Research Article

Construction of Application Model of Accounting Framework Platform for Industry-Finance Integration Management under the Background of Multimedia Technology

Wenying Bian [1] **and Wenmin Bian** [2]

[1]*Hebei Sport University, Shijiazhuang 050000, China*
[2]*Hebei Tianqin Certified Public Accountants Co., Ltd., Shijiazhuang 050000, China*

Correspondence should be addressed to Wenying Bian; bianwenying@hepec.edu.cn

With the rapid development of multimedia technology today, digital technology research has penetrated into various fields. Based on the integration of industry and finance, management accounting breaks the barriers of business and financial communication, makes business and financial processes penetrate each other, reduces financial levels, improves work efficiency, and helps enterprises create value and improve their core competitiveness. In recent years, with the continuous emergence of new technologies such as big data, cloud computing, and blockchain, how to rely on multimedia technology to effectively realize the platform model of management accounting aiming at "integration of industry and finance" is a difficult problem faced by enterprise management. Combined with the characteristics of multimedia technology, this paper embeds the neural network algorithm in the design of the model and matches the optimization and processing of management accounting in decision-making under the guidance of fuzzy theory. Business decision-making is the core of all the work of enterprise management. The formulation of its decision-making scheme involves all business fields of the enterprise. The implementation of the decision-making scheme directly affects the business performance of the enterprise. The correctness of the decision-making scheme is directly related to the success or failure of the enterprise. Extracting and utilizing the huge financial data generated during the daily management of the enterprise's financial department, a multimedia technology-based enterprise management accounting analysis model is designed and implemented.

1. Introduction

Compared with financial accounting in my country, the introduction of management accounting is relatively late, and its theoretical research and practical application are slightly lagging behind, which seriously hinders management accounting to actively play its role in helping enterprises to carry out forecasting planning, decision-making, management [1]. Informatization is an inevitable trend in the development of enterprise management in the world. The role of management accounting in enterprises cannot be played without the support of informatization means. Therefore, comprehensively promoting the construction of information system supporting management accounting is not only the

practical need to strengthen the internal management transformation of enterprises, but also the inevitable requirement to further accelerate the process of accounting informatization. It is also an important measure to deeply implement the development strategy of national informatization [2]. With the advent of economic globalization and information age, the whole market competition has shown an obvious trend of international integration. With the increasingly complex economic environment and increasingly fierce industry competition, it is increasingly difficult for enterprises to make business decision-making plans [3]. The financial personnel under the management system of modern business entities should not only understand the financial accounting analysis, but also participate in the

production and operation decision-making of business entities and effectively integrate the production and operation of business entities with financial skills and management accounting system, that is, the so-called "industry finance integration."

A large number of changing economic business activities have put forward high requirements for financial work, and traditional financial work has begun to transform into management accounting. It is mentioned in the "Basic Guidelines for Management Accounting" that management accounting should follow the principle of integration and be based on business processes. Use management accounting tools to integrate business and finance [4]. Faced with the influence of internal and external environment, in order to slow down the pressure of operating costs and improve the core competitiveness of enterprises, it is necessary to promote financial transformation. It is extremely urgent to use financial transformation to help enterprises transform, enhance the value creativity of enterprises, and make full use of management accounting to associate financial information with business information to deepen the optimal allocation of resources [5]. With the vigorous implementation of the construction of management accounting system by the state, more and more enterprises begin to pay attention to it and try to implement the integration of industry and finance. There are some problems in the process of enterprise unit construction: enterprises do not have a thorough understanding of management accounting, and many enterprises blindly follow the trend without considering whether the current enterprises need to carry out reform [6]. Based on this, this paper first makes an empirical study on the construction and application of the new management accounting information system from the perspective of "integration of industry and finance" and solves the bottleneck problem of the construction and application of the current "integration of industry and finance" management accounting information system for enterprises [7]. For enterprise managers, how to maximize enterprise value is the top priority of enterprise strategic management. Therefore, management pays more attention not to pure financial information, but to information that can comprehensively reflect the actual state of enterprise operation and operation. Business financial information: Enterprises can get more and more information and can operate and manage modern enterprises with more advanced manufacturing mode and more advanced management mode [8]. Therefore, from the perspective of business and financial integration, we will discuss how to build a management accounting information system so as to provide high-quality and required personalized management accounting reports for management decision-makers at all levels of the enterprise and further promote the refined management and control of enterprises. It can enrich the related research on management accounting [9]. At present, China's economy is stable and changing, the downward pressure on the economy is great, the competitiveness of the industry is great, and risks and challenges are constantly emerging. In order to achieve long-term sound development of enterprises, it is necessary to integrate the management accounting information system into all aspects of enterprise development, give full play to the advantages of management accounting, and promote the development of enterprise financial integration [10]. However, the above research does not solve the technical construction under multimedia technology. Therefore, this paper puts forward the following innovations on this basis:

Based on the efficiency of multimedia technology, according to the nature of the information system, according to the data and information processing flow, combined with the idea of business and financial integration, this paper builds a management accounting framework in several aspects such as data source, data overall management, data mining, and data processing to make the platform more reasonable and efficient.

