

Activity Specific Knowledge Characteristics in the Transfer of Business Activities from Europe to Asia

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Abstract

Purpose: This paper investigates differences in the characteristics of the knowledge, which is most important for the internationalization of key business activities within MNCs to emerging markets such as China and India.

Design/methodology/approach: The paper presents a framework based on knowledge management-, innovation-, and internationalization theory, which is developed and exemplified in relation to one case of R&D transfer to India as well as three cases of R&D transfer to China within four globally leading European companies.

Findings: The framework and empirical research suggest that a knowledge gap still exists in China and India concerning R&D activities. Distinct differences exist in terms of source - and effability, of the knowledge, which is most important for the internationalization to emerging markets of key business activities within MNCs. The most important knowledge for the internationalization of R&D activities is to a higher extent tacit, than it is for manufacturing activities and local sourcing activities. Furthermore, the source of the most important knowledge for the internationalization of R&D activities, as well as manufacturing activities, within MNCs, is more likely to be the MNC itself, than when marketing activities or local sourcing activities are internationalized to emerging markets. Whether or not the MNC itself is an important source of knowledge for newly established R&D units in China and India, is not exclusively determined by the motives behind the establishment.

Originality/value: A model illustrating differences between the most important knowledge for the internationalization of key business activities, in terms of characteristics such as source of the knowledge and effability of the knowledge, is developed.

Keywords: knowledge transfer, knowledge characteristics, R&D transfer, internationalization, business activities.

Paper type: Research paper.

1. Introduction

Different streams of literature deals with internationalization of firms. Within the strategic management literature, reconfiguration of value chains on a global scale is investigated. The international business literature is also informative about these developments within multinational companies (MNCs). The R&D management literature is also dealing with the internationalization of R&D activities within MNCs (Hakanson and Nobel, 1993) and more recently this is also beginning to take place in emerging markets (Von Zedtwitz and Gassmann, 2002, Von Zedtwitz et al., 2004). Distinct sequential patterns have been identified in relation to the internationalization processes and offshoring processes of firms (Johanson and Vahlne, 1977). Offshoring in this context should be understood as the location of a business activity abroad. Certain business activities seem to be internationalized prior to the internationalization of other kinds of business activities. Typically, offshoring of lower-level work such as IT applications, accounting, and call centers, can over time be followed by offshoring of higher-level work, such as R&D, product design, and human resource management (Lewin and Peeters, 2006). R&D activities are therefore normally among the last business activities a company offshores (Mansfield et al., 1979). Internationalization processes in general and the Uppsala model (Johanson and Vahlne, 1977) in particular, is still subject to much debate. In Forsgren and Johanson (2010), Johanson claims that the Uppsala model is about how the internationalization process evolves in general, not exclusively focusing on marketing activities. In the same paper, Forsgren disagrees with this, emphasizing the marketing - and sales focus of the Uppsala model, and he also claims that the Uppsala model disregards R&D activities. Following Forsgren's line of thought, differences may exist between the internationalization process of different business activities and therefore, it may be relevant to investigate differences between the internationalization process of different business activities.

This paper focuses on the internationalization of R&D activities and it will investigate differences between the internationalization of R&D activities and other business activities. Generally, the literature assumes that the exact nature of the business activity, which is being internationalized, is of little importance for the internationalization process. Differences among countries in terms of national values (Lunnan et al., 2005), culture (Hofstede, 2001), psychic distance, and institutional distance, are often assumed to have similar implications for the internationalization process of business activities, regardless of which business activities are internationalized, and irrespective of the fact that distinct differences may exist in terms of characteristics of the knowledge, which is most important in relation to the internationalization of different business activities. A gap in the literature exists concerning how the internationalization process of business activities differs depending upon the nature of the business activity, which is being internationalized. Innovation processes are often highly localized (Sölvell, 2003) and huge differences exist in terms of innovation performance across countries as well as regions within them (Sölvell, 2009). Technical knowledge may be locally concentrated, but the applicability of this knowledge is rarely restricted to certain locations - contrary to many downstream business activities. Downstream business activities, such as marketing, have high location specificity - contrary to technology related business activities (Anand and Delios, 1997). Differences in the characteristics of the knowledge, which is most important for the internationalization of different business activities is likely to impact the extent to which the related knowledge transfer should be considered acts of replication - or re-creation (Lervik et al., 2005).

