

Crowd Funding and Blockchain in the Era of Disruption 4.0 in the Influence of Financial Technology Development

Totok Mulyono¹

Informatics Engineering Department, Polytechnic of Semen Indonesia, Gresik,
East Java, Indonesia.

Angga Debby Frayudha²

Informatics Engineering Department, Polytechnic of Semen Indonesia, Gresik,
East Java, Indonesia.

Hamzah Agung³

Informatics Engineering Department, Polytechnic of Semen Indonesia, Gresik,
East Java, Indonesia.

Riza Adya⁴

Informatics Engineering Department, Polytechnic of Semen Indonesia, Gresik,
East Java, Indonesia.

Evy Nur Amalina⁵

Informatics Engineering Department, Polytechnic of Semen Indonesia, Gresik,
East Java, Indonesia

Ida Fitriana⁶

Informatics Engineering Department, Polytechnic of Semen Indonesia, Gresik,
East Java, Indonesia.

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Abstract

Background - Based on a scientific review of influential guidelines among 402 papers published between 2014 and 2023, this paper identifies gaps in Economics and Finance studies related to Fin Tech programs: Crowdfunding and Blockchain by using Systematic Mapping Study (SMS).

Purpose - The purpose of this study is to find out the topic of Financial Technology and the development of FinTech.

Research Methodology - This research Analyzing the statistics shows that: modern studies on Fin Tech are fragmented with a restrained theoretical foundation.

Findings - The results of this study show that Crowdfunding and Blockchain may appear to be improvements that can disrupt conventional economic intermediation but in different ways, the

crowdfunding system replaces conventional economic intermediaries and serves as a new intermediary, without eliminating the desire for intermediaries, like crowdfunding, Blockchain also creates new intermediaries, and deals with the details inherent in Blockchain allowing Blockchain to eliminate the need for intermediaries in some areas of the economy but now not all.

Managerial Implications - This research can provide insight into the latest trends and influence of Fintech, Crowdfunding, and Blockchain developments on the industry. This can help the industry in developing more relevant and efficient products and services.

Keywords: Blockchain, Fundraising, Intermediation, Finance, Financial Technology.

1. Introduction

The Disruption 4.0 era has brought significant changes in almost all aspects of human life, including in the financial world. The development of financial technology (fintech) is one of the main drivers of this change. In this context, crowdfunding and blockchain are two innovations that have greatly influenced the way we understand, access, and use financial services. In this paper, we will discuss the impact of fintech developments on crowdfunding and blockchain.

Crowdfunding is a funding model that involves many individuals or investors contributing funds to a project, idea, or business venture through an online platform. The Disruption 4.0 era has facilitated the development of crowdfunding in an unprecedented way. Some of its important influences are: Technology and internet connectivity allow crowdfunding projects to reach a global audience. Entrepreneurs are no longer limited by geographical boundaries, and investors can participate in projects across the world. Investors can easily diversify their portfolio through crowdfunding. They can invest in different projects of different sizes, thereby reducing the overall risk of their portfolio. Crowdfunding has utilised technologies such as artificial intelligence (AI) for risk analysis, as well as blockchain to increase transparency and security of transactions.

Blockchain is the underlying technology of cryptocurrencies like Bitcoin, but its influence is not limited to cryptocurrencies. Blockchain is a decentralised, transparent, and secure digital ledger. In the era of Disruption 4.0, blockchain's influence includes: Blockchain provides an unprecedented level of transparency in financial transactions. All transactions recorded in the blockchain are visible to all interested parties, reducing the risk of fraud or manipulation. Blockchain enables the reduction of transaction costs through the elimination of intermediaries in the financial process. This can ease the cost burden of international money transfers, investments, and more. Blockchain technology enables automated execution of smart contracts without the need for human intervention. This reduces costs and increases the reliability of contract execution. Blockchain enables the recording of ownership of digital assets such as property, shares, and intellectual property rights in a secure and easily verifiable manner.

The influence of financial technology development in the Disruption 4.0 era on crowdfunding and blockchain is a mutually beneficial relationship. Financial technologies such as mobile

applications and digital payments make it easier for individuals to participate in crowdfunding, while blockchain increases security and transparency in crowdfunding transactions.

