The Internationalization Process of Chinese Engineering Enterprises: An Overview

Jingyan Qi, Shuibo Zhang*, Yunyang Tang and Ying Gao

College of Management and Economics, Tianjin University, Tianjin, China

Abstract: In China, in the wake of open-economy system and mutual benefit and the Belt and Road Initiative from the Chinese government, the mounting Chinese engineering/construction enterprises (CEEs) are expanding into the international market. Simultaneously, the steady growth of development demands around the world, especially in developing countries, which offers the strong stimulus for CEEs to compete with counterparts from the international market. In recent years, persistent endeavors concerned on internationalization of Chinese engineering/construction enterprises (ICEEs) research have been made to explore their internationalization process. However, the studies with various topics related to ICEEs make researchers confused to how they can contribute to innovation in this filed. Therefore, it is paramount for promoting academic development and forecasting future trends in ICEEs research filed via a systematic review and analysis of previous studies. In this study, literature collection based on previous literature was made to support the subsequent literature analysis process. The analysis focused on theoretical foundation; publications year distribution, country or regional distribution, organization level distribution, as well as literature topics distribution. For getting a clearer picture of study on ICEEs, the discussions were conducted in term of chronological development of research topics and research main findings and gaps, respectively. Based on in-depth literature reviews with regard to ICEEs research, the paper aims to answer two research questions, namely 1) discover where is the current development of ICEEs research and 2) find out what is the extant gaps and future trends of ICEEs research, which can offer a guide for unborn researches in the ICEEs research field. Sequentially, it will contribute to promote the theoretical and practical development of international Chinese engineering enterprises (CEEs) in oversea market.

Keywords: Chinese engineering enterprises, international construction market, internationalization process, Chinese contractors

DOI: http://dx.doi.org/10.7492/IJAEC.2019.008

1 INTRODUCTION

The past three decade years have witnessed the fast development of the Chinese engineering enterprises (CEEs), particularly with regard to their internationalization process. CEEs are incrementally embodied in international engineering projects as well as other overseas cooperation projects (Low and Jiang 2006). Based on the annual survey in 2018 conducted by Engineering News Records (ENR), 60 Chinese construction contractors accounting for 23.63% of the total international revenue are included in the top 250 international contractors, which reveals that China international engineering enterprises, especially China Communications Construction Group LTD, have become salient and competitive contenders in the international engineering filed.

Motivation factors for Chinese international engineering enterprises to inroad into international mainly involve two aspects. One aspect is open market environment within domestic. In the wake of China’s accession to the World Trade Organization (WTO), the fierce competition within the domestic market stimulates many CEEs to venture into international market 2009 (Zhao et al. 2009). The other aspect is support from Chinese government, such as the Belt and Road initiative and globalization. The recent 19th People Congress report called for the Chinese enterprises to turn into world-class, globally competitive firms. Meanwhile, the Chinese government continually heartens and motives CEEs to engage in foreign market by bilateral agreements. As a consequence, the ICEEs are confronted with and benefit from the enormous opportunities all over the world particularly in developing countries. Based on this background, internalization process of CEEs will be subject to an era with faster pace.

China, as an emerging economy, has its own unique characteristics. The CEEs are embedded in quite a different political, economic, and cultural system, and in particular, its ownership system. Facing a turbulent international construction market environment, Chinese international engineering/construction enterprises remain many tremendous challenges. As far as CEEs are concerned, it is quite essential to

*Corresponding author. Email: zhangshuibo@tju.edu.cn
be aware of how to compete with counterparts from the international market to survive. In recent years, persistent endeavors pertaining to ICEEs research have been made. The ICEEs research as a means of exploring the internationalization process of engineering enterprises with Chinese characteristics, it is of great significance to maintain the steady development and practice of the CEEs in international construction business.

