

Knowledge requirements and market context for international construction industry

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THE PAPER EXAMINES KNOWLEDGE AND COMPETENCES USED IN DIFFERENT MARKET CONTEXT when construction firms operate internationally. Construction organization active on international market are required to adapt on specific market demands to achieve competitive performance. To deepen the understanding on the issue, authors have taken a qualitative insight through exploratory research which has brought two conclusions: Organizations, when analyzed through its functional structure, have different market context exposure and specialist contractors require less local specific knowledge for competitive performance as they keep lower market exposure than general contractors.

INTRODUCTION

The aim of this research is to deepen the understanding how knowledge and competence management influence performance and competitiveness of construction firms on international markets. The importance of the issue is best described in works of notable authors who state that for construction industry, knowledge has been identified as significant organizational resource, which if used effectively can provide competitive advantage (Koskela and Dave 2009., Egbu 2004, Drucker 2000, Porter 1985). International markets in construction industry and knowledge management are two areas of research interest that are discussed in following paragraphs.

From quantitative dimension international construction market makes only 20% of the total volume of the

world's construction and is considered to be potential market accessible by foreign construction firms (Han et al., 2010). Much of the world's construction, approximately 80% of the total volume, has been done by small scale builders who construct single houses or maintain roads over small areas, using traditional materials and methods. As a consequence of globalization, construction markets are more and more accessible to foreign firms and become more open to foreign competition. The cost of participating in a market tends to be higher as market is more mature (Barringer and Harrison, 2000). Market maturity means demand for complex, high performance services. Therefore, competitiveness focus has been shifting from conventional price competition to a more complex competitive framework where non-price factors are more critical. Even in the lowest-bid

opportunities, more clients are evaluating a contractor's ability to offer additional capabilities encompassing entire phases including planning and developing, financing, engineering, procurement and construction. This generates requirements for specialist skills and knowledge and leverages overall project complexity.

The long-term survival of construction organizations is dependent upon meeting market needs through a long-term value creation process (Stewart & Mohamed, 2004). By engaging in international trade and marketing activities companies become less vulnerable to competitive attacks as they are able to diversify or relocate. By operating offshore, companies are able to offset seasonal and/or cyclical fluctuations in their domestic market demand and are able to diversify in their market portfolio, products or services as well as competitive position (El-Higzi, 2002).

Research methodology

As stated in introduction, authors have considered how to deepen the understanding of and competence influence over performance and competitiveness in construction firms working internationally. According to literature review, there is a lack of research that correlates knowledge in construction industry and market specifics therefore research is exploratory as there is no use of earlier models as a basis of the study (Rutio, 2007). Exploratory research is about putting one's self deliberately in place where discovery is possible and broad (Stebbins, 2001). Numerous factors have influence on business success and competitiveness indicators therefore qualitative knowledge performance description was recognized as most precise in this stage of research. To make the scope narrow authors have identi-

fied major aspects to focus in that are described later. Authors have been actively engaged in several organizational functions for monitoring intra organizational knowledge compatibility, competence cohesiveness as well as interacting with the Client and the Engineer for inspection of inter-organizational challenges stakeholders face in project. Therefore, predefined aspects make this research a limited exploratory research of qualitative nature. Analysis in exploratory research is essentially abstraction and generalization. Abstraction means that author translates the empirical observations, measurements etc. into concepts; generalization means arranging the material so that it disengages from single occurrences and focuses on those structures that are common to all or most of the cases (Rutio, 2007).

Following business surrounding was chosen as most suitable; a market with virtually 100% foreign contractors, major investors are government bodies with own funds, contractual and business legislation is based on Code Civil and modified FIDIC, nature of projects is infrastructure and high-rises, climate according to Koeppen is BWh, major workforce comes from developing Asian countries and domestic companies are de jure market leaders although de facto only represent foreign competitor in a way of joint venture. A period of three months was recognized as sufficient for recognition of dominant success/failure factors of knowledge and competence management.

Results and discussion

Analysis

During active participation and observation, authors have noted that engineering knowledge and competences value is dependent upon functional level of exposure to surrounding

business context as the ownership of knowledge, especially tacit knowledge, remains with the individuals (Dulaimi, 2007). A differentiation between competences upon the exposure level is done in following three categories: exposed organizational post, semi exposed post and no exposed post.

