Influence of New Development of Accounting Information Quality Characteristics based on Hadoop on Enterprise Investment Efficiency

Xiaoqian Wang, Sixuan He and Yixi Zhang[*]

Chongqing College of Architecture and Technology, Chongqing, China

Abstract: Based on big data analysis technology, Hadoop, MapReduce big data computing framework and HDFS distributed file storage database are adopted to complete the construction of enterprise investment decision-making system. With the help of big data technology and data processing characteristics, it provides necessary technical support and theoretical basis for the secondary development of enterprises. Under the big data technology, the enterprise investment decision-making system realizes the innovative development of the quality characteristics of enterprise financial accounting information, so as to improve the enterprise investment efficiency, and then have a certain positive significance to the enterprise's business performance, and finally help the enterprise to develop more rapidly and comprehensively under the condition of maintaining good operation.

1 INTRODUCTION

At present, the development of science and technology is changing with each passing day, and the development form of China's social economy is also on the rise, especially the extensive application of modern information technology, prompting China's economic construction in all aspects have made great achievements. At present, under the social and economic system of our country, investment behavior is one of the three core financial activities of modern enterprises, which has an important impact on the survival and development of enterprises. Investment efficiency refers to the ratio between the effective results achieved by an enterprise's investment and the amount of input consumed or occupied, that is, the proportional relationship between the output and input of an enterprise's investment activities (MBA think tank, Encyclopedia, 2010). The change of enterprise investment efficiency will be directly related to the economic benefits of enterprises, but also will bring great impact on the survival and development of enterprises.

The research based on the theory of information asymmetry and the principal-agent theory shows that there is an inevitable connection between the quality of enterprise accounting information and the efficiency of enterprise investment. The enterprise managers and decision makers decide the direction of investment according to the content reflected in the accounting information. At the same time, according to the accounting information, the results of the investment behavior are analyzed to determine whether the investment is effective, and then make decisions on the next investment. (Ma, 2014) Therefore, the quality of enterprise accounting information is the key to enterprise investment behavior and an important factor affecting enterprise investment efficiency. Enterprise accounting information not only comes from the daily production, operation, management and other activities of the enterprise, but also contains the data information related to external social environment, policies and regulations. Under the traditional enterprise operation mode, the acquisition of enterprise accounting information only depends on the analysis and processing of the data in the financial statements, ignoring the impact of the external environment and policies and regulations of the enterprise. In addition, a lot of human work is needed for data mining and processing of complex financial data statements. Therefore, big data technology innovation is applied to enterprise accounting information processing to intuitively improve the quality of accounting information, realize the visualization of accounting information, so as to help

enterprise managers and decision makers make good decisions on enterprise investment behavior, improve the investment efficiency of enterprises, and finally achieve the goal of long-term and healthy development of enterprises.

2 ENTERPRISE INVESTMENT EFFICIENCY AND ACCOUNTING INFORMATION QUALITY

2.1 Enterprise Investment Efficiency

The investment behavior of an enterprise can be simply defined as an economic activity in which an enterprise advances funds or other resources to a business in order to obtain economic benefits. As a key activity in the daily operation of enterprises, investment activities aim to obtain more economic benefits, and can effectively reduce the cost of enterprises, and maintain the continuous progress and development of enterprises. In the comprehensive evaluation of investment activities, the standard of investment efficiency is introduced to measure the implementation effect of enterprise investment activities, which also provides data support for enterprise managers and decision makers to make decisions.

There are external factors and internal factors that affect the efficiency of enterprise investment. The external factors include national system control and government forced intervention. For example, regional protection policies, preferential tax policies. External factors also include the degree of market perfection, such as the marketization and legalization of social economy. The internal factors are more complex than the external factors, because the internal factors not only directly affect the investment efficiency of enterprises, but also indirectly affect the investment efficiency through the mutual influence of different internal factors. Such as enterprise internal control level, accounting information quality, management characteristics. Among them, the quality of accounting information directly reflects the key information such as investment cash flow status, enterprise debt ratio, and is related to the smooth implementation of enterprise investment behavior. And then affect the efficiency of enterprise investment.

