

RESEARCH ON INTEGRATED MANAGEMENT AND CONTROL SYSTEM IN ENTERPRISES BASED ON PROJECT RISKS

Yufei Li and Yong Wang

UFIDA Software Co., Ltd, No.68 Beiqing Road, Haidian District, 100094, Beijing, China

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Abstract: This paper, with the example of construction enterprises in Hunan Province, illustrates a solution of enterprise groups' integration of management and control based on project risks, which provides references for construction enterprises of the same kind.

1 INTRODUCTION

Informationization is highly needed in rapidly developing construction enterprises. The faster an enterprise develops, the more urgent requirements of management innovation and information technology are called for. Although the information construction in China's construction enterprises has been significantly improved since reform and opening up, it's still limited to information departments or individual professional software, which forms "information isolated islands" and cannot exploit the advantages of information technology. Thus, global precise and intensive management services can hardly be achieved. Meanwhile, according to SAC's Informationization Evaluation System, the current comprehensive application of information technology in Chinese construction enterprises remains at a lower level. Therefore, the informationization level ought to be enhanced in order to match the enterprises development. This paper illustrates a solution of enterprise groups' integration of management and control based on project risks, which provides references for construction enterprises of the same kind.

2 LITERATURE

As for the traditional method of management, it is difficult for enterprise headquarter to know about the real performance condition of each branch, especially the operating condition of a specific project. In reality, headquarter often flies through the

examine process, which can hardly discover the true problems. The work of higher level is to examine the statement reported by subordinates, the authenticity of which is questioned. Therefore, it cannot support decision-making and management. On the other hand, the problems encountered during project operation can hardly be guided or supported by the enterprise headquarter, which costs too much valuable work time by working on reporting financial statement. As a result, it is of crucial importance for us to come up with a solution to the management and control of large-scale enterprises. And an integrated management and control system which combines with all the business data and processes of core enterprises as well as branches will solve the above-stated problems to some extent.

3 OBJECTIVE OF INFORMATION CONSTRUCTION

The principal of redesigning and reconstructing the information systems is "Overall Planning with Intensive Management and Integrated Application with Step-by-step Implementation". With the initial purpose of achieving enterprise strategy, the system should be mainly within intensive management and control, project-management focused, and supported by collaboration platform based on the unified information encoding, in order to achieve collaborative and standardised system. Particularly, we should promote global information management so as to achieve the goal of national first-class

housing construction contractor, infrastructure producer as well as real estate brand provider. Furthermore, we should establish a transparent information system which follows the layer of decision-making, management control and operation from top to bottom, a management platform which puts financial capital, human resource and enterprise procurement together, a comprehensive integrated information system and also a unified platform which includes decision-support, performance analysis, and risk monitoring.

4 INFORMATION CONSTRUCTION

According to the present information construction status, together with the respective requirements of Construction Ministry's Premium quality assessment, state asset regulatory commission and also the individual construction company itself, the implementation of information construction should be divided into parts in order to realize the recombination and integration of information systems.

4.1 Infrastructure Construction

Software construction is the specific embodiment of enterprise strategy and application. Fine software should be built on a stable, secure and smooth basis of hardware, supported by corresponding management system. According to the current architecture and layout of the enterprise, we should redesign and unify the existing network and security system, improve the management method of internet managers, increase input to update the internet data centre according to relevant standards and establish a series of IT management systems to maintain it.

4.2 Standardised Construction

To ensure the direction and performance of information flow, standardization is the foundation of achieving informationization, which includes information management system, project operation, resource management and project information. During the process of implementing information construction, the existing standards ought to be arranged and improved. And then these standards are fixed by information systems, thus realizing the management unity and laying a solid foundation for the management and control of enterprise.

During the process of standardization construction, we should obey the following principles:

- Information management system is to optimize and improve the existing management system in order to adapt to the requirements of enterprise information construction.
- Standardization of project operation is to arrange and optimize the existing project operation in order to meet the requirements of information software development.
- Standardization of resource management is to classify and code human, capital and resources and regulate different types of report statements in order to meet the requirements of software database coding, including establishing the coding rules for human, resources, equipment and clients.
- Standardization of project information is to classify and code corresponding resources according to each project's contents, including establishing a coding rule for working procedures, enterprise's fixed amount and so on.

5 INTEGRATED SYSTEM CONSTRUCTION BASED ON PROJECT RISKS

In order to achieve the collaborative, cross-regional and multi-level information construction, the system orients at establishing an integrated management system, which includes the financial capital management system to promote centralized and efficient management of capital, the procurement management system to promote centralized procurement of sub-suppliers and reduce purchasing costs, the human resource management system to promote co-ordination of human resources allocation, and also an integrated project management system to promote management level of projects.

