

The Impact of Artificial Intelligence Technology on Business Models

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Abstract

In recent years, the wave of economic globalisation has swept the world, digitisation is increasing and the development of artificial intelligence technology has entered a whole new phase. This development has had a significant impact on various industries and has led to changes in business models as the technology is widely used in the economy. This paper examines the impact of artificial intelligence on business models, explores the transformation of traditional business models in the era of artificial intelligence, analyses the impact of the application of artificial intelligence technology on business models, and puts forward new suggestions for the construction of business models to ultimately promote the sustainable and healthy development of the economy.

Keywords

AI; Business Models; Impact; Strategy.

1. Introduction

In the 19th National Congress, China proposed to "promote the deep integration of the Internet, big data, artificial intelligence and the real economy". In particular, as the focus of China's economic development has shifted to a stage of high-quality development, the pursuit of high-quality economic and social development has become a new goal. As a microscopic subject of market economic development, the business model of enterprises has an important impact on promoting the transformation of the economic development mode. Therefore, the development of China's macro economy must be implemented into the micro level of enterprise management. The current international situation is severe, the competition is fierce, the external environment for enterprise development is full of opportunities and uncertain risks, and artificial intelligence as an important strategic technology for modern economic development has brought about a radical change in all areas of society. In the economic sphere, its digital and information-based intelligent applications offer new and effective ways for companies to innovate and develop. Based on this theoretical knowledge and practical background, this paper will further analyse the development overview of the traditional business management model in China, and analyse the changes in the traditional model of enterprises under the use of modern artificial intelligence technology, so as to provide development countermeasures for enterprise management personnel, which is of great theoretical and practical significance in enhancing the core competitiveness of Chinese enterprises and promoting the high-quality and rapid development of the socialist national economy.

2. Background and Current Development of AI

Artificial Intelligence is a new techno-scientific approach to exploring, developing and using systems to imitate, perpetuate and extend the underlying theories, methods, skills and applications of human intelligence. It uses sophisticated technology to replace the human brain in analysis, decision-making and the use of technology.

2.1. The Evolution of AI

In the 1950s, the world's first neural network computer was created by two fourth-year college students, Marvin Minsky (the "father of the new generation of artificial intelligence") and Dunn Edmund, who also created the doctrine of the new generation of artificial intelligence architecture, and Marvin and J. McCarthy, who collaborated on the "Dartmouth Conference" in 1956. The Dartmouth Conference, where the concept of a new generation of artificial intelligence was explicitly proposed, led to the creation of a new generation of artificially intelligent computers, for which he was awarded the Turing Award in 1969, and for which he was the first new generation of artificial intelligence scientists to receive the award. At the same time, Alan Turing, known as the 'father of computing', proposed the hypothesis that a machine could be judged to be intelligent if it could talk to a human without being identified as a machine, and ventured to assess the feasibility of a machine becoming truly intelligent.

By the 1970s, however, the development of artificial intelligence had reached a bottleneck. The project was underestimated and underfunded by the US Department of Defense researchers, resulting in its failure. Confidence and enthusiasm in AI research was undermined, other projects were pursued, and there was concern about the future of AI.

Although the AI industry was facing a recession and crisis, the development of truly useful science and technology did not stop when it was hindered by external factors, and as the economy recovered, the AI industry began to grow again in the early 1980s.

Today, over the 70 years of AI development, numerous researchers and technicians have worked hard to break down many of the technical barriers that have plagued the industry for so long, and we have seen many brilliant achievements in AI. Just as Google AlphaGo beat South Korea's Lee Seok-ok in the international Go tournament, it was a milestone symbol of AI's ability to change human stereotypes in some completely new areas, and to surpass humans.

2.2. Current Development of AI

The invention of artificial intelligence algorithms has led the AI industry to develop in a more in-depth direction, while the massive amount of computing data in the era of big data continues to drive breakthroughs in AI technology time and time again.

The world's five largest Internet giants - Apple, Google, Microsoft, Amazon and Facebook - are investing more and more resources to capture the AI market and even transforming into AI-driven companies as a whole, playing on a brand-new future-oriented track of AI. China's internet giants "BAT" has also made AI a key strategy and are actively entering the AI space in search of new development opportunities.

At present, Chinese AI companies tend to diversify and develop in a wide range of fields. Among them, computer vision is particularly popular, with the largest number of start-ups, followed by service robotics, with voice and language processing in third place. Smart healthcare, machine learning and smart driving are also more popular areas relative to other fields. Computer vision technology is one of the most important and core technologies of artificial intelligence, and it is used in a variety of fields such as security, finance, hardware, marketing, driving and medicine. Currently, China is leading the world in computer vision, with widespread applications and rapid development due to its extensive commercialisation channels and technology base.

