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Critical Operational Management in International Construction

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ABSTRACT

The construction activities of a contractor may physically take place in the home country or overseas, and the latter, particularly of a large company, has an increasing proportion with the globalisation. Globalisation of the construction industry and its market is a trend in every country, which increases the opportunities of both international construction, and competition or collaboration with foreign construction companies. International construction project management is undertaken in a complicated circumstance, and requires a synthetic management approach. This research aims to establish a primary framework for the critical operational management in achieving international construction projects in a novel construction market.

Keywords: Australian contractors, critical operational management, critical success factors, international construction, globalisation, project management

INTRODUCTION

Construction is an important industry and forms a vital part of national economies through the world. As well as its own output, the construction industry has a significant impact on the efficiency and productivity of other industry. Therefore, the construction industry is widely considered as a sector which simulates employment and creates job opportunities. Furthermore, the construction industry is also a key element in national competitiveness at the international market. If the construction enterprises of a country better utilise their resources and operate efficiently in the globalised world, all industries including construction as a whole would be more competitive.

Globalisation has come about and prospered through the increasing efficiencies of communication and transport. Particularly, the rapid development of the Internet stimulates both aspects so that data can be transferred with fewer restrictions and people can move with fewer difficulties from one place to another. With the globalisation of economics, culture, politics and techniques, international construction is becoming an
important branch in construction management (Mawhinney 2001). The challenges of internationalism to construction management are diversified, and the increasing globalisation may restructure the construction industry and market of a country (Liu et al. 2003b). It is no doubt that the construction companies to be interested in the overseas markets have the needs to understand the new features of construction industries, enterprises, markets, and management strategies in other countries. For the small or medium enterprises that are focused on the domestic markets, there are also increasing opportunities to compete to or collaborate with foreign construction contractors in their home countries.

In this research, an integrated project management approach, which is called critical operational management, was presented in order to successfully operate under the complex environment of international construction based on the basic principles and applications of critical success factors. In contrast to the method of critical success factors which aims to indicate a list of issues and their breakdowns, the proposed critical operational management approach focuses on the key operational issues taking into consideration the project management goals, operational processes, and success factors. Before introducing this novel project management approach, the following two sections will discuss the changes of Australian contractors induced by globalisation and the national benefits of international construction respectively.

**CHANGES OF AUSTRALIAN CONTRACTORS INDUCED BY GLOBALISATION**

Globalisation has been an evolving and increasing concept since the middle of 1980s. As the Australia's role in the global market becomes greater, Australia's increasing exposure to the global markets and trends are also going to be felt within the construction industry. Australia, particularly its construction industry, must take a strong but measured stride for a share of the global market (Ilozor et al. 2002). Contractors should be responding to these global pressures, and implementing practises to cope and capitalise on the opportunities that globalisation presents.

The international construction project environment is far more complex than that of domestic projects. Any construction firms to be interested in the adventure in international construction need have market data and be alert to the commercial opportunities and risks for a considerably long time before they implement any remote marketing and physical participation. These can be done through in-house investigations and bridging across countries. The distance management also adds new features to the project management under the international construction environment compared to the domestic construction environment although it is also affected by the globalisation.

Australian contractors have been exposed to the effects of the global economy in both the domestic and international construction markets. The impact of globalisation on an industry is hard to measure, and within construction it becomes much harder due to the fragmented nature of the industry. Globalisation could provide both benefits and detriments to Australian contractors, particularly those companies large enough to compete in the overseas construction markets. These companies must face the challenges and address the opportunities induced by the global construction markets. Competition from overseas service providers may be a problem for the Australian firms, and new borders opening up could also provide benefits to contractors who could be expanding to service nations outside of Australia. The implication of these outcomes needs to be considered so that contractors may position themselves appropriately and develop along with the construction globalisation.
Construction contractors should respond to the industry changes with globalisation. Competition for major projects, especially in infrastructure, has been increasing from year to year. Partnerships, joint ventures, and alliances have been formed to undertake construction project under such a competitive circumstance, which may be attributed directly to globalisation or the breaking down of trade barriers, and the investment privatisation. Therefore, the Australian contractors have to change their practices to cater for a heavier reliance on partnerships and alliances. Furthermore, they have to equip themselves to undertake some large projects with some partners who are possibly foreign involvement. The reason for these relationships may be finance, technology, or other factors. As mentioned by Wang and Yang (1999), globalisation has twofold meaning for the Australian construction companies. First, construction is becoming an increasing global business, characterised by a trend towards large firm. Second, globalised market provides access to Australian construction companies to go global. Globalisation for Australian contractors means opportunities and threats coexist or in juxtaposition.