In addition, on the basis of the above data processing methods, the accounting data are further filtered, simplified, and aggregated under the data processing methods proposed in this paper so that management accounting can be extended to all fields. Based on the neural network model and fuzzy theory, a model suitable for management accounting is constructed.

The chapters of this paper are arranged as follows: the first chapter is the introduction, which discusses the background and significance of the topic selection and expounds the innovation of the article. The second chapter of this paper, mainly combined with domestic and foreign research results of multimedia technology in the field of management accounting, puts forward innovative achievements and research ideas of this paper. The third chapter of this paper is the method part, which discusses the application and principle of related algorithms in depth and proposes a new management accounting data analysis and processing model based on the previous research results and the innovation of this paper. The fourth chapter mainly discusses the experimental part of the application of the algorithm. Through the results of the experiment, the management accounting model is established on the basis of sorting out the data. The fifth chapter is the conclusion, which summarizes the research results and related work.

2. Related Work

Brundu et al. are committed to the integration of finance, business, and informatization in their research on business-finance integration. The theory of business process reengineering and core process redesign has announced the birth of financial integration theory [11]. Collier and Lambert conducted an in-depth study of CPR on the basis of BPR theory. An integrated operation scheme based on business process and including information, organization, and performance is proposed [12]. Tran et al. pointed out that under the current "Internet plus" background, building management accounting information system on the basis of FSSC is a trend for enterprises to strengthen management accounting application in the future. The system is an important support for the construction of management and control service-oriented financial sharing, which can effectively promote business integration and lay a solid

foundation for the development of management accounting informatization [13]. The research of Yousefi and Pishvaee shows that the introduction of cloud computing into management accounting information system can make reasonable use of spare resources in enterprises, and by improving the interactive use efficiency of each port of the system, it can well reduce the running cost of the system and strengthen the collaboration within enterprises [14]. The research results of Katarina et al. show that business decision-making is a dynamic process, and an efficient and scientific decision-making cannot be made overnight, but the initial plan needs to be circularly screened and optimized for many times between different stages so that it can meet the development needs of the enterprise itself [15]. Mohammad et al. stated that for management accounting, data mining is only a means of management accounting implementation, and its task is only to extract effective decision-making information from data or to compare different decisions based on data characteristics scheme [16]. Huang et al. believe that the financial department and business department should realize the exchange of knowledge and skills, and the finance should give more play to the management function, which is the real integration of industry and finance. Customers are included in the financial value chain, think about the supply chain in an all-round way, and finally put forward the concept of value flow management. In the development of value stream management theory, it has continuously deepened the integration of business and financial elements and summarized and classified the factors affecting finance in business, which has a far-reaching impact on the development of industry finance integration [17]. Using data mining technology, the massive data generated in the measurement business can be effectively processed by building a data mining model and a data warehouse, thereby reducing the error of the measurement business to within the standard range and improving the efficiency of the measurement business [18]. The research of Hofmann et al. shows that financial management is more comprehensive, complex, sensitive, and dynamic. As the most important aspect of enterprise financial management, financial analysis is also an important part of enterprise economic activity analysis. Strengthening financial analysis is of great significance for strengthening enterprise financial management, improving enterprise management level, and creating more economic value and better social value [19]. In terms of data warehouse application, Afshan and Motwani studied and implemented a management system suitable for customer data analysis based on data warehouse and data mining technology. The combination of the two technologies embodies the advantages of analyzing historical data and is widely used in the mobile communication industry [20]. Tomchuk et al. think we should start from the practical problems encountered in the construction of "industry finance integration" management accounting information system, build a new management accounting information system with the goal of "industry finance integration," and finally explore how to apply it to the actual management of power grid enterprises [21]. The findings of Hostria and Custodio show that factor analysis and comprehensive analysis are integrated in the analysis process. Therefore, in a certain sense, financial analysis methods are dialectics used to study the economic activities of enterprises and their results. On the one hand, they analyze the index system of financial ability through factor analysis; on the other hand, through comprehensive analysis, they make overall research and evaluation on financial capability index and enterprise financial situation [22].

Based on the research of the above related work, this paper determines the positive role of multimedia technology in the field of management accounting, constructs a management accounting model based on the combination of various technologies, makes in-depth analysis and research on the obtained and collected data using multimedia technology, makes more effective use of data, and excavates the valuable information hidden behind the data so as to simplify and efficiently manage.

