EasyChair Preprint

№ 9830

Influence and Optimization of Power Grid ERP System Permission Management on Enterprise Internal Control

Zuoping Zhu, Wei Zhang, Yao Huang and Tianxiao Chen

March 6, 2023

Influence and Optimization of Power Grid ERP System Permission Management on Enterprise Internal Control

Zhu Zuoping [0000-0003-3698-6767], Zhang Wei*[0000-0001-5914-6758], Huang Yao[0000-0003-3546-463X] and Chen Tianxiao[0000-0003-1014-9979]

State Grid, Xiangtan Power Supply Company, 411007 Xiangtan, China
553066105@qq.com

Abstract. To further explore the impact of ERP (Enterprise Resource Planning, ERP) system authority management on the internal management control of power grid enterprises, further standardize the internal management processes and standards of power grid enterprises, improve the internal production and management efficiency of power grid enterprises, and ensure the security of important data information in the ERP system of power grid enterprises. This paper first analyzes the influence of authority management of power grid ERP system on the internal management control of enterprises based on the background of authority management of Hunan Xiangtan Power Grid ERP system; Then put forward feasible suggestions for enterprise automation optimization from the aspects of building enterprise internal control system, asset life-cycle management, internal control environment construction, supply chain cost management, improving personnel's awareness of internal control, and improving power grid ERP system authority management scheme under the power grid EPR system environment. [Conclusion] Introduce ERP system to Power Grid Company and related industry enterprises to participate in the modern management of enterprises, and improve the production management efficiency of enterprises, at the same time, provide reference opinions to ensure the security of important data information of enterprises.

Keywords: Power Grid ERP System, Internal Control, Control Optimization, Authority Management, Information Safety.

1 Introduction

In recent years, with the rapid development of computer, Internet communication, enterprise informatization and system integration and other related technologies, China's power grid and related industry enterprises have gradually changed from traditional single production management mode to modern intelligent enterprises based on computer informatization, networking and system integration. More and more power grid and related industry enterprises have introduced enterprise ERP systems in the actual production management process, At the same time, a series of authority management measures are taken to realize the security management of enterprise information, so as to improve the management level of enterprise internal control and ERP

system information security. Because of this, the research on the application of ERP system in enterprise internal control and the authority management of ERP system has become a research hotspot in recent years. For example, Dai Juan [1-5] and others provided research countermeasures for enterprise internal control management based on ERP system environment from different dimensions; Bao Qing [6-10] and others studied and discussed the risk prevention and control, internal financial management and other issues of power grid enterprises based on ERP system under the background of big data era; However, in the process of transformation and development of actual production management, the introduction of ERP information system will not only have an impact on the original internal management system, management and control processes, but also have an important impact on the data and information security of enterprises due to the existence of a series of user authorization problems in the ERP system itself, The research on authority management of enterprise ERP system has become another research hotspot in the field of enterprise management informatization. For the authority management of enterprise ERP information management system, domestic and foreign scholars have done a series of related research work. For example, Zhang [11] and others realized two-level access control of information and resources in the production management system based on the RBAC model through the resource coding mechanism. Lu [12] and others designed a security transmission and authorization management system based on the public key infrastructure and Rose's access control principle. They added the grouping permission principle to the RBAC model, and adopted the combination of centralized permission and distributed permission management to make the model more flexible. Yuan [13] and others analyzed the limitations of the existing RBAC0 model, established an extended RBAC model that directly faces users across roles, and designed the relevant functional modules required for access control in the document management system in view of the complexity of a certain type of equipment document management system and the difficulties in reasonable and effective organization of personnel authority management and allocation. Wang Jianxiang et al. [14] used ASP comprehensively NET MVC architecture mode and EF technology have designed and implemented a rights management system. The deep decoupling of each layer of the system makes the system modules have the characteristics of "high cohesion, low coupling", which improves the development efficiency of the management information system. You [15] and others designed a role permission control model based on cloud computing and Docker technology based on Docker technology, combining task controller function, project controller function and user controller function. Peng Sixi [16] et al. designed a security mechanism for permission control based on RBAC. According to the user type and role, they realized the authorized access to business data and functional modules through role permission control and module allocation control. In order to help enterprises improve production management efficiency and data information security, this paper, based on previous research results, takes the influence and optimization of authority management of Hunan Xiangtan Power Grid ERP system on enterprise internal control as the research background, on the one hand, analyzes the impact of the introduction of power grid ERP system on enterprise internal control, and then puts forward management and control optimization measures; On the other

