

Original Research Article

Research on the impact of digital transformation on enterprise financial risk management*Shichao Qi**School of Finance, Harbin University of Commerce, Harbin, Heilongjiang, 150001, China*

Abstract: This article systematically explores the transformation of enterprise financial risk management models under the background of digital transformation. Research has shown that the application of digital technology significantly improves the efficiency of financial risk management through three dimensions: data integration, intelligent analysis, and process reconstruction. At the same time, the study reveals new challenges faced in the process of digital transformation, such as data security, system dependencies, and technology adaptation. Based on literature research and theoretical analysis, this article constructs an integrated framework of “technology application organizational change institutional synergy”, providing a systematic approach for enterprises to promote the digital transformation of financial risk management.

Keywords: Digital transformation; Financial risk management; intelligent risk control; data governance; technology empowerment

1. Introduction

With the rapid development of the digital economy, enterprise financial management is undergoing profound changes. International Data Corporation (IDC) predicts that global enterprises will invest over \$400 billion in financial digital transformation by 2026. In this process, financial risk management, as the core link of enterprise value guarantee, has special importance in its digital transformation. This study used literature research and theoretical analysis methods to systematically review relevant literature in core journals at home and abroad from 2018 to 2023, and constructed a theoretical framework for the impact of digital transformation on financial risk management. Deepened the understanding of the integration mechanism between digital technology and financial risk management from a theoretical perspective, and expanded the research perspective of enterprise risk management theory. At the practical level, research conclusions can provide a reference framework for digital transformation for different types of enterprises, helping them avoid potential risks in technology applications.

2. The empowerment mechanism of digital transformation for financial risk management and potential risks**(1) The Empowering Mechanism of Digital Transformation for Financial Risk Management**

Firstly, the dimension of data integration. Big data technology enables the comprehensive collection and panoramic presentation of financial data. By building a unified data center, enterprises can integrate traditional financial data with business operation data to form a complete risk view. The establishment of a data governance system ensures data quality and consistency, providing a reliable foundation for risk identification.

Secondly, the dimension of intelligent analysis. Artificial intelligence technology has significantly improved the depth and breadth of risk analysis. Machine learning algorithms can identify risk patterns that are difficult to detect with traditional methods, while natural language processing technology expands the analytical capabilities of unstructured data. The establishment of predictive analysis models enables enterprises

to proactively assess risk development trends.

Thirdly, the dimension of process reengineering. Digital technology has driven the automation and intelligence of risk management processes. Robotic Process Automation (RPA) technology enables automated execution of routine risk monitoring tasks, while workflow engines optimize risk management processes. The application of digital twin technology supports the simulation and optimization of risk response strategies.

(2) Potential risks of digital transformation

Data security risks. Digital transformation has expanded the scope of data collection and use, while also increasing the risk of data leakage. The sensitivity of financial data makes it a key target for cyber attacks, and the compliance risks brought by cross-border data flow also require special attention.

The deep application of digital systems with system dependency risks may lead to excessive technological dependence. System failures or network interruptions may cause paralysis of risk management functions, algorithm defects may lead to systematic misjudgments, and compatibility issues caused by technological updates and iterations cannot be ignored.

Organizational adaptation risk. Digital transformation requires synchronous changes in organizational structure and personnel capabilities. Traditional finance departments may face skill gaps, cross departmental collaboration mechanisms need to be restructured, and lagging organizational culture transformation may constrain the effectiveness of technology.

3. Enterprise response strategies for digital transformation

Firstly, in terms of technology application strategy. The implementation of digital transformation technology requires a phased and gradual strategy. The construction of the basic layer should prioritize the establishment of a unified data platform to achieve standardized integration of financial and business data, providing a complete data foundation for risk management. The middle layer should deploy intelligent analysis tools, including machine learning algorithms, predictive models, and visual dashboards, gradually improving the level of intelligence in risk analysis. The application layer requires the development of scenario based risk management solutions, such as intelligent warning systems, automated approval processes, etc. In terms of technology selection, modular architecture design should be adopted to ensure that the system has good scalability and compatibility. At the same time, special attention should be paid to the application of data security and privacy protection technologies, such as homomorphic encryption, multi-party secure computing, and other cutting-edge technologies.

Secondly, in terms of organizational change path. Organizational change is a key guarantee for the success of digital transformation. Firstly, it is necessary to restructure the organizational structure of the finance department, establish a dedicated digital risk management team, and clarify its collaboration mechanism with the business and IT departments. Secondly, we should attach importance to talent cultivation and enhance the digital literacy of financial personnel through a comprehensive talent training program that combines finance and technology. At the same time, an agile working mechanism should be established and an iterative development model should be adopted to quickly respond to changes in business requirements. The digital transformation determination of the leadership is crucial, and it is necessary to establish a digital transformation committee directly responsible by executives, develop a clear transformation roadmap, and provide continuous resource support. In addition, cultivating a data-driven decision-making culture, breaking down departmental barriers, and promoting cross departmental data sharing and collaboration.

Finally, in terms of institutional synergy mechanisms. A sound institutional system is the guarantee for the sustainable promotion of digital transformation. In terms of internal system construction, it is necessary

to establish comprehensive data governance standards, clarify data standards, quality requirements, and security control measures; Establish technical application standards, standardize algorithm development, testing, and deployment processes; Optimize risk management processes and achieve organic integration with digital tools. In terms of external collaboration, we should actively participate in the formulation of industry standards and promote the compliant sharing of risk data; Proactively connect with regulatory requirements and embed compliance requirements into digital systems; Build an open innovation ecosystem and establish strategic partnerships with technology companies, research institutions, and others. It is particularly necessary to establish an evaluation and optimization mechanism for digital transformation, regularly assess the effectiveness of transformation, adjust implementation strategies in a timely manner, and ensure continuous improvement.

4. Conclusion and prospect

This study systematically analyzed the impact mechanism of digital transformation on enterprise financial risk management and constructed an integrated framework of “technology application organizational change institutional collaboration”. Research has found that digital technology has significantly improved risk management efficiency through data integration, intelligent analysis, and process reconstruction, but at the same time, it has also brought new risks such as data security and system dependencies. The study emphasizes that successful digital transformation requires the coordinated promotion of technological innovation, organizational change, and institutional construction, and pure technological investment is difficult to achieve the expected results. Future research should focus on three aspects: first, the potential application of emerging technologies such as generative AI in risk management; The second is the differentiated transformation path of enterprises in different industries and scales; The third is the construction of an evaluation system for the effectiveness of digital transformation. With the deepening development of the digital economy, financial risk management will face more complex challenges, and it is necessary to continuously deepen the positive interaction between theoretical research and practical exploration, providing stronger theoretical support and practical guidance for the digital transformation of enterprises.

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