iglesias-casal, Maside-sanfiz, and Larbi 2025).

With the help of this literature review, we strive to introduce people to the different fintech applications being implemented to alleviate the fight against sustainability, learn how fintech can be a solution to environmental and social welfare, and the barriers and challenges present that require correction (Alkadi and Abed 2023). Finally, this review aims to emphasize the significance of fintech as a way to steer systemic change towards a more sustainable global economy and to show the relevance of financial technologies in narrowing the divide between the economic growth and environmental protection.

2. Review of Literature

The growing awareness of the environment and social problems that the world has to face has triggered development of new ways of implementation that could stimulate sustainability in various sectors (Bhandari, Tiwari, and Dhakal 2025). In this regard, the financial technology (fintech) sector has become a revolutionary device that can foster sustainability by incorporating digital technologies into the finance segment (Aniko 2024). This review discusses the potential impact of fintech to achieve environmental and social sustainability with

examples of its application to green finance, impact investing, socially responsible investing (SRI), financial inclusion, and climate risk management (Thottoli et al. 2024). According to (Kumar et al. 2025), fintech is found to have great potential in assisting the organizations, governments, and individuals to make informed decisions that lead to realization of the Sustainable Development Goals (SDGs), precisely the goals that relate to climate action (SDG 13), affordable and clean energy (SDG 7) and reduced inequalities (SDG 10).

Fintech in Green Finance and Sustainable Investing

Green finance and sustainable investing is one of the major areas fintech is having an impact. Green finance can be defined as directing capital funds to efforts and projects that help in improving the environment (Firmansyah, Masri, and Anshari 2023). Crowdfunding platforms and investments using blockchain technology crowdfunding platforms and blockchain-based investment tools are playing a key role in refinancing renewable energy and energy-efficient infrastructure and financing sustainable agriculture (Abu, Pires, and Vieira 2025). These online tools reduce the entry threshold between the person investor and the proceeding to take on activities previously tied to institutional investors. Creating an opportunity to democratize access to capital, fintech is driving investment into projects that can combat the most severe environmental threats to match SDG 13 (Climate Action) particularly well (Garg and Kumar 2024).

Fintech has also enabled the creation of green-sustainable investment products and investments in green bonds giving investors a chance to invest in environmental-oriented projects. In their study, Zhang et al. (2024) investigate the ability of blockchain technology to increase the transparency and accountability of green bonds, improving the ability of the investor to monitor the effect of their invested funds. Fintech makes these investments impactful and trustworthy by using blockchain to ensure that they can trace the information about how and who money is given to and spent (Alshater et al. 2022). Not only does this enhance the credibility of the green bonds but also approaches its goals to achieving global sustainability goals.

Kiefer et al. (2021) highlight the role of AI-enhanced tools (and big data analytics) that investors can use to evaluate all environmental, social, and governance (ESG) performance of enterprises, thus, being better able to integrate investments with sustainability interests. Such fintech companies provide investors with the instruments they require to assess the permanent consequences of their investments, which is essential in terms of facilitating SDG 7 (Affordable and Clean Energy), as well as SDG 10 (Reduced Inequalities).

Social and Financial Inclusion

Financial inclusion is the availability of a cost-effective financial service to individuals and particularly the underserved or rural population. According to Zhou et al. (2025), access to finance has been greatly boosted through fintech applications that include mobile banking and digital wallets to enable individuals unable to access traditional banking services to be involved in the economy (Ariff et al. 2024). This is especially significant to the marginalized communities previously disenfranchised in the financial systems.

Social impact through fintech is on full display through the use of mobile money platforms in developing countries (Vr 2024). El Awady (2025) noted that mobile money has helped millions of people in the regions such as sub-Saharan Africa get access to savings accounts, loans, and insurance products making them economically empowered. This does not only contribute to SDG 10 (Reduced Inequalities) but also promotes a greater social inclusion which serves to increase the well-being of people and reduce poverty (Juventeen 2024).

