Application of Big Data Technology in the Construction of Intelligent Financial Management System

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Abstract. With the continuous development and progress of society, big data technology is also constantly improved and updated. Financial management in recent years financial management occupies an important strategic position in the development of enterprises, because the financial management of data operation complexity, financial a operation is large under the support of big data technology, can develop professional management analysis system for financial management, through intelligent financial management system design to help financial personnel to handle financial data, improve work efficiency, at the same time, smart financial management platform in big data technology support to create new functions, promote the further development of the financial level of enterprise management.

Keywords: Big data technology · smart finance · management system

1 Introduction

Big data has the characteristics of diverse data types, huge data and fast processing speed. Big data technology is an emerging technology developed on the basis of the Internet and computer technology. Big data collects and manages the data and information uniformly through the establishment of a management database, and analyzes and screens it through its intelligent processing system, so as to extract the relevant data needed by users. The application of big data technology injects new vitality into the financial management of enterprises, changes the traditional artificial financial processing mode, and makes the enterprise financial management form a professional, asset-based and data-based financial system. Let enterprises have a more clear management goal of four or five management, improve the efficiency of enterprise financial management.

2 Characteristics of Big Data Technology

Big data technology mainly refers to the improvement of the level of modern information. The development of Internet and other technologies makes people have more and more extensive access to data information, so as to achieve great breakthroughs in depth,

breadth and speed [1]. And big data technology refers to the ability of all walks of life to process and apply applied data. The current big data technology has the following characteristics, the first is the big data technology operation speed faster and faster, this is mainly due to the expanding data scale, followed by big data technology can handle various structural types of data, finally big data technology acquisition and processing data structure speed will reach about 10 times. In short, in the current social development has ushered in the era of big data, and big data technology will also play a major role in it. For the electronic financial management industry, electronic data management mode is one of the manifestations of big data technology, and big data technology will also play an important role in electronic financial management [2].

3   The Application Analysis of Big Data Technology in Financial Management

The following measures can be taken for the problems presented by the enterprise financial management platform (Fig. 1).

$$
\begin{cases}
T_a + T_b = T_1 + T_2 \\
T_a - T_b = \dfrac{k_1}{k_2} \dfrac{l}{d} (T_b - T_2)
\end{cases}
$$

$$
\begin{aligned}
T_n &= \sum_{i=1}^{n} t_i \\
&= \frac{1}{u} \cdot a_0 + \frac{1}{u} \cdot a_1 + \cdots + \frac{1}{u} \cdot a_{n-1} \\
&= \frac{1}{u} \cdot \left(a_0 + \frac{v}{u} \cdot a_0 + \left(\frac{v}{u}\right)^2 \cdot a_0 + \cdots + \left(\frac{v}{u}\right)^{n-1} \cdot a_0 \right) \\
&= \frac{a_0}{u-v} \cdot \left(1 - \left(\frac{v}{u}\right)^n \right)
\end{aligned}
$$

Fig. 1. Big data technology in the financial management system formula calculation

3.1 Improve the Management of Electronic Financial Database Security Technology

The data used in electronic financial management is circular and practical, and the distribution of different channels in the current investment and financing plays an important role in developing future development strategies [3]. Because some data information is business secrets, need to do a good job of confidentiality. At the same time, the electronic financial management system, hoping to establish a science. Secure, complete database. Provide strong data support for the development of enterprises. This requires the security of the system to be greatly guaranteed, so as to provide strong security support for the development of financial management of enterprises. This is required big data to play its ability of management and analysis, requires enterprises to integrate relevant financial data information, and according to the correlation between the algorithm, make a mathematical model, will summarize complete data into enterprise database management, so as to realize financial management and other departments, improve the work efficiency of enterprises, increase economic and social benefits [4].

3.2 Improve the Risk System of Electronic Financial Management

E-financial management system is still in the initial stage of development, and the enterprise e-commerce also belongs to the initial stage. The project development of the enterprise has long-term development characteristics, which makes the financial situation of the enterprise is in a negative increase. In this case, a complete risk monitoring system is required to prevent financial security problems. Formulate emergency plans, required to summarize the professional level at home and abroad according to the relevant financial data and experience, and design the safety plan management suitable for the development of enterprises, so as to reduce the irreparable damage caused by various financial problems to enterprises [5]. Big data technology is able to find the mutual relationship between the data structure, on the basis of this simple computing processing, and draw the interests [6].

In the development of e-commerce, enterprises on the network of transactions. During transmission, some data is often confused or altered, thus affecting the security and stability of electronic financial management. Therefore, we need to improve the technical level and ensure the transmission safety. Therefore, a large amount of data can be transmitted to play a role in protecting important data. Therefore, so in this link, big data technology can be stored to predict and evaluate the financial management status of enterprises [7] (Fig. 2).
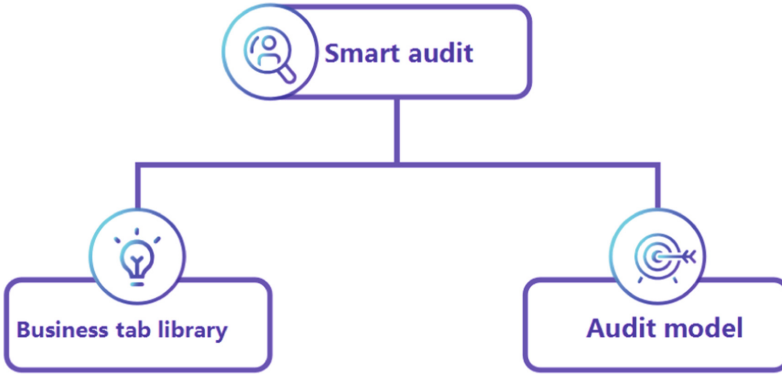
Fig. 2. The Application of Big Data Technology in Financial Management

