Towards Enterprise Business Management Strategy Based on Big Data Technique

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Abstract. A growing number of commercial economic activities are blooming with continuous economic development of China. Therefore, to improve the effectiveness of commercial economic activities, all aspects must be analyzed and managed to ensure that economic decisions are made scientifically and rationally. With the advent of the information era, competition in the market is intensively happened. Big data has substantially boosted the value of technological systems used in commercial and economic administration. In addition to extracting significant information from big data, it also enables analysis and forecasting of market supply and demand as well as current economic trends, helping companies make decisions about their business and economic management strategies. In the digital era, the emerging technologies represented by big data have been seamlessly integrated into Chinese societal and personal realms, playing an increasingly vital role in enhancing productivity and quality of life. As a consequence, big data systems have also shown greater application value in the business and economic management activities, becoming a key technology that is actively developed and utilised by major companies. It can not only improve the efficiency of data processing and economic management benefits, but also provide reference evidence for enterprise leadership to implement decisions, thereby continuously improving the modern commercial economic management mechanism and enhancing the market competitiveness of enterprises.

Keywords: Big Data; Business Economics Management; enterprise; innovation.

1. Overview of Big Data and Business Economics Management

1.1. Connotation and Characteristics of Big Data

Big data refers to the data set that is collected and processed through data collection software or sensor tools over a certain period of time. In the context of the information era, big data has become an important technology that has attracted attention and continues to be developed in all walks of life. Especially with the support of technologies such as cloud computing, artificial intelligence, and data mining; the application level of big data systems has been constantly expanded, and it has demonstrated extremely important application values. At this stage, big data exhibits the following dimensions [1]:

Firstly, it has a big amount of data. In the course of a comprehensive upgrade of information technology, the volume of data has grown exponentially. With the spread of mobile networks, the development of smart terminals such as mobile phones, and the increasing abundance of communication software, thus showing the basic characteristics of a large capacity of big data [2].

Secondly, it has a wide variety of data. The ways and forms in which information is disseminated on the Internet are constantly being enriched. In addition to traditional data formats such as text, audio, and video, it also includes log data such as browsing history, shopping lists, and social preferences [3].

Thirdly, the propagation and processing speed are fast. With the enhancement of network speed, the dissemination and collection of big data is faster. At the same time, with the support of cloud computing and other technologies, the data processing speed of big data is also continuously improving, thus showing the characteristics of high speed.

Fourthly, it has a high application value. In the digital era, data and information are an important basis for supporting the development of modern businesses and industries, and big data can provide

more scientific, accurate, and comprehensive data support, thus having important value for the sustainable development of enterprises and industries [9].

1.2. Application Advantages of Big Data

In the current environment, big data shows two levels of application advantages.

Firstly, from an economic perspective, big data can create a large amount of economic value for enterprises, which is embodied in products, services and customer information. Through the analysis of the big data system, the production process of the enterprise can be promoted to be intelligent, thereby eliminating outdated equipment and improving production efficiency and benefits. At the same time, big data technology can also be used to mine and analyze internal information of enterprises, thus finding target audiences based on their own advantages and strengths, and further improving the personalized level of enterprise services. In addition, through the analysis of market demand data, it can capture the subsequent development path of the enterprise and provide a more scientific guidance scheme to meet the production demand [6].

Secondly, from an operational perspective, big data can effectively promote the upgrading and optimization of key business processes in enterprises, thereby helping them achieve the purpose of transformation and innovation. On the one hand, the analysis of internal control through big data can effectively identify problems within the enterprise, thereby reducing the cost of the enterprise and scientifically adjusting the internal control mechanism. On the other hand, big data systems can help companies find their positioning in the market and network environment, and then work together through the corresponding production relationships and chains to achieve long-term development goals [7,8].

2. Issues with the Application of Big Data in Business Economics Management

2.1. Data Security Issues

In the course of the growing popularity of information construction, big data has become an indispensable guide for the management of business economics in enterprises. Consequently, an increasing number of enterprises are developing big data systems to improve their competitiveness in the industry. Despite the advantages big data offers in terms of data support and convenient services for enterprises, it also introduces significant data security risks.

