

Examining the Convergence of Climate, Finance, and Digital Technology: A Conceptual Review of Climate Fintech

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ABSTRACT

The global economy faces significant economic and political risks due to climate change. Climate FinTech has become an essential component in digital transformation as the world has realised the urgency of climate change in protecting the environment. Many financial and non-financial institutions are increasingly collaborating with FinTech companies to develop FinTech projects that can benefit people and the environment. The growing number of climate FinTech companies has helped to facilitate and expedite the global financial sector's transition toward a more sustainable future and greener world. The main objective of this conceptual paper is to review the past literature to discuss the issues concerning climate FinTech. The study's findings suggest that climate FinTech is important in helping businesses migrate to more sustainable business models that will better integrate circular economy practices.

Keywords: Climate, FinTech, sustainability, regulation,

INTRODUCTION

The climate is a complex, large-scale process representing the average of many decades of weather phenomena, including off-planet variables, ocean, atmosphere, land, and biotic interactions (Rivera-Collazo, 2022). Climate change is a global issue involving many dimensions, including economic, political, financial, and technological (D'Orazio & Thole, 2022; Tamasiga, Onyeaka & Ouassou, 2022).

Climate change will affect the earth's temperature and bring negative impacts such as frequent severe snowstorms, melting ice, or disrupting the balance of the oceans. Thus, small changes in the earth's temperature could have a significant effect. Climate change has started since the industrial revolution as human activity has caused global temperature and weather changes. Climate change is often associated with the emissions of greenhouse gases such as carbon dioxide, which can increase the average global temperature (Pee & Pan, 2022). Climate change and environmental concerns are causing worry among many banks, financial regulators, and finance ministries as the traditional ways do not always consider the environment's health. As a result, we need practical steps to limit susceptibility to the consequences of climate change.

Climate FinTech is the convergence between finance, sustainability, and technology. Climate FinTech, also known as Green FinTech or Sustainable FinTech, is a digital financial technology that promotes carbon reduction. Previously, the term Climate FinTech was not widely known, but today many countries have begun to take numerous initiatives to support the various activities in their implementation (Murinde, Rizopoulos & Zachariadis, 2022). Climate and financial technology collide when both sectors have seen massive growth and increased demand for climate action and accountability across financial services from customers, employees, corporations, and investors (Chen et al., 2023).

Climate FinTech plays a vital role in achieving environmental sustainability by providing digital innovations, applications, and platforms that assist organisations and individuals in saving, spending, and investing in

environmentally friendly ways and overgrowing. The FinTech industry is a greener substitute for the traditional financial industry and can improve the sustainability of financial institutions by supporting green finance (Tamasiga, Onyeaka & Ouassou, 2022; Chen, Teng & Chen, 2022). Many climate FinTech business models are emerging nationally and internationally due to supportive policies and government initiatives. In a well-structured digital finance ecosystem, initiatives in traditional finance could be directed toward green digital finance (Coskun & Unalmis, 2022). By connecting banks, insurers, financial institutions, big tech firms, technology providers, regulators, and consumers, digital technologies and financial product innovations can help overcome climate finance challenges.

LITERATURE REVIEW

The public awareness of the global warming effect has caused many companies to adopt climate-positive operations. People's interest has increased to see the latest innovation in the financial and non-financial sectors that can create a greener world. The innovation in climate technology will lead to more scalability and cost-effectiveness. The development of technologies through online platforms and the internet has enriched financial data and created alternatives to financial services for everyone (Murinde et al., 2023). The importance of digital transformation and sustainable finance has begun to be recognised worldwide. Current environmental concerns have sparked several new trends in technology and financial management, with FinTech emerging as a competitor to traditional financial institutions. Chen et al. (2023) suggest that the efficiency of traditional financial services has improved by using FinTech. Climate FinTech is a critical intermediary in financial services, mobilising capital and changing behaviour. Therefore, the collaboration and partnership between fintech companies and financial institutions have increased and will become the future of financial services.

Climate FinTech solutions are digital innovations, applications, and platforms that assist institutions and individuals in saving, spending, and investing in environmentally friendly ways. Jiang & Ma (2019) supported the positive effect of mitigating financial development. The recent technological advancement allows FinTech firms to offer various solutions to allow people access to financial services. FinTech gives people and businesses access to traditional financial services in novel ways previously unavailable in conventional financial methods. For instance, in the newly revolutionised digital banking world, customers can use mobile bank apps to view their balance, transfer funds, or deposit a check online without going to the bank. FinTech is already tapping into the customers' demand for greener products. Therefore companies should continue to invest in green projects to increase their competitive value in the industry.

