Deepening Information Mining Based on Big Data and Refined Decision Management

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Abstract. With the rapid spread of cloud computing technology and the large-scale outbreak of Internet of Things and mobile Internet applications, humanity has entered the era of big data. Big data sets far exceed the capabilities of current typical database management systems to acquire, store, manage, and analyze. The era of big data has characterized by the in-depth excavation of data, prompting the management model to be refined. Although the data mining technology in the era of big data has brought good news for modern management, it also brings with it various challenges such as data security, data integration, and lack of innovative talents. To meet the changes in the era of big data and promote the refinement of management models, we need to pay attention to the combination of three aspects.

The need for data mining technology has combined with the reality of our country, the "real-time" of data mining and the "predictive" of the future Integration; the development of data-depth mining technology combined with relevant legal safeguards.

1. Introduction
During the “Thirteenth Five-Year Plan” period, with the rapid development of modern information technology in China, fundamental changes have taken place in the informatization construction model, and a wave of “new IT” with core technologies such as cloud computing, big data, internet of things, and mobile applications is at the core. The surging tide, the application of information to actively respond to the "Internet +" and the opportunities and challenges of the era of big data, to adapt to the province's economic and social development and reform requirements, big data platform came into being [1, 2]. The big data platform integrates provincial socio-economic development resources and builds a big data platform that integrates data collection, data processing, monitoring and management, forecasting and early warning, emergency command, and visualization platforms. It uses information to enhance data management and service capabilities, and timely and accurate control [3]. In terms of social and economic development, we must “use data to speak, use data management, use data for decision making, and use data for innovation” to firmly grasp the initiative and voice of social and economic development.

The big data platform is an architectural platform that complies with the current level of information technology development and serves the reform of government functions. Its main objectives are to strengthen economic operation monitoring and analysis, to realize the social supervision of corporate credit, establish a standardized and co-constructed shared investment project of management system, to promote the sharing of government affairs data and business synergy, to provide timely, accurate, and reliable information basis for decision-making, and to improve government affairs [4]. The work is forward-looking and targeted, and efforts have made to increase macroeconomic control to promote sustained and healthy economic development. With the rapid development of modern science and technology such as computers, the Internet, the Internet of things and cloud computing, as well as the
rapid adoption of technologies such as video surveillance, smart terminals, and application stores that are compatible with this, the amount of data in the world has experienced a massive growth. During the financial crisis of 2009, the global information volume reached 800,000 PB, an increase of 62% from 2008. This data shocked the world at the time, but it was even more shocking that it had grown to 4.6 million PB in 2013. If this rate increases, by 2020 the amount of data stored electronically in the world will reach 32ZB [5]. Many countries’ media and experts have cried that the era of big data has arrived.

2. Analysis on Big data And of Fine management

2.1. The big data
Victor Meyer of the University of Oxford-Professor Schonberger pointed forward in the book “The Age of Big Data”: “The information storm brought about by big data is changing our lives, work, and thinking. Big data has opened up. A major transformation of the era described the thinking, business and management changes in the era of big data.”[6] According to incomplete statistics, since 2012, the data generated by humans has approached all human data in history. The massive amounts of these data and the intricate and complex relationships that have brought about have greatly surpassed the imagination of human beings. In 2013, they were called the “big data year”. "Big data" multiple definitions, Baidu, Internet Weekly, research institutions Gartner have released various custom. Individuals are more inclined to the definition of Internet Weekly: Big Data allows us to analyze the massive data in an unprecedented manner to obtain valuable products and services, or deep insights, and ultimately the power of change. Big data is more of a thinking, related thinking, instead of the cause and effect of the past [7]. Figure 1 gives the big data application scenarios.