2.2 Enterprise Accounting Information Quality

Accounting information quality is the sum of characteristics of accounting information's ability to meet explicit and implicit needs (Wang, 2016), and its main role is to provide information needed for decision-making for enterprise managers and decision makers. Accounting information is an important part of enterprise financial information. Due to the complexity of its source and the importance of its role, enterprise accounting information shows many different quality characteristics, such as relevance, authenticity, timeliness, usefulness. These enterprise accounting information quality characteristics are an important standard to measure accounting information. In the investment activities of enterprises, high-quality accounting information can help enterprises eliminate the information asymmetry between the two sides of the investment, and help enterprises in the distribution of cash flow and liabilities and other aspects of unified management and planning, that is, to provide help and suggestions for the investment activities of enterprises. Thus, the investment efficiency of enterprises can be improved, and the investment elasticity and overall vitality of enterprises can be stimulated.

2.3 The Impact of Enterprise Accounting Information Quality on Enterprise Investment Efficiency

Under the theory of information asymmetry, information asymmetry is mainly manifested in the asymmetry of content and time, both of which are important factors directly related to the normal operation of enterprises and rational allocation of resources. In the investment direction of enterprises, the quality of accounting information can reduce the problem of information asymmetry between investors and invested enterprises. High-quality accounting information helps to identify high-quality enterprises or projects, and also helps to obtain the internal actual operation information of invested enterprises or projects, thus reducing investment risks. Under the principal-agent theory, the quality of accounting information measured by accounting conservatism can ensure that the contract participants work according to the agreed content, adjust the conflicts of interest, reduce investment risks and opportunistic behaviors, and thus alleviate the agency problems among the investment contract parties. (Qin 2020)

2.4 The Impact of Enterprise Accounting Information Quality on Enterprise Investment Efficiency

2.4.1 The Judgment of Enterprise Accounting Information Quality on Enterprise Investment Risk

In the enterprise investment activities, the forecast of the investment project income and the forecast of the enterprise's own economic strength is the key to determine the direction of the enterprise investment, but also the enterprise managers and decision makers to judge an investment project risk of an important basis. The above two kinds of estimation are inseparable from the analysis and application of the quality characteristics of enterprise accounting information. For example, as one of the characteristics of correlation, the two major signs of the correlation of enterprise accounting are the predictive value and feedback value of accounting information, (Wu, 2017) both of which can help enterprise investment risk judgment, thus affecting the investment efficiency of enterprises.

2.4.2 The Impact of Enterprise Accounting Information Quality on Enterprise Investment Amount

The development of enterprise investment activities cannot be separated from the allocation and utilization of the enterprise's own capital, and the amount of enterprise's own capital also determines the amount of enterprise investment, which is directly related to the trend of enterprise investment efficiency. The direct source of enterprise funds is the main business income of the enterprise itself, and the authenticity of the quality of enterprise accounting information is the most real and intuitive embodiment of the business conditions of the enterprise. Therefore, enterprise managers and decision makers can determine the amount of enterprise investment according to the enterprise capital surplus reflected in the accounting information. Therefore, the quality of accounting information can directly affect the accuracy of enterprise financial statements, and then affect the efficiency of enterprise investment.

2.4.3 The Impact of Enterprise Accounting Information Quality on Enterprise Investment Effect

The timeliness of enterprise accounting information quality means that the production of enterprise accounting information takes precedence over the production of enterprise investment decisions. The usefulness of enterprise accounting information quality refers to that the enterprise accounting information can directly affect the enterprise's investment activities. (Guo, 2016, Ke, 2016) Generally speaking, the relevance, authenticity, timeliness, usefulness and other characteristics of enterprise accounting information quality will affect the judgment and evaluation of enterprise managers and decision makers on the investment effect. If the quality of enterprise accounting information is not high and the characteristics are not clear, it will lead to a large deviation in the judgment of the investment effect.

To sum up, the quality of enterprise accounting information can directly affect the development, operation and effect evaluation of enterprise investment activities, and then change the efficiency of enterprise investment. Therefore, in order to improve the efficiency of enterprises in investment, expand the development scale and comprehensive strength of enterprises, it is urgent to put forward the corresponding improvement and improvement in the quality of enterprise accounting information. The innovative integration of big data technology and enterprise accounting business will give new development from the measurement, timeliness, usefulness and other characteristics of accounting information. Help enterprises to reduce the cost of investment activities, avoid the risk of investment activities, improve the efficiency of investment activities.

