The Choice of a Location for a Company and the Embedded Knowledge: A Case Study in the Cluster

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IJMBE International Journal of
Management, Business, and Economics

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Abstract

Research works haven't yet shed much light on the performance of the location choice considered as a decisive factor for a successful industrial implantation of a multinational company. The aim of this publication is to highlight the link between geographically embedded knowledge, the location of a multinational company and its consequential performance. Geographically embedded knowledge may indeed influence the performance of the industrial location choice. We put forward a conceptual approach allowing to formulate the bases of a mathematical modelization. A case-study is carried out within the industrial cluster in Grasse (France). Our research has led us to highlight some types of managerial behaviors which will ensure the performance of an implantation within a cluster.

Keywords: Mathematical Modelization, Embedded Knowledge, Cluster, Location, Performance

1. Introduction

An overall conceptual reflection concerning the optimal location choice for the productive activities of a company was put forward by Chanteau (2001). But, as the issue of international management has not been extensively documented by French writers[1], the trend of research concerning organizational approach based on knowledge (Eisenhardt and Santos, 2002) has gradually emerged as the main perspective aiming at explaining the movements of multinational companies (Collison, 1999). For instance, Gupta and Govindarajan (1991) conceptualize multinational firms as being networks for transactions, functioning via knowledge flows. An implantation on a new site gives a multinational company the opportunity to have access to external resources. It may take place via a corporate alliance or an acquisition. (Wang and Zajac, 2007).

Firstly, new implantations provide multinational companies with an access to their partners' knowledge, as they combine their own amount of knowledge with that of their partners. (Inkpen and Tsang, 2008). In this perspective, the geographical location of a multinational company is a key-concern of research in international management (Porter, 1994; Dunning, 1998).

Secondly, research work concerning organisational approach based on knowledge has focused on the study of contexts in which knowledge flows are highlighted (Child, 1997). In this

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[1] Academy of Management Journal (2005) "During the decade 1995-2004, France only presents 8 publications out of 225, in the Academy of Management Journal, therefore less than 4%" (table 8: p. 383).

perspective, a good deal of research work has been undertaken in order to elaborate the theory of clusters, based on knowledge (Maskell, 2001). A cluster has therefore been conceptualized as a place where knowledge creation is stimulated. This research work has shown the assets of clusters, which influence the choice of multinational companies as far as their location is concerned. (Dunning, 2001; Rugman, 2005). As a matter of fact, the innovative capacities of clusters have a direct influence on their competitive performance. (Porter, 2000; Tallman and al. 2004).

However, the significant indicators in order to predict the long-term efficiency of a new location contemplated by a multinational company are still unknown (Goerzen and Asmussen, 2007). Our conceptual representation of the localization of a multinational company derives from the general concept of space and spatiality, applied to this issue of localization by Colovic et Mayrhofer (2008). Originating from this statement, the question which has prompted our reflection can be expressed in the following words: what is the influence of geographically embedded knowledge on the location performance of a multinational company?

In this article we shall precisely define the concept of geographically embedded knowledge with a view to underlining its interest when the choice of a location by a multinational company is linked to the concept of a cluster.

In the same way as usual concerning the standard issue of the search for the best possible international and longitudinal location of the product units of a multinational company (Min and Melachrinoudis, 1996), we shall first put forward a conceptual approach of embedded knowledge impact on the location performance of a multinational company. Then we shall formulate the bases of a mathematical modelization, and put our theoretical reflections to the test, confronting them with a case-study carried out within a cluster. We shall examine the case of a regional industrial cluster concerned with the expansion project of multinational chemical companies. This research aims at showing the influence of certain types of embedded knowledge, such as sensorial or tacit knowledge, on the efficiency of the location choice of a multinational company. The mathematical model actually shows that, when the multinational company is not capable of integrating such knowledge into its structure, the local business relationship breaks off. We shall then be able to submit our views to a discussion, and to underline the fact that there is indeed a link between geographic knowledge embeddedness and the success of the location of a multinational company within a cluster.

