

# Research on the Impact of Big Data Era on Accounting Development

Qiongge Liang

School of Finance and Economics, Jiangsu University, China

**Abstract**— Under the guidance of the information revolution, informatization has penetrated into the entire industry, which has caused industry changes to become more frequent. In particular, the arrival of the era of big data has exerted a variety of far-reaching impacts on our daily life and work. As an indispensable and important part of social development and economic progress, accounting is inevitably affected by the era of big data. In the era of big data, on the one hand, there are more and more channels for obtaining accounting information and the efficiency of our data processing is getting higher and higher, which plays a positive role in promoting the improvement of the quality of accounting information. On the other hand, there is an explosive growth in the accounting information that companies need to deal with. How to screen the original data scientifically and efficiently and how to scientifically process, sort and analyze the accounting information are the major issues that the accounting development needs to face in the era of big data. Therefore, this article starts with the connotation and characteristics of big data and the new changes in accounting data. It mainly analyzes the impact of the era of big data on accounting development from two aspects of financial accounting and management accounting, and it proposes some effective countermeasures.

**Keywords**— Big data, Financial accounting, Management accounting, Influences.

## I. INTRODUCTION

McKinsey, a world-renowned consulting company, puts forward: "Data has penetrated into every industry and business function area today and has become an important production factor. People's mining and application of massive data heralds the arrival of a new wave of productivity growth and consumer surplus." With the rapid development of social economy, big data gradually enters people's vision. The rapid expansion of data is becoming larger and larger, which determines the future development of enterprises. Over time, people will become more and more aware of the importance of data to the enterprise.

In the context of the era of big data, all industries have been hit. Accounting is an important part of economic development. In order to adapt to the current background, it is inevitable to carry out reforms. The era of big data has the characteristics of massive data and complicated data structure. These characteristics have brought certain difficulties to business decision-making. At the same time, big data also brings a lot of structured data and unstructured data. These data can bring convenience to enterprises, allowing enterprises to make more comprehensive and accurate decisions. The advent of the era of big data has made the development of accounting face many opportunities and challenges. What impact will the era of big data have on the development of accounting, and what measures will the accounting development take to cope with these impacts? These will become one of the topics that scholars have discussed in depth. Therefore, by understanding the connotation and characteristics of big data, this article analyzes the impact of the era of big data on financial accounting and management accounting and attempts to propose some countermeasures.

The rest of this article is organized as follows. The second section introduces the literature review on big data, financial accounting and management accounting. The third section analyzes the impact of the era of big data on financial

accounting and management accounting. The fourth section proposes countermeasures for accounting development in the context of big data. The final section draws a final conclusion.

## II. LITERATURE REVIEW

With the advent of the information revolution, big data has become the product of a high-tech era. The future era will be the era of DT (data technology), from which we can see the importance of big data for social and economic development. Lin Gao (2016) understands big data as a collection of large amounts and types of data. Big data is not only reflected in a large number, but more importantly, the value contained in the data is very large, which has a high value for the development of enterprises. Many scholars have analyzed the characteristics of big data. Big data has four characteristics: large data volume, wide variety, low value density, and high speed and timeliness (Lusheng Zeng, Zhengzhi Li, and Dan Liu, 2018). In addition, Minxia Liao (2018) also explained the six characteristics of big data, which are the characteristics of 5 V (Veracity, Volume, Variety, Velocity, Value) and 1 C (Complexity).

In the context of the big data era, accounting data also presents new characteristics (Minxia Liao, 2018). First, the source of data is expanded from the original structured data to semi-structured data and unstructured data, and it is dominated by unstructured data. Secondly, data processing goes from centralized to distributed. Both centralized and distributed processing complement each other to meet the needs of large-scale calculation of different types of accounting data. Third, data analysis goes from data warehouse to deep learning. Only when users of accounting information deeply study and analyze the data can they maximize the intrinsic value of accounting data. Finally, data output goes from graphing to visualization. Present complex accounting data directly to the most common information users through intuitive, easy-to-understand, understandable pictures or graphics. This not only makes it easy for users of accounting information to master

and become a tool and means available to everyone, but also enables companies to have a more real-time, accurate insight and understanding of the market.

