Startupreneur Business Digital (SABDA)
Vol.3 No. 1, April 2024
P-ISSN:
2962-0260
E-ISSN:
2962-0279

Fintech Integration with Crowdfunding and Blockchain in Industry 4.0 Era

Tasya Syafira[1], Stuart Jackson[2], Amirsyah Tambunan[3]
[1]Faculty of Economics and Business, iLearning Incorporation, Columbia
[2]Faculty of Economics and Business, Adi Journal Incorporation, USA
[3]Faculty of Tarbiyah and Teacher Training, Syarif Hidayatullah State Islamic University Jakarta, Indonesia
Email: syafiratasya11@ilearning.co[1] , stuart.jackson@adi-journal.org[2], amirsyahtambunan@yahoo.com[3]

Article Info
DOI:
10.33050/sabda.v3i1.433
Article history:
Notifications Author
11 November 2023
Final Revised
02 Januari 2024
Published
06 April 2024

Keywords:
FinTech
Crowdfunding
Blockchain
Industry 4.0

ABSTRACT

The Industrial Era 4.0 has brought significant changes in various sectors, including the financial sector. This research aims to examine in depth the integration of FinTech with Crowdfunding and Blockchain, as well as its implications in the context of the Industry 4.0 era. The method used in this research is qualitative analysis with a literature study and case study approach. The research results show that FinTech has played a catalyst role in accelerating the adoption of Crowdfunding and Blockchain. This integration has created a new business model that is more efficient, transparent and inclusive. In the context of Crowdfunding, FinTech has enabled wider access for individuals and small businesses to obtain funding, while in the context of Blockchain, FinTech has contributed to increased security, reduced transaction costs and increased trust. This research provides new insights into how the integration of FinTech with Crowdfunding and Blockchain can shape the future of financial services in the Industry 4.0 era.

Corresponding Author:
Syarif Hidayatullah State Islamic University Jakarta
Email: amirsyahtambunan@yahoo.com

1. INTRODUCTION

The Industrial Era 4.0 has marked the beginning of a technological revolution that is changing the way we live, work and interact. In this context, the financial sector has experienced a significant transformation, especially with the emergence of FinTech (Financial Technology)[1]. FinTech has revolutionized financial services by providing more efficient, inclusive and innovative solutions. Two important aspects of this evolution are

Crowdfunding and Blockchain, which have changed the paradigm of funding and financial transactions[2].

Crowdfunding, as a collective funding model, has opened the door for individuals and small businesses to access capital that was previously difficult to reach. On the other hand, Blockchain, with its ability to provide a secure and transparent record-keeping system, has changed the way we view data security and integrity in financial transactions[3]. The Industrial Era 4.0 has marked the beginning of a technological revolution that is changing the way we live, work and interact[4]. In this context, the financial sector has experienced a significant transformation, especially with the emergence of FinTech (Financial Technology)[5]. FinTech has revolutionized financial services by providing more efficient, inclusive and innovative solutions[6]. Two important aspects of this evolution are Crowdfunding and Blockchain, which have changed the paradigm of funding and financial transactions[7].

Crowdfunding, as a collective funding model, has opened the door for individuals and small businesses to access capital that was previously difficult to reach[8]. On the other hand, Blockchain, with its ability to provide a secure and transparent record-keeping system, has changed the way we view data security and integrity in financial transactions[9]. These developments not only change the way we conduct financial transactions, but also open up new opportunities for innovation and economic growth[10]. Crowdfunding, for example, has become an important tool for startups and entrepreneurs to raise funds without having to rely on traditional methods such as bank loans or institutional investors[11]. This has created a more democratic ecosystem where anyone with a good idea can seek financial support from the wider community[12]. Meanwhile, Blockchain has offered solutions to some of the biggest challenges in financial transactions, including security, transparency and efficiency[13].

This technology enables immutable and distributed recording of transactions, reducing the risk of fraud and error[14]. Additionally, Blockchain has become the basis for the development of digital currencies and smart contracts, which have the potential to change the way we do business and interact economically[15]. However, integration between FinTech, Crowdfunding and Blockchain also presents its own challenges[16]. Issues such as regulation, cybersecurity, and technology accessibility for underserved populations must be handled carefully[17]. Additionally, there are concerns about the social and economic impact of the disruption brought by these technologies, including the potential replacement of human jobs with automation and changes in the structure of financial markets[18].

