CERAMIC TILE MANUFACTURERS' EXTERNAL KNOWLEDGE ABSORPTIVE CAPACITY AND ITS RELATION TO THEIR BUSINESS STRATEGY[1]

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ABSTRACT

Knowledge absorptive capacity has been defined as the ability to acknowledge the value of new information from outside the company, to assimilate it and to apply it for commercial purposes. The absorption of external knowledge is one of the most fundamental learning processes in business, given the opportunity it affords to enhance, support or re-orientate the firm's knowledge base. Therefore, developing and maintaining this ability to absorb knowledge is critical for the long term survival of any company.

Given that the type of knowledge acquired and the way such knowledge is assimilated and applied differs from one company to another, this paper seeks to assess the extent to which the ability to absorb external knowledge varies according to the business strategy implemented by the firm. This paper specifically proposes that business strategy plays an important role when the determining what areas of knowledge are valuable, how this new knowledge should be integrated with existing knowledge, and which areas such new knowledge should be applied to.

To describe the types of business strategy implemented by companies, the definition given by Miles & Snow (1978) was used, which constitutes one of the main cornerstones of the literature on strategic management. Miles & Snow (1978) postulated that there are four general strategic types of organizations: prospector, defender, analyser, and reactor organizations. Prospector companies are characterised as being the leaders of change in their respective industries, continually in search of new products and markets. Defender companies are to be found at the opposite end, focused primarily on efficiency. Analyser companies

1. This paper forms part of research project SEJ2006-10057 financed by the Spanish Ministry of Science and Innovation.

tend to occupy a halfway position between prospector and defender firms, whereas reactor organisations do not show a consistent behaviour pattern and tend to react when external pressure around them forces them to do so.

The data for this paper was obtained from a sample group of 81 Spanish ceramic floor and wall tile manufacturing firms. The results indicate that the ability to acquire, transform and exploit knowledge is greater in prospector companies that continually strive to develop new products and markets, compared with defender and analyser companies. However, it does not reveal differences in the ability to assimilate knowledge between the different types of strategy identified. This may be explained by the characteristics of this industry, with a high level of geographical concentration, suggesting that, within a framework of stable relationships with customers and other neighbouring forces, the ability to assimilate knowledge transmitted by others is generally high for all companies. On the whole, these early results indicate the need to delve more profoundly into how knowledge absorption dimensions complement and support each other.

1. INTRODUCTION

It is a proven fact that companies depend increasingly on external knowledge to enhance innovation and obtain good results. However, it is clear that some possibly undergo serious difficulties when striving to put such external knowledge to suitable use. The concept of absorptive capacity refers to the ability of a company to recognize the value of new information from outside the firm, to assimilate it and to apply it for commercial purposes (Cohen & Levinthal, 1990). It constitutes one of the basic learning processes for an enterprise, as it reflects the firm's ability to identify, assimilate and exploit knowledge from its immediate environment. Consequently, developing and maintaining this ability to absorb information is fundamental for the company's competitive edge, because this absorption capability can strengthen, complement and re-orientate the firm's knowledge base.

In recent years, the term has been widely used, as is seen from studies of questions such as the effect of absorptive capacity on an enterprise's innovation policy, on its development of new products or even on the successful result of collaboration agreements. Likewise, some papers have examined the internal factors within a company that bear upon its absorptive capacity, such as its structural organisation or its corporate policies. Surprisingly, there exist very few papers that have considered the relationship between business strategy and absorptive capacity. Given that the type of external knowledge acquired, as well as the way it is assimilated and applied, varies from one company to another, the firm's corporate strategy plays an important role when determining what types of knowledge are valuable, what items of knowledge should be assimilated, and what areas such new knowledge should be applied to, which in turn determines the relevance of its absorptive capacity when analysed in greater detail.