Under the background of big data, new changes in accounting data will inevitably have a profound impact on the development of future accounting. Therefore, many scholars have conducted research on this. Scholars conduct research from two aspects of financial accounting and management accounting. There is a difference between financial accounting and management accounting. Financial accounting is external reporting accounting. Its main responsibility is to use accounting standards as a basis to organize and summarize the financial status and financial information of the enterprise, so that decision makers can understand the company's current financial status (Shuxian Huang, 2018). However, management accounting is internal reporting accounting. It is mainly to sort out the data and make a clear understanding of the current financial situation of the company according to the true principle. It can accurately grasp the company's current financial development. To a certain extent, it facilitates the management of managers by enterprises and promotes the progress of enterprises (Nan Cheng, 2019). Scholars such as Lin Gao (2016) and Wenwen Zhan (2019) studied the impact of big data on financial accounting. It mainly affects the sources of accounting information, accounting measurement, accounting target positioning, and accounting staff functions. In addition, scholars such as Minxia Liao (2018), Hao Wang (2019) and Ying Ma (2019) studied the impact of big data on management accounting. Mainly affect the cost determination and measurement, accounting prediction and decision-making, performance evaluation and evaluation, accounting personnel's comprehensive ability, information security and so on. This shows that exploring the impact of the era of big data on accounting development has gradually become an inevitable trend.

### III. THE IMPACT OF THE ERA OF BIG DATA ON ACCOUNTING DEVELOPMENT

#### (1) *The Impact of the Era of Big Data on Financial Accounting*

##### *Impact on the source of accounting information*

In the traditional accounting information system, the amount of data is not as huge as it is now. Any data information we obtain has a crucial impact on accounting information. This also requires that the information is authentic and reliable. It will not cause distortion of accounting information. Therefore, in the past era of small data, we need to repeatedly check and demonstrate to reduce and avoid errors. However, in the era of big data, because big data has the characteristics of massiveness and complexity, people do not need to spend high costs to eliminate the uncertainty of these data. Secondly, the era of big data will bring not only structured data but also unstructured data. Unstructured data brought by the era of big data refers to not directly related to the enterprise. It is mainly the evaluation and suggestions of users on social networking sites such as Weibo and WeChat. Accounting practitioners will face more and more complicated sources of accounting information.

Therefore, accounting staff need to select useful data from a large number of data to eliminate information asymmetry.

##### *Impact on accounting measurement*

In traditional financial accounting, the initial measurement has historical cost and fair value measurement. In contrast, fair value can provide information users with more timely and highly relevant decision-making information, which is more conducive to the preservation of corporate capital. However, the acquisition of fair value faces problems such as lack of reliability and operability. The "fair trade" emphasized by fair value is difficult to guarantee in reality, so the use of this measurement attribute is greatly reduced. In the context of the era of big data, fair value has become more and more transparent. It has improved the availability, reliability, and scientificity of fair value as a whole, and has overcome the impact of adverse factors such as subjective judgment to a certain extent.

##### *Impact on accountant functions*

As people gradually stepped into the era of big data, corporate accountants gradually got rid of the traditional role constraints. Traditional accountants are mainly engaged in bookkeeping, accounting, analysis of report forms, etc. However, now the work tasks of accountants are shifting to professional financial management and financial analysis. With the advent of the era of big data and the strengthening of market competition, the work of traditional accountants to provide simple data basis has been unable to meet the needs of contemporary accounting information demanders. Nowadays, the accounting personnel of enterprises need to collect a variety of data and information to conduct a comprehensive analysis of the enterprise. Through the nature of these data, we can see the problems and current status of the company's development, and make an objective evaluation of the company's operating status and operating results in a timely manner to reveal the deficiencies of the company. Thereby providing a basis for the company's senior decision-making to provide a clear direction to change the manager's thinking.

#### (2) *The Impact of the Era of Big Data on Management Accounting*

##### *Impact on cost determination and measurement*

The initial cost is the core of the information provided by management accounting. Due to the lack of previous data, cost control often reflects the effect of cost control through post-income cost analysis, which is not conducive to the economic benefits of enterprises. However, the arrival of the era of big data can achieve dynamic management of costs, which will inevitably have a certain impact on the determination of initial costs and the measurement of subsequent costs. Different from the traditional cost confirmation and measurement, in the era of big data, the cost confirmation and measurement can't meet the needs of the enterprise by itself. The external information can provide more comprehensive and complete information to the enterprise, such as the relevant information of competitors, industry-related information, etc. These unstructured data require companies to mine, analyze and use them. Only by adding the structured and unstructured data inside and outside the enterprise for analysis, can the enterprise better determine

and measure the cost, so as to improve the profitability and competitiveness of the enterprise.

