Research on Enterprise Management Model Innovation under the Background of Big Data Era

Xu Li
Email: lxu6903@163.com

Yao Fan
Business school of Jiangxi Normal University, China
Email: 1016775856@qq.com

Xu Mei
Nanchang University College of Science and Technology, China
Email: 826884336@qq.com

Abstract—**Economic globalization, Internet + and the continuous development of big data provide opportunities for the survival and development of enterprises on the one hand, but also bring more challenges to enterprises. With the development and progress of the times,, it is not difficult to find that the traditional management mode is not suitable for a fast-developing society. The stable development of enterprises is inseparable from the innovation of enterprise management mode. This paper summarizes the relevant theories of enterprise management model innovation in the context of big data through literature review, and finds out the problems such as enterprise management philosophy and lack of big data talents in the current stage of enterprise management model under the background of big data, And through the comparison of pre- and post-effects of enterprises using big data analysis, it is proposed that in the operation and decision-making of enterprises, it is necessary to combine the big data foundation to innovate the enterprise management model, such as adopting the construction data management platform, introducing excellent talents, etc. Provide reference for enterprise development.**

Index Terms—**big data, management model, enterprise management, management innovation**

I. INTRODUCTION

With the continuous development of information technology, in the context of big data, all walks of life are more or less affected by big data. The development of enterprises needs to keep pace with the times. The traditional management model is not suitable for a fast-developing society. Therefore, in the context of big data, enterprise management model innovation is particularly important. Enterprises must clearly understand the impact of big data on business management, closely integrate big data technology and business management, form a new management model, and give full play to Internet big data

technology, which can help promote the quality of management. Combining big data with enterprise management, not only to play the role of big data, but also to innovate the enterprise management model, enterprise managers must have long-term development goals, and actively use big data technology to the original management mode, management methods and methods of enterprises. Innovate, give full play to the positive role of big data technology in enterprise management, improve management model, and find a suitable and efficient management model.

II. LITERATURE REVIEW

At present, the academic research on the innovation of enterprise management mode under the background of big data has not yet formed a unified conclusion: Zhang Cuiping (2015) believes that with the development and application of information technology, digital technology, network technology and computer technology, today's society has entered the era of big data. In the context of the big data era, enterprises are facing more and more challenges in their business development. Based on this, in the modern enterprise management, the research on the enterprise management innovation model should be strengthened, and the role of the data should be fully exerted to promote the higher development of the enterprise. Cai Yi (2016) believes that under the background of big data era, the data processing workload faced by enterprises is increasing, and it is necessary for enterprise managers to pay attention to the processing of these data, because the timeliness of these data processing is directly related to the development of enterprises. quality. Tian Xiaoping (2016) believes that in the era of big data, enterprises need to not only master the data, but also make certain research and summary for the improvement of the economic and social benefits of enterprises. By improving managers' awareness of the commercial value of data; making reforms and

---

Manuscript received July 6, 2018; revised August 8, 2019.

innovations in the market environment of enterprises; cultivating data analysis professionals; establishing a new decision-making body; and using the social network of employees to innovate management models, The correct and effective use of the huge value of data provides a basis for the realization of corporate economic interests and social values. Use big data to reform the management model innovation of enterprises. Yu Yiyong and Duan Yunlong (2016) analyzed and combed the concept and characteristics of big data, and believed that in the era of big data, management thinking should be changed, and big data thinking should be in place. Only in this way can we embrace big data better. On the basis of comparing the differences between enterprise management innovation under the traditional and big data environment, the enterprise management innovation model based on big data environment is constructed, and the enterprise management reform under the big data environment is expounded. Luo Rui (2017) believes that modern enterprise managers should firmly grasp the starting stage of big data technology in China's commercial field, strive to closely link big data technology with their own business philosophy and methods, and seek the support and help of the national government. Wei Qian (2017) believes that enterprises have an important role in promoting China's economic development. With the advent of the era of big data, the traditional management model of enterprises seems to be out of place. In this regard, in the context of the era of big data, enterprises must learn the change of management model, so that they can keep pace with the times and explore a new path for enterprise development. It is necessary to improve the emphasis of managers on big data, make full use of big data to make decisions, use big data to create benefits, and pay attention to the training of data analysis talents. Chen Wei yu ,Qi Lu (2018) combed the definition, classification and characteristics of management innovation, and summarized the problems encountered by Chinese enterprises, such as the environment is changing and immature, the management concept is outdated, the introduction difficulties forced independent innovation, the management system is not matched, etc. Relevant countermeasures such as updating management concepts, innovation management methods, and system innovations were proposed. Fan Ai(2018) argues that business enterprise management information technology level is not high, enterprise management talents construction is not appropriate to the problem, need to cause the enterprise attaches great importance to, and take a more positive and effective measures to actively promote the depth of the big data technology and enterprise management integration, data platform to focus on building enterprise management, strengthening the management of enterprise information technology, cultivating enterprise management talents three breakthroughs, efforts to encourage innovation in the era of big data management mode, enterprise management in enterprise production and management, development, and many other aspects of the positive role. Wang Ci (2018) believes that in the face of a new development period, the