3. Methodology

3.1. Research and Analysis of Related Theories

3.1.1. Management Accounting and Accounting Informatization. Accounting is mainly divided into three basic contents: predictive decision accounting, planning control accounting, and responsibility accounting, which are independent and complementary to each other. Planning accounting includes comprehensive budget and cost control, and forecasting decision accounting is composed of forecasting analysis and decision analysis [23]. Management accounting is an important part of enterprise accounting. It plays an increasingly important role in the operation and management activities of enterprises. It is the most effective tool for the integration of strategy, business, and finance of enterprises [24]. And as management accounting is more and more valued by management, its role is no longer limited to the financial field. The management of enterprise procurement, sales, production, and even the planning of the entire enterprise process belongs to the category of management accounting.

With the development of economic globalization and the application of computers, management information system is gradually applied in enterprises. Management information system is a man-machine system that serves enterprise management decisions, collects, processes, transmits, updates, maintains, and stores information and uses related information to support enterprise operation and management activities [25]. Control and performance evaluation accounting implements cost control and performance appraisal based on comprehensive budget. Establish responsibility accounting by dividing responsibilities, assess and evaluate employees' performance of responsibilities, and reflect real performance so as to mobilize employees' enthusiasm and ensure the realization of enterprise objectives. It mainly includes standard cost system and responsibility accounting. In the financial accounting information system, its main function is to complete the accounting processing of the daily business activities of the enterprise and the preparation of accounting information reports. Information

support for internal control needs is limited. Figure 1 below shows the basic structure of the accounting information system.

3.1.2. Analysis and Connotation of Industry Finance Integration.

Financial integration refers to the timely sharing of data sources such as business flow, capital flow, and information flow between business departments and financial departments through information technology and means, and the joint management activities such as planning, decision-making, control, and evaluation based on value objectives so as to ensure the realization of enterprise value creation process. The value creation process of an enterprise is composed of value-added activities. These value-added strategies constitute the value chain of the enterprise, including basic activities, that is, basic production and operation links, such as feeding, production, sales, and so on, as well as personnel, procurement, and so on. Technology development and other auxiliary activities are the main nodes in the enterprise value chain; they provide the entry point for the enterprise to realize the integration of industry and finance. The integration of industry and finance must break the limitations of each link, reduce the cost of each link, realize the synergy of each link, focus on the overall strategic layout of the enterprise, and complete the value-added of the enterprise. Enterprise's internal data mainly comes from business activities and is transmitted to the financial department for processing. Through the integration of industry and finance, the automatic interconnection and docking between business system and financial system is promoted, which improves the timeliness of information transmission and feedback, ensures the synchronization of business process, capital flow, and data circulation, and then guarantees the quality of basic data and the logical consistency between business and financial data from the source.

Management accounting information system is not only an information system, but also a management control system. The main characteristics of information system are data input, sorting and processing, and information generation and output, while management control system is a system established to achieve specific organizational objectives.

3.2. Fuzzy Theory.

Fuzzy reasoning is a kind of fuzzy implicit relations, which adopts fuzzy logic and realizes the mapping process from a given input to an output, specifically in the process of deriving a new approximate fuzzy judgment conclusion by using fuzzy language on the premise of fuzzy judgment or fuzzy proposition. Based on the theoretical principle of fuzzy reasoning, fuzzy reasoning system emerges quietly. The so-called fuzzy inference system is a knowledge-based or rule-based system, and its core is a knowledge base composed of IF-THEN rules. From the perspective of management accounting, this paper analyzes and evaluates the preliminary implementation plan of enterprise business decision-making and then realizes the

optimization and control of the plan so as to improve the scientificity of the business decision-making plan after the optimization of management accounting in practice.

According to the basic idea of synthetic reasoning operation, the membership function vector $M^1 = \{m_{11}, m_{12}, m_{13}\}$ and contribution factor vector W^1 of the three indexes under the determined enterprise value creation ability are coupled to obtain the evaluation vector of this index. Finally, according to the contribution factor vector $B_1 = M^1 \cdot W^1 = \{b_1, b_2, b_3\}$ of the first evaluation index rule, the total number T of each business decision scheme is calculated, and a general fuzzy comprehensive financial evaluation model is constructed, as shown below:

$$T = \sum_{i=1}^{5} w_i \bullet B_i = \sum_{i=1}^{5} w_i \bullet \sum_{j=1}^{n} w_{ij} \bullet m_{ij},$$

$$W^1 = (w_{11}, w_{12}, w_{13}), w_{3i} \geq 0, \sum_{i=1}^{3} w_{1i} = 1. \tag{1}$$

Among them, w_i represents the contribution factor of the first-level evaluation index in the financial evaluation index system; w_{ij} represents the contribution factor of the second-level evaluation index in the financial evaluation index system; and m_{ij} represents the membership degree of the index. Finally, analyze the evaluation results of the fuzzy comprehensive financial evaluation value T of each business decision plan and the fuzzy evaluation level G set before, and deduce the evaluation conclusion of the plan.