1. Location of a multinational company and embedded knowledge: an ingenious link?

A widespread type of learning takes place through a transfer of knowledge flows. For a long time, it has been generally assumed that this was a one-way transfer, from multinational companies towards local businesses. (Markusen, 1996). Nowadays, as competition between multinational companies has become harder and harder, their location choice has become a major strategic issue (Gimeno and al, 2005), and local actors' embedded knowledge may very well have an influence on its success.

1.1 Learning and location

Multinational companies are looking for external "sources of knowledge flows" which are crucial for their strategic purposes (Leonard, 1995). Davenport and Prusak (1998) define a knowledge flow as being a fluid combination of experiments, a running exchange of essential values, of contextual information, and of shrewd expert evaluations. A knowledge flow offers a structure

which allows the assessment and the incorporation of new experiments and information. As the major part of an organization's knowledge is deeply rooted in expertise and the individual experience of its members, the organization provides an appropriate physical, social and cultural environment, so that the use and development of this knowledge flow improve organizational efficiency. (De Long and Fahey, 2000).

The capacity of a multinational company to search for and discover new knowledge depends on its ability to effectively control, incorporate and absorb its acquired knowledge within its existing knowledge databank (Hamel, 1991). The newly acquired databank provides a key-stone for an effective development and for the renewal of the organizational structure, and therefore represents a major competitive asset (Doz, 1996). Within multinational companies, learning implies the creation, transfer and integration of knowledge flows. As they look for new sources of external knowledge, multinational companies select some specific geographical sites for their implantation.

Porter (1994, p. 37) underlines the fact that competitive advantage is determined by an appropriately located innovation process, and underscores the crucial importance of the location choice made by the multinational company. Most costs and risks are consequently linked to obstacles raised by distance. The evaluation of the four dimensions of this distance, that is to say cultural, administrative, geographic, and economic, is essential to decide whether a certain geographic location is very attractive, or not so attractive (Ghemavat, 2001, p. 140).

A recent research work, which also takes into account the language barrier, shows the distinct influence of each of these types of distances and their immediate result on the effective transmission of explicit and tacit knowledge (Ambos and Ambos, 2009).

1.2 Organisational knowledge

Organisational knowledge not only exists in written documents, but it is also present in the organization routines, tasks, processes, practices, norms and values. The usual distinction between tacit and explicit knowledge derives from the articulate or implicit nature of the considered knowledge. Tacit knowledge is inarticulate, it is essentially personal by nature; such a knowledge is difficult to communicate to others (Polanyi, 1958) and to negotiate at its true value on the external market (Ghemawat, 1991). It is often strongly implanted in the cognitive processes of individuals, or it is deep-rooted in the routine, specific culture and values of the organization (Daft and Lengel, 1986). On the contrary, explicit knowledge can be codified and transmitted much more easily.

However, the distinction between tacit and explicit knowledge should not be considered as a dichotomy but rather as a spectrum with both types of knowledge – tacit and explicit – at the extremes (Inkpen and Dinur, 1998). While explicit knowledge provides the guidelines, tacit knowledge makes the organization explicit routines meaningful. (Dhanaraj and al, 2004). Therefore, when it is learnt, tacit knowledge helps companies to acquire a certain degree of explicit knowledge. Some combinations of knowledge may turn into a "sticky" knowledge (Szulanski, 1996) that is to say a complex blend of tacit and organizational knowledge which is even more difficult to transmit. It follows that speed (how fast knowledge can flow within the organization) (Davenport and Prusak, 1998) and viscosity (according to the knowledge abundance and density) are useful elements to take into consideration. In their research work, Inkpen and Wang (2005) have observed that tacit knowledge is difficult to assess, and, consequently, that a company in a phase of learning often keeps on concentrating on its explicit knowledge which is easier to transmit (and which is less valuable).

Other elements may impact the learning process, such as the industrial sector of the multinational company, or such as the links between the multinational company and a wider network of knowledge, etc. The above-mentioned elements shed some light on the learning capacity of a multinational company, but we have not listed them exhaustively, and they may be debated. For our part, we think that the deficiencies in research work about the learning capacity of a multinational company mostly derive from the failure to understand the knowledge flows circulating during the learning period. In other words, the combination of the specific features, of the implantation of a multinational company on the one hand, and of knowledge sciences on the other hand, may very well lead to an efficient conclusion, as far as location selection is concerned.