By extracting information from big data, artificial intelligence technology not only expands the sources of new knowledge, but also accelerates the speed of knowledge dissemination. In the daily operation of enterprises, AI technology is deeply integrated with traditional industries, reshaping the business model of traditional enterprises with its powerful data integration, analysis and prediction capabilities, helping traditional enterprises to transform and upgrade

to digital and intelligent enterprises, and guiding enterprises as micro subjects of the market to open up a new development model of the market economy.

3. AI Drives Innovative Development of Business Models

3.1. The Current Situation of Business Development

3.1.1. Capital Flows to the Virtual Economy and the Real Economy is Short of Funds

According to relevant statistics, the scale of the development of the virtual economy has already exceeded that of the real economy. Especially in 2008~2009, although the economic growth rate reached 130%, the ratio of GDP was only 17% in total, which shows that the development speed of the virtual economy is greatly ahead of the development speed of the real economy, and the development space of the real economy has become smaller under the squeeze of the virtual economy, in this case, the virtual economy absorbs a large amount of funds, making it difficult for the traditional real economy to absorb enough funds for development.

3.1.2. Rapid Development of the Online Economy in the Era of the Epidemic

Due to the ravages of the New Coronavirus, the epidemic continues to impact the development of the real economy. In comparison, the online economy has an absolute advantage in terms of price costs and operating costs. More and more enterprises see the bright future of online sales in the era of big data, and are rapidly occupying market share through live-streaming with goods and other forms, diverting the share of physical sales, and this trend is increasing, and the impact of business operations by big data will continue to expand, and artificial intelligence has become a key means for enterprises to find development paths and improve AI has become a key tool for enterprises to find development paths and improve their competitiveness.

3.2. Deep Integration of Artificial Intelligence and Enterprise Development, and Increased Competitiveness of Enterprises

3.2.1. Promoting Intelligent Production and Saving Operating Costs

With the comprehensive development of AI, the access threshold for enterprises to use AI has been reduced and the difficulty has decreased, and the usage rate of AI has gradually increased and is gradually understood and accepted by most enterprises. Nowadays, many SMEs can also achieve intelligent production by applying a variety of intelligent means. From data collection, process improvement and equipment operation, to the scheduling and distribution of production resources, and finally to the automatic packaging and delivery of products to logistics, all production stages are deeply penetrated by artificial intelligence and manufacturing production technology to create an intelligent factory and improve production and management levels across the board. The application of smart factories reduces the production costs of enterprises, while promoting the production methods of enterprises to intelligent and data. The application of intelligent factories reduces production costs and at the same time promotes the transformation of production methods to intelligent and data-based.

3.2.2. Improving Human Resource Management Capabilities and Changing the Training System

The development of a company cannot be separated from its market share, and there is no doubt that market share requires the introduction of various types of human resources for the continuous development of products. In order to be able to use AI tools proficiently and build a business framework, companies need to recruit many people who are well versed in AI technologies, such as algorithm experts and mathematics experts, and some companies have even included AI as a strategic strategy in their long-term development plans.

In corporate human resource management, many companies have chosen to apply AI's integrated image processing technology, such as face recognition clocking in and out of work

and other new attendance methods. Especially in the epidemic era, cloud punching and cloud conferencing have saved a lot of manpower costs for company operation and management. The use of artificial intelligence not only shared the work of employees, but also saved many fixed expenses in the traditional way of doing business, which also allowed more funds to be focused on product innovation and creation, and to a certain extent promoted product development.

In the recruitment and training of employees, companies can use artificial intelligence algorithms for digital planning, and make comprehensive use of intelligent technology to analyse data on the performance of candidates, set different questions for different candidates, help companies calculate their suitable positions and assess the degree of job suitability. The operation of enterprises is closely linked to the development of artificial intelligence, and the application of artificial intelligence also promotes a paradigm shift in staff training. Employees and machines work together effectively, and artificial intelligence effectively analyses the daily performance of each employee, targeting the training needs of employees, combining the development direction, development characteristics and development goals of different enterprises, different analysis of different problems, making plans one by one, and establishing a training system suitable for The training system for their own situation, to improve the efficiency of action and happiness of employees.

3.2.3. Improving the Customer Experience and Increasing Customer Satisfaction

The use of AI can significantly improve the customer experience, for example by setting up intelligent assistants. In retail, more and more companies are adding voice assistants and online chatbots through AI technology, which not only helps customers to better understand and use the products, but also reduces the workload of back-end staff and improves the efficiency of the back-end of the company. Not only that, but intelligent assistants can also create a more comfortable and fluid user flow, insert operating guidelines for some codeless applications, set up application tools, tailor customer functions and much more.

In terms of marketing, sales staff can fully use AI to understand the needs of target customers, quickly develop personalised marketing plans and interact well with customers, so that sales staff can better follow up on marketing, do a good job of working with users, tailor the right set of features for them and ultimately increase customer satisfaction significantly.

In terms of risk prevention, artificial intelligence is the new network security protection technology. By using artificial intelligence, enterprises can improve their own network security level, which not only promotes enterprises with competitive advantages, but also provides more protection for customers' data, reduces moderate risks, protects customers' most important digital assets, improves the confidentiality of products and makes customers more satisfied with products.