The Disruption 4.0 era has accelerated the development of crowdfunding and blockchain in the financial world. Crowdfunding has become more global, diversified assets, and utilised financial technology for faster growth. While blockchain provides unprecedented levels of transparency, security, and efficiency in various aspects of finance. The combination of fintech, crowdfunding, and blockchain brings significant changes in the way we invest, fund projects, and manage our financial assets in the era of Disruption 4.0.

In conducting this research, there are several previous studies that are aligned, so that this research can be carried out properly. The first research examines the evolution of FinTech in three major eras. While the term FinTech is relatively new, financial innovation has a long history. It is widely accepted that technology has always played a key role in the financial sector, but there is a gap, namely, it is very difficult to characterize the FinTech movement [5]. The second study examined the role of banking in Indonesia's economic activities. The large role of banking in economic activities must be supported by strong regulations [6]. The third study, examining the role of financial intermediation in FinTech, the study still has gaps in financial intermediation in FinTech [7]. The fourth study, examining the role of FinTech as financial services such as Crowdfunding, mobile payments, and money transfer services led to the development of start-up businesses [8]. The fifth study examines the phenomenon of crowdfunding development in Indonesia. Indonesian people, especially in urban communities, still do not make the most of it because there is still a lack of knowledge literacy related to crowdfunding as an alternative funding which causes a gap in the number of Indonesian crowdfunding compared to other Asian countries, namely India and Malaysia, which are quite competitive [9]. The sixth study, examining financial technology, FinTech generally aims to attract consumers by providing products and providing services that are more user friendly, efficient and transparent, but the gap is very wide, especially with the older generation. The seventh research (7) examines Financial Technology: A Systematic Mapping Study, the lack of gap identification in the research. Today Fintech has become one of the 'hot' areas in the financial industry, social media, and academic research, but our understanding of its applications and implications is rather limited.

2. Research Methodology

2.1. Mapping FinTech in Economics and Finance Research

FinTech, which stands for Financial Technology, is a phenomenon that has significantly changed the landscape of the financial industry in recent years. Developments in information and communication technology have provided opportunities for innovation in the financial sector, bringing new solutions that utilise technology to facilitate financial transactions, manage risk, and change the way we interact with money.

Research in economics and finance has been heavily influenced by FinTech developments. Discussing how FinTech maps into economic and financial research is a must to understand its impact on various aspects of economic activity. Here are some key points in mapping FinTech in economic and financial research:

FinTech has given rise to various innovations in the financial sector, such as online banking services, peer-to-peer lending, online investment, and cryptocurrencies. Economic research can examine the extent to which these innovations affect the efficiency and stability of the financial system.

FinTech has also played an important role in improving financial inclusion in various countries. Research could examine the extent to which access to FinTech services has helped reduce financial disparities and provide financial access to previously underserved groups.

The use of technology in the financial sector also brings new risks, such as cybersecurity and consumer protection risks. Research can shed light on how regulation and supervisory measures are adapting to FinTech developments to maintain financial sector stability and safety.

FinTech has presented challenges to traditional financial institutions. Research can analyse how these institutions are adapting their business models to remain competitive in the FinTech era.

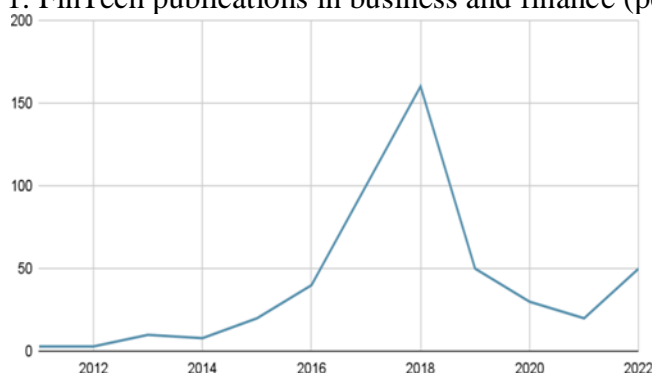
The adoption of FinTech technologies by consumers and firms is an important aspect of economic research. Research can evaluate the factors that influence the adoption of FinTech technologies and their impact on economic behaviour.