3.3. Algorithm Basis of Platform Model Construction.

Because management accounting needs a lot of matching text knowledge, this paper designs the core algorithm of the platform model in multimedia technology. Neuron is the basic processing unit of artificial neuron network, and its basic structure model is shown in Figure 2 below.

In the above figure, $(x_1, x_2, \ldots, x_n)^T$ is the input vector, y_i is the output, $(w_1, w_2, \ldots, w_n)^T$ represents the connection weight between input and output, θ_i is the threshold, and S_i is the external input. In general, the relationship between input and output can be expressed as follows:

$$y_i = f(\sigma). \tag{2}$$

Among them, $\sigma = \sum_{i=1}^{n} w_i x_i + \theta_i$ is an excitation function of $f(\sigma)$ in the above formula, and there are three expressions on one side:

$$f(\sigma) = \begin{cases} 1 \, (\sigma > 0) \\ 0 \, (\sigma < 0) \end{cases}. \tag{3}$$

This is a binary discrete neuron model. Generally, the excitation function is discontinuous, and it is often processed and optimized by logarithm or tangent curve.

The most important property of neural network is its ability to learn from the environment and improve its behavior through learning. This ability is realized by modifying the weights and biases of the neural network. The process of modification is the training algorithm of the network, and
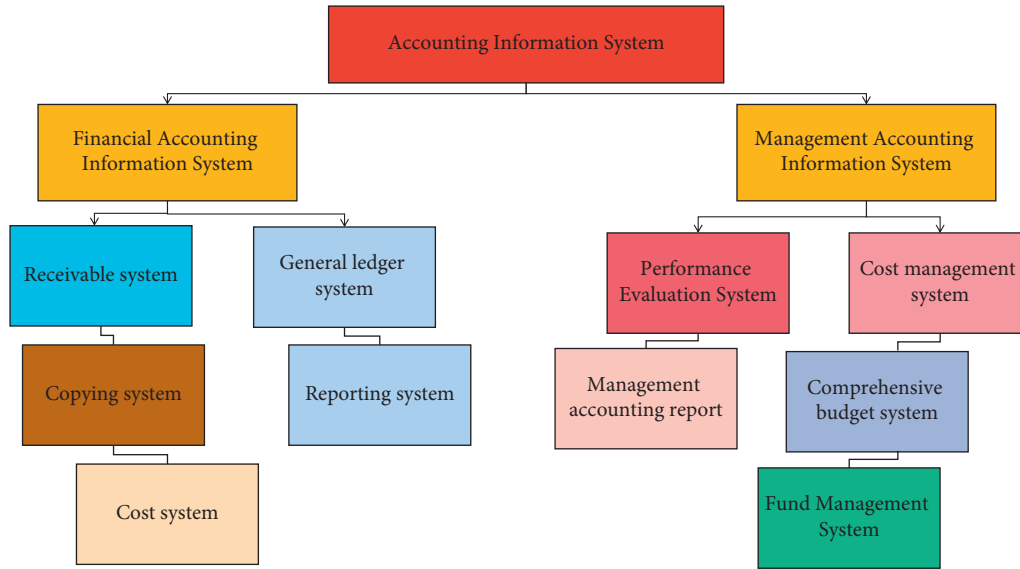
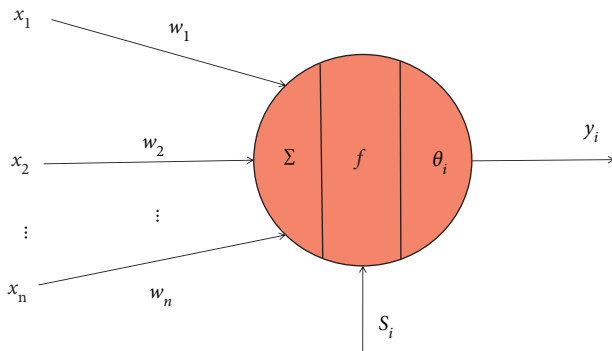FIGURE 1: Basic framework of accounting information system.

