Research on the Transformation of Business Management Decision-making Mode Driven by Artificial Intelligence

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Abstract: *Artificial intelligence technology is an important symbol of technological progress. Business management decisions are fundamental to the survival of enterprises. In the traditional mode, business management decisions are the crystallization of the wisdom of managers, but the effectiveness of traditional business management decisions depends on the judgment of decision-makers. The era of big data has led to a rapid growth in public information, and the deep integration of artificial intelligence is gradually changing traditional business management models, bringing unprecedented opportunities and challenges to enterprises. This article aims to explore in depth the current application status and advantages of artificial intelligence in business management decision-making, provide theoretical support and practical guidance for management practice, and promote enterprises to better utilize artificial intelligence technology to enhance their management level and competitiveness.*

Keywords: Artificial intelligence, Business management decision-making, Enterprise management.

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1. Introduction

The digital era is an era of opportunities and challenges. The progress of information technology and the extensive use of Internet technology play an important role in promoting the development of social science and technology. The progress of society is no longer driven by capital, but rather by digitization. The current digital technology is capable of independently handling some procedural issues, and with the increasing humanization of digital technology, the era of artificial intelligence has also emerged. The introduction of artificial intelligence means that business management decisions in enterprises no longer rely solely on subjective judgments of managers, but instead shift towards more rational, accurate, and data-driven decision-making. With the application of comprehensive artificial intelligence to enterprise business management decision-making. Enterprises are able to more accurately grasp social development trends during the process of change, collect market data more quickly, and have a more accurate understanding of publicly available information from competing companies. In the long run, enterprises should strengthen their exploration of artificial intelligence in the process of business management decision-making, and effectively apply it to enterprise management activities. Starting from reality, improving the application of artificial intelligence in enterprise management decision-making is an important strategy for future enterprise development and a decisive point for enterprises to gain market advantages in the future.

2. Theoretical basis for the Transformation of Business Management Decision-making Mode Driven by Artificial Intelligence

2.1 Historical Evolution of Business Management Decision-making Models

The development of business management decision-making can be traced back to ancient primitive society and has been constantly changing with the development of the times. In primitive societies, humans demonstrated the embryonic form of planning in hunting activities in order to survive and reproduce, such as organized division of

labor and cooperation, which can be seen as the initial form of business decision-making models. In the Spring and Autumn Period and the Warring States Period, planning ushered in a golden age, with numerous strategists and strategists active on the political and military stage. They relied on their keen insight and outstanding strategies to provide advice and strategies for the feudal lords. The planning concepts of this period have had a profound impact on future military and commercial planning. For example, the strategic thinking in Sun Tzu's "The Art of War" not only guides countless wars, but is also widely applied in future business decisions. As China gradually entered a feudal society, the inertia of social thinking was influenced by traditional culture, which slowed down the speed of role development. However, there were also excellent management decision-making cases, such as Liu Bei's strategic plan to divide the world into three parts; Li Shimin's "Xuanwu Gate Incident" and other historical events reflect the ancient people's superb management decision-making wisdom and strategic use. During the period of the New Democratic Revolution, the strategic decision-making ability demonstrated by the pioneers of the Chinese revolution laid a solid foundation for the victory of the Liberation War and provided valuable reference for future business decisions. With the arrival of the Industrial Revolution, the mode of production underwent tremendous changes, machine production gradually replaced manual production, and assembly line operations began to emerge, greatly improving production efficiency. During this period, the business decision-making model began to focus on production efficiency, cost control, and market expansion. For example, the vertical integration model adopted by Ford Motor Company is based on business model innovation in the production process.

The main influencing factors of the above business management decisions are leaders, and the judgment and decision-making power of leaders have played a major role in past business management decisions. With the popularization of the Internet and the development of science and technology, digital planning has opened a new decision-making mode based on big data, artificial intelligence, cloud computing and other advanced technologies. In terms of data collection, it is possible to collect massive market data through various digital platforms; Through digital channels such as social media, search engines, and video platforms, information can be quickly disseminated and widely covered in communication channels; In decision-making, monitor the effectiveness of planned activities in real-time through data analysis and adjust strategies in a timely manner. This data-driven and technology supported decision-making model greatly improves the scientificity and efficiency of decision-making. The modern organizational structure of enterprises is developing towards networking, flattening, virtualization, and decentralization, which has also had a profound impact on business decision-making models. For example, organizational virtualization breaks down the boundaries between business departments, allowing enterprises to handle a variety of transactions flexibly; At the same time, networked organizational methods are formed among enterprises to enhance competitiveness through resource sharing and collaborative cooperation.