On the one hand, as the enterprise data system is connected to the network, internal data and user data will become key targets for malicious attacks and theft by criminals. Such incidents not only result in business losses for the enterprise but can also compromise user information, potentially leading to large-scale data leaks. This represents a significant issue that affects both social security and business stability. On the other hand, large-scale data analytics can enable companies to make more evidence-based decisions in their business operations and decision-making processes, resulting in a persistent dependence on big data. As a result, there could be unauthorized access and mishandling of customer information, leading to potential risks to user security [5, 10].

2.2. Data Authenticity Issues

In a big data environment, companies can leverage data mining techniques to acquire commercial and economic data, which can be scrutinized and processed by big data systems to provide empirical insights for executives to implement business management strategies. However, with the growing accessibility of the online platform, companies are also grappling with the issue of ensuring the authenticity of the information they access. Therefore, scientific judgment must be used to identify valid and valuable data, so as to ensure that the references formed by its data service offer pragmatic value. In the current network environment, virtual data or fake data is gradually flooding. If an enterprise's big data system utilizes inaccurate data for business analysis, the resulting market conclusions and management recommendations will completely diverge from reality, which will have

a huge impact on production, business, and investment activities, making its production status significantly deviate from market demand [4].

2.3. Network-related Security Issues

Big data systems require network connectivity to function properly. However, an open network can introduce security challenges to big data systems. Especially in the process of data collection, processing and analysis, enterprise personnel are more prone to cause network-related security problems. On the one hand, if the company does not have a well-designed data management system in place, employees using data-related computers may inadvertently engage in non-work-related activities or misuse the equipment, putting the computer at risk of being infected with malicious viruses. This can lead to the leakage of corporate data through methods such as Trojan Horse. On the other hand, as the network is open and data can easily be disseminated, without a thorough firewall security system in place, Trojan horses can potentially spread and result in system failure and data privacy breaches within the big data system.

2.4. System Framework Deficiencies

In terms of macro development history, China entered big data research relatively later than other countries, which has resulted in certain deficiencies within the framework of China's big data system. Therefore, when enterprises use big data systems to serve business economics management activities, they may also encounter internal systemic problems due to their system defects. For example, the scalability of data information is insufficient and it is difficult to establish data links effectively; the utilization rate of gathered data is low with a significant proportion being invalid; maintenance and operation costs of big data systems prove steep, leading to increased economic strain on enterprises. Specifically, the primary system framework deficiencies are "poor scalability", "low resource utilization", "complex application deployment", "high operating costs" and "high energy consumption", which are urgent but unaddressed tasks to be solved in big data applications.

2.5. Network Performance Issues

With the progression of contemporary networks, users' demands for network velocity are continuously escalating. Especially in the process of upgrading 4G and 5G networks, the data information on the Internet increases exponentially. During the data collection process, it is inevitable that the big data system may encounter network performance issues. These problems can diminish the system's capacity for data collection, which in turn can impact the analysis time and feedback intervals for the big data system. At the same time, while collecting user data by occupying network bandwidth, the company may potentially affect the user's network performance and experience, resulting in a bidirectional influence between the two.

2.6. Talents Shortage

The progress of every industry relies heavily upon the backing and cultivation of skilled personnel. Currently, there is an increasing demand for enterprises to utilize large-scale data in their business economics management. This has resulted in a rapid rise in the demand for skilled professionals who specialize in big data-related disciplines, as well as an increase in industry standards. However, the majority of companies lack the resources and knowledge required to effectively nurture talent in this field. On one hand, enterprises are currently facing a shortage of skilled professionals with the capability to develop big data systems. Additionally, many enterprises have not established a comprehensive and effective system for cultivating scientific talent, resulting in a lack of sustainable development. On the other hand, universities tend to prioritize the computer field when cultivating big data talents. This has led to many professionals possessing ample knowledge and research capabilities in big data but lacking comprehension of business economics management. As a consequence, these talents often exhibit poor adaptability in this field.

3. Fundamental Roles of Big Data in Business Economics Management

3.1. Improving the Scientificalness of Decision-Making

With the progressive development of China's market-oriented socialist economy, the competitive edge of contemporary enterprises is steadily augmenting. To thrive in today's economic landscape, businesses need to improve the scientific and rational approach they take to business economics management decisions. This will enable them to navigate the complex and evolving competitive environment efficiently and with high-quality outcomes. Therefore, big data systems have an essential and importantrole to play.

