

Research on the Reform of Enterprise Financial Analysis in the Era of Great Wisdom Propelling Clouds

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Abstract: Along with the further development of our social economy and science and technology, "Big Data", "Intelligence", "Mobile Internet" and "Cloud Computing" (hereinafter referred to as "Great Wisdom Propelling Clouds ") has become the main theme of today's era. The birth of these technologies provides a breeding ground for new development concepts, the cradle of incubating new reform strategies. This paper first explains the definition of Great Wisdom Propelling Clouds, and then through the study of the limitations of the current enterprise financial analysis, so as to find out the opportunities and challenges brought to the enterprise financial analysis in the era of Great Wisdom Propelling Clouds. Based on this, the direction of the reform path is put forward for the financial analysis of the enterprise. Finally, specific results the enterprise reform are expounded. This paper makes an in-depth analysis of the content and form of financial management of enterprises, which provide a theoretical reference for enterprises to implement financial analysis of big data enterprises and have certain practical significance.

1 INTRODUCTION

"Great Wisdom Propelling Clouds ", as the name suggests, refers to the era of "big data", "intelligence", "mobile Internet" and "cloud computing". With the progress of national science and technology and the development of social productivity, the concept of "Great Wisdom Propelling Clouds" was first proposed at the China Internet Conference in August 2013. (Cao 2017) Then at the 2014 China Internet Conference, Wu Hequan said that with the arrival of the era of "Great Wisdom Propelling Clouds," social economy will face new challenges and create a new trend of integration. Under a series of documents issued by the central government to promote China 's financial informatization, enterprises around the country have adopted ' big data ', ' intelligent ', ' cloud computing ' and other technologies to carry out financial management of enterprises, which has accelerated the pace of the era of ' Great Wisdom Propelling Clouds ' and also produced new challenges to traditional financial management.

Big datum refers to a collection of nouns that are far more complex than conventional data in terms of

capture, storage, and analysis. It has five characteristics: large scale, high-speed circulation, diverse value types, low value density, and authenticity. Intelligentization also includes the combination of the Internet and the Internet of Things to meet all kinds of human needs. Mobile Internet integrates communication and Internet to realize communication anytime and anywhere. Cloud computing refers to splitting the huge data into small parts and reprocessing through the system to achieve the final purpose of calculation.

Through the research on the current situation of enterprise financial analysis, it is found that enterprises face many challenges in financial analysis, such as difficult to use existing technology to analyze and process massive data, insufficient data sources, single analysis method, one-sided analysis and so on. In the era of great intelligence and cloud shift, traditional financial analysis is bound to be innovated to conform to the development of the time. The establishment of big data financial analysis platform for enterprises can not only realize data sharing in domestic and foreign industries, timely access to macro and micro policy information, but also realize real-time decision-making and future trend analysis, improve

the efficiency and influence of financial analysis, and then provide strong support for managers to make scientific decisions.

2 IMPACT ON ENTERPRISE FINANCIAL ANALYSIS IN THE ERA OF GREAT WISDOM PROPELLING CLOUDS

2.1 Limitations of Current Enterprise Financial Analysis

2.1.1 Limitations of Data Sources

Enterprise financial analysis is based on enterprise financial report information, internal accounting report information and other related information. This kind of information has three specific forms. The first is the most original paper file data. The second is the data recorded by accountants in Internet memory, and the third is the logical structure that can be inferred between these data, which are also a special type of data. (Hu 2018) The above three types of data are all structured data. Although they come from a high degree of reliability within the enterprise, the number of data is very small, and most of these data are historical data, which is of little reference value to the present. In this case, the first step of financial analysis cannot effectively obtain the source of data, so it is difficult to continue the effective evaluation and reasoning. Moreover, based on the asymmetry of information, enterprises will appear adverse selection and moral hazard. It is difficult for enterprises to master the data information of other competitors in the same industry, and it is difficult to obtain valuable resources for enterprises themselves in public limited data. Therefore, the limitation of data sources has become one of the obstacles to financial analysis.