#### *Impact on accounting forecasts and decisions*

The main task of enterprise management accounting is to enable enterprises to continue to grow steadily. In the era of big data, faced with the rapid development of the Internet, the management and management of enterprises are bound to be affected by big data when making predictions and decisions. Whether an enterprise wants to formulate short-term business goals or long-term business goals, it needs to be supported by massive data. Only in this way can management and management make comprehensive and accurate predictions and decisions. If companies want to make accurate decisions, they must make accurate predictions. In the book "The Age of Big Data", Ketomiel-Schornberg believes that the core of big data is prediction. As long as the data is enriched to a certain extent, it is possible to predict the likelihood of something happening. At the same time, the era of big data can also help companies mine new usable and valuable data information from data that has been neglected in the past. Management accounting personnel can help enterprises adjust production and operation strategies in a timely manner through quantitative analysis and rational logical thinking on the collected data, thereby enhancing the market competitiveness of enterprises.

#### *Impact on accounting information security*

With the gradual development of information technology and big data, information security has gradually become one of the most concerned issues of individuals and enterprises. The era of big data brings not only massive amounts of data, but also hidden dangers buried behind massive amounts of data. Nowadays, the leakage of information and data is not uncommon. The leakage of enterprise information will seriously affect the operation effect of enterprises. Accounting information is very important for an enterprise. It is not only used by the management and management of the enterprise, but also the source of the enterprise's decision-making. It is also the key to how the enterprise develops and innovates in the future. The hidden dangers of information security in the era of big data mainly lie in two aspects. First, it poses a threat to corporate data and information. Leakage of customer personal information will lead to a decline in customer trust in the enterprise. Second, it poses a threat to the process of transferring corporate information and data. In the process of mutual information transfer, once the information is stolen or tampered, it will affect the company's management and management to make correct decisions.

#### IV. THE COUNTER MEASURES OF ACCOUNTING DEVELOPMENT IN THE ERA OF BIG DATA

##### *Speed up the Construction of Financial Accounting Theory*

In the context of big data, the main problem of financial accounting is the slow development of accounting theory. Some traditional accounting theories can no longer meet the requirements of the big data era. Modern financial accounting has new challenges and requirements. Therefore, it is the general trend of the big data era to update and strengthen the construction of financial accounting theories. On the one hand,

relevant departments should carry out research on big data accounting theory and further strengthen the construction of financial accounting theory. On the other hand, relevant departments should improve relevant laws and regulations and strengthen supervision to make the development of financial accounting in the era of big data more institutionalized and standardized.

##### *Rational Use of Unstructured Data*

The value contained in the massive data volume brought by the era of big data is also unpredictable. By effectively collecting information in big data in a timely manner, companies can quickly grasp information related to them, thereby helping companies improve their competitiveness. At the same time, under the background of big data, the source of accounting data has expanded from the original structured data to semi-structured data and unstructured data. The accounting department of an enterprise should not only focus on structured data directly related to the enterprise, but also learn to use unstructured data such as customer evaluations and opinions. This will provide valuable information for the company's senior management, so that companies can make more effective decisions in a timely manner.

##### *Promote the Transformation of Accounting-Related Personnel*

With the continuous development of information technology, financial accounting work has not only been simple accounting and analysis of reports, but also more about mining relevant data needed by enterprises and discovering information that is beneficial to enterprises. And the company's financial related data is combined and compared with the data of other departments to conduct a comprehensive analysis, so as to find the road of enterprise innovation and development. Therefore, compared with the traditional financial accounting work, the current financial accounting personnel need to have a forward-looking and overall awareness, but also need more initiative. On the one hand, accountants must have solid knowledge of financial accounting. On the other hand, relevant personnel need to have certain management capabilities. In addition, it also needs to have certain information technology capabilities and be able to skillfully use modern financial software to efficiently and accurately process data for enterprises.

##### *Using Big Data Technology to Improve Enterprise Cost Management Capability*

Cost management ability affects the profitability and competitiveness of an enterprise. The higher the cost management capability, the higher the profitability and competitiveness. With the advent of the era of big data and the continuous development of information technology, strategic cost management has gradually become the development trend of cost management. By mining, acquiring, and analyzing strategic cost information, enterprises can use this information to help their management make better decisions. The use of big data technology allows companies to break through the limitations of time and space. You can collect relevant information for analysis and processing anytime, anywhere, and continuously reduce the cost of the enterprise. So as to

enhance the competitiveness of the enterprise and make the enterprise develop more stably in the long run.

