Hindawi
Scientific Programming
Volume 2022, Article ID 8197740, 12 pages
https://doi.org/10.1155/2022/8197740

*Research Article*

# Network Accounting Model in Intelligent Internet of Things Network Computing and Multimedia Environment

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Received 5 January 2022; Revised 24 January 2022; Accepted 28 February 2022; Published 4 April 2022

Academic Editor: Ahmed Farouk



This article focuses on the network charging model in the intelligent Internet of Things network computing and multimedia environment. The current human world has entered a century of economic development. The greatest feature of this century is knowledge economy. With the development of society, the importance of accounting has gradually increased. If accounting is better developed, education should be the basis. How to make students more systematically grasp the basic knowledge of accounting and the corresponding accounting methods is the focus of accounting education nowadays. In this paper, a new teaching model of network accounting under multimedia environment is proposed. On the basis of traditional teaching, multimedia technology is introduced. Through network technology, the platform of network accounting education under multimedia environment is designed to better realize the teaching of accounting course. Firstly, according to the specific teaching needs of students, the relevant functions are designed; secondly, B/S architecture mode is used in combination with database development technology to achieve the teaching system; finally, according to the user survey, the rationality and practicability of the system are analyzed. This article starts with the research status of science and technology and accounting informatization, analyzes the impact of the development of IoT technology on accounting theory and accounting work, and then discusses the promotion of these technologies to accounting informatization. The model proposed in this paper realizes the informatization of accounting and is bound to promote the informatization of accounting and realize the third leap of accounting informatization.

## 1. Introduction

Since the middle of the last century, with the development of the social science and technology revolution, the development of the information industry, and its industrialization in recent decades, an economic form that uses knowledge and information instead of old production factors, knowledge economy, is gradually taking shape on a global scale.

The growth of the IoT has become another force behind the Internet technology to promote the social process. The Internet of Things refers to the real-time collection of any information that needs to be monitored, connected, and realized between objects and objects, and objects and people through various devices and technologies such as various information sensors, radio frequency identification technology, global positioning system, infrared sensors, and laser scanners ubiquitous connection. The IoT is having an impact on human social life and production methods. Research on the impact of the Internet of Things on corporate management, especially on the construction of corporate accounting information, is of great significance.

First of all, college accounting undergraduate education is the main channel to train accountants. Apprentices should master the necessary professional knowledge of accountants in schools. In addition, due to the rapid changes in the environment, it is impossible for students to master all the rules within four years of the undergraduate course, and rote-learning knowledge cannot adapt to the complex and changeable environment. This requires colleges and universities to change the teaching content and structure, change examination-oriented education to quality-oriented education, and cultivate students' ability to adapt to the environment and innovation.

Secondly, information and network have changed the traditional teaching methods. Multimedia teaching is full of pictures and texts, which improves the learning fun for beginners and activates the scope of the classroom. Teachers do courseware well before class, which greatly saves the time of writing in class, makes use of classroom time more fully, and allows more effective time for imparting knowledge.

However, from the feedback from the talent market and various large-scale talent exchanges in recent years, we can see that the market demand for "accounting talents" has been saturated. However, the supply is expanding. The fundamental reason for this phenomenon is the blind development of accounting education. Taking higher education as an example, we find that almost all of the existing 1,000 universities in China have accounting majors, including teachers, engineering, agriculture, and forestry. There are also various colleges, secondary vocational schools, vocational high schools, and self-taught examinations, and various private schools are training "accounting talents." In a short period of more than ten years, the demand for accounting talents has changed from "tight demand" to "surplus." At present, accounting professionals account for more than one percent of the total population of the country, making China a unique "super accounting power" in the world. However, high-level, highly educated, and high-quality accounting talents, such as masters of accounting and doctors, are scarce. Although the demand for undergraduate accounting students is not small, because of the large graduate group, it is difficult for them to find employment, and it is even more difficult for junior accounting students to find jobs. Some employers say that they do not want graduates. They think that graduates have poor hands-on ability, practical ability, and innovative ability. They have a lot of problems in dealing with people and other things. Enterprises need to spend considerable energy on training after they are recruited, hence the general recruitment of college students with more than two years of work experience.

The educational situation in China is that the educational objectives are not clear and the educational boundaries at all levels are blurred. Although computers and networks have been basically popularized in China, the teaching methods in colleges and universities representing the advanced culture of the country are still mostly blackboard and chalk. In the era of information development, teachers still rely mainly on the short classroom time to teach students the contents of textbooks, and some of these contents have become obsolete.

From the above analysis, it can be seen that social needs have been changing and the economy has developed rapidly, but the school's accounting education has not changed. Undergraduate education is the main way to train accounting talents, so the reform is imperative.

In response to the new century, today, colleges and social education have conducted in-depth research on teaching concepts and teaching methods and constructed a diversified teaching model. Combining the application of the Internet of Things system and project display equipment, the use of advanced technologies such as informatization, digitization, and wireless to form network teaching has been comprehensively promoted.

At present, the research and application of China's online training platform lie in the promotion and use of online courseware. The apprentices learn on their own through online platforms and get advice from their instructors via e-mail or online chat. In addition, many online teaching systems provide functions such as online course selection, online grade examination registration, score query, and exchange forums.

Based on this, if we want to get close to the current era of knowledge economy, this article will study the accounting teaching mode, introduce the multimedia environment, design the online financial training mode in the new era, and realize the construction of online financial training. The system is realized through network technology in the new era.

## 2. The Underlying Logic of Accounting Training under New Technology

*2.1. Concepts and Advantages of Information Technology Teaching.* The term multimedia is composed of "multiple" and "media," usually understood as a composite of multiple media. The application fields of multimedia include education and training, e-commerce, information release, commercial advertising, film and television entertainment, and games. Multimedia is an artistic combination of words, graphics, images, audio, video, and animation transmitted to people by means of computer or other digital processing means, that is, the manifestation and transmission of various information carriers [1, 2].

