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Article

Analysis of the Application of Fintech in Corporate Financial Decision-Making and Its Development Prospects

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Abstract: In the context of the continuous development of new technologies in financial technology, financial technology has gradually had a profound impact on the financial decision-making of enterprises and has become an important medium for improving the efficiency and quality of financial management work in enterprises. This article mainly analyzes the technical details of the application of emerging technologies in the financial decision-making process of enterprise management, focusing on their roles in intelligent prediction, risk management capabilities, and business process changes. At the same time, in response to their shortcomings such as insufficient technical interpretability, difficulty in system integration, and weak human-machine collaboration, optimization suggestions are proposed to improve model transparency, strengthen system integration, and build human-machine collaboration mechanisms to assist enterprises in better building their own financial intelligent decision-making mechanisms, which have certain reference significance.

Keywords: financial technology; financial decision-making; system integration; analysis

1. Introduction

With the deep development of the digital economy, information technology has been applied in enterprise financial management, injecting new impetus into the reform and innovation of enterprise financial management work methods. This article studies the role of information technology in company budget management, fundraising, and risk prediction from a technical perspective. It analyzes the shortcomings in the current process and proposes solutions and improvement measures. I hope to combine theory with practice to better carry out efficient financial management in the complex market environment of enterprises, thereby promoting significant improvements in efficiency, automation, and strategic coordination of financial management work, and helping enterprises build a more resilient and forward-looking financial decision-making system.

2. The Significance of Financial Technology in Corporate Finance

Financial technology has gradually transformed from a concept into a reality and further applied to the financial management of enterprises. The financial management goals of enterprises are undergoing profound impacts and changes. Advanced technologies such as artificial intelligence, big data, and blockchain have prompted enterprises to redesign their past financial behavior and achieve overall intelligence. It is necessary to integrate the entire process of information collection, data processing, and decision execution to form a closed-loop and efficient intelligent decision-making system. For example, by utilizing big data analysis capabilities, financial personnel of enterprises can use the system to mine the relationships between internal and external variables, and capture important variable information from them, which can then be used to make targeted value decisions. It not only enhances the level of budget control and cost

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management in enterprises, but also provides support for capital structure setting, fundraising strategy formulation, etc., further improving the effectiveness of financial management decisions in enterprises. The application of artificial intelligence models has made the development of finance, profit analysis, and early warning work no longer rely on subjective decision-making by personnel as before, to a certain extent avoiding the influence of subjective misjudgment by humans. It extends the financial function to decision-making and provides guidance to help enterprises stand invincible in the fiercely competitive market environment [1].

Fintech not only provides decision-making, but also resets the information foundation and collaborative capabilities of enterprises. Due to the immutability of blockchain information and the traceability of the entire chain, it provides effective support for ensuring the transparency, legality, and audit accuracy of financial reports, and is widely used in invoice verification, invoice payment, and financial accounting. With the help of cloud computing, financial data of enterprises, companies, and partners can be synchronized in real time, eliminating geographical, departmental, and system isolation, ensuring data consistency. Thus providing a cross regional, unified measurement standard, unified reporting method, and real-time monitoring mechanism financial infrastructure for enterprises. In the integration of financial technology, the financial system has become not a single functional department, but an important node connecting operations, strategy, and risk. Financial technology makes enterprise financial control more powerful and supports future digital management architecture, creating conditions for predictability necessary in unstable environments [2].

3. The Application of Financial Technology in Enterprise Financial Decision Making

3.1. Intelligent Analysis Empowers Financial Forecasting and Budget Preparation

By applying financial technology innovation to financial forecasting and planning, the rationality and accuracy of enterprise decision-making have been effectively improved [3]. Through big data computation and machine learning, the financial management system has been extended into a model structure that can process various types of business information, identify the main influencing factors, and make real-time predictions on the results. In the presence of uncertain sales costs and external economic environment in enterprises, intelligent computing can quickly adjust the calculation results parameters, thereby improving the elasticity and accuracy of budget expectations. The commonly used regression models are expressed as follows:

$$\hat{Y} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots \beta_n X_n + \epsilon \quad (1)$$

Among them, $\hat{Y}$ To predict values such as future income or profit levels, X_n As an influencing factor, β_0 For the regression coefficient, ϵ For the error term. After running in the system, this model can automatically adjust based on real-time data feedback and is widely used in three aspects: formulating annual budgets, adjusting quarterly forecasts, and refining business goals, fully leveraging the ability to improve financial management in advance and execution [4].

