Financial Digitalization on Operational Efficiency and Corporate Value in the Era of Industry 5.0

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ABSTRACT

The rapid advancement of digital technologies has transformed financial operations worldwide, making financial digitalization a critical driver of efficiency, transparency, and value creation in the emerging era of industry 5.0. This study investigates the impact of financial digitalization on operational efficiency and corporate value within the context of industry 5.0. Using a qualitative research methodology, specifically a literature review (library research), the study explores the integration of digital financial technologies such as blockchain, artificial intelligence, and cloud computing into business operations. The results reveal that financial digitalization significantly enhances operational efficiency by automating processes, reducing costs, and enabling real-time decision-making. Additionally, it fosters corporate value creation by improving decision-making, transparency, and customer trust. However, challenges such as high implementation costs, cybersecurity risks, and organizational resistance to change were also identified. The study highlights the role of industry 5.0 in driving human-machine collaboration, where financial digitalization facilitates both operational improvements and long-term business value. The findings provide important insights for businesses, particularly in understanding the critical factors and barriers to adopting digital financial.

Keywords*: AI in Finance, Artificial Intelligence, Blockchain, Digital Finance, Financial Digitalization, Industry 5.0, Value Creation.*

ABSTRAK

Kemajuan pesat teknologi digital telah mengubah operasi keuangan di seluruh dunia, menjadikan digitalisasi keuangan sebagai pendorong penting efisiensi, transparansi, dan penciptaan nilai di era industri 5.0 yang sedang berkembang. Penelitian ini mengkaji dampak digitalisasi keuangan terhadap efisiensi operasional dan nilai perusahaan dalam konteks industri 5.0. Menggunakan metode penelitian kualitatif, khususnya studi literatur (library research), penelitian ini mengeksplorasi integrasi teknologi keuangan digital seperti blockchain, kecerdasan buatan, dan komputasi awan ke dalam operasi bisnis. Hasil penelitian menunjukkan bahwa digitalisasi keuangan secara signifikan meningkatkan efisiensi operasional dengan mengotomatisasi proses, mengurangi biaya, dan memungkinkan pengambilan keputusan secara real-time. Selain itu, digitalisasi keuangan juga mendorong penciptaan nilai perusahaan dengan meningkatkan pengambilan keputusan, transparansi, dan kepercayaan pelanggan. Namun, tantangan seperti biaya implementasi yang tinggi, risiko keamanan siber, dan resistensi organisasi terhadap perubahan juga teridentifikasi. Penelitian ini menyoroti peran industri 5.0 dalam mendorong kolaborasi manusia-mesin, di mana digitalisasi keuangan mendukung peningkatan operasional dan nilai bisnis jangka panjang. Temuan ini memberikan wawasan penting bagi perusahaan, khususnya dalam memahami faktor-faktor kritis dan hambatan dalam mengadopsi teknologi keuangan digital, serta menyarankan area penelitian lebih lanjut, terutama dalam konteks pasar berkembang dan UKM.

Kata kunci*: AI dalam Keuangan, Kecerdasan Buatan, Blockchain, Keuangan Digital, Digitalisasi Keuangan, Industri 5.0, Penciptaan Nilai.*

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INTRODUCTION

The rapid evolution of digital technologies has redefined business environments, especially in the financial sector, where digital tools have increasingly been adopted to streamline operations and improve business performance. Financial digitalization, which involves the use of cutting-edge technologies such as blockchain, cloud computing, and Artificial Intelligence (AI), has become a core element in achieving operational efficiency and fostering corporate value (Chowdhury, 2024). In the context of industry 5.0, a paradigm that integrates human creativity with advanced technologies, financial digitalization plays a crucial role in supporting personalized services, enhancing decision-making processes, and improving customer experiences. Industry 5.0, unlike its predecessor industry 4.0, emphasizes a collaborative environment where human workers and machines work in synergy to achieve superior results (Golovianko et al., 2023). This shift presents an opportunity to explore the dynamic relationship between financial digitalization and corporate outcomes in this new industrial era.