1.3 Knowledge embeddedness

Embeddedness is another significant feature of knowledge which has an influence on learning capacity. Unlike tacit knowledge, embedded knowledge is a less widely-known concept, and has been the subject of recent research work (Nielsen, 2005, Leszczyńska, 2010). As a matter of fact, geographic knowledge embeddedness is linked to the historical proximity of local businesses (Rallet and Torre, 2005). Colisson (1999) has noticed that some recent practices in knowledge management are difficult to transfer because they are deeply incorporated and highly dependent on wider contextual factors, such as knowledge resources, organizational structure and culture.

However, recent research work on knowledge embeddedness provides a solid foundation for an explanation of how the constitution of business networks takes place (Nielson, 2005; Cowan and Jonard, 2009; Cowan and al, 2007; Rowley an al, 2000).

Firstly, knowledge remains embedded in a group of companies, for they keep up with their former partners[2] ties whose interaction validity has been historically proven. This trend of research work suggests that, rather than being isolated actors in their specific historical context, companies are incorporated in relation networks which may have a strong influence on a corporate alliance or an acquisition (Uzzi, 1996; Yang and al, 2011).

Cowan and Jonar (2009) maintain that companies holding a common knowledge use it to form corporate alliances and to organize themselves so as to create innovative networks. As a multinational company establishes itself within a network, the relationship embeddedness between companies in the network plays an important part in the creation process of synergies concerning their knowledge (Nielsen, 2005). The creation of these structural networks is closely linked to the historical embeddedness of their knowledge and of the relations they have in common. This relational and structural embeddedness has an influence on the incremental or radical extent of industrial innovation and on the features of the networks created by the innovative business inside an industrial cluster (Covan and al, 2007; Rowley and al, 2000).

Secondly, the geographic embeddedness of the companies' knowledge derives from the importance of tacit knowledge and of the necessity of face-to-face interactions to create and spread new ideas (Audretsch and Feldman, 1996). In many organisational situations, an important part of organisational knowledge is embedded in the people themselves (Starbuck, 1992). A very compact

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[2] *"Embedded partners"* Cowan et Jonard (2009: p. 321).

regional structure allows companies to keep up a high frequency of the required interactions in order to establish a common language, as well as common definitions and solutions to heuristic problems which could never be codified. Szulanski (1996) empirically demonstrates that tacit knowledge exchanges depend on existing stable and long-standing relations, and on shared language and traditions. These exchanges thus remain embedded in the local context of the companies.

Therefore, knowledge structure in a company is a crucial element in the course of knowledge transfer, with explicit knowledge being the easiest type of knowledge to transfer. (Inkpen and Wang, 2006). Companies should transfer their knowledge according to difficulty, starting with the easiest category: explicit knowledge, then tacit knowledge, then embedded knowledge. The estimation of transfer duration and costs in each category is obviously dependent on increasing difficulty, therefore on the order in which this transfer is made. Consequently, embedded knowledge transfer, which does exist in some branches of industry, is the final learning stage. Distance hardly ever influences the duration and costs of a transfer of explicit knowledge, whereas distance is important when the duration and costs of a transfer of tacit and embedded knowledge have to be estimated.

Finally, many studies highlight the geographic concentration of innovation sites, and show that developing knowledge directly involves the networks of geographically embedded companies in a particular region (Audretsch and Feldman, 1996). The variety of knowledge types within a group of companies creates a state of mind in which research and learning capacities are stimulated, and which leads to innovative and adaptative solutions. (Van der Vegt and Bunderson, 2005). Consequently, very frequent face-to-face interactions between companies sharing a common activity not only facilitate a rapid regional spreading of new tacit knowledge flows, but also, above all, encourage local innovation. McEvily and Marcus (2005)'s research work concludes that geographically embedded links have a direct influence on the acquisition of competitive capacities.

1.4 The context of an industrial cluster

We shall focus on the context of a cluster, in order to study the penetration processes of multinational companies into this cluster, and in order to assess the efficiency of location choices in this context. Research work has more and more highlighted the geographic issue as being crucial in the location strategies of multinational companies (Krugman, 1995). For instance, Knickerbocker (1973) underscores the direct movements of investments made by American multinational companies towards clusters.