Furthermore, digital credit scoring has transformed the access to financing by bringing credit to the untapped market where unofficial credit history is taken into consideration (Pandey,

Kiran, and Sharma 2022). Gosselink et al. (2024) point out how AI and big data analytics are engaged in devising an alternative model of credit scoring that enables fintech companies to determine the creditworthiness of underserved populations. This can advance financial inclusion, which is relevant to both social and economic empowerment, and concerns related to poverty and inequality, which is central to goal 1 (No Poverty) and goal 10 (Reduced Inequalities).

Climate Risk Management and Fintech Solutions

The other important field that fintech contributes to is handling climate risk. Organizations and governments must measure and mitigate their exposure to climate risks as the number and intensity of climate-linked events rise (Harahap and Risfandy 2023). Data analytics and the tools powered by AI are critical to the ability to predict and evaluate such risk, and therefore help a business make better decisions regarding where to invest, how to secure their business, and how to better serve their carbon footprint (Jamil 2025). The latter presents the specific roles of big data analytics in climate risk assessment where Cheng et al. (2025) explain how fintech solutions can help businesses manage and measure their environmental impact following their activities.

Moreover, fintech may assist companies to align their business with climate-related financial disclosures and empower them to report in line with international standards, including the Task Force on Climate-related Financial Disclosures (TCFD) (Al-jayyousi et al. 2022). By implementing blockchain and AI, it will become more transparent how the companies handle the risks of climate changes, and what they do to count their impact on the environment and control it. This degree of fintech integration with climate risk management is critical to the realization of SDG 13 (Climate Action) by ensuring commercial operations are aligned to the aims of the global climate (Ferraro, Ramponi, and Scarlatti 2024).

Challenges and Future Directions

Although the possibilities of fintech to contribute to environmental and social sustainability are enormous, there are a number of issues (Ullah et al. 2025). The development of regulatory frameworks surrounding fintech, especially in regard to green finance and impact investing, are nascent (Kishor, Bansal, and Kumar 2025). In addition, the data privacy issues, cybersecurity, and technology accessibility might restrict gaining all the benefits of fintech in some areas or segments. Consequently, coordinating policymakers, fintech firms, and financial institutions to generate strong regulatory frameworks and make such technologies available to everybody is necessary (Brahmi et al. 2023).

To sum it up, it is possible to state that fintech has become a significant contributor to sustainability as its applications in green finance, impact investing, financial inclusion, and climate risk management serve as the major factors in the realization of the SDGs (Jovovi 2024). With the ever-changing digital technologies, it is plausible that fintech is going to have even a greater impact on environmental and social sustainability (Thottoli 2025). Nevertheless, defeating regulatory, technological, and accessibility hurdles will play a pivotal role in helping to make the full potential of fintech come to fruition in terms of sustainable development (Hussain, Gupta, and Bhardwaj 2025). Subsequent studies in this field are to be dedicated to the alleviation of these barriers as well as the possibility of using fintech in a sustainable and equitable world economy in new ways.

3. Methodology

Study Selection Process

This systematic review included a multifaceted search of numerous academic databases such as Google Scholar, Scopus and Science Direct to select the studies used. The focus of this



search was to find related studies to the convergence of the Fintech, environmental sustainability and social impact. The search criteria have been refined to include only peer reviewed journal articles, conference papers and an academic report published within the years 2010-2024. To achieve the final scope, a series of keywords has been used, e.g., Fintech and Sustainability, Green Finance, Impact Investing, Climate Risk Management, and Financial Inclusion to cover a wide scope of literature relevant to SDGs and the contributions of fintech to addressing them.

Following the search, relevant studies that identified further evaluated based on their applicability to the research area. Publications that directly related to the role AI, blockchain, big data, and the IoT played in the promotion of sustainable financial practices given first preference. Such studies reviewed with special care on how they contributed to the significance of the role of fintech in SDGs development. The studies that were selected are only the most pertinent and of good quality so that they could be used in further analysis.

Inclusion and Exclusion Criteria

A set of stringent inclusion and exclusion criteria used to make certain that only the most relevant and of better quality, studies are included in the research. Studies were included when: they addressed the role of fintech to support environmental sustainability and social impact. This was also possible subject to the studies relating fintech solutions explicitly to SDGs, more specifically, SDG 13 (Climate Action), SDG 7 (Affordable and Clean Energy), and SDG 10 (Reduced Inequalities), among the other applicable SDGs. Moreover, the researchers have collected the studies that have passed the peer review and published only in 2010-2024 to ensure the research marks the present trends in the sphere.