Foss and Pedersen (2002) investigate the knowledge flows within MNCs focusing on the sources and characteristics of knowledge. They suggest that future research within the area should investigate complementarities among knowledge sources, which seems highly

relevant. The extent to which the knowledge, which is most important for the internationalization process is tacit, may differ across different business activities.

This paper therefore sets out to investigate the following question: How do knowledge characteristics, such as source of knowledge - as well as effability of knowledge differ, in terms of the knowledge, which is most important for the internationalization of key business activities of MNCs? In doing so, the paper will compare characteristics of the knowledge, which is most important for the internationalization of R&D-, manufacturing-, local sourcing-, and marketing activities respectively, having its focus on captive offshoring of R&D activities.

2. Theoretical framework

2.1. *Knowledge sources in the internationalization process*

Although it seems that knowledge is generally considered to be important for the internationalization process, there is not agreement within the literature concerning, what is the source of the most important knowledge for the internationalization process to succeed. It is difficult to derive at crystal-clear conclusions concerning the issue, but if one should attempt to interpret Johanson and Vahlne (1977) concerning the matter, it seems that they have the opinion that it is knowledge from the new local context or the (new) market, which is most important for the internationalization process of the firm. Other scholars seem to support this point in terms of the emphasis on market experiential knowledge (Blomstermo et al., 2004a, 2004b). Foreign direct investment theory on the other hand, states that firms that possess some form of unique advantage have the possibility to go abroad and thereby exploit this advantage (Hymer, 1976). Rather than emphasizing the new local market or context in which an MNC is internationalizing as a source of knowledge, Hymer (1970) claims that the MNC can serve as a substitute to the market. Since he claims that companies exploit existing knowledge from the MNC, when they go abroad, Hymer would most likely argue that firm specific knowledge, which the MNC itself is a source of, is the most important knowledge, for the internationalization process within MNCs. Neither of the viewpoints above can be considered wrong, nor can they be considered absolute truths. Possibly the relevance of the aforementioned claims may depend upon the nature of the business activity, which is being internationalized.

2.2. *Effability of knowledge in the internationalization process*

The extent to which the most important knowledge is tacit as opposed to explicit, is likely to differ across different business activities. Tacit knowledge can only be revealed by its application and it cannot be codified (Polanyi, 1966). If knowledge is tacit, it is an indicator that the knowledge is sticky (Von Hippel, 1994, Szulanski, 1996, Szulanski, 2000), and therefore challenging to transfer within the MNC. Knowledge transfer can be defined as: "the process through which one unit (e.g. group, department, or division) is affected by the experience of another" (Argote and Ingram, 2000, 151). Changes in knowledge - or performance, are relevant ways of measuring knowledge transfer (Argote and Ingram, 2000). Similarly, innovation performance in a new R&D unit in China or India, may indicate successful R&D knowledge transfer. If knowledge is tacit it also indicates, that it is challenging for the MNC to absorb this knowledge from a new local environment the MNC is present in. Moreover, if knowledge is tacit, it is likely that it will be challenging for the MNC to transfer this knowledge, to the new local environment the MNC is present in. Tacit knowledge is inherently ineffable (Tsoukas, 2003), however, it may sometimes be possible to