As for the existent literature pertaining to ICEEs research, although most of them are mainly focused on certain aspect of ICEEs, these research achievements can offer a good picture of the current situation on ICEEs. For instance, the degree of internationalization of Chinese international contractors (CICs) (Low and Jiang 2006); competitiveness and strategy of CICs (Zhao et al. 2009); political risk management in international construction projects (Deng et al. 2013) etc. Against past review background, the enormous ICEEs studies with various targets make it confusing for us to be fully aware of this filed. According to Zhou et al. (2015); the advantages of systematic review method primarily rest with two aspects: on one hand, the coverage of wider research topics. On the other hand, the systematic review of past, current, and future research. As a consequence, this study adopts a comprehensive overview and analysis process, which is significance of not only aiding researchers to acquire a holistic understanding of ICEEs research, but also contributing to offer potential lacuna for researchers to further explore. By means of this research, two questions can be answered:

1. What is the current situation of ICEEs research in line with theoretical foundation; publication year distribution, country or regional distribution, organizational level distribution, literature topics distribution?
2. Where is the future trends of ICEEs research in accordance with extant research main findings and gaps.

Whereafter, the research method and data collection are first introduced (Section 2). The Section 3 describes literature analysis of these studies on the ICEEs. Afterwards, discussion including chronological development of research topics and research main findings and gaps is conducted (Section 4). The conclusion is drawn in final Section 5.

2 RESEARCH METHOD AND DATA COLLECTION

2.1 Research Method

As a newborn method of literature review, systematic review has been widely implemented in diverse research field at present. Compared to traditional review method, systematic review method is specific and reproducible by identifying, selecting and evaluating extant research in related to research topics, which makes review process more rational and standardized (Fink 2005; Zhou et al. 2015). Consequently, the systematic review method is adapted to better review the extant literature in the ICEEs filed, aiming to answer the research questions proposed, namely the current situation of extant ICEEs research and the knowledge gaps and future trends of ICEEs research. Figure 1 delineates the systematic overview framework proposed in this study.

In detail, the process of data collection consisting of literature search, statistical data selection related to ICEEs research are implemented at first. Then, the literature coding was classified from five aspects of theoretical foundation; publications year distribution, country or regional distribution, organization distribution and research topics distribution after selecting literature. In accordance with literature coding, literature analysis process is elaborated concretely. According to discussion of the selected literature, this overview can explore useful findings and identify the research gaps, thereby, to support the future development on ICEEs research. It should be pointed out that the advantage of this method is that systematic overview process can be constantly repeated.

![Image of Figure 1: The main framework of systematic overview on ICEEs research](image)

2.2 Data Collection

As a most critical task, research data collection directly affects the quality of the review. For the purpose of obtaining a holistic understanding of ICEEs research, research data was collected form the following two sources in this study:

2.2.1 Literature Search

The academic literature of the ICEEs involved in the top journals in the filed of international business and construction management were collected at first. The literature search was carried out under the “Title/Keyword (internationalization; construction enterprises/firms/company; engineering enterprises/firms/company; contractor competition; Chinese)” and restricted to peer-reviewed papers written in English. For getting a more holistic realization of ICEEs research, the papers written in Chinese were collected as supplement literature as well. Literature search provides a comprehensive foundation for analyzing current issue of ICEEs research to further guide practices in Chinese international engineering enterprises.

As a matter of fact, some of selected literature which not match the subject of the internationalization of Chinese construction/engineering enterprises/firm/company may be con-
tained in literature search. It should be essential to further select relevant literature for in-depth review and analysis after searching literature.

2.2.2 Statistical Data
The statistical data are collected from Engineering New Records (ENR). Year of annual data from ENR were analyzed to investigate the development of ICEEs.

2.3 Literature Coding
After operating the literature selection, literature coding based on selected literature was carried out in order to clearly explore the current findings and future trends of ICEEs research. The coding information was stored form the following five perspectives.

1. Theoretical foundations (refers to the theory behind the ICEEs research);
2. Publication year (refers to the year in which the ICEEs research was published);
3. Country or regional (refers to international regional market distribution of CEEs);
4. Organizational level (refers to country level, industry level or firm level where the studies are conducted);
5. Research topics.

3 LITERATURE ANALYSIS OF ICEES RESEARCH

3.1 Internationalization Theories and Construction Industry
Although the recent rapid globalization of engineering/construction enterprises, the development of internationalization theory in construction industry has not keep pace with the rapid growth of engineering/construction multinationals worldwide. The nature of transactions in engineering/construction provides a good example in internationalization studies as well. For fostering the international theoretical progress in connection with the construction industry, some traditional internationalization theories are reviewed as following at first.

