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Review article

DIGITAL FINANCIAL MANAGEMENT IN THE FUNCTION OF RISK MANAGEMENT AND LONG-TERM SUSTAINABLE DEVELOPMENT

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Abstract: The digitalization of the business environment has significantly transformed approaches to financial management and created the need for the development of new models of financial and risk management. The purpose of this paper is to analyze digital financial management in the context of financial risk management and long-term sustainable development. The aim of the paper is to present the importance of modern digital technologies, analyze their role in financial risk management, and highlight the relationship between digital financial management and the green economy. The paper applies methods of analysis and synthesis of relevant scientific literature, comparative analysis, and a review of empirical studies. The research results indicate that digital technologies – artificial intelligence, blockchain, and big data analytics – represent key instruments for managing credit, market, operational, and liquidity risks. At the same time, digital financial management plays a significant role in directing capital more efficiently toward sustainable investments and green projects. The contribution of this paper is reflected in the systematization of digital financial management concepts and in highlighting its strategic role in integrating risk management, financial inclusion, and green economy principles as factors of long-term business sustainability.

Keywords: digital financial management, digital technologies, green economy, risk management, sustainable development

1. Introduction

The contemporary business environment is marked by rapid technological change, globally connected markets and increasingly complex financial flows. Technological progress has reshaped the way companies manage finance, moving them away from traditional models toward digitally supported systems built on automation, analytics and artificial intelligence, which opens new possibilities for controlling financial risk and improving decision-making. In parallel, financial management is increasingly tied to sustainability and to the green economy. Embedding digital tools in financial processes improves the allocation of capital to sustainable investment, raises transparency, and strengthens control over both financial and environmental risk, which makes digital financial management an important determinant of long-term sustainability and competitiveness. The subject of the paper is digital financial management observed through the lens of financial risk and sustainable development. Its objective is to explain the significance of contemporary digital tools in finance, to assess their role in managing financial risk, and to connect digital financial management with the green economy and the long-term stability of business operations. Accordingly, the paper (1) sets out the concepts and approaches to digital financial management within risk management, (2) examines contemporary digital tools as instruments of financial risk management, and

(3) considers what digital financial management means for the green economy and for lasting business sustainability.

2. Methodology

Qualitative scientific methods were applied in this paper, including the methods of analysis and synthesis of relevant domestic and international scientific literature, the comparative method, and the descriptive method. Through a review of recent empirical studies and theoretical papers in the fields of digital financial management, financial risk management, and the green economy, key concepts and empirical findings relevant to the subject of the research were systematized.

The main limitation of this paper relates to the fact that it is a review study based on secondary sources, without the collection of primary empirical data. An additional limitation is the rapid development of digital technologies, which may result in certain findings from the literature becoming outdated due to more recent market and technological developments.

3. Concepts and Approaches to Digital Financial Management in the Context of Risk Management

Digital financial management can be understood as the application of digital tools, information systems and advanced analytics in managing the financial activities of a company. Its purpose is to make financial processes more efficient, to strengthen business control and to improve the management of financial risk. Contemporary solutions give companies real-time insight into financial data, which speeds up decision-making. Integrated software makes it possible to automate cash-flow management, invoicing, reporting and cost control, which lowers the likelihood of human error and raises operational efficiency (Avira et al., 2023).

Risk management is one of the core functions of contemporary financial management. Risk can be understood as uncertainty that affects the achievement of business objectives, since changes in business conditions may produce both favourable and unfavourable outcomes. The contemporary approach rests on Enterprise Risk Management (ERM), which treats all categories of risk within an organization in an integrated way. Following ISO 31000, the process encompasses identification of risk, its assessment and prioritization, the choice of response strategies, implementation of controls, and continuous monitoring (Denyes & Lonie, 2016).

Digitalization strengthens each of these steps, since big data analytics, machine learning and artificial intelligence are used to identify, assess and monitor risk. Cloud solutions, API architecture and automated control mechanisms make financial processes more transparent and deviations easier to spot early. Systems built on artificial intelligence are particularly valuable, as they support predictive analytics and early warning of potential financial threats.

Digitalization likewise reinforces internal control and the prevention of financial fraud. Blockchain, advanced authentication and AI tools make financial transactions harder to compromise and narrow the scope for misuse and manipulation of data. These gains, however, come with greater exposure to cyber threats and require organizational adjustment, new competencies among employees, and business processes adapted to contemporary technological demands (Avira et al., 2023).

4. Modern Digital Technologies as Instruments of Financial Risk Management

Digital technologies have reshaped the field of financial risk management. Manual procedures and static models are giving way to systems able to process large data volumes as they arise. Sunaryo et al. (2025) show that digital transformation improves financial risk management through AI, blockchain and Big Data, which financial institutions apply to credit, liquidity, operational and market risk.