NATIONAL BENEFITS OF INTERNATIONAL CONSTRUCTION

Construction Contributions to International Business

The contributions of the construction industry to both gross domestic product and the national exports are of significance (Liu et al. 2003a). In Australia, the construction industry operates within three sectors, which are residential buildings, non-residential buildings (commercial buildings), and engineering construction. All these sectors are affected by the global climate. Globalisation means that individual firms are no longer competing with a limited number of product or service providers, but with all other firms in the world economy as pointed out by Department of Industry, Science, and Tourism (1998). The increased competition that globalisation implies gives consumers access to a great range of more competitively priced goods and services, and investors access to a wider range of investment opportunities. Furthermore, globalisation refers to the increasing integration of both firms and economies as international flows of trade, investment, and financial capital grow. Therefore, in order to gain the maximum benefits from the globalisation, it requires liberalised trade and investment regimes, and improved transport and communication networks. Therefore, in the home construction market, the contractors are facing more competitive pressures from overseas contractors even though they do not access to another country. From the national benefit point of view, these overseas contractors however make contributions to the gross domestic products.

On the other hand, the construction services also contribute to the international trade of a country. According to the data published by the Australian Bureau of Statistics (2003), the exports in construction services were $26 million for the quarter to March 2003. This number takes a very small portion in the total value of $8694 millions during the same time period, and similar ratios were in previous years. This reflects the weak action of Australian construction firms in the international construction realm compared to its 5-6% share to the gross domestic product. The competitive position of the Australian construction industry depends on relevant sections of the industry aggressively embracing an export culture in the long term. Australian contractors already have a strong presence in the Asia-Pacific region. This is either through exporting or establishing offices, strategic alliances, joint ventures and plants. With the increase of globalisation, some new features arise within the international construction market which has diversified the domestic industries in many countries.
Although Australian construction enterprises have had some significant success in exporting their products and services, Australia cannot consider itself a significant global player in construction. By the mid-1990s, the Asia-Pacific region however accounted for between 80% and 90% of Australia’s building and construction exports as originally released by Industry Science Resources (1999). In addition, the relatively low competitive ability of Australian contractors also shows up in analysis of the world’s top 225 construction firms in 2001, based on revenue derived internationally in Engineering News Record (2002). Australia with only two construction enterprises (No 37 and No 85) in the top 225 has only a marginal presence.

**Government Involvement in International Construction Projects**

Governments have a large influence on the level that a country participates in the global market. The governments’ influence is directly through tariffs on imports into a country, and through varies taxes that may be imposed on foreigners operating within counties, especially when they look to repatriate profit derived from these foreign nations to their home country. Furthermore, it is no doubt that there are some special treatments accorded to the domestic contractors in some countries’ construction markets, and the use of the construction sector by the government to soak up excess capacity is a form of feather bedding that may better allow these contractors to operate on a quite different basis internationally than their counterparts from other countries.

Another major way governments can affect contractors is how they fit agreements by becoming members of world organisations such as the World Trade Organisation (WTO), or multinational agreement such as the General Agreement on Trade in Services (GATS). A true global market would see no barriers to trade. However, as all countries’ governments seek to look after their own interests and those of their inhabitants, it is hard to achieve. This is why WTO, GATS and other similar organisations or agreements are conceived so that a relatively fair construction market can be built worldwide.