3.3. Artificial Intelligence Drives Financial Intelligence and Improves Operational Efficiency

The use of artificial intelligence can create an intelligent accounting system for enterprises, standardise their accounting system, set up new financial accounting methods and allow business managers to more easily and quickly understand the financial situation and check the progress of their business. In the sales department of the finance department, the traditional branches are huge, things are redundant, the cost of labour is high, the enterprise management is difficult. Through intelligent financial systems to reorganise and integrate the finance department, unified financial budgeting, the formation of a complete financial accounting system, reduce the complexity of things, and even enterprises can use robots to replace the work of some employees, which also reduces the labour costs of enterprises, but also reduce the amount of things in the department, and rationalise the relationship between the various branches of the finance department.

Artificial intelligence can also be applied to the division of accounting accounts, setting up different types of business, making it possible for the finance department to handle business more accurately, as well as improving the accuracy of data and accounting for data more precisely. In addition, through artificial intelligence technology can automatically check whether debits and credits are balanced, and if problems arise will give timely feedback to the system, which can share the work of finance staff and help them to make quicker and more flexible decisions, forming the basis for more timely and accurate financial information and promoting innovation and upgrading of the financial business model of the enterprise.

4. Challenges Faced by Enterprises under the Application of Artificial Intelligence

4.1. Difficulties in Linking Various Departments under the Application, and Increased Communication Costs for Enterprises

Artificial intelligence in production applications, generally each production process is operated separately. Take manufacturing enterprises as an example, the intelligent production system of a product may include intelligent production, intelligent sub-assembly, intelligent logistics, intelligent sales, intelligent storage and other links, although all these links have largely carried out the application of artificial intelligence technology, improving their individual productivity and transforming the original mode of production and operation. However, the links between the various segments are weak, making it difficult to form effective links and failing to achieve an intelligent systemic application. The back-end data of each segment needs to be handled separately by the corresponding back-end personnel and cannot form a convenient linkage. In addition, there is no real sharing of the various types of data collected by AI, with large differences in data standards, which undoubtedly increases the communication difficulties of personnel and increases the cost of enterprises, and the universality of AI applications has not yet been fully achieved.

4.2. Artificial Intelligence Robots Replace Professionals and Talent Management Models Change

Today, a strategic base for enterprise development is the introduction and training of talent. The introduction of artificial intelligence technology can assist employees in many aspects, and even many positions are already running unmanned. Although it has reduced the cost of employee management in enterprises, a large number of professional staff have been replaced under this application, and the management structure of enterprises has gradually become flat, which has undoubtedly put forward new requirements on the management capacity of enterprises.

Innovation is the fundamental driving force behind the continuous development of enterprises. Enterprises need creative employees and focus on selecting employees with innovative thinking when recruiting staff. As companies increasingly apply artificial intelligence, this means that there will be fewer employees and the scale of recruitment will be reduced, which has a great impact on the traditional talent management model of enterprises.

4.3. Increased Financial Risks and Increased Management Difficulties

Artificial intelligence technology in enterprise financial management is a double-edged sword, it can on the one hand promote the development of financial management and improve the efficiency of financial management, but at the same time, the threshold of financial management talents increases, and the technical strength and talent allocation requirements increase. Machine vision technology in artificial intelligence, based on the in-depth learning algorithm of convolutional neural network, enterprises generally apply the technology to invoice

identification in financial management and support other information systems to form an automated process from invoice information extraction -> invoice verification -> invoice checking -> document sign-off -> intelligent audit.

However, in this process, there may be data leakage of the original information and the accuracy of the compliance and authenticity check of the original vouchers is not high, which increases the financial risk and has a negative impact on the development of enterprise financial management.

5. Strategies to Enhance Business Operations under Artificial Intelligence

In recent years, the impact of the new crown pneumonia epidemic has caused many small and medium-sized start-up enterprises to face greater development challenges or to close down. However, the reasons for the closure of some of these enterprises cannot be separated from the immaturity of their products and technologies. Although these companies have applied AI to some extent, they have not organically integrated AI technology with the final product and are unable to achieve compatibility between the various technologies.

The government should play a guiding role, under the promotion of "Internet+" and "cloud computing", actively guide enterprises to carry out research and development, focus on inter-departmental links, and form a set production and operation system, so that the production and operation departments of each sector can efficiently participate in the system in conjunction with their own situation, and innovate and upgrade the business management model of the enterprise. In addition, in the face of flattened operational structure, enterprises need to put forward higher requirements for employees, increase the introduction of talents and advocate staff to continuously improve their personal professional quality.

For data leakage and operational loopholes in financial management, enterprises should remain highly vigilant, enhance data confidentiality, combine their own development situation and use artificial intelligence technology in a reasonable manner. Recognise the suitable application of artificial intelligence technology, do a good job of system security protection measures, the relevant staff should also improve the ability to identify risks and play a role in the protection of information.

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