Despite the growing body of literature on digital transformation in the financial sector, there remains a significant research gap in understanding how financial digitalization directly influences both operational efficiency and corporate value in the era of industry 5.0. While previous studies have explored the role of digital tools in enhancing operational processes, few have investigated the synergistic effects of financial digitalization on the broader corporate value, particularly in the context of Industry 5.0's unique human-centric approach (Okharedia, 2023). Furthermore, existing research largely focuses on developed economies, with limited studies addressing the implications of these technologies in emerging markets (Walden & Christou, 2018). The problem formulation of this study is to determine how financial digitalization influences operational efficiency and corporate value within the human-centric framework of industry 5.0, and to assess the extent to which the integration of digital financial technologies and human–machine collaboration can generate sustainable value across different economic contexts.

This gap in literature is critical, given that organizations worldwide are increasingly adopting digital financial systems, yet the concrete outcomes in terms of both efficiency improvements and value creation remain underexplored. In this context, it is essential to investigate how financial digitalization not only enhances internal operations but also increases companies' overall market value by supporting innovation, improving transparency, and driving sustainable growth. This study is of particular importance due to the growing reliance on digital technologies in the financial sector, which has accelerated during and after the COVID-19 pandemic. As businesses seek to recover and grow in a post-pandemic world, understanding how financial digitalization impacts corporate performance is essential for executives and policymakers (Hossain & Sultana, 2024). Moreover, the integration of these digital solutions with industry 5.0's human-centric values can potentially reshape organizational practices and redefine competitive advantage in the modern business landscape.

Kimotho (2022) highlighted the positive impact of digital financial technologies on cost reduction and efficiency in financial operations. However, the question remains: How does financial digitalization specifically affect corporate value, particularly in the context of industry 5.0, which emphasizes a more personalized, sustainable, and collaborative approach to business? This article attempts to address this question by exploring the influence of financial digitalization on both operational efficiency and corporate value, with a focus on organizations operating in the industry 5.0 era.

The novelty of this research lies in its integrated approach to studying the effects of financial digitalization within the framework of industry 5.0. While digitalization has been studied extensively in isolation, the current research aims to examine its impact on both operational processes and corporate value in a more holistic manner. By considering both the technical and human-centric aspects of digital transformation, this study aims to contribute new insights into how businesses can leverage financial digitalization to thrive in an increasingly complex and competitive environment. The purpose of this article is to

investigate the relationship between financial digitalization, operational efficiency, and corporate value in the era of industry 5.0.

LITERATURE REVIEW

Financial Digitalization: Concept and Relevance

Financial digitalization refers to the integration of advanced technologies, such as blockchain, cloud computing, Artificial Intelligence (AI), and big data analytics into financial systems to modernize and enhance business operations. These technologies enable the automation of routine financial tasks, minimize human errors, and improve transparency in transactional processes (Litvin et al., 2024). Blockchain provides decentralized and secure verification mechanisms, strengthening the integrity of financial transactions (Ahmed, 2025). Cloud computing supports real-time data storage and processing, offering scalability and flexibility for financial management (Blessing et al., 2024). The adoption of AI further enhances predictive analytics and decision-making capabilities, allowing organizations to optimize financial strategies and allocate resources more effectively (Oluoha et al., 2022). Collectively, these digital advances have become essential for businesses seeking greater accuracy, reliability, and efficiency in an increasingly technology-driven financial environment.

As digitalization continues to advance, its relevance to business performance and competitiveness becomes even more significant. The availability of real-time financial information enables companies to respond rapidly to market shifts and make data-driven decisions (Ambasht, 2023). Digital tools also reduce operational costs, improve cash-flow management, and strengthen long-term business sustainability (Kumar, 2025). Furthermore, financial digitalization supports more customer-centric strategies by enabling personalized financial products and services, a key factor in gaining competitive advantage (Syed, 2019). With increasing innovation in financial technologies, digital systems continue to reshape organizational practices and reinforce competitiveness in modern markets (Yuleva-Chuchulayna, 2021).

