The analysis application of ERP system in the electric power enterprises purchase management

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Abstract. In the management thought of ERP, organization is a collaborative system. It is a system that applies modern enterprise management thought, combines communication technology and network technology to set up a system that can effectively communicate information and give orders to the superior, upload the inferior, and exchange information within the organization. This system is gradually widely used in all aspects of enterprise management. This paper mainly expounds the response of ERP in procurement management, the information data is more optimized and the management is more convenient.

1. ERP general situation

1.1. Source of ERP
ERP is a set of enterprise management system standards put forward by Gartner Group Inc, a computer technology consulting and evaluation group in the early 1990s. The core of ERP contains a very rich management concept and modern management thought system. 81% of the world's top 500 enterprises use ERP system as a decision-making tool to manage their daily workflow.

1.2. The policy environment of ERP
The 13th five year plan for national informatization points out that the 13th Five Year Plan period is an important strategic opportunity period for informatization to lead comprehensive innovation and build new competitive advantages of the country, a collaborative burst period for the deep integration of informatization and economic society, and the full release of new and old driving forces. We must strengthen overall planning, actively comply with and lead a new wave of information revolution. The plan points out that China's informatization work should adhere to the tenet of "benefiting the people", take comprehensively deepening reform as the principle, and serve the needs of national strategic development to provide solid support for the modernization of national governance capacity. Vigorously promoting the informatization of China's central enterprises is an important part of the implementation of the national informatization development strategy, which is of great significance and far-reaching impact on the transformation of development mode, improvement of development quality and enhancement of core competitiveness of central enterprises.

In February 2007, the state owned assets supervision and Administration Commission and the state owned information office jointly issued the guiding opinions on strengthening the informatization work of central enterprises, proposing that "by 2010, the informatization of central enterprises will be basically transformed into the integration, sharing and collaboration of the whole enterprise, and a unified and integrated information system of group enterprises will be built". It can be seen from the above that whether it is applied to enterprise management, or the realization of process control, data analysis, and informatization have become the necessary means to implement the policy and the future
development direction.

1.3 The development of ERP
Over the years, electric power enterprises use information technology, new knowledge and new inventions to transform traditional production technology and process, and make full use of information resources in management and decision-making to create higher value. New information technology and equipment are constantly applied to all aspects of electric power production. With the rise of a new round of scientific and technological revolution and industrial transformation, the integration degree of big data, cloud computing, the Internet of things, mobile Internet, artificial intelligence and other modern information communication technologies and energy systems has been further improved. The construction of intelligent enterprises is developing rapidly, and the introduction of International advanced ERP system will not only bring international advanced enterprise management ideas, concepts and means, but also ERP can cooperate with enterprises Strategic adjustment allocates internal resources quickly, promotes the enterprise to carry on the management pattern change, promotes the intensive and the fine management.

2. Functions and application difficulties of ERP

2.1 The important role in purchasing management
Procurement and bidding work, involving all aspects of power enterprise management, is an important basis for business activities. Without the timely implementation of material procurement, service procurement and engineering procurement, all business activities cannot be carried out smoothly, and procurement activities cannot be stopped for a moment. A little carelessness will affect the stable operation of production and operation of power enterprises. China's electric power enterprises are facing various tough problems and challenges. It is a direction and a problem to support enterprise procurement management and risk prevention by means of information technology.

In order to innovate the management and control mode, perfect the standard, optimize the process, improve the efficiency and reduce the cost, the transition to the new management and control mode must be completed. Through the ERP system, the enterprise can not only realize the unified integrated application of production, materials and contract management, realize the centralized management and control, intensive and refined management, and realize the unified coding of equipment and materials and the whole life cycle of self-inspection of equipment. At the same time, ERP system is an essential part of the implementation of intelligent management. In the process of using ERP system, we can also improve ERP system according to the actual situation of the enterprise.

