Research on Cost Management of International Contracting Enterprises under the Background of “Belt and Road”—— Based on Value Chain Perspective

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Abstract: Under the “Belt and Road” strategy, there are more and more foreign contracted projects in China, so the requirements for cost management of international contracting enterprises are getting higher and higher. This paper provided new ideas for the cost management of international contracting enterprises based on the perspective of value chain. Firstly, the value chain and cost management theory of international contracting enterprises were deeply analyzed, and then the cost management model for international contracting enterprise based on the value chain perspective was constructed. The value chain optimization method was also proposed to realize the goal of international contracting enterprises to enhance the market competitiveness.

1. Introduction
Since General Secretary Xi Jinping proposed the “Belt and Road” strategic policy in 2013, China has actively established friendly and cooperative relations with various countries in the world, such as policy communication, facility connectivity, unimpeded trade, financial integration and people-to-people bond, and they have also made progress in stages. The interconnection and intercommunication of infrastructure in the “Five Links” is the key content and core domain for the successful implementation of the “Belt and Road” strategy. With the gradual promotion of the “Belt and Road” strategy, the amount of our foreign investment has increased year by year, and the number of foreign contracted projects has also increased. According to the data released by the Ministry of Commerce, from 2013 to the end of 2018, China’s accumulated foreign contracted business completed a turnover of 59,944.23 trillion yuan, and the cumulative contracted amount was 85,545.12 trillion yuan. The participation and creativity of Chinese engineering contracting enterprises in international projects are also getting stronger and stronger. At the same time, the more participating in different national markets, the more difficult the corresponding project cost management.

In recent years, many scholars have proposed to deepen and strengthen enterprise cost management based on the value chain perspective. Liu Wei (2017) generalized and summarized the value chain and cost management theory, and believed that value chain cost management could be used as a new type of cost management method, conducive to the healthy and stable development of modern enterprises. Gao Yuan (2017) believed that with the strengthening of globalization, value chain analysis played a vital role in multinational manufacturing companies. Chen Baohong (2017) considered that in the current
business competition environment, value chain analysis played an important role in the overall strategic cost management. Chen Huan (2019) combined the value chain theory and value chain cost theory to study the cost management of real estate development projects. It was believed that there were three main drivers that affected the cost of real estate development projects: operating costs, structural costs and implementation costs.

From the existing research, it can be found that most scholars have reached an agreement on cost management research, that is, the traditional cost management model can not adapt to the highly competitive market environment in which enterprises are now located, and the combination of value chain theory and cost management is an effective means for enterprises to cope with the trend of globalization and to shape core competitiveness. The current studies on value chain theory and cost management theory, mainly concentrate on the manufacturing industry, and some literatures focus on real estate development projects, while the studies on the use of value chain theory to analyze the cost management of international contracting companies are less. Under the impetus of the “Belt and Road” strategy and the “going out” policy, international contracting companies are also facing the opportunities and competition generated by the globalization trend in the overseas engineering market, and also need advanced cost management concepts for corporate management. Therefore, this paper attempts to focus on international contracting companies, and tries to provide new cost management ideas and methods for Chinese construction companies by combining value chain theory with the cost management theory of international contracting enterprise, expecting to help them lay the corresponding theoretical foundation in the overseas market.

2. Value chain of international contracting enterprise

The value chain of international contracted enterprises is a composite value chain that includes the construction cost of the international contracted project itself and contract management with other cooperative enterprises. The international contracted enterprise value chain includes the internal value chain of the enterprise and the external value chain of the enterprise. The internal value chain of the enterprise mainly refers to the value chain generated by each functional department of the international contracted project undertaken by the enterprise and the various circulation links; the external value chain of the enterprise mainly refers to the value chain generated between the international contracting enterprise and the external enterprise with which they have close tied.

2.1. Internal value chain of the international contracting enterprises

The internal value chain of international contracting enterprises is based on the various construction links of international contracted projects and takes the functional activities of the project department as auxiliary activities, and the two parts form a synthesis of value activities.

For international contracted projects, the entire project operation process can be divided into three parts: engineering decision-making stage, engineering design and planning stage, and engineering construction stage. Activities that are directly related to the project during these three stages also form the basis for the value chain of the international contracted project.