3.1.1 Eclectic Paradigm
In order to better observe the motivation of outside foreign direct investment (FDI) of multinational enterprises (MNEs), the eclectic paradigm of international production was originally proposed by Dunning (1977). The core argument of the eclectic paradigm consisted of ownership specific advantage (O), location specific advantage (L) and internalization advantage (I) is to answer three questions, i.e. why, where and how foreign value-added activities of MNEs are operated (Low and Jiang 2006).

In terms of theoretical application in ICEEs research, in order to compare the performance of top British and Chinese contractors (usually newcomers) in international construction market, Low et al. (2004) developed the OLI+S (Specialty) model to assess quantitatively their internationalization process from four internationalization ratios, which may provide them with opportunities to operate better. Subsequently, Low and Jiang (2006) identified and analyzed the OLI advantage of Chinese international engineering enterprises aiming to reveal their ownership advantage in diverse locations of the international market by various business strategies as their internalization advantage. In addition, under the basis of the Eclectic Paradigm, multiple linear regression model was constructed to analyze the impact of internationalization degree of Chinese overseas contracting projects on project performance (Zhang 2012).

3.1.2 Network Theory
Network theory is defined as “network is composed of some relationships between actors”. These actors of networks can be individuals, but may also be groups, organizations, nation states (Wasserman and Faust 1994). Johanson and Vahlne (1990) further conducted international business work regarding the establishment of networks relationship as a process of firm internationalization. The network view claims that a key factor affecting international market operations is the increasing existence of a set of relationships in the network (Johanson and Vahlne 1992). A good network in network actors is contributed to the acquisition of enterprise knowledge, information and scarce resources in international market.

Form the perspective of network theory, Reis (2010), Reis (2011) investigated empirically international Chinese contractors in public works in order to understand how and why those enterprises are addressing and operating in international markets, namely Caribbean Islands and Oceania; or Sub-Saharan. Liu et al. (2013) established a partnership-based core competencies of international contractor model. On the basis of empirical research, the rationality of the theoretical model is verified.

3.1.3 Competitive Advantage Theory
Porter proposed that the development of international competitive advantage rely more on knowledge creation and absorption. Various factors within an economy, a country’s values, culture, economic structure, and history, have become sources of competitive advantage to produce (Porter 1990). Porter’s international competitive advantage theory (also known as the diamond model), including four country specific determinants (namely factor condition, demand condition, related and support industry, firm strategy, structure, and rivalry) and two external forces (namely government and chance), is an effective methodology to analyze the competitive advantage of an industry or an enterprise.

In the application of theory, Zhao et al. (2011) developed the diamond model to analyze the factors that have significant impacts on the competitiveness of the Chinese international construction companies in the global market by collecting data from multiple sources. The results manifested that the companies’ self-competitiveness-assessment was acquired using diamond model. Also, this approach has great potential to address other international contractor’s competitiveness in the global market.
3.1.4 Dynamic Capability Theory

From the organizational theory perspective, Teece et al. (1997) defined the concept of dynamic capability that is the capability to purposefully integrate, develop and reconfigure internal and external operational capability of the firms aiming to address in reaction to rapidly changing environments. The dynamic capabilities have a direct effect on the enterprise’s business performance and strategies, innovation capability, and resource etc. (Teece 2014). Facing the turbulent international contracting market environment, the internationalization process of Chinese international engineering/construction enterprises can be explored considering dynamic capability theory. According to Zhao and Wang (2017), there is a significant correlation between dynamic capacity and performance of the international contractors. The research results can provide theoretical and practical support for Chinese international contractors to find the optimal path to determine the dynamic capability growth.

3.1.5 Niche Theory

As an important conception and theory in ecology, the niche theory is concerned on a species’ occupation of nature resource and interactions with other species. Applying the ecological niche theory into Chinese international contractors research, many realistic problems faced by contractors, such as competition, international market development and cooperation can be resolved. For example, Yang and Li (2008) made an effort in analyzing the development strategy of Chinese international contractors by a comparative study of the major contractors in the international market and Chinese international contractors based on enterprise niche theory. Adopting enterprise niche overlap index, Zhao and Guo (2017) measured empirically the market concentration of top 15 Chinese international construction contractors. And at last, the paper put forward the countermeasures for the clustering problem of Chinese international contractor market.

More and more academic efforts are being made by scholars and practitioners in construction industry. All these internationalization theories shed light on our understanding of the internationalization process of Chinese engineering enterprises.