Operational Efficiency in the Context of Industry 5.0

Industry 5.0 represents a shift toward a human-centric paradigm where advanced technologies complement rather than replace human capabilities. According to Li and Duan (2025), this new era emphasizes the integration of automation, AI, and human creativity to enhance operational performance, enabling greater customization, faster production cycles, and more efficient resource utilization. Within financial operations, this synergy is strengthened by financial digitalization, which automates repetitive tasks, shortens processing times, and generates real-time insights crucial for operational decision-making (Kakolu & Faheem, 2023). AI-driven analytics further support efficiency by enabling more accurate forecasting, trend prediction, and optimization of financial strategies, resulting in improved cash-flow management and adaptive financial planning (Onwuzulike et al., 2022). These capabilities collectively foster agility and responsiveness, key characteristics required in the industry 5.0 environment.

Beyond efficiency gains, industry 5.0 broadens operational objectives to include quality enhancement, sustainability, and ethical responsibility. Ikram and Othman (2025) emphasize that human-machine collaboration strengthens the ability to innovate and deliver higher-value outputs, while maintaining human oversight in critical decision-making. This aligns with the view that operational efficiency in industry 5.0 involves holistic performance improvements rather than mere cost reduction. Financial digitalization supports this shift by enabling smarter resource allocation, enhanced risk management, and improved strategic decision processes through AI and machine-learning applications (Sultan & Sultan, 2024). Cloud computing additionally offers scalable and flexible financial data management, supporting organizations as they adjust to evolving production and market conditions. As human-centric innovation continues to shape Industry 5.0, digital financial tools play an essential role in helping firms optimize

operations, innovate continuously, and respond adaptively to complex business environments (Grabowska et al., 2022).

Corporate Value Creation through Financial Digitalization

Financial digitalization significantly contributes to corporate value creation by enhancing transparency, decision-making quality, and governance structures. Digital financial tools strengthen stakeholder trust by improving the accuracy and clarity of financial information, while blockchain ensures secure and tamper-resistant transactions that reinforce confidence in organizational practices (Efunniyi et al., 2024; Gangrade et al., 2025). Dufresne and Marsan (2021) highlight that these technological capabilities support stronger governance mechanisms, which are essential for long-term corporate credibility. At the same time, AI and machine-learning applications enhance firms' ability to forecast financial outcomes, optimize performance, and manage risks more effectively, ultimately contributing to improved profitability and greater shareholder value (Olubusola et al., 2024). These advancements enable firms to innovate in their financial strategies and maintain competitiveness in rapidly evolving markets (Wang et al., 2022).

Beyond governance and performance improvements, digital financial technologies support sustained value creation by enabling companies to offer innovative and personalized products and services. AI-driven analytics assist organizations in identifying market opportunities, optimizing pricing strategies, and elevating customer satisfaction, which fosters long-term loyalty and strengthens competitive positioning (Badmus et al., 2024). In Industry 5.0's human-centric environment, digitalization further enables customized customer experiences, contributing to durable business growth (Kraus et al., 2025). Enhanced transparency in financial reporting, supported by digital tools, increases compliance reliability and boosts investor confidence, thus improving market valuations (El Kelish, 2021). By enhancing innovation, operational clarity, and strategic decision-making, financial digitalization equips companies to create enduring corporate value and maintain attractiveness to investors in an increasingly competitive landscape (Ekinci, 2021; Shahadat et al., 2023).

RESEARCH METHODS

This study employs a qualitative literature review to examine how financial digitalization influences operational efficiency and corporate value in the industry 5.0 era. A qualitative approach is appropriate for synthesizing existing knowledge, identifying research gaps, and generating new insights based on prior studies (Flick, 2022). The review focuses on peer-reviewed articles, academic books, and scholarly sources addressing financial digitalization, operational performance, and value creation. Data were collected through systematic searches in Google Scholar, JSTOR, ScienceDirect, and SpringerLink, emphasizing publications from the past ten years. Keywords included "financial digitalization," "operational efficiency," "corporate value," and "Industry 5.0," combined with "impact," "technology," "transformation," and "value creation." Studies were selected for relevance, methodological rigor, and contributions to understanding how digital financial technologies affect business outcomes in an Industry 5.0 context. Sources discussing blockchain, artificial intelligence, and cloud computing were included due to their roles in improving financial systems and organizational processes (Siregar & Hisyam, 2025).

