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Research on the application of artificial intelligence in the field of enterprise financial management and strategic decision-making

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Abstract: This study explores the integration of artificial intelligence into enterprise financial management and strategic decision-making, identifying key combination points and application mechanisms. The research outlines artificial intelligence development trends and analyzes existing applications in human resource and accounting management to examine potential integration pathways in enterprise financial management. The study reveals that artificial intelligence enhances financial management through big data platforms that enable data collection, mining, and visualization. AI facilitates enterprise internal management innovation, particularly in human resource management, and provides quantitative support for strategic decision-making. Artificial intelligence transforms traditional financial management by providing intuitive data visualization, generating strategic insights, and reducing decision-making risks. The integration requires a paradigm shift in both technology and management mindset, with continued human oversight remaining essential. Enterprises should gradually introduce artificial intelligence into financial management and strategic processes, focusing on building AI teams and robust data governance frameworks while avoiding over-reliance on short-term benefits. Financial professionals need to develop new competencies to effectively collaborate with AI systems.

Keywords: *Artificial intelligence, Financial management, Enterprise management, Strategic decision-making.*

1. Development and Application Status of Artificial Intelligence

The expansion of artificial intelligence has become increasingly essential, contributing to significant improvements in operational and production efficiency in various industries, especially in education, retail, manufacturing, finance, and healthcare. It has become a strategic imperative for technology companies. The innovation has pervaded the essence of online businesses, which has encouraged organizations that own huge data assets to spend heavily on research and development related to artificial intelligence technologies, thereby creating an important element of future competitive edge. Since Google declared its "AI First" strategy in 2016, it has made many technology acquisitions [1] including Nest and Revolv, thus expanding its presence in the smart home industry. Further, it has formed strategic partnerships with Johnson & Johnson to strengthen its hand in intelligent healthcare and has developed the machine learning algorithm "auto ML" independently. IBM has continuously maintained its dominance in artificial intelligence by focusing on specialized areas like supercomputing, cognitive computing algorithms, cloud platforms, and deep machine learning. Microsoft's activities in artificial intelligence began in 2014, which resulted in the launch of major products like the intelligent interactive robot "Xiaoice," the AI nutritionist Invigr, and the scene intelligence recognition system "Seeing AI." Baidu is primarily focused on its efforts in areas like machine learning, big data analytics, smart home technologies [2] and autonomous driving technologies. Industry leaders are also building open-source technology-sharing platforms, which reduce the opportunity costs for new entrants who

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are looking for access to artificial intelligence technologies and provide technical support for the complete integration of artificial intelligence in different fields.

2. Explore the Application of Artificial Intelligence in Enterprise Financial Management

2.1. Application of Artificial Intelligence in Enterprise Financial Management

Automation technology has been widely used for a number of years in many areas of human resource management, such as recruitment, training, and compensation management. An illustrative example is the Zhongheng Accounting Firm, which uses a systematic artificial intelligence assistant to improve the efficiency of new employee onboarding [3]. This practice is particularly favored by those who have just returned from overseas.

At the current stage, the organization has started the initial integration of artificial intelligence, which presently supports accounting management practices in various industries. The sophisticated computing and data processing capabilities demonstrated by AI in corporate accounting have revolutionized the traditional accounting model to a great extent, leading to a shift from purely manual operations to a model that combines "human intelligence and manual tasks." This shift has led to the simplification of complexities related to transaction processing, relieving financial staff of the burden [4] while simultaneously improving operational efficiency in accounting processes. For instance, the internationally acclaimed Deloitte Accounting Firm has embraced AI-based systems in areas like accounting and auditing. In addition, its AI system has the capability to replace some of the functions of financial management experts, providing detailed analyses, predicting the financial position of the organization, evaluating risks, and setting up systems for warning on financial threats.