3.2 Publications Year Distribution of ICEEs Research

As far as the selected literature is concerned, Figure 2 depicts the publications year distribution of each literature from 1999 to 2018. In detail, the earliest one concerning Chinese international construction business was published in “Journal of Construction Engineering and Management” in 1999. For the purpose of helping construction firms improve their decision-making process for their overseas ventures, a risk management model for international construction joint venture is proposed (Bing and Tiong 1999).

As shown in Figure 2, although the number of relevant papers published annually is small, which can be noticed that fewer than one before 2005. Especially, the year with largest publications regarding ICEEs research is 2016, followed by 2009 with seven publications. Five publications have been published annually in 2013 and 2015. The overall trend of study on ICEEs goes upward over the past decade, but more concerns are still call for on account of the significant of ICEEs research to Chinese international construction business.

3.3 Country or Regional Distribution of ICEEs Research

In previous, the definition of country or regional distribution lies in two aspects of where authors or institutions come from Osama et al. (2004) and where each study was implemented (Zhou et al. 2015) respectively. In this paper, country or regional distribution refers to which country or regional market is analyzed by ICEEs research. According to

![Figure 2. Publications year distribution of research on ICEEs](image.png)
ENR, the international contractor market is divided into ten regional markets: Asia/Australia; Europe; Middle East; U.S.; Canada; North Africa; South/Central Africa; Latin America; Caribbean; other. It can be integrated into six regions (Asia-Pacific; Europe; Middle East; North America; Latin America and Caribbean; Africa and other) based on geopolitical relations. Those studies that involve specific countries or regional market were selected so as to analyze country or regional distribution of ICEEs research.

The selected studies cover fourteen publications related to six regional markets in the aggregate (see Figure 3). In detail, more attention has been paid to Africa market with almost 36% of the studies on ICEEs. Other notable countries or regions with significant number of studies are Asia market (29%). Of particular note is that the three of the selected studies concern Chinese international contractors in global market involving six regional markets (Low et al. 2004; Reis 2010; Jiang 2006). Some comparative studies of China international contractors and other countries’ contractors (e.g. U.S.A.) across same countries or regions (Reis 2012) are included form the analysis of country or regional distribution.

3.4 Organization Level Distribution of ICEEs Research

Form the perspective of organizational level, the study concerning on ICEEs can be analyzing at four levels including country-based level; industry-based level, enterprise/firm-based level, project-based level. Figure 4 is a schematic diagram of the organization level distribution of relevant papers. The largest one among four levels is enterprise/firm-based level with accounting for more than a third of all the papers, followed by country-based level for industry-based level with the same amount. Of particular note is that the publications of project-based level are a small percentage of total with equal to the percent of fourteen.

More detail, the studies pertaining to the country-based level contain two aspects. One side is the investigation on China international engineering enterprises in different host countries. For instance, form the perspective of a local linkage, Corkin (2012) concerned about the strategic orientation of large Chinese state-owned enterprises (SOEs) venturing into Angola’s construction sector. The research concerning on all Chinese contractors in Singapore was carried out in order to explore a better insight into the external risk management practices of Chinese construction firms (Low et al. 2009). Wang et al. (2016) studied that Chinese construction companies to invest in the UK infrastructure market based on organizational capability view. Another side is the investigation on comparative study between Chinese and foreign international construction enterprises. Reis (2012) analyzed Chinese and U.S.A. international contractors in the East Asia attempting to compare their options and strategy profiles. A study was conducted to compare the performance of top British and Chinese contractor in global market (Low et al. 2004).

Regarding the studies at the industry-based level, Deng et al. (2013) investigated empirically factors formulating the competitiveness of the Chinese construction industry. A study based on SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis was conducted to obtain a clear picture of internal and external conditions of Chinese international construction companies in the global market (Zhao et al. 2011). For the studies on enterprise/firm-based level include investigation into firms of different types such as Chinese state-owned construction firms (Zhou et al. 2010); of competitive edge and performance (Lu et al. 2013; Jin et al. 2013); of risk management (Zhao et al. 2015; Zhao and Singhaputtangkul 2016), such as political risk (Deng et al. 2014), exchange rate risk (Fan and Bi 2016); of path dependency (Rao 2015) and market concentration (Zhao and Guo 2017) etc. The engineering/construction enterprises as basic components of ICEEs, it is recommended that more research should be conducted at
this level to promote the sustainable development of the Chinese international construction business.

