Research Article

Digital Transformation of Enterprise Finance under Big Data and Cloud Computing

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In today’s rapid development of technology, with the popularity and use of information technology networking, big data and cloud computing technology are gradually integrated into all walks of life. In this context, the financial management and control of enterprises have put forward higher requirements and brought greater challenges for enterprise finance. In the actual work, how to analyze the problems of enterprise financial management according to the actual situation of the enterprise and effectively apply big data and cloud computing technology to the work practice of enterprise financial control is a problem worth exploring.

1. Introduction

In the context of the new era, enterprises can only better adapt to the development of big data and cloud computing by innovating financial management methods. By establishing a model for financial management analysis, we can optimize the allocation of ministry resources within the enterprise and then realize scientific control of costs and improve the quality of financial management. We change the concept, raise awareness, adopt a data-based financial management model, integrate financial information with business information, and change the previous phenomenon of disconnection between finance and business departments, so that all departments, especially the finance department and other departments, form a borderless exchange and communication. We build a financial risk early warning mechanism, combine the identification of financial risks and big data technology, provide complete data information to the enterprise, and help the enterprise to effectively avoid risks in the market competition [1].

The introduction of big data and cloud computing and the traditional information system can not meet the needs of big data technology. Enterprises must combine the development of the times, build a unified information management system, and integrate finance, business, strategy, and decision making within the platform by building an information sharing platform to make the financial information system more transparent and gradually establish a perfect big data system to better serve the decision-making activities of managers [2]. By unifying data formats and expanding the amount of information, it can realize the analysis of enterprise historical data, external business, and financial information, extract valuable data from them, and comprehensively improve enterprise financial management work. The data management is more comprehensive and systematic, and by establishing a system based on financial data, finance and management are combined to realize the compound of data and information, and on this basis, data sharing among finance, operation, and business management is realized. Network security is the premise and guarantee, strictly audit the collection channels of financial data, strengthen network security management, implement daily network maintenance to avoid damage to the system by virus invasion, and strengthen information management work to avoid information leakage. We learn more about big data and cloud computing and develop reasonable risk management plans in combination with the actual situation of the unit to ensure the safety and reliability of financial data and improve the quality of enterprise financial management [3].

Regarding the digitalization of finance, there is no unified opinion in the academic circle, but most scholars believe that the digitalization of finance should contain two meanings:
on the one hand, enterprises integrate finance with modern digital technologies such as big data, mobile Internet, cloud storage, and Internet of Things to improve the level of informatization of finance; on the other hand, it is to improve and optimize the internal financial organization, workflow, and mode of enterprises. On the other hand, it is to improve and optimize the internal financial organization, workflow, and mode, etc., so that the whole financial system of the enterprise is more complete and better supports the business development in the context of big data. In today’s big data background, the market environment faced by SMEs is becoming more and more complex and changeable. In order to keep pace with the domestic and international markets, SMEs need to speed up the construction of information technology and bring advantages to the enterprise competition with efficient and fast management [4]. As the natural data center of the enterprise, the transformation and upgrading of financial work have become the core of information technology construction. Therefore, accelerating the transformation of SME finance digitalization can help improve the scientific and rational nature of SME business activities and investment decisions and help SMEs achieve sustainable development.

Providing a wider space for SMEs to survive, at the same time, SMEs are also facing double competitive pressure from both domestic and foreign countries. Under the background of big data, many business activities of enterprises are inseparable from the support of information data, so SMEs need to pay attention to digitalization, information technology, and the application of related software and hardware equipment if they want to gain a place in the competition. Since financial management is the core work of enterprise management, the digital transformation of most enterprises basically starts from the digital transformation of finance [5]. We accelerate the digital transformation of finance, so that managers can change the traditional inefficient and high-consumption financial work mode according to the results of big data analysis, save production and operation costs and expenses, and can provide reliable data reference for the optimization and upgrading of the internal operation and management structure of SMEs.

2. Related Work

The impact of big data on financial management is extremely important; for example, [6] discussed the concept of data mining, and the use of big data can provide a more comprehensive basis for financial managers’ decision making. To enhance the role of financial management in the context of big data era, it is necessary to establish an information sharing platform, based on which different departments in the group can exchange information and realize information sharing, which can provide more favorable data and information support for different decision makers and enable every employee to participate [7]. The emergence of the concept of big data has changed the content and mode of financial management, and information technology is gradually applied in all aspects of enterprise management, and financial management is also used in all aspects [8]. [9] argued that in the big data environment, financial management activities can be more based on the development of relevant technologies to provide more favorable data support for enterprise management, providing a channel for information collection for enterprise financial management, making financial risks quantifiable and more intuitive, making it easier for managers to make targeted decisions and improve the effectiveness of strategy implementation. [10] argued that big data makes financial data processing more efficient and enhances the speed of data analysis. [11] argued that big data can automatically track and mine web information, and the valuable data can be collected continuously while ensuring the quality of financial information. [12] pointed out that big data makes the scope of financial management work of enterprises larger, and the interference factors for making decisions increase not only for macrothinking but also for combining with other related information outside the enterprise. [13] pointed out that the era of big data has broadened the access to financial information; the most important source being the Internet, which is easy to access, rich in content, and readily available at the same time.