Multimedia has the interaction [3], integration [4], real-time [5], multidimensional [6], and digital characteristics [7]. Interactivity enables students to have more participation and more active learning and helps students form new cognitive structures by creating an environment for reflection. Interactivity is the key feature of multimedia technology, which means that users can interact with various information media of computer, thus providing users with more effective means to control and use information. Integration refers to the computer-centric integrated processing of multiple information media, which includes the integration of information media and the integration of equipment handling these media. Multidimensionality is the diversification of computer computing media information. Digitization refers to the existence of media in digital form. Online response refers to the diversity of sounds and moving images (videos) over time.

New technology training means that the training content is taken from different purposes, after preparing lessons, reasonably applying advanced teaching technology, and effectively combining it with old teaching methods. Students use various information technologies to get better teaching results [8, 9]. That is to say, this kind of teaching mode is a theoretical teaching mode which takes multimedia technology as the medium, optimizes the teaching elements as the basis, uses different teaching methods and strategies to

reflect the teaching content, and achieves the established teaching objectives.

*2.2. The Significance of Multimedia Technology Applied to Teaching.* Firstly, multimedia technology can arouse intellectual curiosity. Apprentices have weak economic accounting foundation, no good learning habits and methods, unclear learning objectives, and lack of interest in accounting professional knowledge learning. Multimedia technology can greatly enhance students' interest in learning knowledge. Multimedia has the characteristics of intuition, image, and richness. It has changed the single classroom mode of traditional teaching chalk plus blackboard and textbook plus teaching plan. Combining text, pictures, audio, video, etc. with vivid pictures, vivid colors, and rich language and cultural scenes presented to students realistically. This stimulates students' senses in many ways, adds interest and flexibility to classroom teaching, stimulates students' interest, and encourages them to learn with fun and curiosity.

Secondly, multimedia is conducive to creating communication situations. The purpose of accounting training is to improve students' ability to handle accounting-related business. This requires the instructor to focus on the explanation of processing skills and bring students into process thinking. Only when students are placed in a real environment and experience the process in an all-round way, can they learn relevant skills better. Multimedia can create a working environment and help apprentices to intuitively study accounting theory in the working environment.

Thirdly, multimedia technology can speed up training efficiency.

Fourthly, multimedia technology is conducive to improving teachers' quality. The application of multimedia technology can provide space for teachers to display their teaching ability. Teachers can combine teaching experience, reorganize teaching content, design rich and diverse classroom activities, and create a personalized teaching style. At the same time, multimedia teaching requires teachers to skillfully use a variety of media technologies and classroom teaching skills in teaching practice, so that boring book knowledge is transformed into vivid pictures, to enhance the interest of teaching, in order to stimulate students' thirst for knowledge.

### 2.3. The Theoretical Basis of Multimedia Teaching

*2.3.1. Constructivist Theory.* Constructivism [10] originated from the theory of Jean Piaget, a Swiss cognitive psychologist, including American psychologist and psychotherapist George Kelly's theory of "personal constructive psychology." This theory is the further development of behaviorism in learning theory after it develops to cognitivism. Constructivists believe that although the world exists objectively, people's understanding and giving meaning to the real world are determined by themselves; people construct and interpret the objective world on the basis of their own experience background. Because people have different experiences, there are also differences in their understanding of the outside world. They put forward a lot of their own opinions on education and summarize the existing experience into a new system [11].

The basic explanation of constructivism for learning is that education is a step by which researchers automatically construct mental representations. It has both theoretical information and a lot of nontheoretical information, that is, experience background. The knowledge construction of learners is not simply copying external information directly, but acquiring new information through their own cognitive structure. Therefore, knowledge cannot be acquired by external imparting. Constructivists put more emphasis on the role of informal experience background formed under the theory. They explained that the original teaching knowledge, concepts, and even the whole knowledge system can be transmitted from the speaker to the listener through words [12].

*2.3.2. Dominant-Subject Teaching Theory.* The "dominant-subject" teaching theory [13] adopts a relatively objective position and believes that the laws of the external world are objective and are not transferred by human will. The types of dominant teaching theories include knowledge-led teaching theories and development-led teaching theories. The process of people's understanding of the essential attributes of these objective things is the process of continuous learning. The learning process is not taught by teachers to these learners. It is the learners who interact and collaborate with the external environment according to their own life experience and original knowledge structure and explore, discover, and construct themselves. Because the learners' knowledge background and ability structure are different, and the depth, breadth, mode, and method of interaction with the environment are also different, this will inevitably lead to different learners' understanding of the same objective things at different levels, thus forming personalized knowledge. Therefore, the "dominant-subject" teaching theory emphasizes the importance of collaborative learning. Collaborative learning among different learners helps them to have a richer understanding of the same objective things, closer to objective facts.

*2.4. Intelligent Internet of Things Based on BP Neural Network Algorithm.* The learning rule of BP neural network is the generalized W-H learning rule. The BP network is used to add one or several layers of neurons between the input layer and the output layer. These neurons are called hidden units. They have no direct connection with the outside world, but their state changes can affect the relationship between input and output, and each layer can have several nodes. The target is approached gradually by calculating the change in the network weights and the deviation along the direction of decreasing relative error slope. The function used to calculate the error is defined as follows:

$$F(R,O) = \frac{1}{2}(P-H)^2 = \frac{1}{2}(K-RE-O)^2. \quad (1)$$

$P$ is the target output, and $H$ is the actual output. From the formula, it can be seen that the W-H rule is used to learn the desired output result by continuously updating the weights $R$ and deviations $O$. In the learning process, for any $i$th output point, there are the following:

$$\Delta r_{ab} = -\theta \frac{\varepsilon Y}{\varepsilon y_{ab}} = \theta (p_a - h_a) w_b. \tag{2}$$

This can also be expressed as follows:

$$\begin{aligned} \Delta o_a &= -\varepsilon \vartheta_a, \\ \Delta r_{ab} &= -\varepsilon \vartheta w_b. \end{aligned} \tag{3}$$

$\vartheta_a$ is the error of the $a$th output point:

$$\delta_i = k_i - m_i. \tag{4}$$

$\varepsilon$ is the learning rate. After extensive use by scholars in practice, it has been shown that it generally takes the value of 1.

$$\varepsilon = 0 \cdot 99 * \frac{1}{\max\left[\det\left(O * O^P\right)\right]}. \tag{5}$$

This time can improve the learning speed and can achieve good learning results.