In contrast to other level, the smallest one is at project-based level with seven publications (see Figure 4). The engineer-procure-construct (EPC) approach has been increasingly adopted in international markets (Galloway 2009). From the perspective of Chinese construction companies, Du et al. (2016) revealed how to enhance the engineer-procure-construct (EPC) project performance by partnering in international markets. Likewise, design management by partnering in delivery of international EPC projects was investigated (Wang et al. 2016). The remaining papers whose subject is related to risk governance. Chen and Wang (2009) applied fuzzy AHP method to assess risk factors affecting Chinese international projects in the process of decision making. Aiming to identify the significant political factors affecting the project system vulnerability in international construction projects, a case of Chinese contractors was studied by Deng et al. (2014). Liu et al. (2013) explored the risk paths in the international construction projects operated by Chinese contractors, and verified the impact of the risk on projects.

3.5 Research Topics Distribution

By virtue of in-depth analysis of coding literature, the distribution of diverse topics pertaining to ICEEs research lies in the following aspects. Those research topics from the various perspectives will be illustrated in detail respectively.

3.5.1 The Entry Mode of ICEEs

In contrast to other industries (e.g. manufacturing), entry strategy with a gradual increasing commitment is not common in the construction industry (Chen and Messner 2011). The decision making of entry mode is crucial for CEEs when they have ventured or will venture into the international market. In general, Low and Jiang (2006) stated that entry modes of Chinese international construction firms can be categorized into local agent; representative office; subsidiaries; joint venture company; branch company. In aid of Chinese international construction companies making better decision about the choices available, Jia et al. (2016) developed a two-dimensional (2D) taxonomy model of the entry modes and identified the factors that influence the entry mode choices of Chinese ICCs. Based on an empirical analysis, Chen et al. (2007) and Chen et al. (2009) discussed the basic entry strategy of Chinese construction firms’ entry into Africa market. Besides, Liu et al. (2011) evaluated the challenges and opportunities faced by CEEs in cross-border acquisitions, and concluded to a better picture of the present situation of cross-border acquisitions related to CEEs. The international construction business study of market entry with foreign investment is drawn upon to understand Chinese construction companies to invest in the UK infrastructure market (Wang et al. 2016). Also, Qiu (2016) discussed the application of joint venture and consortium in international project contracting so as to reduce the risk and loss of the joint venture and give full play to the advantages of the joint venture, which provided a reference for Chinese engineering/construction contracting enterprises in decision-making and management when they use the joint venture model to expand overseas markets.

3.5.2 The International Competitiveness of Chinese Contractors

The Chinese international contractor penetrating into the international arena has been developing rapidly and have become more proactive in recent years. Given the competitive environment in international market, it is paramount for Chinese enterprises to promote their international competitiveness. In previous studies, multifarious methods were applied to examine the international competitiveness of CICs. For instance, in the study on “Are Chinese contractors competitive in international markets?”, Zhao and Shen (2008) proposed a framework of SWOT analysis for evaluating the competitiveness of the Chinese contractors in overseas business. A diamond model was established to analyze the factors acting on the competitiveness of the Chinese international engineering enterprises in the global market (Zhao et al. 2011). In addition, the adoption of innovative procurement systems can be able to improve competitive advantages of Chinese construction companies when are making inroads into the international market (Lu et al. 2013). In order to assess competitiveness of Chinese international engineering/construction in the global construction market, a comprehensive literature review was performed to confirm the current issues that CICs was facing (Parsa et al. 2017). More recently, Chen (2017) verified that the moderating effect Chinese-style relationship governance on the dynamic capability and competitive advantage of international Chinese contractors by exploratory multi-case studies.

3.5.3 The Performance Measurement of ICEEs

Due to the characteristic of construction industry (e.g. on-site construction; one-off project nature, unmovable, various stakeholders with quite different business objectives), it is more difficult for engineering/construction firms to become global and realize internationalization goals than firms in other industries (Jin et al. 2013). It is noticed that performance measurement is an effective measure that organization reach the visions and goals. Thus, facing complex international market, the topic about how to measure the performance of engineering/construction enterprises has aroused considerable attention from researchers and practitioners.

