

Enterprise Financial Management Informatization under Cloud Computing Environment

Xiaohua Zhou*

Department of Financial Management, Ginkgo College of Hospitality Management, Chengdu, Sichuan, China

*Corresponding author. Email: zhouxiaohua131@126.com

ABSTRACT

For enterprises, financial management is the top priority of management work, and the effective promotion and application of the financial management model of the financial sharing center integrating cloud computing and other technological elements can undoubtedly become the key to helping enterprises achieve strategic transformation and upgrading "accelerator". The purpose of this paper is to study the construction and optimization of enterprise financial management informatization based on cloud computing environment. By analyzing the concept, characteristics, key technologies, service modes and methods of cloud computing, a cloud computing enterprise financial management information design is introduced. Then it expounds the corresponding characteristics of different types of "cloud finance" construction schemes, selects corresponding construction design strategies for different types of businesses according to their own business needs, and gives the overall construction process for enterprises to build "cloud finance". The online financial management service is designed to add a financial early warning module, which mainly includes the design of data and services on the online financial management platform, the selection and construction of financial early warning models, and the verification of the constructed financial early warning models. The experimental results show that the financial early warning model the average accuracy rate is nearly 94%.

Keywords: *Cloud Computing Environment, Enterprise Finance, Management Informatization, Construction Optimization*

1. INTRODUCTION

Cloud computing has strong data computing capabilities. If it is fully applied to the management and operation activities of enterprises, it will greatly improve the management level of enterprises [1]. The enterprise establishes a cloud computing platform, and users access the data center through the user terminal, which gives full play to the advantages of the Internet platform. Using computerized distributed storage and powerful computing power, the big data of enterprise finance can be filtered and integrated. Powerful data assistance enables the creation of multiple analytical strategies [2].

By applying the financial sharing center management model, it can effectively promote enterprises to carry out more valuable management innovation activities [3]. The main focus of Ullah S's research is how to classify the major big data resource management systems in the cloud computing environment. Some key characteristics characterizing big data frameworks and their associated challenges and issues are identified. Various evaluation metrics from different aspects are used to identify the usage scenarios of these platforms [4]. Н и к и т а В а к у т и н introduced the current individual taxation system of leaseback taxation, analyzed the

judicial practice of hearing tax disputes over the use of leasebacks, and proposed measures to create a regulatory environment for leaseback taxation. Provide conditions for leasebacks as a tool for managing the company's finances, thereby ensuring that leasebacks are explicitly recognized in their regulatory regimes to protect the tax benefits of repayable leased entities[5]. In the context of cloud computing, combining the characteristics and methods of the enterprise's own development needs into new technological elements, building a financial shared service center suitable for the enterprise's own development, thereby enhancing the enterprise's management and operation capabilities, and strengthening the enterprise's own core competitiveness, which has both It is necessary, feasible and significant [6].

Novelty of research content: "Cloud computing" is now in the exploratory stage of in-depth practice, and its application in financial management systems is still in its infancy, and a mature theoretical and application model has not yet been formed. Innovativeness of research conclusions: Although "cloud computing" technology has played a role in various fields, it has not penetrated into all aspects of work and life. This paper uses "cloud computing" to build a financial management framework to better play a key role in

performance management. And summed up the basic construction process of "cloud finance". These two points are the innovation of this paper[7].

2. RESEARCH ON THE CONSTRUCTION AND OPTIMIZATION OF ENTERPRISE FINANCIAL MANAGEMENT INFORMATIZATION UNDER CLOUD COMPUTING ENVIRONMENT

2.1 Cloud Computing

Cloud computing is an advanced scientific and technological product in contemporary society, and it has evolved based on the vigorous development of the modern Internet. In terms of related technical resources, it can also maximize the utilization of resources, and through the technology of cloud computing, the seamless connection of related data processing under the network can be realized [8].

The service group of cloud computing is not limited to enterprise users, and individual users can also achieve corresponding convenience and services through cloud computing technology [9]. Since the cloud computing platform is mainly implemented through relevant algorithms and technologies, the relevant hardware costs are not high, and in the later technical upgrades, only code changes are required, without additional replacement or addition of relevant hardware. The operation efficiency can also be improved after using this technology, and the use of this technology can also improve the service level and development level of the enterprise to a certain extent [10]. The later upgrade and maintenance do not need to be subject to factors such as location, and can be easily completed as long as there is a network environment [11].