Firstly, employees can utilize big data systems for data mining, leveraging network data to gather market, user and business information. In addition, through the processing and analysis of big data systems, valuable data can be selected and analyzed, businesses can identify data patterns, make predictions based on market developments, evaluate user needs, and measure important business metrics. It provides scientific, data-driven decision-making support for business executives in business economics management.

Moreover, business economics management practices have a direct impact on a company's profitability and growth trajectory, making it crucial for its leadership to prioritize effective management strategies. Therefore, it must take a long-term and developmental perspective on business issues. Meanwhile, in the decision-making process, it is important to maintain a rational mindset, and rely on precise judgment and data support from the big data system, to ensure the rationality and effectiveness of business economics management practices. For instance, it can ensure that its ultimate decision-making process is thorough and can safeguard the interests of the enterprise to the fullest extent possible. At the same time, it can modify the approach to fund allocation based on the enterprise's current requirements to ensure the stability of the enterprise's capital chain. Finally, it can also help companies gain deeper insight into competitors' strategies and responsive market intelligence to develop pre-emptive countermeasures and contingency plans.

3.2. Improving the Competitiveness of Enterprises

The fundamental goal of business economics management is to improve the economic efficiency of enterprises. In order to achieve their goals, enterprises should place a priority on comprehending the market environment. Based on market demand, they can then take economic actions such as commercial production, sales, partnerships, and investments to reach their profit targets. However, in today's socio-economic climate, the intensity of market competition is continually mounting. If companies want to gain a competitive edge, they must innovate their business processes, for example, establishing a management framework that aligns with their unique characteristics and development requirements. Therefore, big data systems have become essential for supporting enterprise business economics management activities. By analyzing internal information, enterprises can identify issues and shortcomings in their business processes in a timely manner, enabling them to swiftly adjust management plans and measures. At the same time, it can swiftly comprehend user requirements and create a customized and flexible development approach through actively listening to user feedback and suggestions. This serves as a crucial method to enhance market share and corporate competitiveness.

3.3. Improving the Business Management Level of Enterprises

The application of large-scale information can significantly heighten enterprises' business management proficiency, mainly demonstrated in three aspects.

Firstly, it can significantly enhance the data sensitivity of businesses. When making business decisions, enterprises should consider not only their internal business conditions, but also the external market environment and real needs. Big data can analyze both the internal business data of an enterprise and external market data to forecast market demand, thereby providing valuable insights for business investments. Through this process, as data continues to improve revenue efficiency and

investment levels, enterprises will develop greater sensitivity to data. This will lead to deeper mining and more efficient use of data, ultimately serving the development of the enterprise and continuously improving the level of business management.

Furthermore, it can facilitate the popularization of enterprise management transformation. Traditional enterprise management and decision-making are primarily determined by upper management, with limited input or control from grassroots personnel or users on the direction of business development. Leveraging big data, enterprises have undergone a comprehensive business management model upgrade. Managers can not only have close contact and understanding of the demands and opinions of grassroots employees, but also further explore and understand the needs and feedback of consumers and users, which can influence managers' decision-making in multiple aspects, forming a management model buoyed by multi-source data. In addition, it can also improve the pertinence of business management. Big data systems require cloud computing platforms for both development and operation. It can not only handle complex data, but also provide precise processing insights, providing valuable guidance for targeted management strategies and reform pathways for businesses, thereby enhancing management efficiency and quality effectively.

3.4. Promoting Innovation in the Business Model

Entering the information era, the availability of big data has increased the level of market competitiveness for businesses. Nevertheless, it has also opened up new possibilities for development, and serves as a crucial foundation for business innovation and transformation. Enterprises are an integral part of the business world, and their management of business economics relies heavily on market demands. The intensifying market competition can serve as an incentive and caution for enterprises to engage in prudent development and continuous innovation. In the highly developed information era, the traditional idea of development behind closed doors is no longer feasible. Businesses should embrace the concept of going global, establish greater connections, and collaborate extensively to identify their own weaknesses and enhance their overall capabilities. Therefore, with the big data backstop, enterprises can promote information and digital reform based on professional databases, convenient data transmission methods, information connectivity network systems, and other technologies. On the one hand, information release, resource deployment, task distribution, and achievement examination can be completed through the enterprise management platform. On the other hand, it has the capability to conduct thorough supervision, training, education, internal meetings, and various other activities, thereby revolutionizing the conventional business model and establishing a business economics management system proped by data and networks.