A distinctive feature of BP neural networks is that their activation functions must be differentiable everywhere. An S-shaped logarithmic or tangential activation function is usually used. The Sigmoid logarithm is continuous and differentiable. The output layer uses a linear activation function to guarantee the output results of the network. Common types of activation functions include Sigmoid function, Tanh function, ReLU function, and Maxout function.

The BP neural network training process is divided into two steps: forward information transfer and backward error propagation. BP neural network has local minimization problems, slow convergence speed of algorithms, different configuration choices, and contradictory problems of prediction ability and training ability.

The output of any $a$th neuron in the hidden layer is as follows:

$$h1_a = g1\left(\sum_b^r t1_{ab} + o1_a\right) \quad (a = 1, 2, \ldots, n1). \tag{6}$$

The output of any $p$th neuron in the output layer is as follows:

$$h2_v = g2\left(\sum_{a=1}^{n1} t2_{va} h1_a + o2_v\right) \quad (v = 1, 2, \ldots, l2). \tag{7}$$

The error function is as follows:

$$F(R, O) = \frac{1}{2} \sum_{v=1}^{n2} \left(p_v - h2_v\right)^2. \tag{8}$$

If the output error of $h2_v$ is less than or equal to the set target error, $h2_v$ is output; if it is greater than the target error, the error is propagated backwards and the updated weights are modified.

Error backpropagation is as follows:

Updated output layer weights are as follows:

$$\Delta r2_{va} = -\varepsilon \frac{\theta F}{\varepsilon r2_{vb}} = -\varepsilon \frac{\theta G}{\varepsilon m2_h} \Delta \frac{\theta m2_h}{\varepsilon q2_{hi}} = \varepsilon \Delta \theta_{va} \Delta h1_a, \tag{9}$$

where

$$\begin{aligned} s_v &= p_v - h2_v, \\ \varepsilon_{va} &= s_v \Delta g2^{'}. \end{aligned} \tag{10}$$

By analogy, we can obtain the following:

$$\Delta O2_{va} = \varepsilon \left(p_v - h2_v\right) \Delta g2^{'} = \varepsilon \Delta \theta_{va}. \tag{11}$$

Implicit layer weights update is as follows:

$$\Delta r1_{va} = -\varepsilon \frac{\delta F}{\delta r1_{vb}} = \varepsilon \Delta \theta_{ab} \Delta o_b. \tag{12}$$

In the above equation,

$$\varepsilon_{ab} = s_a \Delta g1^{'}, \quad = p_v - h2_v, \tag{13}$$

and so on

$$\Delta o1_a = -\varepsilon \Delta \delta_{ab}. \tag{14}$$

The BP neural network algorithm can complete the training of the BP neural network model through the continuous iterative cycle through the above process.

In practical applications, a single hidden layer is generally used. Although multiple hidden layers can improve the accuracy of the network, they also increase the complexity and the training time of the network. The number of neurons in the hidden layer is usually determined by experience. In general, there are several commonly used empirical formulas for reference:

$$\begin{aligned} w &= \sqrt{tu}, \\ w &= \log_2 t, \\ w &= \sqrt{t + 1} + n, \end{aligned} \tag{15}$$

where $x$ is the number of neurons in the hidden layer, $y$ is the number of nodes in the inflow layer, $z$ is the number of nodes in the output layer, and $a$ is usually a number between 1 and 10. Set the activation function of the network, and the S-type activation function is usually used. Set the output error of the network.

The adaptive degree based approach to complex Internet community research, such as the LFK algorithm, defines the adaptive degree function as follows:

$$b_R = \frac{K_{in}^R}{\left(K_{\text{in}}^R + K_{\text{out}}^R\right)^{\beta}}. \tag{16}$$

At the same time, $R$ is a partitioned community. $K_{\text{in}}^R$ represents the sum of the number of interconnected edges between each node in society $R$, i.e., twice the sum of the number of edges within the assigned society $R$. $K_{\text{out}}^R$ is the sum of the number of edges between nodes in society $R$ that are connected to the outside of society $R$. $\varepsilon$ is a social

regulation parameter, which regulates the size of the community, but according to the thought experience, the value of $\varepsilon$ is more reasonable between 1.0 and 1.6, and the value of $\varepsilon$ chosen in this paper is 1.4. For any node $O$ in the network, its adaptation to the community $R$ is defined as the change of the community $R$ joining and not adding the node $O$, and the amount of change is as follows:

$$b_R^O = b_{R+O} - b_R, \tag{17}$$

where $b_{R+O}$ and $b_R$ denote the adaptation degree of the community $R$ containing node $O$ and the original community $R$ not containing node $O$, respectively. If $b_R^O > 0$, this means that the adaptation degree of node $O$ increases after joining community $R$. If $b_R^O < 0$, this means that the adaptation degree of node $O$ decreases after joining community $R$.

However, according to the adaptation formula, to determine whether a node can become a community, we must calculate the original communities $K_{\text{in}}^R + K_{\text{out}}^R$ to join the nodes, which greatly increases the computing time.

Therefore, the following improvements are made to the adaptation formula.