3 BIG DATA TECHNOLOGY AND ENTERPRISE ACCOUNTING INFORMATION QUALITY

3.1 Big Data Technology

Big data is the inevitable result of the development of information technology in today's society. Under the development law of technology itself, information technology has been applied to work production to improve efficiency and gradually moved to a more advanced stage of intelligence. Today, massive information data has become the basis of the whole social operation and development, and we have also become the producers and users of data in the current information data society. The birth of big data technology is inseparable from the development and maturity of modern information technology and

communication technology. In the actual application process, big data technology combines the advantages of modern information technology and communication technology, and can be widely used in all industries and fields of the whole society. Big data technology not only promotes and changes the overall social development in the technical level, but also provides a new method and new thinking mode for us to look at and deal with work. That is, decision-making behavior will increasingly be made based on data analysis, rather than relying on experience and intuition as in the past.

The system of big data technology is huge and complex. The basic framework and technical categories include data collection, distributed storage, NoSQL database, data warehouse, parallel computing, visualization. The common big data processing processes are: data collection, data preprocessing, data storage, data cleaning, data query, analysis and visualization. (Core Technologies that Must be Mastered in Learning Big Data. Computer & Network) The specific process is shown in Figure 1.
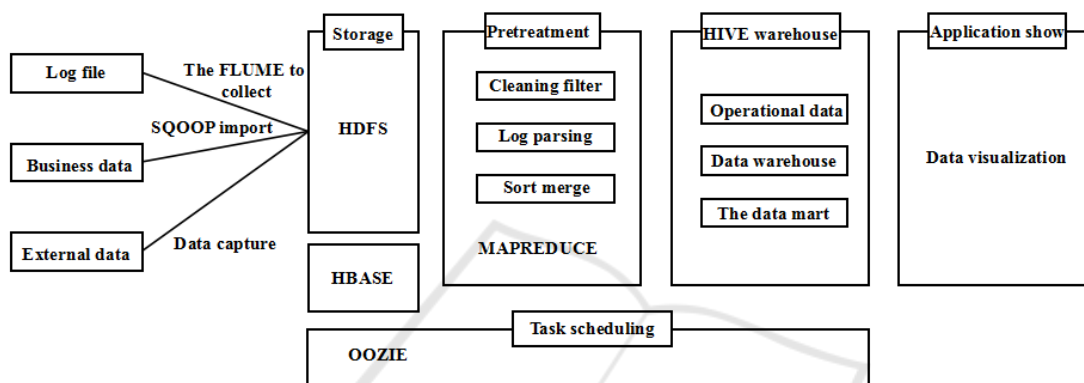

Figure 1: Big data project processing process.

3.2 Big Data Technology Improves the Quality Characteristics of Enterprise Accounting Information

3.2.1 Big Data Technology Changes the Relevance of Accounting Information

Enterprise accounting information in the traditional mode of operation, only a simple access to the internal enterprise generated by a variety of structured data, due to the initial balance, accounts receivable and so on. However, for the external enterprise, especially for the highly interconnected and closely related unstructured data in the current society, such as user evaluation, user satisfaction, regional policy, valuable data information cannot be obtained. In turn, it will affect the degree of information integrity and comprehensiveness of the subsequent enterprise investment decision. And big data technology can easily realize the enterprise external data fetching, and through a series of processing process and realizes the enterprise external data information and enterprise internal data information used in combination, greatly eliminate the unequal sex investment decision-making

information, namely the implementation of enterprise accounting information quality correlation of ascension, Thus, the accuracy and controllability of enterprise investment decisions can be further improved, investment risks can be reduced and investment efficiency can be improved.

3.2.2 Big Data Technology Changes the Timeliness of Accounting Information

The application of big data technology can change the timeliness of current enterprise accounting information transmission. Based on big data technology, enterprise financial management software will adopt data distributed computing and storage, which can greatly improve the speed of data storage, calculation, invocation and other operations. So as to improve the timeliness of enterprise accounting information quality.(Yang. 2018) What's more, the data analysis and mining technology in the accounting information accounting has filled the gap on the function of the traditional accounting software system, and big data technology support for data visualization, vast amounts of data by classification, component form different data sets, and when the user calls, and in a dynamic and multiple forms of

data chart display, Make accounting information accounting more fast, more transparent and intuitive, in order to improve the usefulness of enterprise accounting information quality, but also more convenient for enterprise managers, decision-makers quickly on this basis, make decisions on enterprise investment activities, improve enterprise investment efficiency.(Long. 2015)

To sum up, the application of big data technology in the enterprise financial management system can achieve innovative development and qualitative improvement of the quality characteristics of enterprise accounting information. The application of big data technology helps to improve the accounting information data management ability of enterprises, and is also the key to achieve the success of intelligent business decision.