**CRITICAL OPERATIONAL MANAGEMENT**

**Critical Success Factors**

The conceptual framework and analytical methodology of critical success factors (CSF) were developed at the early of 1980s with the phrase first used in the context of the implementation of information systems and project management (Rockart 1982). From the project management perspective, critical success factors are a limited number of key criteria, elements, or stages of a project that need to be successful in a project implementation in order to achieve the management goals. It is stated that critical success factors are a shorthand statement of those limited number of areas where things must go right for the project functions to be successful and for the project executive’s goals to be achieved in the seminal publication on critical success factors. Furthermore, the seminal author suggested that, in effect, critical success factors are the means to the objectives, which are the desired ends (Rockart and Crescenzi 1984).

In the past two decades, the critical success factors have been widely applied in diverse fields, including the enterprise management and project management in construction industry. A number of authors have identified factors they consider critical to the success of management under various concepts and the common methodologies were questionnaires. Rowlinson (1999) stated that the critical success factors must be maintained in order for team working to take place in an efficient and effective manner.
and they require day-to-day attention and operate throughout the life of the project. Mawhinney (2001) grouped the key factors in operating and sustaining an international construction business into finance, on-site works, design, human resources, and plant and supplies. Ofori and Chan (2001) presented the results of a study on the important factors in the development of construction enterprises. Jefferies et al. (2002) examined receptions of build-own-operate-transfer schemes in order to develop a framework of critical success factors. Kwak (2002) identified the factors that cause completed or in progress international development project to be challenged into ten categories of political, legal, cultural, technical, managerial, economical, environmental, social, corruption, and physical.

As a list of things that need work in order for success, critical success factors are static and relate only to the particular kinds of projects under analyses. Furthermore, the critical success factors do not indicate any relationships or interdependencies, and there is no causation or dependencies evident in a list of critical success factors (Boon et al. 2003). As a practical project is a complex, dynamic and long-term process, the project manager normally needs an operational guidance on the critical activities as well as recognising those critical successful factors. The project management approach with consideration of guidance on the critical operations is referred to critical operational management in this research, and will be demonstrated in detail under the circumstance of international construction in the following of this section.

Critical Operational Management in International Construction

The success or otherwise in winning export construction contracts in a globalised world depends on the technical, financial, political, and other factors. These factors can be identified and classified in various manners. Indicating these factors is important for the construction enterprises to have overall knowledge on the international construction activities. In addition, they need understand how to practise so as to undertake an international project successfully. Figure 1 presents the three stages and some issues involved for a construction contractor approaching the construction market of an overseas country based on the current practice in international construction.

The operational process starts from the in-house investigation, and achieves the distance management after bridging across from the home country to the overseas country. In the in-house investigation stage, the construction company need focus on the comparison and analyses in construction industries, markets, and enterprises over cross countries including the home country, the host country and some other concerned countries. During the stage of bridging across countries, each contractor should make itself primarily ready to enter another country’s construction market with necessary preparations. Distance management is different from the construction management in the home country, and the partnership collaboration may reduce the distance and build a temporal, but physical camp. These critical operational management activities provide the basic content in each stage and further items need be supplemented under a particular circumstance.

An Example of Indicating the In-house Investigation Stage

Given the growing importance of the Chinese construction market to Australian exports, it is of considerable national benefit to carry out a case analysis on the particular critical success factors of Australian contractors in the Chinese construction market. A previous research project analysed the new competitive features in the Chinese construction market subsequent to the China’s recent entry into the World Trade Organisation and to
succeed in the competition of construction projects for the coming 2008 Beijing Olympic Games and 2010 Shanghai Expo (Liu et al. 2003b). Taking the in-house investigation stage as an example, the case study carried out in the following is to analyse the potential strategies of Australian construction enterprises to play a significant role in the Chinese construction market. In order to successfully operate under such particular circumstance, the following four operational management approaches are suggested to be carried out during the in-house investigation stage.