Through systematic analysis and planning, the information application system is divided into three major platforms, namely coordination office automation platform, operation management platform and integrated project management platform. The system design is shown in Figure1.

5.1 Coordination Office Automation Platform

The coordination office automation platform consisted in enterprise portal, decision-support system and coordination office automation system.

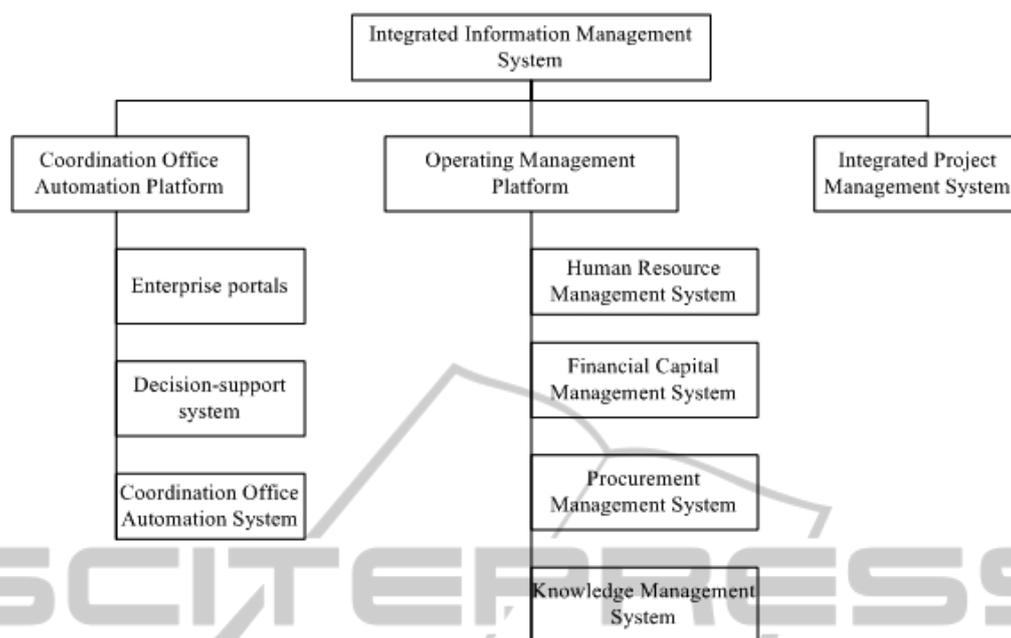


Figure 1: Integrated Information Management System Design.

With this coordination platform, we can conduct an overall summary of the project operation. And the formation of project signage enables us to achieve a richer and multi-angle data analysis, which is helpful for managers to quickly locate the causes of the problem issues, provide appropriate and timely warning, and identify risks actively, thus realizing the goal of integrated, collaborative and automatic management. The construction of coordination platform completely changed the previous situations, the characteristics of which are approval without accordance, decision-making without data, simplistic monthly reports, and lack of identification and assessment of risks.

5.2 Operation Management Platform

5.2.1 Human Resource Management System

Human Resource Management system is the core of the whole integrated system, which includes human resource planning, strategic support, information management, organizational management, job sequence management, recruitment selection management, performance appraisal, training and development, compensation management applications, decision-making for human resources planning and reporting, decision analysis, labour costs management, personnel change management, contract management, policy management, performance management and self-service

application oriented to all employees.

5.2.2 Financial Capital Management System

Financial capital management system is the core of “human, capital and material” focused strategy. Through the establishment of a transparent analysis, management and control financial information network which goes through decision-making, management and project operation layers from top to bottom, the authenticity, accuracy and completeness of accounting information is ensured. Through the establishment of a unified accounting system and accounting subjects, which meets the requirements of real-time and cross-units examination, query and sheet formation, it reflects the operation conditions of the enterprise comprehensively. It also supports a variety of cross-year account query, evidence processing, printing, final closing, general ledger postings as well as other functions, and meets the assessment and examination of individuals, departments, clients, suppliers, projects and so on at the same time. The system also functions as comprehensive monitoring, management and analysis; management of financial planning, capital closing, collecting capital and risk control which integrates with related systems. The system can standardize the business processes; optimize the allocation of financial staff, and establish a fair, open and scientific evaluation system, which increases efficiency. Therefore, the implementation

of this project will achieve data transfer between the existing and the new information system, thus making the financial operations integrated.

