Talking about the Improvement of Financial Accounting in Manufacturing Industry in the Age of Internet Big Data

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Abstract. The article expounds the changes in financial analysis methods and analytical thinking of manufacturing enterprises in the era of big data, and then points out that big data technology has improved the "decision usefulness" of financial analysis, and built a financial accounting sharing information platform in the era of Internet big data to achieve The financial information between the corporate departments is effectively shared. Finally, the paper analyzes the challenges brought by the big data era to the financial accounting work, and points out the countermeasures to deal with the challenges.

1. Introduction

The opening of the era of big data has brought people's lives into a new era. With the popularity and application of the Internet and computer technology, it provides a growth ground for big data technology. Under the modern enterprise management mode, the investors and their operators of the enterprise pay more attention to the scientific and objective nature of the enterprise management, and attach great importance to various financial information and non-financial information in the daily operation management and the heavy investment decision. The collection, collation and analysis provide strong support for the final decision. Under this premise, big data technology is getting more and more attention and recognition from relevant people. The transformation and innovation in the era of big data has brought certain challenges to the traditional financial accounting of various enterprises [1]. The original informationization model needs to be changed, and the cloud computing technology emerges to solve this key problem well. Make financial management information construction a possibility. The cloud accounting system application supported by cloud computing technology will also appear, and gradually enter the people's field of vision. Although cloud accounting system has the advantages of large amount of information storage, high sharing degree and low cost of use, its security is still not to be underestimated. Therefore, enterprises should combine their own in the process of using financial cloud accounting system. Features are reasonable for the application. Taking the financial platform of manufacturing financial accounting in the era of big data as an example, this paper analyzes the challenges faced by financial accounting in the era of big data and the future development trend. I hope to be able to inspire financial accounting practitioners.
2. The Challenges Faced by Manufacturing Financial Accounting in the Age of Internet Big Data

2.1. Characteristics of accounting big data
   (1) The amount of data is large. The amount of data generated under the Internet of Things is large. It is not described by large-scale data, huge data, and massive data in the past, but should be summarized by big data. The data size is not measured in GB, TB but in PB.
   (2) Data heterogeneous data. The data generated under the Internet of Things includes not only structured data such as numbers, but also unstructured data such as sounds and images. Because of the relevance of these data to business events, structured data and unstructured data are more complex and difficult to handle [2].
   (3) Data generation and processing real-time. Traditional data does not require high time processing. However, the behaviour of the Internet of Things and the behavior of people generally require completion in the present, so the generation and processing of data is real-time.
   (4) The value density is low. Accounting big data is generated continuously, but valuable data is only a piece or a part of the continuously generated data. Take video as an example. In the continuous monitoring process, the data that may be useful is only one or two seconds. Therefore, the value density of big data is low.
   (5) The intangibility and stickiness of accounting data. The digital information collected, transmitted and processed by enterprises on the Internet of Things is mainly non-valued quantity information. These data can be directly perceived by the sensor and thus easily propagated; accounting data is intangible data that cannot be perceived by the sensor. At the same time, accounting data is directly embedded in business data and cannot exist without business data. Therefore, accounting data is intangible and sticky.

2.2. Analysis of the challenges faced
   (1) Challenges of financial staff knowledge and skills. Big data as another major disruptive technology revolution in the IT industry after cloud computing and the Internet of Things, a large number of Internet technologies. Therefore, big data collection and analysis personnel must have high IT expertise. At present, there are only a few people with financial expertise in China's manufacturing industry. The lack of talents will restrict big data analysis technology in the field of financial analysis. Effective use. The financial staff is not only a professional who is good at dealing with numbers, but also a person with rich knowledge and practical experience in management accounting. In today's big data era, the data faced by finance is getting bigger and bigger, and the data types are coming. The more complex, and enterprise managers require them to analyse valuable information in seconds or even in real time, which requires them to be proficient in financial analysis [3].
   (2) Lack of big data resources. In the era of big data, big data is an important strategic resource, and whoever owns the ownership of big data has the initiative. For the manufacturing industry, big data mining and analysis is not its strength. How to better access big data resources is an important issue.
   (3) The choice of big data. The big data era can provide massive amounts of data for financial analysis, but not all data is valuable. Victor Meyer Schonberg, author of The Big Data Era, tells us in another book, The Delete, that in the era of big data, deletion is the way to make big data, facing massive Information Humans can only build a positive and secure future with the right choices. Therefore, how to select valuable data in financial analysis is another challenge for financial analysis.