According to [14], the development and expansion of enterprise groups have led to the change of industrial scale, diversification, and complexity and consequently to the decentralized management of the group. However, in the early stage of group development, the main focus should be on controlling financial risks, so a high degree of centralized management should be adopted. [15] proposed that budget control and cost control are two basic tools of financial control. [16] believes that the object of study should be the core, through the control of behavior, results, and humanities, in order to restrain individuals and ensure the correct behavior of people, and ensure the achievement of corporate goals. [17] believes that the group should adopt a financial control system that combines centralization and decentralization to improve the financial control of the enterprise group. [18] believes that enterprise groups should strengthen financial control and that the objectives of each member enterprise should be consistent with those of the group headquarters. [19] believes that the specific control model of enterprise groups is not fixed but should be based on specific situations. Whether it is a centralized or decentralized model, the specific constraints are not the same and the presented results will be different. A comprehensive analysis of the enterprise’s current stage of development, control capabilities, changes in external conditions, and other factors should be used to make decisions about corporate finance.

[20] argued that due to the influence of big data, the traditional financial risk control system and risk evaluation system are unable to meet the needs of enterprise development, so enterprises should build a comprehensive early warning and evaluation system that meets the requirements of the times, enhance the strength of innovation, and improve the competitiveness of enterprises. [12] pointed out that in the era of big data, there are more unstructured data, which are more important and more numerous, and can provide more comprehensive information for enterprises and provide more reference information for enterprise decision-making [13]. Big data provides more comprehensive data information for enterprises, which helps to realize comprehensive management of enterprises. [14] believes that big data has changed the way of financial management work, which helps to improve financial efficiency and effectively avoid financial
risks, and will realize comprehensive budget management. [15] thought that under the environment of big data, enterprise financial management should be adjusted in a timely manner, and in all aspects, the collection of information and data has a vital role in reducing enterprise financial risks and broadening the market, at the same time, we should pay attention to the issue of information security, enhance enterprise supervision, improve the supervision system, and then ensure that the financial management work is carried out effectively. [16] argued that big data has increased the amount of data for financial control, and it is necessary to establish a systematic financial control system. [17] believes that the current stage of financial management is different from the past, and enterprises must adapt to the era of big data and update the financial management system through the use of big data in order to ensure better progress of enterprises.

The above literature shows that scholars at home and abroad have done a lot of research on financial control, foreign scholars mainly focus on the characteristics of the enterprise environment in the big data environment, and big data has broadened the access to financial information and also brought many interference factors affecting decision-making, which need to be combined with external related information, highlighting the importance of establishing an information sharing platform, while studying the main changes in the financial work of enterprises in the context of big data, as well as the importance of group control, emphasizing that the control model of enterprise groups is not changing.

### 3. Financial Shared Collaboration Platform

In this paper, we fully study the current shortcomings and transformation needs of enterprise finance work and firstly analyze the construction needs of financial sharing collaboration and decision support system for the transformation of enterprise finance work. Then, using big data, cloud computing, mobile Internet, and other advanced technologies, we propose a solution for financial sharing and digital transformation of enterprises, and study in depth the optimization of business and financial processes, definition of data sharing interfaces, business collaboration mechanisms, and other solutions to realize the digital transformation of enterprises' financial work. On this basis, we will further study data mining, machine learning, artificial intelligence, and other cutting-edge technologies and propose financial decision support services and intelligent transformation solutions for universities, focusing on core business such as intelligent financial data mining, budget risk prediction and control, and intelligent decision support and analysis, to realize intelligent transformation and optimization and upgrading of enterprise financial work. The overall research technology line of this paper is shown in Figure 1.

In the environment of comprehensive informatization of enterprises, the current enterprise finance work faces many challenges. First of all, the financial data of various business information management systems such as teaching and research cannot be directly transferred or shared with the existing financial system, and they need to be printed or exported from the business system and then manually submitted to the financial staff or imported into the financial management system, which causes inconvenience to the staff and students. Secondly, there is no business interface service between each business information management system and the existing financial management system, which makes it impossible for each business management to directly interface with the financial system for financial budget reporting, reimbursement, accounting, and other operations, and neither business managers nor financial managers can control and track the process [21].

At present, this way of working not only greatly reduces the efficiency of financial interactions between enterprises but also makes it easy for data errors to occur and cannot be found in time, which greatly affects the progress of comprehensive informatization reform of enterprises. Therefore, it is necessary to reform the current enterprise finance work and reform the financial management system and various business information systems from the level of data sharing and business collaboration, so as to realize the digital transformation of finance work. Based on the analysis of the transformation needs of enterprise finance and the exploration of the transformation path, and based on the technologies of big data and cloud computing, this paper proposes an architecture design of enterprise finance sharing and collaboration platform, which is shown in Figure 2.