The origin of the concept of cluster dates back to Marshall's precursory research work (1920) about the geographic closeness of British industrial districts. Porter (2000) popularizes this concept and gives the following definition of a cluster: "a geographically close compact group of inter-related companies with common institutions of their own" (p. 254). It is also referred to, in broader terms, as a "new industrial district" (Markusen, 1996). Knowledge is embedded within a cluster, that is to say within small innovative companies each of them part of a cooperative, regional, industrial ruling system, which enables them to adapt themselves and prosper locally[3] in spite of globalization. The creation of regional clusters (Talman and al, 2004) is to be linked to their collective increasing

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[3] A common participation in a regional commercial cluster increases the general volume of business by 330% (Ghemavat, 2001, p. 138).

efficiency. The existence of a cluster is very often determined by a historical site and/or a certain amount of resources available on this site. In this perspective, the idea of a macroculture shared within a cluster derives from elements linked to professional communities and to industrial and regional culture. A macroculture can be defined as "the whole set of specific beliefs concerning a company which can be transmitted from one senior management to another" (Abrahamson and Fomburn, 1994, p. 730). Common elements of macroculture, such as general norms, values, practices, and shared embedded beliefs stimulate the groups of organizations to the point where they may surpass themselves. This macroculture provides the cluster members with a whole set of organisational rules which backs up the actors' behavior and determines the specific features of their common action (Bell and al, 2009). In the context of learning, macroculture has an influence on the process through which actors interpret and use a corpus of knowledge. As a matter of fact, conflicts may arise when knowledge flows are transferred through cultures which are not similar. (Shenkar et al, 2008).

A lot of recent research work mentions a collective accumulation of knowledge flows in geographically limited areas. This knowledge is essentially accessible to the actors at work within the limits of the cluster (Feldman and Audretsch, 1999). Innovation indeed requires common action from the cluster's members, and remains embedded in a wider configuration of social relations (Edquist, 1997). The major specific feature of innovation, revealed in research work about clusters, corresponds to the necessity of transferring tacit knowledge flows through organisational frontiers. The geographic nearness of partners reduces the importance of issues linked to tacit knowledge transfer because it allows as higher frequency of face-to-face interactions (Ambos and Ambos, 2009, p. 11). Such interactions help the company's actors to take advantage of "firsthand" observations of subjective experience associated with tacit knowledge, and they consequently increase the efficiency of this transfer. On the contrary, explicit knowledge can be easily codified and transferred in a formalized language. Therefore, geographic nearness is not crucial as far as the transfer of explicit knowledge flows is concerned. When opportunities can be dealt with, using a corpus of mainly tacit knowledge, a company within the cluster tends to give preference to another company within this cluster when it comes to selecting a partner for knowledge exchange.

2. Impact model of embedded knowledge on the location of a multinational company

All the elements resulting from theoretical research work on embedded knowledge are likely to ensure a proper evaluation as regards the efficiency of the choice of an implantation site. We shall now put forward a mathematical model determining the long-term financial result of this location choice. We shall then present a case-study as an illustration, in order to submit our point of view to discussion and present possible fields for future research work.

2.1. Mathematical model

The aim of this research work is to put forward a mathematical tool to determine the long-term financial result of a multinational business in search of a possible new location, with the aim of making the best possible choice. We suggest the following model: the location of a multinational company within a cluster is dependent on knowledge transfers between the companies belonging to the cluster and this multinational company. A knowledge transfer from the cluster to the multinational company leads to interactions between the newly transferred knowledge and the preexisting knowledge within the multinational company, and this fact generates profits in terms of productivity and financial result. Indeed, the consequential performance achieved by the

multinational company is the difference between the financial result and the expense caused by the knowledge transfer. However, the gain in performance for the multinational company may result in an increased competition between the multinational company and the cluster, and the effect of this may be a drop in the financial results and a loss of performance for the companies of the cluster.

