

Research on the Mechanism and Efficiency Enhancement of Enterprise Management Decision making Empowered by Artificial Intelligence

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ABSTRACT

As a strategic technology leading the new round of technological revolution and industrial transformation, artificial intelligence empowering enterprise management decisions helps break the predicament of reliance on experience and adapt to the dynamic market environment. Artificial intelligence empowers enterprise management decisions through data intelligence insight mechanisms, dynamic risk early warning mechanisms, and intelligent collaborative decision-making mechanisms. On this basis, it is proposed to build an all-domain data governance system to consolidate the data foundation for management and decision-making. Build a human-machine collaborative decision-making model to enhance the efficiency of management decision execution; Establishing a mechanism for cultivating compound talents and strengthening the efficiency improvement path of intellectual support for management decision-making is of great theoretical and practical significance for breaking through management bottlenecks and building a data-driven decision-making system.

KEYWORDS

Artificial intelligence; Enterprise management decision making; Data-centric; Enterprise operation

1 Introduction

Enterprise management decision-making is a dynamic process in which enterprise managers, in order to achieve strategic goals, analyze and judge core issues such as business operations and resource allocation based on internal and external information, and formulate action plans ^[1]. However, in the current context of increasingly fierce market competition and growing uncertainties in both internal and external environments, enterprise management decisions are confronted with multiple challenges such as massive and complex data, compressed decision-making cycles, and diverse decision-making dimensions ^[2], making it difficult to meet the demands of enterprise development in the new era. Theoretically speaking, artificial intelligence, with its capabilities of data perception, intelligent analysis and autonomous learning, can break through the limitations of human cognition and computing, achieve precise modeling, dynamic prediction and global optimization of complex problems, and provide full-chain support from data insight to execution feedback for enterprise management decisions. Against this backdrop, exploring the internal mechanism of artificial intelligence empowering enterprise management decisions and clarifying the realization path of its efficiency improvement is of great theoretical and practical significance for enterprises to break through management bottlenecks and build a data-driven decision-making system.

2 The Value Implications of Artificial Intelligence Empowering Enterprise Management Decisions

2.1 Enhance the Scientific Nature of Decision Making and Break through the Predicament of Reliance on Experience

Traditional enterprise management decisions mostly rely on the personal experience and subjective judgment of managers. Affected by factors such as cognitive limitations and information asymmetry, decision-making deviations are prone to occur ^[3]. The machine learning, deep learning and natural language processing features of artificial intelligence enable it to automatically learn patterns and discover tacit knowledge from structured and unstructured data, transforming vague empirical perception into clear quantitative indicators and probability predictions, significantly enhancing the objectivity and scientific nature of enterprise management decisions.

2.2 Enhance Organizational Adaptability and Adapt to the Dynamic Market Environment

The current market environment is characterized by dynamism, complexity and increased uncertainty. The response speed of enterprises to market changes directly determines their competitive advantages. The management decision-making system empowered by artificial intelligence has the ability to process real-time data and make dynamic adjustments. It can quickly capture external signals such as changes in market demand, industry competition trends, and macro policy adjustments, and promptly convert them into the basis for decision-making adjustments, enhancing the organization's adaptability.

3 The Mechanism by which Artificial Intelligence Empowers Enterprise Management Decision Making

3.1 Data Intelligence Insight Mechanism

Artificial intelligence, through full-chain data processing and intelligent analysis, builds a decision support system of "data input - model operation - insight output", promoting the transformation of decision-making towards precise prediction. On the one hand, multi-source data integration and cleaning. Artificial intelligence, through distributed web crawlers, API interfaces and other tools, converts unstructured data into analytically structured information by means of natural language processing, image recognition and other technologies. At the same time, it automatically cleans repetitive and incorrect data to ensure data quality, laying a comprehensive and reliable data foundation for enterprise management decisions and avoiding decision-making deviations caused by one-sided or incorrect information. On the other hand, intelligent model construction and operation. Based on the integrated data, artificial intelligence uses algorithms such as machine learning and deep learning to build predictive models, accurately identifying implicit correlations and trend patterns in the data, significantly enhancing the scientific and forward-looking nature of enterprise management decisions.

3.2 Dynamic Risk Early Warning Mechanism

Firstly, artificial intelligence identifies potential risk factors such as market risk, credit risk, and operational risk through text mining, web crawlers, and other methods, and labels each risk factor, providing standardized analytical dimensions for subsequent risk monitoring and assessment. Secondly, artificial intelligence conducts 24-hour real-time monitoring of risk factors through a preset "risk threshold model". When a certain factor exceeds the threshold, the system automatically sends a warning to the manager via email, text message and other means, and initiates the corresponding predefined response process based on the risk level, providing a guarantee for enterprise management decisions. Finally, based on a historical risk case library and algorithm models, artificial intelligence provides response suggestions for early warning events, generating decision-making reference plans that include potential impacts, handling steps, and expected effects, helping managers make quick decisions.