2.2 Optimization of Enterprise Financial Management Informatization Construction

The application of "cloud finance" separates the functions of reimbursement, asset management, commission, and sales, which are easy to standardize and execute, from the functions of the financial department of each business unit, forming an independent operating system. The data center is customer-oriented, providing professional services to customers within the enterprise or beyond. The organizational structure of business operation and management is more flattened, and the financial department of each business unit pays more attention to decision-making and risk control [12-13].

As organizational structures are hierarchical, business processes need to be redesigned. Collect,

organize and dismantle existing business processes, transform and reorganize businesses that are easy to standardize and process, and focus on large, repetitive, and cumbersome core businesses to improve business processing efficiency. In the process of transformation, enterprises need to integrate the current information status, the ability and quality of personnel, capital and business, etc., so that the business process matches the actual status of the business. Once the process matures, companies can gradually expand the scope of business process transformation.

3. INVESTIGATION AND RESEARCH ON INFORMATIZATION CONSTRUCTION AND OPTIMIZATION OF ENTERPRISE FINANCIAL MANAGEMENT IN CLOUD COMPUTING ENVIRONMENT

3.1 Implementation of System Cloud Platform Architecture

In order to effectively extract data from the system, this paper introduces a persistence layer, whose role is to rely on the ORM's internal mapping function to speed up its read and write speed. During the data reading process, the control layer uses the persistence layer to map the data, and reads the data through the data layer.

Persistence layer ORM is a key part of the whole system. It is processed and processed on top of the DAO architecture, and an interaction center is established in the business logic layer and the database layer. Use the persistence layer to analyze the incoming and outgoing data in the process of the company's financial management information processing, optimize the processing flow, and process the data that is repeated or does not need to be transmitted, so that the overall data interaction is effective.

On the built-in cloud platform, distributed storage can be used to store batches of financial data and internal business data. The traditional financial management information desk system generally uses a central storage server to store all financial data, which cannot meet large-scale storage requirements. It can only export local data, that is, local data, and can only provide related services and business functions locally. Distributed storage breaks geographical restrictions, can locate user areas, and store financial data of different branches according to the area, thereby improving the storage efficiency of the system, as well as the security performance and efficiency of the system.

3.2 Development Environment Configuration

The financial management information management system uses Microsoft's .NET as the development platform, which has relatively high security, reliability, stability and adaptability, and allows developers to write program scripts and function development based on various languages and environments. Here, a reasonable development environment is configured to display the function implementation of the system. The main parameters are as follows:

Modeling tool: PowerDesigner12.0;

Database server: SQLServer2012;

Integrated development environment: Microsoft Visual Studio 2013 version;

Web server development software: Microsoft.NET. Framework.4.5

3.3 Fisher's Discriminant Method Financial Early Warning Model Construction

According to the requirements of my country's securities market for the financial status of enterprises, this paper divides the small and medium-sized enterprises to be studied into two categories: one is financial crisis (ST) enterprises, and the other is non-financial crisis (non-ST) business. The basic principle of Fisher's distinction for financial crisis early warning in this paper is: Name the financial data sets of ST Group business and non-ST Group business as A1 and A2 respectively, establish a model and define a classification standard to convert the financial data of A1 and A2 into In a specific direction, maximize the data distance between the two types of services.

Let M1 and M2 be the mean of X in the P-dimensional space with respect to the sample populations A1 and A2, respectively, and m1 and m2, respectively, the mean space of the two sample types assigned to the one-dimensional space by the function $y(x) =$ and the last two categories The mapping relationship of samples, "intra-class dispersion" is defined as S1 and S2, respectively.