hand, this paper analyzes the impact of the power grid ERP system itself on the security of important data information of enterprises due to improper user authority configuration, and puts forward technical improvement measures that can effectively improve the security of system authority management.

2 Business Management Analysis of Power Grid ERP System

The main business management contents of the ERP system of power grid enterprises include six core contents of enterprise projects, materials, equipment, manufacturing, sales and financial management. Therefore, to strengthen the authority management of the ERP system of power grid enterprises, it is first necessary to analyze the business management contents of the ERP system, with strengthening control as the actual goal, improving financial management as the core, and comprehensively analyze projects, materials, equipment, manufacturing The specific contents of the six major businesses, such as sales and finance, form a complete content management system, and then comprehensively establish a comprehensive information management platform that can support all aspects of the daily production and operation activities of power grid enterprises. The following is an analysis of the six core business contents that need to be included in the ERP system of power grid enterprises. Strengthening the authority management of the power grid enterprise ERP system is an important measure to ensure the security of important data information in the power grid enterprise system.

(1) Financial management business

In financial management, it is generally based on enterprise budget items to implement real-time monitoring of the whole process of production and operation activities, and advance the specifications and accounting content of financial management to production and operation according to the relevant pre-budget, control, analysis and other stages, so as to integrate production and finance, thus improving the informatization level of enterprise financial management.

(2) Material management business

Starting by saving the overall cost of ownership, optimizes the existing procurement management mode, organization and process, establish a new procurement management system based on ERP system, and ensure the intensive operation effect of the supply chain.

(3) Project management business

Standardize the project number and project category, establish a project centered comprehensive business system of cost budget, production financial management, etc. In this process, according to the ERP system management process, achieve closed-loop management effects such as project management at an early stage, implementation, decision-making, investment and post evaluation.

(4) Equipment management business

Establish an equipment maintenance management mode with work order as the maintenance carrier. According to the management idea of the whole life management cycle, carry out hierarchical management of the equipment use process from

purchase to scrap, so as to enhance the upper and lower level monitoring level of the enterprise's equipment operation.

(5) Manufacturing management business

The main content of production and operation activities is to formulate major production plans and material use plans according to customer needs. Through demand planning and capacity demand planning, the whole process of production is tracked, which provides an effective reference for enterprise cost accounting and effectively improves the overall business level of the enterprise.

(6) Sales management business

In the process of sales management under the ERP system, it is necessary to standardize the management of customer basic data, establish a customer-centric operation mechanism, pay attention to customer relations, optimize enterprise organization and business processes, and then provide convenient customer service, improve customer satisfaction, and improve the comprehensive competitiveness and economic benefits of the enterprise.

3 The Analysis of Power Grid ERP System Authority Management

3.1 The Analysis of Power Grid ERP System Authority Management Content

The users of the power grid ERP system, the roles set by users, and the authority of role configuration constitute the three basic elements of power grid ERP system authority management [17]. The user management, role and authorization management and internal control of the system after the operation of the power grid ERP system belong to the scope and content of system authority management.

(1) User management

User management includes adding user accounts (IDs) and changing, revoking and freezing account information. Users refer to users of all power grid ERP systems, including system administrators. Each user has a unique ID in the system. When creating an ID, the system will synchronously complete user information registration, including user name, work unit, department, job title, contact information and other basic information. To revoke an account is to delete a user's ID from the system so that he or she no longer has the ability to access the system. Blocking the account is to temporarily lock the user ID to temporarily lose the system access-ability, and then open the user's access to the system when necessary.