management of enterprises must timely innovate the management model and closely integrate with the needs of the development of the times. Only in this way can it really contribute to the good development of corporate management. Xiao Jing (2018) believes that in the new era, how enterprise management can effectively integrate with Internet technology is the key content of enterprise development and also a difficult part of enterprise development. Therefore, in order to combine enterprise management and Internet technology, enterprises need to Fully recognize the importance of Internet technology and conduct management innovation. Li Xiaoqiang (2018) believes that in the current era of big data, if enterprises want to be in an invincible position in the fierce market competition, they must increase their emphasis on management. Through the practical application of big data technology, it can not only meet the actual development demands of enterprises, but also greatly enhance its market competitiveness, effectively make up for the defects and drawbacks under the traditional management mode, and is an important auxiliary means for enterprises to modernize. Lu Yangjie (2018) believes that at this stage, China's traditional enterprise management model is mainly to regard the problems in the process of enterprise management practice as the core of management, and to regard the problem as driving the groping innovation, based on years of management experience. By organizing expert lectures and social wisdom, using qualitative and quantitative analysis methods, exploring problem-solving measures to achieve innovation in enterprise management mode, and not only innovating and diversifying the environment and conditions in relation to the enterprise management model under the conditions of the big data era And, in accordance with the needs of social development, innovative choices and ways and means of enterprise management model, to achieve innovation in enterprise management model. Zhang Xiangdong (2018) believes that the innovation process of effective enterprise management model should identify weaknesses (gap) and take measures to eliminate these defects. Companies should be prepared to manage the innovation process in response to certain risks that may arise to avoid the failure of realized innovation projects. If the company can identify these risks and prepare them as soon as possible, it will greatly improve the success rate of enterprise management model innovation.

In summary, big data will move forward at a high speed with its rapid development momentum, which will bring challenges to enterprise management. At present, scholars have only made preliminary explorations on the research of big data in the innovation of enterprise management mode, and have not formed a unified research conclusion. Based on the background of big data era, this paper aims at the innovative enterprise management model. On the basis of mastering the related concepts and characteristics of big data, the comparison between traditional management and enterprise management innovation under big data, this paper finds the problems existing in the innovation of enterprise

management mode at this stage. And propose effective countermeasures.

III. THEORETICAL BASIS

A. Big Data

Big data refers to a collection of data that cannot be captured, managed, and processed by conventional software tools within a certain time frame. Big data is a massive, high-growth, and diverse information asset that requires new processing models to have greater decision-making,insight, and process optimization capabilities.The definition of big data originated from the McKinsey Global Institute. It is defined as: Big data is a collection of data that is large enough to capture, store, manage, and analyze the capabilities of traditional database software tools. Massive data size, fast data flow, diverse data types and low value density are four characteristics. For enterprises, information technology continues to develop. In the context of big data, more and more enterprises are using big data to process information, enabling enterprises to collect more valuable strategic information through data collection and computational analysis. Develop scientific and efficient decisions for companies to make them more competitive.