The unit of analysis comprises scholarly articles and research findings published in reputable journals. The target population includes peer-reviewed studies, industry reports, and academic books exploring the intersection of financial digitalization, operational efficiency, and corporate value, particularly within Industry 5.0. The selected literature spans multiple disciplines, business, finance, technology management, and industrial engineering supporting a multidisciplinary perspective (Elia et al., 2020). Although much of the literature focuses on developed economies, relevant studies from emerging markets are included to reflect contrasting adoption environments.

Data analysis followed a thematic synthesis approach. Studies were grouped into themes such as digital financial technologies (blockchain, cloud computing, AI), operational efficiency, and corporate value creation. Each source was reviewed to extract key findings, compare patterns, and identify relationships that address the research questions. This process highlighted consistent themes and gaps across the literature (Yarnold et al., 2023). The analysis also assessed how financial digitalization contributes to efficiency and value creation within industry 5.0's human-centric framework. Findings emphasized the interplay between technological advancements and human creativity. Challenges identified in prior studies, such as technology adoption barriers, cybersecurity concerns, and differing organizational readiness, were also considered (Berlilana et al., 2021). Although the study does not apply quantitative techniques, it adheres to established guidelines for systematic literature reviews. The credibility of selected sources was evaluated based on methodological rigor, relevance, and reliability. The research process followed principles of academic integrity and transparency, ensuring the validity of findings through careful source selection and thorough evidence analysis (Kishan & Gupta, 2024).

RESULTS

Financial Digitalization Enhances Operational Efficiency

The review consistently highlighted that financial digitalization significantly enhances operational efficiency by automating routine financial tasks. Technologies like blockchain and AI-driven systems allow for the efficient processing and reconciliation of transactions, thereby reducing the time and costs associated with manual interventions. For instance, blockchain's ability to streamline transaction verification and eliminate the need for intermediaries results in faster and more secure financial operations (Kukman & Gričar, 2025). Furthermore, AI technologies, such as machine learning, are increasingly used to improve predictive analytics, enabling businesses to anticipate cash flow needs, optimize resource allocation, and minimize financial risks (Alonge et al., 2024). These capabilities result in significant reductions in operational costs and improvements in financial management.

In addition to cost reduction, the use of cloud computing enables businesses to access financial data in real time, providing the flexibility to monitor financial performance continuously. The ability to make quick adjustments based on real-time data has been cited as a key factor in enhancing business agility (Muthukalyani, 2024). This shift towards more agile financial systems allows companies to respond faster to market changes and optimize their financial strategies more effectively. By adopting these digital financial technologies, businesses can not only enhance efficiency but also improve their overall operational responsiveness.

Corporate Value Creation through Financial Digitalization

The integration of digital financial technologies plays a pivotal role in corporate value creation. One of the keyways financial digitalization contributes to corporate value is by enhancing decision-making capabilities. AI-driven analytics help businesses optimize their financial strategies, enabling better forecasting and more precise budgeting (Nweke, 2025). With improved access to data and insights, companies can develop more innovative solutions and products, which directly enhances their competitive advantage in the marketplace. By leveraging these digital tools, businesses can better meet customer demands, leading to increased customer satisfaction and long-term loyalty (Anita et al., 2025).

Moreover, financial digitalization fosters greater transparency and trust, both of which are essential for long-term corporate value creation. Blockchain technology, in particular, is known for its ability to provide secure, transparent transactions that enhance trust among customers, suppliers, and investors (Centobelli et al., 2022). As transparency increases, businesses can improve their corporate governance practices, which in turn bolsters investor confidence and increases market value (Akinsola & Hamzah, 2025).

Enhanced transparency also helps mitigate risks associated with financial misconduct or inaccuracies, contributing to a stronger financial standing and a more reputable corporate image.

The positive relationship between financial digitalization and corporate value is also evidenced in the improved financial performance and stronger market presence of businesses that embrace these technologies. By streamlining operations and reducing overhead costs, digital financial tools create a more efficient and profitable business model, which is appealing to investors. The ability to make data-driven decisions also results in higher profitability, thus directly impacting the company's market valuation (Hurstinen, 2020).

Operational Efficiency and Corporate Value in the Context of Industry 5.0

The introduction of Industry 5.0 introduces a new paradigm that integrates human creativity and advanced technologies. In this context, financial digitalization plays a vital role in driving both operational efficiency and corporate value. Industry 5.0 emphasizes the collaboration between humans and machines, where AI and robotics work alongside human workers to enhance productivity and innovation (Khosravy et al., 2023). This synergy enables businesses to achieve more customized and personalized products and services, enhancing customer experience and fostering customer loyalty.