(2) Role and authorization management

A role is a group of business operation permissions, described by the ERP system role code. A role is a collection of one or more transaction operation codes. A user can assign multiple roles, and multiple users can also be granted the same role. Permissions are assigned to users through roles. Therefore, authorization management is to grant a role with specific business operations and transaction processing permissions to a user or user group. Only after a user is granted a role can he log in to the system and run various transaction codes in his role to process business; When the user's

position (job responsibility) is adjusted or the business requirements are changed, the user needs to be authorized again, including revoking the old permission and granting the new permission.

(3) Internal control of power grid ERP system

The internal control of the power grid ERP system refers to the process of carrying out the internal control work related to the ERP system, regularly and irregularly carrying out the ERP system test and inspection, and constantly improving and perfecting the business process according to the ERP system control specifications. Among them, the most important is permission test, including access permission test and responsibility separation test.

Access permission test is to determine the scope of resources and functions that users can access in the system, and to find out whether the permissions that users have in the system exceed their work needs from the perspective of control. For example, the authority administrators of the ERP system are divided into ordinary administrators, senior administrators and super administrators. Generally, ordinary administrators are authorized to display, freeze, unlock, assign and delete user IDs; In addition to the general administrator functions, the senior administrator is also authorized to create and modify user IDs; In addition to the normal administrator and senior administrator permissions, the super administrator also has the permission to delete the user ID. According to the principle of different system access permissions, ordinary administrators cannot access the special permissions of senior administrators and super administrators. Similarly, senior administrators cannot have the user ID deletion permission of super administrators.

The separation of duties test is to check whether the system user has the loopholes and problems in the authority allocation to deal with incompatible business functions according to the principle that incompatible business functions in the business process must be completed by different people, that is, the authority mutual exclusion check, to avoid the risk of fraud because one person has the authority to operate incompatible business. For example, in the material demand plan processing business process, the demand plan creation function and the demand plan approval function are incompatible, or they are two mutually exclusive business operations. According to the principle of separation of post responsibilities, these two functions must be undertaken by two people respectively. Once this principle is violated, permission allocation will be out of control.

3.2 The Analysis of Power Grid ERP System Authority Management Principle

(1)The Principle of separation of duties

The principle of responsibility separation is the most basic and important principle of ERP system authority management. The authority granted to users shall not have incompatible operation authority to avoid fraud risk and unauthorized modification of business, financial data and relevant information due to one person's authority to operate incompatible business.

(2) The Principle of Business driven

The implementation and application of ERP system has greatly improved the processing and transmission efficiency of enterprise operation information. However, if users are authorized without restriction, it will greatly increase the risk of information leakage in enterprise operations, and at the same time, increase the possibility of business confusion and management out of control.

(3) The Principle of testing before authorization

In order to avoid the mutual exclusion of roles and incompatibility of business in the system, user permissions must be tested for mutual exclusion and sensitive permissions under the internal control requirements of the ERP system. After the test is passed, it shall be submitted to the leader for approval. Finally, users shall be assigned roles. If the test fails, authorization cannot be granted.

(4) The principle of allocating user permissions on demand and minimizing permission settings

The user permission application shall meet the business requirements of the position, and shall not exceed the actual position and responsibility scope, so as to avoid mutual exclusion and confusion of user permissions.

4 The Influence of Power Grid ERP System Authority Management on Enterprise Internal Control

The power grid ERP system is an enterprise resource planning integrated management platform with information technology, network communication technology, enterprise system integration technology as the core. Its role runs through all aspects of the enterprise's internal production and operation activities. It can only improve the enterprise's actual management efficiency, reduce its production costs, and create huge benefits for the enterprise. But at the same time, the introduction of advanced power grid ERP information management system will inevitably have a certain impact on the original internal control management mode of enterprises. This section will discuss the influence of the power grid enterprise on the internal control management system, scope, form and key points of the internal control management, as well as the improper authorization of the ERP system on the internal control of the enterprise after the introduction of the power grid ERP system.