2. LITERATURE REVIEW

In the Industry 4.0 era, the integration of FinTech, Crowdfunding, and Blockchain has become a major focus in financial and technology literature[19]. Gomber et al. (2017) highlight how FinTech has transformed the infrastructure and operations of financial markets, creating more efficient and inclusive services. King (2016) in his book "Augmented: Life in the Smart Lane" discusses the shift towards digital financial services and automation brought by FinTech[20]. On the other hand, Crowdfunding has evolved from a niche funding method to a mainstream funding tool, as explained by Gerber et al. (2012)[21]. Agrawal et al. (2013) emphasize the role of social media and online networks in supporting Crowdfunding projects[22].

Meanwhile, Blockchain has attracted attention not only as the technology behind digital currencies like Bitcoin, but also as a tool for creating more transparent and efficient systems[23]. Catalini and Gans (2016) explore the potential of Blockchain beyond digital

currency applications, while Mougayar (2016) in his book "The Business Blockchain" highlights how this technology can change business and industry[24].

Integration between FinTech, Crowdfunding and Blockchain offers beneficial synergies, as explained by Prasad et al. (2019), who highlight how the combination of these technologies can improve access to funding and transaction security[25]. Hughes et al. (2019) examine the challenges and opportunities emerging from this integration, highlighting issues such as regulation, cybersecurity, and technology adoption[26].

In conclusion, the literature shows that the integration of FinTech, Crowdfunding, and Blockchain has great potential in shaping the future of financial services in the Industry 4.0 era[27]. However, a deep understanding of the mechanisms, applications, and challenges associated with these technologies is required. Further research is needed to explore how this integration can be implemented effectively, while overcoming existing barriers[28].

3. METHOD

This research method uses a comprehensive qualitative approach to understand in depth the dynamics and implications of the integration of FinTech, Crowdfunding, and Blockchain in the Industry 4.0 era[29]. A qualitative approach was chosen because of its ability to explore the perceptions, experiences and attitudes of relevant stakeholders, which are important for understanding this complex and layered phenomenon[30].

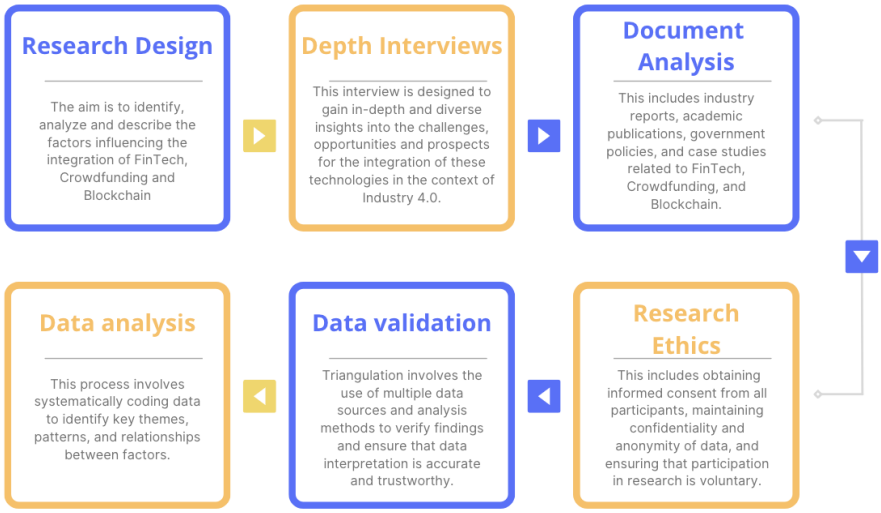


Figure 1. Research Method

1. Research design:

This research was designed as an exploratory and descriptive study. The aim is to identify, analyze and describe the factors influencing the integration of FinTech, Crowdfunding and Blockchain, as well as to understand the consequences and implications of this integration for the financial industry.