Exclusion criteria emphasized studies not directly concerned with fintech and sustainable, non-English articles, and studies that were not peer-reviewed or not published. Papers published before 2010 excluded, as well, but for the reason that they may be considered outdated since fintech research and sustainability research are constantly changing. Other forms of publication also excluded as irrelevant, like the opinion piece or other articles that did not have mainly empirical data because it considered keeping the integrity and scientific rigor of the review.

Data Extraction and Synthesis

The data extraction method implemented by systematically examining each of the chosen studies with an aim of extracting relevant information that used in filling the research objectives. Among the relevant information, the key focus area of the study, the theme of fintech technologies under discussion, the topic of sustainability covered, and the SDGs deployed considered. Moreover, the results of the research concerning the environmental and social constraints of fintech documented as well. This strategy made it possible to comprehend an extensive explanation of the application of the fintech technologies including AI, blockchain, big data, and IoT in the promotion of sustainability in the financial industry.

After drawing data, the studies that chosen were synthesized according to the thematic analysis of the findings. Among key topics that identified were green finance, impact investing, financial inclusion, and management of climate risk. The researches organically divided into the following thematic catalogue, which makes it possible to cover the role of fintech in the implementation of the SDGs. The patterns and relationships spotted between the studies, as well as defining how the digital leading and fintech innovations used to encourage environmental and social sustainability, also identified in this synthesis.

Limitations

Numerous limitations faced in the process of selection and review of studies. The major drawback was that of selection bias because it included the use of academic databases that

might not be covering all the appropriate studies particularly, a study that was not in English or not indexed by large databases. The review also biased as it addressed only those sources that are peer-reviewed and English-language that might have missed useful information available in regional or non-academic sources.

In addition, the limits of the review narrowed down to the sphere of fintech and sustainability, i.e. other aspects of fintech like its influence on the economy or technologies not examined extensively. Most of the review also based on the latest literature meaning that the earlier literature or preliminary literature was not in full qualification. Moreover, there was sometimes inability to accommodate regional and sector-specific differences, and this can serve to constrain the generalization of outreach.

4. Results and Analysis

The results and analysis chapter contains an elaborate discussion on the most significant findings of the systematic review on the literature exploring the role of Fintech in fostering sustainability. The discussion will center on the manner in which Fintech like blockchain, artificial intelligence (AI), big data and mobile payments utilized to increase environmental and social impacts. This chapter reveals the role of Fintech in the development of different Sustainable Development Goals (SDGs), such as Climate Action (SDG 13), Responsible Consumption (SDG 12), and Reduced Inequalities (SDG 10): by systematically outlining, synthesizing the available research on these related topics. It is also assessed how well such technologies are used in green finance, impact investing, financial inclusion, and climate risk management, also giving insight into practical details about the use of such technologies, the outcomes, and the problems. The review of the studies shows patterns surrounding the influence of Fintech, and through them, the analysis is able to determine how the technology has been leveraged to spur innovation in sustainable finance, enhance resource efficiency and social inclusion. The chapter focuses on developing the fuller picture about the role of Fintech in transitioning to a more sustainable future tackling fundamental issues that will have addressed so that it implemented more widely across the societies.

Table 1: Fintech and Sustainability – A Systematic Literature Review

Study	Key Area	Focus	Technologies Used	Impact on SDGs	Conclusion/Findings	Citation
1	The Role of Fintech in Green Finance		Blockchain, AI, Data Analytics	SDG 13, SDG 9	Fintech drives green finance through transparency and efficiency.	Zhang et al. (2023)
2	Digital Payments for Sustainable Agriculture		Blockchain, Mobile Payments	SDG 2, SDG 12	Fintech solutions support sustainable farming practices.	Mapanje et al. (2023)
3	Fintech, Financial Inclusion, and Sustainability		Mobile Banking, Digital Payments	SDG 1, SDG 10	Fintech promotes financial inclusion, aiding poverty reduction and economic growth.	Afjal (2023)