4.1 The Traditional Internal Control System Cannot Keep Up with The Development Needs

The traditional information management and data processing are based on the traditional information management system and its operation process. After the introduction of the power grid ERP system, the links between information management and data processing increase, leading to changes in the internal control of enterprises. At the same time, in the actual operation process of the enterprise, due to the mistakes in the management process, such as weak management awareness and other issues, it will also lead to the loss of important data information in the enterprise ERP system.

4.2 The Scope of Internal Control Continues to Expand

The internal control in the power grid ERP system is different from the traditional internal control system. In addition to maintaining the integrity of the basic user information in the system, the basic analysis and decision-making ability of the system, and the legitimacy of the user role authority configuration, it is also necessary to ensure the working efficiency of the overall operation of the system, not just the user post responsibility authority management that the traditional internal control management needs to focus on.

4.3 Traditional Internal Control Forms Have Changed

In the environment of power grid ERP system, the accuracy of data information no longer needs to be ensured by traditional internal control means such as bill management. Users only need to input the original data into the computer, which can realize the comprehensive sharing of enterprise internal information, and automatically generate a large number of required system bills, greatly improving the efficiency. Therefore, in the internal control of enterprises, the traditional form of data information control should be transferred to the computer, such as the preparation and verification of enterprise financial statement information.

4.4 The focus of traditional internal control has shifted

In the power grid ERP system, most of the production and operation activities of enterprises are completed by computers, and the internal control of enterprises will inevitably change relative to the traditional internal control. Therefore, the internal control of enterprises needs to focus on information input, human-computer interaction, computer connection control, structural organization, etc.

4.5 Unreasonable Authorization Control of Power Grid ERP System Will Affect The Internal Control of The Enterprise

According to the ERP system user authority management content and setting principles, the user's application requirements, access requirements, operating system and business processing requirements are directly controlled by the ERP system authority. In the authorization management work, if the provisions of the authorization principle are violated, the system operation and business will be confused, and the potential risk of illegal tampering of operation fraud, business data and financial data will be greatly increased, which will inevitably result in out of control management. Therefore, as the most important work content of the operation and maintenance of the grid ERP system, authority management directly affects whether the grid ERP system can operate safely, efficiently and stably, and also affects the quality of the internal control work of the enterprise.

5 Power Grid ERP System Authority Management and Enterprise Internal Control Optimization

5.1 Internal Control and Self-control Optimization of Power Grid Enterprises

In view of the negative impact that the poor self-management of the internal control of power grid enterprises may have on the production, operation and management of enterprises, this section discusses the optimization of the enterprise's self-management and control from the aspects of building the enterprise's internal control system under the power grid EPR system environment, asset life-cycle management, internal control environment and system construction, supply chain cost management, and improving personnel's awareness of internal control.

(1) Building the internal control system of enterprises

In order to achieve the optimization measures of power grid enterprise ERP system authority management and control, it is necessary to formulate strict rules and regulations of the enterprise itself, establish and improve the internal control system of the enterprise, and improve the system use management system and system structure framework to meet the top-level needs of enterprise self-regulation optimization.

(2) Strengthen enterprise asset lifecycle management

The whole process life-cycle of enterprise asset management includes the planning and design stage, the purchase and construction stage, the operation and maintenance stage, the renewal and transformation stage, the disposal and upgrading stage and other important links. In order to improve the enterprise's self-control and optimize the efficiency of the enterprise's self-management adjustment, it is necessary to set up appropriate monitoring mechanisms in these important links to ensure the scientific rationality of process management and further affect the overall efficiency.