The community $R$ after adding node $O$ is given by (2).

$$b_{R+O} = \frac{K_{in}^{R+O}}{\left(K_{\text{in}}^{R+O} + K_{\text{out}}^{R+O}\right)^{\varphi}}. \tag{18}$$

The community $R$ after joining node $O$ can be obtained from (2). After joining node $O$, the edge $k_O^R$ of the original community $R$ connecting node $O$ becomes an internal edge, the edge $K_{\text{in}}^O$ of the node connecting community $R$ also becomes an internal edge, and the edge $K_{\text{out}}^O$ of node $O$ connecting with the external node of the original community $R$ becomes an external edge, so it can be obtained as follows:

$$\begin{aligned} K_{\text{out}}^{R+O} &= k_{\text{out}}^R + k_{\text{out}}^O - k_{\text{in}}^O, \\ K_{\text{in}}^{R+O} &= k_{\text{in}}^R + K_{\text{in}}^O + k_O^R. \end{aligned} \tag{19}$$

It can be shown that $k_O^R$ and $K_{\text{in}}^O$ are equal and can be equated as follows:

$$\begin{aligned} b_{R+O} &= \frac{K_{\text{in}}^{R+O} + 2K_{\text{in}}^O}{\left(k_{\text{in}}^R + K_{\text{in}}^O + k_{\text{out}}^R + k_{\text{out}}^O\right)^{\varphi}}, \\ K_{\text{in}}^{R+O} &= k_{\text{in}}^R + 2K_{\text{in}}^O. \end{aligned} \tag{20}$$

Therefore, only $k_{\text{in}}^R$ and $k_{\text{out}}^R$ of the initial community $R$ need to be calculated once, and each time a new node is added in the future, only $K_{\text{in}}^O$ and $k_{\text{out}}^O$ need to be calculated to meet the requirements, thus greatly reducing the computing time consumption.

## 3. Design of Online Accounting Training Platform under New Technology Conditions

*3.1. User Analysis.* This article conforms to the theory of school entity online accounting teaching construction. This article mainly analyzes the needs of online accounting training management under new technical conditions from the perspective of new technology systems. The network accounting training management platform under the new technology has the following users:

*3.1.1. System Administrator.* The system administrator can handle various emergencies of the server and maintain the daily operation of the platform.

*3.1.2. Teacher Users.* Teacher users have the right to test, upload, and download teaching resources. In addition, they can use the function of communication and discussion to communicate with students or other teachers. Teachers can issue questions according to their own courses, publish them to the system, and notify the class students; after the students complete the test, teachers can grade papers and enter scores.

*3.1.3. Student Users.* Student users can modify part of their information and learn with the help of system resources. At the same time, after receiving the test notification, they can conduct online examination and query the results. Similarly, students can use the function of communication and discussion to discuss problems with other students or teachers.

*3.1.4. Educational Administration Personnel.* Education administrators need to summarize daily education work and also need to manage the information exchanged and discussed.

*3.2. System Characteristics*

(1) Having a clear and friendly user interface to facilitate user interaction can effectively attract the active participation of reviewers.

(2) Confirm user's permission clearly. For different users, different permissions should be granted, and different operation permissions should be exercised.

(3) Through the network, database maintenance and data statistics can be achieved.

(4) Provide useful help to enable users to familiarize themselves with the system and operate it as soon as possible.

(5) To maintain good compatibility between the educational administration system and the platform, the platform operation requirements must be compatible with daily work, and there are high requirements for normal and effective office operations.

(6) It has good data portability. Multiple evaluation rounds can be carried out in a certain time according to the need, and the specific time section of the corresponding rounds can be set by managers.

(7) Data resources, especially those required by the whole system, need to introduce management system module, encrypt the database, and centrally control all privileged operations.

(8) Provide language support in Chinese.

*3.3. Basic Functional Module of the System.* The services provided by the teaching system can be summarized into four main teaching components: demonstration, activity, communication, and management.

Demonstration is a practical application of the teaching platform. It is composed of textbooks of related courses and has the function of transmitting all related materials.

Activities include active and interactive learning materials with students participating in them. In most of the current network teaching systems, activities are evaluation-oriented, including exercises, tests, simulations, and experiments, and their main purpose is to evaluate the progress of students.

Administration contains all records related to the teaching system. These records preserve course information, teacher information, registered student status information, credit information, all behavior penalties of students in school, etc. The main purpose is to support the necessary management functions in the teaching process, such as student management and curriculum management.

Based on the ideas of Brusilovsky and Miller, online training platforms can enable all participants to communicate fully [14–16]. This kind of communication is particularly important. In addition, some key links to improve the quality of training in the traditional teaching process, such as homework and examination, should be well supported in the network teaching system, so that the network teaching can be transformed from a simple information dissemination system into a powerful, resource-rich, interactive, and communicative virtual learning community.

This article mainly studies the online financial training mode under the multimedia background. Based on the conditions of new technology, it provides a multifunctional teaching platform for training needs. The specific system design is shown in Figure 1.

## 4. Realization of Online Financial Training System under New Technology Conditions

*4.1. Main Technology of the System.* The technical framework of network accounting teaching system under multimedia environment will be based on B/S (browser/server) structure mode [17–19] multilayer architecture. The database server operating system will adopt Microsoft Windows Server 2003 operating system, the database management service will adopt Microsoft SQL Server 2005, the web client will adopt HTML [20–22] and JavaScript scripting language [23–25], and ASP.NET technology will be applied in the application server layer to process business logic data. The database types in the data server include Oracle, MSSQL, and MySQL. The hierarchical architecture of the system is shown in Figure 2.

The three-tier architecture is described in detail below.

User presentation layer: It is the program interface that the user sees and runs on the client computer. Through the browser, to complete the information release, participants pass their requests to the server by operating the business menu and display the returned result of the server. The user presentation layer does not perform actual data processing and only conveys the user's instruction to the business logic layer. The business logic is summed up by analyzing the application field of the software in the analysis phase. Its existence does not depend on the existence of the software. On the contrary, it exists before the software and limits the proper behavior of the software.

Business logic layer: After receiving the processing instructions from the initial layer, this layer transmits program files to complete business processing, generates a data processing request to the data access layer, and generates a user interface for the data returned by the database, and feeds it back to the user computer browser.

Data access layer: The database management system and database files are deployed on the database server. The data access layer responds to the data processing requests from program files; completes the operations of writing, reading, and deleting data of the database; and feeds back the data processing results to the business logic layer.