One controversial issue in the literature is the tendency to identify absorptive capacity in terms of the R&D carried out by the company, instead of analysing the internal processes that the term represents, which would be of much greater value for the study of such capacity. Thus, it is useful to distinguish between potential absorptive capacity and actual absorptive capacity (Zahra & George, 2002). Potential absorptive capacity represents the firm's ability to search for knowledge, which may or may not be used to produce innovation. Actual absorptive capacity represents the firm's ability to develop products and services using this stock of knowledge. An assessment of the extent to which companies effectively use both dimensions of absorptive capacity will strengthen our understanding of the internal processes that comprise such absorptive capacity, separating it from the viewpoint that identifies it simply as the content of knowledge expressed through R&D-related variables.

Taking the aforementioned premises into account, the purpose of this paper is to examine how companies with different corporate strategies differ in their ability to identify, assimilate and exploit external knowledge. The contribution of this paper lies in the fact that it highlights the connection between business strategy and absorptive capacity, while also taking the distinction between potential absorptive capacity and actual absorptive capacity into account.

2. REVIEW OF THE LITERATURE AND DEVELOPMENT OF HYPOTHESES

2.1. Definition and dimensions of absorptive capacity.

Although the most common definition of absorptive capacity in the literature is that given by Cohen & Levinthal (1990), other proposals have been put forward in recent years with an aim to extending the concept of absorptive capacity proposed by these authors and to identifying its most relevant dimensions. Undoubtedly, Zahra & George (2002) have had the greatest repercussion of all such studies. These researchers define absorptive capacity as a series of organisational routines and processes through which enterprises acquire, assimilate, transform and exploit knowledge. In their proposal, they suggest that these four organisational capabilities enhance each other to generate absorptive capacity, a dynamic ability that influences the firm's capacity to create and deploy the knowledge required to build other organisational capabilities. Zahra & George (2002) distinguish between two types of absorptive capacity - potential and actual. The former comprises acquisition and assimilation, while the latter is composed of transformation and exploitation. They point out that theoretically it is important to distinguish between both types of absorptive capacity in order to assess its contribution on the firm's competitive edge, because: [1] it helps to explain why some enterprises are more efficient than others in using their absorptive capacity; and [2] exogenous and endogenous forces may vary in the way they influence the previous dimensions, thereby indicating that different management practices are required to feed and reap the rewards of both these components.

Potential absorptive capacity draws on the efforts made to identify and acquire new external knowledge and to ascertain knowledge obtained from outside sources. Therefore, it provides companies with the strategic flexibility required to adapt and evolve in highly dynamic environments. In this way, enterprises that have potential absorptive capacity and are flexible in their use of resources and capabilities are able to redefine their resource bases to make the best possible use of emerging strategic opportunities. For example, such opportunities can help companies to maintain sustainably higher results thanks to the gains afforded by being the first to move, by being receptive to customers or by other strategic advantages. This type of absorptive capacity comprises the processes of acquiring external knowledge and of assimilating such external knowledge once acquired. Acquisition is the result of the efforts made to identify and acquire new external knowledge. Assimilation refers to the company's routines and processes that enable it to analyse, process, interpret and understand information obtained from external sources.

Potential absorptive capacity renders the firm receptive to acquiring and assimilating external knowledge, but it does not guarantee exploitation of such knowledge, which is where actual absorptive capacity is required; i.e. enterprises require knowledge transformation and exploitation skills in order to extend their product range or to develop new products. Transformation indicates the ability of a company to develop and improve routines that make combining existing knowledge with newly acquired and assimilated knowledge easier, which can be achieved by adding or eliminating knowledge or simply by interpreting it in a different way. On the other hand, exploitation as an organisational ability is based on the routines that enable a company to perfect, extend and make use of its existing skills or to create new skills by incorporating any newly acquired and transformed knowledge into its current operations.