(3) Strengthen the construction and management of enterprise internal control environment

Enterprises should pay special attention to the internal environment construction while improving the external environment construction, and constantly improve the comprehensive quality of all managers. The enterprise leadership should organize relevant corporate culture activities, continue to strengthen the communication and trust between the enterprise management and employees, improve the internal cohesion of the enterprise, and then establish the unique corporate culture of the enterprise. The enterprise shall also timely organize employees to participate in management training and learning, so as to ensure that employees understand the internal control system of the power grid enterprise as well as the basic architecture and usage of the power grid ERP system, so that the power grid ERP system can better serve the purpose of production, operation and management.

(4) Improve supply chain cost management

In the power grid ERP system, the power grid enterprise can timely publish the qualification requirements and bidding announcement of each bidder, and through the ERP system, it is responsible for purchasing the relevant data of raw material suppliers and project contractors in the project, and coordinating them. In this process, it can effectively realize the integration and connection effect of funds, information and

logistics in each link of the supply chain, and effectively reduce the cost problems such as time and funds caused by collaboration. At the same time, the implementation of ERP system has realized the resource integration of upstream enterprises and information sharing among enterprises. After being put into use, accounting vouchers can not only be automatically transferred to the financial system when business occurs, but also be integrated through the report generation function developed by the system. Here, through direct extraction and generation of data between different functions and enterprises, the problem of separation between modules within the enterprise is solved, the real-time and accuracy of enterprise financial information is significantly improved, and the standardized and intelligent supply chain management of engineering projects is realized.

(5) Strengthen training and enhance the awareness of managers to actively participate in the internal control of enterprises

Enterprises should pay attention to improving the awareness of managers to actively participate in the internal control of enterprises, strengthen the management skills training of employees in a timely manner, and gradually promote the information construction, so that managers can understand the internal control methods of ERP system and information platform. In the training process, enterprises need to ensure that managers can distinguish between the main performance management and non-core indicators, and truly find out and deal with the internal control contradiction of budget performance management. Secondly, when strengthening managers' awareness of internal control, we should ensure that managers understand the internal control and budget performance management of the enterprise, so as to achieve the strategic objectives of the enterprise; Through the ERP management system, timely find the problems that need to be solved, and make effective feedback and adjustment.

5.2 Power Grid ERP System Authority Management and Enterprise Internal Control Optimization

According to the content and principles of power grid ERP system authority management, the following targeted authority management optimization measures are proposed in this paper, aiming at the possible adverse effects of improper power grid ERP system authority management on enterprise internal control management.

(1) Set up system administrator, system auditor and system confidentiality officer respectively to perform their duties and ensure system security.

The system administrator is responsible for responding to the requirements from the end user and performing corresponding operations in the system, including account application, account locking and unlocking, authorization and change of authority, at the same time, it is responsible for implementing the normative review and management of evidence forms to ensure that the forms are effectively approved. The system auditor is responsible for the authority mutual exclusion test and inspection to ensure that the applied authority complies with the internal control management regulations and authority management principles; At the same time, he is responsible for collecting and sorting out user flow information and post change dynamics, sorting out business responsibilities, assisting the system administrator in sorting out user accounts and clearing permissions according to user dynamics, closing, revoking or

freezing unnecessary idle accounts in a timely manner, deleting users' old permissions in a timely manner, and adding new permissions. The system secrecy officer is responsible for verifying the legitimacy of the user's identity, ensuring that no account is opened for illegal applicants, so as to ensure the access security, information security and business security of the system.

(2) Establish a standardized power grid ERP system authority management system, strengthen the authority authorization control, make the authority application process clear, and the authority allocation reasonable, compliant, and controllable.

After the operation of the power grid ERP system, it is very important to establish a mature ERP system authority operation and maintenance management system for the power grid ERP system management. In the actual work, we can not maintain the authority completely through technical means, but also need to establish the corresponding authority management system to standardize the authority management, so as to achieve the management process and standardization. Use the management system to restrict the authority management work and reduce the negative effect of the subjective consciousness of users and administrators.