![Figure 1. Big data application scenarios](image)

The main characteristics of the big data era have four basic characteristics. The first is the volume of data. The data shows that the new home page navigation needs to provide more than 1.5 PB (1 PB = 1024 TB) of data each day. If these data are printed, it will exceed 500 billion A4 pages. Data confirms that so far, the data volume of all printed materials produced by humans is only 200 PB. The second is a variety of data types (Variety). The current data types are not only text forms, but also more types of data such as pictures, videos, audios, and geographical position information. Personalized data accounts for an absolute majority. The third is Velocity. Data processing follows the “1 second law” and can quickly obtain high-value information from various types of data. The fourth is the low value of value. Take video as an example. In an hourly video, the useful data may only be a second or two in the continuous monitoring process [8].

However, we must also realize that the "big" big data does not only lie in its "large capacity", but also in more significance: human beings can discover new knowledge and create new ones through the exchange, integration, and analysis of these data. The value of "bringing big knowledge", "big technology", "great profits" and "great development" [9] will have important economic and social values for the operation of a company, an industry, and even a country. Figure 2 shows the big data development structure.
2.2. Power generation super base bid

For modern enterprises, the refined development model has become the goal of all enterprise reform and transformation. The meticulous management of an enterprise requires the enterprise to focus on the systematic, data, and informationization of the enterprise based on specialization. At present, it is an era of informationization. The fine management of an enterprise requires that enterprises must have informatized, and enterprises with a low degree of informatization cannot have finely managed. In the process of refinement and development of enterprises, improving the level of informationization of enterprises will help improve the company’s ability to communicate and the speed at which companies respond. For example, when a company has a problem that needs to solve in the production and operation process, if the level of enterprise information is too low, then whether it is sentimental or sentimental will waste a lot of time and solve the problem [10]. It may delay and the overall loss to the company may have doubled. For any enterprise, the speed of enterprise informationization is too slow, which will undoubtedly reduce the development speed of the enterprise. Only when the informationization of the enterprise reaches a certain level, the development of the enterprise can be rapid and steady.

A complete electricity market, is generally divided into long-term contract trading market, futures and options trading market, a few days ago trading market, real-time trading market and auxiliary services by trading market. Figure 3 show the fine management map.

Fine management is primarily a scientific management method. To achieve refined management, we must establish scientifically quantified standards and operational procedures that are easy to implement, as well as management tools based on operating procedures; fine management is also a management philosophy. It embodies the organization’s perfect pursuit of management. It is the implementation of rigorous, serious, and lean ideas. The fine management excludes people from the rule and upholds the awareness of the rules. The rules include procedures and systems. It requires managers to change their
role from supervision and control to service-oriented and guidance-based roles. They should pay more attention to meeting the needs of the serviced users. The scope of refined management research is the organizational management. Units and operations are more based on the original management of the improvement, upgrading, and optimization.

3. Application of Big Data Information Mining in Detailed Management
The publication of the “Big Data Era” in 2012 immediately aroused global debate. In just less than a year, the book sold well around the world, and it attracted wide attention from the management community and the industry. From the point of view of data development, no matter which industry in the world will produce a very large data set, the deep data mining in the era of big data makes the management more efficient, and offers the possibility of extensive and fine-tuning. Figure 4 shows the application of data mining in fine management.