2.2. Miles & Snow's types of company strategy.

The types of company strategy proposed by Miles & Snow (1978) are based on the way companies choose to address three – entrepreneurial, engineering (or operational) and administrative - fundamental problems. Depending on how companies address these problems, four general strategic types of organisations exist: prospector, defender, analyser and reactor organisations. Those companies that adopt a prospector strategy are characterised as leading change within their industries and searching continually for new products and markets. Enterprises with a defender strategy are situated at the opposite end of the scale and attempt to supply a stable range of products to a specialist market segment, being thereby more focused on efficiency and product improvement in order to reduce manufacturing costs. Analyser organisations tend to occupy a halfway position between prospector and defender companies. Although they defend their positions in some industries, they can move quickly and selectively in order to make inroads into new products or markets. For this purpose, they maintain relatively stable

business operations while at the same time trying to be swift followers. According to Miles & Snow (1978), these three types of strategy tend to be coherent in their choice of strategy and will obtain good results as long as they are efficiently implemented. Reactor companies, on the other hand, do not have a consistent strategy, which leads them to react only when environmental pressure forces them to do so. Therefore, they tend to present worse results than the others and consequently are generally excluded from studies about organisation types. This definition of strategic types has been widely used in the literature, thanks to its general character, its applicability to industries with a low level of concentration made up of small and medium-sized enterprises, as is the case of the ceramic tile industry, and to the greater level of specification used for its definition.

2.3. Research hypotheses.

2.3.1. Potential absorptive capacity and strategy.

Potential absorptive capacity, formed by external knowledge acquisition and assimilation processes, enables enterprises to continually renew their knowledge base, as it makes them receptive to acquiring and assimilating external knowledge and provides them with greater flexibility to reap the benefit of opportunities arising in the surrounding environment.

The external knowledge acquisition process refers to the efforts devoted by a firm to identifying and acquiring new knowledge, for which recognizing the relevance of such new knowledge is essential. The process of assimilating knowledge refers to the knowledge that an enterprise can interpret, understand and blend with its existing knowledge structures (Zahra & George, 2002). Thus, the ability to analyse and obtain relevant information from sources in the company's immediate environment, such as suppliers, customers and other institutions in the industry, enables an enterprise to implement a few simple adjustments to relate this new knowledge to the knowledge it already possesses.

Managers of companies with a defender strategy tend to look upon the external environment as a series of relatively unimportant factors, the behaviour and actions of which can be predicted and will probably not have a significant impact on their internal operations. These companies generally direct their products or services at a restricted segment within the total potential market. They are limited to supplying a stable group of customers and therefore to keeping these customers satisfied, which in turn calls for very little effort on their part to interpret and understand external knowledge.

Prospector companies stand out from the rest thanks to their ability to find new market opportunities. To do so, they have to develop and maintain the ability to identify a wide variety of conditions, trends and events in the environment. Therefore, prospector companies invest heavily in individuals and groups to examine the environment in search of potential opportunities and to implement formal procedures and systems more directly to distribute and assimilate external knowledge.

Analyser companies, situated halfway between prospector and defender organisations, move towards new products or markets but only once the feasibility of such novelties has been demonstrated (Miles & Snow, 1978). Thus, they have to be able to respond quickly when tracking prospector organisations and to maintain efficient operations in their stable product and market areas. This means that they dedicate their external knowledge acquisition skills to identifying successful innovations developed by prospector companies. While the prospector organisation is the creator of change in the industry, the analyser firm is a fierce predator of such change - its aim is to adopt the most promising innovations developed by prospector firms without committing itself to significant research and development efforts. Therefore, it is always ready to move quickly towards a new product or market which has recently gained public acceptance, so that, once a competitor's innovation has been identified, it turns its efforts quickly to developing all the process stages required to reach the new market, revealing a remarkable ability to interpret new external knowledge in terms of what the company knows.

On the basis of the afore-mentioned considerations, we propose the following hypotheses with regard to new knowledge acquisition and assimilation capabilities:

H1: The ability to acquire external knowledge will be greater in enterprises with a prospector strategy than in those with analyser or defender strategies, and, in turn, greater in analyser organisations than in defender organisations.

H2: The ability to assimilate external knowledge will be greater in analyser organisations than in prospector or defender organisations and, in turn, greater in prospector companies than in organisations with a defender strategy.

2.3.2. Actual absorptive capacity and strategy.

Although potential absorptive capacity is necessary to identify and filter relevant external knowledge and to incorporate it into the firm's structure, such information can only be turned into a new competitive edge if the firm possesses actual absorptive capacity, consisting of processes to transform and exploit this external knowledge.

