

Research on the Impact of Artificial Intelligence on Enterprise Production Management

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Abstract: This study investigates the application of Artificial Intelligence (AI) in business management, assessing its contributions to decision-making, operational efficiency, and customer service. It highlights both the opportunities and challenges presented by AI, with an analysis of case studies from companies such as Airbnb and Nordstrom to illustrate AI's influence on business processes and innovation. The research concludes that AI confers substantial benefits, including cost savings and data-informed decision-making, while also identifying critical issues such as labor market disruptions and data security that necessitate attention. The adoption of AI is contingent upon a company's size and resources, necessitating bespoke strategies for both large enterprises and small and medium-sized enterprises (SMEs).

Keywords: Innovation, Application , Applicability, Influence, Efficiency

1. Introduction

Artificial intelligence (AI) is pivotal in driving social progress and industrial transformation. Yao Jialong's study delves into how "AI+finance" propels management innovation in enterprises, underscoring AI's role in business modernization [1]. As AI applications extend from automation to sophisticated decision support, its integration into management practices remains underexploited, often due to a lack of awareness. This oversight hampers improvements in efficiency, innovation, and competitiveness, underscoring the critical need to examine AI's application and impact in business management for fostering innovation. This research explores the role and impact of artificial intelligence (AI) technology in business management, focusing on three core questions: how AI technology affects the decision-making process, operational efficiency and customer service of enterprises; To analyze the challenges and risks that may be brought about by AI technology while improving the efficiency and effectiveness of enterprise management; Assess the general applicability of AI technologies, and explore how businesses of different sizes and types can decide whether to adopt AI technologies based on their needs and resources. Through these studies, this study provides insights for business managers on making more informed choices in their digital transformation. This study uses the case analysis research method. This study provides a reference for companies in other different industries to reduce costs and improve efficiency.

2. An overview of AI technologies

Artificial Intelligence, a branch of technical science, aims to simulate intelligent human behavior, and covers key competencies such as learning, reasoning, self-correction, perception, language understanding, and problem solving. The goal of AI is to create intelligent machines and systems capable of performing tasks that would normally require human intelligence. Development in this field relies on a variety of algorithms and models, including machine learning, deep learning, natural language processing and cognitive computing, among others, which together form the technical basis of AI.

The application of AI in the enterprise sector holds immense potential, offering numerous opportunities for innovation and efficiency. For example, Zhou Tiao provides a detailed analysis of the integrated development trend and problems of enterprise management in the era of artificial intelligence, providing a valuable perspective for understanding the application of AI technology in enterprises [2].

3. Enterprise efficiency

Artificial intelligence (AI) technology optimizes business processes and increases work efficiency in numerous ways. In automated process management, AI has greatly promoted the automation of business processes, ranging from customer service and procurement management to financial accounting. AI-powered systems can replace many manual operations, reducing labor costs and minimizing the risk of human error. For example, intelligent customer service can handle more than 80% of customer queries without human intervention, streamlining operations and enhancing efficiency. In predictive analysis and decision support, AI can accurately predict market demand through deep learning algorithms, supply chain flow, customer behavior, etc., helping enterprises to plan ahead when making decisions. For example, in supply chain management, AI can predict inventory demand and logistics delays, allowing enterprises to adjust production plans in advance and avoid unnecessary losses.

4. Enterprises innovation

Artificial intelligence (AI), as the driving force of enterprise innovation, is playing an increasingly prominent role in product and service innovation, market forecasting, and product development.

4.1. Product and service innovation

AI technology helps companies identify potential business opportunities and market trends through data analysis and prediction. For example, the smart home industry has promoted the autonomous decision-making ability of products, providing more proactive services by integrating cloud computing, edge computing and AI technologies. Research by Chen Pingping, for example, focuses on the practical analysis of the transformation of corporate financial accounting to management accounting in the era of artificial intelligence, which provides us with practical application cases of AI technology in promoting corporate innovation [3]. Similarly, Tang Yishu and Sun Haocheng explore the optimization path of enterprise management in the context of artificial intelligence, and these studies provided us with empirical support for AI technology in promoting enterprise innovation [4].