3. Build a big data internet financial sharing platform

3.1. Data Center Architecture
The architecture of the data center is a Service-Oriented Architecture, also known as an SOA architecture [4]. Under this architecture, numerous software manufacturers can provide their development software functions in the form of services. The functions are independent of each other and are combined in a protocol mechanism called loose coupling. The data center architecture is
managed through directory configuration, visual configuration, and the mechanisms that leverage the functional warehouse and data warehouse. The following picture shows the financial data center architecture diagram.

![Financial Data Center Architecture](image)

**Figure 1. Financial Data Center Architecture**

### 3.2. Financial Sharing Center Function Analysis

Based on the cloud accounting platform, the group enterprises obtain the requisition and control of enterprise expenses through the connection with the intelligent terminals, servers, storage, internet, etc. in the infrastructure layer, from the internal institutions, external markets, taxation departments, banks and accounting firms [5]. Financial and non-financial data required. Since enterprise financial data may be distributed in different regions and organizations, and there are different data types, it is necessary to use cloud accounting platform to realize the collection and preprocessing of these distributed data. The initial data source obtained from the infrastructure layer is initially collected by the cloud accounting business layer expense reimbursement management system, fund management system, image management system, budget management system, accounting system and credit evaluation system. The data model in the background is used for data mining, cleaning and integration, which enables the expense reimbursement management system to support more comprehensive and scientific data, thereby reducing the subjective judgment basis of cost reimbursement management and control, and improving decision-making efficiency.

Through the data processed by the cloud accounting business layer, enter the business synchronous replication database of the data layer of the cloud accounting platform, including DBMS, HDFS, File and NOSQL, and with the help of big data processing technologies Hadoop, HPCC, Storm, etc. After the data is normalized, the data such as expense reimbursement data, human resource data, fund management data, document management data, and budget management data are entered into the data center (data warehouse). In the service layer of the cloud accounting platform, the data of the data center is extracted for data processing and data utilization, and application integration, user integration, and
implementation of basic services are required. The enterprise integrates and analyses the data information from the platform service layer by means of text analysis and search, visual discovery, business intelligence and advanced analysis and other data decision support technologies of the platform application layer, and forms various levels according to the needs of decision-making. Decision-making plan, including cost budget decision, expense reimbursement control decision and employee credit evaluation decision. The decision makers of the group enterprise are the user layer, including the Group Company, subsidiaries, branches, etc., and need to select from the financial decision-making scheme of the application layer according to the relative optimal principle, and allocate and utilize the resources reasonably. As shown in picture 2.

![Administrative Management Systems (AMS)](image)

3.3. Hardware and software support
With the advent of the era of accounting big data, accounting data has shifted from the original numerical data to the non-structural data. Due to the essential difference between non-structural data storage and structural data storage technology, the storage and management of accounting big data should be changed from relational database storage and management to original (XML) database storage and management. 1 relational database storage and management. Relational database storage and management not only solves the problem of data concentration and sharing, but also has a strict mathematical foundation. The abstraction level is relatively high, and it is simple and clear, easy to understand and use. Relational databases can also solve data independence and abstraction problems. When the user accesses such a database, it is not necessary to clarify the storage structure of the data and indicate the access path. 2 Native XML database system (Native XML Database) storage and management. Relational databases can handle so-called “tabular data” well, but they can't do anything about the unstructured data generated by IoT technology. This requires support for more advanced object-oriented relational databases than relational database products. Because the main design idea of object-oriented database products is to try to replace the existing database system with a new database system, this is not enough for many customers (especially big customers) who have used database systems for many years and accumulated a lot of work data. A huge amount of work and huge expenses due to the conversion between old and new data. In addition, the object-oriented relational database
system makes the query language extremely complex, so that both the developer's home and the application customer of the database regard its complex application technology as a fear. Therefore, the combination of object-oriented and relational databases is the current main method). Accounting big data storage and management with unstructured data as the main feature must be carried out on the Internet platform across operating platforms and software systems. The basic technology is "Extensible Markup Language (XML)".