The ability to transform knowledge blends existing knowledge with new knowledge, thereby enabling all knowledge held to be re-appraised in search of opportunities. Once internalized and understood, knowledge should be integrated into the firm's business activity through its internal systems and routines, which will allow knowledge in different forms to be obtained, whether as a new product, new process, new organisational structures or as new, unincorporated technical knowledge (Spender, 1996). The ability to exploit information refers to the routines that allow such external knowledge to be used to create new knowledge.

Miles & Snow (1978) point out that technological development in an enterprise with a defender strategy has a very specific purpose: to update the technology currently held in order to maintain its level of efficiency; but, given that this calls for heavy capital expenditure, that new technology needs to be accompanied by problems that are familiar and predictable over long periods of time, which in turn indicates a lower ability to transform knowledge. Moreover, defender companies tend to grow through market penetration, as they keep a stable and narrow outlook which enables them to be completely familiar with their customers' requirements. Consequently, product development in a defender organization is generally a simple extension of the current product range or an expansion into very closely related areas (Miles & Snow, 1978: 38). Furthermore, their continual quest for efficiency means that they concentrate on updating their current technology without embarking on wide-scale changes that might destabilise it, which overall indicates a more limited capacity to exploit external knowledge.

On the other hand, compared to the defender organization that attempts to isolate itself by protecting itself from the effects of change in the environment, those firms that adopt a prospector strategy continually reinterpret existing knowledge in an attempt to turn competitiveness to their favour, which is indicative of a keen ability to transform new knowledge. This comes on top of the fact that they tend to be the champions of change within their industry, using such change as their main tool to outgrow their competitors through new product and market developments (Miles & Snow, 1978), which is indicative of a high exploitation capacity.

Analyser enterprises have a dual technological core which combines the solutions provided by prospector and defender organizations, i.e., they have stable and flexible components which tend to reveal themselves within the company in the form of an influential applied research group. Depending on the extent to which this group is able to develop solutions using the firm's technological capabilities to create the new products required by the management, the analyser firm is able to update its product line without incurring the high R&D expenses borne by prospector companies. Likewise, the analyser firm's exploitation capacity is situated halfway between that of the prospector firm and the defender firm. On the one hand, it continues with the significant portion of its business devoted to stable customers and products, while simultaneously moving towards new products or markets through imitation, only adopting the most successful new products or markets developed by prospector organisations (Miles & Snow, 1978).

On the basis of the afore-mentioned considerations, we propose the following hypotheses:

H3: The ability to transform knowledge will be greater in prospector and analyser organisations than in firms with a defender strategy.

H4: The ability to exploit knowledge will be greater in defender and analyser organisations than in firms with a prospector strategy.

3. METHODOLOGY

3.1. Scope of study and data collection.

The population chosen for sampling the above hypotheses is made up of Spanish ceramic tile manufacturers. This industry is characterised by heavy capital asset investment, which has led to a remarkable increase in output capacity and productivity in recent decades (Tomás, Gallego & Picher, 1999). This can be seen by the significant production figures of Spanish ceramic tile manufacturers on the international level. Likewise, according to Pavitt's study (1984) of sectoral patterns of technical change, most of these tile manufacturing firms can be considered to fit into the category of "supplier-dominated companies". Although opportunities to innovate in this industry come, to a large extent, from outside these enterprises, they need to actively maintain a steady commitment towards innovation.

The hypotheses were contrasted on the basis of the results of an earlier study which, among other questions, attempted to gather data about the innovative behaviour of ceramic companies. Postal surveying was chosen as the way of obtaining the required data by means of a questionnaire addressed to the senior management. Eventually, a total of 93 questionnaires were received back, of which, for the purposes of this research, seven were considered incomplete and eliminated. The final sample was made up of 86 companies, which accounted for a reply rate of 39.5% of the targeted population. Most of the sample firms had less than 200 employees. 45% of these firms implemented systematic or continuous R&D programs. They were all exporters and, on average, exported 48.6% of their turnover. Table 1 provides statistics describing some of the characteristics of the firms participating in this study.

