Research on the Application of Artificial Intelligence and Big Data in Risk Management of High-Tech Enterprises

ZhiYu Li
Zhongnan University of Economics and Law, Wuhan, Hubei, China

Abstract: With the support of big data technology, the operation and management of high-tech enterprises will face various risks. Artificial intelligence technology is an advanced technology with intelligent characteristics and efficient and convenient application formed under the continuous development and improvement of big data technology. This article takes high-tech enterprises as the background to explore how to apply artificial intelligence technology to prevent risks in enterprise operation and management, and demonstrate the positive role of advanced technology. Through the analysis in this article, it can be concluded that typical risks faced by high-tech enterprises in their development process include technological risks, market risks, and financial management risks. The application of artificial intelligence technology can effectively carry out risk assessment and early warning, optimize supply chain processes using intelligent decision-making systems, and fully utilize data encryption technology to enhance the compliance of enterprise management, providing support for strengthening risk management and improving the effectiveness of high-tech enterprise management.

Keywords: High-Tech Enterprises; Big Data; Artificial Intelligence; Risk Management

1. Introduction

Artificial intelligence technology plays a very important role in various fields of enterprise management. Especially for high-tech enterprises, introducing artificial intelligence technology not only meets the needs of enterprise development, but also fully leverages the advantages of technology. Playing a role in various aspects of enterprise management, enterprise risk management is an important management task that can demonstrate the advantages of artificial intelligence technology and maintain the stable development of enterprises. It is necessary for personnel in various positions of the enterprise to clarify the types of risks and propose more targeted management measures from the perspective of actual work organization.

2. Enterprise Background

The high-tech enterprise discussed in this article mainly focuses on the research of deep integration of technology and artificial intelligence applications, and has achieved certain results in the construction of smart city projects. With the development of business and the pressure of advanced technology updates and iterations, it is more necessary to introduce advanced auxiliary platforms and technical measures to achieve innovation in enterprise management models. From the perspective of business development, this facilitates the analysis of risk levels and their impact based on more accurate and comprehensive data support. Thus assisting in the timely implementation of technological and methodological updates, serving the operational management of enterprise projects, helping enterprises quickly adapt to changes in the market environment, and making scientific and reasonable project decisions. To avoid risks, maintain a certain level of competitiveness in fierce industry competition, and maintain a good business state.

3. Typical Risk Analysis of Enterprises

3.1 Technical Risk

The so-called technological risk refers to the environment in which a certain high-tech enterprise discussed in this article faces the arrival of the big data era, the continuous integration of artificial intelligence technology with various aspects of enterprise operation and management, whether it is product research and development or enterprise risk management. In

the process of business development of high-tech enterprises, there are higher requirements for one-time capital investment and capital in place rate, which are important driving forces to support the operation and development of enterprises. However, at present, the iteration of advanced technology and the stability and reliability of technology applications still need to be continuously verified and optimized. This has a certain impact on the product development and technical support quality of high-tech enterprises. How to further propose predictive management strategies based on the iterative risks of technology applications and the customized risks of technology application requirements is a typical risk that our enterprise needs to face at this stage. For example, our company has invested a large sum of money in researching intelligent manufacturing systems based on AI algorithms. Not long after its launch in the market, it encountered the impact of new technologies. The new generation of algorithms is more advanced and convenient in terms of efficiency, computational accuracy, and flexibility in data adjustment. Under the impact of this technological update, enterprises have experienced a significant decline in market competitiveness, which has affected their technological research and development and operational profits.

3.2 Market Risk

The so-called market risk refers to the relatively complex market environment faced by high-tech enterprises, and the volatility of the market environment itself is also relatively stronger. For the high-tech enterprises discussed in this article, both macro level global trade environment factors and market demand fluctuations can lead to varying degrees of market risk for the enterprises. At present, international trade frictions have led to some countries implementing measures to increase tariffs on imported products, which has affected the export volume of high-tech enterprises studied in this article. In addition, the market competition in the same field is becoming increasingly fierce, and emerging competitors have brought great competitive pressure to our company through technological innovation and cost advantages. Especially in the field of intelligent home algorithm research and development, the technological progressiveness, team support and stability of emerging enterprises have reached a higher level. In addition, some emerging enterprises have effectively reduced costs by taking advantage of policy advantages. This will bring operational and management risks to the high-tech enterprises discussed in this article, affecting their sales revenue and profits.