3.2. Technology Driven Optimization of Financing Processes and Risk Assessment

Through financial technology, it helps to break the structural information asymmetry and lengthy approval cycles in traditional commercial financing. This platform utilizes artificial intelligence technology and big data analysis to analyze enterprise operations, financial conditions, and industry trends, identifying financing needs and providing targeted solutions to improve financing speed. At the same time, in terms of regulation, with the help of intelligent credit rating mechanisms, quantitative assessment of company default risk can be achieved, reducing uncertainty caused by human factors. The common form of credit evaluation logistic regression model is:

$$P = \frac{1}{1+e^{-(\alpha+\beta_1 X_1+\beta_2 X_2 \cdots+\beta_n X_n)}} \quad (2)$$

Among them, P The probability of enterprise default,X_nFor variables that affect credit levels, such as asset liability ratio, revenue growth rate, etc, β_nFor model coefficients. This type of model has been integrated into various financial technology platforms and has been widely applied in banking loans, trade chain finance, and small and medium-sized enterprise funds, improving the efficiency and speed of risk control.

3.3. Automatic System Improves Operational Efficiency and Decision Response

Integrating financial automation into specific financial operations can effectively improve financial efficiency and decision-making speed. Through intelligent system tools such as Robotic Process Automation (RPA), robotic auditing, and rule engines, enterprises can achieve some tedious tasks such as voucher preparation, report generation, tax payment and billing without human intervention, effectively shortening the cycle of business activities. With the enhancement of data processing capabilities, financial transmission and judgment can be more smooth, and financial processing achieves a high degree of timeliness for high-level decision-making. One of the commonly used indicators to measure the performance of automated systems is unit input efficiency, calculated as follows:

$$E = \frac{T_s - T_a}{T_s} \times 100\% \quad (3)$$

Among them, E To improve efficiency,T_SFor manual processing time,T_aProcessing time for automatic systems. This data reflects whether the automated process can save time. The automated restructured process has stronger continuity and stability, and is more versatile in financial processing, cross regional reconciliation, and multidimensional data statistics. Finance can better respond in real-time.

4. Problems in the Application of Financial Technology in Financial Decision-Making

4.1. Insufficient Algorithm Interpretability Affects Decision Reliability

Despite the increasing use of financial technology to assist financial decision-making, the complex algorithm models it relies on often lead to difficult to explain problems. The model will provide results in a "black box" form, but lacks a clear presentation of the influence of each variable, which makes it difficult for financial practitioners to understand the theoretical principles behind the technology, and may therefore be difficult to obtain the support of senior managers due to the lack of interpretability of the results, reducing the application of technology in practical decision-making processes. When the results are inconsistent with existing experience, it can also lead to suspicion or neglect due to a lack of explanation, which is a key factor that makes it difficult to use this model in large-scale important decision-making situations. Over time, such models are difficult to be widely trusted and cannot support the financial decisions of senior management. In the context of big data driving everything, the lack of interpretability has become an important obstacle to the widespread application of intelligent financial technology, which must be addressed from the perspectives of algorithm interpretability and interaction design.

4.2. Poor System Compatibility Reduces Operational Efficiency

When enterprises introduce financial technology innovation systems internally, they often encounter compatibility issues between their interfaces and existing financial or ERP systems. This results in complex integration and slow progress. Due to the lack of unified data interface specifications and communication protocols, information cannot be exchanged between various systems. As a result, a series of problems such as duplicate data entry, format conversion, and field conflicts emerged. The poor collaboration between various platforms further affects the continuity and accuracy of data processing, and increases the burden of manpower and operations. If there are multiple systems working together, it will lead to the fragmentation of data information, scattered storage

between different systems, and the formation of multiple information islands, which will further reduce the efficiency of the entire company and even affect the effectiveness of data decision-making. Moreover, in work environments that require frequent use of large amounts of data, such as high-frequency and high-intensity work environments, more serious management risks such as process fractures and accounting errors can arise, limiting the process of comprehensive intelligence of financial systems.