	Average	Typical deviation	Minimum	Maximum
Nº employees	133	145.7	13	688
Percentage of exports over turnover	48.6	23.0	3	95
Percentage of resources devoted to R&D over total sales	0.58	0.92	0	3.2
Percentage of resources devoted to technology innovation over total sales	5.32	4.76	0	16.48

Table 1. Characteristics of participating firms.

3.2. Measurement of variables

Strategy

Strategic type was identified by the managers classing themselves into one of four types of strategy. To do so, we used the distinctive competencies developed by

Snow & Hrebiniak (1980), already employed in numerous papers, which provides a brief description of each of the four types without actually identifying them by name and with the general observation that none of them should be considered inherently good or bad. The results obtained identified 30 defender, 24 prospector, 27 analyser and 5 reactor organisations. In view of the small number of reactor firms – about 5% of the sample – and in line with prior research on strategic types, it was decided to remove these reactor firms from the analysis.

Absorptive capacity

Absorptive capacity in an enterprise is difficult to measure empirically. As previously stated, a large number of proposals have recommended the use of different proxy variables related to the degree of knowledge existing in the firm, generally linked to its R&D. However, the suitability and validity of such proxies is questionable in view of the scarcity of empirical evidence. Furthermore, one series of studies has attempted to switch attention from just R&D to a wider viewpoint: Szulanski (1996) bases his work on a series of indicators that include the ability to assess new technology, the ability to assimilate it, and the ability to apply it; Lane & Lubatkin (1998) developed a series of measures targeting the assessment, assimilation and commercialisation of new knowledge. Following on faithfully from Zahra & George's work (2002) and based on Szulanski's scale (1996), Jansen et al. (2005) proposed different scales with which to measure abilities relating to the identification, assimilation, transformation and exploitation of knowledge. In this case, we support the point of view that calls for separating the four dimensions proposed in the theoretical review. Items on the questionnaire were chosen on the basis of previous contributions and by reviewing relevant literature on this matter.

To reflect *knowledge acquisition* and taking Zahra & George (2002) as the ground base, a scale of three items was designed to capture the intensity and speed of the effort made to acquire new external knowledge, using the importance given by the company over the last 3 years to [1] carrying out R&D close to state-of-the-art technology; [2] investing in new products and technologies; [3] maintaining a highly qualified R&D unit for new product development. These items were marked on a scale of 1 to 7, where a score of 1 represented 'not at all important' while a score of 7 indicated it was 'of great importance' for the firm. The acquisition of knowledge was measured as the mean score of these three items. The reliability of this scale was checked using Cronbach's alpha test, which gave a result of 0.804.

Knowledge assimilation was measured using a two-item scale designed to ascertain the degree to which the company is able to analyse and understand new external knowledge with its current knowledge structures (Teodorova & Durisin, 2007) on the basis of the firm's ability to: [1] obtain information from suppliers and local institutions about new techniques and materials; and [2] to obtain information from customers. A scale of 1 to 7 was used to assess the above factors, where 1 represented very low ability and 7 a very high capability. The Pearson index was

used to measure correlation between these two items, which gave a result of 0.438, when a reading of 0.01 is considered significant.

In order to measure *transformation ability*, it was assumed that the new knowledge came from a somewhat distant source, therefore incompatible to a certain degree with prior knowledge, but which enabled new cognitive structures to be built. Thus, a scale comprising 4 items was employed, which enquired about the significance as a source of innovation given by the company in the last three years to: [1] the acquisition of patents, licenses to use technology, etc.; [2] training courses; [3] the use of external consultancy services; and [4] scientific and technical journals and publications. Cronbach alpha analysis of this scale gave a reading of 0.804, thereby confirming its reliability.

Exploitation capacity was recorded by means of a scale indicating the firm's ability to incorporate new external knowledge into its operations on the basis of its ability: [1] to improve its processes; [2] to design changes within the production structure; [3] to develop technology; [4] to adapt its plant & machinery; [5] to improve product quality; [6] to adapt its products to new requirements; and [7] to design new products. The reliability of this scale was verified by Cronbach alpha testing, giving a result of 0.774.