The development of performance measurement system (PMS) has been an ongoing concern. As far as international firms are concerned, Sullivan (1994) attempted to deploy a multi-items estimator scale to measure the degree of internationalization of a firm, including Foreign Sales as a Percentage of Total Sales (FSTS), Foreign Assets as a Percentage of Total Assets (FATA), Overseas Subsidiaries as a Percentage of Total Subsidiaries (OSTS), Psychic Dispersion of International Operation (PDIO), Top Managers’ international Experience (TMIE). In order to adapt to the unique characteristics of the construction organization, Low and Jiang (2006) constructed an internationalization matrix to evaluate and compare the achievements of top 35 CICs by using International Revenue/Total Revenue, International Business Distribution, Overseas Management Structure, Involvement in Specialized Fields, and Overall Index of Internationalization.

At present, the popular research methods pertaining to performance measurement in construction industry are balance...
scorecard (BSC); key performance indicators (KPIs) etc. For instance, Jin et al. (2013) established a practical framework based on the balanced scorecard containing four perspectives (i.e. financial measures, customer satisfaction, internal processes, Learning and growth), to measure the performance of Chinese international construction firms. As a new performance management methodology, performance prism is pursued in the belief that organization to deliver better value to its multiple stakeholders, which encompasses five interrelated perspectives on performance, namely stakeholder satisfaction; stakeholder contribution; strategies; processes; capabilities to address the shortcomings of the first-generation measurement frameworks and methodologies (Neely and Adams, 2005). Yet, the application of this three-dimensional framework needs further be to exploration when measuring the performance of international construction enterprises. Besides, some scholars argued that performance is closely related to strategy. Aiming to explore how Chinese contractors can improve their export performance by leveraging on strategies, Ling and Lim (2010) investigated Chinese enterprises’ export activities in the Singapore context. A SWOT strategy matrix was adopted to establish a framework that can assist Chinese international contractors to further improve competition and develop sustainable business strategies when making the decision of bidding in the international market (Zhao et al. 2009).

3.5.4 The Risk Management of ICEEs

In contrast to domestic construction market, it is recognized that the international construction market in which a firm is operating is flooded with a whole new set of risks. Thus, in attempt to break new ground in foreign market, CEEs are sure to pay attention to the importance to risk management. In coding literature, a range of ICEEs research pertaining to the subject of risk management were observed.

Give some examples, external risk management that encompasses many areas (e.g. finance, politics and cultures) is more important for these CEEs due to their vulnerability to the host country’s political, economic, social and environmental condition (Low et al. 2009). During the process of performing the international contracts, Fan and Bi (2016) underlined the significance of exchange rate risk confronted by the Chinese enterprises in international construction business, and hoped to enhance the exchange rate risk management by means of corresponding measures. From the perspective of political risk management (PRM), Deng et al. (2014) concerned on the extant literature relating to political risks in international business, and indicated that the PRM in international construction projects was immensely ignored. Form the point of view of firm characteristics, Zhao and Singhaputtangkul (2016) surveyed the impacts of regulatory pressure, firm ownership and size on risk management of Chinese international construction enterprises.

3.5.5 The Corporation Social Responsibility of CICs

Along with the internationalization process unceasing progress, Chinese engineering/construction enterprises are confronting with the salient pressures from social, ethical, governance, and legal practice. At present, corporation social responsibility (CSR) as an emerging view, is significance of to ensure sustainable growth of Chinese international engineering/construction enterprises in overseas markets. As a consequence, based on the perspective of stakeholders, Wu et al. (2015) investigated Chinese international contractors’ perception of CSR, and identified approaches to improving their perception of CSR. To answer the question of how international diversification strategy influence CSR, an empirical study of Chinese contractors was conducted by adopting institutional and stakeholders’ views of CSR (Ma et al. 2016).

4 DISCUSSION

4.1 Chronological Development of Research Topics

Form the perspective of chronological development, the publications pertaining to research topics from 1999 to 2018 were broken into two periods so as to discuss more clearly and logically in this study.

4.1.1 Span Time from 1999 to 2008

In this period, the distribution of research topics was mainly focused on the following aspects.