The climate FinTech industry has enormous potential as it covers many aspects such as green payment, digital payments, investments, and green regtech to enhance the regulatory processes of digital data analytics. FinTech is considered one of the most promising innovations that can solve the problems of inequity, poverty, and inaccessibility of financial services (Banna et al., 2022). Climate FinTech companies and numerous organisations have emerged globally to reshape essential financial system functions that can tackle environmental issues. Climate FinTech helps customers make more conscious shopping decisions, verifying carbon credit quality across blockchains. The increased awareness among investors has changed their attitude toward climate-related financial risk. Investments are shifted towards greener assets and more climate-focused portfolios. Additionally, insurance companies can better analyse weather perils and underwrite climate risks better while assisting regulators in measuring missions from the largest corporations.

These digital innovations, applications, and platforms play critical roles as intermediaries between stakeholders interested in advancing decarbonisation solutions. Companies also can protect themselves against climate risks that can disrupt business operations. Companies are actively involved in climate FinTech projects because it will provide businesses with better tools for monitoring, measuring, and mitigating their environmental impact and minimising losses. Digital technologies will drive capital, improve data analysis for greenhouse gas reduction projects, and maximise innovation for increased productivity, efficiency, and customer experience. Due to consumers' growing reliance on digital financial services, there has been an increase in partnership and collaboration between tech firms and traditional financial and non-financial institutions. Those who refuse to adapt face falling behind in today's market.

Climate-related risks can bring destabilising effects on the global financial system. As one of the most regulated

industries in the world, the financial sector needs to operate within the regulatory framework to safeguard people's money and investment (Murinde, Rizopoulos & Zachariadis, 2022; Tok & Heng, 2022). It is challenging to comply with the increasing complexity and demand of the financial system, which will finally become a heavy burden. The FinTech industry is constantly changing, and regulatory bodies and policymakers are becoming more concerned about data privacy and working to keep up with the various risk management strategies. Therefore, the augmented in the core banking system toward digitalisation can bring risks and opportunities.

Digital financial services will create a risk to financial services and challenge financial stability. The systematic risk will rise with the growth of FinTech financial services. According to Banna et al. (2022), technological transformation is important to promote a healthy financial stability system and reduce risk-taking behaviour. However, the potential for fraudulent operations and cybercrime will also increase as technology advances. Cyberattacks, such as computer scams and vulnerabilities, often cause significant losses. Additionally, Murinde et al. (2022) argued that, even though the banking industry plays a pivotal role in the progress of society as it signals economic and financial strength, sometimes it is a challenge for companies to maintain transparency and traceability of technological innovations. Therefore, the collaboration between governments, regulators, and technology companies will foster great innovation and accelerate the adoption of sustainability in all aspects of daily life.

Climate Fintech: The Way Forward

Climate FinTech concentrates on the mixture of finance, climate & digital tech (Climate Fintech, n.d.). It uses digital finance options to encourage decarbonisation and work as financial intermediaries between those chasing that purpose (Mulwa, 2022). Though Climate FinTech is still in its infancy, interest in the bond between climate change & money is growing. For instance, the University of Cambridge will open a new centre for finance & sustainability in February 2021 (Clancy, 2022).

Future research into the interrelationship of climate, money & digital technology could extend in various ways. Researchers could ask questions about the ability of mobile & digital tech to modify climate finances, review innovative & untested solutions for climate change and business models along with analysing the role of financial intermediaries & pathways regarding decarbonisation plans. Additionally, they could enquire into the regulation & legislation elements of Climate FinTech and consider possible hinderances and struggles related to implementation.

Further research into this subject matter might assist in speeding up the move to a low-carbon, sustainable future. Exploration into the potentials of digital tech to upgrade climate risk assessment & management could take place; introducing novel methods for data collection, analysis & visualisation - which might improve accuracy - along with examining insurtech & other FinTech inventions that can help with access & affordability when it comes to climate risk insurance. Other areas may include developing new Climate Fintech business models, analyzing the job lawmakers and regulators have in helping its development plus appreciating ethical and social issues that come with this technology as propounded by Akhtar&Nosheen (2022) plus Yi et al (2020).

CONCLUSION

Climate FinTech has entered the mainstream and becomes the new way to pursue decarbonisation by nurturing an emerging digital ecosystem of climate capital catalysts. Climate Fintech has both downstream and upstream benefits, as it improves the environment, people's daily lives, and the actions of the largest financial institutions. Fintech-driven innovations have the potential to reshape the financial system to meet the demands of sustainable development better. Climate FinTech provides consumers with access to energy and banking infrastructure that can improve their quality of life, while companies will be incentivised to run their operations while considering the environmental impact. Financial product innovation and deployment are critical components of capital mobilisation for decarbonisation. Slowing down decarbonisation will expedite the energy transition toward a sustainable future. A sustainable future can only be built on a financial system that allows for the rapid transition of key industries to green practices while accelerating the innovation of new market makers defining game-changing business models.

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