The Impact and Challenge of Artificial Intelligence on Enterprise Innovation Based on Research Overview

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Abstract

Nowadays the development of artificial intelligence has been in the ascendant, bringing new vitality to the development of various industries, and also take new opportunities for enterprise innovation. Based on the analysis of the status development of artificial intelligence, this paper takes the financial industry as an example to explore the positive impact of artificial intelligence on enterprise process innovation and product innovation, and analyzes the challenges faced by financial industry artificial intelligence.

Keywords

Artificial intelligence; enterprise innovation; financial industry; challenges and countermeasures.

1. INTRODUCTION

The concept of artificial intelligence (AI) was been recognized at the Dartmouth Artificial Intelligence Conference in 1956 ,since when the development of artificial intelligence has been ups and downs for decades. In 2016, Google Alpha Go defeated the famous chess player (Zhong Liu*, 2017). since then the enthusiasm for artificial intelligence has been higher, and artificial intelligence has entered in a fast development. According to the US research institute FTI (Future Today Institute), in 2018 Tech Trends Report, which discusses 225 technology trends in 20 industries including AI, energy, and gene editing, including 70 emerging technologies which directly related to AI, it can be seen that the development of artificial intelligence has become a battleground for all countries.(Institute., 2017(9): 28-29.)

The rapid development of artificial intelligence has injected fresh blood into the development of all industries. Artificial intelligence can create new product services, optimize business processes and promote the development of various industries, it is said that artificial intelligence has brought unprecedented opportunities for the development of various industries. For enterprises, technological progress is the source of power for enterprise innovation, and it can promote enterprises to enhance their own advantages. The development of artificial intelligence has undoubtedly played a key role in promoting enterprise innovation. However, the risk brought by the rapid development of artificial intelligence is also an issue that cannot be ignored. The existing research on the development of artificial intelligence is rare. It focuses on the following three aspects: the analysis of the status development of artificial intelligence and the of the artificial intelligence (Rahwan & Rahwan, 2007) industries itself, and the development of the combination of artificial intelligence technology and traditional industries at the industrial level, without discussing artificial intelligence as information technology at enterprise level. Therefore, while discussing the positive impact of artificial intelligence on the innovation and development of enterprises, this paper pays attention to the challenges and proposed control schemes of artificial intelligence in financial enterprises and

provides active and effective solutions for the further integration of artificial intelligence and financial enterprises (Wu, Hsu, Lee, & Su, 2011).

This paper is organized as follows, at first we discuss the development of artificial intelligence, the we analysis how artificial intelligence effect enterprise innovation by product innovation and process innovation .,the we discuss the challenges and responses to artificial intelligence.

2. THE STATUS DEVELOPMENT OF ARTIFICIAL INTELLIGENCE

The current dividends in the development of mobile Internet are gradually disappearing. Many technological companies have taken artificial intelligence as the strategic fulcrum for future development. artificial intelligence refers to the effect of human brain thinking through computer, The construction of the artificial intelligence industry includes data resources, computational engines, algorithms, technologies, research and development based on artificial intelligence algorithms and technologies, and application areas.

Companies around the world are gradually realizing the power of artificial intelligence and are beginning to explore how to apply artificial intelligence to promote enterprise innovation and enhance corporate competitiveness. Today, China's artificial intelligence has made many breakthroughs in technology research and development and industrial application. Especially at the application level, it is approaching and even one of the world's leading pioneers in Hengwei's global market. At the same time, China is the world's largest market for artificial intelligence. Artificial intelligence is generally divided into two major modules, one is artificial intelligence and computers. Network, big data and other applications, such as face video, public opinion analysis, speech recognition, image processing, etc., for example, in the field of computer vision network, the accuracy of face recognition obtained by Baidu deep learning is 99.84%. On the other hand, it is an industrial transformation combined with traditional industries (such as the manufacturing industry). China's development potential in the latter is huge, and a large number of artificial intelligence products such as smart homes, intelligent robots, and smart cars have emerged .Home is growing at a rate of 15% per year globally. By 2022, the market for smart homes will reach $53 billion (Hoffman, 2017)

The support from government such as "Made in China 2025", "Internet +" Action Opinions, "New Generation Artificial Intelligence Development Plan" and other documents, grabbing the "first mover" in the top design, and drawing blueprints for the development of artificial intelligence in China. . According to the new generation of artificial intelligence development plan issued by the State Council, by 2030, China will realize the artificial intelligence core industry scale of more than 1 trillion yuan, driving the relevant industry scale to exceed 10 trillion yuan. The plan also shows that by 2030, China's artificial intelligence theory, technology and applications should reach the world's leading level and become the world's major artificial intelligence innovation center.