The knowledge to be transferred is selected so as to maximize the global performance, that is to say the total amount of performance achieved by both the multinational companies and the companies in the cluster, deriving from all the transfers which were carried out as the new implantation was under way. In order to ensure the stability of the new location, the performance of the multinational company and of each company in the cluster must be positive, which means that the knowledge transfers should globally by profitable to all partners. Obviously the necessity of stability lessens the performance of the implantation under way, but it also avoids a rupture of the partnership, and therefore, it ensures a long-term knowledge learning until the ultimate stage of embedded knowledge is reached, generating more and more performance. However, statements of account are regularly made to compare reality with expectations, and to adjust orientations if necessary.

The evaluation of gains and drops of the financial results linked to knowledge transfer can only be made from a thorough examination of the structure of the companies in the cluster, and of the structure of the multinational company. The cost of a knowledge transfer can be calculated from the general structure of the knowledge (K) involved which is partitioned into a "n" number of groups – K_j with "j" ranging from 1 to n. This partitioning is established so that K_1 only contains explicit knowledge whereas K_n only contains embedded knowledge. Each group of intermediate knowledge (K_j with j ranging from 2 to n-1) contains both tacit and explicit knowledge which are not independent, and the proportion of tacit knowledge gradually increases with "j" (in reference to Inkpen and Dinur's knowledge spectrum, 1998). The transfer of the knowledge group K_j from the cluster to the multinational company takes place in T_j days and has a financial cost of F_j. As distance has a greater influence on the transfer of tacit and embedded knowledge than on the transfer of explicit knowledge, T_j and F_j are functions related to j. Therefore, the complete knowledge transfer takes a time $T=T_1+\ldots T_j+\ldots T_n$ for a total cost of $F= F_1+\ldots F_j+\ldots F_n$.

On the one hand, this model may be used to establish an indicator of choice for the implantation of a multinational company by comparing projected performances of several possible implantations, on a suitably long period so as to be able to evaluate the effects of the embedded knowledge transfer. On the other hand, clusters which show a real capacity to create knowledge and innovations fast will be given advantage by this indicator of choice.

2.2. A case study and its results

The nature itself of the purpose of our research work has led us to favor a qualitative method when dealing with the case study. This method emphasizes the understanding of the existing dynamics inside one particular environment, and will focus on a specific field of investigation. Our investigation will be focused at the cluster level. Our purpose is to study the impact of multinational companies on the cluster in reference to the typology of interorganisational research put forward by Provan et al. (2007, p. 483). We have identified ninety aromatic companies which coexist, very close to each other, on a very limited area. These highly concentrated companies, which have now become a cluster (diagram 1) and a centre of competitiveness, developed in the area of Grasse (in the county of the "Alpes Maritimes" in France) between the 17th and 19th centuries without any participation of

multinational companies. The map of this cluster is represented on diagram 1. When the most recent implantations of multinational company within the cluster took place, knowledge embeddedness minimized the possibilities of the transfer of knowledge flows. Indeed, the main feature of local knowledge is a very high viscosity (Szulanski, 1996), and its transfer requires a long learning process, so that a significant amount of tacit knowledge may be acquired.