The evolution history of business decision-making models is a process of constantly adapting to changes in the times and constantly innovating and developing. From the simple division of labor in primitive society to the strategic planning in feudal society, to the production efficiency and market expansion after the Industrial Revolution, as well as the data-driven and technological support in the digital age, each stage has its unique decision-making mode and wisdom crystallization.

2.2 Development of Artificial Intelligence Technology and Its Application Status in Business Management Decision Making

2.2.1 Development of Artificial Intelligence Technology

Artificial intelligence is the hottest topic in modern society, and people have both expectations and concerns about it. Throughout the development of artificial intelligence technology, the logic of big models has shifted from "retraining" to "heavy inference". Technicians have significantly improved the inference efficiency of models by enhancing their learning and knowledge distillation techniques. At the same time, multimodal technology in artificial intelligence has rapidly developed, making the content generated by AI more rich and diverse, such as text generated images, text generated videos, and other functions. Modal technology greatly expands the application scenarios of AI. In addition, the innovation of the Mixed Expert Model Architecture (MoE) enables the model to accurately handle professional domain problems while maintaining broad knowledge, achieving a balance between efficiency and professionalism.

With the continuous maturity of technology, the implementation path of General Artificial Intelligence (AGI) is becoming increasingly clear. Experts predict that AGI may be achieved in the next few years, and the development of AGI technology may become the next stage goal of artificial intelligence development. The rise of AI agents

has also attracted attention from all walks of life. AI agents can not only learn, create software for action and execution, but also bring disruptive changes to public life. In terms of business, AI agents are gradually taking over core links such as enterprise human resources and supply chain management, promoting the comprehensive transformation of the Software as a Service (SaaS) ecosystem.

In practical applications, artificial intelligence is being deeply utilized in various industries, gradually transforming from a tool to a 'digital workforce'. In the fields of industry and manufacturing, AI has penetrated from research and development design to production and manufacturing processes. In frontline manufacturing, artificial intelligence has been able to optimize process flows and improve energy efficiency, and the mass production of humanoid robots has accelerated the implementation of intelligent manufacturing. In the field of healthcare, the application of AI continues to deepen, including early disease diagnosis, medical image analysis, and health management, significantly improving diagnostic accuracy and efficiency. In addition, in modern society, AI plays an important role in fields such as financial technology, smart cities and transportation, education, and content creation.

The scale of the artificial intelligence market continues to expand, and competition is becoming increasingly fierce. Giant companies accelerate market concentration through price wars, while startups face financial and technological barriers. These difficulties have not hindered the sustained popularity of the artificial intelligence field in the capital market. The scale and share of artificial intelligence ETFs have both reached new highs, demonstrating strong market confidence in artificial intelligence. However, the development of artificial intelligence technology has also brought many challenges. The high cost of computing power, increased risks to data privacy, and tightening regulatory policies worldwide are urgent issues that need to be addressed. Therefore, while pursuing technological innovation, enterprises also need to pay more attention to data compliance and ethical issues to ensure the sustainable development of artificial intelligence.

2.2.2 The current application status of artificial intelligence technology in business management decision-making mode

Artificial intelligence technology has played a very important role in modern business management decision-making models.