3. ARTIFICIAL INTELLIGENCE AND ENTERPRISE INNOVATION

3.1. The Impact on Process Innovation in Financial Enterprises

Artificial intelligence will affect corporate innovation activities in the following areas, Firstly, having the corresponding knowledge and information is the basis and premise for entrepreneurs to innovate. (Lina, 2018) Using relevant knowledge management software can enable startups to improve the efficiency of managing existing knowledge and information. Secondly, artificial intelligence makes the speed of spillover of cutting-edge knowledge and the latest research and development information greatly improved, which facilitates the dissemination and sharing of knowledge and information, thus providing favorable conditions for enterprise R&D and innovation (Rahwan & Rahwan, 2007). At the same time, artificial

intelligence has broken the physical distance between R&D cooperation enterprises, greatly enhanced the innovation cooperation between enterprises and improved the efficiency of R&D and innovation activities. Third, the use of artificial intelligence will affect the company's product innovation and process innovation. In product innovation, startups can use artificial intelligence to collect customer information, use data mining technology to analyze customer resources and customer needs, and make improvements to the performance of existing products, products, and products. Thereby improving the quality of product design and reducing the cost of improved products (Liang, You, & Liu, 2010). In addition, the use of artificial intelligence will promote the corresponding changes in the original operating procedures, methods and rules in the production and management process, thereby reducing coordination costs and promoting business process innovation.

3.2. The Impact on Process Innovation in Financial Enterprises

.As product of technological development, artificial intelligence has become more and more popular in the era of technological development. In the financial industry, artificial intelligence has a wide application prospect. Increasing the application of artificial intelligence is conducive to the better development of financial business(Yiting., 2017). The integration of artificial intelligence and finance is an important opportunity for the transformation and upgrading of the financial industry. Artificial intelligence provides financial services. More personalized, more convenient user experience, more accurate marketing solutions; analysis and learning and analysis of historical data, providing more intelligent financial services; in the analysis of identification and protection, the management process is more automated;

The traditional investment advisory service communicates with customers to understand the client's financial goals and risk preferences, and then communicates to the back-end technicians to develop a financial resource allocation model, which is then passed by the investment consultant. Artificial intelligence is compared to traditional investment. In terms of consultants, the company has a streamlined process that combines investor age, risk appetite, family status and investment timing to determine its investment objectives, and analyzes the income characteristics, risk characteristics, and periodic characteristics of various wealth management products to generate various types. The investment portfolio can take advantage of machine learning to develop a personalized investment plan and conduct risk warnings, so it is a huge development opportunity for financial companies.

In the financial industry data analysis, artificial intelligence is mainly used in automated report generation and intelligent search. Through artificial intelligence, the original data is cleaned, filtered, and then processed through different algorithm models to generate visualized research reports and generated by manual analysis. Compared with the report, the biggest advantage of intelligent reporting is that the search is comprehensive and fast. It can display a large amount of information under the premise of covering a wide range of information, and the efficiency is significantly improved.

3.3. Artificial Intelligence Promotes Product Innovation Related to Financial Industry

In addition to providing process convenience for the financial industry, artificial intelligence also brings innovation in products, improving service efficiency and reducing labor costs. In 2015, Bank of Communications launched the intelligent robot lobby manager, "Jiaojiao", which was completed by Nanda Electronic Information Technology Co., Ltd., a subsidiary of Nanjing University, and integrated with the domestic and international intelligent robot industry chain. And face recognition technology, customer guidance at the outlets, and introduction of various types of business of the bank. It can answer all kinds of customer questions, save customers time and share the work of the lobby manager. Although the level of intelligence still needs to be improved, it is undoubtedly a meaningful attempt.

Artificial intelligence technology has carried out a series of innovations and applications in the business environment of Ant Financial Service, including intelligent customer service, Internet small loans and the calculation of return shipping insurance that is familiar to general users. According to the data released by Ant Financial in 2015, only in the customer service, on the day of "Double Eleven", Taobao and Tmall all answered more than 5 million users through self-service, and improved the efficiency of Ant Financial Service by 20 times. At the same time, online merchants used machine learning to reduce the false transaction rate by nearly 90% in the flower and micro-credit business; currently Ant Financial has opened its AI capabilities to financial institutions.

Overall, artificial intelligence provides a reliable guarantee for product innovation in the financial industry and contributes to deepening service innovation in the financial industry.