2. In-depth Interviews

This research involved a series of in-depth interviews with various stakeholders, including technology experts, financial industry practitioners, Blockchain developers, and academics. This interview is designed to gain in-depth and diverse insights into the challenges, opportunities and prospects for the integration of these technologies in the context of Industry 4.0.

3. Document Analysis

In addition to interviews, this research also relied on extensive document analysis. This includes industry reports, academic publications, government policies, and case studies related to FinTech, Crowdfunding, and Blockchain. The analysis of this document aims to understand the historical background, current trends, and regulatory context influencing the integration of these technologies.

4. Data analysis

Data collected from interviews and documents will be thoroughly analyzed using thematic analysis. This process involves systematically coding data to identify key themes, patterns, and relationships between factors. This analysis will help in understanding how the integration of FinTech, Crowdfunding and Blockchain may shape the future of financial services and the challenges they may face.

5. Data validation

To ensure the validity and reliability of the findings, this research will use data triangulation. Triangulation involves the use of multiple data sources and analysis methods to verify findings and ensure that data interpretation is accurate and trustworthy.

6. Research Ethics:

This research will adhere to strict research ethics principles. This includes obtaining informed consent from all participants, maintaining confidentiality and anonymity of data, and ensuring that participation in research is voluntary. Additionally, this research will ensure that all data and findings are handled with integrity and transparency.

This research method is designed to provide a deep and comprehensive understanding of the integration of FinTech, Crowdfunding, and Blockchain in the Industry 4.0 era. Using a rich qualitative approach, this research aims to explore and analyze the factors influencing this integration and their implications for the future of financial services. Through in-depth interviews, document analysis, and thematic analysis, this research seeks to provide valuable insights and recommendations that can help shape policy and practice in the financial sector.

4. RESULTS AND DISCUSSION

The results and discussion of this research reveal various important aspects related to the integration of FinTech, Crowdfunding, and Blockchain in the context of the Industry 4.0 era. The following are the details and complexity of the results and discussion:

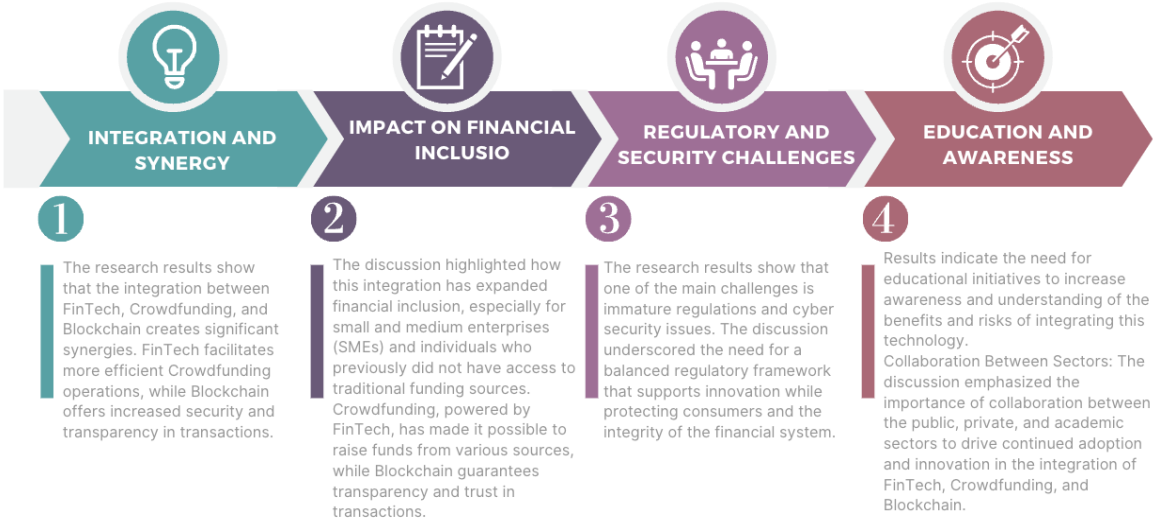


Figure 2. Integration of FinTech, Crowdfunding, and Blockchain

4.1 Integration and Synergy

The research results show that the integration between FinTech, Crowdfunding, and Blockchain creates significant synergies. FinTech facilitates more efficient Crowdfunding operations, while Blockchain offers increased security and transparency in transactions.
Financial Paradigm Shift: Results show that this integration has sparked a paradigm shift in financial services, with an emphasis on financial inclusion, democratization of access to capital, and increased data security.
Discussion:

4.2 Impact on Financial Inclusion:

The discussion highlighted how this integration has expanded financial inclusion, especially for small and medium enterprises (SMEs) and individuals who previously did not have access to traditional funding sources. Crowdfunding, powered by FinTech, has made it possible to raise funds from various sources, while Blockchain guarantees transparency and trust in transactions.
Innovation in Financial Services: The discussion also revealed that this integration has driven innovation in financial services. For example, the use of smart contracts in Blockchain enables greater automation and efficiency in financial transactions.

4.3 Regulatory and Security Challenges

The research results show that one of the main challenges is immature regulations and cyber security issues. The discussion underscored the need for a balanced regulatory framework that supports innovation while protecting consumers and the integrity of the financial system.
Technology Adoption and Acceptance: The discussion also highlights the issue of technology adoption and acceptance. Despite great potential, there are still barriers to widespread acceptance of this technology, primarily due to a lack of understanding and trust from end users.

4.4 Education and Awareness:

Results indicate the need for educational initiatives to increase awareness and understanding of the benefits and risks of integrating this technology.

Collaboration Between Sectors: The discussion emphasized the importance of collaboration between the public, private, and academic sectors to drive continued adoption and innovation in the integration of FinTech, Crowdfunding, and Blockchain.

The results and discussion of this research show that the integration of FinTech, Crowdfunding, and Blockchain has great potential to change the financial services landscape in the Industry 4.0 era. However, challenges such as regulation, security and technology adoption need to be addressed. This research provides valuable insights and recommendations that can assist policymakers, industry practitioners, and other stakeholders in harnessing the full potential of the integration of these technologies.

5. CONCLUSION

In the Industry 4.0 era, financial technology has undergone an unprecedented transformation, especially with the integration of FinTech, Crowdfunding, and Blockchain. The final conclusion of this research confirms that the integration of these three technologies has the potential to revolutionize the financial services sector, creating a new paradigm that is more inclusive, transparent and efficient. FinTech, with its ability to simplify financial processes and increase accessibility, has become a major catalyst for innovation in the industry. Crowdfunding, on the other hand, has enabled individuals and small businesses to access funding sources that were previously difficult to reach, facilitating economic growth and financial inclusion. Meanwhile, Blockchain, with its distributed ledger, offers a revolutionary security and transparency solution, addressing many of the challenges faced by traditional financial systems. However, despite its great potential, there are several obstacles that need to be overcome. Immature regulations, cybersecurity challenges, and issues related to technology adoption are some of the areas that require special attention. To realize the full potential of this integration, a balanced approach is needed that considers both aspects: exploiting the opportunities offered by new technologies while addressing emerging challenges. In addition, collaboration between stakeholders from the public and private sectors, as well as the academic community, will be key to ensuring that this integration provides maximum benefits for society at large.

Education and training will also play an important role in ensuring that individuals and organizations are equipped with the skills and knowledge necessary to utilize these technologies effectively. Thus, this research makes an important contribution to our understanding of the future of financial services in the Industry 4.0 era. By providing valuable insights and concrete recommendations, this research serves as a guide for policymakers, industry practitioners and other stakeholders in formulating strategies and initiatives that will shape a more inclusive, efficient and sustainable future for the financial industry.

ACKNOWLEDGEMENTS

We would like to acknowledge the support and guidance provided by our respective institutions. Their resources and encouragement have been instrumental in the completion of this work. Last but not least, we extend our heartfelt thanks to all individuals who have directly or indirectly contributed to the success of this research endeavor. Your assistance and encouragement are deeply appreciated.

REFERENCES

[1] R. Ndou, J. I. Fadiran, S. Chowdhury, and S. P. Chowdhury, "Performance comparison of voltage and frequency based loss of grid protection schemes for microgrids," in *2013 IEEE Power & Energy Society General Meeting*, IEEE, 2013, pp. 1–5.