Cryptocurrencies and blockchain technology are an integral part of FinTech. Research can explore their transformational potential in the economy and financial sector.

FinTech generates large volumes of financial data that can be used for further analysis. Research could focus on how data analytics can provide new insights into financial decision-making.

In order to understand the role of FinTech in economics and finance, in-depth and interdisciplinary research is essential. FinTech is constantly evolving, and this research will help us understand how these technologies affect different aspects of our economic and financial lives.

Figure 1. FinTech publications in business and finance (per year)



To check if any records were inadvertently missed, a search for cited references was conducted in HistCiteTM. Omissions may occur when records do not meet the search criteria. In addition, limiting the search to the field of business and management may have missed contributions that are not classified by Web of ScienceTM as belonging to this domain. Four additional publications were manually added to the final dataset (see Table 1). With the manual additions, the final dataset contained 402 records published between 2012 and 2022 (cutoff date: July 24, 2022, which includes online-first articles published to date). Furthermore, there are some cross-

disciplinary books/magazines related to this review that were not added in our data as they are not business fields; for example, the book 'Bitcoin and Cryptocurrency Technologies' published by Princeton University Press in the year provides a comprehensive introduction to the Blockchain revolution, but is categorized under the field of computer science[15]. The annual research output on FinTech in Economics and Finance is mapped in Figure 1. The field attracted academic interest in 2014, followed by a rapid increase in publications, in line with the rapid growth of aggressive investments in the field.

2.2. Developments in FinTech Research

This section reviews and discusses the main research streams identified in Figure 2. Additional streams, although still in their infancy, are also explored for their future potential and implications.

Crowdfunding

Developments in FinTech research on crowdfunding have become an increasingly important topic in the modern financial world. Crowdfunding is a funding method that allows individuals or groups to raise funds from a large number of people online, usually through a crowdfunding platform. It has become a significant phenomenon in recent years and has changed the way many businesses, startups, and projects gain access to funding sources. Research in the field of FinTech crowdfunding aims to understand, analyse, and identify trends, challenges, and their potential impact on the economy, finance, and society. Here are some key points that can serve as a background for further research and understanding of developments in this field:

Crowdfunding has experienced significant growth in recent years, especially with the advancement of internet technology and social media. Research on this growth trend can provide insights into market developments.

There are several types of crowdfunding, including equity crowdfunding, debt crowdfunding, reward crowdfunding, and reward crowdfunding. Research can focus on specific types of crowdfunding or compare them to understand the differences and similarities between them. Blockchain technology and smart contracts have played an important role in the development of crowdfunding, especially in terms of security, transparency, and automation. Research can explore the impact of these technologies. Crowdfunding regulations vary across countries and change frequently. Research on the regulatory framework and its impact on the growth and development of crowdfunding is an important topic.

Crowdfunding also has significant social and economic impacts, such as community empowerment, financial inclusion, and support for innovative projects. Research can explore these influences. Sustainability and risk in crowdfunding also need to be researched. How are projects funded through crowdfunding sustainable, and what are the possible risks?

Essentially, FinTech research on crowdfunding helps us understand more about the role of crowdfunding in today's economy and society. It can also provide insights into how technology and regulation will continue to influence the way crowdfunding develops in the future.

Blockchain

Developments in FinTech research on blockchain have been an important topic in recent years. Blockchain is the underlying technology of cryptocurrencies like Bitcoin, but it also has the potential to transform various aspects of the financial industry, including banking, insurance, risk management, and more. In this introduction, we will discuss some of the key developments in FinTech research on blockchain.

Blockchain is a distribution system that allows digital transaction records to be stored in interlinked and encrypted blocks. This technology addresses issues of trust, transparency, and security in financial transactions. Much research focuses on how to optimise and improve blockchain technology, including increasing transaction speed, scalability, and privacy.

FinTech has adopted blockchain in various applications. For example, blockchain technology is used in payment processing, smart contracts creation, digital identity management, risk management, and digital asset storage and exchange. Research continues to understand how blockchain can improve efficiency and security in various aspects of the financial industry.