Among these tools, artificial intelligence has the widest application today. AI-based systems allow institutions to spot anomalies, anticipate exposures and identify fraud without delay, while machine learning refines credit assessment by recognizing patterns in client behaviour and in transaction data (Alrawad et al., 2023). Big Data analytics supports richer risk profiles, continuous observation of market movements and prompt reaction to financial threats, which strengthens the strategic position of the finance function within organizations (Myšková & Hájek, 2020). Blockchain, in turn, raises transparency, security and regulatory compliance, above all in cross-border payments and supervisory reporting.

Large institutions rely on these tools when scoring creditworthiness, detecting fraud and profiling risk (Yudaruddin et al., 2024), while smaller companies use them mainly for cash-flow management and financial planning (Wahyuni et al., 2024).

The advantages are accompanied by considerable obstacles. Greater reliance on digital systems widens exposure to cyberattacks and to the misuse of data, so institutions must keep investing in cyber protection (Thach et al., 2021). Integrating new technologies is also expensive, and there is a shortage of professionals who combine knowledge of finance, data analytics and digital systems (Sunaryo et al., 2025).

How quickly this field is expanding can be seen in the market for financial risk management software. Precedence Research (2025) projects an increase in the value of that market from 4.28 billion USD in 2025 to 14.39 billion USD in 2034.

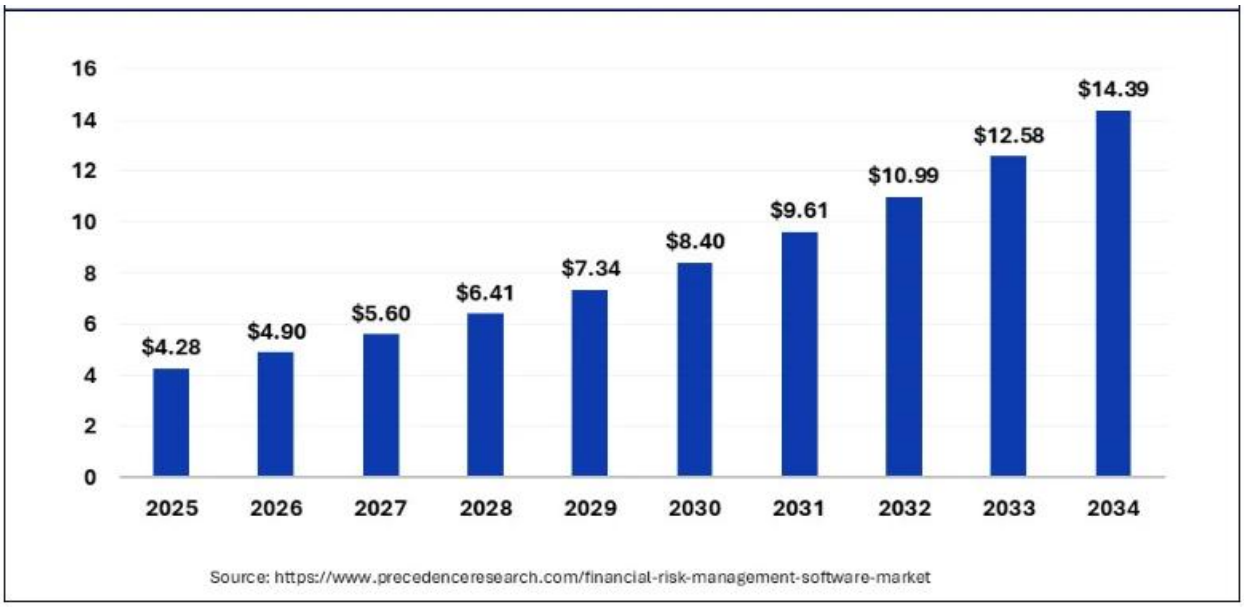


Figure 1: Projected growth of the global financial risk management software market for the period 2025–2034 (Precedence Research, 2025)

Such projections confirm how deeply the financial sector is being reshaped by technology and how strongly organizations demand analytical and automated financial solutions (Sunaryo et al., 2025).

5. Digital Financial Management in the Context of the Green Economy and Long-Term Sustainable Development

Digital financial management matters especially where the green economy is concerned, since the financial sector decides how much capital reaches sustainable projects, renewable energy and environmentally responsible investment. Contemporary tools improve the management of financial flows, sharpen risk assessment and make financial processes more transparent, all of which supports economic development that lasts (Song et al., 2024).