4	Fintech for Sustainable Development Goals	Cryptocurrency, P2P Lending	All SDGs	Fintech plays a vital role in achieving SDGs through accessible financial services.	Gálvez-Sánchez et al. (2021)
5	The Future of Green Finance with Fintech	Green Bonds, Data Analytics	SDG 13	Green fintech solutions support sustainable financing and investments.	Banna et al. (2022)
6	Financial Inclusion and Green Tech	Blockchain, AI	SDG 7, SDG 13	Fintech enables the scaling of green technologies for sustainable development.	Liu et al. (2023)
7	The Nexus of Fintech and Sustainability	Big Data, Machine Learning	SDG 12	Fintech accelerates the shift to a more sustainable economy through data-driven insights.	Tamasiga et al. (2022)
8	Green Fintech and Corporate Responsibility	AI, IoT	SDG 12	Fintech facilitates corporate green innovations for better sustainability.	Yan et al. (2022)
9	Blockchain for Sustainable Finance	Blockchain, Digital Platforms	SDG 9, SDG 13	Blockchain improves transparency and accountability in green finance.	Li et al. (2023)
10	Financial Inclusion and the Green Economy	Crowdfunding, Peer-to-Peer Lending	SDG 10, SDG 12	Fintech platforms contribute to environmental sustainability through green financing.	Bakkar Siddik et al. (2023)
11	Role of Fintech in Green Innovation	AI, Blockchain	SDG 13	Fintech solutions drive green innovation and foster eco-friendly financial practices.	Zeng (2023)
12	Fintech and Sustainability in BRICS Countries	Blockchain, Data Analytics	SDG 13, SDG 7	The study highlights fintech's role in driving sustainable growth across emerging economies.	Liu et al. (2022)
13	Fintech in Enhancing Green Investments	AI, Blockchain	SDG 12	Fintech supports the scaling of green investments, making them more accessible.	Coskun et al. (2022)

14	Sustainable Green Finance through Fintech	AI, Green Bonds	SDG 12, SDG 7	AI-driven fintech supports the financing of eco-friendly projects and green bonds.	Zhong et al. (2023)
15	Environmental Performance of Fintech Firms	Green Innovation, Data Analytics	SDG 13	Fintech firms with a focus on green innovation lead in reducing their environmental impact.	Mu et al. (2023)

Table 1 provides an extensive overview of 15 studies that show that fintech play a crucial role to advance sustainability by using different technological advancements. The reviewed studies cover a variety of fintech applications, including blockchain, artificial intelligence (AI), data analytics, mobile payments, and peer-to-peer (P2P) lending platforms, and their dependence on environmental and social sustainability objectives (Khan, Khan, and Nazir 2023). It shown that the role of fintech as a vehicle of both financial inclusion and convenience extends to becoming an increasingly important tool in breaking down the global challenges of sustainability, actively leading the way forward in meeting a far greater set of goals in the form of the Sustainable Development Goals (SDGs).

Role of Fintech in Green Finance

What is conspicuous in these articles is the issue of how fintech contributes to green finance. The term green finance relates to the offering of financial products or services that support aspects of environmental sustainability, including investments in renewable energy and clean technology, and sustainable infrastructure. A number of studies emphasize that the blockchain technology has a potential in bringing transparency and accountability in green financing. In the article, Zhang et al. (2023) and Li et al. (2023) determine that blockchain utilized to monitor green investments, making sure the funds devoted to environment-friendly projects properly and efficiently spent. As a transparent and safe mechanism, blockchain gains investors the security that their investments are making their contribution to SDG 13 (Climate Action). This is in line with the larger green fintech trend, with data analytics and AI increasingly allowing investors to measure the environmental impact of investments, enabling investors to make informed decisions to support climate objectives.

Green finance also made more effective with green bonds plus crowdfunding platforms along with integration with AI. Banna et al. (2022) emphasize the importance of fintech solutions in the field of green finance, which ultimately ensures more access to capital amount needed in financing sustainable projects and a broader set of funders beyond institutions that have historically had access to funds in the market. This deeply affects SDG 13 (Climate Action) since it raises the volume of financial assets to deal with climate-related activities. These innovations, in their turn, increase the access and scalability of sustainable financing, which, ultimately, acts as an investment door to green technologies.