Research in blockchain FinTech also includes regulatory and compliance aspects. Regulators and financial supervisory bodies in various countries are trying to understand and regulate the use of blockchain in the financial sector. This research focuses on how to create a regulatory framework that is compatible with blockchain technology and protects the interests of consumers.

Security is a major concern in the use of blockchain in the financial sector. Research is ongoing to identify and address potential vulnerabilities and security threats in blockchain systems. The development of better security techniques and penetration testing is an important part of this research.

Research in blockchain interoperability is also a major focus. Since there are various different blockchain platforms, it is important to understand how they can communicate and interact with each other. Standards and protocols that enable interoperability between blockchains are being developed.

As time passes, blockchain technology continues to evolve. This research focuses on developing new versions of blockchain, such as proof-of-stake-based blockchains and high-speed blockchains that can overcome existing technical limitations.

Research also involves understanding the social and economic implications of using blockchain. These include its impact on financial inclusion, transaction security, and wealth distribution.

With continued developments in FinTech research on blockchain, we can expect significant changes in the way the financial industry operates and interacts. Blockchain technology has the potential to change the paradigm and provide huge benefits in terms of efficiency, security, and financial inclusion.

3. Results and Discussion

Innovative payment services like PayPal didn't get much attention from the financial world a decade ago. All aspects of financial services today are influenced by technological factors. Similar to Philippon (2016)[25], we believe FinTech innovations have the power to upend established financial industry institutions and blur industry boundaries. The key factor is that some fintech technologies can help financial services move away from intermediaries. To shed light on the upcoming fintech revolution, this literature review examines two of its key innovations, crowdfunding and Blockchain, which aim to disrupt financial processes and eliminate intermediaries. increase[26].

Mediation is a fundamental part of finance. B. Asset Aggregation, Market Making, Risk Management, and Information Clearing [27]. For more than 100 years, we have shared the view that traditional financial intermediaries perform key financial functions and generate efficiency. Without bankers, most individuals and businesses have to bear higher transaction costs. New technologies and regulatory reforms have transformed the financial industry in recent years[28]. For a long time, the purpose of financial intermediation was to reduce costs and risks. However, the 2007/2009 financial crisis severely damaged the brand image of traditional financial intermediaries, especially banks. Nowadays, more and more people are bypassing traditional financial markets to cut costs, deregulate, and improve efficiency. Driven by technological developments and new regulatory initiatives, many clients of the financial services sector are changing their minds about who has the resources and legitimacy to provide financial services, and are seeking financial intermediation that supports FinTech innovations. questioning the role of crowdfunding Research review shows that this fintech innovation does not negate the need for financial intermediaries. Rather, it creates alternatives to traditional intermediaries.

Current crowdfunding research uses an empirical approach to focus on the determinants of crowdfunding success and the dynamic behavior of investors. Results support existing theories derived by legacy traditional intermediaries and therefore do not contradict these theories. Crowdfunding is considered an alternative financial investment vehicle that does not go through standard financial intermediaries, but this key feature of crowdfunding makes this fintech innovation fundamentally different. There is a lack of sufficient research to know how to do so[29]. Crowdfunding platforms do not eliminate intermediaries. Instead, these platforms are seen as new, loosely regulated intermediaries. In practice, traditional banks provide loans to borrowers and platforms provide notes to lenders. The investment bank then creates a platform for fundraising to raise funds from potential donors/investors. So the basics of these peer-to-peer platforms and traditional bank intermediaries are almost the same, if not the same[30].

One of the main advantages of crowdfunding compared to traditional banks is less regulatory requirements and lower transaction costs. However, this is based on an ex-ante perspective, as there is no post-mortem investigation to find out if this belief is true. Although crowdfunding platforms can slightly reduce transaction costs, it does not mean that crowdfunding platforms are a "more efficient" way to raise and redistribute capital compared to traditional financial intermediaries. Moreover, recent studies on crowdfunding show the persistence and intrinsic

nature of the asymmetric information problem in crowdfunding platforms. This suggests that crowdsourcing innovations still require intermediaries. Therefore, although crowdfunding on the surface avoids the use of conventional financial intermediaries to raise money, the main purpose of financial intermediation also applies to this FinTech innovation. Crowdfunding platforms act as a new type of financial intermediary by replacing conventional ones[31].