4.2. Case Study: AI in Enterprise Management

Successful cases highlight AI's potential in enterprise management. For example, Digital Mafengli's AI cloud customer service project supports enterprises to flexibly and efficiently solve online

customer service needs through man-machine integration, and Huawei's intelligent assistant Xiaoyi realizes the seamless flow of services between different devices through Hongmeng native intelligent technology, providing users with unprecedented interactive experience. Therefore, the widespread use of AI technology provides customers with an excellent experience while reducing enterprise personnel costs, which is conducive to enterprise profit retention and further market share.

5. The impact of AI on the progress of enterprise management

5.1. The advantage of AI

The benefits of artificial intelligence (AI) in business management are mainly reflected in enhancing management decisions quality, reducing costs, and enabling data-driven decisions. For example, in analyzing the advantages and disadvantages of AI technology, Li Linhua's study provides an in-depth discussion on the management transformation of technology enterprises in the era of artificial intelligence, offering an in-depth analysis of the challenges and opportunities that AI technology may bring to business management [5]. Through data analysis, machine learning, natural language processing and other technologies, AI can provide accurate, comprehensive and timely data support and insight for enterprise managers. Such research highlights how AI can elevate managerial processes by delivering data-supported insights and optimizing operations.

5.2. The disadvantage of AI

Despite the many benefits AI offers businesses, there are also some challenges and risks. First, the application of AI technology has changed the demand structure of labor skills, increasing the demand for high-skilled labor, while low-skilled labor may face greater employment pressure.

In terms of data security and privacy protection, the efficiency of AI relies on the collection and analysis of large amounts of personal data, raising privacy concerns while improving service quality. The implementation of AI comes with high dependency on the technology and significant costs associated with updates and maintenance, which can pose challenges for enterprises.

6. Analysis of enterprise needs for AI

6.1. The applicability of AI

The suitability of artificial intelligence technology (AI) varies by industry and business size. Yidiao Wang's study, however, delves into the impact of AI on the decision-making process of business managers, providing valuable insights into assessing the need for different types of enterprises to adopt AI technology [6]. At the technical level, the availability of resources and the existing technological landscape are critical factors influencing AI adoption. Large enterprises, those with cutting-edge human resource management and good performance are more willing to adopt AI.

6.2. Differences in business management

Differences in management style, culture, and strategy significantly affect the adoption and application of AI technologies. The degree to which managers of enterprises are aware of and prepared for AI largely determines the effectiveness of "AI +" actions in promoting high-quality development. AI is not a standalone technology, it encompasses many different technologies and algorithms tailored to specific business needs. Enterprises must carefully evaluate their unique requirements and choose appropriate AI solutions that align with their operational goals.

7. Conclusion

This study demonstrates that artificial intelligence (AI) has had a transformative impact on business management. By optimizing decision-making processes, AI technology has significantly improved the quality of business management, enhanced operational efficiency, and improved customer service. It enables companies to make data-driven decisions, accurately predict market trends and consumer behavior. However, the application of AI technology also brings challenges, including employment issues, data security and privacy protection. These challenges require enterprises to take a thorough consideration and formulate corresponding strategies when adopting AI technology.

In the digital age, the adoption of AI technology is becoming increasingly crucial for businesses. AI technology enables enterprises to improve competitiveness, reduce costs, enhance innovation capabilities, and better adapt to market changes. As a powerful tool, it helps organizations improve efficiency, mitigate risks, and maintain a competitive edge in dynamic markets. For large enterprises, the focus should be on leveraging their resources and scale to invest in AI research, development, and implementation, especially in data analysis and automated processes. Additionally, attention should be paid to the potential changes in organizational structure and employee skills brought by AI technology, and training and adjustment should be made accordingly.

For small and medium enterprises (SMEs), overcoming financial and technical barriers is crucial. SMEs are encouraged to utilize cloud services and AI platforms to intelligitize business processes at a lower cost through partnerships or outsourcing.

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