

Innovation of Business Administration Mode Based on Big Data

Kaiwen Liu^a, Jiena Lu^b

Communication University of China, 100000, Beijing, China

^a3533392090@qq.com, ^b1225329437@qq.com

Keywords: Big data; Business administration; Mode innovation

Abstract: In this article, the application value of big data (BD) in business administration, the necessity of business administration model innovation and the innovation path driven by BD are deeply studied. It is found that BD has brought revolutionary changes to business administration and significantly improved management efficiency and market insight. Through case analysis, it shows the concrete results of the innovation practice of business administration based on BD, and also reveals the challenges and opportunities in the implementation of the innovation model. This article also predicts the future trend of business administration model innovation, including the normalization of data-driven decision-making, the popularization of intelligent management and more accurate personalized service. In addition, the paper puts forward policy suggestions and research prospects, and calls on the government to increase its support for BD technology and strengthen the construction of relevant laws and regulations. This study not only provides a useful reference for practitioners in the field of business administration, but also points out the direction for follow-up research.

1. Introduction

With the rapid development of information technology and the wide application of the Internet, we have ushered in a data-driven era. In this era, BD, with its distinctive features, has quickly become the iconic feature of today's society [1]. BD is not just a pile of numbers, it represents a brand-new information processing and analysis ability, and is gradually infiltrating into all walks of life, providing a new perspective and means for decision-making, management and innovation in modern society [2-3]. The four characteristics of BD-massive data scale, rapid data flow, diverse data types and low value density but high commercial value, make its application in the field of business administration particularly important [4].

The traditional business administration mode has shown its limitations in the face of the new data environment [5]. The traditional management model often makes decisions based on limited data and experience, which may be feasible in the era of data scarcity, but in the era of BD, this method obviously cannot meet the needs of enterprises for accurately grasping market dynamics and customer needs [6]. Therefore, it is particularly important to innovate the business administration model based on BD [7]. The innovation of business administration mode under the background of BD means that enterprises need to build a more perfect data collection, storage, processing and analysis system, and integrate BD analysis into decision-making, marketing, customer service and other links. This innovative model can not only improve management efficiency and reduce decision-making mistakes, but also help enterprises to grasp market trends more accurately and gain insight into customer needs, so as to make more scientific decisions [8]. More importantly, the application of BD can also help enterprises discover new market opportunities, develop new products and services, and enhance their core competitiveness.

The purpose of this study is to explore the innovation path of business administration mode under the background of BD, in order to provide enterprises with more effective management tools and methods, and then enhance their competitiveness and market adaptability.

2. Overview of BD and business administration

BD refers to a data collection with a very large amount of data. The strategic significance of BD technology lies not in mastering huge data information, but in specialized processing of these meaningful data to realize the "value-added" of data. Business administration is a discipline that studies the basic theories and general methods of economic management of industrial and commercial enterprises, mainly including the formulation of business strategy and internal behavior management of enterprises. With the development of market economy, business administration has gradually expanded from simple production management to comprehensive management of the whole enterprise activities, covering marketing, human resource management, financial management and other fields.

The introduction of BD technology has had a far-reaching impact on the field of business administration. BD provides richer data sources and more accurate data analysis, which enables enterprises to understand market dynamics and customer needs more accurately, so as to formulate more effective marketing strategies. BD can optimize the internal operation and management of enterprises, such as improving the efficiency of supply chain management and optimizing human resource management through data analysis. At the same time, BD can also help enterprises to predict and prevent risks and improve their ability to resist risks.

3. Theoretical framework for innovation of business administration models based on BD

3.1. The application value of BD in business administration

The application of BD in business administration is of great value. BD can provide enterprises with deep market insight. Through the mining and analysis of massive data, enterprises can accurately understand consumer behavior, market trends and competition patterns, so as to make more informed decisions. BD can optimize the operation and management of enterprises. For example, by analyzing sales data in real time, enterprises can adjust inventory and supply chain strategies, improve efficiency and reduce costs. In addition, BD can also help enterprises to conduct risk assessment and prediction, discover potential problems and opportunities in time, and enhance their ability to resist risks.