In order to compare the convergent validity of the afore-mentioned dimensions, the correlation between the proposed measures and other theoretically related measures taken from scales included in the survey was analysed. *Knowledge acquisition* revealed a positive correlation with the managers' appreciation of the intensity of expenditure on R&D in the company over the last three years compared to the mean for the industry (r = 0.594, n = 81, p < 0.01). External knowledge assimilation correlated positively (r = 0.266, n = 81, p < 0.05) with the variable taken from a series of items designed to determine how important as a source of knowledge was cooperation with: (a) suppliers of plant and machinery; (b) raw material suppliers (frits and glazes); (c) other companies in the sector; (d) research institutes, namely the Spanish Institute of Ceramic Technology (ITC); (e) research centres: the Association for the Promotion of Ceramic Design (ALICER); and (f) co-operation with universities. *Transformation capacity* revealed high levels of correlation with the variable measuring the importance as a source of innovation of the firm's participation in public programs in support of innovation (r = 0.588, n = 80, p < 0.01). Finally, the *knowledge exploitation* dimension demonstrated positive correlation with the percentage of technologically new products manufactured by the company (r = 0.263, n = 72, p < 0.05), and with the variable measuring whether the firm had implemented any technologically new or improved processes (r = 0.432, n = 81, p < 0.01).

4. RESULTS

In order to verify the proposed hypotheses, factorial analysis of variance was used to examine the differences in absorptive capacity dimensions between the three types of strategy and *post hoc* multiple comparison contrasts were built using the Scheffé method. Table 2 details the average values of the dimensions for each of the types of strategy, the results of the analysis of variance and the application of *the post* hoc contrasts.

	Defenders n=30	Prospectors n=24	Analysers n=27	*F*	Pos hoc comparisons
Acquisition of knowledge	3.84	5.51	4.00	14.868**	D < E* A < E*
Assimilation of knowledge	5.27	5.20	5.35	0.150	
Transformation capacity	2.64	3.63	3.19	3.840*	D < E*
Exploitation capacity	4.79	5.55	5.12	7.591**	D < E*

***<0.01; *<0.05*

Table 2. Dimensions of absorptive capacity and business strategy: Factorial analysis of variables (ANOVA).

The results obtained demonstrate that significant differences exist between the mean values for three of the dimensions of absorptive capacity, since statistic *F* is seen to be significant at a level of 1% for the dimensions of acquisition and exploitation of knowledge, and 5% significant for transformation capacity.

The proposal of the first hypothesis was that the ability to acquire external knowledge was greater in prospector firms than in analyser or defender organisations, and in turn, greater in analyser firms than in defender companies. Assessment of the differences in mean values between the groups tested *post hoc* indicates a significant difference between prospector firms and the other two strategic organisations, but not between analysers and defenders. This therefore provided partial confirmation of the hypothesis.

The second hypothesis proposed that analyser enterprises had a greater capacity to assimilate knowledge than all other companies, and, in turn, this capacity was greater in prospector firms than in defenders. Analysis of variance did not give a significant result, which therefore does not enable us to accept this hypothesis. Indeed, when examining the average values for this variable in each of the groups, the values are seen to be very close to each other, which indicates that this capacity is relevant to all three groups.

The third hypothesis about the ability to transform knowledge questioned whether it was greater in prospector and analyser firms than in defender enterprises.

Although the value of *F* reveals that the differences between the groups are significant and the descriptive values show intermediate values for analyser firms, the post hoc contrasts between the other two types of strategy indicate that only the difference between prospector and defender firms is significant, which allows us to partially confirm the hypothesis.

Finally, the fourth hypothesis compared the different types of strategy's ability to exploit knowledge. A review of the literature suggested that this capacity is greater in prospector firms than in analyser and defender companies. The value of *F* confirms the existence of significant differences among the groups, while post hoc tests reveal that prospector firms have a greater ability to exploit knowledge than enterprises with a defender strategy.

In summary, the results obtained indicate that the proposed hypotheses can be accepted, albeit partially, as significant differences exist among the groups for three of the four dimensions under assessment. Furthermore, the proposed relationships have enabled differences between the two most extreme types of strategy to be contrasted with regard to knowledge acquisition, transformation and exploitation, as well as between prospector and analyser firms with regard to their knowledge acquisition capability.

