Proceedings of the 5th International Conference on Computing and Data Science
DOI: 10.54254/2755-2721/21/20231147

Improvement of data mining technology in the context of big data

Zitong Qin

School of International Education, Zhengzhou University of Light Technology, Zhengzhou, Henan, China, 450002

qqzt020812@outlook.com

Abstract. As big data continues to permeate every facet of modern life, a growing number of academics are doing studies on the topic. If the potential of data mining is fully explored and researched, there is no doubt that the sector will grow economically. In other words, it is believed that the data information management work in these industries will go more smoothly if the data mining technology and its algorithm can be better applied to various industries and fields related to big data at this stage, handle these data well, and get the desired information. In order to accomplish the objective of increasing the sector's worth. Utilizing a literature review method, this research examines how different businesses have improved their data mining practices, demonstrating how this practice has advanced in the era of big data.

Keywords: big data, data mining, technology improvement, and value enhancement.

1. Data mining technology in the context of big data

The data mining industry, like many others, has benefited greatly from the advent of big data. In today's world of big data, data mining is an indispensable part of almost any endeavor. Data mining, in its broadest sense, is the practice of "mining" enormous data sets for hidden patterns and relevant information. The phrase "data mining technology" is used to describe the collection of tools and techniques employed in this operation. Knowing how to process data is a prerequisite for understanding the market's trajectory and development. Data mining has had far-reaching, beneficial effects in many areas of society, including the natural gas network construction, the broadcast of sports news, and the growth of the financial industry [1]. In order to verify and support the growth of data mining technology against the backdrop of big data, this study employs the literature review approach to examine and summarize from three perspectives: sports, finance and infrastructure, and future research.

The author hopes that by conducting this study, readers will gain a better understanding of how data mining technology can help businesses succeed against the backdrop of big data. In doing so, they will be better equipped to make informed decisions about how to best position themselves in the marketplace. Because of its more advanced technical means and relatively straightforward operation, data mining technology helps people achieve better development by increasing the rate at which data and information are used [2]. To make the most of the current market development circumstances, we need to implement data mining technologies properly and update and enhance the relevant material on a regular basis.

DOI: 10.54254/2755-2721/21/20231147

2. Data mining in the context of big data in the sports news industry

2.1. New opportunities for the development of sports news under the background of big data

There are two essential players in the ecological mode of sports news communication—the information disseminator and the audience—and both are being affected by the advent of big data. The divide is obvious when using the standard method of communication. Now that we live in the era of big data, sports news can be rewritten, forwarded, and commented on not only by professional media outlets but also by regular people using their phones, computers, and other smart devices. The entire procedure of disseminating sports information can be realized by individuals within the circumstances of meeting regulations. The source structure of sports information is shifting as the range of topics covered by sports information distribution grows [3]. And as the times evolves, so do the evolving requirements of news readers and internet surfers. With the help of big data technology, news organizations may collect and analyze audience data to better tailor content to their readers' individual interests.

Big data also makes it possible to improve news forecasting by enabling data mining and analysis to anticipate changes in the trajectory of various businesses. This, in turn, enables broadcasters to better cater to the demographics that they are trying to reach. The application of big data's predictive capabilities in the realm of sports journalism can facilitate the dissemination of breaking information and direct the trajectory of public opinion. The capacity of the news media to foresee the future, on the basis of the information and insights that they gather, is enhancing at an alarming rate. As more people become interested in the business potential of sports reporting, the sports sector stands to gain from the enhanced growth prospects that are available [4].

2.2. New changes brought about by sports news data mining under the background of big data

Data mining in the realm of sports journalism ushers in novel developments in the era of big data. When it comes to sports news, readers want to know more than just the score [5]. They want to know about the athletes' careers, how they perform on the field, and how much they're worth to the company. This project aims to overcome the limitations of traditional media in the dissemination of sports information by extracting correlation between data to discover the internal connection of the event's subject, collecting and analyzing data from sports news, and presenting the results in an easily digestible format to aid the audience in its interpretation of sporting events and news.

Data mining's capabilities also allow it to push for greater media convergence and open up new avenues for the growth of sports journalism. Advantages of media fusion are becoming more apparent in everyday life, with both traditional and network media retaining their strengths while also bridging gaps where the latter may be lacking [6]. This is especially true in the realm of news, where traditional outlets' inability to preserve or archive at all can leave audiences scrambling to keep up with breaking stories. Traditional media can save money and effectively inspire audience members to take action through cross-border collaboration.

2.3. Activity in participation in sports news

At this point in time, the technology behind big data has the capability to, on the one hand, record people's productivity and living situations in real time, and, on the other hand, extract and analyze the data included in these recordings. In the context of big data, sporting events are captured as data, and valuable data information is intentionally mined and evaluated. This process is known as "big data mining." In order to strengthen the narrative of sports news, better the coherence of news material, and make it easier for the audience to read in depth, the context of sporting events is given with the assistance of visualization technology.