B. Business Management

Enterprise management is a general term for a series of functions such as organizing, planning, directing, supervising and regulating the production and operation activities of an enterprise. Enterprise management can be divided into several business functions: human resource management, financial management, production management, procurement management, marketing management, etc. The usual companies will set up functions according to these specialized business functions. Enterprise management has three meanings: The first layer of meaning shows that the measures adopted by management are the five basic activities of planning, organizing, controlling, motivating and leading. These five activities are also referred to as the five basic functions of management. The second meaning is the purpose of the first layer of meaning, that is, the use of the above measures to coordinate resources in terms of human, material and financial resources. The so-called coordination refers to synchronization and harmonization. To be effective, an organization must synchronize and harmonize the various departments and units in the organization until the activities of each individual; the human, material and financial resources in the organization must also be synchronized and harmonious. The third layer of meaning is the purpose of the second layer of meaning. Coordinating human, material and financial resources is to make the entire organization more productive, which is also the fundamental purpose of management activities.

IV. PROBLEMS IN THE ENTERPRISE MANAGEMENT MODEL IN THE ERA OF BIG DATA

In the era of big data, with the continuous development of information technology, the enterprise management

model is facing more and more challenges. At the same time, there are also some problems that hinder the long-term stable development of modern enterprises and need to be highly valued by enterprises. The problems in the enterprise management model in the era of big data are mainly reflected in the following aspects:

A. Managers Lack Proper Management Concepts

As we all know, in enterprise management, the management concept of the enterprise is crucial to the whole enterprise and often determines the development direction of the enterprise. In the era of big data, some enterprises still use the traditional management model in the past, ignoring the role of big data in enterprise management, and controlling the collection of information on the market is not timely and accurate. Although some companies want to use big data for analysis, they do not integrate information technology such as big data with the management model of enterprises, resulting in lack of management. Some enterprise managers lack the correct understanding of big data, or the use of data only stays on the surface, without in-depth analysis. On the surface, it seems to adopt big data management. In fact, it is still the traditional management mode, and the management concept is not actively changed. , has an impact on the development of the enterprise.

B. Enterprise Data Management Platform Lags Behind, Lack of Talent

The big data era is faced with a large amount of data processing and analysis work. The smooth development of these tasks is based on the enterprise's comprehensive data management platform. However, some enterprises in China lack sufficient understanding of this. Although big data is applied in enterprise management, it lacks a relatively complete data management platform, which leads to backward management. Through the analysis and calculation of data, the operational risk of the enterprise can be effectively reduced, and the decision-making of the enterprise is more scientific and reasonable. Although some companies have established data management platforms, they lack talents who are proficient in big data processing technologies and cloud computing. The lack of talent also leads to the backwardness of corporate management.

C. Fixed Decision-making Body and Lack of Data Analysis

On the one hand, the decision-making in traditional Chinese enterprises is generally determined by the top leaders of the enterprise or the elites in the industry, and the decision-making body is relatively fixed. However, with the advent of the era of big data, the traditional model of the company's high-level decision-making body has been restricted, and gradually lags behind the times, thus affecting the company's long-term stable development. On the other hand, in the business development of the enterprise, many specific data will have an impact on the management decisions of the enterprise. The analysis of the data, based on the results

of the analysis of the data, enables companies to make more scientific and rational decisions, thereby reducing the risk of internal management in the development of the enterprise. However, many companies currently pay attention to the simple summary of data when analyzing their own business development, but the comparison of other competitors' data in the same industry is neglected. In the process of analyzing data, the problems existing in the enterprise itself cannot be well discovered.

As we all know, the arrival of the era of big data has brought unprecedented impact to enterprises, and enterprises are facing more challenges. At the same time, the existence of big data also points out new development ideas for the innovation of enterprise management mode. The problems, impacts and limitations of the enterprise management model in the era of big data are summarized in Table I.