In order to describe the evolutions of the implantations of multinational companies within this cluster, we have resorted to bibliographic sources, to a vast internal documentation from company, and to thirty five semi-directive interviews.
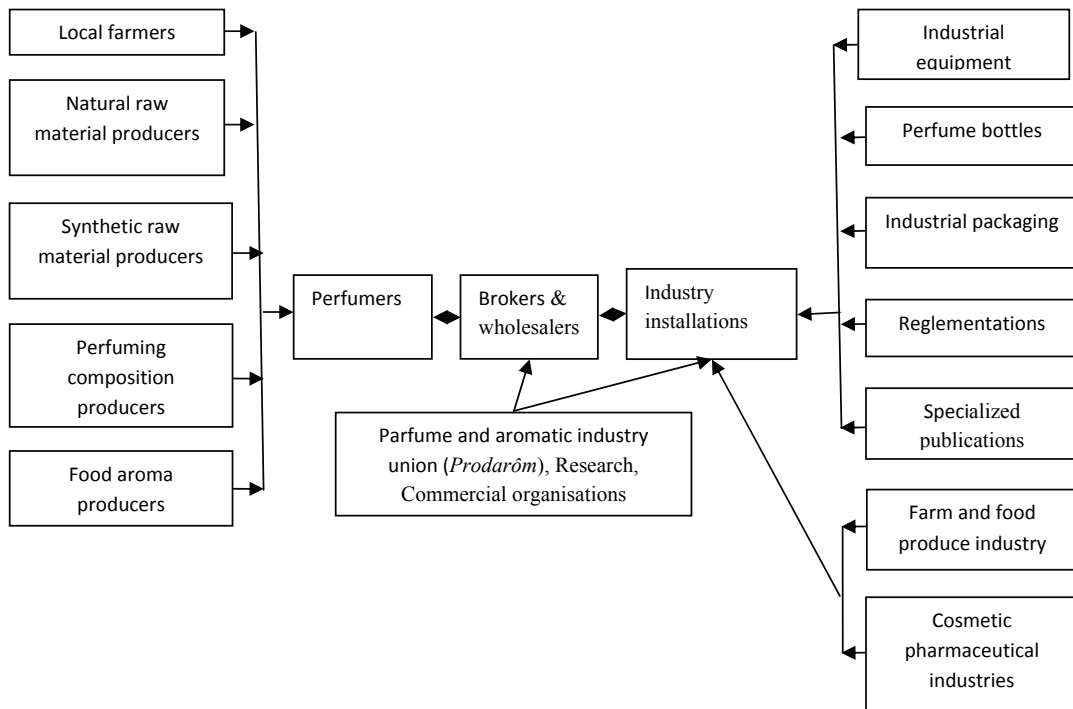
Figure 1 The perfume industrial cluster (Grasse, France)

2.2.1. The cluster and the implantations of multinational companies

The industrial cluster in Grasse has attracted multinational chemical companies (diagram 1) such as "Rhône-Poulenc", "Florasynth", "Haarman and Reimer" and "Bayer". For example, the successive purchase "La Maison Lautier" has been subjected to in Grasse illustrates the impact of knowledge flows on the performance of multinational implantations. We shall now relate how these four chemical companies made their way in the Grasse area.

-"La Maison Lautier" was created by François Rance in 1695. It expanded until it became a multinational company in 1874, with "Lautier" branches in Great Britain and the United States. In 1914, "Lautier" had become the most important company in Grasse. It was purchased by the "Rhône-Poulenc" group, which restructured it and created "Lautier Aromatiques" in 1974. This

acquisition is the first direct investment initiative from a multinational company towards this cluster (as highlighted by Knickerbocker, 1973). The use of the "Rhône-Poulenc" commercial network enabled "Lautier Aromatiques" to create new subsidiaries in Japan and in Brazil, and to develop business relations in Mexico and Australia. "Lautier Aromatiques" was finally purchased by "Florasynth" in 1981.

- "Florasynth", a company making aromas and perfumes, was officially created in New York in 1916. In 1935, it became a multinational company as aroma and perfume production was launched in Quebec, in Mexico City and in Chicago. When "Florasynth" purchased "Lyons Flavour Co" and "Nova" in the United Kingdom, it gained specific knowledge about fine perfumery. It entered the European market when it purchased the French company "Isnard Maubert". With the acquisition of "Lautier Aromatiques" in 1981, "Florasynth" intensified its research and development activity in the fields of food aromas and fine perfumery, and created a substantial databank of chemical formulas for the making af aromas and perfumes. The chairman and managing director then created the only multinational company within the industrial cluster of Grasse, and invested in the construction of a new and very modern industrial site. In 1992, this site, "Florasynth's European Center" was completed, and "Florasynth" obtained the certification ISO 9002. In 1995, a new production unit was opened in India.