2.2 Problems and difficulties in application
At present, the overall situation is that the information input and output are unbalanced, and the "information island" formed by the scattered construction of information system results in a lot of repeated work. Realize the resource integration and allocation system integrating fund flow, material flow, information flow and value flow, establish the centralized, efficient and unified management and control mechanism of the enterprise, highlight the benefits in the implementation of centralized procurement management and control of the enterprise, achieve better technical support in the management mode and business process, enhance the rapid response ability and adaptability of the enterprise to market changes, and finally make the enterprise The industry has become a respected, internationally influential and competitive comprehensive energy enterprise.

How to build a real-time sharing of procurement data, further strengthen the management of procurement project approval, standardize the procurement process, strengthen the relationship between various departments, and reduce the procurement cost related data are well documented according to the schedule of construction period and production demand, has become an urgent problem to be solved.

Through the real-time monitoring of the procurement management platform, we can truly realize
the organic integration of information flow, logistics, capital flow and business flow, and realize the modern management of the supply chain. The blueprint design of procurement management business process of electric power enterprises should be carried out from demand planning, procurement sourcing, contract signing, contract execution, inventory management, statistical analysis, auxiliary decision-making, etc. From the perspective of intensive management, to cover the four fields of "basic data management", "demand plan management", "inventory management", "statistical analysis, and auxiliary decision-making", the construction of ERP will help to rapidly improve the purchasing management level of the whole group.

3. Purchasing management application of ERP

The procurement management solution is to establish a set of integrated procurement management system through sap to support the unified management and prevention of procurement under the multi organization mode, control the procurement cost and capital occupation, and improve economic efficiency. The procurement system can enhance the transparency of the internal procurement business, standardize the standard business process template, and integrate with the e-commerce system to form a complete procurement control system. The procurement management system supports the procurement business management of materials, engineering, services, office supplies and other procurement objects.

3.1 Procurement management programme

1. In terms of organizational structure management, the enterprise establishes a procurement management system to support the group and its subsidiaries, and provide flexible reorganization capabilities. Organizational structure is the foundation of the whole purchase system, as well as the cornerstone of position authority management, pricing system, report analysis and financial integration.

2. In terms of basic data management, it mainly includes centralized material or service basic data management and supplier management, aiming to promote standardization and realize centralized resource sharing.

3. In the aspect of purchase business process management, it covers various purchase business processes, including purchase plan, purchase application, source management, purchase order, goods receipt, invoice verification, report analysis, etc., and establishes an advanced purchase management system of pre plan, in process control and post analysis.

Figure 1. Purchase management flow chart
3.2 The implementation methods of procurement management

It can be established unified standards and specifications to keep all technical standards and business specifications consistent in the whole ERP system, realized unified and standardized management of material coding, purchasing information, supplier information, etc. The system can record the basic information, financial information and inventory information of materials and suppliers in detail, and realize the specification of key information through configuration; at the same time, standardize the coding according to the use of MDM system, and set coding rules. Thus, the whole process of material management such as purchase demand, purchase plan, purchase, order, contract, inventory, etc. is formed, and the functional requirements such as centralized purchase and joint reserve are realized. The details are as follows:

1. Through the unified basic data management platform, data synchronization can be realized in the whole company, which can realize the unity of retrieval and analysis caliber of materials and suppliers within the group, lay the foundation for the centralized management of materials, and realize the standardization of material coding by distinguishing disciplines, classifying products, spare parts or materials, and setting multi-level classification grades by using system classification. Each material classification can assign a material coding rule, which has a convenient and quick retrieval function. Through data cleaning and conversion, the original code of each power plant can be successfully switched.

2. Establish the material code to realize the connection with the purchase plan, the enterprise can automatically balance the material demand based on the current inventory level, and then generate a reasonable purchase plan. By setting reasonable safety stock and maximum stock for different types of materials, the system can automatically generate the quantity and delivery time of the proposed purchase, so as to reduce the labor cost for this work, and further improve the accuracy of procurement plan.