Firstly, digitalization has driven the business management decision-making of modern enterprises. In the era of digital economy, big data and artificial intelligence (AI) technology have developed into the core infrastructure of business management decision-making systems. According to the latest report from IDC, global enterprises are expected to invest over $500 billion in AI and big data analytic by 2025, with value creation mainly reflected in three dimensions: data assetization processing, intelligent algorithm empowerment, and decision system upgrades. Real time processing of EB level data is achieved through distributed computing frameworks such as Hadoop/Spark, combined with knowledge graph technology to build an enterprise data platform, making it possible to integrate and analyze structured and unstructured data. The practice of a certain retail giant shows that its data preprocessing efficiency is 17 times higher than traditional methods. This technology empowers traditional "experience driven" decision-making models to be replaced by "data-driven" ones: predictive analysis reduces decision lead time from weekly to hourly levels, risk identification models can warn of over 80% of operational anomalies, and automated decision-making systems can handle 70% of routine management matters. According to McKinsey research, companies that fully utilize digital technology for business management decision-making have a 58% increase in decision-making efficiency and a 23% reduction in operating costs. In the future, with the development of a large number of privacy computing technologies, the value of data will be more securely released. This development trend will continue to drive the evolution of enterprise operation models towards intelligence and precision.

Secondly, intelligent business process optimization. With the continuous development of artificial intelligence technology, its training mechanisms and algorithms have been able to deeply study human behavior habits and thinking patterns. By providing a large amount of human data to the system and conducting detailed analysis, the program is able to mimic human behavior, thereby achieving automation and intelligence in business process processing. In the process of business management decision-making, the application of artificial intelligence technology can achieve key links such as automated office, intelligent customer service, and intelligent risk assessment. Through the organic combination of artificial intelligence algorithms and big data platforms, enterprises can more accurately understand market demand in business management decisions and conduct training and evaluation of data models. When dealing with these massive tasks, the integration of artificial

intelligence can not only reduce fault tolerance, but also significantly improve work efficiency. Artificial intelligence systems can calculate and warn of decision-making risks through a pre-set risk value rating system. By warning and reducing expected risks, business management decisions can be made to develop more market friendly and less risky solutions. At the same time, artificial intelligence can also develop contingency plans in advance for potential risks, thereby reducing operational costs, increasing sales, and enhancing customer satisfaction. These advantages provide a solid guarantee for the overall development of the enterprise and the sustainability of its vitality.

Thirdly, the introduction of artificial intelligence technology has brought consumers a more humane and personalized service experience. In the modern business environment, consumers are the core of business operations, and their needs and preferences are essential reference indicators in the decision-making process of business management. Through the integration of artificial intelligence technology, management can have a more thorough and profound understanding of consumers, and achieve detailed segmentation of consumer groups. Enterprises can provide more targeted, humanized, and personalized services for consumers of different levels and needs. The improvement of this service can not only significantly enhance the profitability of enterprises, but also effectively enhance brand influence and strengthen the stickiness between enterprises and consumers. For enterprise R&D departments, the application of artificial intelligence technology enables them to design new products that are more in line with the trend of the times based on the results analyzed by big data and artificial intelligence. For example, many young brands currently use big data analysis to understand which IP images are more favored by young consumers, and then develop co branded products that match these IP images. This strategy not only promotes the product's own popularity, but also maintains the brand's sustained popularity in the market. Through this approach, companies not only capture the specific preferences of young consumers, but also greatly enhance the customer experience. This AI based business management decision-making ability not only brings higher profits and occupies more market share to enterprises, but also significantly increases consumer awareness of the brand, thereby enhancing brand awareness and customer loyalty.

3. The Advantages of Artificial Intelligence Technology Driven in Business Management Decision-making Models

3.1 Improve the Accuracy of Management Decisions

In today's era, artificial intelligence technology has developed to a very high level. It can quickly locate and extract the information required by users from the vast amount of data on the Internet according to the keywords entered by users. Moreover, artificial intelligence can perform in-depth processing and analysis on this data, providing users with richer and more accurate information support. Compared to the past approach of relying on personal experience and intuition for business management decisions, data-driven artificial intelligence decision-making processes are more evidence-based, scientific, and objective. The data processed by artificial intelligence covers all types of data in the field of big data, including structured and unstructured data. For example, on social media platforms, artificial intelligence can collect and analyze user comments, feedback images, and other information about products; On third-party retail platforms, it can track product sales data and customer satisfaction evaluations; In the production process, it can integrate various production information; In logistics outsourcing services, it can monitor inventory information and logistics dynamics. The collection and analysis of these data greatly help managers to objectively, quickly, and accurately grasp the internal and external operational environment of the enterprise. Through this information, managers can quickly obtain first-hand information about the current market situation and customer preferences. The analysis results of these data enable enterprise managers to more accurately identify the areas that need improvement and optimization when making business management decisions. Enterprise managers can quickly start from both product development and marketing strategies, and more accurately formulate future development strategies and business decisions for the enterprise. This decision-making process helps to enhance the market appeal of the product, ensure that it can maintain a certain market share in a fiercely competitive market, maintain the brand's sustained exposure, and ultimately achieve growth in the company's sales performance.