DOI: 10.54254/2755-2721/21/20231147

3. Application of data mining in the context of big data in commercial banks

3.1. Value of data mining in customer relationship management of commercial banks

In the current economic climate, as the information technology associated with the internet continues to progress, a growing number of commercial banks will utilize data mining in order to carry out marketing and customer relationship management activities. Data mining based on Internet information technology, which blends advanced computers, statistics, and artificial intelligence technology, can assist commercial banks in thoroughly screening and mining the large database of the market in order to discover helpful information regarding customer demand and behavior. This can be accomplished in order to provide customers with a better experience. Commercial banks are in a position to collect fast and effective marketing information as well as customer management information, which enables the commercial banks to make decisions regarding targeted sales and services [7].

In order for commercial banks to accomplish this goal, they need to fully leverage the information of these customers through the use of big data, develop a more precise customer segmentation, predict the potential requirements and behaviors of customers, and then better position their own products and services within the target market.

3.2. Data mining analysis and prediction of customer profit returns

The profit return of customers to commercial banks is dependent on the varied business features of customers to commercial banks as well as the flow of money from customers to commercial banks. When it comes to commercial banks, the connection between the quantity of their assets and the amount of money they make off of their customers is not always a direct one. As a result, it is essential for commercial banks to utilize big data mining to examine the records of customers' varied behaviors and transactions within the bank, and then to classify existing clients in great detail in order to find the customer who represents the greatest potential profit to the bank [8]. We are able to perform targeted marketing services after doing relevant data analysis and extraction, and if there are new customers, we have the ability to estimate the value characteristics of such customers.

3.3. Data mining improves the customer relationship management of ZG Bank in the background of big data

With the use of information technology (IT), basic information and essential data pertaining to customers can be classified and anticipated, correlation analysis can be carried out, and focus can be directed toward the demand points that are of the utmost importance to customers. In the context of the modern environment for the growth of information technology, this is the part that big data plays in the process of customer relationship management. In this day and age of big data, ZG Bank needs to pay very close attention to the results of the classification and analysis of client information in order to maximize the effectiveness of its customer relationship management. The approach to customer care at ZG Bank that is driven by big data focuses primarily on two domains:

ZG Bank employs precise client classification management, and commercial banks that employ big data for customer relationship management use concepts and procedures that differ from the conventional ones. By leveraging big data, ZG Bank is able to classify clients based on the nuanced features of consumers in the database, rather than the more simplistic customer stratification based on the size of customers' assets, as has traditionally been the case.

Data mining in today's big data era necessitates commercial banks' familiarity with large stores of client information. More specific consumer information allows commercial banks to conduct more precise data mining. The customer management system can then more accurately reflect the challenges experienced by commercial banks. However, it is not simple to obtain enough client information, and it often necessitates the use of commercial As the commercial bank's actual business constantly updates and dynamically adjusts the data, and according to customer expectations to provide their personality services and product [9-10], banks must first build a reasonable structure data model, and then to form a large capacity of customer database.

DOI: 10.54254/2755-2721/21/20231147

4. Conclusion

This has led to broad acceptance of data mining as an important and promising topic of research. In a nutshell, many academics and business owners are eager to tap into the wealth of knowledge and resources hidden inside the big data databases that currently exist, and this has led to widespread acknowledgment of data mining as a subject of study. There is reason to think that in the not-too-distant future, this technology will bring more benefits to users and improve all aspects of society as a result of its in-depth development, the continued research of technicians, and the wide number of applications in a variety of fields. We need to gain an understanding of how technology should be applied, how to get the most out of it, and how to provide further support for the expansion of businesses. Because the findings of the data and information analysis are essential to our expansion and our ability to dominate the market, we need to take the required steps to ensure that they are finished.

References

[1] Niu Jiahui. Analysis on the application of data mining in human resource information Management [J]. Digital Communication World, 2022 (3): 94-96.

[2] Liu Kui. Application of data mining method based on digital neural network in CRM [D]. Chengdu: Sichuan University, 2004.

[3] Zhang Guangkai big data technology in enterprise strategic management [J]. China's collective economy, 2021 (3): 160162.

[4] Li Xianjun. Customer relationship management [J]. Enterprise Management, 2020 (07): 58-61.

[5] Wu Jintao, Zhao Bian. Research on the quantitative model of customer relationship value [J]. Journal of Management, 2021 (3): 47-49.

[6] An Shi, Zhao Zebin, Ju Xiaofeng. Analysis of the CRM mechanism [J]. Enterprise Economy, 2021 (07): 65-68.

[7] Zhao Chengying. Customer relationship management of commercial banks based on big data analysis [D]. North China Electric Power University (Beijing), 2021.

[8] Cao Zeren, Wang Honggang. Evaluation of the ESG quality of commercial bank customers based on big data [J]. Shanghai Finance, 2022 (07): 57-70

[9] Xia Chunmei. The application of data mining technology in banks in the context of big data [J]. Electronic Technology and Software Engineering, 2019 (10): 174.

[10] Cheng Dong, Song Yuanyuan. On the theoretical system of customer relationship management [J]. Management of modern Chemical, 2020 (04): 46-50.