#### *Strengthen the Extensive Application of Data Mining Technology in Management Accounting*

Compared with the traditional way of collecting data, the advantage of the big data era is the ability to perform comprehensive correlation analysis on complex data. Whether data mining is in the collection of data or in the integration of analytical data, it must be even better. In the management accounting in the era of big data, the most important thing is to make good use of data mining technology. Enterprises need to be able to mine valuable parts that are beneficial to the company from the complex and seemingly unrelated information data. Enterprises should make full use of this information to find countermeasures for enterprise development. Therefore, enterprises need to strengthen the widespread application of data mining technology in management accounting. Enterprises should analyze information about competitors in the industry, current and potential consumers, and the product life cycle.

#### *Strengthen the Security of Enterprise Accounting Information*

The era of big data brings massive amounts of data as well as the hidden dangers behind these data. Information security has gradually become a concern for every enterprise. First of all, enterprises should increase safety awareness. On the one hand, the enterprise should invite professional personnel to maintain and manage the computer server, regularly check and timely repair the server; on the other hand, the enterprise should improve the enterprise's information network, establish a solid and reliable firewall, and do a good job of data backup. Secondly, enterprises should carefully select accounting service providers and give priority to companies with relatively high reliability and security. Finally, state agencies should promptly formulate and update relevant laws and regulations, severely punish violations of enterprise information security, and provide protection for the overall information security of society.

## V. CONCLUSION

Global economicalization, large-scale and rapid update of information technology are the background of future social development. If modern accounting does not want to be eliminated, it can only keep up with the pace of the era of big data and constantly innovate and develop. In the future, great changes will take place in accounting theory, working methods and the functions of accounting personnel. As we

gradually entered the era of big data, on the one hand, big data technology has made accounting more convenient. On the other hand, it also brings new challenges. Therefore, relevant departments must comply with the changes of the times and establish and improve relevant laws and regulations in a timely manner. Enterprises must seize opportunities, meet challenges, and improve the company's competitiveness, so that the company's long-term stable development. Accounting related personnel should also learn new knowledge in a timely manner, and constantly improve their professional qualities and comprehensive capabilities.

## ACKNOWLEDGEMENT

The author would like to express her gratitude to Hua Zhang, School of Finance and Economics, Jiangsu University, China providing assistance for the study. The article would not have been possible without her support.

## REFERENCES

- [1] Hao Wang (2019). Analysis of the impact of big data on management accounting based on the "Internet +" perspective. *Accounting and learning*, 125+127.
- [2] Lin Gao (2016). The impact of the era of big data on financial accounting. *Modern Marketing (Late Journal)*, 118.
- [3] Lusheng Zeng, Zhengzhi Li, Dan Liu (2018). The impact of big data on management accounting. *Times Finance*, 323.
- [4] Ming Zhang, Hong Yin (2018). The Impact of Big Data on the Quality of Accounting Information—Based on Accounting Process Reengineering. *Accounting and Communications*, 111-114.
- [5] Minxia Liao (2018). The impact of big data technology on management accounting and countermeasures. *Enterprise Economics*, 103-108.
- [6] Nan Cheng (2019). Research on the transformation of financial accounting to management accounting in the context of big data. *Accounting and learning*, 156.
- [7] Shuxian Huang (2018). Analysis of the transformation from financial accounting to management accounting in the context of big data. *Accounting and learning*, 83+85.
- [8] Weifang Hou (2016). On the impact of the era of big data on accounting. *Accounting and learning*, 126-127.
- [9] Wenwen Zhan (2019). The impact of big data on financial accounting. *Taxation*, 86+88.
- [10] Ying Ma (2019). The Impact of Big Data Development on Enterprise Management Accounting. *Modern Marketing (Business Edition)*, 194-195.
- [11] Yong Wu, Hui Chen, Weidong Zhu (2019). Management accounting system reconstruction based on big data analysis technology. *Finance and Accounting Monthly*, 61-68.
- [12] Yuezhen Liu (2019). Analysis of the impact of big data on accounting. *Finance and Accounting Study*, 116-117.
- [13] Zhi Chen (2018). Research on the Impact of Big Data on Management Accounting from the Perspective of "Internet +". *Friends of Accounting*, 49-53.