2.1.2 Limitations of Professional Thinking

For the managers of most enterprises, it is their vision to maximize shareholder wealth. Therefore, most of them only pay attention to the indicators of operating income and operating profit, while ignoring the importance of financial analysis for enterprise development. For small-scale or growing enterprise financial workers, Financial analysis of the enterprise is carried out by relying solely on a

few financial statements and limited internal data, and the conclusions are reported to managers. Thus, the analysis made when the enterprise financial personnel do not fully grasp the specific financial situation of the enterprise may have relatively large errors with the actual situation. Such financial analysis has no reference value for enterprises. With the further development of enterprises and the gradual maturity, the market has higher and higher requirements for enterprises, and the requirements of enterprises for internal financial analysts should also be improved. For the traditional financial personnel, it is difficult to continue to carry out effective financial analysis and put forward constructive suggestions or solutions for enterprises if they only master the basic knowledge they have learned before, so they are self-contained and no longer further study and improve. Therefore, breaking the limitation of professional thinking is also an important means for the survival and development of enterprises in the era of Great Wisdom Propelling Clouds.

2.2 Opportunities and Challenges Brought to the Financial Analysis of Enterprises in the Era of Great Wisdom Propelling Clouds

2.2.1 The Arrival of the Era of Great Wisdom Propelling Clouds Can Bring New Opportunities for Enterprise Financial Analysis

As mentioned above, the traditional financial analysis of enterprises is mostly based on internal data such as financial statements. These data are mostly static structural historical data, which have low reference value for financial analysis of enterprises. Therefore, the limitations of data sources are a major constraint for financial analysis of enterprises. However, with the advent of the era of Great Wisdom Propelling Clouds, the use of big data, the Internet, the Internet of Things, cloud computing and other means can accurately and quickly mine and capture more effective dynamic data, which greatly improves the accuracy and availability of data, and has more reference significance and use value for evaluating various financial indicators of enterprises. Of course, for the operation of intelligent cloud computing, the requirements for financial workers are also increasing. Therefore, the status of financial analysis in the financial management of enterprises is also increasing, and financial workers are increasingly

avored by managers. This has laid a good foundation for enterprises to establish specific analysis departments or analysts, and played a certain role in improving the management organizational structure and optimizing the allocation of resources. (Wang 2017)

2.2.2 The Arrival of the Era of Great Wisdom Propelling Clouds Can Bring New Challenges to Corporate Financial Analysis

In order to make full use of the Internet, big data, cloud computing and other tools to contribute to the financial analysis of enterprises, the corresponding supporting hardware facilities of enterprises also need to be further followed up. However, the R & D expenditure and cost of hardware facilities are a large amount of expenses that enterprises need to consider. Moreover, the software for data processing and processing that meet the needs of enterprises is not yet mature, which cannot be adapted to local conditions and used in accordance with the time. Secondly, financial analysis in the era of Great Wisdom Propelling Clouds has certain professional requirements for operators. Firstly, the gap of professional and technical talents cannot be compensated. Financial analysis talents are still the major colleges and universities should focus on training. For the financial workers who have been employed, they are faced with the dual test of strengthening their professional knowledge and constantly learning big data intelligent financial technology. Therefore, it brings new opportunities in the era of Great Wisdom Propelling Clouds, but also brings new challenges to enterprises.