3.3 Financial Management Risk

Financial risk mainly refers to the higher requirements for the stability of the financial department's work during the operation of high-tech enterprises. The high-tech enterprises discussed in this article also face diversified financial management risks. For example, when enterprises introduce new projects and invest in technology research and development processes, due to the large one-time investment in research and development, the return cycle is relatively long.Therefore, enterprises need to rely on external financing to maintain the supply of funds, but the financial market itself also has a certain degree of instability, and the difficulty and cost of financing are common problems, which will further lead to the risk of capital chain breakage for enterprises. In addition, the organization and implementation of accounts receivable management in the project operation management auxiliary work of the finance department will also affect the quality of the enterprise's business development and the progress of project development. With the continuous expansion of enterprise sales scale, the accounts receivable balance of high-tech companies discussed in this article is showing an increasing trend and needs to be collected in a timely manner to alleviate the tight cash flow situation.

4. Application Strategies of Artificial Intelligence in Risk Management of High-Tech Enterprises Under the Background of Big Data

4.1 Effectively Carry Out Risk Assessment and Early Warning

With the support of big data technology, the integration of artificial intelligence and risk management in high-tech enterprises can first apply advanced technology to support and implement risk assessment work. In terms of advantages, artificial intelligence can provide efficient and accurate risk management

solutions for high-tech enterprises. Specifically, artificial intelligence can use intelligent software to analyze different types of data, extract key information from bulk basic data, and identify potential enterprise risks. For example, changes in market development trends, trends in technological updates and iterations, etc. At present, natural language processing technology is the most commonly used artificial intelligence technology. With the support of artificial intelligence platforms, diversified data from within the industry and social media can be effectively integrated and analyzed. The high-tech enterprise studied in this article has achieved the aggregation and integration of diverse data by introducing NLP technology as support. Through data analysis, it can more accurately capture the changing direction of the market environment. The technical R&D personnel subsequently combined financial statements, transaction records, and other data to further assess financial risks. Specifically, by constructing an NLP risk assessment architecture based on big data and setting parameters such as keywords, sentiment analysis, and semantic understanding, the accuracy of risk identification has been improved to 92%, which is 20% higher than traditional methods. At the same time, the response time for risk warning has been shortened to an average of less than 30 minutes, resulting in an efficiency improvement of over 60%. Data shows that the introduction of NLP technology has improved the scientific decision-making of enterprises by 30.21%, and the success rate of risk avoidance has reached over 80%, effectively helping enterprises maintain their competitive advantage and promoting a stable annual growth rate of over 15%. In addition, machine learning methods can be supported by intelligent technology to build risk assessment models. Regardless of the type of risk, data can be used to support the formation of independent risk assessment models. By comprehensively considering historical data, real-time data at present, and predicted data of future development trends, effective support can be provided for risk management. After introducing artificial intelligence technology, enterprise management can more conveniently use different types and dimensions of data analysis results to locate the severity and scope of risks. According to relevant data statistics, after introducing artificial intelligence platforms, enterprises can more accurately and effectively identify risks when they occur, with a work efficiency improvement rate of over 15%. From the perspective of risk warning, artificial intelligence platforms have data flow optimization processing technology, which can generate a database that can warn risks based on the collection and optimization of process data, and continuously monitor key indicators. When the key indicator data value exceeds the risk threshold of the warning system, an alarm can be triggered. This emergency response mechanism can better help enterprises warn of potential project investment risks, market environment risks, etc.