4. Application Approaches of Big Data in Business Economics Management

4.1. Optimize Top-level Design and Adhere to the Concept of Big Data Development

In business economics management activities, the application of big data must be based on top-level design and comprehensive understanding of enterprise management, in order to ensure the effective implementation, dissemination and enhancement of big data technology. For modern enterprises, data serves as the basic carrier for business economics management practices. Companies can only take the initiative in the market by using data to its fullest potential. The application of big data has not only made up for the singularity defect of modern enterprises in business economics management, but also significantly enhanced the standard and effectiveness of operations, serving as a critical foundation for business decision-making. However, whether big data can realize its full potential and advantages depends on enterprises recognizing the significance of big data and implementing system construction and concept optimization based on big data.

Firstly, companies should embrace the idea of big data development and commit to developing and using big data technology. This will enable them to create an enterprise development strategy driven by big data and demonstrate its practical value in their business economics management system.

Secondly, businesses should implement various measures to ensure the reliability of big data construction. On the one hand, it is imperative to establish a big data implementation framework that mandates all employees and management to operate in accordance with the requirements of the big data system and make real-time adjustments based on feedback received from big data. On the other hand, it is crucial to establish adequate financial guarantees and proactively implement state-of-the-art equipment, facilities and instruments to ensure the full functionality of the big data system.

Thirdly, enterprises should also clarify and leverage the application value of big data. They should not only focus on collecting data on entrepreneurial activities and business economics management behavior, but also proactively network with the market to comprehend feedback from market data and use big data to make informed and rational business economics management decisions. In addition, companies should conduct internal initiatives to promote and educate employees about big data, increase their understanding of its potential, and guide them in adhering to management standards. This will facilitate the implementation of refined big data analysis for all business aspects.

4.2. Establish the Database and Deepen the Technical Support of Big Data

Database is essential to support the functioning of big data systems. Therefore, when companies use big data to enhance their business economics management, they must establish a sound big database.

Firstly, in order to facilitate the efficient functioning of big data systems and data mining, companies need to foster a cohesive link between all divisions. Through the implementation of an information management system, the various tasks and responsibilities of each department are integrated to create a cohesive whole. This enables the sharing and dissemination of internal information and the real-time monitoring and collection of data within or between departments through big data systems.

Secondly, as the network continues to expand, the volume of data transmitted through it has been increasing exponentially. In order to enhance the analytical capabilities of big data systems and ensure their ability to collect larger amounts of data, enterprises need to establish databases with higher storage capacity. It can collect and store multiple data types within enterprise business processes, such as market and consumer data, along with enterprise user data. Through data classification management and analysis, companies can gain preliminary insights from data analysis. In addition, businesses can enhance their data intelligence systems and perform in-depth analyses aligned with their particular industry size, development status, core operations, market needs, and other relevant details, which will enable them to provide more comprehensive insights and references, thereby strengthening the supporting capabilities of big data.

4.3. Promote Business Innovation and Popularize the Scope of Data Application

Big data has shown significant application value in fostering innovation in the management of enterprise business economics. It facilitates the advancement and growth of enterprises in multiple aspects, such as their products, management models, and industry standards.

Firstly, at the level of products, big data can help businesses gain a deeper understanding of consumer expectations, including product value, configuration, and support services. Companies can evaluate the innovative development direction of their existing products by conducting horizontal and vertical comparisons, thus enhancing the competitiveness of their products. Through this process, the significant real-time benefits of utilizing big data can be fully maximized. Businesses can access dynamic and constantly evolving market information in real time through big data systems, which is particularly valuable when analyzing inconsistent consumer consumption patterns and showing inherent variability and diversity. Through analyzing vast amounts of data, big data can eliminate individual consumer differences and provide insights into overall product demand trends within the consumer group. Then, to increase economic efficiency, companies rely on thorough monitoring and locating solutions to maintain a competitive edge for their products. Moreover, big data has the capability to collect and arrange keywords derived from both consumer and market

situations. Through this process, companies can analyze consumers' daily consumption patterns and product preferences, gain a deeper understanding of user psychology, offer evidence-based product recommendations, and precisely target their expected value proposition. Companies can then establish trust and foster customer loyalty. At the same time, the adaptability of the product is also enhanced, which greatly contributes to the sustainable development of the company.