3 CONSTRUCTION OF ENTERPRISE FINANCIAL ANALYSIS PLATFORM STRUCTURAL SYSTEM IN THE ERA OF GREAT WISDOM PROPELLING CLOUDS

3.1 Platform Function Settings

3.1.1 Financial Index Analysis

The purpose of building a financial analysis platform is to analyze financial indicators more effectively, which requires that the platform structure system can comprehensively cover the four

basic financial indicators, and can focus on reflecting different financial conditions, providing information related to decision-making for internal information users such as enterprise managers and external information users such as investors and creditors. In the traditional financial analysis, enterprises often use the DuPont analysis system method (Figure 1). In this method, enterprises decompose the equity net interest rate into the product of sales net interest rate, asset turnover rate and equity multiplier, so that the complex indicators can be decomposed into specific and feasible indicators. It provides a valuable reference for investment and financing decisions of enterprises from two aspects of business leverage and financial leverage. However, the DuPont analysis system method also has some shortcomings. Firstly, this method focuses on the analysis of financial information and ignores the impact of non-financial information on enterprises, such as consumers and suppliers. Secondly, this method is applicable to short-term business decisions, but not to long-term strategic decisions. In addition, DuPont analysis system is based on the analysis of historical data, which cannot meet the needs of future decision-making for growing enterprises.

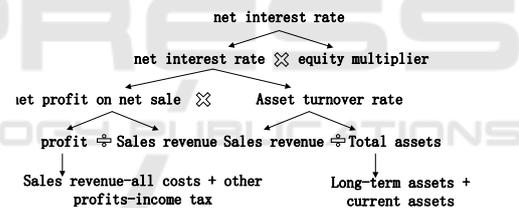


Figure 1: Diagram of DuPont Financial Analysis System.

In the era of Great Wisdom Propelling Clouds, intelligent enterprises based on big data can break through the blind spots and omissions in the past methods one by one on the basis of the existing financial analysis methods, increase the management of non-financial information such as consumers and suppliers, and adjust the financial analysis system in time in combination with the constantly updated data in the development of enterprises, so as to continuously improve and progress the financial analysis system. Based on this, enterprises can consider combining with the balanced scorecard in corporate strategy (Figure 2) to grasp the overall financial analysis of enterprises from four aspects: finance, customers, internal business processes, learning and growth. (Wang 2017)

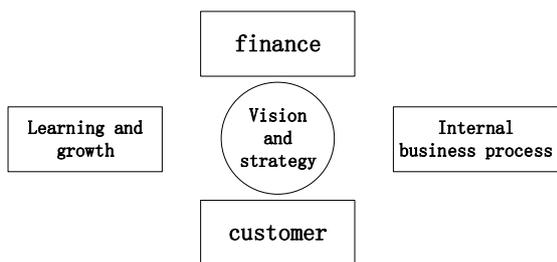


Figure 2: Balanced Scorecard.

3.1.2 Financial Decision Analysis

Traditional financial decision-making analysis is generally carried out in qualitative and quantitative

aspects by financial staff based on the above various indicators and parameters, combined with their own experience accumulated in many years of work. Today, in the era of Great Wisdom Propelling Clouds, enterprises can obtain various data from mobile Internet, Internet of Things and other channels, including structured data, semi-structured data, unstructured data, and upload the collected data to the data center of cloud computing platform for big data processing, and then analyze data. It provides feasible reference data for enterprises to make a series of financial decisions such as enterprise budget management, financing decision, investment decision, production decision, pricing decision and cost decision. (Figure 3)