4. THE CHALLENGE OF ARTIFICIAL INTELLIGENCE IN THE APPLICATION OF FINANCIAL INDUSTRY

It is true that the development of artificial intelligence has made great progress, and computers can successfully complete certain tasks, but at this stage, they are still in the initial stage of artificial intelligence development. The business model of the enterprise is still in the stage of practice and exploration, and the corresponding risks are hidden. Among them, specifically, the following aspects are included.

4.1. The Customer's Weak Trust

Due to the limited knowledge level of the Chinese people, for a long period of time, computers are only human tools, playing a supporting role such as collaborators and boosters in human society and economic life, and the public's acceptance of general-purpose intelligent computers has become an extremely difficult task. For a time, the transformation of the computer role has a certain psychological burden on the general public, and in general, the customer's trust in the machine is low. How to enhance the customer's trust in the computer has become one of the important factors to accelerate the application of artificial intelligence

4.2. High Demands on Data

Data is an important means of production in the era of artificial intelligence, and the quantity and quality of data must meet higher requirements. First, in the face of the large amount and variety of types of storage and use, the cost control and standard non-uniformity limit the ability of data integration and invocation, resulting in the quality of historical data is uneven, however, future customer-based data Analysis needs to improve data processing efficiency. Second, avoid the disclosure of personal privacy during the collection and use of data. As the size of the data expands, financial institutions will not only use internal data, but also introduce external data, and will even gradually output data. How to collect and protect the privacy of customers' personal information should be highly valued. Once the biological information is attacked by hackers or is controlled by criminals, it will have a fatal blow to the identity authentication system, which threatens the stability of the entire social credit system.

4.3. Insufficient Independent Research and Development Capabilities

Finance has a special status related to the lifeline of the country, and independent research and development capabilities are the cornerstone for its innovative application of artificial intelligence. Although China's artificial intelligence field is not much different from other developed countries, and the scale of the industry is increasing year by year, it should also be aware of China's shortcomings in artificial intelligence basic research, industrial layout, brand management and certification system. Only when China's artificial intelligence industry constantly masters the core algorithm and the manufacturing strength of high-end components,

financial innovation can have the confidence to accumulate competitive advantages in the international market and achieve overtaking in corners.

4.4. Large Amount of Infrastructure Investment

Artificial intelligence itself requires a lot of computing. AlphaGo Distributed, which is only customized for Go apps, has 1920 CPU cores and 280 GPUs. The nature of financial applications' real-time, reliability and security also determines their ability to withstand the pressure resistance of hardware devices and networks such as sensors and chips. With the deepening of innovation and the expansion of scale, financial institutions need to continuously increase the input costs of basic support such as storage and communication. If there is no significant gain in the short term, the resources occupied will inevitably impose a burden on financial operations. In addition, financial institutions should also pay attention to the replacement of Cisco routers, Oracle databases and IBM memory in the process of equipment replacement, and gradually get rid of the dependence on products developed in Europe and the United States, in order to avoid the potential risks of financial system security.

4.5. Conservative Attitude Hinders Development

In traditional financial institutions, there are old-fashioned ideas that will hinder the speed and advancement of innovative decision-making. Some people think that traditional management is enough

Mature, fearful of the unpredictable risks of artificial intelligence, unwilling to assume responsibility for innovation. There are also some grassroots workers who worry that the substitution of artificial intelligence for human resources will affect the future of individuals. In addition, the regulatory environment is becoming more stringent, and the regulations on licensing licenses for emerging businesses such as smart investment are still under discussion, and it has become one of the reasons why conservative financial institutions are holding a wait-and-see attitude toward artificial intelligence business innovation. Individuals have limited ability to fight alone, especially weak technical skills

5. CONCLUSION SUGGESTIONS ON ARTIFICIAL INTELLIGENCE INNOVATION IN CHINA'S FINANCIAL INDUSTRY

5.1. Customer-Oriented

The financial industry still has to firmly grasp customer-oriented in the era of artificial intelligence

The purpose of the service. With the last batch of "90s" customers stepping into adulthood (Russell & Norvig, 2010),A large and young customer base will grow into the main body of financial services. Financial machine Constructing technology to explore information from multiple dimensions of data Value, insight into the various levels of business needs of old, middle and young customers, release The vitality of the long tail market.(Ben Arfi, Hikkerova, & Sahut, 2017) Structured data and social networks such as customer basic information Unstructured data such as network information can be fully utilized by the financial industry, And build a more three-dimensional customer portrait, accurate analysis of customer preferences(Lee, Cho, & Shin, 2015). Take As an example of smart investment, domestic applications at this stage mainly serve the short-term investment. Investors will gradually develop ETFs, stocks, options, claims, real estate, Diversified portfolio models such as pensions, through continuous improvement of the core model And algorithms that serve more types of customers(Chen & Chang, 2011). It is recommended that the financial industry use labor Intelligent technology to create different application scenarios, to provide customers with

personalized services Business solutions to maintain the core competitiveness of customer relationships and make financial development even more Wisdom and humanity.