Secondly, at the level of enterprise management, it needs to rely on big data to thoroughly analyze and establish the present standing of the enterprise within the industry chain. Big data is not only a cutting-edge technology for analyzing data, but also a distinctive mode of thinking that can help businesses adopt more rational and scientific methods for managing business economics. On the one hand, companies can use data thinking to innovate their internal management structure and upgrade their product content. On the other hand, big data systems can be integrated into the day-to-day business systems of businesses. This would facilitate adaptive changes across all operational aspects, based on dual feedback – the internal data and external environment, thereby improving the operational efficiency of enterprises.

Thirdly, at the industrial level, enterprises should establish new industrial chains anchored in big data and flexibly adapt their business models to align with their evolving development needs and directions, in order to constantly accommodate changes in the industry. A comprehensive analysis of the core content of enterprise production should be carried out using big data. This will facilitate the regulation of business activities, including product transactions, and enable enterprises to extract valuable information from the vast market data relevant to their own industrial chain. This information can be further processed into relevant data resources. Furthermore, the use of big data should focus on data integration, extracting relevant data based on the processing requirements of the company's products. This can serve as the core data to support enterprise development decisions, and create a chain data analysis model to ensure that enterprise development is based on industrial development, continuously injecting new energy into industrial growth.

4.4. Improve Security Management and Optimize the Effectiveness of Big Data Applications

Big data technology plays an important role in promoting enterprise business and economic management. However, in the process of building information, companies may encounter new management challenges, particularly with regard to the heightened data risk index. Therefore, during the implementation of big data applications, it is imperative to enhance security measures. In the construction process of enterprise informatization, an open network environment is convenient for data collection in enterprises. However, it also exposes them to cyberattacks. On the one hand, enterprises should pay attention to distinguishing and analyzing the veracity of data during the data collection process. On the other hand, it is also essential to protect against external network attacks and prevent unauthorized data theft. For this reason, enterprises should establish a big data security management system.

Firstly, in the initial stages of constructing a big data system, it is essential to implement distinct security management protocols for both software and hardware components. Enterprises should prioritize increasing their system's memory capacity, regularly upgrading and optimizing running software, and consistently enhancing security measures. Then, a complete firewall system must be installed to ensure the secure storage of confidential business information. Lastly, a reliable backup mechanism should be established to ensure data security by isolating the network.

Secondly, during the data collection process, it is important to establish a mechanism for verifying the authenticity of the data to ensure its security and reliability before storage. At the same time, vital data must also be securely encrypted to enhance information security.

Thirdly, a safety management system should be established for the appropriate personnel. For example, an identity management system should be set up for offices where data is stored or computers are associated, and only authorized personnel should be allowed access; core data can only be accessed when multiple individuals are in attendance. In addition, regular maintenance and

management of the spaces associated with big data systems should be carried out, and measures should be taken to prevent dust, moisture, and fire.

4.5. Strengthen Talent Development and Improve the Level of Data Application

In addition, the cultivation of big data talents must be a priority project for the development of enterprise applications related to business economics management. Talents are the fundamental driving force behind enterprise development, the primary force for enhancing their competitiveness, and the cornerstone of implementing big data construction.

Firstly, enterprises should establish a training mechanism for big data. Non-expert staff should enhance their understanding of big data and grasp the working principles of big data systems. Managers need to develop their ability to think analytically about data and effectively leverage big data insights to inform their work and decision-making. Big data platform developers should consistently enhance their professional skills and facilitate the integration of dual expertise in big data and business economics management.

Secondly, enterprises should also establish a sound talent recruitment system. Introduce top-notch big data professionals promptly based on enterprise requirements, and establish varying evaluation standards to ensure that they have both big data skills as well as knowledge of the industry landscape and business innovation demands, thereby enhancing the effectiveness of talent utilization.

5. Conclusion

With the development of the digital era, big data has become an indispensable supporting technology in the business economics management activities of modern enterprises. In view of the various problems faced by enterprises in the application of big data, the promotion and auxiliary functions of big data for enterprise development should be effectively strengthened by adhering to the concept of big data development, establishing a large database, promoting business innovation, improving security management and strengthening talent training, thus providing the core competitiveness for the modernization transformation of enterprises.

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