Based on the results of the analysis of the business and financial process optimization and financial data sharing requirements by the finance departments of enterprises and business departments of faculties, specific optimization plans are proposed for the existing business and financial interaction processes (business and financial processes), for example, optimization of research project process, optimization of research reimbursement process, optimization of faculty performance calculation process, optimization of student tuition payment process, etc. On the basis of the optimization of business and financial processes, we further propose financial data sharing and business collaboration solutions and develop financial data sharing interfaces and business collaboration interfaces for each business system. Through the proposed data sharing interfaces and business collaboration interfaces, the comprehensive sharing of financial data and the tracking of the whole process can be effectively realized. At the same time, a large-scale financial data sharing database is built to provide a rich data base for financial data mining and intelligent analysis.

### 4. Effectiveness Test

Management is the key point of enterprise survival and development and is also an important element of enterprise financial management work. The application of cloud computing and big data technology in enterprise financial management can effectively circumvent the drawbacks of the traditional enterprise financial control model, expand the scope of financial management work, enable enterprises to reduce capital investment, save human and material resources, improve the quality of financial management work and economic benefits, and achieve remote data processing and high-load data processing. Therefore, in the context of big data and cloud computing, it is necessary to strengthen the financial management of enterprises and promote the sustainable development of enterprises.
Financial data sharing and business collaborative service in Colleges and Universities

Figure 1: The general research technology line.

Figure 2: Enterprise financial sharing and collaboration platform architecture.
As shown in Figure 3, in practical application, big data can extract valuable data from complex data, which increases the pressure of data processing due to the variety of data and wide range of sources. With the help of big data technology, the accuracy of data collection can be improved comprehensively, the source of data is more reliable, the fake system of data is improved, and thus, the efficient processing of data is realized. Cloud computing data has the characteristics of large capacity, high efficiency, low cost, and convenience and is an emerging financial information model; big data and cloud computing are interdependent and role between the two; big data technology needs the support of cloud computing; cloud computing is the basis of big data technology.

Some enterprise leaders do not pay enough attention to financial management, the financial management system is not sound, even if there is only in form, the lack of the necessary system to do the restraint, staff lack of proper understanding of their job responsibilities, risk awareness is weak, internal control is not perfect, only pay attention to asset accounting and error correction, ignoring the control of daily financial work, the lack of internal audit institutions, even if there is also a lack of relative independence. The supervisory department lacks the strength it should have. Due to the unpredictable production and operation of enterprises, and the untimely information obtained by operators, risk prevention lags behind, bringing unnecessary losses to enterprises. If the enterprise managers do not monitor the relevant behaviors of the operators, the interests of the enterprise and other people may be

Figure 3: Effect of financial distribution under different data calculations.

Figure 4: Financial correlation.
damaged because the operators disregard the survival and development of the enterprise in pursuit of personal interests, as shown in Figure 4.

The introduction of big data and cloud computing has put forward higher requirements for finance staff. Not only do they need to change the traditional financial management model in the past but also they need to be able to use modern tools such as the Internet and computers to analyze, organize, and identify data, and based on the results of data identification, they can grasp the essence of data within a large amount of data and provide users with a basis for decision-making. Since big data and cloud computing require high professional skills, enterprises must strengthen the training of financial staff and provide more training and development opportunities for financial staff. By building an experience exchange platform, it can prompt financial personnel to learn and accumulate financial experience regardless and take the initiative to pay attention to the application of big data and cloud computing in other enterprises and then realize the improvement of their own business ability and professional skills. When conditions allow, enterprises should also increase financial investment, hire some talents with strong ability of cloud computing and big data application to join the financial department of enterprises, add fresh blood to the financial management team, promote the construction of the whole team, and ensure the standardization and standardization of financial management work, as shown in Figure 5.

5. Conclusions

Data and cloud computing is the inevitable product of the continuous development of information technology; the introduction of big data and cloud computing has brought great changes to the enterprise financial control; how to use big data and cloud computing for enterprise financial management is a difficult and long process; this paper through the elaboration of big data and cloud computing analyze the problems of enterprise financial management, take to strengthen the construction of the financial personnel team and innovative financial management mode, and strengthen the financial information construction, only then can we fully apply the big data technology and cloud computing technology to strengthen financial management, promote the integration of financial information and other information, realize the sharing of information resources, and then make the financial data more systematic, comprehensive and transparent, save the operation cost, reduce the human cost, improve the work efficiency in all aspects, and lay a solid foundation based on the development needs of the times. Let us make concerted efforts for the economic take-off and sustainable development of the enterprise.

Data Availability

The datasets used in this paper are available from the corresponding author upon request.

Conflicts of Interest

The authors declared that they have no conflicts of interest regarding this work.

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