(1) Engineering decision-making stage. The main work of this stage includes preliminary feasibility studies, project proposals and feasibility studies. At this stage, the estimated price of the project will be obtained, and it is an estimate of the various expenses likely generated in the future project. The estimated price will not generate real cost, but will make effects of guide and constrain on the subsequent costs.

(2) Engineering design and planning stage. After the project is established, the project enters the design and planning stage. The main work of this stage includes preliminary design, technical design, construction drawing design and project bidding. The cost of this stage will also not generate real cost, nor create value, but lay the foundation for value creation in the subsequent stage.

(3) Engineering construction phase. The specific work at this stage includes construction preparation, project implementation, completion acceptance and delivery. At this stage, the settlement price, the final settlement price, etc. will be generated, and these expenses are real. This stage will also create real value,
and the value created will come from the value of the finished construction products.

2.2. External value chain of international contracting enterprises
The external longitudinal value chain of an enterprise refers to the industries and enterprises that are related to the enterprise production and operation in the process of production and management of, and the activities, such as communication, exchange and cooperation with the enterprise, can also be regarded as value activities to help form the value chain.

For international contracting enterprises, the feasibility study, survey and design, bidding, construction etc. of the enterprise in the process of completing the project require the upstream and downstream cooperation of survey and design units, bidding agencies, materials and equipment suppliers, and government departments. Generally speaking, the upstream of the value chain of international contracting enterprises is government departments, banks, consulting companies, survey and design units, suppliers, subcontractors, etc. The corresponding value activities include project approval of each stage, project loans, project survey and design, project bidding consultation, procurement and supply of project materials and equipment, construction of subcontracted projects, etc. The value chain noumenon of an international contracting enterprise is the international contracting project department, and the completed value activities mainly include the construction completion of the project building products; the downstream of the value chain of an international contracting enterprise is the construction unit and the building product property holder, and the corresponding value activities include property management and customer service, as shown in Figure 1.

3. Cost drivers of international contracting enterprise
The key to cost management of international contracting enterprises based on the value chain perspective is the analysis of cost drivers. The cost drivers of international contracting enterprises are divided into two major categories, and one is structural cost drivers, while the other is executive cost drivers.

3.1. The structural cost drivers of international contracting enterprises
For international contracting enterprises, the structural cost drivers refer to the factors that are gradually generated after a certain period of accumulation and have a greater impact on enterprise cost management. Common structural cost drivers include the choice of international contracting companies for project scale, scope, and technology. The common structural cost drivers include:

(1) The scale of the contracted project. The scale of international contracting enterprises should correspond to the scale of contracted projects, so as to effectively reduce unnecessary production costs caused by unsuitable scale.
4. Cost management of international contracting enterprises based on value chain perspective

4.1. Cost management model design

Based on the above analysis of the value chain and cost drivers of international contracting companies, we designed the cost management model shown in Figure 2.
The model is based on the perspective of the value chain of international contracting enterprises and takes the core competitiveness of international contracting enterprises as the starting point, managing cost from the two perspectives of strategy and practice, as shown in Figure 2.

**FIG. 2 design of cost management model for international contracting enterprises**

The basic idea of the cost management model of international contracting enterprises is:

1) Analysis of enterprise competitiveness. Firstly, it analyzes the status quo and development prospects of the international contracting market and related industries in which the company was located. For example, with the support of the “Belt and Road” strategic background, international contracting enterprises is considered facing a very good development opportunity and then combine enterprises. Then, based on the enterprise's own situation, the market competitiveness analysis is carried out, so as to prepare for the next project orientation.

2) Strategic layout of the value chain. Through in-depth analysis of the scale and type of international contracted projects, the specific project orientation is obtained, and then the value chain of each phase of the project is planned and designed.

3) Structural cost management. The internal value chain and external value chain of international contracting enterprises are analyzed, and combining with the various enterprise cost drivers, the project value chain is optimized, such as improving the technical level and integrating enterprise resources.

4) Executive cost management. Through the advanced methods of international project management such as cost control, quality management and schedule control, the cost of the project is managed, and collaborative management of each participant in the project is carried out.