5.2. Risk Control

The complex and variable nature of the financial market requires the employees to clearly understand the life cycle and limitations of artificial intelligence, and be alert to technical risks and safety.

Hidden dangers. Manual replacement and industrial upgrading are important factors in promoting the rapid development of artificial intelligence, but they must not blindly replace existing infrastructure and staffing, and cannot be eager to achieve.(Gjilnaipe, 2013) Intelligent customer service can transfer manual services to complex problems that cannot be solved by the machine alone, and realize the supplementary way of combining man and machine(Chang, 2012). In order to ensure the security of customer accounts, the innovative application of biometrics in the financial field can be combined with traditional mobile phone password verification and other measures, and allows users to terminate the use of this function at any time, as well as supporting insurance compensation for account fraud losses. (Chen & Chang, 2009)The combination of artificial intelligence and finance should be gradual and step-by-step. It is recommended that financial institutions, in light of their own realistic conditions, find suitable development paths, focus on superior resources and start from a business that is easy to break through, and start pilot projects with less investment, high returns, and quick results, and then gradually implement promotion according to different development stages.(Chen, 2009)

5.3. Investment and Construction

The financial industry should give full play to its own capital and talent advantages, actively invest in and promote the basic research and facilities construction of artificial intelligence, and support independent research and development. The first is to continuously improve the governance and integration of financial data, hardware upgrades, software upgrades, technology development, and system maintenance. The second is to cultivate the leading talents, professionals and reserve talents in the field of artificial intelligence in the financial industry, and build a good growth space for outstanding personnel who understand both business and technology(Vanhala, 2005). The third is to vigorously develop financial innovation laboratories and accumulate experience; while carrying out innovative cooperation with external institutions to track the frontier. In addition, the financial industry should also recognize the catalytic role of artificial intelligence in the new round of economic growth, through investment to drive the transformation and upgrading of traditional industries, stimulate the enthusiasm of emerging industries, lead by example, and improve the utilization of social resources.

REFERENCES

[1] Ben Arfi, W., Hikkerova, L., & Sahut, J.-M. (2017). External knowledge sources, green innovation and performance. Technological Forecasting and Social Change. doi:10.1016/j.techfore.2017.09.017

[2] Chang, Y.-S. C. C.-Y. S. C.-H. (2012). The effects of related and unrelated technological diversification on innovation performance and corporate growth in the Taiwan's semiconductor industry. Scientometrics, 92(1), 117-134. doi:10.1007/s11192-012-0720-y

[3] Chen, Y. S. (2009). Using neural network to analyze the influence of the patent performance upon the market value of the US pharmaceutical companies. Scientometrics, 80(3), 637-655.

[4]   Chen, Y. S., & Chang, C. H. (2011). Enhance environmental commitments and green intangible assets toward green competitive advantages: an analysis of structural equation modeling (SEM). Quality & Quantity, 47(1), 529-543.

[5]   Chen, Y. S., & Chang, K. C. (2009). The nonlinear nature of the relationships between the patent traits and corporate performance. Scientometrics, 82(1), 201-210.

[6]   Gjilnaipe, R. G. K. S. B. (2013). Corporate Social Responsibility (CSR) and Innovation–The Drivers of Business Growth? Procedia - Social and Behavioral Sciences, 75, 532-541. doi:10.1016/j.sbspro.2013.04.058

[7]   Lee, B., Cho, H. H., & Shin, J. (2015). The relationship between inbound open innovation patents and financial performance: evidence from global information technology companies. Asian Journal of Technology Innovation, 23(3), 289-303. doi:10.1080/19761597.2015.1120497

[8]   Russell, S. J., & Norvig, P. (2010). Artificial Intelligence: A Modern Approach. Prentice Hall. Applied Mechanics & Materials, 263(5), 2829-2833.

[9]   Vanhala, Ü. Ü. R. A. S. (2005). Innovation and corporate social responsibility in Estonian organizations. Problems and Perspectives in Management.

[10] Yiting., Z. (2017). Application and Risk of Artificial Intelligence in Financial Industry[J]. Fortune Today(17), 45-46.