The enabling of unbridled execution with respect to production and operational capacity has been achieved through the integration of information technology with the need for software solutions, such as ERP and CRM systems. The analysis of customer data patterns over time, in addition to the creation of programs designed to cultivate customer relationships [5] is facilitated by the use of artificial intelligence systems. These findings are preliminary observations with respect to the use of AI in the financial management functions of organizations. In this regard, the use of modern information technologies, such as big data, cloud computing, the Internet of Things, and blockchain technology, makes older information management systems redundant. These traditional systems are expected to be replaced by AI-based platforms offering supercomputing capabilities in addition to advanced data mining capabilities. Leading Chinese internet companies [6] such as Alibaba, Baidu, and Tencent, have recently embarked on the implementation of AI-based strategies for human resource management and are also looking into machine learning technologies in financial management. Such developments hold much promise for the integration of AI into the revolutionary practices of financial management in organizations.

2.2. Combination of Artificial Intelligence and Enterprise Financial Management

The understanding of how artificial intelligence can be used effectively in the financial operations of an organization goes back to the 1970s and 1980s. In those years, initial attempts were made to explore ways to integrate AI into management systems in corporate environments. There are two major motivations for using AI in business organizations: the first relates to the use of AI to change a company's manufacturing, production, or operational processes, which include features such as automatic identification, mechanization, operation automation, and the use of "manless" machines, along with other technological advancements. The second motivation involves the generation of ideas [7] concepts, or designs in the financial management systems of an organization through AI integration. This latter point receives more immediate focus, and research aimed at "hard" AI technologies has made significant advances. In contrast, the development of "soft" AI technology began much earlier; however, it has faced phases of stagnation. Today, the focus is largely on software development [8] thus placing it in the early stages of artificial intelligence. The use of AI in innovative developments related to financial management in enterprises is considered the most infancy area.

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Herbert Simon was the first to bring the idea of artificial intelligence into the context of integrated management, which has triggered a constant investigation of the intersection between these two fields—artificial intelligence and enterprise financial management. In order to achieve this goal, it is relevant to note that the present attempts to combine AI with financial management need to be analyzed from several aspects: the root theories of enterprise financial management, developments in organizations' internal management systems, and the strategic decision-making processes improved by AI in firms. Empirical research has brought a striking result: a considerable percentage of contemporary enterprise databases includes collections of financial information, human resources data, customer relationship data, and analyses of marketing cases. Given the progress that has already been made, this statement can be supported.

3. Enterprise Financial Management Based on Big Data Platform and Artificial Intelligence

From the perspective of how enterprise financial management artificial intelligence starts, it is particularly important to build a big data platform for enterprise financial artificial intelligence management and establish an enterprise financial database.

3.1. Collection and Mining of Big Data for Financial Management

The methods used in the construction of a vast database for organizational financial information can be divided into two main types: big data from materialized activities and big data from value activities. These activities collectively generate a large amount of data. In the operational process of organizations, big data involves a wide range of functional departments, branch offices, and subsidiaries. The operations of each subordinated entity require accounting vouchers as both the carrier and the medium, which in turn produces large amounts of data in the form of small or specialized data sets from these accounting vouchers. As organizations grow and develop, the number of IT subordinated entities grows, which forms more complex hierarchical structures and a larger operational scope. The use of various accounting vouchers increases with the large amount of transaction data generated by these vouchers, thus promoting the creation of a "big data pool" for organizational financial management. The repositories constructed within the context of the enterprise financial management big data construction, which are built during both materialized and value exchanges, have accumulated a large amount of operational activity and business information, which mirrors the activities of the organization.

The integration of all the accounting vouchers into a single dataset is intended to build a holistic big data development platform for enterprise financial management, which in turn generates its own content system by leveraging the data collection platform.

The enterprise financial management big data development platform is a core component in the construction of a financial management big data mining platform based on artificial intelligence technologies. Under the big data mining system framework, artificial intelligence conducts statistical and sequential analysis of accounting voucher data, draws conclusions on transaction activities and capital flows from subsidiary units, tracks operating orders against other financial and accounting data, and ensures that the financial and accounting data presented is accurate and effective in representing the operational context of the enterprise. This approach helps in synchronizing the financial resources of the enterprise with its strategic developmental objectives. The structured enterprise is thus poised to effectively manage its financial operations. Artificial intelligence-powered systems that undertake financial big data mining are crucial in improving governance in an enterprise.