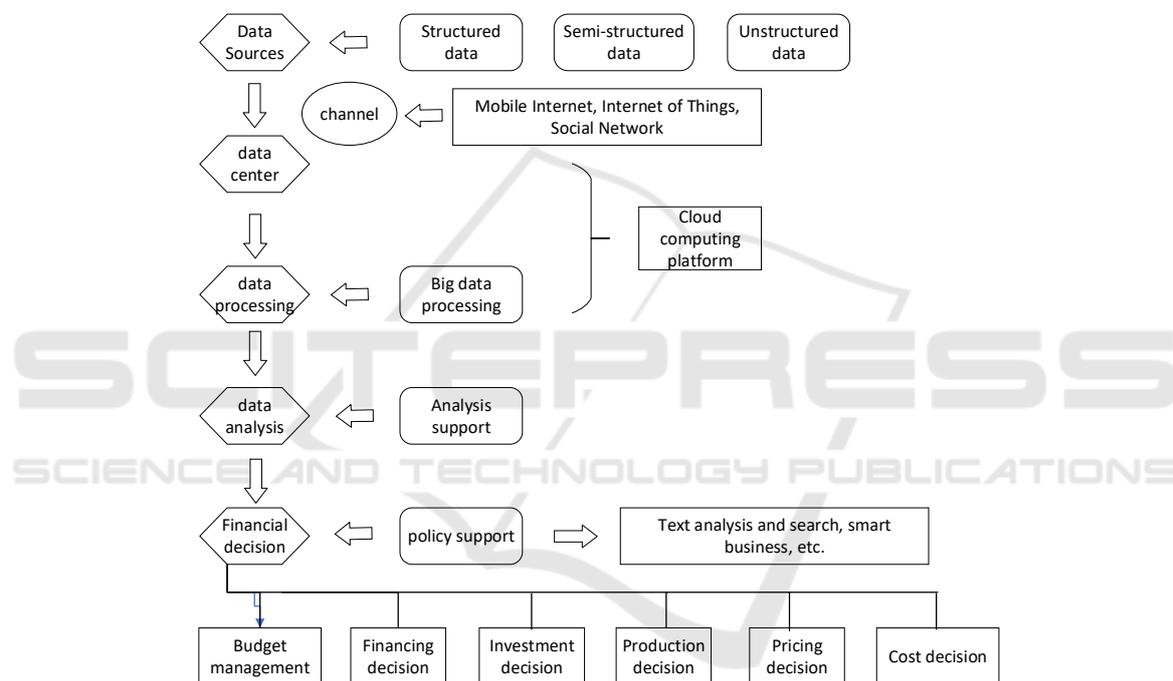


Figure 3: Flow chart of enterprise financial decision analysis.

3.1.3 Financial Forecast Analysis

Financial forecast is the premise for enterprises to prepare financial budgets. The traditional financial forecast mostly combines certain methods and principles, and uses cost behavior analysis, cost-volume-profit analysis model and other methods to predict the future of enterprises, including sales forecast, cost forecast, profit forecast and capital demand forecast. In the era of Great Wisdom Propelling Clouds, enterprises can combine

financial indicators such as liquidity, profitability, solvency and market value with non-financial indicators such as ownership structure and the composition of board of directors and board of supervisors on the basis of mastering their own financial status, operating ability, corporate governance and other original information, so as to realize the transformation of enterprise financial analysis from static analysis to dynamic analysis. (Figure 4)