4.3. High Dependence on Technology Limits Human Participation

With the widespread application of financial technology systems in the accounting decision-making process, enterprises have begun to implement a technology-based operation mode, which has significantly reduced the influence of manual analysis, evaluation, and control processes, and related tasks are gradually being automatically completed by the system. Many algorithm models even provide immediate answers, greatly limiting the ability of accountants to make professional judgments. When some enterprises encounter model inaccuracies, data mutations, etc., there is no suitable manual verification method to correct these problems, resulting in erroneous information easily entering the decision-making process and increasing risks. Moreover, the tendency to believe in models leads accountants to gradually overlook issues such as business rules and economic environment. Over time, the finance department of a company will lose its ability to respond quickly to complex, non-standardized, or sudden tasks, affecting the organization's ability to respond to unique situations and reducing the efficiency and stability of financial management (As shown in Figure 1).

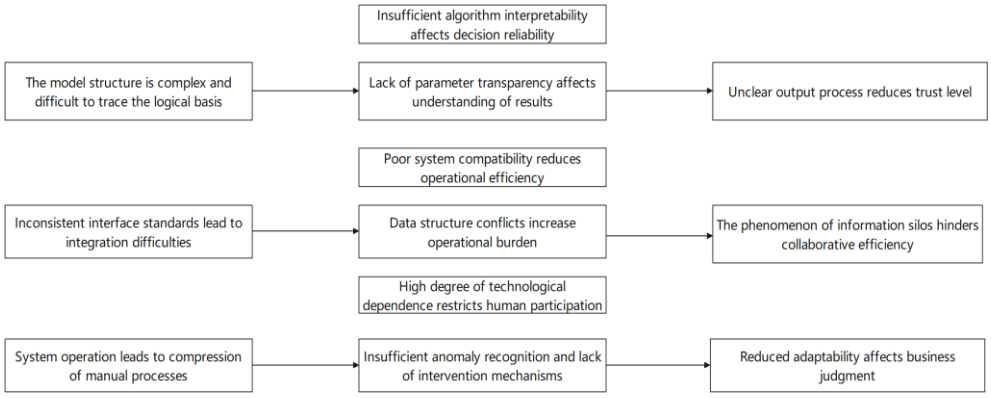

Figure 1. Problems in the Application of Financial Technology in Financial Decision Making.

5. Optimization Strategies of Financial Technology in Financial Decision-Making Applications

5.1. Improve Model Transparency and Enhance Output Reliability

The transparency of the model is a key factor for the effective functioning of the financial system, as it will become a core component of fintech innovation. Utilize visualization techniques to analyze and explain the weights of various variables, track the causal paths and causes that affect the analysis results, in order to deepen the understanding of financial personnel on the causes of model prediction results. At the same time as outputting the results of the model, the system should synchronously provide the trajectory and degree of influence of each influencing factor, so that users can comprehensively grasp the judgment basis and make the predictive indicators of managers clear and visible. Enhance the standardization and controllability of the model, enabling users to independently construct a model operation process that can be viewed and audited within the set parameter range by adjusting judgment rules and other methods. At the same time, adding risk indicators and explanations generated by the model during the construction of this platform helps managers make rational decisions in

unknown situations, enhance their acceptance of big data analysis results, and ensure that manual judgment plays its due role through mechanism arrangements, which can ensure the reliability of the entire system and also help improve the trust foundation of technological achievements.

In a budget optimization project for a large manufacturing enterprise, a perceptible AI module is introduced. During the prediction and cash flow simulation process, it not only provides numerical output, but also clearly indicates the impact and ranking relationship of each key factor on the predicted value in the visual output. For example, when predicting the net cash flow for the next quarter, it is also necessary to output which indicators have a greater impact, such as raw material prices, accounts receivable recovery cycles, and capacity utilization rates. The confidence interval and variable elasticity range are also output together, which helps financial managers optimize the decision-making basis within a limited range, and further verify the rationality and reliability of business indicators, and adjust the forecast correction plan accordingly. In this mode, the utilization rate of the model adopted by the enterprise in the annual budget planning process has significantly increased, and the clarity and practicality of the model output have been greatly enhanced. At the same time, it is also more easily accepted by senior management.