transform parts of tacit knowledge into explicit knowledge (Boisot, 1995, Nonaka and Takeuchi, 1995), but such transformation and conversion of knowledge is likely to be accompanied by a loss of knowledge (Boisot, 1995). Whether knowledge can be codified or not is not the question, since regardless of its tacit - or explicit nature, knowledge can most often be transferred. People are effective means for the transfer of explicit as well as tacit knowledge to new contexts (Argote and Ingram, 2000, Riusala and Suutari, 2004), especially concerning technical knowledge (Argote and Ingram, 2000), which is relevant to keep in mind when internationalizing R&D activities, since R&D knowledge is to a large extent tacit (Cohen and Levinthal, 1990). By use of tacit-tacit knowledge transfer (Nonaka, 1994, Sölvell, 2009) tacit knowledge can be transferred from person-to-person, and thereby from group to group. If knowledge can be codified, the question is whether it makes sense to do so? The challenge for firms internationalizing R&D is essentially how best to facilitate internal transfer of knowledge without instigating unintended external spillover of knowledge (Argote and Ingram, 2000). Explicit knowledge is easier to transfer than tacit knowledge, since it can be taught and learned in a formal and systematic way whereas tacit knowledge is personal and often difficult to formalize and communicate to others (Chen, 2004). Codified knowledge is easier to transfer (Argote and Ingram, 2000) and diffuse (Boisot, 1995), than knowledge which has not been codified. Due to the ease of diffusion of codified knowledge, codification of knowledge may make it more difficult to control the knowledge assets of the company. In countries and regions having tight appropriation regimes (Teece, 1986) codified knowledge can often be protected as intellectual property rights (IPR), and investments in codification of knowledge may be more likely to be worthwhile. However, China and India cannot be considered as having tight appropriation regimes and it may therefore be beneficial to keep knowledge in a not codified form, to the extent possible, when transferring R&D activities to these countries. Expatriates can be used in order to interconnect a new R&D unit in China or India with the rest of the R&D network within the MNC. However, they may also play an important role in terms of transferring tacit knowledge to foreign invested R&D units in emerging markets. By keeping knowledge tacit, knowledge spillover avoidance largely becomes a question of employee retention, which also may be challenging in the flexible job markets of China and India. Whether and how expatriates are used in the internationalization processes within firms is highly interesting. High-location-specificity business activities tend to make use of fewer expatriates than other business activities (Anand and Delios, 1997), but the use of expatriates in the internationalization process, may also indicate transfer of tacit knowledge.

2.3. A hypothesized model

As a consequence of the considerations mentioned above, it seems relevant to pay attention to the characteristics of the very nature of R&D activities as opposed to other kinds of business activities, when investigating R&D transfer to China and India within European MNCs. These differences are of a kind, which makes it relevant to assume that distinct further theory development is relevant in relation to R&D transfer - and other internationalization theory. Simply to assume that the existing internationalization theories would suffice, not only for sourcing-, manufacturing-, and marketing-, but also for R&D activities, might be a premature conclusion. Figure 1 below summarizes the discussion above and outlines characteristics of the knowledge, which is most important for the internationalization of key business activities within MNCs to emerging markets.