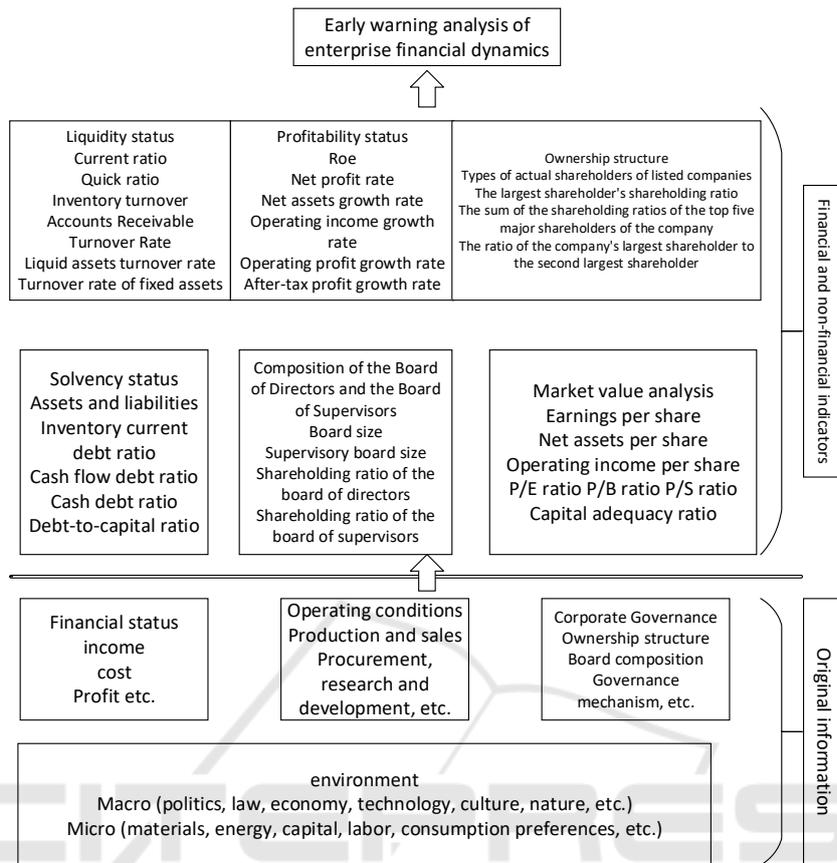


Figure 4: Flow chart of financial forecast dynamic analysis.

3.2 Platform Structure System Design

3.2.1 Data Collection Layer

Traditional financial analysis only takes financial information into the scope of data collection, but ignores non-financial information. On the basis of the data in the data collection layer designed by the structural system of the financial analysis platform, the collection of non-financial information is added, and the structured data and unstructured data are collected together. The original vouchers, books, sales contracts, shipping orders and other data information are uploaded through the internal network of the enterprise. At the same time, the data information related to the enterprise is collected and stored in the data warehouse in the external social network, and the traditional data collection scope is expanded to make the data collection more comprehensive. (Figure 5)

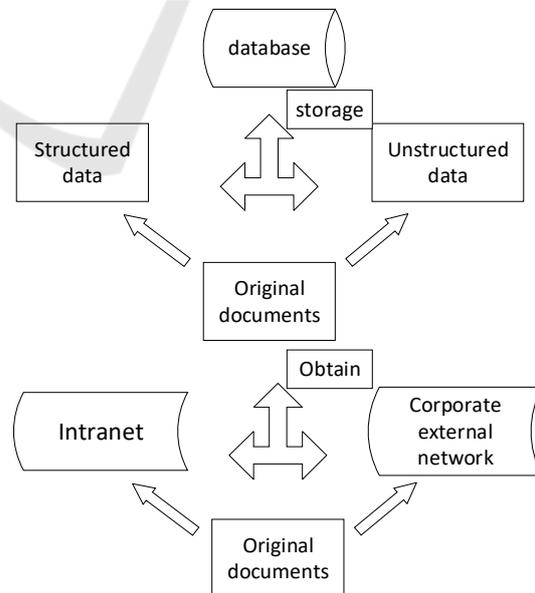


Figure 5: Flow chart of business data collection.

3.2.2 Data Storage Processing Layer

After storing the collected data in the data warehouse, large amounts of data need to be processed effectively. The data processing technologies adopted by different data types are also different. Firstly, for structured data, using Shared Nothing architecture, the data are divided into high value density data and low value density data, combined with the Massively Parallel Processor (MPP) system for large-scale parallel processing, which has the characteristics of non-sharing resources. Secondly, for unstructured data, HADOOP technology is used to store massive data with HDFS, and calculates on MapReduce. In this way, we can combine HADOOP technology (Ma 2019) with the new database to process different types of data. (Figure 6)