A fundamental feature of Blockchain technology is that it enables decentralized consensus building. This changes the conventional wisdom that says the legitimacy of transactions should be determined by a centralized and reliable third party. Historically, the primary function of banks has been in this regard (traditional financial intermediaries). Blockchain can eliminate bank middlemen by providing trust in a decentralized way. However, this does not mean that this new technology will eliminate traditional intermediaries, as building systematic trust in transactions is not their only role. On the other hand, Blockchain can also be used by banks to (i) reinvent processes and (ii) reinvent the products they offer. Blockchain can eliminate the need for arbitration in some areas, bringing in new forms of arbitration while reducing the layers of traditional arbitration.

4. Conclusions

The conclusion about crowdfunding and blockchain in the era of disruption 4.0 in the influence of financial technology development is as follows:

Crowdfunding is an increasingly popular method of raising funds in the disruption 4.0 era, where online platforms allow individuals and companies to raise funds from many people easily. It has changed the way funds are raised for various projects and ventures.

Blockchain, as the underlying technology behind cryptocurrencies like Bitcoin, also plays an important role in the development of financial technology. It enables secure, transparent and decentralised financial transactions and can be used to facilitate crowdfunding safely and efficiently.

The combination of crowdfunding and blockchain has opened up new opportunities in fundraising. Blockchain technology can be used to secure and document crowdfunding transactions, reduce the risk of fraud, and provide transparency to shareholders.

In the era of disruption 4.0, financial technologies such as crowdfunding and blockchain have changed the financial landscape in significant ways. They enable easier access to funds for individuals and companies, removing traditional barriers to fundraising.

While these technologies bring many benefits, they also present new challenges, such as security concerns, regulations that are not necessarily in line with technological developments, and investment risks. Therefore, it is important for parties involved in crowdfunding and the use of blockchain technology to understand the risks and keep personal and financial data safe.

Thus, crowdfunding and blockchain play an important role in the development of financial technology in the era of disruption 4.0. They open up new opportunities and present challenges that need to be addressed by actors in this field..

Managerial Implications

The influence of Crowdfunding and Blockchain in the Disruption 4.0 era on the development of financial technology has significant managerial implications. Here are some of the managerial implications that can be considered: Managers need to have a strong understanding of financial technology, especially Crowdfunding and Blockchain. They need to understand how these technologies operate, their potential benefits, and the associated risks. This enables them to make informed decisions on adopting or investing in these technologies.

Crowdfunding allows companies to gain access to funds from various sources, including individuals, institutional investors, and investor pools. Managers need to design fundraising strategies that suit the target company and industry, and understand how to use crowdfunding platforms effectively. The use of Blockchain technology can improve the security and transparency of financial transactions. Managers should consider implementing blockchain solutions in their business processes, especially in terms of data management and transaction processes. They also need to understand the regulations and policies related to data privacy and security.

Crowdfunding and Blockchain technology can carry different risks. Managers should be able to identify these risks and develop risk management strategies accordingly. These include technical failure risks, regulatory risks, and financial risks. Managers need to think about how to integrate Crowdfunding and Blockchain technologies with the systems already in place within their organisations. This may involve changes in business processes, employee training, and technology infrastructure development.

The development of financial technology often raises complex legal and regulatory issues. Managers need to stay on top of regulatory developments in this area and ensure that their companies are operating within the appropriate legal framework. Crowdfunding and Blockchain provide opportunities to develop new products and services that can fulfil customer needs in a more efficient way. Managers need to promote a culture of innovation within their organisations to tap into this potential.

In the face of technological change, managers must ensure that their employees have the necessary skills to adopt new technologies. This can involve continuous training and development to ensure the successful implementation of financial technology. These managerial implications reflect the importance of adapting to changes in fintech in the era of Disruption 4.0. Managers who can address these challenges wisely will have a competitive advantage in their industry.

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