TABLE I. PROBLEMS AND IMPACTS OF THE ENTERPRISE MANAGEMENT MODEL IN THE ERA OF BIG DATA AND THE REASONS FOR LIMITING THE DEVELOPMENT OF BIG DATA

Problems in the enterprise management model in the era of big data	Impact on the business	Limit the reasons for big data development
Managers lack proper management concepts	Businesses cannot use big data to generate real revenue	Lack of the overall concept of big data
Enterprise data management platform lags behind, lack of talent	Can't effectively use big data to improve business efficiency	Limit the informational level of data
Fixed decision-making body and lack of data analysis	The company is developing slowly and gradually lags behind the times.	Unable to use big data for reasonable analysis

V. INNOVATIVE IDEAS OF ENTERPRISE MANAGEMENT MODEL IN THE ERA OF BIG DATA

For enterprises, a large amount of industry market data and related customer information, potential customer information, etc. have extremely high commercial value. In view of the problems existing in the management mode of some enterprises in the era of big data, enterprises need to innovate the traditional management mode, strive to adapt to the era of big data, apply big data technology, make resource allocation problems can be adjusted and rectified in time, and resource efficiency Maximize, improve the utilization of enterprise resources, realize the scientific management of enterprise management and decision-making, optimize the operation process of enterprises, thereby reducing the operating costs of enterprises and improving the economic benefits of enterprises.

A. Managers Establish Correct Management Concepts

The management concept of managers in modern enterprises is very important for an enterprise. In the era of big data, enterprises must change the traditional management mode. Managers should establish a correct management concept, keep up with the development of the times, and pay attention to big data. Specifically, the first is that managers should look for valuable business information in the big data, use big data technology, and closely integrate it with enterprise management to provide data support for various management tasks. Second, managers must learn big data technology and master certain big data knowledge, so that they can make correct decisions on enterprise management in the era of big data. Third, the technical personnel of all departments of the enterprise should communicate with the managers and feedback the relevant data in the work to the managers in a timely manner. Enterprise managers conduct efficient management of enterprises based on feedback information, market economy requirements, and competitive posture. Finally, companies can also take lectures, conferences, corporate reports and other forms to let managers understand the new management concepts, and produce some brochures, reports and distribution to management to learn, thus creating a good atmosphere. In order to ensure a good relationship between the internal and external enterprises, enterprise managers need to establish scientific and rational management concepts, thus promoting the application of big data technology in enterprise management. In the era of big data era, the main body of enterprise management decision-making is transformed from a senior management to a front-line employee, from the individual to the masses. With the continuous development of information technology in China, the scope and speed of information dissemination are improved, so that the public can quickly understand the trends of the company, the company can also timely understand the public's decisions and opinions, and provide a basis for corporate decision-making.

B. Establish and Improve Enterprise Data Management Platform

The steady development of modern enterprises is based on a sound enterprise data management platform. For the enterprise management model of the era of innovation and big data, the most important thing is to play the positive role of big data technology. In order to make its role play effectively, it must have a rich and complete data foundation from the perspective of the enterprise industry chain. Analysis, business managers need to adapt their own business status, appropriately transform resources, and further adjust the cooperation between the grassroots employees, managers at all levels, corporate shareholders, partners, customers and suppliers. In the process of constructing the data repository, enterprise managers need to remind the staff of all departments at all times to highlight the cultural characteristics of the enterprise and ensure that the established information network can fully meet the development needs of the enterprise in the context of big data. In the modern management mode of enterprises, enterprise managers should actively change the management concepts of heavy products and light information in the past, and should deeply explore the positive effects of cost information, product information, marketing information

and management information, and further improve the service level of enterprises to customers. Only by adopting a layered and diversified approach and adjusting the matching relationship between human resources, service levels and product quality can the innovation and reform of the enterprise management model be carried out more smoothly. Actively promote the construction of network platforms, make the big data platform system more open, and establish strategic partnerships with other enterprises and related organizations through big data technology to form a development and open platform for joint construction, sharing and sharing, so that big data technology is in The application of enterprise management is more effective and plays a more active role.

C. Focus on Training Data Management Talents

Enterprise managers should set up a high-level data management talent team as soon as possible, thus making the management model innovation and upgrade work more efficient. Enterprises should vigorously strengthen the training of specialized talents, and must educate and train existing business managers, focusing on cultivating their information literacy, especially in the targeted education and training of big data technology applications. Enable them to have strong application capabilities. Enterprise managers need to strengthen their relationship with society. In the work of developing and managing data information, managers should urge employees to establish a good sense of data and enhance the practical ability of data talents so that they can comprehensively Master the latest trends in the social economy and industry environment, and comprehensively improve the accuracy of data analysis results. It is necessary to introduce a group of relevant professionals with innovation, technology and integration to lay a solid talent foundation for promoting the innovation of enterprise management model in the era of big data.