5.2. Strengthen Platform Integration Standards to Improve Operational Efficiency

Establish unified data interfaces and technical compatibility standards, enhance system integration capabilities, and achieve interconnectivity and efficient collaboration between financial subsystems, ERP systems, and other financial technology tools through standardized and unified data format conversion, interface calling protocols, and authorization correspondence. Through API network integration, various business functions are integrated into one platform to achieve centralized data management while ensuring real-time transmission and synchronized updates of information. Promote a unified identity authentication mechanism across different platforms, simplify user cross platform operation processes, and prevent duplication or errors in information exchange. Secondly, from a technical perspective, a middle platform structure can be introduced to form a unified data service and business scheduling logic, which can improve integration speed and enhance system reliability while ensuring information security. By introducing a system maintenance monitoring platform to monitor data exchange and interface usage, it ensures accurate and efficient data exchange between various systems.

In the process of replacing the new generation financial system, a large cross regional retail enterprise in this project takes the data center as the entry point, integrates the financial cost accounting system, budget control system, and sales business software in a unified manner, applies a unified data interface format, seamlessly connects the original scattered systems, and can complete all data docking and inspection within seconds. Efficient collaborative operations can be achieved between different systems, such as automated task adjustments, online report generation, product inventory, and fund collection. In the past, the company needed 7 days per month to complete financial settlement work. After launching the project, the financial settlement time can be shortened to less than 2 days, and the accuracy of data can also be improved. Due to the integrated application platform, the headquarters of the enterprise and various stores can frequently communicate on methods such as fund supervision, cost allocation, and performance feedback, effectively improving the efficiency and transparency of the entire financial work, and providing necessary technical support for future intelligent business.

5.3. Optimize the Decision-Making Participation Mechanism and Strengthen Human-Machine Collaboration

Emphasis should be placed on human-machine collaboration during the construction process, strengthening the decision-making dominant position of humans in the human-machine collaboration system. During system planning, artificial checkpoints are

established, and key results need to be reviewed by specialized personnel before proceeding to the next step. We have established a two-way feedback channel between machines and humans, allowing financial staff to revise and optimize predictive models based on practical experience. Classify according to the situation, guide the system to automatically execute standardized tasks, and make decisions manually when facing tasks in structurally poor environments, avoiding the danger of model abuse. In conjunction with the human-machine interface, it is required to have functions such as data visualization, viewpoint annotation, and multi person review to improve the communication and response speed between people and the system.

A certain advanced manufacturing enterprise has not only introduced an intelligent accounting system, but also developed a machine + manual joint control platform to assist personnel in understanding and reviewing predicted data results and potential issues, and marking them. After generating financial analysis reports, the system presents the trend of key indicators to users through a visual interface. At the same time, the system allows financial analysts to independently set tolerance rates and warning thresholds; When the trust level of the model decreases or the predicted results deviate from the existing rules in a specific environment, the manual verification process will be automatically triggered, and designated personnel will make comprehensive evaluations and adjustments from different perspectives. In the first six months of the implementation of the plan, the program avoided a decision-making error that occurred in a market mutation environment, allowing senior management to make decisions with more information in an uncertain environment.

6. Conclusion

The application of financial technology has penetrated into the financial decision-making of enterprises, becoming an important driving force for promoting the transformation and improvement of enterprise management methods. With the application of big data analysis and artificial intelligence, the functions of financial management have been extended. At the same time, requirements have been put forward for the transparency and mutual integration of the system. However, some companies still face difficulties in understanding algorithms, lack of platform integration, and excessive reliance on technology, which affect the depth of decision-making assistance for enterprises in this area. Therefore, it is necessary to improve the interpretability of models, improve the functions of platform integration, establish human-machine collaboration, and fully realize the value of financial technology. It can be predicted that if enterprises can simultaneously address information security issues and improve their level of intelligence, there will be better opportunities for strategic shifts in financial management and value creation.

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