(3) Design permission control solutions.

Power grid ERP system authority control is divided into three levels: transaction code level, organization level and authority object field value level. To perform business operations, users must have the corresponding transaction code execution permission and the corresponding organization operation permission to complete business. According to the actual situation of the enterprise, different organizational structures are designed in the power grid ERP system according to the business characteristics. The highest organizational level in the system is the company code. You can limit users' business to different company codes by assigning different company code values to roles. After the user has the execution permission of the transaction code and the corresponding organization operation permission, the system further controls the corresponding operations according to the permission object, such as adding, modifying, deleting, etc. Therefore, each authorization object must be specifically set to complete the final control of permissions.

(4) A clear system of user post responsibilities has been established to ensure that the division of user post responsibilities is reasonable, orderly and free of conflicts, and that there is no mutual exclusion of business processing permissions.

According to the principle of "one person, one post", the user account, permission application and permission allocation are managed in the power grid ERP system, which can quickly and efficiently solve the problem of confusion of user permission authorization and serious mutual exclusion of roles. In fact, under the condition that enterprises are constantly pursuing refined and flat management, minimizing human resource costs and maximizing benefits, the phenomenon of "one person with multiple posts" is very common, and it is inevitable that users' post responsibilities conflict and business processing permissions are mutually exclusive. Therefore, without a clear job responsibility system, it is impossible to ensure that users are reasonably divided and compliant in terms of job responsibilities, which will eventually lead to out of control user authority distribution and disordered management.

(5) The power grid ERP system application department and authority management department shall establish an effective communication and coordination system with the personnel management department to form a smooth user information feedback mechanism.

The user account of the power grid ERP system corresponds to the user's actual position. The user's position and business responsibilities determine the role and authority that his/her account should be assigned in the system. Therefore, the business department and the personnel management department need to establish an effective communication and coordination system and information feedback mechanism. When personnel positions and responsibilities are adjusted, the personnel management department should timely feed-back relevant information to the business department and authority management department, so that the business department and authority management department can react quickly, revoke and freeze user IDs in a timely manner, or change or delete user permissions, To minimize the system operation risk.

(6) In accordance with the internal control specifications of the power grid ERP system, the accounts of the power grid ERP system shall be sorted regularly to improve the effective utilization rate of the accounts.

User account management of power grid ERP system is the most basic work in authority management. To do a good job in power grid ERP system authority management and ensure clear and standardized management procedures, account management should be standardized first. Therefore, according to the internal control specifications of the power grid ERP system, it is very necessary to regularly sort out the accounts of the power grid ERP system to improve the effective utilization of accounts.

(7) The internal control management department is involved in the power grid ERP system authority management, and controls the authorization management of the power grid ERP system from the internal control management system level.

The internal control management department is the business guidance department for the internal control management of the power grid ERP system. The internal control management department is responsible for assisting in the operation and maintenance of the power grid ERP system. However, according to the current situation of the operation and maintenance management of the ERP system, the internal control department is basically separated from the operation and maintenance of the ERP grid system, and often requires the executive department to rectify after the internal control test detects problems. Therefore, the internal control management department should perform the responsibility of assistance and really participate in the management of power grid ERP system authority.

6 Conclusion

Scientific ERP implementation method and management is the key to the successful application of ERP, and efficient ERP operation and maintenance management system is the reliable guarantee and means for the safe, efficient and stable operation of the system. In recent years, with the rapid development of computer, Internet commu-