Exposed organizational posts are duties of function that have intensive interaction with organizational environment. This requires use of foreign language, business and technological standards, understands local legislature and his work is under influence of local context

Semi exposed organizational posts are those working in close contact with foreign nationals, using local standards but basic expertise in universal in nature. These posts are more technical than commercial

Not exposed organizational post is those not interacting with organizational environment. The nature of work stays unchanged as on domestic market. Use of foreign language is limited and not necessary for work

As knowledge and skills in international construction are dominantly related to services organizations provide, authors have tried to describe specific service characteristic that are required for international competitiveness. Malone (2002) list general characteristics of services namely access, communication, competence, courtesy, credibility, reliability, responsiveness, security, tangibles and understanding customer. To optimize the capitalizing operation, service provider should focalize only on so-called "crucial knowledge" (Saad and Chakhar, 2009). Authors have defined the crucial market context skills and knowledge where international competitiveness is sourced. Each of the

Contact with the Client	Involves approachability and ease of contact. This factor deals with the client's perception of the willingness of the contractor's personnel to meet with the Client and how easy it is to actually contact the appropriate contractor personnel.
Use of local standards and norms	Means actively use local standards in required or not for better client understanding and easier communication through the supply chain. It may mean that the company has to adjust its information flow for different standards and norms—increasing the level of sophistication.
Local climatic conditions influence	Means possession of the required skills to perform work not influenced by unfamiliar local climatic conditions. Organizations manage that through local or regional employment and specifically working conditions adjustment.
Steering foreign labor	Involves skills and knowledge to optimally manage labor that heritages variety of skills and different level of productivity.
Negotiating foreign organizations	Organizations of foreign origin have variety of business goals and strategies that need to be recognized for successful negotiations as well as different business standards that need to be conducted upon.
Use of local language officially	Involves use of local language for obtaining work, legal representation, negotiations, and management.

organizational posts on international market produces service to the market which needs to show some characteristics listed below.

All these services characteristic are oriented towards the market context where organization operates. To detect the above in the organizations, knowledge and skills have been surveyed through departments and crucial knowledge and skills requirements put in front of the latter have been noted.

A comparison was done between general contractor of foreign origin and firm offering highly specialized services. Degree of exposure is qualitative in nature, according to locally determined skills and knowledge individuals require on daily basis.

Synthesis

Research shows that knowledge and skills scope varies according to or-

ganizational position. Some of them are required to interact with the environment more and some less. Six categories of market context have been introduced and these are: contact with the client, use of local standards, local climatic conditions, foreign labor, foreign organization contact, foreign language official use. According to the table above, it is obvious that organizational posts are exposed to the environment unequally. Further on, the table shows that, local knowledge importance varies whether firm offers general construction services of work or highly specialized service. High tech services are obviously, less influenced by local market context while general contractors are much more required to adopt market context. This is expected for a fragmented industry as construction is.

Posts	1.	2.	3.	4.	5.	6.	Exposed (1-2)	Semi exposed (3-4)	Not exposed (5-6)
Senior management	X Y	X Y	Y	X	X	X	X	Y	
Commercial management	X Y	X	X Y	X	X Y	X	X	Y	
Qty. surveying	X Y	X Y	X	X	X	X	X		Y
Quality control dept.		X	X			X Y		X	Y
Site engineering	X Y	X Y	X Y	X	X Y	X Y	X,Y		
Planning dept.					X				X,Y
Procurement dept.	X Y	X	X	X		X Y	X		Y
Human resources			X	X	X			X	Y
Finances and Accountancy		X Y			X Y	X		X	Y
Legal department	X Y	X Y			X Y			X,Y	

Table 2: Market context exposure for individuals active in international construction organization. X represents general contractor and Y represents specialist firm. Numers 1 to 6 represent factors from table 1 respectively.

CONCLUSION

Aim of this research was to deepen the understanding how knowledge and competence management influence performance and competitiveness of construction firms on international markets. When competing in international market, construction firm offers it services through labor and knowledge. As literature suggests, local knowledge is of crucial importance for business success in international con-

struction. Input and use of that knowledge is a crucial concern for companies as in case of lack of knowledge, business can end up as a failure. An exploratory research was done that analyses organizational exposure to business environment. Knowledge requirements for individuals according to their position in organization were analyzed and comparison between general contractor and specialist subcontractor was done. The results show that general contracting requires more organization flexibility and adaption to market contexts and local knowledge plays key role in business success. On the other hand, specialist subcontractor is likely to avoid local context as his relation with the project tends to stay in scope of main contractor work and therefore relatively often depends on main contractor organizational context than on market context.

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