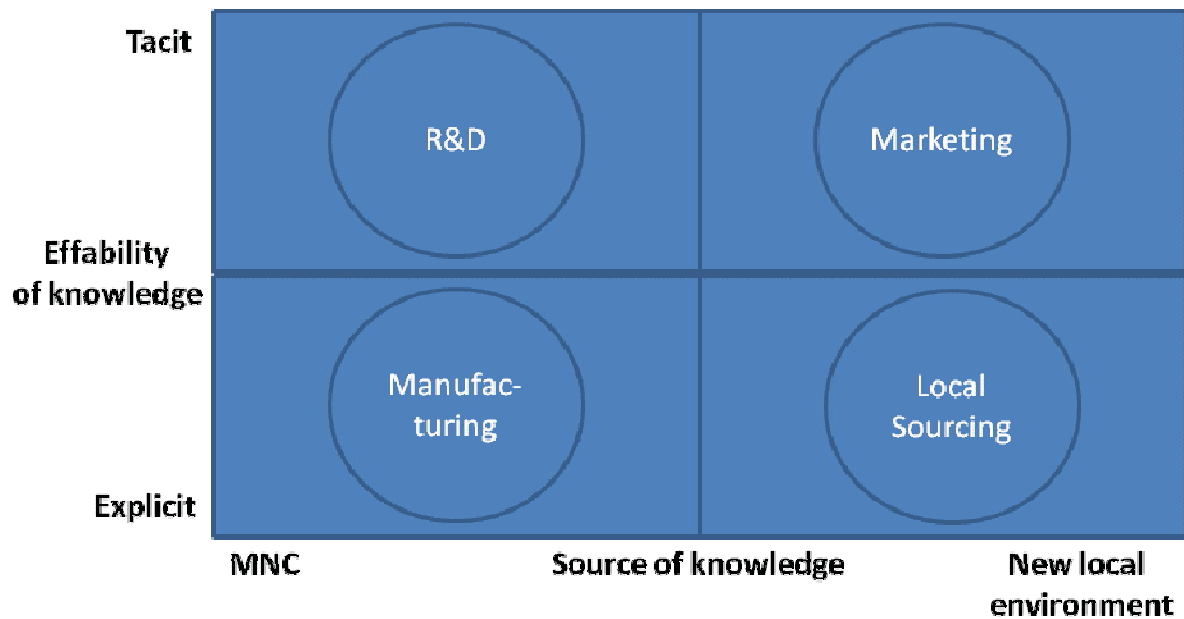


Figure 1: Hypothesized model of which knowledge, in terms of effability - and source, is most important for the transfer of different kinds of business activities within European MNCs to emerging economies (Source: own).

2.3.1. R&D knowledge gap in emerging markets

In relation to the focus of this paper an important characteristics of emerging markets is the existence of a R&D knowledge gap, signifying that the location, where the R&D activities are transferred from, have more experience and a better level of R&D related knowledge than the place where the R&D is transferred to. Therefore the R&D knowledge is primarily transferred in the direction of the emerging economies. Even though emerging market countries may be developing rapidly, a knowledge gap still seems to exist between these countries and the West (Simon, 1989, Baark, 2007).

2.3.2. Manufacturing activities versus marketing activities

In relation to the transfer of manufacturing activities Mineikytė and Steponavičiūtė (2005) reported successful knowledge transfer by focusing on making good visualizations. Most of the knowledge transferred in that case could be communicated in terms of photographs, written documents etc., however, it is worth noticing that the knowledge transferred in the case studied by Mineikytė and Steponavičiūtė, mainly was explicit knowledge. What might distinguish the internationalization of manufacturing activities from the internationalization of marketing activities is that, whereas the former concerns the transfer of such technical knowledge, which to a high extent can be visualized, codified and thereby made explicit (Mineikytė and Steponavičiūtė, 2005), the latter concerns the ability of a company to absorb both explicit - but also highly tacit knowledge from a new environment in terms of local norms etc. (Jansson et al., 2007), in order to operate in - and to interact with this environment.

2.3.3. R&D activities versus manufacturing activities

The transfer of R&D activities is similar to the transfer of manufacturing activities in the sense that the transfer of both activities is to a high extent a question of transfer - or replication of technical knowledge from one geographical context to another. When

manufacturing activities and R&D activities are transferred, the most important knowledge might be new to some of the new employees, at the location where the R&D activities are transferred to, but the knowledge may not be new to the company as such. What on the other hand distinguishes the transfer of these two activities, is that the transfer of R&D activities to a higher extent concerns the transfer of tacit knowledge, as opposed to the transfer of explicit knowledge.

2.3.4. R&D activities versus marketing activities

Internationalization of R&D activities and internationalization of marketing activities alike, are to a high extent depending upon tacit knowledge. The kind, and the source of the knowledge, which is important for these processes may, however, be very different. Concerning R&D transfer, the most important knowledge is often of technical kind. Concerning transfer of marketing activities, the relevant knowledge is often of cultural - or institutional kind. When transferring marketing activities, the source of the most important knowledge, is most often the new local context even though the company may make use of 'internationalization experiential knowledge' (Blomstermo et al., 2004a, Blomstermo et al., 2004b), that the company may have developed through the process of establishing itself in different markets. When European MNCs transfer R&D activities to emerging economies, the source of the most important knowledge is not the local context, but instead the company itself, however in another geographical context.

2.3.5. Marketing activities versus local sourcing activities

Local sourcing activities may primarily depend upon knowledge from the local context. Information about prices etc. concerning goods to be procured, can be considered codified - or explicit knowledge, which may not require the same kind of tacit knowledge needed in order to be able to have a deep enough understanding of local customs and customers, which is often required for marketing activities to succeed in the local context. This may concern an ability to "interpret silence" in a good way or otherwise interact in productive ways with the local context.