[2] S. A. Hosseini, H. A. Abyaneh, S. H. H. Sadeghi, F. Razavi, and A. Nasiri, "An overview of microgrid protection methods and the factors involved," *Renewable and Sustainable Energy Reviews*, vol. 64, pp. 174–186, 2016.

[3] D. Salomonsson, L. Soder, and A. Sannino, "Protection of low-voltage DC microgrids," *IEEE Transactions on power delivery*, vol. 24, no. 3, pp. 1045–1053, 2009.

[4] S. Chen, N. Tai, C. Fan, J. Liu, and S. Hong, "Sequence-component-based current differential protection for transmission lines connected with IIGs," *IET Generation, Transmission & Distribution*, vol. 12, no. 12, pp. 3086–3096, 2018.

[5] H. A. Abdel-Ghany, A. M. Azmy, N. I. Elkalashy, and E. M. Rashad, "Optimizing DG penetration in distribution networks concerning protection schemes and technical impact," *Electric Power Systems Research*, vol. 128, pp. 113–122, 2015.

[6] S. Chakraborty and M. G. Simoes, "Experimental evaluation of active filtering in a single-phase high-frequency AC microgrid," *IEEE Transactions on energy conversion*, vol. 24, no. 3, pp. 673–682, 2009.

[7] T. S. Ustun, C. Ozansoy, and A. Zayegh, "Recent developments in microgrids and example cases around the world—A review," *Renewable and Sustainable Energy Reviews*, vol. 15, no. 8, pp. 4030–4041, 2011.

[8] I. Series, "Microgrids and active distribution networks," *The institution of Engineering and Technology*, 2009.

[9] P. Simanjuntak, K. Handoko, and H. Kremer, "PEMANFAATAN DIGITAL MARKETING UNTUK KOMUNIKASI BISNIS: Utilization of Digital Marketing for Business Communication," *PUAN INDONESIA*, vol. 5, no. 1, pp. 95–100, 2023.

[10] S. Akib *et al.*, "Komunikasi Bisnis," 2023.

[11] S. A. Andesty and D. Mulyanti, "Literatur Review: Analisis Usaha Undangan Digital Serta Penggunaan Media Sosial Sebagai Media Promosi," *Manajemen Kreatif Jurnal*, vol. 1, no. 2, pp. 106–113, 2023.

[12] F. Aurelia and F. G. Saputra, "Peranan Sistem Digital Accounting Terhadap Perkembangan Bisnis UMKM Di Sidoarjo," *CEMERLANG: Jurnal Manajemen dan Ekonomi Bisnis*, vol. 3, no. 3, pp. 26–40, 2023.

[13] A. Anwar, "Manajemen Risiko Bisnis Era Digital," 2023.

[14] L. Lustono *et al.*, "Kewirausahaan (Tren Manajemen Bisnis di Era Digital)," 2023.

[15] Y. Yuliana, S. V. Siahaan, and R. P. Kontesta, "Pelatihan Digital Marketing Pada Bumdes Guna Peningkatan Usaha Bisnis Kreatif Berbasis Digitalisasi," *Jurdimas (Jurnal Pengabdian Kepada Masyarakat) Royal*, vol. 6, no. 1, pp. 135–140, 2023.

[16] R. N. Matondang, "Digital Business and Business Model," 2023.

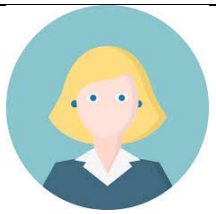
[17] A. P. Nugroho, N. Norvadewi, M. Wulansari, F. Akbarina, and M. Yusuf, "DIGITAL ENTREPRENEURSHIP STRATEGY IN ONLINE BUSINESS COMPANIES IN WEST JAVA," *Transformasi: Journal of Economics and Business Management*, vol. 2, no. 2, pp. 1–12, 2023.

[18] M. Fahrurrozi and M. M. SE, *ENTREPRENEURSHIP & DIGITALISASI: Mengembangkan Bisnis di Era 5.0*. Universitas Hamzanwadi Press, 2023.

[19] Z. Setiawan *et al.*, *Kewirausahaan Digital*. Global Eksekutif Teknologi, 2023.