FIGURE 2: Basic structural model of neurons.

the modified rules are called learning rules. The neurons are arranged in layers, consisting of an input layer, a hidden layer, and an output layer. The neurons in each layer only accept the input of the previous layer. After the input mode is transformed in the order of each layer, the output of the output layer is obtained. Layers can be multiple layers. At present, BP neural network is a multilayer feed forward neural network with the most research and the most extensive application. As an effective means of information processing, BP neural network has been successfully applied to the fields of pattern recognition, intelligent control, prediction, image recognition, and so on. BP neural network, that is, multilayer feedforward error back propagation neural network, is usually composed of input layer, output layer, and several hidden layers. Each layer is composed of several nodes. Each node represents a neuron. The upper nodes are connected with the lower nodes through weight, and there is no connection between the nodes of the same layer, as shown in Figure 3.

From the network structure, its information flows from the input layer to the hidden layer, which refers to the output layer. The learning of BP network is a kind of supervised learning.

After the structure of BP network is determined, we can train the input and output samples and use the error between the actual output and the target output to modify the weights and offsets of the network so that the actual output is as close as possible to the target output. Therefore, the mathematical model expression is proposed as follows:

$$u_i = f\left(\sum_{i=1}^{n} w_i x_i + \theta_i\right). \tag{4}$$

When the deexcitation function is in the form of curve,

$$f(\sigma) = \frac{1}{1 + e^{-\sigma}} \tag{5}$$

$$e = \frac{1}{2}\sum_{i=1}^{n}(u_i - y_i)^2,$$

where $y_i = f(W \cdot X_i)$ is the actual output corresponding to the i th sample X_i, and Y_i corresponds to the expected output of the ith sample X_i. Calculate when e minimizes W:

$$\text{gradw}^e = \frac{\partial e}{\partial w} = \sum_{k=1}^{n} \frac{\partial e_k}{\partial w}. \tag{6}$$

Among them are

$$e_k = \frac{1}{2}(u_k - y_k)^2. \tag{7}$$

Therefore, the modified gradient weight coefficient is obtained, which is obtained by the steepest descent method:

$$W_{k+1} = W_k + Y \cdot \sum_{i=1}^{n}(u_i - y_i) \cdot f'(Y_i) \cdot X_i. \tag{8}$$

The values of six indicators describing the profitability of enterprises are taken as the input vector $X = (x_0, x_1, \ldots, x_n)^T$ of neural network, and the scores representing the corresponding comprehensive evaluation results are taken as the expected output t of the network. The network is
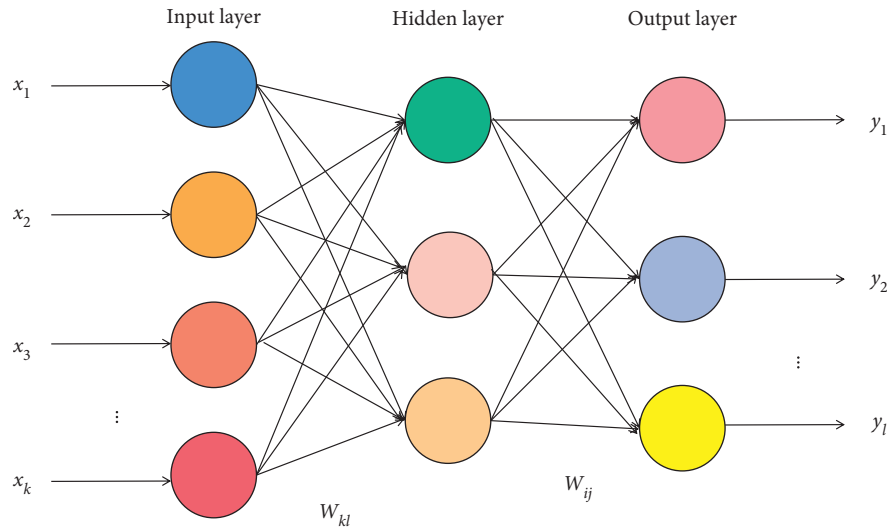
FIGURE 3: Basic model of BP neural network.

trained with enough samples. After continuous learning, the relative error meets the predetermined accuracy. Due to the rationality involved and the coherence of algorithm connection, the management accounting processing ability based on this algorithm is improved by 68.3%. At this time, the set of weights and closing values held by the neural network is the correct internal representation obtained by the network through adaptive learning. Once the network training is completed, it can be used as an effective tool to evaluate the management accounting status of enterprises to make comprehensive evaluation results for different evaluation objects.

3.4. The Basic Construction of the Model. Management accounting is one of the cores of all accounting work of an enterprise. Under the current big data background, accelerating the combination of information technology and management accounting is conducive to improving the efficiency of the overall management of the enterprise and ensuring the rationality and effectiveness of the formulation of the overall strategic objectives of the enterprise. The management accounting information system includes multiple modules. The budget management module and cost management help to simplify the management accounting work. At the same time, this series of information systems can also provide the theoretical basis for decision-making and management for the managers of various departments of the enterprise. The construction of a new enterprise management accounting information system deeply integrates enterprise activities with the current big data and realizes the transformation and upgrading of enterprise financial work.