- From 1970 onward, persistent unfavorable economic circumstances had a direct influence on "Bayer" financial results. The company could not be satisfied any more with its then too scarce own inventions, and launched programs aiming at improving its future profitability. "Bayer" then started purchasing and absorbing companies with a high innovation speed. Inkpen and Tsang (2008, p. 490) underscore that a partner's innovation speed influences the absorption process. In this context, "Bayer" purchased the perfumery department of "Florasynth" in 1995, in order to absorb the flows of embedded knowledge which are specific features of perfume creation and composition. "Florasynth" was purchased by "Bayer", and in 1996, merged with one of "Bayer"'s subsidiaries, "Haarman and Reimer". The economic corporate name of the firm was then "Haarman and Reimer Florasynth SA". The real corporate name of the firm was "Haarman and Reimer SA", a subsidiary of the "Bayer" group. At the time when "Florasynth" was purchased by "Haarman and Reimer", the innovative initiatives came from only one place, "Haarman and Reimer"'s head office in Holzminden in Germany. The "Haarman and Reimer" general manager's strategy concerning the site of Grasse was very simple. At that time, "Florasynth" had very little activity in the sector of food aromas (turnover of less than 15 million euros), its main activity was the making of perfumes. At the time "Haarman and Reimer" owned a Swiss production center "Creations Aromatiques" which had just invested in robotized mixers for the making of perfumes. "Florasynth"'s acquisition provided the opportunity to delocalize the activity of perfume creation to Switzerland to make this investment[4] profitable. As a consequence of these embedded knowledge transfers, the Grasse factory became more dependent on its suppliers, and more vulnerable. As Kale and Anand (2006) pointed out in their research work, multinational companies, who have much larger organizational learning capacities than their local partners, actively take advantage of these capacities to take control over them. The acquisition of local knowledge is a crucial factor allowing the foreign partner to operate independently. In 2001 "Bayer" decided to withdraw all the mixings of its Baycol and Lipobay from the world market. This withdrawal cost "Bayer" 650 million euros. That same year, "Bayer"'s

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[4] A testimony from the President of "Prodarom", the aromatic industry union.

operational result decreased by 23%. These circumstances urged "Bayer" to put up its subsidiary "Haarman and Reimer Florasynth" for sale (among other subsidiaries[5]).

As a consequence, a redundancy plan was set up on the Grasse site of "Haarman and Reimer". 70 jobs out of 220 were lost. In March 2003, a merger between "Haarman and Reimer" staff in Grasse with "Dragoco" and "Symrise" was followed by another round of redundancies. After this last series of redundancies, the Grasse site definitively closed up its industrial activity during the summer 2004. The company "Symrise" keeps no more employees in Grasse. In 2008, the site of the ex-"Symrise" factory was purchased by the city of Grasse after imposing its right of preemption, in order to build a technological centre, with a research centre and a "nursery" for the development of new companies. The purchase and construction of this 7.6 hectare large site aims at backing up the regional industrial cluster.

2.2.2. Knowledge embeddedness

The study of the Grasse industrial cluster allows highlighting the importance of embedded knowledge. The fact that the products which are characteristic of a cluster derive from the specific features of knowledge flows, implies that the knowledge corpus required by the cluster-companies should be technologically close to their existing knowledge. Distinction between exploration and exploitation clearly appears here, through the technological distance between a company's preexisting knowledge and the knowledge fields it is conducting research work in. (Vassolo and al, 2004).

The geographical knowledge embeddedness in this cluster rests on the use of a kind of knowledge which is specific to the aromatic craft (a "smelling skill"). It is an individual knowledge acquired with experience, a tacit therefore non codifiable knowledge which is difficult to describe, and can be only transmitted by peers. In aromatic industry, successful work rests on shared experiences, as peers smell and make smell the same perfumes. Knowledge embeddedness is even more crucial as the skill involved is considered "rare". This rareness has resulted in the constitution of a body of institutionalized professionals who take charge of working method control, recruitment, training, respect of the professional code of ethics (Bell and al, 2009). Therefore, the implantation of a multinational company seriously affects the companies in Grasse and their actors, as they fundamentally upset organisational knowledge. (Shenkar et al, 2008).

