Research on the Engineer of Financial System Process in Power Enterprises Based on "Big Data" + "Cloud Computing"

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Abstract. Big data generation in power companies is particularly prominent in financial accounting, which is particularly prominent in financial accounting. According to the traditional financial accounting process and system, it is impossible to accurately analyze large amounts of financial data. In the era of big data and cloud computing, it provides very convenient conditions for the Engineer of financial processing processes of power companies. Through cloud computing technology, the characteristics of power big data are analyzed, and the decision-making process of traditional financial system is reconstructed, which highlights the application of big data and cloud computing in smart grid. Taking the operation and maintenance cost analysis of actual substation as an example, the use of big data ideas for objective analysis enables China's power companies to seize this period and quickly complete the financial system process Engineer to adapt to the development of the times.

1. Introduction

With the gradual development of the smart grid, the integration and reorganization of power companies has become more frequent and the scale has been increasing. How to obtain better technology, operational processes and provide better services at the lowest cost through an efficient management mechanism, and improve the operational efficiency of power companies is an important topic for researching enterprise development. At present, with the rapid development of science and technology, the era of “Great Intelligence, Cloud, Cloud, Cloud Computing, etc.” has arrived, which provides new tools for accounting information construction. A series of management and control problems encountered in the development process provide new solutions. The advent of the era of “Great Wisdom and Moving Clouds” is of great significance to the Engineer of financial processes in power companies.

2. Summary of related concept theory

2.1. Big Data and Cloud Computing

Big data (big data) refers to a collection of data that cannot be captured, managed, and processed by conventional software tools within a certain time frame. It is a massive amount of decision-making, insight, and process optimization capabilities that require new processing models. High growth rates
and diverse information assets. The 5V characteristics of big data (proposed by IBM): Volume, Velocity, Variety, Value, Veracity.

At the search engine conference held in 2006, Google CEO Eric Schmidt first proposed the concept of "cloud computing." Regarding the definition of cloud computing, Michael Armrest [1] believes that cloud computing is SaaS (application of various forms of services on the Internet) and utility computing. Wu Jiyi et al [2] believe that cloud computing is based on the network as the carrier and contextualization technology, providing customers with a computerizing model in the form of infrastructure, platform, software and other services. Cloud computing can integrate and expand large-scale computing. Distributed computing resources such as storage, data, and applications enable these resources to work together. To this end, Infrastructure as a Service (IaaS), Platform as a Service (PaaS) and Software as a Service (SaaS) are the three levels of cloud computing.

![Diagram of the link between big data and cloud computing](image)

**Fig. 1** The link between big data and cloud computing

### 2.2. Financial Process Engineer

Business process Engineer was first proposed by Michael Hammer and James [3] of the United States. The basic idea is that the traditional way of working must be completely changed. The "process" view and the "Engineer" view are the core. Specifically, it is centered on the operation process, free from the constraints of the traditional division of labor theory, customer-oriented, through employee authorization and organizational flexibility, using information technology to achieve the purpose of adapting to the rapidly changing external environment. The four indicators of cost, quality, service and speed are indicators of business process Engineer. In short, the financial process Engineer of power companies based on cloud computing environment is based on advanced cloud computing concepts, strict rights management and secure Internet protection measures, and then combined with budget management rules such as financial organization and financial management responsibility system [4].
Fig. 2 Implementation path of financial process Engineer of power enterprise groups based on cloud computing

3. Based on cloud computing and big data process Engineer advantages

3.1. Internal advantage
Compared to other types of data inside and outside the enterprise, financial data is more complex and larger, and therefore contains more valuable information. For example, data analysis types can be established, accounting data can be analyzed and information mining, and industry comparative analysis, regional market analysis, and growth analysis of costs, expenses, revenues, and profits can be performed to discover the near-term and long-term aspects of the economy. Regularity, while tapping the market potential, better control industry risks and improve industry competitiveness. Grid companies can make cost-benefit predictions and scientific decisions through cloud computing's analysis of big data. With the development of power grid companies, higher requirements have been placed on the financial management of power grid companies [5]. In terms of specific data analysis, financial decision-making should be based on analytical data, scientifically configure various service resources, build a more scientific marketing model, clearly grasp the market context, and provide better services to customers.

3.2. External advantages
The external application is the user experience for the user side. Through the specific deployment of external applications, users can charge electrical equipment when electricity is low, and can feed back the grid load shortage when power consumption peaks. The grid company can provide its subsidy equivalent to the peak electricity price, which alleviates the fluctuation of the grid company. Sex, and bring some income to the user, in addition to data exchange with the user, it can also exchange data with the outside world.