2.3.6. An upfront reservation

Parsimony is among the things, which characterizes superior theory (Eisenhardt and Graebner, 2007). As it is the case with many, if not all, theoretical models, Figure 1 can be perceived as simplifying the relationships it illustrates. However, providing relevant simplification of reality, which enables us to better understand, discuss and inquire into various subjects, characterizes theory development.

In terms of reservations towards the model, it could be mentioned that R&D activities are internationalized for a number of reasons, which may determine the source of the most important knowledge for the internationalization of these activities to some extent. E.g. international R&D activities can be distinguished according to the extent to which these activities are, intendedly or unintendedly, asset exploiting R&D activities or asset developing R&D activities (Dunning and Narula, 1995). Similarly, Kuemmerle (1999) distinguishes between home base augmenting R&D activities and homebase exploiting R&D activities. Homebase exploiting R&D are R&D activities which are preoccupied with adapting

homebase R&D to local requirements (Lewin et al., 2009) whereas homebase augmenting R&D goes beyond this and adds to the knowledge base of the company. Intuitively, the importance of the R&D hub of the MNC, as a source of knowledge, might depend upon whether the R&D activities of the MNCs in the emerging economy, is of a homebase exploiting - or home base augmenting character. This subject will be further explored later in the paper.

3. Methodology

The abductive approach (Alvesson and Sköldberg, 1994, Dubois and Gadde, 2002) is the methodological strategy behind this research project. The abductive approach emphasizes theory development as an iterative process of matching theory with reality and vice versa walking back and forth between empirical findings and theoretical framework, whereby both co-evolve. Empirical findings triggered search for further theories whereby a continuous interchange between empirical data and theory took place in order to secure good empirical support for the theoretical framework. The basis for this process is an exploratory holistic multiple case study (Yin, 2003) including extensive qualitative empirical material, which has been collected from four Scandinavian companies. The case companies were chosen due to good access to the companies, due to the fact that they are globalized R&D intensive companies, and due to the leading positions these companies have, on a global scale, within their respective industries. A case study is a preferable methodological approach for inquiries into complex social phenomena (Yin, 2003, Eisenhardt and Graebner, 2007). 33 semistructured qualitative interviews have been conducted, with the four case companies in the period from January 2007 until March 2010. Several rounds of interviews have been conducted with the case companies in order to be better able to track the development of the cases over time. Each interview normally took around 1 1/2 hours and they were all recorded and transcribed. Mechanic Tech has an R&D unit in China and also a small one in India. Med Tech has established an R&D unit in China, and Green Tech has established an R&D unit in India. In all the case companies R&D employees were interviewed, both in the R&D units in Asia and also in Scandinavia. Interviews were conducted with managers in charge of the overall R&D transfer process on different levels, as well as expatriates and scientists working in the R&D units were interviewed.

Secondary data has also been collected, however, the empirical data are mainly of a primary kind. Through the use of multiple sources for the case studies, internal validity has been addressed for the case studies in terms of number of interviewees and their positions in the organizations. The purpose of presenting quotes from a couple of interviewees is to add verisimilitude and represent a wider network of the different actors, across multiple levels in the cases. The issues of construct validity and reliability have been addressed as key informants have reviewed the case reports. External validity is enhanced by covering four relatively different industries and by developing a relatively industry independent theoretical framework using the abductive approach outlined in this section.

4. Cases

Below some brief snapshots describing the establishments of R&D activities within each of the case companies are outlined:

4.1. *Pack Tech*

The main objective of the establishment of the R&D unit in China was to support the local manufacturing in the country. Some new things have been developed in China, but it is not the key purpose of the R&D unit as such. 20 R&D engineers and our are employed in the R&D unit.

4.1.1. Knowledge sources in the internationalization process

Although information can be provided by going to exhibitions as well as looking at developments made by competitors, the technology of the company is not easy to grasp. Regardless of educational background, be it a European engineer or a Chinese engineer, any technician or engineer has a long walk to walk in order to obtain the knowledge needed in order to understand the technology of the company, which is mainly concentrated in Europe.

4.1.2. Effability of knowledge in the internationalization process

There are always expatriates located in the Chinese R&D unit and many exchanges take place between China and Europe, concerning R&D personnel, in order to improve the knowledge level of the R&D employees in China.