nication, enterprise informatization and system integration and other related technologies in China, the management application level of ERP system in all walks of life in China has achieved initial results, but it still faces many new challenges. For example, in the process of introducing ERP system to participate in the enterprise's modernization, electronic informatization and comprehensive intelligent processing, how to overcome the compatibility problems between the ERP system management module and the enterprise's traditional management model and system, and how to configure user roles and grant role permissions in the ERP system operation management process to better protect the security of important data information in the system. In order to overcome the incompatibility between the ERP system management module and the traditional management mode of the enterprise, and ensure the security of the important data information of the enterprise during the operation and maintenance of the ERP system, this paper takes the authority management of the ERP system of Xiangtan Power Grid in Hunan Province as the background, and analyzes in detail the business management content, authority management content and principles of the ERP system of the power grid, as well as the impact of the authority management of the ERP system of the power grid on the internal control of the enterprise, it also puts forward targeted suggestions on the optimization management of enterprise self-control, which can provide effective reference suggestions for the practical application and management of ERP system in relevant enterprises. However, the views in this paper are only observed and analyzed based on the actual application of power grid ERP system authority management in Xiangtan Power Grid Company in Hunan Province. Therefore, some of the views in this paper may not have universal adaptability, and this paper only describes some macro-control views and automatic control management optimization suggestions in the actual application of power grid ERP system in Xiangtan Power Grid Company in Hunan Province, The paper does not provide a more detailed and feasible implementation plan of ERP system authority management technology. These shortcomings will be the next research work in this paper.

Acknowledgement

This work was supported by the Authorization Integration Management Automation Technology Research Project of State Grid Xiangtan Power Supply Company under Grant. (No. 5216C0220007).

References

1. Dai J. Countermeasures for improving enterprise internal control in ERP system environment [J]. Enterprise Reform and Management, 2021 (9): 11-12.
2. Ye H. Research on Enterprise Internal Control Based on ERP System [J] Economic Research Guide, 2021 (16): 96-98.
3. Li A H. Research on internal control of small and medium-sized real estate enterprises based on ERP environment [J]. Enterprise Reform and Management, 2021 (2): 25-26.

4. Song S S. Research on Internal Control of Foreign Trade Enterprises Based on ERP System Environment [J]. Chinese Market, 2021 (29): 179-180.
5. Li F Q. Research on Enterprise Internal Control from the Perspective of ERP [J]. Heilongjiang Science, 2020,11 (1): 116-117.
6. Bao Q. Research on systematic risk prevention and control strategy of bidding procurement of power grid enterprises based on the perspective of internal control [J]. Business Accounting, 2021 (3): 104-106.
7. Han Z W. Research on financial internal risk control of power grid enterprises in the age of big data [J]. Caixun, 2020 (17): 144.
8. Lei A H. Discussion on the construction of enterprise accounting internal control system -- taking power grid enterprises as an example [J]. Chinese Business Review, 2020 (18): 152-153.
9. Zheng Y. Analysis and Countermeasure Research on Internal Control of Financial Risk of Power Grid Enterprises in the Age of Big Data [J]. Accounting Study, 2020 (25): 184-185.
10. Wang Y Y. Analysis of internal control of power grid enterprises based on risk management [J]. Caixun, 2020 (31): 104
11. Zhang S , Yan M , University X A , et al. Application and Implementation of Production Management System Based on RBAC Authorization Management[J]. Microcomputer Applications, 2016.
12. Lu G , Zhao L , Yang K . The design of the secure transmission and authorization management system based on RBAC. IEEE, 2015.
13. Yuan D. Design and Implementation of Document Management System Based on Extended Role-Based Access Control Model[J]. Ship Electronic Engineering, 2017.
14. Wang J X, Wang H Z. Design of authority management system based on MVC [J] Electronic Components and Information Technology, 2021,5 (12): 165-172.
15. You L, Sun H, Gong Daqing. Research and Design of Docker Technology Based Authority Management System[J]. Computational Intelligence and Neuroscience, 2022, 2022 : 5325694-5325694.
16. Peng S X, Peng P. RBAC based B/S structure student fee system security mechanism [J]. Journal of Shantou University (Natural Science Edition), 2021,36 (01): 12-20.
17. Ren Z K, Yang M. Impact of ERP system authority management on enterprise internal control and management and control optimization [J]. Petroleum Planning and Design, 2015, 26 (02): 43-46.