Fintech and Financial Inclusion

Financial inclusion is another important theme, and how fintech is supporting the provision of financial services to underserved people runs through all the studies. In line with financial accessibility, fintech platforms, including mobile money and online wallets, play an important role in enhancing it, particularly in developing countries. According to Zhou et al., (2025) and Afjal (2023), mobile banking and digital payment systems have brought financial products and services to millions of people who excluded in the past by the traditional banking system. Such

innovations are aiding SDG 10 (Reduced Inequalities), empowering economically marginalized people and small enterprises with the instruments to save, borrow, invest and obtain manageable financial risks.

Particularly, micro-lending and crowdfunding platforms within fintech serve as the necessary financial aid to the needy creating social equity. As an example, it is possible to refer to the article by Gosselink et al. (2024) explaining how P2P lending platforms allow people to get credit without the involvement of traditional financial institutes. This helps with SDG 1 (No Poverty) as this provides the people with chances to establish financial security and access funds to enhance their livelihoods be it in education, health or entrepreneurship.

Fintech in Climate Risk Management

Another important issue to which the literature has called attention is the role of fintech in climate risk management, which is one of the burning issues of the modern world. With the increasing effects of climate change, organizations, and governments should evaluate how exposed they are to climate change risks. Fintech is one of the most significant technologies and specifically AI and big data analytics that are important in predicting, monitoring, and evaluating climate risks. As pointed out by Cheng et al. (2025) and Patil et al. (2022), AI-enabled data-driven decision-making systems enable firms to study massive volumes of data, including historical climate data to identify the risks that must be mitigated.

Besides, AI is helping firms become greener by offering real-time energy consumption details and the utilization of resources. According to Zhang et al. (2024), AI-based insights can assist the firms to optimize the use of energy, waste reduction, and other informed decisions that contribute to a low-carbon economy. This goes a long way toward SDG 13 (Climate Action) by assisting businesses to incorporate strategies that aligned to global climate objectives and mitigate their carbon footprint.

Social and Environmental Impact Investing

The technological innovation, which includes fintech solutions, including blockchain and P2P lending platforms, has shaped an easier way in terms of impact investing among individual investors. According to Gosselink et al. (2024), AI and blockchain technologies help to track and report more precisely on the effects of the investments both socially and environmentally to assure that financial flows of the investor are achievable within the frameworks of the investor sustainability intentions.

Specifically, investors to evaluate ESG (Environmental, Social, and Governance) mats to streamline better incorporating the concept of sustainable investing into their investment strategies can effectively use technologies like AI-driven analytics by fintech. Afjal (2023) argues that big data analytics and AI models can be applied to determine the environmental footprint of companies and sectors and, as such, encourage investors to make investments in companies that are aligned with SDG 12 (Responsible Consumption and Production) and SDG 7 (Affordable and Clean Energy).

Barriers and Future Directions

Although fintech has a great potential contribution to the improvement of sustainability, there are some obstacles. Some of the most important factors that overcome are regulatory uncertainties, technology barrier, and the limited knowledge of what the long-term effects of fintech innovations will be regarding sustainability. According to Zhou et al. (2025), and Tamasiga et al. (2022), further study suggested getting a better picture of how financing technology regulated to become helpful towards sustainability. Furthermore, digital divide on the fintech service accessibility, especially in developing regions is the major roadblock in the attainment of SDG 10 (Reduced Inequalities).

The proposed future research would address the need to investigate emerging fintech innovations that will seek to avoid these barriers as well as seek to understand the potential of fintech in enhancing the sustainability agenda at large. Moreover, additional research is necessary to better understand the influence of fintech in the long run of climate resilience, resource utilization, and the eradication of poverty (Ullah et al. 2025).

The literature affirms that fintech has a lot to offer to ensuring sustainability in different sectors. The activity of fintech levels up to SDG 13 (Climate Action), reducing inequality (SDG 10), and improving affordable clean energy (SDG 7) directly through the process of making green finance, facilitating financial inclusion, as well as enhancing climate risk management. Nevertheless, a number of challenges have to overcome in order to ensure utmost potential of fintech in propelling sustainability. Future studies should therefore aim at finding solutions to these obstacles, improving on fintech solutions as well as finding ways to bring on board cross sectors in order to make fintech integrate into the quest of ensuring that the world is sustainable.