4.2. *Green Tech*

The company established the R&D unit in India by the end of 2006 and they are now around 70 engineers. Among other things the R&D unit works with aerodynamics, structural design and calculations, finite element analysis, quality control processes, construction and reliability. A few inventions have been developed in the R&D unit.

4.2.1. Knowledge sources in the internationalization process

Technology is considered country specific within the company, due to the vast experience, which is accumulated in Scandinavia concerning the technology utilized in the products of the company.

4.2.2. Effability of knowledge in the internationalization process

In terms of developing the experience of the Indian R&D employees, different things are considered instrumental by the company. In order to get basic hands on understanding of the products of the company, the R&D unit has the advantage of relative proximity to manufacturing activities, which are also located in India. In terms of developing deeper understanding, exchanges of personnel take place, but joint project work across continents within the company, is emphasized as being particularly important to this end.

4.3. Med Tech

The company established the R&D unit near Beijing by the end of 2001, among other things in order to get close access to the developing talent base in China. Today the R&D unit employs close to 50 scientists. The main activity of the unit is to do early-stage biotechnological protein research. Innovative process improvements have been created in the R&D unit, among other things.

4.3.1. Knowledge sources in the internationalization process

Although the establishment of the Chinese R&D unit to some extent marked the initiation of slightly new R&D activities for the company, and even though the Chinese scientists have shown impressive ability to develop their knowledge level, the Scandinavian part of the company has a lot of experience within various fields of pharmaceutical research and development, and the Chinese scientists sometimes have to wait for input from Scandinavian scientists, in order to proceed. The Scandinavian part of the company is an important source of knowledge for the R&D activities in China.

4.3.2. Effability of knowledge in the internationalization process

Scandinavian expatriates have been located in the Chinese R&D unit, but there are not permanently Scandinavian expatriates located there. Exchanges of personnel take place for shorter and longer time periods.

4.4. Mechanic Tech

The company established the R&D unit in Shanghai by the end of 2006. 70 engineers are working with R&D activities in the unit. Although new ideas do emerge in the unit, the objective of the establishment of the R&D unit in China was to support the local manufacturing in the country, which made it necessary to develop local adaptations of the products of the company.

4.4.1. Knowledge sources in the internationalization process

Although misunderstandings may occur due to language difficulties, cultural differences are not perceived in the company as inhibiting technical communication and development:
“I would find that if a Swede, an Indian guy and a Chinese guy meet, they will not have large problems in terms of understanding each other. The basic cultural differences are not dominating a technical discussion” (R&D Manager 1).

4.4.2. Effability of knowledge in the internationalization process

The Chinese engineers working in the R&D unit lack experience, which is developed by having experienced people from Europe in the Chinese R&D unit, and also exchanges of personnel takes place between the R&D activities of the company in Europe and China.

5. Analysis

5.1. Knowledge sources in the internationalization process

The findings of this study provides support to the claim that technical knowledge, which is important for manufacturing - as well as R&D activities, is often locally concentrated, due to the development of experiential knowledge over time in certain locations, but also globally applicable, indicating that the MNC itself is likely to be an important source of knowledge for the internationalization process of manufacturing - as well as R&D activities.

The R&D activities of Mechanic Tech in China has managed to come up with some new ideas, however, the R&D activities in China of the company seems to be conducting less homebase augmenting R&D, than it is the case in the R&D activities in China and India of the other companies. This is further illustrated in Table 1.

Company	Home base exploiting	Homebase augmenting
Pak Tech		X
Green Tech		X
Med Tech		X
Mechanic Tech	X	

Table 1: Homebase exploiting - and Homebase augmenting R&D activities in emerging markets, within the case companies.

As illustrated in Table 2, expatriates seems to be no less important within Mechanic Tech than they are within the other companies, indicating that knowledge from the MNC itself is also important for the R&D activities of the company in China. The importance of R&D knowledge from the MNC itself may therefore not depend upon whether the R&D activities in emerging markets are homebase exploiting - or home base augmenting. In both cases the MNC itself is likely to be an important source of knowledge.