3.2 Improved the Efficiency of Business Management Decision-making

In traditional business decision-making models, the core elements are human participation and judgment. In order to make effective business management decisions, enterprises usually rely on human resources to conduct detailed investigations, organization, and summarization of various business data, market share, talent distribution, and other key information. However, this labor-intensive statistical approach has obvious limitations, such as lag and

inaccuracy in data processing. Due to the lengthy investigation and analysis process, inaccurate data may increase the difficulty of business management decisions, thereby affecting the accuracy and efficiency of decision-making. In addition, this traditional approach may also miss out on market opportunities due to the lack of timely updates of information.

With the introduction and application of artificial intelligence technology, the decision-making process of business management has undergone revolutionary changes. The storage and processing of data are no longer limited to traditional physical space and time constraints, but have been greatly expanded through cloud technology, which not only increases the storage time and space of data, but also improves the efficiency of data processing. Artificial intelligence technology can actively conduct statistical analysis, quickly and accurately mining the value and trends behind business data. This enables companies to more accurately grasp consumer preferences, marketing departments to quickly develop marketing plans that meet market demand, and research and development departments to utilize existing resources to launch new products that meet market expectations.

The application of artificial intelligence technology effectively breaks the traditional lengthy human investigation and analysis process, quickly captures demand data through advanced data

Research On the Transformation of business management decision-making mode driven by artificial intelligence technology, and responds quickly to market changes to analyze valuable results. This process greatly shortens the time for business management decision-making, enabling enterprises to respond to market changes in a timely manner and quickly seize market opportunities. In the increasingly competitive market environment, the ability to quickly capture the market often determines the vitality and market influence of a company. The introduction of artificial intelligence technology provides solid data support for business management decision-making, and can also summarize experience and explore patterns from a large number of business management decision-making practices. Through continuous learning and optimization, artificial intelligence technology can train decision models suitable for specific enterprises, thereby significantly improving the quality and efficiency of business management decisions at the technical level.

3.3 Enhance the Innovative Capability of Business Management Decision-making

With the deep integration of artificial intelligence technology and business management decision-making, artificial intelligence provides new ideas and opportunities for enterprise development. This transformative impact on business management decision-making not only effectively enhances the core competitiveness of enterprises, but also enables them to gain a foothold in the fierce market competition. The decision-making mode of business management affects all aspects of the enterprise. From a market perspective, the integration of artificial intelligence with business management decision-making can enable managers to quickly grasp consumer psychology, behavior habits, and preferences. By gaining a deep understanding of all consumer information, enterprises can quickly target their customer groups and stratify them accordingly. Marketing can be targeted towards customers at the same level, providing more humane and targeted services to users at different levels, thereby increasing customer loyalty. From a product perspective, artificial intelligence is driving the strategy of business management decision-making. Artificial intelligence can not only help management understand consumers, but also enable enterprise management to have a better understanding of competing companies. Artificial intelligence analyzes the situation of competitors, helps management understand the company's competitors, and identifies their strengths and weaknesses. It assists the company in developing more targeted and accurate product strategies, enhancing its competitiveness and product innovation. With precise business management decisions, it drives the company's further development.

4. Conclusion

The development of artificial intelligence is driving changes in business management decision-making models, and AI driven business management decision-making models have become an important means for enterprises to enhance their core competitiveness. In the digital and intelligent age of information explosion, only by effectively and correctly utilizing artificial intelligence can we enhance the productivity of enterprises, target customers, develop innovative products, and bring more possibilities to the future development of enterprises due to the integration of artificial intelligence technology. The business management decision-making mode of enterprises should also keep up with technological development, so that artificial intelligence technology can play a more important role in business management decision-making, reflect more value, and promote the healthy and sustainable development of enterprises and markets in the future.

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