The review indicates that industry 5.0's focus on sustainability and resilience aligns well with the capabilities of financial digitalization. Cloud-based financial systems and AI can help businesses optimize resource usage, reduce waste, and increase sustainability by providing more accurate forecasting and reporting capabilities (Bobba, 2023). These sustainable practices are not only beneficial for the environment but also contribute to the company's long-term value by improving operational efficiency and reducing costs. Furthermore, the agility enabled by financial digitalization helps businesses respond more effectively to changes in consumer preferences and market conditions, further driving profitability and corporate value.

While the benefits of financial digitalization are clear, several challenges have been identified that may limit its effectiveness. One of the most significant barriers is the high cost of implementing digital financial technologies. The initial investments required for the adoption of technologies such as blockchain and AI can be prohibitive, particularly for Small and Medium-Sized Enterprises (SMEs) (Shafik, 2025). These costs, including software, hardware, and employee training, may deter businesses from fully embracing digital financial systems. Another challenge highlighted in the literature is the concern over cybersecurity and data privacy. While financial digitalization increases security in many areas, it also introduces new risks, such as the potential for data breaches, cyberattacks, and fraud (Paul et al., 2023). As businesses become more reliant on digital systems, ensuring robust cybersecurity measures and data protection protocols becomes increasingly important to safeguard sensitive financial information.

Additionally, organizational resistance to change and a lack of readiness to adopt digital financial tools can hinder the success of financial digitalization initiatives. Research suggests that businesses need to invest not only in technology but also in the digital skills of their employees to fully realize the benefits of financial digitalization (Reljic et al., 2025). Overcoming these barriers is essential for organizations to effectively leverage financial digitalization to enhance operational efficiency and create corporate value. Table 1 shows key insight of financial digitalization, operation efficiency and corporate value.

Table 1. Key Insights on Financial Digitalization, Operational Efficiency, and Corporate Value

Theme	Key Insights	Source
Financial Digitalization	Automates routine financial tasks and enhances real-time data access in financial systems	Bobba (2023), Litvin et al. (2024), and Muthukalyani (2024)
Operational Efficiency	Improves cost reduction, resource optimization, and accelerates decision-making through automation and AI	Kakolu and Faheem (2023), Okharedia (2023), Alonge et al. (2024), and Sultan and Sultan (2024)
Corporate Value Creation	Strengthens innovation, increases transparency, and improves decision-making, trust, and governance	Akinsola and Hamzah (2024), Efunniyi et al. (2024), Hossain and Sultana (2024), Ahmed (2025), and Gangrade et al. (2025)
Industry 5.0 Impact	Emphasizes synergy between human creativity and digital technology for sustainable and human-centric innovation	Grabowska et al. (2022), Golovianko et al. (2023), Khosravy et al. (2023), Sheikh et al. (2024), Ikram and Othman (2025), Li and Duan (2025), and Kraus et al. (2025)

Table 1 summarizes four key themes related to digitalization and industrial transformation: financial digitalization, which emphasizes automation and improved data access; operational efficiency, which focuses on cost reduction and accelerated decision-making; corporate value creation through innovation, transparency, and improved governance; and the influence of Industry 5.0, which emphasizes collaboration between human creativity and digital technology for sustainable innovation.

DISCUSSION

The findings from this literature review underscore the profound impact of financial digitalization on operational efficiency and corporate value, particularly in the evolving context of industry 5.0. As businesses increasingly adopt digital financial technologies like blockchain, AI, and cloud computing, they experience notable improvements in operational processes and organizational performance. These results are consistent with research by Boute et al. (2021) that emphasizes how digital financial technologies drive operational efficiency by automating routine tasks, reducing errors, and enabling real-time data access. For example, blockchain's role in enhancing transaction security and reducing intermediary costs has been widely documented, further supporting the conclusion that financial digitalization is crucial for improving business performance (Kukman & Gričar, 2025).