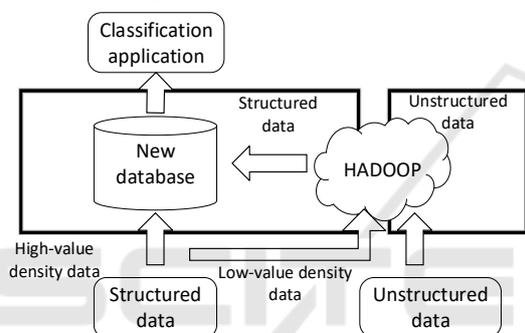


Figure 6: Core technology of big data processing

3.2.3 Security Architecture

In the era of Great Wisdom Propelling Clouds, it is more convenient to obtain information, but also brings a series of problems in data security. When constructing the system of enterprise financial analysis platform, the security architecture of information should be included, which can be constructed from six aspects: physical security, system security, network security, application security, data security and management security. For example, in the design of data security, the access to data can be controlled by means of fingerprint or facial unlocking, and graphic password input. In addition, verification code or password input can be carried out in data transmission to prevent data from being stolen and lost, which makes the data control the data security to a certain extent in the links of storage, access and transmission.

4 THE TRANSFORMATION PATH OF ENTERPRISE FINANCIAL ANALYSIS IN THE ERA OF GREAT WISDOM PROPELLING CLOUDS

4.1 Ideological Level

In the era of Great Wisdom Propelling Clouds, both managers and financial workers of enterprises should change their way of thinking and cultivate new ideas. Porter has proposed three competitive strategies, including cost leadership, centralization and differentiation. In the era of big intelligence and cloud shifting, big data strategy has become the fourth means of enterprise competition, and has an impact on the other three competitive strategies to a certain extent (Figure 7). Both business managers and financial staff should be keen to detect market dynamics, and make timely adjustments in their respective areas for further strategic decisions.

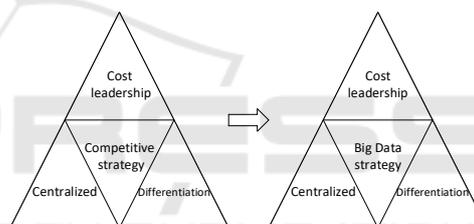


Figure 7: Four new types of competitive strategies.

First of all, for business managers, they are the helmsman of the enterprise, is the enterprise strategic decision makers, business managers must first establish the concept of enterprise big data intelligent thinking, in the face of the emergence of new things, timely reflect, quickly adjust the layout, analysis of existing opportunities and threats, formulate the next step of the development of the enterprise, take advantage of the trend to lead the enterprise to a higher level. If managers are satisfied with the status qua and stagnate, they will lag behind the development of society and eventually be eliminated in the increasingly fierce market competition.

Secondly, for financial analysts, with the advent of the era of Great Wisdom Propelling Clouds, the further development of society has brought new development space for enterprises and their own development. At this time, we should be keen to detect the changes in the wind direction of the market, adjust and change the way of thinking, pay attention to the use of big data intelligence in data

processing, and consciously cultivate their ability to use the Internet for operation. This not only improves their own business ability, but also provides further protection for the accuracy of corporate financial analysis.

4.2 Data Plane

4.2.1 Build a Data Warehouse

Traditional accounting records are in the process of manually copying the current data to the original vouchers and other paper documents and registering books in accordance with the time sequence of the brokerage business. If you want to view the original data of a certain data, you must look up and look up from all the accounting books in the warehouse in turn. The difficulty and complexity of the process can be imagined, the workload is large, the time is long, and the search is difficult. Today, in the era of Great Wisdom Propelling Clouds, this problem has been solved optimally. Financial personnel electronically all paper documents through financial software such as Kingdee and Yongyou, which not only makes the records of documents simple and rapid, but also facilitates the collation, induction and viewing of original data. Enterprises can also share the data of electronic documents in real time, reprocess the data horizontally and vertically, and maximize the utilization of data according to the needs of enterprises.