Figure 3. Financial Information System Hardware and Software Support

4. Internet big data manufacturing financial accounting efficiency improvement means

4.1. Improve the security of relevant financial data under the cloud accounting system

In terms of security of financial information storage, big data is the foundation of cloud computing technology. It can be said that data information is the foundation of cloud accounting system service providers and the material on which they depend. Therefore, it is the service provider's job to ensure that the data is safe, complete, and not lost. As a cloud service provider, it is also necessary to improve the technical level of its own, through the protection level of software and hardware, plan the computer center environment management, and strengthen the backup of related data to ensure that the data is not deficient, thus improving the customer. Quality of service.

4.2. Strengthen the construction of financial accounting theory and keep pace with the development of the big data era

The problem of slow development of accounting theory is the main problem faced by financial accounting in the era of big data in the current stage. The accounting theory in the traditional sense can no longer meet the new challenges and new requirements that the financial accounting work in the era of big data is constantly facing. It is imperative to accelerate the construction of financial accounting...
theory in the era of big data. To this end, relevant departments should actively improve financial accounting standards and financial accounting systems that can adapt to the requirements of the era of big data. In the era of big data, there are more and more Internet-related industries, and enterprises are becoming more and more dependent on the Internet. Relevant departments should strengthen the supervision of the network and formulate sound laws and regulations. And strengthen the construction and research of accounting theory in the era of big data, standardize the financial accounting behavior of modern enterprises, and promote the development of modern financial accounting in the era of big data with the development of institutionalization and standardization.

4.3. **Cloud accounting service providers should improve the overall quality of core employees**

The enterprise uploads the financial information to the cloud accounting system platform, which is equivalent to the enterprise depositing the monetary funds into the bank, which is a kind of trust to the service provider. As a service provider, we should first live up to the trust of enterprises and strengthen the confidentiality of corporate financial information. In particular, the core personnel of key positions must improve their relevant professional qualities, so as to ensure that they cannot disclose client confidential information in subjective and objective terms. On the other hand, it is necessary for core employees to strengthen their business capabilities, and to ensure that they are "one foot high and one foot high", so that they can master the leading technologies in related fields in real time, thus ensuring the safety of the entire cloud accounting system.

5. **Conclusion**

Big data will profoundly affect the application model of financial analysis tools in traditional manufacturing enterprises, and financial analysis thinking will also change. The predictive function of financial analysis will be further highlighted. Financial analysis will also play a role in the strategic decision-making of manufacturing enterprises. A bigger role. However, big data analysis in the era of big data is only a tool to support people's analysis and decision-making. It cannot replace the rational analysis of human beings. Traditional economics and management theory still play a huge role in financial analysis and strategic decision-making. Effect. Therefore, financial personnel should rationally use big data analysis technology under the guidance of rigorous and scientific theory, improve the "decision usefulness" of financial analysis tools, and better provide financial support for strategic decision-making of enterprises.

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**References**

[1] Wang Jiemin. Analysis of the Differences between Financial Accounting and Management Accounting and the Application of Management Accounting Innovation in the Big Data Era. Shanxi Finance and Taxation, Vol. 5 (2018) No.471, p. 64 - 65.

[2] Mo Yingying. Research on the Transformation of Financial Accounting to Management Accounting under the Background of Big Data. Finance and Accounting, Vol. 5 (2017) No.19, p. 93 - 94.

[3] Lou Qingfeng. On the Transformation of Financial Accounting to Management Accounting under the Background of Big Data. Finance and Accounting, Vol. 9 (2017) No.17, p. 101 - 105.

[4] Shi Hongbin. On the Strategy of Financial Accounting to Management Accounting Transformation under the Background of Big Data. China Economy and Trade, Vol. 5 (2017) No.28, p. 148 - 153.

[5] Ren Wenhong. On the Strategy of Financial Accounting to Management Accounting
Transformation under the Background of Big Data. Journal of Economics and Trade, Vol. 4 (2017) No.24, p. 35 - 39.

[6] Hao Yanwei. On the Strategy of Financial Accounting to Management Accounting Transformation under the Background of Big Data. Economic and Trade Practice, Vol. 7 (2018) No.33, p. 275 - 279.