3.2. Innovation path of business administration model driven by BD

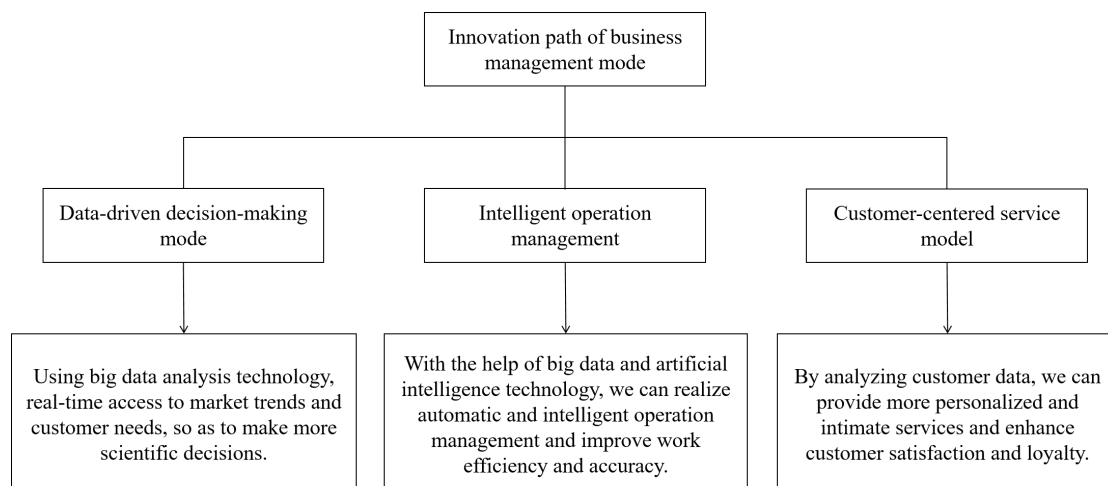


Figure 1 Innovation path of business administration mode

With the constant change of market environment, the traditional business administration model has been difficult to meet the needs of modern enterprises. It is particularly important to innovate the business administration model. On the one hand, innovation can help enterprises better cope with market changes and improve their competitiveness and profitability. On the other hand, innovation is also the driving force for the sustainable development of enterprises. By introducing new technologies and new ideas, enterprises can continuously optimize their management processes

and improve their work efficiency, thus maintaining their leading position in the industry.

Driven by BD, the innovation path of business administration model can include the following aspects: First, the data-driven decision-making model. The second is intelligent operation management. The third is the customer-centered service model. See Figure 1 for details.

4. Innovation practice of business administration mode based on BD

4.1. Business administration innovation case based on BD

An e-business company has achieved remarkable performance improvement after introducing BD technology, as shown in Table 1.

Table 1 Comparison before and after BD analysis

Index	Before the introduction of BD	With the introduction of BD	Rate of change
Monthly sales (ten thousand yuan)	800	1200	Increase by 50%
Customer satisfaction survey score (out of 100)	75	90	Increase by 20%
Inventory turnover rate (times/year)	4	6	Increase by 50%
Shortage rate	5%	2%	Reduce by 60%

Before the introduction of BD technology, the company's monthly sales were about 8 million yuan, and the customer satisfaction survey score was 75 points, and the inventory management efficiency was relatively low, with an inventory turnover rate of 4 times per year and a shortage rate of about 5%. In order to improve these conditions, the company decided to introduce BD technology to optimize marketing strategy and improve operational efficiency. By collecting and analyzing data such as users' shopping records and browsing behaviors, enterprises have successfully achieved accurate prediction of consumer behavior.

In terms of marketing strategy, according to the results of BD analysis, enterprises have tied up the related sales of goods. For example, it is found that 60% of the users who buy a certain brand of mobile phones have bought the matching protective case and film at the same time. Based on this discovery, the company launched the bundled sales package of mobile phones and accessories. As a result, the sales of this package accounted for 15% of the total sales, which effectively improved the overall sales performance. At the same time, companies also use BD analysis to predict consumers' purchase intentions and needs, and attract more users to buy through personalized product recommendation and preferential information push. The results show that the click rate of personalized recommendation has reached 40%, and the conversion rate has also increased to 8%.