5) Post-evaluation of cost management. Post-evaluation of cost management of international contracted enterprises is an important part of post-evaluation of project management in international contracted enterprises. The post-cost management evaluation is conducive to the optimization of the cost management of the next project.
4.2. Coordinated cost management of international contracted project

In the process of participating in the project, the relevant cooperation units of the value chain of the international contracting enterprises usually only focus on the business level involved in their own enterprises, and rarely pay attention to the core business of other enterprises at the front and the end of the value chain, while collaborative management of international contracted projects based on value chain analysis can help participant units. On the one hand, they make full use of their respective business advantages. On the other hand, they can better unite and cooperate to better manage the whole process of the project, thereby enhancing the overall value of the project and achieving strategic management objectives.

As shown in Figure 3, in the cost management of international contracted projects, first of all, it should combine market-related information to analyze the motivation of enterprise cost management, according to the strategic objectives of international contracting enterprises, and then combine the information of resources, cost, technology of each participant enterprise in the value chain to determine the project orientation, project objectives (cost, quality, construction period) and project resource acquisition methods of international contracting companies. The value chain method will combine each cooperative enterprise participating in the international project to form a complete network system. In this network system, each partner can realize sufficient resource sharing and achieve the scale effect within the industry. In addition, through in-depth analysis of internal and external value chain of the enterprise, various risks that may occur in the production and operation process of the enterprise can be found. These risks were often caused by poor cooperation with upstream and downstream enterprises, and technology, financing, customs clearance and other aspects will affect the risk of enterprise development. After the risk is discovered, under the premise of the value chain construction, the enterprises can cooperate with upstream and downstream enterprises for better resources, and enter a diversified, comprehensive and deeper management model, thereby enhancing the ability of enterprises to resist risks and improving the level of enterprise cost management.

4.3. Value chain optimization of international contracting enterprise

(1) Value chain structure optimization

The optimization of the value chain structure of international contracting enterprises is the key to improve the market competitiveness of international contracting enterprises. For smaller-scale
contracting enterprises, the high-value work with core competitiveness in international contracted projects should be first upgraded, and the remaining unfavorable work is handed over to other cooperative enterprises to complete. For example, in the early stage of the project, the service of consulting agencies at the project location can be sought to fully evaluate the economic, legal, social conditions and various risks that may occur during the project implementation process, and then decide whether to participate in the project construction. In the implementation stage of the project, a professional customs declaration company can be chosen to complete the customs clearance procedures for imported equipment and raw materials. For the general contracting enterprises with large scale and stronger overall strength, it should seek an innovation of value chain combination and expand the existing business scope, so as to realize the scale effect of the enterprise’s building products and effectively reduce the project management cost.

(2) Emphasis on process cost control
For international contracting enterprises, since the cost of production is not one-off but repeated, it is necessary to pay attention to the cost management at each stage. For example, in the early stage of the project, market research should be fully done to understand the cost level of the country where the project is located; In the stage of project bidding and quotation, a complete list quotation should be prepared, and the quotation level should be improved in combination with contract management; In the construction phase of the project, the project prepayment and settlement management should be done well, and the work efficiency of each construction team of the project should be improved to minimize unnecessary expenses; In the final stage of project completion, the claim management should be completed well in conjunction with the various visa forms generated during the construction process.

(3) Full combination of internal and external value chains for cost management
When applying the value chain method to cost management of international contracting enterprises, the internal and external value chains of the enterprise should be fully integrated. It is necessary to consider the characteristics of the enterprise itself and the opportunities and risks that may arise from the external market environment. Only by fully combining the internal and external markets of the enterprise can it make more correct cost management measures and effectively raise the level of enterprise cost management.

5. Conclusions
Under the “Belt and Road” strategy, international contracting companies should update their thinking patterns and use new methods for cost management and control. The cost management method based on value chain analysis is conducive to international contracting enterprises to enhance their international competitiveness, gain a firm foothold in the overseas engineering market, improve the management level of enterprises, and thus enhance the level of the entire industry. The development of a contracting enterprise with international leading level is also conducive to the improvement of the infrastructure construction level, and consequently facilitates the faster advancement of the “Belt and Road” strategy.

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