A green economy presupposes moving away from traditional economic models toward forms of business that limit environmental damage and use resources rationally. Financial systems resting on artificial intelligence, Big Data, blockchain and fintech platforms allow institutions to fund green projects at lower cost, to evaluate investment proposals more precisely, and to track sustainability performance more closely (Li et al., 2025). Digital finance also broadens financial inclusion, above all in less developed economies, where fintech, mobile banking and digital payments give a larger part of the population and the business sector access to financial services (Li et al., 2025).

The link between digital finance and environmental quality is supported empirically. Evidence covering 110 countries between 1996 and 2022 indicates that digitalization and financial development shape environmental sustainability over the long run, with effects that differ across levels of economic development (Li et al., 2025). Renewable energy and green innovation deserve particular attention: they support economic development while reducing environmental damage, and digital finance acts as a catalyst for both (Wenhui, 2025). Bringing digital tools into financial processes therefore improves the handling of financial and environmental risk alike, increases transparency, and directs capital more effectively toward sustainable projects (Sunaryo et al., 2025).

6. Results and discussion

The literature reviewed here confirms that digital financial management is central both to the control of financial risk and to sustainable development over the long term. Three interconnected findings emerge from the synthesis.

First, artificial intelligence, blockchain and Big Data analytics improve the identification, assessment and control of financial risk relative to traditional practice. Predictive models and automated systems let institutions decide more precisely and more promptly, which is confirmed by Sunaryo et al. (2025), Alrawad et al. (2023) and Myšková & Hájek (2020).

Second, digital financial management supports the green economy by directing capital more efficiently toward sustainable investment and green projects. Studies covering more than a hundred countries confirm that digitalization of the financial sector benefits environmental sustainability over the long run (Li et al., 2025; Wenhui, 2025).

Third, the obstacles are real: cyber risk, the cost of integration, and the shortage of interdisciplinary professionals constrain what organizations can achieve and must be addressed systematically (Thach et al., 2021; Sunaryo et al., 2025).

7. Conclusion

Digitalization has altered what financial management is for, leaving traditional models of financial and risk management inadequate under present conditions. Digital financial management increasingly determines whether an organization stays sustainable and competitive.

The analysis shows that artificial intelligence, blockchain, Big Data analytics and fintech solutions allow credit, market, operational and liquidity exposures to be assessed more precisely, anomalies to be caught earlier, and financial processes to be automated. Finance is thereby moving from an operational function toward a strategic one, oriented to the lasting stability of the business.

Digital financial management also supports the green economy: it directs capital more efficiently toward sustainable investment, reduces information asymmetry and widens financial inclusion. Cyber risk, the cost of integration and the shortage of interdisciplinary professionals remain the principal obstacles, and addressing them systematically is a precondition for the digitalization of finance to succeed.

The contribution of this paper lies in systematizing the concepts of digital financial management and in synthesizing empirical findings on its role in risk management and the green economy within a single analytical perspective, which provides a basis for further work. Future research could usefully test the application of digital financial tools in particular sectors and in developing economies, and examine the regulatory frameworks that accompany digitally driven change in finance.

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DIGITALNI FINANCIJSKI MENADŽMENT U FUNKCIJI UPRAVLJANJA RIZICIMA I DUGOROČNOG ODRŽIVOG RAZVOJA

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Sažetak: Digitalizacija poslovnog okruženja znatno je izmijenila pristupe financijskom menadžmentu i stvorila potrebu za razvojem novih modela upravljanja financijama i rizicima. Svrha ovoga rada jest analizirati digitalni financijski menadžment u kontekstu upravljanja financijskim rizicima i dugoročnog održivog razvoja. Cilj rada jest prikazati značaj suvremenih digitalnih tehnologija, analizirati njihovu ulogu u upravljanju financijskim rizicima te istaknuti odnos između digitalnog financijskog menadžmenta i zelene ekonomije. U radu su primijenjene metode analize i sinteze relevantne znanstvene literature, komparativna analiza te pregled empirijskih istraživanja. Rezultati istraživanja upućuju na to da digitalne tehnologije – umjetna inteligencija, blockchain i analitika velikih podataka – predstavljaju ključne instrumente upravljanja kreditnim, tržišnim, operativnim i likvidnosnim rizicima. Istodobno, digitalni financijski menadžment ima značajnu ulogu u učinkovitijem usmjeravanju kapitala prema održivim ulaganjima i zelenim projektima. Doprinos rada ogleda se u sistematizaciji koncepata digitalnog financijskog menadžmenta te u isticanju njegove strateške uloge u povezivanju upravljanja rizicima, financijske uključenosti i načela zelene ekonomije kao čimbenika dugoročne održivosti poslovanja.

Ključne riječi: digitalne tehnologije, digitalni financijski menadžment, održivi razvoj, upravljanje rizicima, zelena ekonomija