4 ENTERPRISE INVESTMENT DECISION SYSTEM BASED ON BIG DATA

4.1 System Overview

The enterprise investment decision system based on big data can expand the input aperture of enterprise accounting information, alleviate the difficulty of enterprise accounting information exchange and accounting, and realize the comprehensive utilization of accounting information data coordination, intelligent analysis and decision-making aid. That is, big data technology comprehensively improves and develops the quality characteristics of enterprise accounting information, provides due support for enterprise investment activities, and ultimately improves the investment efficiency of enterprises. The system construction model is shown in Figure 2. The system can provide analysis methods such as financial statement analysis, data result visualization, self-service data analysis, data prediction and data mining, to accurately support enterprise managers to make decisions on enterprise investment activities.
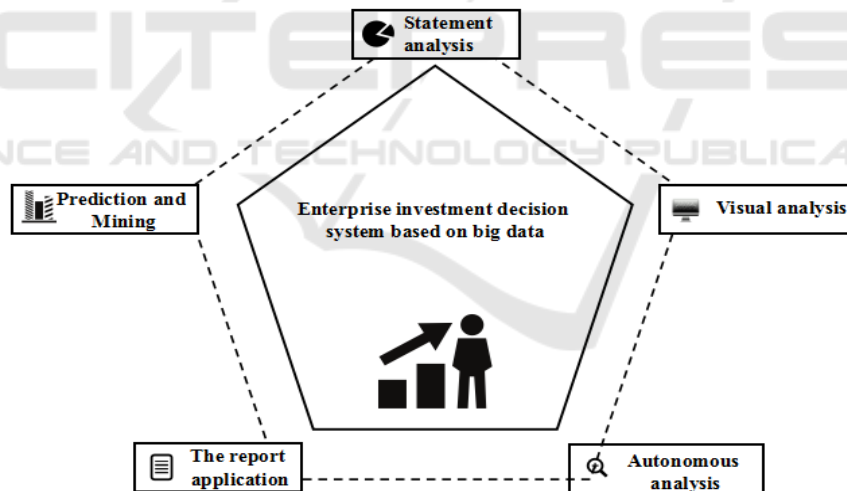

Figure 2: Enterprise investment decision system construction model.

4.2 Specific Process and Functions

In the enterprise investment decision system, the primary solution is the access of internal and external accounting information. With the support of big data technology, the system can not only process traditional structured data information, but also process unstructured information such as text and pictures. Therefore, in the data source access module,

the system supports the acquisition of enterprise internal production and operation data from enterprise EPR management system, CRM management system, OA transaction processing system, HR management system and other aspects, as the main body of accounting information. In addition, it also supports the acquisition of external evaluation, opinions and other data information from the enterprise's independent social platform, official

website and other channels as a supplement to the accounting information. The distributed storage technology of big data is adopted to store data sets formed by different data in different database servers to improve the relevance of enterprise accounting information.

After the accounting information data is stored, the system will complete data extraction, data cleaning, data conversion and other operations in the data integration and processing function module, sort out and refine a large number of disordered accounting information data, retain valuable data information, and improve the measurement of accounting information quality. Through the integration and processing of accounting information data in the system, the data sharing and data association of multiple systems of enterprises are realized, the synchronization of accounting information data of enterprises is enhanced, and the quality of accounting information data is improved. After data integration and processing, enterprise accounting information data can be further analyzed and applied. Through the system data analysis and application module, accounting information can be formed into various complex reports, agile data kanban, data visual dynamic display, text reports and other contents. And the comprehensive application of these contents, the corresponding trend prediction, income analysis, intelligent decision-making and risk early warning for enterprise investment activities, so

as to assist enterprise managers and decision makers to carry out comprehensive regulation and accurate management of investment activities. Through the powerful data analysis and computing ability of big data technology, it realizes the data mining and data insight that the traditional accounting system cannot achieve, and improves the usefulness of the quality of enterprise accounting information.

After data analysis and application, the system supports enterprise managers and decision makers to obtain corresponding data information and data application content from different channels. The system supports multiple terminal viewing modes, such as PC, mobile device, large screen, and third-party system integration. That is, enterprise managers and decision makers can use mobile phones, tablet computers, personal computers, anytime and anywhere to log in the system to view and use the system. The application of this big data technology realizes the timeliness of the quality of enterprise accounting information, makes the decision-making of enterprise investment activities no longer rely on the traditional complicated financial data statements, and saves a lot of manpower and material costs.