*4.2. Operating Mode Selection.* When designing the technical framework model of network accounting teaching system in multimedia environment, firstly, B/S mode is considered as the development model of network accounting teaching system in multimedia environment. The reason why the B/S mode is adopted is that the B/S mode has the following characteristics:

(1) The method is highly interactive and has a friendly interface. Universal browser runs applications designed for specific users and tasks, with online help, error prompts, and other functions.

(2) B/S mode is an open structure, facing a large number of users; even the use of firewall technology can not completely shield the network from hackers and malicious insiders of the system.

(3) B/S mode is a development mode for many users under the framework of web system. The communication HTTP used in the B/S mode can pass through the firewall system without too much consideration of the network restrictions. It has the characteristics of easy access. Logically, a three-tier structure is adopted. It establishes a webserver layer after browser and database server. All modules are installed in the webserver layer. In the browser, only general browser software is installed to access it, and it can be operated on the computer. The application is realized, and the use is simple. Therefore, the B/S mode simplifies the installation and deployment of users. Users can use browsers to complete operation access on any computer, which greatly reduces the operation complexity of users and administrators and also simplifies the cost and workload of maintenance, use, and upgrade of the system.

Selecting the financial comprehensive analysis function of the Harvard computing system can synchronize the output of the system content with the platform of the DuPont analysis system. The system is based on ROE as the leader, with net asset rate and equity multiplier as the core,

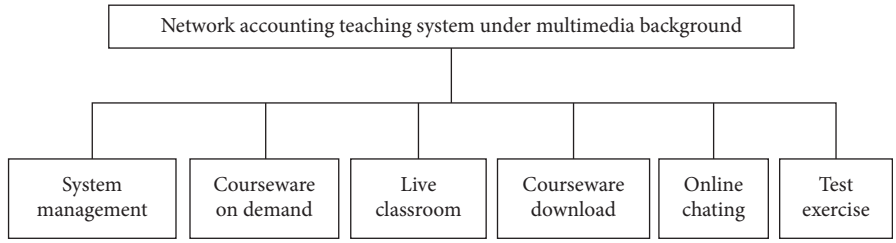


Figure 1: Design diagram of system function module.

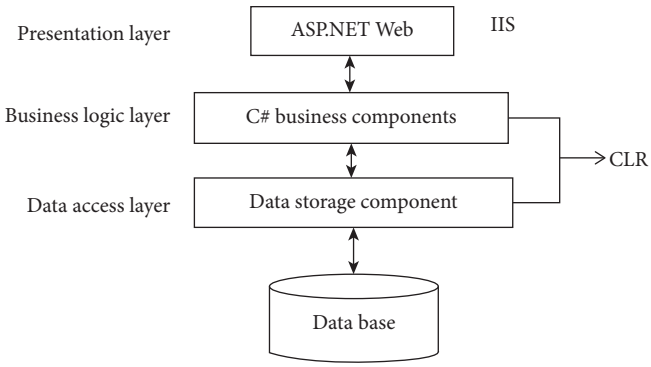


Figure 2: System layered architecture.

and focuses on revealing the impact of corporate profitability and equity multiplier on ROE, as well as the mutual influence of various related indicators. Besides, the platform provides a comparison of DuPont analysis results between S Group and the same industry's average value, median value, and other companies, as shown in Table 1.

Once it reaches 1.65, the system will automatically remind you. The financial early warning system must be highly sensitive, and it should predict the harbinger indicators when the crisis initially occurs, rather than the consequential indicators when it has fallen into a serious crisis state. It can be seen that the main influencing factors of the group's financial status are T4 and T5. Through financial early warning, you can focus on the main influencing factors in real time, as shown in Table 2.

Financial monitoring analysis includes monitoring of fund performance, accounts receivable monitoring, and sales budget completion monitoring. Check the overall sales budget and specific implementation progress of each agency in the sales monitoring analysis, as shown in Table 3.

*4.3. Database System Selection.* Considering the network operating environment and the cost of system deployment, the system uses SQL Server 2005, a large-scale network database of Microsoft Corporation in the United States. The selection basis of the database system is as follows:

(1) The data must support the relational network database system of standard SQL operation specification. Try to avoid large transaction operations, use the HOLDLOCK clause with caution, and improve the concurrency capability of the system; try to avoid repeatedly accessing the same table or several tables; try to avoid using cursors.

(2) It conforms to the system deployment environment in B/S mode.

(3) Program development solutions support ASP.NET, AJAX, and other technologies.

Table 1: S Group and DuPont analysis comparison table in the same industry.

| Rank | Abbreviation | 3-year average | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|
| 68 | S Group | 16.5 | 16.9 | 16.4 | 16.2 |
| Industry average | | 18.6 | 18.2 | 19.4 | 18.2 |
| Industry median | | 14.7 | 15.2 | 13.6 | 15.4 |
| 1 | Can Qin Technology | 60.1 | 64.4 | 61.2 | 54.8 |
| 2 | Tengjing Technology | 57.1 | 60.6 | 57.9 | 52.7 |

Table 2: System accounting forecast calculation table.

| Quarter | T1 | T2 | T3 | T4 | T5 | Z prediction | Actual monitering |
|---|---|---|---|---|---|---|---|
| 2018-1 | 0.620 | 0.436 | 0.512 | 0.132 | 0.555 | 2.255 | Risky |
| 2018-2 | 0.580 | 0.165 | 0.373 | 0.555 | 0.622 | 2.295 | Risky |
| 2018-3 | 0.324 | 0.111 | 0.372 | 0.268 | 0.467 | 1.542 | No risk |
| 2018-4 | 0.090 | 0.363 | 0.086 | 0.600 | 0.635 | 1.774 | Risky |
| 2019-1 | 0.666 | 0.491 | 0.162 | 0.437 | 0.169 | 1.925 | Risky |
| 2019-2 | 0.404 | 0.597 | 0.464 | 0.185 | 0.163 | 1.813 | Risky |
| 2019-3 | 0.316 | 0.152 | 0.463 | 0.414 | 0.227 | 1.572 | No risk |
| 2019-4 | 0.464 | 0.36 | 0.173 | 0.341 | 0.371 | 1.709 | Risky |

The database management features of SQL Server 2005 are shown in Table 4.