1. Risk management model for international construction enterprises (Bing and Tiong 1999).
3. Competitiveness of Chinese international contractors in oversea market (Ofori 2006; Zhao and Shen 2008).
4. Chinese international construction enterprises based on eclectic paradigm (Jiang 2006; Low and Jiang 2006).
5. Entry strategy of Chinese construction firms (Chen et al. 2007).

4.1.2 Span Time from 2009 to 2018

With reference to Table 1, it was observed that previous research topics like risk management, competitiveness and strategy-making were still being investigated. In contrast to the first period, the distribution of research topics was more extensive and plural in this period. As an illustration, an effort has been making on construction professional services that represents a research frontier. This research examined SWOT of Chinese construction professional services in the international context (Lu et al. 2013). Meanwhile, the procurement innovation has received more concerns from researchers (Lu et al. 2013). In addition, Reis (2010) conducted a study on international process model of contractors from U.S.A. and China, namely, whether both match with the best-known models (e.g. the Uppsala model).

Another research topic was local operation in host countries of CEEs, such as Africa (Chen et al. 2009; Corkin 2012). Corporation social responsibly has been emphasized by the academia to significantly enhance long-term competitiveness and sustainable development of CEEs in international market (Wu et al. 2015; Ma et al. 2016). Based on network theory, the paper concerned studying Chinese international contractors approach to international market (Reis 2011). More
recently, the application of Niche theory in ICEEs research has gotten the attention of scholars (Yang and Li 2008).

4.2 Research Main Findings and Gaps

4.2.1 More Popular International Theoretical Perspectives

Some other popular theoretical views in international business, such as Resources-Based View, Institutional Theory can be applied to launch ICEEs research for the sake of better explaining the international process of CEEs.

Resource-Based View. The Resource-Based View theory emphasized that a firm is a collection of tangible and intangible resources. The advantage pertaining to firm resources contribute to the improvement of sustained competition performance. Especially, idiosyncratic firm resources can give rise to value creation irrespective of market conditions (Barney 1991). Form the strategic management perspective, Wernerfelt (1984) implemented simple economic tool to analyze the relationship between profitability and firm’s resource position in detail, as well as proposed the ways to manage the firm’s resource position. Based on this theory, the competition advantage and emerging strategic options generated from resources view on Chinese international construction firms were revealed.

Institutional Theory. The institutional theory has been regarded as a means to explain the behavior and performance of firms in international markets. The theory posits that firms are shaped by the home and host countries’ institutional environments (Scott 1995). It is noticed that the firms’ strategic making-decision rest with institutions background of home and host country (Du and Boateng 2015). The CEEs ventured into international market have won state-sponsored and state-supported in the past decade. Meanwhile, foreign institutional contexts create the impetus for action patterns of Chinese international engineering enterprises. Thereby, the ICEEs research based on institutional theory will provide more findings for practitioners.

4.2.2 Research Trends of ICEEs

As discussed previously, the international business research of CEEs is incrementally going upward and varying with the times. Despite the research trend of ICEEs is much more diversified at present, the publications matched Chinese international engineering/construction enterprises of each year still account for a small part with fewer than ten (with reference to Figure 1). Given that the status of ICEEs research is confronting with downturn situation which is no kept pace with the CEEs venturing into international market, the academia still therefore need to endeavor to explore issues of CEEs in international business and provide more value references for practitioners who come from CEEs in the international market.

4.2.3 Imbalance of Country or Regional Distribution

With regard to this perspective, discussions are mainly conducted from two aspects. On the one hand, it can be observed that the country or regional distribution of extant literature mainly was concentrated on Africa (e.g. Sub-Saharan; Angola) and Asia (e.g. East Asia; Singapore). Only one paper studied the public work of Chinese international contractors in small geographic markets, namely Caribbean Islands and Oceania. On the other hand, on basis of statistical data from ENR, the distribution of country/regional business of Chinese contractors still focuses mainly on Africa (32.7%) and Asia (42.2%), and on Northern America (2%) and Europe (2.6%) are still much less (ENR 2018). From the above analysis, the imbalance distribution of country or regional in global market of ICEEs research can be discovered, which indicates that more attentions should be paid to discuss other country or regional markets in which Chinese international engineering/construction enterprises is operating, so as to guide international engineering/construction practice in a more global manner.