Obviously, we want to choose a linear combination of X that maximizes the distance of m1 and m2 with respect to the distance of y. The absolute value of the average value of ST companies and non-ST companies is almost the same, which shows that the established early warning model is reasonable in theoretical analysis. Fisher discrimination threshold:

$$(\mu_1 - \mu_2) * \sum (\mu_1 + \mu_2) / 2 \quad (1)$$

Among them, μ_1 and μ_2 are the mean values of the two groups of sample variables, respectively, and \sum is the covariance matrix of the two samples. When estimating the cut-off point of the model, assuming that the misclassification costs of the two types of companies are indistinguishable, the cut-off point can be obtained as: $(-0.95-0.92)/2=-0.935$

-0.935 is the limit point of whether the financial situation of small and medium-sized enterprises in my country is healthy or not. If the rating is above -0.935, it can theoretically prove that the company is in good financial condition and there is no risk of bankruptcy; if the rating is lower than -0.935, the company may have problems, or even a financial crisis.

To sum up, the financial crisis early warning model established by Fisher's discriminant method is as follows:

$$Y = 0.751X_1 + 0.194X_2 + 0.577X_3 + 0.244X_4 - 0.023X_5 - 0.007X_6 \quad (2)$$

The judgment value is as follows: when the company's $Y > -0.935$, the company is financially healthy, and the probability of bankruptcy is low;

When the company's $Y < -0.935$, the company's financial problems are very likely to be in danger of bankruptcy.

4. ANALYSIS AND RESEARCH ON INFORMATIZATION CONSTRUCTION AND OPTIMIZATION OF ENTERPRISE FINANCIAL MANAGEMENT UNDER CLOUD COMPUTING ENVIRONMENT

4.1 Corporate Financial Management Business

The accounts payable business handled by Finance Cloud is the accounts payable business of each branch of the group. The financial cloud needs to identify the authenticity of the original bill, review the authenticity of the business, and finally perform financial management processing, and then make payments and transfers. Credentials are collected and stored.

The expense reimbursement business mainly reimburses the travel expenses and food expenses of the employees of the enterprise. When the system starts, employees log in to the expense reimbursement system to fill in the relevant reimbursement information according to the system process, and the system generates a reimbursement document with a special QR code. Print the reimbursement documents generated by the system, and transfer the reimbursement documents and related documents to

the financial cloud for processing. The process of the expense reimbursement system is shown in Figure 1:

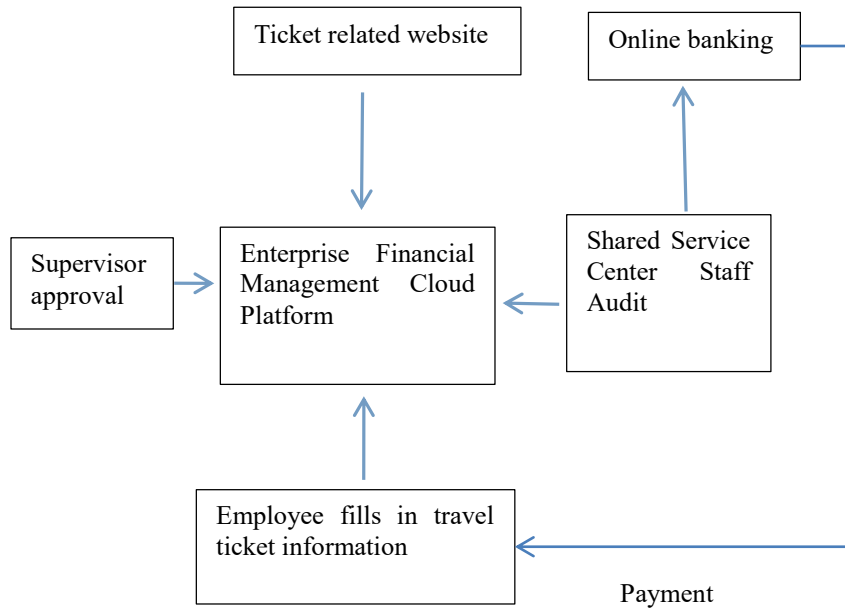


Fig 1. Expense reimbursement flowchart

The general ledger module is the core of a company's accounting system, it is like a central processor of a company's financial management information. The processing results of many other financial modules will flow into the general ledger module, and corresponding reports will be generated through the processing of the general ledger module to provide users with financial management information. The account data in each module of the enterprise ERP system is uploaded to the cloud server, and the general ledger system accesses and reads the corresponding data of these accounts. Set the corresponding options, the corresponding time node, and select the corresponding account name to get the result.