4. Based on big data and cloud computing background, financial process Engineer mode

4.1. Process Engineer of Budget Control System
In the cloud computing environment, the power company built a budget control system: constructing a budget organization structure, formulating budget items, preparing budget forms, allocating budget forms, defining budget approval processes, and defining budget tables according to various budgeting requirements and Budgeting method. The budget project, budget template, hook relationship and budget plan are formulated by the budget management committee of the power company according to
the budget outline and uploaded to the cloud computing platform. Each budget unit is based on the uploaded budget template and combined with the actual operation according to a certain compilation method. The budget is prepared and then reviewed by the budget review department to form a preliminary budget plan and report it. After the budget management committee sums up and distributes the budget drafts, the general manager submits the board of directors, and the board of directors approves the budget plan to the budget execution departments, thus realizing the “bottom-up, top-down” budget [6]. Preparation process. In the cloud computing environment, the budget is prepared from the sales budget, the production budget is prepared according to the principle of sales and production, and the sales expenses and management expense budget are prepared. After the production budget is completed, it is also required to prepare direct materials, direct labor, and manufacturing expense budgets. In addition, capital budgets and financial budgets are also prepared. Finally, the various basic detail forms are summarized and combined. From top to bottom, four business processes of budget approval, budget execution, budget analysis, and budget adjustment are formed.

For the post-business knowledge feedback, a budget assessment module is established. A performance evaluation system based on cloud computing, rather than just through the assessment of financial indicators, can use the Balanced Scorecard (BSC) performance appraisal system. Building a BSC budget evaluation system in a cloud computing environment is a huge project. The evaluation of the results of a comprehensive budget can be carried out in four dimensions: finance, customer, internal process, learning and growth, and for each department that implements a comprehensive budget, Each employee is evaluated. The budget assessment indicators are defined in the “cloud” service system, and are supervised by the budget management committee, which reduces human interference and ensures the credibility of budget evaluation. The process of budget assessment and evaluation under cloud computing does not require human operation, “cloud” background system. It will automatically calculate, which not only reduces the work pressure of the budget management department, but also ensures the accuracy of the data and the objectivity of the budget evaluation [8].

4.2. Material procurement financial process Engineer

There are more payment items involved in material procurement, and accounts payable usually account for a larger proportion. To this end, in the re-creation of financial processes for material procurement, the paper optimizes the accounts payable process. The traditional accounts payable process is as follows.

![Fig. 3 Enterprise original accounts payable flow chart](image-url)
A large number of document verification work involved in this process, as well as a large number of checkers and a long check time, will increase the cost of this process activity. If the accounts payable process can be reorganized, the cost of this business will be greatly reduced and the efficiency of the enterprise will be improved.

Based on this, the paper tries to build a platform based on the financial accounts payable of power companies, nested in the financial system of electricity. First, the procurement supply chain platform was established. The power company publishes the material (material) demand plan in the supplier management system. The supplier can view the specific information of the material in the system according to its own authority, complete the bargaining through business negotiation and sign the sales contract. After that, the power company creates corresponding purchase orders in its ERP system. Second, after receiving the goods, the power company will confirm the receipt of the goods in the ERP system, and issue the receipt materials (materials) documents on the SRM (Supplier Relationship Management) system on a regular or immediate basis. At the same time, the supplier can check the delivery data of the SRM system in the system and compare the results [8]. After the result is consistent, the invoice is selected in the Golden Tax System, and the power system extracts the software through the Heli China Tax System. The invoice information is extracted and sent to the settlement and reconciliation platform, and the invoice and settlement statement are matched regularly. After the matching is successful, the matching notification is printed and then mailed to the power company along with the invoice. The third is the settlement reconciliation platform, which submits the electronic information of the supplier invoice to the tax certification system for certification according to the set time interval, sends the invoice passed the certification to the SRM system to complete the automatic accounting calculation, and passes the bank-enterprise interconnection platform according to the account period. payment completed. Fourth, the power company receives the supplier invoice and then signs and archives it in the SRM system. The SRM system issues the settlement data for verification and confirmation by both the purchase and sale parties.

5. Conclusion
In the era of big data, many figures are embedded in enterprise management. The data content of power companies is more and more extensive. Only by letting big data serve enterprises, mining useful information, and letting financial data promote business decision-making by enterprise managers is big. The important role of data financial intensive work. In this era of data flooding, financial operations that use traditional methods to process data records and use traditional methods are increasingly facing severe cloud computing and big data processing problems. As the core and top priority of power companies, the financial data of power companies must reflect and support the normal operation of the power and business of power companies. Power companies must be effective in the in-depth processing of power financial data and the full exploitation of information. Improve the financial management of power companies, reduce the capital cost of power companies, and bring huge profits to power companies. Some power companies' financial processing experts claim that the financial data of power companies is the most basic and most abundant data of power companies. In essence, "cloud computing, big data" itself does not have much practical value, but based on big data. Processing and analysis can bring huge value-added value to power companies. Especially in the context of "business reform", "big data" has become an emerging trend and key word in the Internet era. More and more enterprises have passed Mining and analyzing large amounts of financial data to provide a basis for managers to make decisions.

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