3.2. Establishment of Financial Management Big Data Model Based on Artificial Intelligence

In support of the enterprise strategic goals, a statistical analytical model is developed using data mining approaches relevant to accounting vouchers, accounting data, operational revenues, business relationships, and customer loyalty. At the same time, the financial enterprise system is used as the basis

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for control. The accounting field involves supervisory vocabulary, defining subordinate objects, employees, and customers as objects of control.

The management of financial accounting data includes the management of subordinate units and staff, as well as interaction with different stakeholders. A wide range of tools has been created for the processing and analysis of large data sets, thus enabling the automation of financial management processes. The enterprise financial management big data development platform systematically records the regular operational processes of subordinate units and divisions through methods like database aggregation, data mining, and subsequent utilization. This method effectively collects finance and accounting data relevant to these units and divisions. Further goals are set for the processing of this data. The used methods create an automated alert system intended to detect anomalous situations within the enterprise financial management system by first establishing criteria for the detection of abnormal data. After the detection of certain financial performance indicators and models, unusual financial situations are autonomously detected, thus establishing a system for automated alerts regarding unusual financial management, thus eliminating the need for human intervention.

The integration of artificial intelligence into the world of business financial management, especially in the context of big data, represents a significant improvement in the systems that leverage such data for financial management. The integration allows for the easy visualization of an organization's financial position through effective imagery. With the development of big data technologies, the use of artificial intelligence to improve the aesthetic presentation of financial information through graphical forms, such as charts, has become common practice. In the field of financial management with respect to big data, the extensive and flexible visualization of financial data analysis and the applications obtained within an organization can now be done with ease using charts and other visualization tools. The widespread use of interperiod trend graphs together with interentity comparative data graphs will clearly and effectively depict business operations and the level of financial control between different entities. By taking advantage of the innovations provided by the enterprise financial management big data platform, this integration has greatly aided in the automation of many financial tasks that used to require extensive employee input. As such, it is critical that financial managers be proactive in embracing these advancements, as opposed to being stuck in conventional administrative tasks like bookkeeping and reporting.

The development of deep learning techniques indicates that artificial intelligence can potentially enhance the effectiveness of financial management in business organizations, reduce cases of power abuse and inefficiency in the allocation of resources, and improve the quality of financial management decision-making. At the same time, it supports the overall governance system of the organization and enhances decision-making processes by providing critical financial information required to improve the economic performance of the organization.

4. Innovation of Enterprise Internal Management Mode Based on Artificial Intelligence

4.1. Artificial Intelligence in Enterprise Internal Management

To successfully integrate artificial intelligence advancements into an organization's financial management system, there is a need to promote both external collaborative relationships and internal coherence. This requires a shift from traditional organizational management paradigms to one that integrates AI into the core operations of the organization. Traditional management systems tend to focus on external collaboration that provides limited industry applicability while operating internally through a hierarchical top-down system. This is in sharp contrast to the flatter management systems facilitated by AI, which hinders the rapid sharing and application of data-driven insights. There is, therefore, an imperative need for a harmonized management system that promotes external inter-enterprise cooperation and internal inter-organizational alignment. This highlights the need to develop a strategy that focuses on the "integration of internal and external cultivation" across the AI integration process.

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The implementation of artificial intelligence in the field of business management largely depends on data acquisition, which is a basic component for any enterprise that aims to promote innovation and improve its operational processes. This process involves not only the collection of information relevant to the particular enterprise but also the integration of data from rival companies and cross-industry groups. A single organization has limitations in terms of data collection; therefore, the creation of an all-encompassing "big data pool" requires coordination and cooperation among various enterprises and industries. The main driving force behind overcoming the "data barrier" and collecting data for operational use is the need to ensure effective management of artificial intelligence, a problem that becomes especially acute when applied to internal governance systems. The effectiveness of data use relies on vertical and horizontal integration of information among different organizational levels, as well as the flexibility of the integrated artificial intelligence system in responding to unusual situations and performing delegated tasks with competence. Therefore, there is a need to urgently reconsider and develop new managerial models using information and data to build a sustainable intelligent management system based on the artificial intelligence system.