The software and hardware development of accounting system is based on the needs of enterprises themselves. Each enterprise has different functional requirements for the system, so it is necessary to negotiate with relevant software development companies to ensure that the compatibility, functionality, operability, and other aspects can meet the needs of enterprises

and realize the later system optimization. It is helpful for enterprises to make use of their own advantages and improve the level of accounting information management. Through the demand investigation and analysis of the enterprise's management, investors, and financial analysts, the conceptual structure relationship between potential entities in each functional module of the enterprise financial analysis system is further clarified, which lays a good foundation for the logical structure and physical structure design of the database. The function of investment evaluation is to evaluate the actual investment activities with the preset investment budget evaluation indicators, and according to the specific situation, put forward relevant suggestions to support managers in making investment management decisions. The establishment of the financial sharing center makes risk management and control a problem that needs attention. The finance department should take the initiative to give guidance to the financial sharing center so as to prevent and control the mistakes caused by the change of financial organization and generate risks. For the promotion and salary increase of employees in the financial sharing center, a reasonable assessment standard can be established according to the characteristics of the financial sharing center, such as quantifying the support services provided by the finance department and setting a certain weight into the assessment standard. Every enterprise will face risks. Strictly controlling them within the scope of compliance with the relevant system requirements and the enterprise's risk tolerance is the guarantee for the enterprise to advance its strategy. The main function of the risk management module is to complete the comprehensive identification, real-time monitoring, accurate response, and analysis and evaluation of various risks faced by enterprises and to form risk management reports to assist enterprises in decision-making.

4. Result Analysis and Discussion

Based on the above introduction and the construction of the model design, this paper conducted a simulation experiment
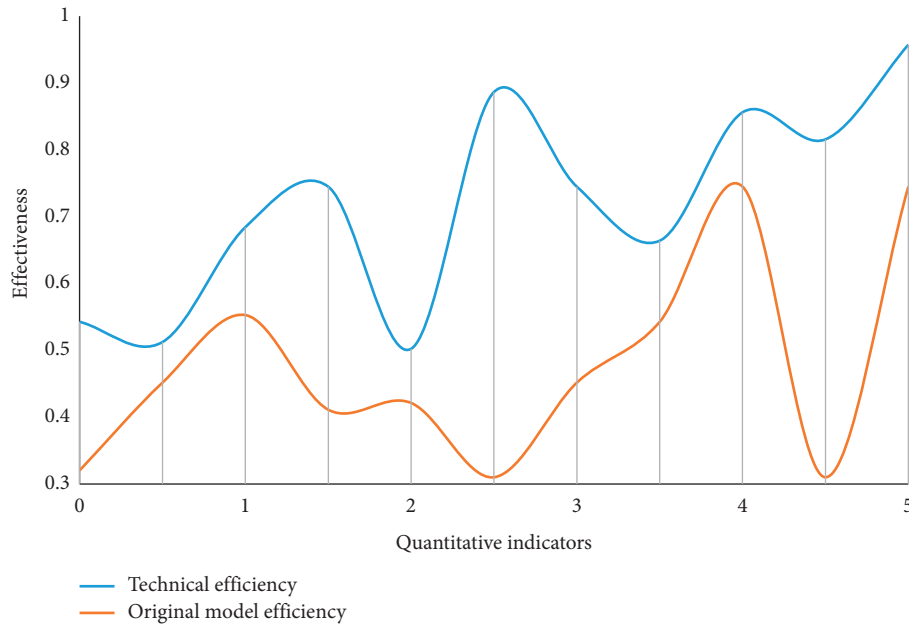
FIGURE 4: Comparison between the technical efficiency of the design model and the original technical efficiency.

to verify and test the practicability and accuracy of the model and judged the advantages of the model in the optimization and analysis of management accounting through the experimental data and the processing of the experimental data. Figures 4 and 5 below show the comparison between technical efficiency and configuration efficiency.

Through the above comparison, it can be seen that under the same quantitative index, the model designed in this paper is superior to the original model in terms of technology and configuration, especially in terms of technology, under the same conditions, for the input of different funds and management, the output efficiency obtained both in terms of performance and processing is within a reasonable proportion, and there is a 78.4% improvement in the technical field alone, which will greatly simplify the system process and realize model optimization on hardware. In addition, in terms of configuration, referring to the advantages of multimedia technology and the efficiency of configuration, combined with the information management system, this paper designs the configuration suitable for the actual operation and processing process of management accounting, which plays a reasonable and simplified role in structure. In order to better realize the model efficiency, therefore, reasonable configuration must be indispensable. Figures 6 and 7 are the trend comparison diagram of main business income and total profit.