4.2.2 Revolutionizing Data Processing Technology

Data processing is one of the most important links in the financial analysis of enterprises. Data processing provides a new direction of change and development platform for data processing from the initial handwritten books to the medium-term accounting computerization, to the arrival of the era of Great Wisdom Propelling Clouds. In the past, in the traditional data processing, the enterprise financial personnel needed to export the historical data obtained from the financial software to Excel for secondary processing. This method takes a long time and a heavy workload, and the storage space is limited, and the probability of error is also high. With the help of big data, intelligent cloud computing can help financial workers to quickly process data, greatly accelerating the work efficiency, and the accuracy and reliability of the results are improved. It also saves time for financial workers to carry out the next work and improves work efficiency.

4.3 Knowledge Level

4.3.1 Train High-Quality Financial Staff

In the era of Great Wisdom Propelling Clouds, the demand for enterprise financial workers is gradually increasing, and the ability of financial workers is gradually improving. Enterprises not only need a certain number of financial personnel, but also need to have solid professional skills, active thinking mode, keen market insight, strong big data operation level and specific analysis and problem solving ability. At present, most of the enterprises in our country have a huge gap in financial personnel, for big data, intelligent financial analytical ability has not yet been. This requires colleges and universities to carry out certain reforms in the talent training mode, set up as many accounting courses as possible, cultivate excellent financial analysts, and form an intelligent financial analysis talented team in enterprises.

4.3.2 Pay Attention to Dynamic Analysis

The traditional financial analysis of enterprises mainly focuses on the static analysis of financial indicators and structural data, while ignoring the impact of non-financial indicators and non-structural data on corporate financial management. In the era of Great Wisdom Propelling Clouds, enterprises can use big data to obtain non-structural data that cannot be obtained before. The effective analysis of these real-time updated data can realize the transformation to dynamic analysis on the basis of static analysis, so as to improve and supplement the shortcomings and deficiencies in traditional financial analysis, lay a good foundation for the intelligentization of financial analysis, and realize the organic integration of financial indicators and non-financial indicators, structural data and non-structural data.

5 THE EFFECT OF CORPORATE FINANCIAL ANALYSIS REFORMS IN THE ERA OF GREAT WISDOM PROPELLING CLOUDS

5.1 Make It Possible to Analyze the Impact of Macro and Micro Factors

The analysis of enterprises from the perspective of

corporate strategy includes the macro environment and the micro environment. The macro environment includes four factors: political and legal factors, economic factors, social and cultural factors and technical factors, also known as the “PEST analysis” (Wang 2014) model. Porter believes that there are five kinds of competitiveness in the industry from the basic structure of the industry, namely: potential entrants, buyers, substitutes, suppliers and competitors in the existing industry, which is the famous 'Porter' s five forces analysis model. We know that the traditional financial analysis is difficult to effectively sort out and process the factors of the macro environment and the micro environment. In the era of Great Wisdom Propelling Clouds, the collected factors are reprocessed through the mobile Internet big data technology to further analyze the financial situation of enterprises, so that managers can more comprehensively understand the internal and external environment of enterprises, so as to make important strategic decisions conducive to the development of enterprises. (Figure 8)

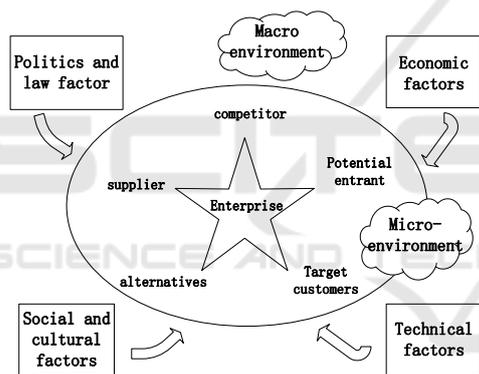


Figure 8: Macro and micro environments that affect the development of enterprises.