The above is the introduction of the main functional modules of the enterprise investment decision system based on big data. As shown in Figure 3, it is the functional architecture diagram of the enterprise investment decision system.
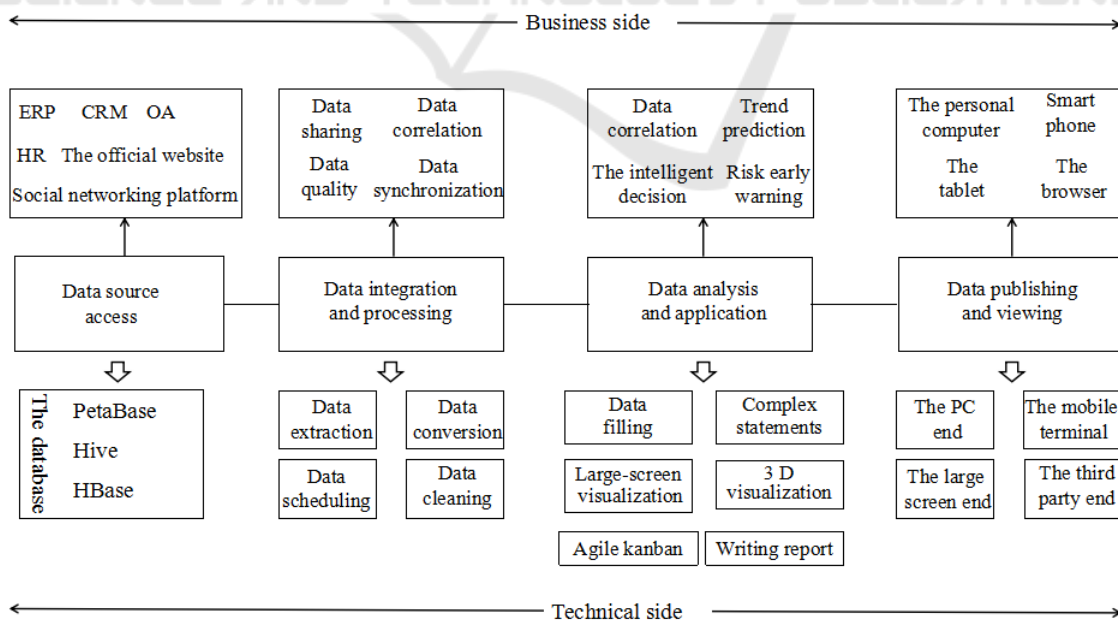

Figure 3: Functional architecture diagram of an enterprise investment system.

4.3 Technical Support

In terms of data collection of big data technology, common database collection technologies include MySQL and SQLSever, which are common database servers in enterprises. For unstructured data under big data technology, HDFS, HBase, NoSQL, etc. The distributed database can design the corresponding data sets according to the application characteristics of different data, increase the throughput rate of data on the server, so as to improve the efficiency of system data operation.

In the process of data preprocessing, ETL tool is often used for data extraction and data cleaning. Data transformation is a process of processing the inconsistencies in the extracted data. It also includes the work of data cleaning, that is, according to the business rules to clean the abnormal data to ensure the accuracy of subsequent analysis results. (Liu, 2020, Hu, 2020, Song, 2020) Data scheduling refers to the streamlining of data volume to obtain a smaller data set while maintaining the original state of data to the maximum extent.

In the link of data analysis and response, it mainly realizes the visual design of data, and uses the results to guide the enterprise investment decision service. In this system, the mainstream technologies in Web-based development are adopted, and the front-end development framework of the system adopts vue. js and ECharts visual tools for organic integration, so as to quickly build a web-based front-end interactive application interface. The overall architecture of the enterprise investment decision system based on big data is B\S architecture design, which enables users to log in the system and complete the interactive operation with the system at any time by using a variety of devices through a web browser.

5 CONCLUSIONS

The enterprise investment decision-making system based on big data is a practical application under the innovative integration of big data technology and enterprise accounting information management. By improving the quality characteristics of accounting information, the system helps enterprise managers and decision-makers provide data support for the decision-making of enterprise investment activities, so as to more comprehensively and accurately realize the regulation and management of enterprise investment activities and improve enterprise investment efficiency.

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