D. Establish a New Decision-making Body

The decision-making in traditional Chinese enterprises is generally determined by the senior leadership of the enterprise or the elite of the industry. However, with the advent of the era of big data, the traditional model of the company's high-level decision-making body has certain restrictions. In the context of the era of big data, enterprises should establish a new decision-making body as soon as possible. At present, the concept of shifting the main body of decision-making from the top of the company to the public is becoming more and more popular. In the current society, enterprises can use information-based means. Network platforms such as social networks and mobile Internet collect and integrate the opinions and suggestions of the public, thus determining an innovative management model with the public as the main body of decision-making. In the context of the era of big data, companies should change the concept of decision-making in the past, and fully analyze and effectively use the data to better solve the problems in enterprise management.

VI. COMPARISON OF EFFECTS BEFORE AND AFTER BIG DATA ANALYSIS: TAKING AMAZON, SAMSUNG, TAOBAO AND OTHER COMPANIES AS EXAMPLES

Amazon, Samsung, Taobao and other companies use big data analysis before and after the effect is shown in Table II:

TABLE II. COMPARISON OF THE EFFECTS OF BIG DATA ANALYSIS BEFORE AND AFTER AMAZON, SAMSUNG, TAOBAO AND OTHER COMPANIES

project name	Innovative approach	Effect comparison
Amazon	Amazon uses big data to analyze the products that customers are interested in, so that each customer can develop personalized services and develop customer-specific pages.	Customer loyalty is high, and corporate profits are significantly higher than the same period last year
Samsung	Through the development of data analysis capabilities, continuous improvement of marketing activities, the use of big data, receipts of specific product categories and country specific information	Revealing returns that are not available in some marketing programs, saving the company millions of dollars
Google	Build a huge test and analysis project that leverages big data analytics to improve search attributes	A number of patented methods of measuring correlation have been developed
Taobao	Alibaba developed the "Amoy Data" big data application to help buyers and sellers analyze relevant market data.	Provide market information to many sellers, and make industry forecasts to increase trading volume. Provide buyers with product information to choose from

As can be seen from the above table, big data technology is very important for enterprises, which can bring great economic benefits to enterprises and enable them to develop stably. Adopt big data processing technology to proactively understand customer needs, buffer risk & reduce fraud, provide related products, provide personalized services, optimize & improve customer experience. Enterprises must learn to use the huge value of data correctly and effectively, and provide a basis for the realization of corporate economic interests and social values.

VII. SUMMARY

Enterprises have an important role in promoting China's economic development. With the advent of the era of big data, the traditional management model of enterprises seems to be out of place. In the era of big data, if companies want to be invincible in the fierce market competition, they must increase their emphasis on management. At present, there are still problems in the enterprise management model of China's enterprise big data era, such as lack of correct management concepts, lagging enterprise data management platform, and lack of talents. Enterprise managers establish correct management concepts, establish and improve enterprise data management platforms, and focus on cultivating data management talents. Enterprises should make full use of

big data technology.Enterprise managers to innovate existing enterprise management mode and find out the management model suitable for enterprise development. Go ahead and explore new paths that are suitable for business development.

REFERENCES

[1] C. P. Zhang, "The innovative mode of modern enterprise management under the background of big data era," *Shopping Mall Modernization*, 28, 2015.

[2] C. Yi, "Innovation of enterprise management model in the age of big data,*" Shopping Mall Modernization*, 14, 2016.

[3] X. P. Tian, "Research on the innovation strategy of enterprise management model under the background of big data era," *Value Engineering*, vol. 35, no. 13, 2016.

[4] Y. Y. Yu, Y. L. Duan, "Research on enterprise management model innovation in the age of big data," *Technology and Innovation Management*, vol. 37, no. 3, 2016.

[5] L. Rui, "Discussion on the innovation of enterprise management model under the background of big data," *China Management Informatization*, vol. 20, no. 18, pp. 68-69, 2017.