In inventory management, through real-time monitoring and analysis of sales data, enterprises accurately predict the sales trends of various commodities, thus adjusting inventory and procurement plans in time. This makes the inventory turnover rate increase to 6 times/year, and the shortage rate also decreases to 2%. In the end, after the introduction of BD technology, the company's monthly sales increased to 12 million yuan, an increase of 50% compared with before. At the same time, the customer satisfaction survey score has also increased to 90 points, an increase of 20%.

To sum up, by introducing BD technology and accurately analyzing consumer behavior, the e-business company has made significant improvements in sales, customer satisfaction and inventory management efficiency. The numerical changes in Table 1 fully demonstrate the practical application effect and great potential of BD technology in the e-business industry.

Based on the above case analysis results, this article holds that the specific application strategies of BD in business administration include: First, establish a perfect data collection and analysis system to ensure the accuracy and timeliness of data. The second is to strengthen data security and privacy protection to prevent data leakage and abuse. The third is to cultivate professionals with BD analysis ability and improve the data-driven decision-making ability of enterprises. The fourth is to

share data resources with partners to achieve mutual benefit and win-win results.

4.2. Challenges and opportunities in the implementation of innovation model

Implementing the innovation of business administration mode based on BD faces many challenges, such as data security and privacy protection, and fast iteration speed of technology update. However, these challenges also give birth to great opportunities. For example, by solving data security problems, enterprises can win the trust and support of consumers; Keeping up with the development trend of technology, enterprises can maintain their leading position in the industry and continue to innovate. Therefore, enterprises should actively respond to challenges and seize opportunities to achieve sustainable development.

5. Conclusions

Through in-depth discussion on the application of BD in the field of business administration, this article reveals the role of BD in promoting the innovation of business administration model. It is found that BD not only improves the efficiency and accuracy of business administration, but also brings unprecedented market insight and competitive advantage to enterprises. At the same time, this article also points out some problems that should be paid attention to in the application of BD, such as data security, privacy protection and technology application, which are the challenges that enterprises need to focus on and solve in the future development. According to the research results, this article puts forward the following policy suggestions: the government should increase its support for BD technology and promote enterprises to accelerate digital transformation; At the same time, strengthen the construction of laws and regulations on data security and privacy protection to ensure the legitimacy and standardization of BD applications.

With the continuous progress of BD technology and the expansion of application fields, the innovation of business administration mode will show the following trends: First, data-driven decision-making will become the norm, and enterprises will pay more attention to data collection, analysis and application; Second, intelligent management will be gradually popularized, and the management process will be optimized through artificial intelligence technology to improve work efficiency; Third, the personalized needs of customers will be met to a greater extent, and enterprises will provide more accurate products and services through BD analysis. Future research can further explore the combination of BD and other advanced technologies, as well as the specific application and effect evaluation of these technologies in business administration.

References

- [1] Zhang L, Zhou C, Sun X. Big Data plus Business Administration: Applying Problem-Based Learning to Enrich the Design of Interdisciplinary Education[J]. *International Journal of Engineering Education*, 2022, 38(3): 786-798.
- [2] Wiener M, Saunders C, Marabelli M. Big-data business models: A critical literature review and multiperspective research framework[J]. *Journal of Information Technology*, 2020, 35(1): 66-91.
- [3] Sestino A, Prete M I, Piper L, et al. Internet of Things and Big Data as enablers for business digitalization strategies[J]. *Technovation*, 2020, 98: 102173.
- [4] Minatogawa V L F, Franco M M V, Rampasso I S, et al. Operationalizing business model innovation through big data analytics for sustainable organizations[J]. *Sustainability*, 2019, 12(1): 277.
- [5] Gao L. Relationship between business administration ability and innovation ability formation of university students based on data mining and empirical research[J]. *Mobile Information Systems*, 2021, 2021: 1-8.
- [6] Fu H. Optimization study of multidimensional big data matrix model in enterprise performance evaluation system[J]. *Wireless Communications and Mobile Computing*, 2021, 2021: 1-12.

- [7] Lv X, Li M. Application and research of the intelligent management system based on internet of things technology in the era of big data[J]. *Mobile Information Systems*, 2021, 2021: 1-6.
- [8] Davis M, Hansen M E, Husted T. The Impact of Political Influence on Appointees: Evidence from the Small Business Administration Disaster Loan Program[J]. *Southern Economic Journal*, 2018, 84(3):771-785.