	Pack Tech	Green Tech	Med Tech	Mechanic Tech
Expatriates in China/India R&D	Four out of 20 R&D employees are Scandinavian expatriates.	The first six months, the R&D unit was managed by a Scandinavian expatriates. 3 week visits often used in both Scandinavia and India.	3 longer contract expatriates have been used. Currently one Scandinavian expatriate.	At least 2 expatriates on contracts for several years.
Expatriates within other business activities	Approximately 15 high-level expatriates (finance manager, sales manager etc.) out of more than 10,000	Expatriates are relatively less used.	Expatriates are relatively less used.	Expatriates are relatively less used.

	employees.			
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Table 2: Comparison of the use of expatriates within the case companies (Source: own).

As illustrated in Table 2, it is the case within all four case companies that expatriates are used more extensively within R&D activities, than within other types of offshore business activities in China and India. This may indicate that R&D activities are less location specific, than other business activities, as well as it may indicate the importance of transfer of tacit knowledge embedded in humans, for the successful establishment of R&D in an emerging market.

5.2. Effability of knowledge in the internationalization process

Interaction in terms of communication in person as well as by use of video conferences, e-mail, and telephone as well as collaborative project work across borders within companies, is emphasized as being important in order to increase the knowledge levels of R&D employees in China and India. The emphasis on human interaction and joint action, seems to be more emphasized in these cases of R&D transfer, than they are in studies focusing on the transfer of manufacturing activities (e.g. Mineikytė and Steponavičiūtė, 2005). It is possible to see this as an indication of the importance of tacit knowledge for the internationalization of R&D activities to emerging markets.

All of the companies experience very low levels of employee turnover in relation to the R&D activities, they have established in China and India, indicating that the risk of losing IP as a consequence of conducting R&D in these countries, may be manageable.

6. Implications

6.1. Managerial implications

The developed framework can help managers to focus the attention in relation to which knowledge is most important for the business activities, they are dealing with in terms of such knowledge characteristics as effability - and source of the relevant knowledge. Tacit knowledge from the R&D activities of the MNC, located in other contexts, is likely to be of particular importance for the R&D transfer process to emerging markets.

6.2. Implications for further research

In terms of further research, low location specificity business activities are more interesting to inquire into in relation to knowledge transfer theory than high location specificity business activities, since low location specificity business activity knowledge is more likely to be applicable at a low-cost in contexts, where it is not yet concentrated, than high location specificity business activity knowledge may be. When a business activity has low location specificity, it is likely that sources of knowledge, which are applicable in other contexts, can be identified and transferred in a way, which creates value. This being said, it is interesting to explore further differences between the knowledge characteristics of the knowledge, which is most important for the internationalization process, across the internationalization of different business activities. This paper has provided a first step in terms of a framework, which further research may attempt to test.

7. Conclusion

Focusing on R&D activities, the paper started out by asking a question, which has not been answered previously in the literature: How do knowledge characteristics, such as source of knowledge - as well as effability of knowledge differ, in terms of the knowledge, which is most important for the internationalization of key business activities of MNCs? Among other things indicating that R&D is a low location specificity business activity, which depends on the availability of relevant tacit knowledge, it is relevant to note that R&D activities seems to make use of more expatriates than other types of internationalized business activities in emerging markets. A framework based on knowledge management-, innovation-, and internationalization theory was presented, illustrated and validated in relation to four cases. A cornerstone of this framework is a figure illustrating differences in terms of knowledge characteristics between the most important knowledge for the internationalization of key business activities. The framework and empirical research suggest that a knowledge gap still exists in China and India concerning R&D activities. Distinct differences exist in terms of source - and effability, of the knowledge, which is most important for the internationalization to emerging markets of key business activities within MNCs. The most important knowledge for the internationalization of R&D activities, is to a higher extent tacit, than it is for manufacturing activities and local sourcing activities. Furthermore, the source of the most important knowledge for the internationalization of R&D activities, as well as manufacturing activities, within MNCs, is more likely to be the MNC itself, than when marketing activities or local sourcing activities are internationalized to emerging markets. Whether or not the MNC itself is an important source of knowledge for newly established R&D units in China and India, is not exclusively determined by the motives behind their establishment.

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