Table 2. Fintech's Role in Environmental & Social Sustainability

Study	Key Area	Focus	Fintech Technologies Used	Impact on SDGs	Conclusion/Findings	Citation
1	Fintech & ESG		Blockchain, AI, Big Data	SDG 13, SDG 10	Fintech enhances corporate ESG performance, promoting transparency in financial activities.	Alharbi et al., 2024
2	Green Finance		Blockchain, Digital Payments	SDG 12	Fintech solutions support green finance initiatives by enabling investments in sustainable energy projects.	Bai et al., 2023
3	Fintech & Financial Inclusion		Mobile Banking, P2P Lending	SDG 10, SDG 1	Mobile fintech solutions increase financial inclusion and empower underserved populations to participate in economic activities.	Dunbar et al., 2024
4	Fintech & Green Investment		AI, Blockchain, Data Analytics	SDG 13, SDG 7	Integration of fintech in green investments leads to more efficient capital allocation in climate-resilient projects.	Huang et al., 2025
5	Fintech in SDGs		AI, Big Data, Machine Learning	SDG 3, SDG 13	Fintech contributes to SDGs by creating accessible platforms for sustainable investments and reducing environmental impact.	Joshi et al., 2025



6	Green Finance and Fintech	AI, Blockchain, Cloud Computing	SDG 12, SDG 7	Fintech technologies, such as blockchain, improve transparency in green finance, supporting sustainable investments.	Kassetty et al., 2024
7	Green Credit & Fintech	Blockchain, AI, Big Data	SDG 7	Fintech solutions improve green credit allocation by increasing transparency and reducing risk in financing renewable projects.	Liu et al., 2024
8	Fintech for Sustainability	Mobile Payments, Data Analytics	SDG 1, SDG 10	Fintech solutions contribute to economic inclusion by providing access to sustainable financial services for underserved communities.	Trabelsi & Fhima, 2025
9	Fintech & Green Investment	AI, Blockchain	SDG 12, SDG 13	The application of fintech enhances investment in green projects by improving data analytics and investor trust in sustainability initiatives.	Yuan et al., 2025
10	Carbon Credits & Fintech	Blockchain, AI	SDG 13	Blockchain and AI solutions enable better management and optimization of carbon credit systems for improved climate risk management.	Zeng et al., 2024
11	Fintech in Sustainability	AI, IoT, Cloud Computing	SDG 9	The integration of fintech in smart cities and sustainability projects fosters green innovation and boosts resource efficiency.	Liu et al., 2023
12	Green Innovation & Fintech	Machine Learning, Blockchain	SDG 7, SDG 13	AI-powered fintech solutions drive green innovation in sustainable products, reducing environmental impacts through optimization.	Verdecchia et al., 2023
13	Fintech & Green Tech	Blockchain, AI, IoT	SDG 12	Fintech advances energy-efficient green technology through blockchain and	Patel et al., 2024

				IoT, improving resource usage.	
14	Digital Finance & Sustainability	AI, Big Data, P2P Lending	SDG 12	Digital platforms in fintech enhance environmental sustainability by offering green bonds and facilitating eco-friendly investments.	Gohr et al., 2025
15	Fintech in Climate Action	Blockchain, AI	SDG 13	AI-powered fintech solutions optimize climate risk management and increase corporate accountability in environmental initiatives.	Hoyer et al., 2023

The overview of 15 studies in the table accentuates the huge and growing role of fintech in supporting environmental and social sustainability. These papers based on the incorporation of digital technologies like blockchain, artificial intelligence (AI), big data and mobile payment, indicate the increased role of fintech in the promotion of sustainable development goals (SDGs) (Kishor et al. 2025). The pervasive theme is the idea that fintech can do more than merely support financial inclusion but take a significant role in overcome environmental challenges, including climate change, the efficiency of resources and reduction of waste, as well as solving the major social issues such as poverty and inequality.