In this paper, the main business income and total profit of enterprises are selected for evaluation. After detection and comparison, it is found that the optimized model has an obvious tendency to influence the strategic advantages of enterprises through its influence on management accounting. Firstly, the optimized model has a great advantage in circular processing because it embeds neural network algorithm in algorithm design, which has a high degree of correspondence with the complicated text content and data processing of management accounting in practice. Therefore, in the comparison chart, there will be a trend of high efficiency and high precision. In actual tests, there will generally be a 56% improvement in corporate decision-making, which is of great help for enterprises to rationally allocate resources and make correct decisions. Figure 8 below shows the change trend of management accounting level after the management accounting platform is optimized.

In the above figure, it can be seen that the change in the evaluation level of financial indicators in all decision-making schemes is greater than 0, indicating that the optimization and adjustment control model of the management accounting model used in this paper has played a positive role in the economic benefits based on the financial scheme. Therefore, after the optimization of the management accounting platform is completed, the financial adjustment and management have a significant
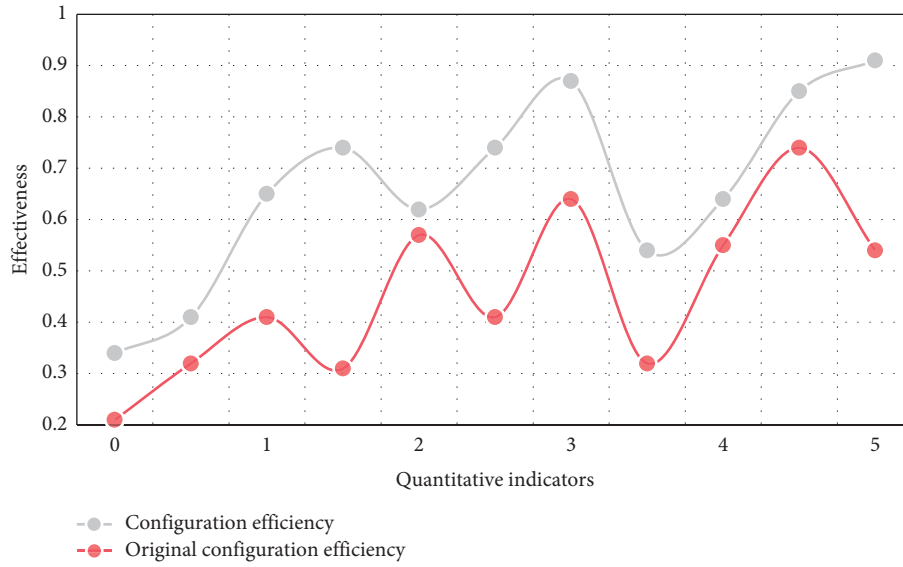
Figure 5: Comparison of design configuration efficiency and original configuration efficiency.
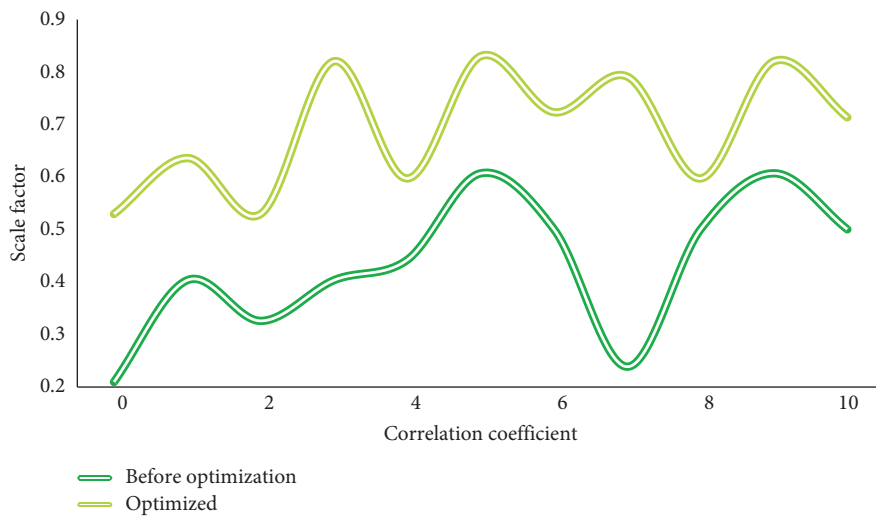