5. CONCLUSIONS

Overall, the results obtained indicate that different levels of absorptive capacity for the dimensions studied exist among the types of corporate strategy, although such a statement is subject to nuances when the results are assessed in greater detail. With regard to the first hypothesis, prospector firms demonstrate a greater ability to acquire knowledge than analyser or defender companies. Such results are in line with those obtained by Liao et al. (2003), who found that the influence of potential absorptive capacity on environmental receptiveness was greater in enterprises with proactive strategies. On the other hand, with regard to the second hypothesis, the results obtained do not confirm that knowledge assimilation capabilities are greater in analyser companies. This may be due to the characteristics of the industry under assessment, with its high level of geographical concentration, where, given the environment of close relationships with customers and other social forces, the ability to assimilate new knowledge is high throughout the industry, not just in firms with an analyser strategy. Nevertheless, evidence arose that allows for partial confirmation of Hypothesis 3, as a greater ability to transform knowledge was found to exist in prospector firms than in defender companies. Thus, these prospector firms that champion change and foster the incorporation of the new knowledge they find through relentless searching, do reveal a greater ability to transform new knowledge than the other types of company. Likewise, prospector firms, with their unwavering commitment to innovation, are the ones that channel their ability to exploit new knowledge most intensively. In

general terms, the results obtained suggest the need to research more deeply into the complementary and mutually supportive nature that these dimensions of absorptive capacity should have.

In conclusion, certain constraints of this study should be highlighted, the overcoming of which may be the object of future research. One such restriction refers to the way the variables were measured. Although earlier literature was used to justify the methods used in theory, it is obvious that this part of the study needs to be developed further. Secondly, the authors consider that by including variables in the results, assessment could be made of the extent to which the various capacities identified account for the role absorptive capacity plays in the firm's performance, once it has adopted a certain business strategy, which would undoubtedly enhance the value of our contribution.

REFERENCES

[1] Cohen, W.; Levinthal, D. (1990): "Absorptive capacity: A new perspective on learning and innovation", Administrative Science Quarterly, 35, 128-152.

[2] Hambrick, D.C. (1983): "Some tests of the effectiveness and functional attributes of Miles and Snow's strategic types", Academy of Management Journal, Vol. 1, pp. 5-25.

[3] Jansen, J.J.P.; Van den Bosch, F.A.J.; Volverda, H.W. (2005): "Managing potencial and realizad absorptive capacity: How do organizacional antecedents matter?", Academy of Management Journal, Vol. 45, pp. 999-1015.

[4] Lane, P. J.; Koka, B.; Pathak, S. (2006): "The reification of absorptive capacity: A critical review and rejuvenation of the construct", Academy of Management Review, 31, 833-863.

[5] Lane, P. J.; Salk, J. E.; Lyles, M. A. (2001): "Absorptive capacity, learning, and performance in international joint ventures", Strategic Management Journal, Vol. 22, pp. 1139-1161.

[6] Liao, J.L.; Welsch, H.; Stoica, M. (2003): "Organizational Absorptive Capacity and Responsiveness: An Empirical Investigation of Growth-Oriented SMEs", Entrepreneurship: Theory & Practice, Vol. 28, pp. 63-86.

[7] Miles, R.E.; Snow, Ch. C. (1978): Organizational strategy, structure and process. New York: McGraw-Hill.

[8] Snow, CH. C.; Hrebiniak, L.G. (1980): "Strategy, distinctive competence and organiziational performance", Administrative Science Quarterly, Vol. 25, N. junio, pp. 317-336.

[9] Szulansky, G. (1996): "Exploring internal stickiness: Impediments to the transfer of best practice within the firm", Strategic Management Journal, Vol. 17, pp. 365-385.

[10] Tomás, J. A.; Gallego, J. R.; Picher, J. V. (1999): "Cambio tecnológico y transformación de sistemas industriales localizados: La industria cerámica española", Información Comercial Española, N. 781, pp. 45-68.

[11] Zahra, G.; George (2002): "Absorptive capacity: A review and reconceptualization, Academy of Management Review, Vol. 27, pp. 185-203.