5.2 Make In-depth Analysis Possible

The traditional financial analysis often occurs after the event, while ignoring the beforehand and in the event, which makes the financial analysis more use of historical data as a reference, greatly reducing the timeliness of financial analysis, making the analysis only floating on the surface but not deep-seated research. Based on big data is conducive to the enterprise will be in-depth analysis, thorough, will fully implement the financial analysis of business management in advance, in and after the event, the long-term analysis of the stage, the stage analysis of real-time, and the long-term objectives of the enterprise segmentation, including business management activities, budget system, business

forecasting, strategic planning, these decomposition goals are phased targeted one by one to complete, add up to the company set the ultimate goal. (Figure 9)

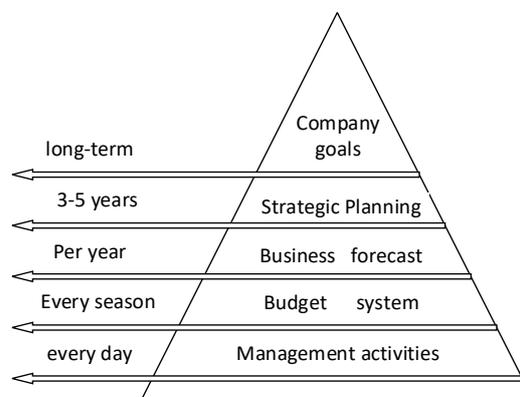


Figure 9: The relationship between corporate plans, budgets, strategies, and goals.

5.3 Make It Possible to Analyze Future Development Trends

In today ' s era of Great Wisdom Propelling Clouds, the level of science and technology is rising rapidly. The data acquisition, information collection, processing and method strategy of financial analysis should be effectively reformed under the big data technology and keep pace with the time. Taking consumer analysis as an example, nowadays Taobao, Jingdong, Vipshop, Pinduoduo and other shopping software are widely used, so that consumer information can be easily obtained on the Internet. According to the browsing records of consumers, enterprises can join the product characteristics of shopping carts, collect browsing data such as consumer preferences, price acceptance, and pay attention to the substitutability of products. Through targeted analysis, it is found that the law behind the characteristics, and can obtain information beneficial to the development of enterprises, which provide a reference for the next business strategy of enterprises.

The traditional financial analysis is based on the research of enterprise financial personnel using historical data and the work experience of managers themselves. The accuracy and reliability of the results are not high. Nowadays, enterprises can use the structural system of the financial analysis platform to understand consumers' psychology more comprehensively and achieve their expected goals, so that enterprises can stand out in the competition

for the same industry and increase the market share to a certain extent.

6 CONCLUSIONS

With the rapid development of social productivity in China, the innovation of science and technology has become the core symbol of the new era. The emergence of 'big data', 'intelligent', 'mobile Internet' and 'cloud computing' has laid a solid foundation for enterprise development and laid a good start for social progress. Everything has two sides, which bring opportunities and challenges to enterprises. Under this premise, enterprises need to keep up with the pace of the times. From managers to financial workers, they should innovate and change from the aspects of thought, data and knowledge, make full use of the obvious advantages brought by the era of big intelligence and cloud shifting. On the basis of analyzing the development ability of enterprises, new ideas, new technologies and new strategies are constantly established to seek greater development space for enterprises.

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REFERENCES

- Cao Cuizhen, Wang Fukun. Research on the construction of enterprise financial informatization under the background of big intelligence shifting cloud [J]. *Time Finance*, 2017 (26): 218 – 219.
- Hu Shumin. Analysis of innovative ways of enterprise financial management in big data environment [J]. *Financial accounting learning*, 2018 (09): 69.
- Ma Lina. Problems and Countermeasures of Enterprise Financial Management in Big Data Era [J]. *Marketing*, 2019 (43): 164-165.
- Wang Bo. Challenge analysis and reform of enterprise financial management under the background of big data [J]. *Accounting learning*, 2017 (22): 7-8.
- Wang Qianghong. The application analysis of enterprise financial management information system in the big data environment [J]. *Bohai Rim Economic Outlook*, 2017 (08): 16.
- Wang Zhiqian. Big data era and enterprise financial management transformation [J]. *Financial and accounting*, 2014 (06): 74-75.