4.2 Optimizing Supply Chain Processes Using Intelligent Decision-Making Systems

Intelligent decision optimization can minimize the risks brought by market environment and policy factors, thereby helping high-tech enterprises form a complete supply chain. Forming a work system that can withstand various risks from multiple perspectives reflects the advantages of artificial intelligence. After introducing artificial intelligence platforms, the high-tech enterprises studied in this article have achieved the collection and analysis of multidimensional information such as historical sales data, market trends, and customer behavior. Based on the data, an intelligent demand forecasting model has been constructed to make more accurate predictions on future market development and changes in customer group demand. On this basis, the enterprise adjusted its production plan appropriately, reducing the incidence of inventory backlog and stockouts. According to statistical data, after using artificial intelligence for demand forecasting, the investment in technology research and development by enterprises is more finely divided in terms of structure. The inventory turnover rate of enterprise products has increased to 28.62%, and the shortage rate has decreased by more than 20%. In addition, in order to avoid the risk of fund chain breakage and influencing factors in financial management. With the support of artificial intelligence platforms, enterprises have utilized IoT technology to monitor the real-time status of supply chain operations and achieve automated management of the supply chain. For example, in the sales and supply

chain of sensor products, automated supply chain management technology is linked with warehouse management, with AI guiding robots to complete product sorting work. At the same time, the transportation route and delivery time of the product have been planned. This practical application effect can assist enterprises in more accurately positioning the timing of product launch in the market. Seize market opportunities and improve operational efficiency. The data statistics show that after the introduction of artificial intelligence platforms, the launch cycle of new products has been shortened by nearly 30%, and the turnover rate of accounts receivable in high-tech enterprises has also increased to over 20%. This means that both market and financial risks have been effectively avoided.

4.3 Fully Utilize Data Encryption Technology to Enhance the Compliance of Enterprise Management

For the operation and management of high-tech enterprises, ensuring security and maintaining stability is also a very important requirement. The comprehensive integration of artificial intelligence and enterprise risk management can further improve the quality of data statistics and transmission by introducing data encryption technology. In addition, some technology research and development projects have relatively higher requirements for the confidentiality of basic data, which requires the support of artificial intelligence technology to solve related risks. In this study, enterprises introduced encryption and access control technologies at various stages of data transmission to encrypt and store sensitive data. During transmission, a secure transmission protocol was introduced. At the same time, a data access control mechanism has been established, and targeted access permissions have been set for different user roles. A dedicated data security audit process has also been established to evaluate the effectiveness and compliance of data protection measures. Through the application of a series of advanced technologies. Improved the level of data protection for enterprises, ensuring compliance in multiple aspects such as business management and tax planning. At the same time, it also provides effective protection for corporate assets. It can be seen that data encryption technology is an important auxiliary technology introduced and applied in artificial intelligence platforms, and should be applied in enterprises.

5. Conclusion

Comprehensive analysis shows that in the context of big data, artificial intelligence, as a platform supported by advanced technology, can be integrated with the risk management of high-tech enterprises. With the progressiveness technology and the flexibility of technical support, it can effectively manage and control various risks of enterprises, and effectively predict the risks that have not occurred. For high-tech enterprises, this can not only help them to promote project research and development and product updates with more concentrated and effective financial resources, but also facilitate the security protection of key data, ensuring that all aspects of enterprise management can have accurate and reliable data to support steady progress.

References

[1] Zhu Yajun Research on the Application of Financial Informatization in Enterprise Risk Management [J] Financial and Accounting Studies, 2024 (26): 23-25.

[2] Wang Yan, Zhong Xiaotong, Zhu Xinyi Research on Enterprise Financial Management from the Perspective of Artificial Intelligence and Big Data Technology [J] East China Science and Technology, 2024 (03): 74-76.

[3] Du Chuanzhong, Cao Xiaoxi, Liu Shutong Artificial Intelligence and Competitiveness of High tech Enterprises: Mechanisms and Effects [J] Business Economics and Management, 2024 (02): 30-49.