Fintech in Green Finance and Impact Investing

One of the key discoveries in multiple investigations is the activity of fintech towards improving the green finance and impact investing. The fintech landscape is changing the capital allocation landscape to sustainable projects. Zhang et al. (2024) and Bai et al. (2023) point out the fact that blockchain technology enhances transparency in green finance because investors can trace how the money is allocated and spent. This enhanced transparency will trigger trust in the investors and guarantee that the financial resources will go to the project benefiting SDG 13 (Climate Action). In addition, fintech ventures like P2P lending or crowdfunding, have opened up access in the market to investment so that smaller participants can fund the sustainability project of large-scale projects, especially in renewable energy and green infrastructure construction (Brahmi et al. 2023).

Another phenomenon that is emerging regarding the advancement of environmental sustainability on digital sites is the adoption of green bonds, which issued through the system of fintech. Li et al. (2023) as well as others present how AI-based platforms evaluate the environmental impact of investments and how they allow an investor to make informed choices. This move towards digital sustainability is the core of the development of SDG 12 (Responsible Consumption and Production) that aimed at the decrease of wastes and the growth of sustainable manufacturing activity.

Fintech and Financial Inclusion

The other significant impact of fintech to sustainability is financial inclusion. The ability to give under-served populations access to cheap financial services means that fintech is directly involved in SDG 10 (Reduced Inequalities) and SDG 1 (No Poverty). Afjal (2023) and Zhou et al. (2025), also mention the increased access to financial services among millions of

unbanked people in developing countries due to mobile banking and digital payment systems. It is now possible to offer savings accounts, loans and insurance products to these people, which enhances their levels of financial security and offers these individuals the capability to invest in their own future. It is a very important step to induce economic growth within disadvantaged groups and overcome structural inequality along lines of access to capital.

Moreover, the fintech environment allows one to participate in types of financial activities that had not been accessible to individuals before, like micro lending and crowd funding. Such platforms provide low-interest; small-scale loans to individuals in need, help increase access to capital opportunities, and empower the individuals to better their lives. Specifically, Trabelsi & Fhima (2025) explain the abundance of mobile money platforms to help conduct financial transactions in underserved regions and thus promoting economic inclusion and offering social sustainability processes.

Fintech in Climate Risk Management

The notion of climate risk management is another significant aspect in which fintech is contributing significantly. Given the acceleration in climate change, companies and governments require precise data so they can gauge their environmental exposure risk. Fintech applications, especially AI-based and big data analytics tools are offering the capability to forecast and control these risks in a better way. According to Cheng et al. (2025) and Patil et al. (2022), AI is currently leveraged to analyze environmental data on a real-time basis and enable business organizations to predict possible climate-related risks, including extreme weather conditions or a change in regulations. This plays an essential role in SDG 13 (Climate Action), allowing businesses to work within a framework that both establishes how they can reduce their impact on the environment and make the business more resilient in the face of climate-induced upheavals.

Besides, carbon credits tracked and verified via fintech (blockchain), and the programs are transparent and accountable about carbon offsetting. Zeng et al. (2024) discuss how blockchain uses make it possible to engage businesses in the carbon trading markets through immutable records of carbon credits bought and sold. It has boosted transparency and traceability, which is central to helping industries cut their carbon footprint and aid the attainment of environmental climate goals worldwide.

Social and Environmental Impact Assessment

The intertwining of fintech and sustainable impact investing is also critical to achieving social and environmental sustainability. Gosselink et al. (2024) explain the way fintech sites and applications increase the efficiency of ESG (Environmental, Social, and Governance) investments as they employ the use of big data and AI to assess the performance of business entities taking into consideration their environmental and social impact. The tools that investors utilize to make informed decisions regarding the alignment with the sustainability goals, influence firms to embrace more ethical practices allowing them to enhance their ESG performance. With the help of AI-driven analytics, investors have a better, more accurate and comprehensive picture of the environmental and social welfare positions of companies, a trend that will enhance the sustainable investment culture.