Figure 6: Comparison of main business income before and after model optimization.
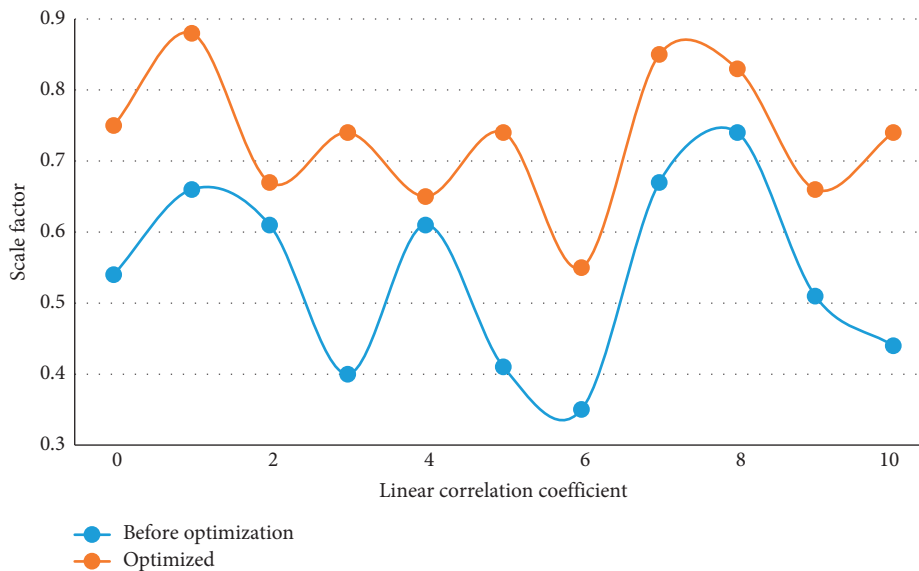

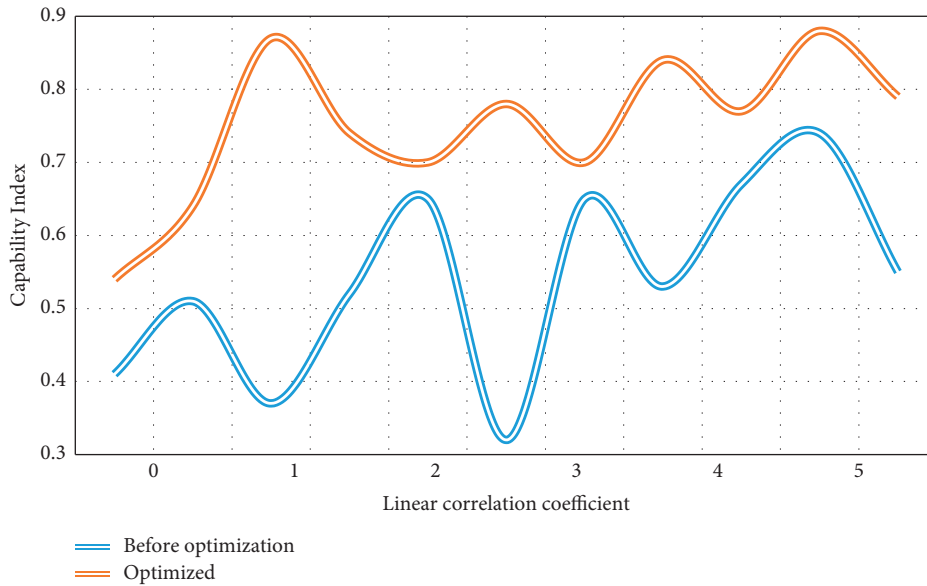Figure 7: Comparison of total profit before and after model optimization.

FIGURE 8: Trend chart of changes in management accounting level after optimization.

economic benefit improvement, which has a very good role in promoting scientific decision-making.

5. Conclusions

The multimedia era has had a significant impact on the economic activities of the society and has a significant impact on the business environment, business philosophy, and business methods of enterprises, and the traditional business philosophy and business model have been challenged. The theory of business-financial integration has just begun to be practiced in my country, and it is a financial management theory in the development stage. Because the efficiency of the traditional financial management mode is not high, and the accounting has long been unable to meet the needs of all aspects of the internal development of today's enterprises, large enterprise groups must apply the industry finance integration mode to achieve higher value. The most important thing is the construction of information system and management accounting system. The basic requirement of information system is that it can meet the enterprise's demand for information exchange between industry and finance and efficient communication among employees, and it should have semiautomatic processing procedures. On the embedding of neural network algorithm, the management accounting processing capacity under the model algorithm has been improved by 68.3%, and the optimization rate has been improved by 78.4% in the technical field, especially for enterprise decision-making, there will be a 56% improvement, which is a reasonable configuration for enterprises and of great help with resources and making the right decisions.

Data Availability

The data used to support the findings of this study are included within the article.

Conflicts of Interest

The authors declare that no competing interests exist concerning the publication of this study.

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