[20] D. Sudiantini, D. Nurambarwati, F. D. Julianti, F. F. Putra, G. P. Naraya, and G. V. Nazara, "Inovasi Dalam Manajemen Pemasaran Dan Menjaga Relevan Bisnis Di Era Digital," *Jurnal Riset dan Inovasi Manajemen*, vol. 1, no. 2, pp. 129–138, 2023.
[21] N. Hussain, "Peer to Peer Lending Business Agility Strategy for Fintech Startups in the Digital Finance Era in Indonesia," *Startupreneur Business Digital (SABDA Journal)*, vol. 2, no. 2, pp. 118–125, 2023.
[22] S. Purnama, H. Baedowi, and Y. J. Putrasetia, "Creative Industry Development Strategy for Home Culinary Businesses," *Startupreneur Business Digital (SABDA Journal)*, vol. 2, no. 2, pp. 126–135, 2023.
[23] B. Rawat and R. Bhandari, "Cloud Computing Applications In Business Development," *Startupreneur Business Digital (SABDA Journal)*, vol. 2, no. 2, pp. 143–154, 2023.
[24] L. H. A. P. Prawira, A. F. Ummah, M. R. Aditiya, and D. W. Nugroho, "Knowledge Management: Efforts to Create an Excellent Digital Creative Industry," *Startupreneur Business Digital (SABDA Journal)*, vol. 2, no. 2, pp. 172–181, 2023.
[25] V. Meilinda, S. A. Anjani, and M. Ridwan, "A Platform Based Business Revolution Activates Indonesia's Digital Economy," *Startupreneur Business Digital (SABDA Journal)*, vol. 2, no. 2, pp. 155–174, 2023.
[26] G. A. Pangilinan, A. Tambunan, and E. D. Astuti, "Tokopedia E-Commerce is Being Used to Present Opportunities for Young Business Owners to Succeed in the Digital Economy Amid the Pandemic," *Startupreneur Business Digital (SABDA Journal)*, vol. 2, no. 2, pp. 182–191, 2023.
[27] A. Manawar, C. Lukita, and L. Meria, "The Evolution of Financial Technology in Indonesia," *Startupreneur Business Digital (SABDA Journal)*, vol. 2, no. 2, pp. 192–206, 2023.
[28] H. Safitri, M. H. R. Chakim, and A. Adiwijaya, "Strategy Based Technology-Based Startups to Drive Digital Business Growth," *Startupreneur Business Digital (SABDA Journal)*, vol. 2, no. 2, pp. 207–220, 2023.
[29] R. E. Santoso, A. G. Prawiyogi, U. Rahardja, F. P. Oganda, and N. Khofifah, "Penggunaan dan Manfaat Big Data dalam Konten Digital," *ADI Bisnis Digital Interdisiplin Jurnal*, vol. 3, no. 2, pp. 88–91, 2022.
[30] A. M. Dawis *et al.*, "Strategi Pemasaran di Era Digital," 2022.

BIOGRAPHIES OF AUTHORS

	**Tasya Syafira** Tasya Syafira is a researcher who focuses on economics and business. He is part of the School of Economics and Business at the iLearning Incorporation at Columbia. Tasya has an interest in exploring the relationship between technology and finance, especially in the context of the integration of fintech with crowdfunding and blockchain in the Industry 4.0 era. Contacted at email: syafiratasya11@ilearning.co
	**Stuart Jackson** Stuart Jackson is an academic who specializes in economics and business. He comes from the Faculty of Economics and Business at Adi Journal Incorporation, which is based in the United States. Stuart has experience in research related to financial technology and has published various articles in leading journals. He is interested in the impact that the integration of fintech with crowdfunding and blockchain will have on modern industry. Contacted at email: stuart.jackson@adi-journal.org
	**Amirsyah Tambunan** Amirsyah Tambunan is an academic who has a background in the fields of tarbiyah and teacher education. He is part of the Tarbiyah and Teacher Training Faculty at the Syarif Hidayatullah State Islamic University, Jakarta, Indonesia. Amirsyah has an interest in studying the contribution of technology to education and society, as well as its impact on economic development. In the context of this research, he contributes insights into the integration of fintech with blockchain and crowdfunding in an industrial context. Contacted at email: amirsyahtambunan@yahoo.com