3. Conclusion and Discussion

3.1 Discussion

Nowadays the strategic importance of the implantation of multinational companies within a regional industrial cluster is the subject of an increasing number of theoretical documents, whereas research work used to focus on economic and financial explanations about corporate alliance and acquisitions (Folta and Miller, 2002). However, research works must systematically go on exploring how embedded knowledge within a cluster has an influence on the efficiency of the location choice by a multinational company. The starting-point of this research work is that the cluster companies

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[5] For instance, "Bayer" also sold 50% of its shares in the company EC Erdölchemie.

have specific requirements as regards their knowledge flows, which must be privileged. Concerning the choice of a regional location by a multinational company within a cluster, geographic distance and cultural differences are challenges to be taken up by managers. In this respect, Kale and Anand (2005) have suggested that the companies of a cluster are conscious of the fact that implantation attempts by multinational companies are intended to exploit learning opportunities. Consequently, local businesses may become very cautions towards the implantation of multinational companies, and they will then do their best to increase their own learning capacities. The development of interorganisational routines as strategic corporate alliances are made, may improve the future interactions between companies (Zollo and Reuer, 2010). The mathematical model shows that the multinational company chooses its new implantation with a view to reach an optimal level of performance. The case-study highlights the fact that local relationship breaks off and that no new acquisitions are made when the necessary stability has been upset.

In this publication, we have tried to clarify the complex issues brought up by the location of a multinational company within a cluster, raising all along the following crucial question: what is the efficiency of such a location? Indeed, the decision to enter a regional industrial cluster is usually taken whereas performance results are considered uncertain; so previous implantations of multinational companies within this cluster may be examined as events to be referred to to facilitate decision taking.

Our whole reflection work has demonstrated that it is significant to take geographic knowledge embeddedness into consideration in order to answer this question. Our research work is certainly not representative of all the locations of multinational companies which have taken place in clusters, but it highlights some issues which may be debated. Our approach meant to put forward two key-ideas. Firstly we have put forward one of the first attempts aiming at providing some pieces of theoretical advice, as we evaluated the influence of a cluster's embedded knowledge on the efficiency of the location choice that a multinational company makes when integrating a cluster. Secondly, our reference to the theory about clusters, based on knowledge, has led us to consider management behaviors which are appropriate to support the embedded knowledge influencing innovation flows. Other investigations would certainly be welcome to ensure the generalization of these results, particularly with more recent clusters, and clusters adapted to a current access to external sources of knowledge creation. However, this kind of extrapolation must be contemplated with care, as the mathematical model shows that the location performance highly depends on the structure of multinational company.

3.2 Conclusion

The most recent publications (Young and al, 2011) underscore that the idea of bringing together learning on the one hand and the cluster's prospects on the other hand opens up a fruitful and promising way of studying the competitiveness of multinational companies. While the notion of embedded knowledge is an intuitive major element when analyzing a cluster, it has however never been taken into consideration at its true value in existing theoretical models concerning the localization of a multinational company. For several decades, theoretical models have mostly focused on local companies' accession to new knowledge (Lin, 2005). Our research work has demonstrated that embedded knowledge, whether through senses or experience, is crucial to assess the efficiency of the localization choice made by a multinational company. Keeping this idea in mind, we have constructed our study with two objectives. The first objective is to elaborate a model in order to have a better understanding of the impact of embedded knowledge on the efficiency of a

localization choice made by a multinational company. The second objective is to put forward an appropriate illustration in order to highlight the influence of knowledge flows on the performance of a multinational company carrying out an implantation within an industrial cluster. The results of our research work have led us to the following conclusions:

There are fundamentally diverging interests between multinational companies and their local business hosts, because the economic and social aims sought be a regional cluster are fundamentally different from the objectives of a multinational company. While the importance of knowledge flows is a major issue in the process of wealth creation, the purpose of multinational companies is to take advantage of this asset when choosing a new localization. Therefore, a cluster's embedded knowledge is considered valuable only as a complement to fundamental specific capacities of multinational companies.

We have shown that the influence of embedded knowledge in the localization choice made by a multinational company may be apprehended through a model allowing taking some embedded knowledge specific features and indicators into consideration. Our case-study highlights the fact that innovation flows spring from certain tacit, specific, locally-exchanged skills and from a local craftsmanship. This case-study may then lead to a debate concerning the link between knowledge embeddedness and the performance deriving from the implantation of a multinational company.

Future research work will shed some more light on the indicators allowing a successful implantation choice for a multinational company; it will also allow a comparison between the predictions of the mathematical modelization and the real evolution of the implantation, which may be used to back up the model validation.

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