*4.4. System Implementation Effect Diagram.* According to the above description, after designing the system function, this paper realizes the construction of the online accounting training platform through modern information technology and Internet of Things technology. The application fields of IoT technology include medical care, transportation, security, smart home, industry, and agriculture. The platform designed in this paper has various teaching-related functions. Among them, the platform management function can manage the user's basic information and select courses. Apprentices can preview and review the course through courseware on demand, so that they can learn the course better. The classroom live broadcast allows students to watch the teacher's classroom online and realize online teaching. The platform provides a button for caching class videos,

Table 3: The implementation and monitoring of platform financial budget.

| Project | | Budget | Reports | Offset | Statement | Schedule (%) |
|---|---|---|---|---|---|---|
| Commercial underwriting | Contractor A | | | | | |
| | Division a | 30230.5 | 810.9 | 296.3 | 648.72 | 2.15 |
| | Division b | 42199.3 | 630.4 | 246.1 | 504.32 | 1.20 |
| | Contractor B | | | | | |
| | Division c | 33600 | 651.1 | 308.7 | 520.88 | 1.55 |
| | Division d | 43346.2 | 1126.5 | 243.8 | 901.2 | 2.08 |
| | Subtotal | 149376 | 3218.9 | 1094.9 | 2575.12 | 6.97 |
| Factory-owned | Main plant | | | | | |
| | Branch 1 | 40083.7 | 1262.4 | 248.4 | 1009.92 | 2.52 |
| | Branch 2 | 32022.6 | 606.6 | 213.8 | 485.28 | 1.52 |
| | Branch 3 | 31876.5 | 895.4 | 221.9 | 716.32 | 2.25 |
| | Subtotal | 103982.8 | 2764.4 | 684.1 | 2211.52 | 6.28 |

Table 4: Characteristics of SQL Server 2005 database management.

| Characteristic | Description |
|---|---|
| Database mirroring | The use of a new database calculation rule enhances the file transfer performance. This rule can make the server self-check and then self-repair when the server fails. |
| Online recovery | With the new version of the server, the database administrator can maintain the server without shutting it down, which improves the security of system operation. |
| Online retrieval operation | The latest data retrieval system can index more relevant data during server operation and can update the data on the basis of the original data. |
| Fast recovery | The database can flash some recent information to ensure that the data can be restored in the event of a server failure and ensure data security. |
| Improvement of safety performance | The server can use a more secure strategy to improve the efficiency of the firewall. |
| New SQL server management studio | The database is equipped with the latest toolkit, which expands the functions of the server. |
| Specialized administrator connection | The administrator can connect to the working server and diagnose fault types online in real time. |
| Snapshot isolation | The database can access any segment of data nodes through data isolation and improve retrieval efficiency. |
| Data segmentation | The database area division also has the function of improving the retrieval efficiency, which can effectively manage the server memory and ensure the service life of the server. |
| Enhancing replication function | The database designed in this paper shortens the decision-making time of the revised scheme and provides a variety of protocols for the transmission of various information. |

which is convenient for students to use resources well. The online communication module provides a platform for communication between platform users. Students can search topics of interest on this platform or publish their own problems for help. The exercise and test module provides students with after-class exercises and the function of testing their own learning situation. In addition, teachers can also use the module to carry out ordinary tests and final examinations and keep abreast of students' learning situation at any time.

According to the above processing method, calculate the Eva forecast value of the sample enterprises in the extraordinary growth stage; see Table 5. Eva is a distributed database system that implements a time-aware, cumulative, and atomically consistent entity-attribute-value data model. Its API is generally compatible with Datomic's.

The two-stage growth model assumes that the company will enter a period of sustainable development after the extraordinary development stage. In this stage, the growth rate of the company will remain at a stable level for a long time.

The platform designed in this article will be described in detail below. After logging in to the platform, the login interface is shown in Figure 3. In this interface, users can log in by entering their user names and passwords. The system will jump to the page of the corresponding role according to the different roles of the user name in the user name database. If the user is using the platform proposed in this article for the first time, the user can log in to the system simply by registering.

Secondly, this paper introduces the courseware download module. When users select the module, they can see the interface shown in Figure 4. Users can download the courseware they are interested in in this module for review after class.

In addition, this paper introduces the exercise and test module, which can meet the students' need to test accounting-related knowledge, so as to better train students' accounting-related skills, so that students exercise knowledge and enhance their speed of processing information. The test interface is shown in Figure 5.

Table 5: Data processing in the extraordinary growth stage.

| Listed company | NOPAT average | NOPAT Approximate growth rate (%) | WACC (%) |
|---|---|---|---|
| S group | 43513446 | 56.9 | 29.7 |
| Can Qin Technology | 141583092 | 5.7 | 78.8 |
| Tengjing Technology | 152984355.5 | 31.0 | 76.1 |