4 Application Measures of Big Data Technology in Electronic Financial Management

Big data technology has broad space for development and great development prospects in electronic financial management, which should rely on the development of big data technology [8]. At present, China compared with the international financial management level, China's big data technology has big shortcomings, such as slow development. The actual application level is not high. These are mainly relatively few relevant departments to vigorously develop and apply big data technology, and the domestic financial management research is based on theory and lack of practical operation [11]. This problem needs strong support from the national policy, to strengthen the software development and design to improve the research, development and application of big data technology resources. Big data technology has strong data processing ability with both advantages and disadvantages to the electronic financial management of enterprises. The negative thing is the openness of data. Therefore, relevant laws need to be formulated and regulations to standardize the amount of data presented by big data technology [12].

5 Problems in Financial Management in the Context of Big Data

First of all, China's financial management concept is behind The Times. The focus of financial management is on the data information processing of accounting calculation, ignoring the requirements of the progress of The Times, and the simple knowledge calculates, records and stores the data. Without full contact and application of big data, the information management of financial work is insufficient, and the application of financial management information is only stuck on the analysis and understanding on the surface, and there is no real understanding and application of the core of big data. The outdated ideas leads to the lack of big data resources. Over time, the enterprise financial management organization gradually cannot adapt to the development and changes of the market, and the competitiveness of enterprise competition is also constantly enhanced (Fig. 3).

$$\begin{cases} x_1 + x_2 + 3x_3 - x_4 = -2 \\ x_1 - x_3 + x_4 = 1 \\ x_1 + x_2 + 2x_3 + 2x_4 = 4 \\ x_1 - x_2 + x_3 - x_4 = 0 \end{cases}$$
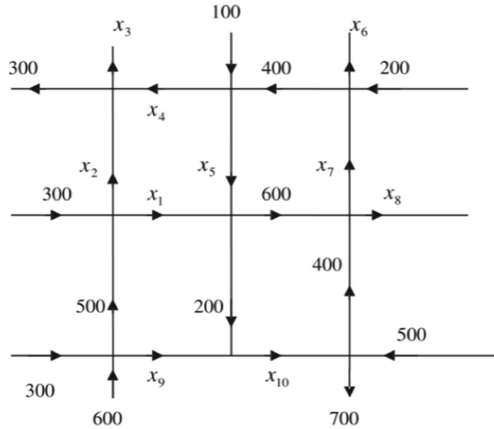

Fig. 3. Coordinate diagram of financial management operation

Secondly, the technical support of enterprise financial management is insufficient, and strong technical support is needed in the background of big data, because all the data and information of big data comes from all walks of life. The data is characterized by large numbers and complicated numbers, and the data growth is relatively fast. The financial data of enterprises comes from various departments within the enterprise. The data characteristics are different from the big data characteristics [13]. There are few data types within enterprises and a high precision rate. In the era of big data, the technical requirements for enterprise financial management personnel should be increased. At present, the financial management technology of most enterprises is still insufficient compared to the development of big data, and the insufficient technical support leads to the low efficiency of financial management. Organizations are associated with data information to form a shared data network. The generation and dissemination of each data are fast and efficient, and the sharing and application of data by one side has brought new development directions to the management of enterprises. On the other hand, the sharing of data also leads to the ease of the enterprise data and information to write, and the security of financial data cannot be guaranteed [14].

6   Effective Measures for Enterprises to Carry Out the Construction of Management System in the Era of Big Data

6.1   Keep Pace with the Times and Timely Update the Concept of Financial Management

In order to better adapt to the big data environment, enterprises should keep pace with The Times, actively update the financial management concept, correctly realize the connotation and significance of the construction of the contemporary enterprise financial management system, and constantly improve their own financial management work in the actual production and operation activities of the enterprise [15]. For example, they actively apply the related technologies of big data, and gradually form their own management mode in the exploration and analysis, and effectively control the business discovery of the enterprise within the safe scope, so as to improve the financial management level of the enterprise and maximize the financial value of the enterprise. The formula is calculated in the following equation:

$$P(m + n) = A \times (P/A, \ i, \ m + n)$$
$$PM = A \times (P/A, \ i, \ m)$$
$$Pn = P(m + n) - PM$$

To build the own financial management information platform of the enterprise, we mainly have the following measures: to build a unified data collection system. Through the unified and centralized processing of all the data in all departments of the enterprise, the analysis, comparison and screening of the data can be effectively realized [16].

7   Conclusion

Smart the financial management system is still in the stage of development, with immature, unstable problems, need enterprise according to financial management data, development system integration enterprise financial management system, and big data technology can continuously expand data scale, various structural types of data to solve the current enterprise financial problems. Therefore, in the era of widespread application of big data technology, enterprises should strengthen the modern development of financial management, constantly improve the financial data sharing mechanism, and vigorously introduce professional talents. Improve the application level of big data of the enterprise, constantly improve the construction of smart financial management system, and lay a solid foundation for the healthy development of the company.

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