The risk control application is to embed the audit prompts of possible tax-related risk points into financial management and accounting. It can not only strengthen the awareness of tax risk prevention through the promotion of laws and regulations, but also remind the task personnel when the business personnel are operating. Attention is paid, and the availability of data is greatly enhanced at the same time. The optimization of this link is equivalent to dispersing risks in business nodes for processing. For the company, problems can be discovered and solved

in time, which can effectively avoid risks and better serve the enterprise.

4.2 Validation of the Financial Early Warning Model

Due to the limited number of ST companies in Chinese enterprises, the number of samples selected in the model construction is limited. Therefore, to test the model, 200 companies can be used to test the model with 4 years of data from 2019 to 2022. According to the previous model accuracy test, the prediction accuracy of 200 companies from 2019 to 2022 is calculated and determined as shown in Table 1:

Table 1. Model prediction accuracy verification

Years	ST Enterprise	Non-ST Enterprise
2019	98%	96%
2020	100%	98%
2021	98%	94%
2022	96%	94%

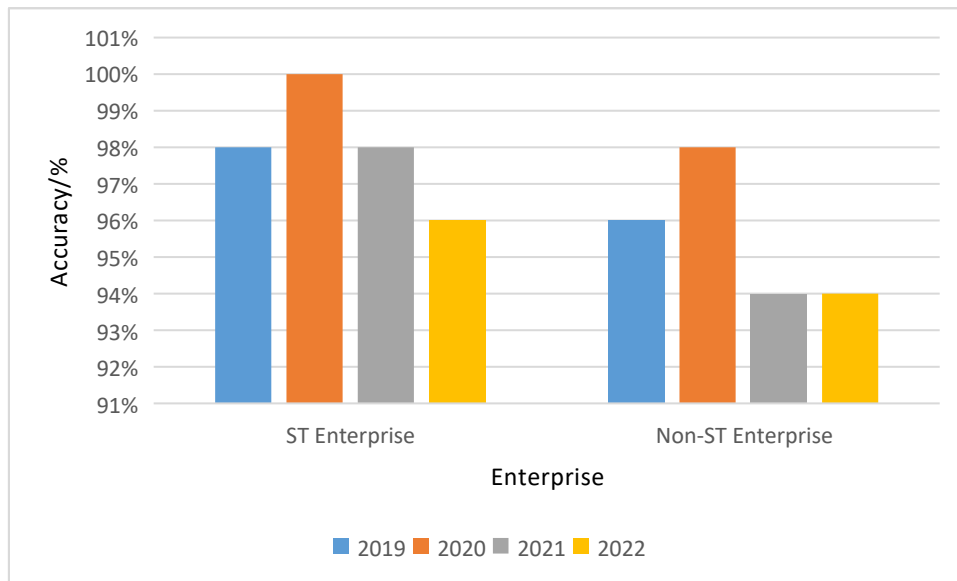


Fig 1. Model prediction accuracy verification

The above verification results are obtained from the enterprise data from 2019 to 2022 in the constructed model. As shown in Figure 1, it can be seen that the average annual accuracy rate is close to 94%, indicating that the application of this model can provide companies with more accurate financial forecasts. Although there are misjudgments by enterprises every year, it can be seen from the figure that the number of misjudgments is relatively constant, indicating that the discrimination accuracy of the model is relatively stable and the model is reliable.

5. CONCLUSIONS

The effective combination of cloud computing technology and other network sharing technologies has established a stable and reliable control system for strategic planning and business decision-making, guaranteed the efficient operation of enterprise financial management services, and laid a foundation for the company's innovative management and huge benefits. This paper identifies the exact issues that affect the development of financial management and formulates specific countermeasures. Taking into account the overall scope of team monitoring and team management in the application process, through troubleshooting, problem solving, process optimization and improvement, and benchmarking, costs are minimized, productivity is improved, and risk management capabilities of the control company are increased. Start with the status quo of common service templates for online financial management services, ask questions, then install a business early warning module on the cloud platform to solve the problem, fully design and analyze the data and templates required for database application, and

finally get useful information through actual data. Early Warning Models and Assurance.

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