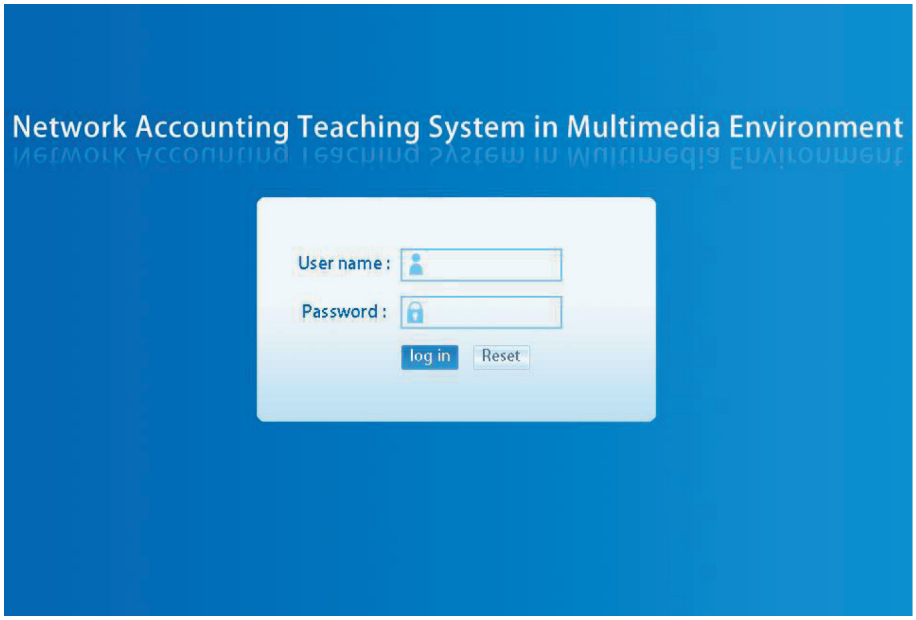


Figure 3: User login interface.

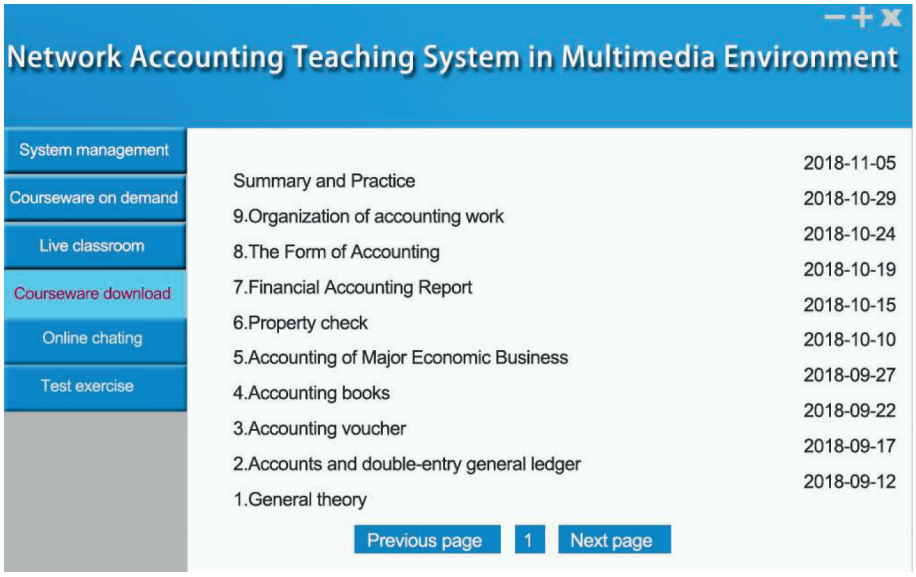


Figure 4: Courseware download interface.

In terms of corporate operations, after the application of the platform, S Group's capital utilization rate increased by 13%, profit margin increased by 9%, inventory turnover rate increased by 12%, problem handling time decreased by 18%, and inventory cycle decreased by 10%.

## 5. Test and Analysis of Platform Implementation Effect

For the practical performance and other functions of the platform proposed here, this article has conducted a number

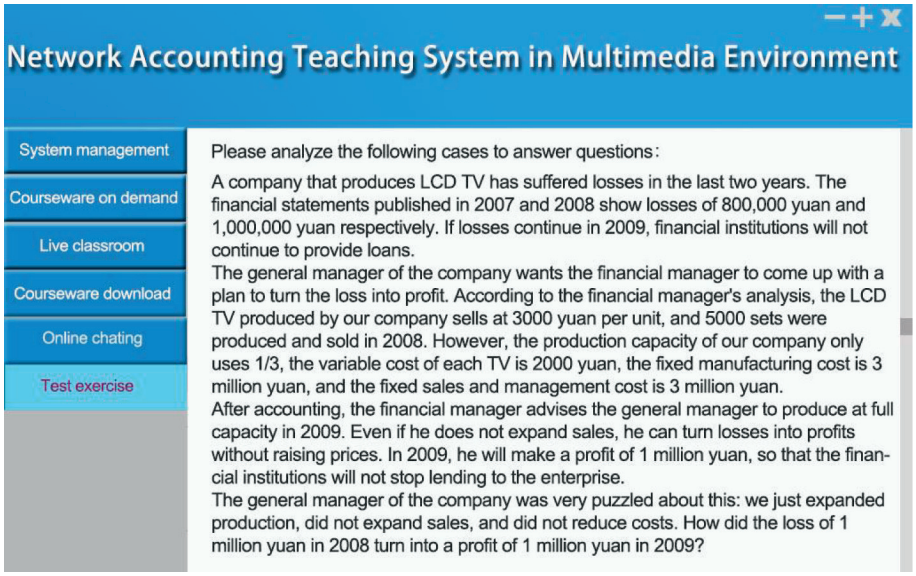


Figure 5: Test and exercise interface. S Group applied the Internet of Things accounting analysis platform constructed in this article, successfully tested it, and put it into use. The specific effects are shown in Table 6.