**In-house investigation:**
- Construction industry comparison over cross countries
- Construction market comparison over cross countries
- Analyses of contractors' international strategies over countries
- Analyses of overseas contractors' performances in host countries

**Bridging across countries:**
- Cultural adaptability
- International construction risk management
- Financial preparation
- Legal preparation

**Distance management:**
- Partnership collaboration
- Contractual Enforcement
- Marketing approach
- Project implementation

Figure 1 Critical Operational Management in International Construction

**Comparison of Cross-National Construction Industries**

The preparation can process start by collecting data from the construction industries in Australia, China and Japan in order to investigate details both past and present, and point out similarities and differences in various aspects of the construction industries, including the numbers of construction enterprises with various scales of numbers of employees, the turnovers per construction enterprise and employee, and the limitation on the construction sector to the domestic economy. The dominant data may be from the increasingly online data sources, including government departments, periodic survey publications, industrial and enterprise reports, and research results. International collaborative partners may be required to collect the particular data on a specific issue in case that the data sources are not published online in electronic forms.

**Analyses of Cross-Cultural Construction Markets**

Because of differences in the cultures of countries, there exist various kinds of differences in their construction markets. These differences highly affect the tender and bidding methods for construction projects, and decision making. Although times may be changing, it is still necessary for an international construction enterprise to adjust itself for each individual country. Understanding the market mechanics of a country is fundamental for market entry, and this research will focus on how to analyse an overseas construction market and its basic ingredients. The success of a construction enterprise in
an overseas market is to some extent dependent on the investigation of the influence of local culture onto the construction market. Research shows that understanding the economic factors of construction industries in both Australia and China needs some knowledge and analyse from the viewpoint of culture which contains diverse characteristics (Liu et al. 2003b).

International Market Strategies of Construction Contractors

The Japanese corporate contractors are often portrayed as internationally and domestically competitive. The Japanese construction industry is apparently technologically progressive and worthy of emulation by both developing and developed countries (Liu et al. 2003a). They are widely considered to be cost, quality and delivery conscious, and investing heavily in research and development. In addition, the Japanese construction firms as well as the American ones dominate the international construction stage in China due to their sizes of the economies of the countries. The use of technology in the Japanese construction industries may be studied in detail in terms of industry organisation, corporate structure, design and construction techniques, and research methods. Considering the difficulties in collecting data, a typical and similar construction enterprise may be selected for comparison, particularly its activities in international construction in previous years. Lessons from a Japanese contractor in diverse aspects, particularly overseas market strategies, may come out from the comparison.

Overseas Construction Enterprises in China

It is necessary to carry out an investigation among overseas construction contractors that have had experience in competing in construction projects in China, particularly Australian and Japanese based enterprises. Previous research presented that there were at least about 20 large Japanese construction enterprises which undertook construction projects in China in 1999 (Zhao 2000). This number is considerably more than those from other countries. With the entry of China into the WTO, the Chinese construction market is becoming more open to overseas contractors. The demands of construction, particularly for the coming 2008 Olympic Games and 2010 Shanghai Expo, are also very attractive to overseas contractors. The results from the investigation and analyses of Japanese contractors in China will be extremely valuable for an Australian contractor wishing to undertake construction projects in China. Previously successful or fruitless experiences are an invaluable fortune for the coming enrollee to a new construction environment.

CONCLUSIONS

An integrated project management approach, critical operational management, was presented in this paper. In contrast to the method of critical success factors which aims to indicate a list of factors and their breakdowns, critical operational management approach focuses on the key operational process taking into consideration the project management goals, operational processes, and success factors.

Globalisation of the construction industry and its market is a trend in every country. This research analysed the international market opportunities induced by globalisation, particularly for Australian contractors. Consequently, the national benefits contributed by the international construction were demonstrated and an analysis on the government involvement in the international construction activities is followed.
Critical operational management approach was applied to the international construction. The whole operational process is grouped into three stages and the operations in each stage were identified. Taking the operations of Australian contractors in the Chinese construction market as an example, the critical operations in the in-house investigation stage are discussed in detail to provide considerable suggestions for the improvements of competitive and collaborative strategies of Australian contractors in developing their overseas construction markets.

REFERENCES