4.2.4 Lack of Research at the Project Level

As discussed in organizational level (see Section 3.4), almost 86% of the selected studies were focused on the country, industry, enterprise/firm levels. Those studies at the project-based
level only accounted for 14% of all. According to Flyvbjerg et al. (2003), international engineering projects are likely to suffer from cost and time overruns. As international projects construct a basic component of Chinese engineering/construction enterprises, it is critical for CEEs to carry out effective project management for achieving multiple objectives. In a word, ensuring that international projects are operated successfully can be the precondition of good performance of Chinese international engineering/construction enterprises in overseas market. In terms of existing literature at project level, all of them are related to risk management topic. Thus, more studies form different perspectives at project level can be launched to enhance export performance of CEEs.

4.2.5 Lack of Research Topics

Although the diverse topics pertaining to ICEEs have been investigated, there is remain more room to explore. For example, contract management capability is a key factor determining the profitability of international construction projects (Park and Kim 2017). Chan and Suen (2005) emphasized that contract management (e.g. dispute resolution management) poses considerable difficulties for CEEs in overseas market, which should be keep researcher and practitioner’s eyes open. As an underresearched area, the effects of trust and contract on the dispute negotiation behavioral strategy of general contractors and subcontractors in construction subcontracting is a lacuna for international construction business (Zhang et al. 2016). Besides, whether, how, and when risk allocation influences the contractor’s cooperative behavior when design international contract in practice should be investigated as well (Zhang et al. 2016). As for risk management view, social risk, an emerging type of risk, for international contractors in the construction market has been neglected (Zhang 2011). Social risk response strategies of Chinese international contractors who have entered or are planning to operate in overseas market should be valued as well.

Under the context of globalization, successful human resources management (HRM) is conducive to maximize enterprises’ competitiveness (Noc et al. 2016; Xing et al. 2016). At present, the research on HRM of CEEs in international market has been ignored by the academia. In addition, studies at organizational management has paid more less attention, such as team leaders or key personnel, organizational culture (Hartmann 2006; Oney-Yazici et al. 2007); management control of foreign contracting enterprise; international standardization of management procedures and structures, coordination and control (Neves and Bugalho 2008); dynamics of strategic management (Cheah and Chew 2005).

5 CONCLUSION

Supporting form China’s “One Belt, One Road” policy, an ever-increasing number of Chinese engineering/construction enterprises (CEEs) has competed with counterparts outside domestic market. In response, relevant research with the range of objectives have been incrementally conducted to assist CEEs to enhance their international process in overseas market. Nevertheless, it is confusing for researchers and practitioners to how to have an innovation in ICEEs research field due to diversity of research. As a consequence, this paper develops an overview framework based systematic review method aiming to answer the two research questions, namely the current status and future trends of Chinese international engineering/construction enterprises research.

This study began with data collection. After literature search, the literature coding and literature analysis were carried out from the five aspects, including theoretical foundation, publication year distribution, country or regional distribution, organizational level distribution and research topics distribution. Further, those research topics were classified into five categories. The first category was entry mode of CEEs in international market. The second category focused on international competitiveness of Chinese contractors, such as exploring the impact of firm characteristics, innovation procurement etc. The third category investigated into the international performance measurement of CEEs. Another category was to analyze the risk management in ICEEs filed, including financial risk (exchange rate risk); external risk; political risk; risk assessment; risk paths. Corporation social responsibility of Chinese international contractors form the perspective of stakeholder was put into the fifth category. In discussion, research main findings and gaps were found as follows aspects: popular theoretical foundation; research trends of CEEs; imbalance of country or regional distribution; lack of research at the project level; lack of research topics. In response, corresponding research agenda was identified to guide future research on ICEEs.

In theoretical, this overview can 1) contribute to the development of international business theory in construction industry by discovering the application of different theories in ICEEs research; 2) be beneficial to seeking out research frontier of ICEEs field and avoiding repetitive research work. Therefore, it is paramount for promoting academic development and forecasting future trends in ICEEs research. In practical, this overview can 1) contribute to promote the practical development of international Chinese engineering/construction enterprises (CEEs) in overseas market by providing innovative perspectives; 2) the systematic review method proposed in this study can be applied to research filed to make review process more rational and standardized.

Despite the contributions to international business of CEEs, this study does have some limitations. For instance, some studies that match the subject of ICEEs may not be found in literature search, which has effect on analysis and discussion.

REFERENCES