In addition, the involvement of fintech in social entrepreneurship and crowdfunding enables individuals and institutions to finance projects intended to create a better fate of society. Micro-financing social enterprises in areas like quality healthcare and education funded through platforms like crowdfunding, to directly contribute to SDG 4 (Quality Education), and SDG 3 (Good Health and Well-being).

Challenges and Barriers to Fintech Adoption

Green finance-related regulatory frameworks are in the developmental phase, and there is no uniformity of approach to the application of fintech solutions to sustainability issues. Issues of data privacy and cybersecurity are among the other challenges that have emerged to threaten the mainstreaming of fintech in environmental and social use. Also, the unequal access to fintech services (particularly, in the developing regions) may affect the inclusiveness of such technologies, and some communities might struggle to gain the advantage of the sustainability processes that fintech enables.

Fintech is getting a bigger role in supporting environmental and social sustainability because of its use in green finance, impact investing, financial inclusion, and climate risk management. The fintech solutions involving AI, blockchain, and big data are increasing the efficiency of these initiatives through the concept of data transparency, accessibility, and efficiency in prolonged financial operations. However, there still are challenges such as regulatory barriers, technology limitations, and accessibility problems that need to be weeded out fully in order to achieve the potential of fintech in promoting sustainability. One of the directions of future research aimed at surpassing these obstacles and investigating new methods of the involvement of fintech in the fulfillment of the Sustainable Development Goals (SDGs).

5. Conclusion

The importance of fintech in advancing environmental and social sustainability has gained massive attention, and therefore, it is noticeable in the literature on this topic. Fintech has provided solutions that not only enable the realization of the Sustainable Development Goals (SDGs) but also enable the protection of the environments as well as inclusion of the societal members through innovative ways. The analyzed studies presented in this paper show that fintech technologies, including blockchain, artificial intelligence (AI), big data, and mobile payments, are transforming the financial systems and later enable sustainable practices in different industries. The 2030 Agenda successfully achieved through green finance, impact investing and financial inclusion, and might include SDG 13 (Climate Action), SDG 12 (Responsible Consumption and Production), SDG 10 (Reduced Inequalities) and SDG 7 (Affordable and Clean Energy).

The development of green finance being facilitated by fintech that has enhanced visibility among investor and accesses by investors. As an example, blockchain technology enables the transparent and safe monitoring of investments in green initiatives so that funds invested in environmentally friendly initiatives are not misplaced (Jovovi 2024). In addition, platforms of fintech like crowdfunding and peer-to-peer lending level the playing field by providing small investors with access to capital, to fund green and sustainable projects consequently stimulating renewable energy and eco-friendly infrastructure schemes. This capacity to invest in such projects is in line with the SDG 12 (Responsible Consumption) in that it encourages the responsible production and makes waste less.

In the sphere of financial inclusion, the capacity of fintech to grant the population to the underserved groups the access to banking and other financial services is one of the major contributors of SDG 10 (Reduced Inequalities). The services offered by mobile payments, digital wallets, and micro-lending scheme enable users to bring their essential services to people who have been left out of the formal financial system (Thottoli 2025). This is economically inclusive and empowers the disadvantaged communities, thereby enhancing the general social welfare.

In addition, the fintech innovations help to increase climate risk management. Big data analytics and the use of AI allow companies to receive real-time data, so they are able to

evaluate and reduce the implications of climate risks. The tools also make better use of resources, which can maximize SDG 13 (Climate Action) to minimize carbon emission and contribute to sustainable operations.

Nevertheless, in spite of the promising trends that fintech offers, a range of problems should be resolved in order to effectively unlock the potential of fintech in advancing sustainability. What prevents the extensive use of fintech measures to create sustainability are regulatory obstacles, data privacy issues, and technological obstacles. These problems are further complicated by the digital divide existing in the developing world, which does not allow the underserved communities to take full advantage of innovations made possible by fintech.

Fintech has demonstrated its value as a prerequisite to sustainable development; however, it will still take some research, policy changes, and inter-divisional collaboration to combat these issues. The direction that sought in future research is to address these barriers and how to overcome them, as well as how to get a better idea of the long-term impacts of fintech innovations on sustainability. In such a way, fintech could make a great contribution to the worldwide struggle to attain the SDGs, making the world more sustainable and inclusive.

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