Figure 4. The application of data mining in fine management

First, the in-depth excavation of data in the era of big data will change the original management philosophy and lay a solid ideological foundation for the refinement of the management model. In the past, people used to understand the world from the perspective of “why”, including various things in the field of management, in a time when the amount of data is small or various types of analog data exist in large numbers. In the field of natural sciences, people mainly test various theories or laws in the laboratory. In economics, management, and other fields, it has based on relevant theories to speculate on various phenomena. When agreement has reached between theory and data experiments, it reveals the various “causal” relationships hidden behind the phenomenon, which is to explain the "why" question. However, in the era of big data, this concept has undergone changes. People are more willing and able to find the hidden relationship behind data from the perspective of “what”. For example, managers using big data are not discovering and recognizing the reasons for management failure, but rather collecting and organizing large amounts of data to make effective scientific decisions for future management. This analysis of correlations between data can help managers. We can see more clearly
the laws that have hidden behind the phenomenon and between the elements, and find close connections between seemingly unrelated data. The effectiveness of this “relevance” analysis goes far beyond the traditional "cause and effect" analysis, and this long-term concept of focusing on the "future" is exactly the mode of thinking necessary for the refined management model. Second, the in-depth data mining in the era of big data will change traditional marketing methods, make marketing more accurate, and highlight the trend of “fine” management. Traditional marketing methods have mainly accomplished through centralized marketing and advertising. For example, it is more common to promote product marketing through the distribution of leaflets. We often see people with advertising flyers scattered around the streets or in densely populated areas to distribute flyers to passing pedestrians. This not only requires the employment of a large number of advertising professionals, resulting in an increase in marketing costs. More importantly, it does not consider the factors such as age, level of consumption, consumer preferences, purchasing power, and other factors that affect consumption, and distributes the same advertising flyer to all consumers [11, 12]. This is an "extensive" marketing management model. Nevertheless, in the era of big data, this traditional marketing method has changed in a subversive manner. Enterprises can make full use of big data to accurately position consumers, and thus bring low-cost and efficient marketing. More representatives is the attempt made by Amazon. People who have shopped on Amazon.com all know that the moment they open their homepage, they will pop up books sold in different academic fields this year, this quarter, and this month, especially when you open a page in a subject area. The website will also pop up some forms for you to fill out a series of personal information such as age, hobbies, professions, etc., and then it will promptly recommend to you the books you are concerned. This precise positioning of book consumers facilitates the purchase of favorite books by consumers, which is beneficial to the company's expansion of sales, and the innovation and uniqueness of this sales model, Amazon has become the most complete global product variety. Online retailer and the second largest internet company in the world.

Third, the in-depth exploration of data in the era of big data will expand broad new services and channels for enterprises, making management more meticulous to highlight the "people-oriented" value. Not long ago, scientists at the Institute of Industrial Technology of Japan invented a new type of car anti-theft system. It mainly installed pressure sensors under the driver's seat of the car, marked out the characteristics of human hips in the form of data, and then data Conduct statistics, specifications, and analysis. When someone sits in the driver's seat of the car, if the owner is not himself, the car will force him to enter the password; if the password has incorrectly entered, the car will not be able to start. This invention counts one person's sitting position in the form of data, not only for car theft prevention, but also analyzes the change in driver's sitting position before the accident to find out the driver's posture and driving safety. The correlation between the two, and then applied to the safety design of the car, to provide the necessary security for the driver's safety. Not only that, through the collection and analysis of the data, it can not only avoid the property loss of the car owner in the first time, but also can identify the physical characteristics of the thieves through the comparison of the data and instantly determine the identity of the thieves. This deep excavation of data fully embodies the value pursuit of “serving people” and “people-oriented” management, and this concept should become the primary value goal for management to be refined [13]. Finally, the in-depth data mining in the age of big data will promote more scientific decision-making and provide the necessary method guarantees for refined management. In 2012, Netflix launched the world's first online drama "Solitaire House". The play has immediately broadcast on the Internet, and immediately won the 65th Emmy Award for Best Director and Best Pick. How could Netflix win this award for its first launch of a work? This is due to the important role of data mining technology in the company's decision-making process. At the very beginning of its creation, Netflix selected screenplays, directors, and actors based on the audience's preferences. Through the in-depth excavation of the data, it carefully created the work of “The House of Cards,” enabling the show to acquire domestic quickly and international favorite movies. The fans loved it; while the American fans continued to initiate the diffusion effect of sharing on the Internet, they created a website-driven, data-first business saga. Therefore, we can conclude that the deep mining of data in the era of big data has promoted the change of management: from extensive to refined. Figure 5 shows the refined
management of the database, and figure 6 give us the refined management decision results after multiple iterations.