[6] W. Qian, "Discussion on innovation of enterprise management mode in the era of big data," *Cooperative Economy and Technology*, vol. 22, pp. 150-151, 2017.

[7] W. Y. Chen, Q. Lu, "Problems and Countermeasures of Enterprise Management Innovation," *Modern Business*, vol. 10, 2018.

[8] F. Ai, "Innovation of enterprise management model in the age of big data," *China Business Theory*, vol. 13, pp. 7-8, 2018.

[9] W. Ci, "On the management innovation of enterprises in the information age," *Shopping Mall Modernization*, vol. 15, pp. 80-81, 2018.

[10] X. Jing, "Research on enterprise management innovation based on the "Internet +" era," *China Management Informatization*, vol. 21, no. 18, pp.76-77, 2018.

[11] X. Q. Li, "Research on enterprise management model innovation in the age of big data," *Research on Modern State-Owned Enterprises*, 20, 2018, p. 8.

[12] Y. J. Lu, "Research on enterprise management model innovation in the age of big data," *Research on Modern State-Owned Enterprises*, vol. 20, 2018, pp. 54.

[13] X. D. Zhang, "Innovative research on enterprise management model in the age of big data," *China Business Theory*, 32, 2018, pp. 25-26.

[14] X. M. Yuan, "Challenges and innovations of enterprise management in the age of big data," *Business*, vol. 7, no. 11, 2015.

Xu Li, She was born in Jiangxi, China on March 9, 1969. She graduated from Wuhan University with a master's degree in accounting in 2006. Her main research interests are management science and engineering, and financial management. She is a professor and master tutor in the Department of Management at the Business School of Jiangxi Normal University.Her published papers include: Xu Li, Fang Zi xu. R&D Efficiency of China's Large-scale Industrial Enterprises: Evaluation, Influencing Factors and Strategies [J]. China Science and Technology Forum, 2018 (03): 66-72. Xu Li, Li Wen, Yan Zehao. Coordinated synergy between higher education, technological innovation and industrial upgrading—— Taking the Yangtze River Economic Belt as an example[J].Journal of Jiangxi Normal University (Philosophy and Social Sciences Edition), 2018,51(01):124-132.Xu Li.About Project Reaction Theory Model Estimation Software - Introduction to IRTPRO 2.1 [J]. Caizhi, 2015(36): 303-304.

Professor Xu is an expert in the evaluation of the National Science and Technology SME Innovation Fund Project. She is an expert in the Science and Technology Statistical Analysis Center of the Science and Technology Department of Jiangxi Province. She has instructed students to win the National Bronze Award in the 2012 and 2016 "Challenge Cup" National Undergraduate Business Plan Competition. In the 2018 Challenge Cup National College Student Entrepreneurship Competition, the National Gold Medal was awarded the Gold Medal of the 10th "Challenge Cup" College Student Entrepreneurship Competition in Jiangxi Province in 2016.

Yao Fan, She was born in shanxi, China, on October 11, 1992, graduated from Jiangxi Normal University in 2012 with a bachelor's degree in business administration. Now studying in the second year, the main research direction is enterprise management - corporate financial management and accounting control. She is a graduate student of the Business School of Jiangxi Normal University and has been awarded the 2017 Graduate Student Scholarship. The current research interests are the era of big data era and enterprise management, and the application of big data era in corporate financial management.

Yao is a deputy secretary of the graduate school branch of the Business School. She has won the outstanding postgraduate cadre of Jiangxi Normal University, an outstanding party member, and the Jiangxi Normal University Challenge Cup Bronze Award.

Xu Mei, She was born in Jiangxi, China, on on August 3, 1970,holds a bachelor's degree in management from Beijing Technology and Business University and a master's degree in software engineering from Yunnan University. Her main research interests are financial management and financial statement analysis. She is currently the deputy director of the Library of Nanchang University College of Science and Technology. Her academic contributions mainly include the provincial science and technology department soft science project and Provincial Education Science Planning Project.

Xu did some research:Research on the Science and Technology Innovation R&D Platform of Jiangxi University in 2012;Research on the Introduction of Venture Capital into Jiangxi Innovative Enterprises;The introduction of venture capital into the development of Jiangxi science and technology innovation enterprises.