The system can provide two kinds of plans: material demand plan and purchase plan. From demand plan to purchase plan, there are three core links: demand management, generating demand; inventory balance, balancing actual inventory and demand; plan management, generating purchase plan. In most cases, demand is generated in a decentralized way, balance inventory and plan management can be conducted in a decentralized or centralized way. Demand plan is usually divided into routine plan and emergency plan, demand plan can be generated automatically from various types such as infrastructure construction, overhaul, technological transformation and science and technology. For some specific materials, demand plan management can be carried out by using forecasting methods, common forecasting models include constant model, trend model and season model, the system generates demand based on order and historical consumption forecast for planning, the user department can also directly apply according to the demand.

All purchase processes, from production purchase application to bidding, inquiry, production purchase order and arrival acceptance, are carried out on a unified platform, the shared data and strict purchase management process control increase the transparency of purchase and improve work efficiency.

After the reform of electric power enterprise, the market competition of power plant is more and more intense. In order to ensure the safe production of power generation and resist the market risk, it is necessary to ensure the timely supply of spare parts and reduce the reserve funds of spare parts, the pressure of spare parts management department is growing. Due to the geographical dispersion and other reasons, the power plants of each power generation group have difficulty in horizontal rescue in the event of accidents, in order to ensure the safe and stable operation of the units, the material departments of each power plant have reserved a large number of materials with small use amount and use possibility but relatively expensive price, the reserve of spare parts and the occupation of funds make the enterprises have to consider the balance between the two.

The above links will accumulate a large amount of purchasing and supplier data. On the basis of the completion of the process, it will further require the application of query reports, data analysis, data mining, etc., to help enterprises to realize the technology and application of decision-making.
this time, SAP BW came into being. SAP BW is more than just a report system, it can configure business content according to needs, including data extractor, information model, key performance indicator, analysis report and analysis scenario. It can quickly analyze the purchase information from different perspectives, simulate the decision results according to the predefined information model, and give early warning to potential problems, so as to help the enterprise leaders to inspect the business status of the enterprise in a digital way on a regular basis. The role-based function enables users to monitor the indicators they care about, and get rapid and comprehensive evaluation results, so that enterprise members can more effectively carry out information sharing and cooperation, timely solve problems, predict development trends, make strategic decisions and reduce risks on the basis of important information analysis, so as to achieve the goal of maximizing enterprise profits.

4. Suggestions and prospects

We must also see the imbalance of information construction of power enterprises, and the influence of modern management concept in the power industry has not been deeply rooted in the people's minds. The construction of ERP is bound to bring many aspects, such as organizational change, personnel change, process change. It is bound to touch the original interest chain and produce resistance. ERP advocates business driven process management and emphasizes collaboration and information transparency among departments. Management authority will move down, staff participation in management, increased probability of decision-making and other management changes, which is bound to have a great impact on power enterprises in the traditional management mode.

The application of ERP is a long-term process, and its results are gradually progressive. The change of management mode brought by ERP concept, the realization of process management and function need a process of digestion and absorption. If we pursue advancement, invest a lot and concentrate on it, it will make grass-roots units at a loss, make information personnel busy, let alone create good benefits. To build a "centralized, transparent, controlled and shared" information platform covering the whole group, we need to do more work from budget management, cost control refinement, investment benefit analysis, data mining, business intelligence and auxiliary decision-making, and play the prominent role of ERP in power enterprise informatization.

It realizes the comprehensive application of ERP, realizes the resource integration and allocation system integrating fund flow, logistics, information flow and value flow, and establishes the centralized, efficient and unified management and control mechanism of the enterprise. The benefits of the centralized procurement management and control of the enterprise are highlighted, the better technical support is achieved in the management mode and business process, and the rapid response of the enterprise to market changes is enhanced. In the end, the company will become a respected, internationally influential and competitive comprehensive energy enterprise.

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