4.2. Enterprise Human Resource Management Based on Artificial Intelligence

The impact of artificial intelligence on the management of human resources in organizations is easily visible and frequently one of the first areas impacted by AI-driven automation. The changes brought about by artificial intelligence in the area of human resource management are very significant in the recruitment and training phases. Before the recruitment process is started, the human resources department uses sophisticated models and algorithms to predict the talent needs of the organization. Using a solid data cloud infrastructure, recruiters have access to internal data that is normally difficult to access, such as basic personality characteristics and motivations of the candidates. Using an intelligent matching platform, recruiters can match candidates to roles they have held before, based on their work history, educational background, and supervisor feedback, thus improving the chances of successful recruitment results. In addition, the potential of AI enables the tailoring of training programs so that they can be made specific to the individual needs of employees. Several organizations have already implemented machine learning and automated quantitative data processing technology in their recruitment systems to enable the intelligent screening and matching of resumes of candidates with job vacancies, thereby supporting effective recruitment procedures.

The automation of organizational communication with staff is the most revolutionary innovation introduced by artificial intelligence in the field of human resource management. In this discipline, the key element is the assessment of human resources, rather than the simple mechanical application of a preconceived structure. The use of Artificial Intelligence (AI) technology in talent evaluation has determined the most efficient measures and parameters for the assessment of human resources by changing the dynamics of interaction between employees and the organization. Through the use of different cutting-edge technologies—such as monitoring, analysis, simulation, comparison, matching, situational replication, and extensive data experimentation—artificial intelligence allows for accurate assessments of human resources. Therefore, this ability makes it possible to create optimal decisions on staff selection and job configurations. The limitations of applying artificial intelligence in human resource management provide organizations with the chance to create a complex intelligent human resource management system defined by the process "data mining → talent discovery → talent deployment → talent aggregation → organizational growth" throughout the human resource management process.

5. Conclusion

Unlike traditional information management systems, the artificial intelligence system is expected to provide financial managers in organizations with an extensive set of relevant data and reports that are essential for strategic decision-making. In addition, it will perform statistical analysis, large-scale data mining, and data cleansing on the gathered information using machine learning algorithms. Then, it

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will display changes in the organization's operational data in a more understandable and visually appealing manner, for example, using graphical displays, with the aim of predicting future development trends, evaluating potential risks, and providing recommendations.

The prediction of artificial intelligence's impact on corporate strategic decision-making is challenging, and its possible role as a replacement in this area is unclear; however, it is expected that artificial intelligence, and especially its deep learning, will introduce new insights into enterprise strategic decision-making. In addition, it can measure strategic decisions and reduce the costs and risks involved in these decisions.

With the accelerated development of artificial intelligence, financial managers in companies, especially senior executives, should earnestly learn and understand both artificial intelligence and its multifarious applications. It is also necessary that they pay close attention to and master the changing trends and dynamics related to artificial intelligence in order to form an artificial intelligence team in their companies and lay a solid foundation for its application. But it is important to note that artificial intelligence is not a panacea and will not bring instantaneous results; its application should not be limited to seeking short-term economic benefits. Thus, a strategic vision is needed for the gradual introduction of artificial intelligence into the strategic decision-making process of the enterprise.

The transition from traditional financial management to AI-based financial management signifies a significant paradigm shift that requires both technological development and a shift in the financial professional's mindset. As artificial intelligence continues to evolve, the role of financial managers is likely to shift toward more sophisticated analytical work and strategic planning. Successful deployment of AI requires a sound strategy that prioritizes strong data governance, and financial professionals need to develop new skills to work effectively with these systems. Despite the possibility of automation, human intervention is necessary for strategic decision-making involving complex ethical implications. It is advised that organizations follow a phased approach to implementation, starting with well-defined use cases before moving on to more complex applications.

Future research should focus on industry-specific AI applications and ethical governance challenges as artificial intelligence integration with enterprise financial management accelerates, offering innovation opportunities for forward-thinking organizations.

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Transparency:
The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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