3.3 Intelligent Collaborative Decision Making Mechanism

Firstly, artificial intelligence integrates the core business data of departments such as R&D, production, and sales through a data middle platform, breaking down system barriers and data silos, achieving a collaborative foundation of data storage in one place and global sharing, and ensuring the consistency of decision-making basis for all departments. Secondly, based on the strategic goals of enterprises, artificial intelligence uses the goal management model to break them down into sub-goals of each department, and verifies the consistency among sub-goals through multi-objective collaborative optimization algorithms to ensure that the management decisions of the enterprise are consistent with the overall situation. Thirdly, by building a human-machine integrated collaborative decision-making platform, artificial intelligence can automatically simulate and predict the comprehensive impact of different departmental decision combinations on the overall goal, and recommend the overall optimal collaborative plan, thereby enhancing the overall efficiency of enterprise management decisions and the ability to implement strategies.

4 The Path of Empowering Enterprise Management Decision-making Efficiency with Artificial Intelligence

4.1 Build a Comprehensive Data Governance System to Consolidate the Data Foundation for Management and Decision Making

First, unify the data standards. Enterprises should establish a dedicated data governance committee to coordinate the

data management work of all departments, formulate unified data standards and norms, and clearly define the definitions, collection standards, storage formats and usage rules of various types of data to ensure that data from different departments can be interconnected, integrated and shared, providing comprehensive and complete data sources for artificial intelligence models. Secondly, upgrade data governance technologies. Enterprises should build intelligent data governance models to enhance the efficiency and quality of data processing, and establish a data quality assessment system. They should regularly test and evaluate data quality, form data quality reports, and promptly rectify existing problems to effectively improve the efficiency of enterprise management and decision-making.

4.2 Build a Human Machine Collaborative Decision Making Model to Enhance the Efficiency of Management Decision Execution

The human-machine collaborative decision-making model is the core for enhancing the efficiency of enterprise management decisions. On the one hand, clarify the boundaries of human-machine decision-making. Enterprises should rationally divide the decision-making authority between artificial intelligence and human managers based on the complexity, importance and risk level of decision-making tasks, so as to achieve human-machine collaboration and complementary advantages. For repetitive and transactional decision-making tasks, they can be entrusted to artificial intelligence models for autonomous decision-making to enhance decision-making efficiency. For decision-making tasks involving major strategies and high risks, human managers should take the lead, with artificial intelligence models providing auxiliary analysis and suggestions to ensure the orderly and efficient decision-making process. On the other hand, establish a closed loop of decision-making feedback. Enterprises should establish a decision-making effect evaluation system to track and assess the results of intelligent decision-making in real time, collect feedback from managers and business departments, and form a decision-making feedback closed loop. Based on the assessment results and feedback, adjust and optimize the parameters and algorithms of the artificial intelligence model in a timely manner to enhance the decision-making accuracy and applicability of the model.

4.3 Establish a Mechanism for Cultivating Compound Talents and Strengthen Intellectual Support for Management Decisions

First, intensify efforts to attract external talents. Enterprises should formulate competitive talent introduction policies, recruit compound talents with both artificial intelligence technology and enterprise management experience from the market, and focus on introducing key position talents such as data scientists, AI algorithm engineers, and intelligent decision-making advisors to strengthen the enterprise's intelligent decision-making team and quickly fill the "time gap" in internal talent cultivation. Provide mature technical and management experience support for empowering enterprise management decisions with artificial intelligence. Second, establish a long-term mechanism for talent cultivation. Enterprises should establish in-depth cooperative relationships with universities and research institutions to jointly cultivate compound talents. Through measures such as jointly building laboratories, running schools, and establishing internship bases, they can achieve precise matching between talent cultivation and enterprise decision-making needs, effectively enhancing the efficiency of enterprise management and decision-making.

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References

- [1] Qin Xiaoli. The Impact of the Big Data Era on Enterprise Management Decisions [J]. Finance and Accounting, 2016, (20) : 75-76.
- [2] Zhu Zhenzhen. Analysis of the Impact of Big Data on Enterprise Management Decisions [J]. Modern Business Research, 2025, (17) : 151-153.
- [3] Bai Yantao. Digital Transformation of Small and Medium-sized Enterprises during the "15th Five-Year Plan" Period: Strategic Opportunities and Realization Paths [J] Price Theory and Practice, 2025, (10) : 22-27+271.