5.2.3 Procurement Management System

Procurement management is the key to controlling costs and project quality. With the help of information technology, we particularly manage the process from procurement demand to planning, bidding, and making the contracts. The bidding system, financial system, project management system and capital management system are integrated on the same platform, thus achieving the goal of data sharing, operation interaction and enterprise integration. The application process can be summarised as “centralized procurement with decentralized delivery, centralized billing with internal allocation”. The centralized procurement, together with the project material management in integrated project management system functions as an integrated application. For example, we can achieve centralized procurement according to the material purchase demand sheet generated by integrated project management system. Material management includes supplier management and evaluation, bid management, procurement inquiry and parity, purchase orders, procurement contracts, quality control as well as inventory management.

5.2.4 Knowledge Management System

The knowledge management system can achieve a set of applications, including database management, image processing, network storage, and process management. It can also manage diverse archives, office documents, images, videos and so on.

5.3 Integrated Project Management System

As the core of construction enterprise management, integrated project management system builds progress, quality, security, environment, cost, contract, subcontract, labour, personnel, materials, equipment, technology, information, finance, capital, and other project-specific together so that meet the requirements of comprehensive management. Through the application of integrated project management system, previous problem issues, such as the method of cost management is not unified, and the accuracy of cost information is not achieved after cost calculation. Thus, the present costs can be managed according to different objects. With multi-

dimensional comparative analysis of the costs, automatic imputation can be allocated according to the cost duration, thus accuracy greatly enhanced.

6. EVALUATION OF INTEGRATED SYSTEM CONSTRUCTION

6.1 Collectivized Management

It was difficult for departments or different levels to collaborate and cooperate with each other. It also took a great deal of time to have meetings, search for people and ask for documents. What’s worse, the documents obtained were often lack of unity because the differences between departments.

The integrated management system covers all management of enterprise, subordinates and even projects. With refined management mode built within the integrated information management system, the management level can have timely access to the front-line production data of any branch globally, thus achieve refined management of procurement, labour and costs. The UC construction solution achieves the seamless integration of project management system, financial management system, decision-support system and so on.

6.2 Share of Cost Management

Manual deliveries of business documents lagged in time and basic business information couldn’t be shared. Also, financial data were often disengaged in processes of financial accounts. Therefore, there were great inconvenient issues and workload in data verification due to various factors, such as differences in data verification calibre, inconsistent basic information and so on. It was rather difficult to control costs. By building a collectivized basic information platform, we can achieve the integration of project management and financial management. Accounting voucher is automatically generated through dynamic accounting platform, thus the share of business data and financial data is realized. The financial departments can query, track and control business in real time. The overall data can be collected, controlled and analyzed in the dynamic cost management platform so as to integrate financial costs and project costs.

6.3 Multilevel Approval Management

There was great arbitrariness in some of the regulatory processes in enterprises without a very good restraint or control method. Thus, it was probable that information data were inconsistent, making the query statistics time-consuming, labour-intensive and delay in time.

Core businesses are all processed according to the pre-set and fixed software standard procedures, and avoid the influence of human factors, so that data can be accurately delivered in time. Group president is able to directly monitor specific projects through the management system. In order to improve efficiency, many of the management procedures in the system are optimized. For example, in the past, a project had to be examined and assessed by a dozen people. However, at present, most of the projects can be processed by one or two people in charge. And the approval results are copied to other managers to inspect. The simplified approval levels based on this information management system effectively improve the efficiency of decision-making.

6.4 Integrated Financial Statement

The former manual deliveries of financial documents and statements made it rather complicated to combine businesses and collect data. With set-up of reporting system and management of reporting tasks, the reporting data is integrated managed, which greatly enhances the efficiency of collection, compilation and combination of reporting data, and achieve integrated management of financial data of branches.

6.5 Personnel Cultivation

The project implementation improves the comprehensive quality of financial staff and helps the enterprise to cultivate a group of compound talents who are proficient in their professions and have a good knowledge of advanced technologies. And this system successfully tackled with the traditional management difficulties. For instance, business data cannot be acquired in real-time; lack of immediate monitoring and trace to the data source; and departments cannot communicate with each other well.

7 CONCLUSIONS

In order to facilitate the management of enterprises with a number of branches, an integrated information management system is of great importance for enterprise management level to manage and control projects and businesses not only within enterprises but also between branches and projects. This paper demonstrates an integrated information management system design to solve this problem, which is helpful in many respects, such as cost control, procedure simplification, business standardization and personnel training.

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