The findings also highlight the important role of AI in enhancing decision-making capabilities, thereby contributing to corporate value creation. The ability of AI to predict cash flow, optimize resource allocation, and improve financial forecasting aligns with the theoretical understanding that AI-driven technologies can significantly enhance business strategy and innovation (Nweke, 2025). Research by Alonge et al. (2024) stated that leveraging AI and machine learning, companies can not only reduce costs but also develop more innovative financial products and services that better meet customer demands, thereby increasing market competitiveness and customer loyalty. This insight is further corroborated by the work of Mitra et al. (2024) who argue that digital transformation, especially through AI, is a key enabler of value creation in modern organizations.

Furthermore, the integration of digital financial tools in the context of industry 5.0, which focuses on human-machine collaboration, offers a unique opportunity to enhance both operational efficiency and corporate value. Industry 5.0 aims to combine human creativity and judgment with machine precision and speed, creating a collaborative ecosystem that drives innovation and sustainability (Sheikh et al., 2024). This is particularly relevant with Grabowska et al. (2022), who stated that in the current business

environment, organizations are increasingly required to balance technological advancements with human-centric strategies. The findings suggest that financial digitalization supports this human-machine synergy by providing the tools necessary for better collaboration and decision-making, which ultimately leads to more personalized products and services, improved customer satisfaction, and higher profitability.

However, the literature also identifies significant challenges to the successful implementation of financial digitalization, including high implementation costs, cybersecurity risks, and organizational resistance to change. These challenges are consistent with the barriers highlighted in previous studies, such as those by Fanelli (2021), who note that SMEs often face difficulties in adopting advanced technologies due to financial constraints and lack of technical expertise. Similarly, the concerns regarding cybersecurity and data privacy, which were identified in the findings, are highly relevant in today's digital economy. As businesses increasingly rely on digital financial systems, they become more vulnerable to cyber threats, necessitating the implementation of robust cybersecurity measures and strict data protection protocols.

From a theoretical standpoint, the findings also align with the broader concepts of technological adoption and organizational change. The Technology-Organization-Environment (TOE) framework, as described by Kwon et al. (2021) suggests that businesses are more likely to adopt new technologies when they perceive them as beneficial in addressing both internal and external pressures. In the case of financial digitalization, the perceived benefits in terms of operational efficiency and corporate value creation often outweigh the challenges, but only if organizations are prepared to invest in the necessary infrastructure, train their workforce, and address security concerns. This observation is particularly important for businesses operating in the era of industry 5.0, where the need for adaptability, innovation, and sustainability is paramount.

CONCLUSION

This study demonstrates that financial digitalization, through technologies such as blockchain, AI, and cloud computing significantly enhances operational efficiency and corporate value, especially within the human-centric paradigm of industry 5.0. The findings show that automation reduces processing time and costs, AI improves forecasting and decision-making, and blockchain strengthens security and transparency, all of which contribute to greater agility, innovation, and long-term competitiveness. The results carry several theoretical, practical, and managerial implications. This review reinforces digital transformation and Industry 5.0 literature by highlighting financial systems as a key site of human–machine collaboration and sustainable value creation. Practically, businesses can use digital financial tools to streamline operations, optimize resources, and strengthen governance through secure and transparent processes. For managers, the findings emphasize the need to invest in digital capabilities, employee upskilling, and cybersecurity readiness to fully realize the benefits of financial digitalization. Policymakers are encouraged to support this transition by improving regulatory frameworks and facilitating digital access for SMEs.

Despite strong evidence of benefits, the study faces several limitations. Insights rely on secondary literature, which may constrain generalizability and reflect publication bias. Most reviewed studies focus on large enterprises, leaving SME-specific challenges, such as cost constraints and digital readiness, less explored. Additionally, because digital technologies evolve rapidly, some conclusions may become outdated as new tools emerge. Future research should examine the long-term impact of financial digitalization across different industries and economic contexts, particularly in emerging markets. Empirical studies are needed to understand how SMEs can overcome financial, technical, and organizational barriers to adoption. Further investigation into the human-centric aspects of Industry 5.0, such as digital skills, organizational culture, and human–machine collaboration, is also essential. Finally, given rising cybersecurity threats, future work should explore the resilience of digital financial systems and effective strategies for safeguarding sensitive financial data.

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