![Data mining](image)

Figure 5. The Refined management of the database

![Component](image)

Figure 6. The Refined management decision results after multiple iterations

4. Comparative analysis

4.1. Comparison of the two models proposed

The era of big data has come. This is an indisputable fact. For managers, also this time background must be faced. How to greet the changes in the era of big data and promote the refinement of the management model requires a combination of three aspects [14]. First, we must combine the needs of data mining technology with the reality of our country so that refined management has Chinese characteristics. "If data mining enhances the insight of the enterprise, then the granularity of big data management provides enterprises with data management protection." Looking at the world, although the world is already in the era of big data, China's current data mining technology is also mainly confined to large-scale enterprises, and it is mainly concentrated on the Internet and high-tech enterprises. Some small and medium-sized enterprises lack the technical support needed for data mining. This makes the realization of the meticulous objectives of management must be down-to-earth, step by step, have not be achieved overnight. To face the problems of Chinese enterprises in the fine management, we must not only see the goals of the high degree, but also pay attention to achieve the tortuous and arduous nature of the goal. Efforts to achieve the organic combination of the two. Second, it combines the “real-time” of data mining with the “predictability” of the future, and enhances the strategic management strategy. "Strategy" is the proper meaning of modern management. It not only pays attention to the status quo, but also actively focuses on the future, and emphasizes the persistence and overall quality of
management. The deep excavation of data in the era of big data precisely reflects this desire. [15] Big data brings unlimited vitality and vitality to the development of the company. It is not only used to strengthen the customer's awareness and loyalty to the corporate brand, but also enables the company to find a place for self-development in the fierce market competition. Robert Plant, an associate professor of business school at the University of Miami and an expert in big data management research. Big data provides something beyond imagination - 360 degrees for consumers without time constraints. Omnibearing observations. Big data enables them to grasp the consumer’s previous behaviors, ongoing real-time behaviors, and predictive analysis of future behaviors. Third, the combination of the development of data mining technologies and related legal safeguards provides a good environmental guarantee for management refinement. The huge quantization and diversification of data in the era of big data have become inevitable. Under this premise, there will inevitably be a corresponding “data exhaust”, that is, the digital traces left by people in the process of using information systems. If these digital traces are used rationally, they can capture Internet users' activities and related information on the Internet and provide necessary information and intelligence for decision-making. However, on the other hand, this information also involves personal privacy. In order to protect the actor's privacy rights, we need to improve our country's legal norms and establish the data security of management system. To avoid the abuse of personal privacy data, prevent big data from being “black boxes” that are not transparent and cannot be legally interpreted, and avoid events that affect social stability. The government not only has to assume the functions of establishing sound laws and regulations, breaking data monopolies, increasing the construction of public databases, guaranteeing citizens’ rights to information, promoting healthy competition between society and enterprises, and providing good management for refined management. Environmental assurance

5. Conclusion
The informationization of enterprises cannot accomplish overnight but gradually. The internal and external environment of the enterprise is a dynamic system. The information system software managed by the enterprise must also adapt to it. The selection, purchase, implementation, and application of the management information system are a cyclical dynamic process. This dynamic process is closely linked with the company's strategic goals and business processes. The fundamental change brought about by the era of big data is the possibility of deeper data mining. Data mining is the process of "processing and analyzing data, finding what you need, and throwing away what you don't need." It is the process of de-embedding the data and deciphering the data. As we all know, modern management requires information to support information from a large number of data analysis and statistics. In management theory, to achieve optimal management results, not only must the data be comprehensive, but also the data must be reliable and valuable. Therefore, it is necessary to mine data deeply. In-depth mining of data is a process of modeling data. According to managers' needs, they classify and count data and try to find the relevance of data distribution. This is the process of exploring the law. For example, if a market sales person wants to understand the consumer's preference for a product, he will not only need to deeply dig out the product's sales in different stores, the model of the product, etc., but also the features of the product itself. What are the characteristics of the person and the methods used by the market sales staff in the promotion of merchandise, and a series of data, which comprehensively analyzes and analyzes all the data, and lays a solid foundation for the scientific nature of the sales decision? Therefore, the in-depth data mining is the main feature of the big data era, and at the same time, it has also contributed to the transformation of modern management models.

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