Table 6: Analysis table before and after platform application.

| Analysis project | | Comparative analysis | | Conclusion |
|---|---|---|---|---|
| | | Before building | After build | |
| Platform cost | Software development | 43 | 24 | 49% |
| | Software maintenance | 6 | 0 | |
| Consolidated statement | Time (h) | 360 | 1 | |
| | Accuracy | 75% | 80% | 20% |
| | Working saturation | 85% | 65% | |
| Financial analysis | Time (h) | 120 | 1 | |
| | Accuracy | 85% | 80% | 20% |
| | Working saturation | 80% | 60% | |
| Financial monitoring | Time (h) | 1650 | 1 | |
| | Accuracy | 75% | 85% | 25% |
| | Working saturation | 85% | 65% | |
| Financial decision | Time (h) | 1580 | 1 | |
| | Accuracy | 85% | 95% | 30% |
| | Working saturation | 90% | 60% | |

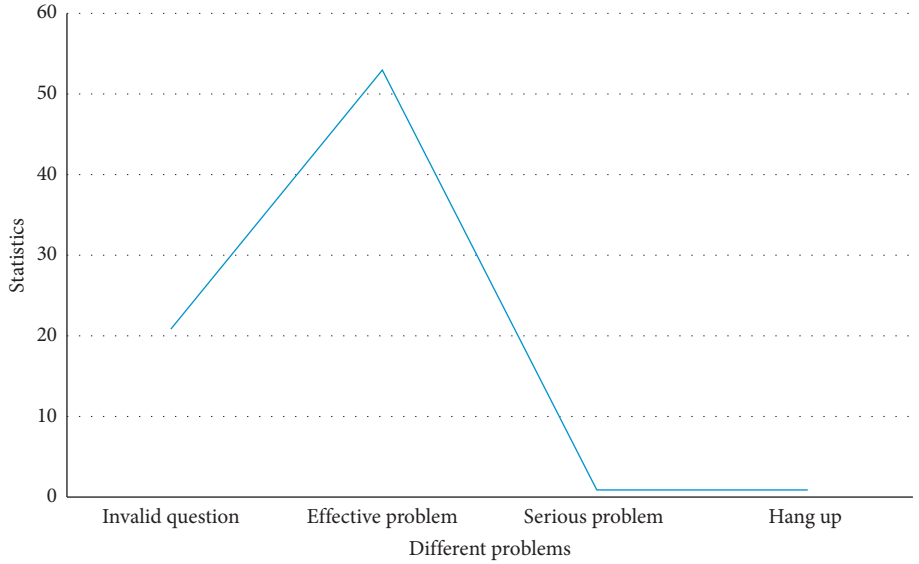


Figure 6: Statistical polygraph of defect problem.

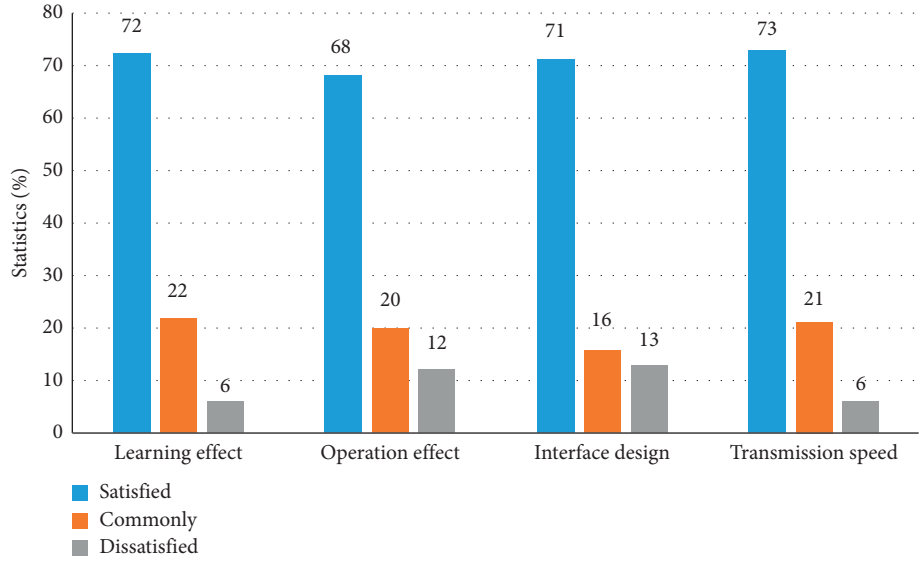


Figure 7: User experience questionnaire statistics.

of tests on it, and the specific test results can be found in the previous content of this paper.

Firstly, this paper takes two months as the testing cycle to test the system. In the testing process, the system will generate defect reports and record the specific content and time of the problem. In the two months of testing time, the statistics of defect problems generated in this paper are shown in Figure 6. As can be seen from the graph, 76 defects were found in the test time, including 21 ineffective problems, 53 effective problems, 1 serious problem, and 1 suspended problem. Among these problems, there is only one serious problem that causes the system to hang. Other problems do not have a great impact on the system. This shows that the system has good stability, reliability, and security. In addition, through statistics, this simple test system can effectively support 1000 users to operate online at the same time, and there is no abnormal phenomenon.

This article also selected a large number of users of this platform to conduct an experience survey. The statistical results are shown in Figure 7. It can be concluded that the contents of this survey are four aspects of teaching effectiveness. On the whole, users rate the system relatively highly. The abscissa of Figure 7 is the survey type.

## 6. Conclusion

Nowadays, as society enters the era of knowledge economy, accounting is becoming more and more important. The development of accounting based on education is a better solution to the country's talent gap for accounting personnel. The essence of the construction of accounting informatization under the IoT is the organic integration of the IoT and accounting work, and the core is the construction of an accounting information system. The model proposed in this article can realize the intelligence of accounting work and supervision work, accelerate the process of accounting informatization, and serve industrial management. On the basis of traditional teaching, we introduce multimedia technology, design corresponding functions according to students' specific needs, and use B/S architecture mode, combined with network technology such as database, to realize the construction of network accounting teaching system under multimedia background. Finally, a questionnaire survey on the performance and user experience of the system shows that the accounting training platform provided in this article can promote students' learning well.

## Data Availability

The data that support the findings of this study are available from the author upon reasonable request.

## Conflicts of Interest

The author declares no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

## Acknowledgments

This work was supported by Guangdong Province 2021–2022 Accounting Research Group Project (project no. 7-11); the research on the transformation and practice of accounting professional training in universities under the background of artificial intelligence in Zhanjiang—Taking Zhanjiang Institute of Science and Technology as an example (project no. 2021B01024); and Zhanjiang University of Science and Technology "Brand Promotion Program" School-Level Teaching Team Project: Accounting Professional Courses Ideological and Political Education Team (project no. PPJH202108JXTD).

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