

Internationalization strategies and the architectures of competences of first and late movers

A case study in the cement industry

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ABSTRACT: *The aim of this paper is to understand how the internationalization strategies and processes of late mover enterprises compare with those of first movers. The theory analyzed here incorporates two contributions to the regular literature on international business. First, the internationalization approach based on first and late mover theory is seldom addressed in the literature. Second, this paper focuses on the Resource Based View (RBV) and organizational competences; even though this approach is related to traditional internationalization theories, it is very often taken as secondary. The case study methodology applied has focused on an industrial analysis that allows the comparison of two groups of companies. The cement industry was selected as the object of the research, more specifically the first mover, Lafarge, and the late movers CEMEX from Mexico and Votorantim. An analysis of the cases has shown that the architectures of competences of first and late movers are different in various categories, thus suggesting that multinationals from emerging markets should explore unique competences for internationalization strategies and avoid a follower strategy.*

Key words: Internationalization, Late Movers, Competencies, Organizational Strategies

TÍTULO: Estratégias de internacionalização e a arquitetura de competências das primeiras e últimas entrantes: Estudo de caso da indústria do cimento

RESUMO: *O artigo procura compreender as estratégias e os processos de internacionalização das empresas últimas entrantes em comparação com as primeiras entrantes. A teoria aqui analisada incorpora duas contribuições para a literatura em negócios internacionais. Primeiro, a abordagem sobre internacionalização baseada no primeiro e no último entrante. Em segundo lugar, o presente documento centra-se na Resource Based View (RBV) e nas competências organizacionais. A metodologia aplicada foi o estudo de caso, para permitir uma análise comparativa dos dois grupos de empresas. Mais especifica-*

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mente, a indústria de cimento com o primeiro entrante Lafarge e as late movers CEMEX e Votorantim. Os casos mostram que a arquitetura de competências das primeiras e últimas entrantes é diferente em várias categorias, sugerindo que as multinacionais de mercados emergentes deverão explorar competências exclusivas para as estratégias de internacionalização, evitando uma estratégia de simples seguidora.

Palavras-chave: Internacionalização, Últimos Entrantes, Competências, Estratégia Organizacional

This paper results from the proposal to develop a perspective on the internationalization of Late Mover Enterprises, and aims to shed light on the strategic internationalization background through a comparative study between first and late mover enterprises. The analysis here will be based on the strategic theory of Resource Based View (Barney, 1991) and organizational competences (Prahalad and Hamel, 1990; Mills, *et al.*, 2001). In this study, the RBV has been adopted as an assumption for analysis following Liberman and Montgomery's (1998) recommendation, in order to understand the strategies of first movers based on this strategic stream. However, the organizational competences approach is applied in this project rather than the classic RBV approach (Barney, 1991).

Thus, the focus given to an industrial segment for a comparison of first and late movers is an original contribution that warrants presentation here.

Supported by first and late mover strategies together with the concepts of competences as the basis of corporative strategies, the research question is:

Q1: Do the internationalization strategies of first and late movers differ from each other as a result of unique architectures of resources and competences?

This paper comprises three sections. In the first session, a review of the literature compares the internationalization strategies of first and late movers. Based on Resource Based View, it also provides an insight into how resources and competences of late movers differ from those of first movers. The second section presents the cases of three companies from the cement industry. A specific industry has been selected to obtain a greater understanding of the strategic intention and resources of each company. This is followed by a discussion in the third section of the differences in the internationalization processes of first and late movers.

LITERATURE REVIEW

Internationalization of First and Late Movers

When discussing decision making strategies, one important aspect in the competition must be identified, namely the temporal dimension. Accordingly, the study of

enterprises' internationalization processes and the global market in which they compete involves analyzing the moment at which each company enters the market. The first entrants, usually from developed countries, are named first movers. The other competitors, mostly from emerging or developing countries, enter the market after it has been consolidated and are known as late movers (Bartlett and Ghoshal, 2000; Tsang, 1999).

Lieberman and Montgomery (1988) reviewed the theory and empirical literature on the advantages and disadvantages of first movers.

The competitive advantages of being a first mover can be divided into three categories: technological leadership in products or processes, primary acquisition of scarce goods and cost development of buyers by changing suppliers.

Technological leadership can be obtained by advancing along the learning curve, which represents the capacity of producing more goods with fewer resources. It can also be acquired through patents developed on research and development (R&D).

First movers can also gain competitive advantages by acquiring, scarce resources such as production factors before any other competitor e.g. natural resources, employees, suppliers and distributors, product characteristics, in production plants and equipments. These advantages become evident when other delayed competitors face high costs to acquire these resources, thus leading to the decision that entry may not be feasible.

The third advantage can emerge from the buyers' level of dependence on suppliers. First movers can benefit here in four ways: when buyers make high initial investments to adapt to the product that is going to be supplied; when the supplier understands buyers' needs and learn how to add value to them; when there are agreements that cannot be discontinued; or when there are informational asymmetries and the buyers are loyal to the first supplier due to the risk of getting a worse product from other suppliers.

Lieberman and Montgomery (1988, 1998) have described four categories of first mover disadvantages: they cannot learn from previous experiences of first movers, uncertainty about markets and technologies, evolution in technologies or customer needs and tendency to inertia or late response due to established status (*incumbent inertia*). There are three reasons for inertia: the firm can be held to a set of specific goods, can be reluctant to discontinue existing product lines or may become managerially inflexible.

Bartlett and Ghoshal (2000) described and exemplified the main characteristics to be developed by late movers in order to become a global player. The authors discuss the strategic positioning of competitors from emerging countries in the value curve. The value curve is based on two axes: the complexity in technology and marketing and gross margin: the greater the complexity, the higher the margin. The authors demonstrate this with the pharmaceutical industry that uses large amounts of intermediary materials in order to discover new chemical materials and drugs with high added value and margins of 60 to 100%. The authors also identify that companies from peripheral countries hesitate to go up the value curve, competing exclusively for low cost. Managers from those companies seem to lack confidence in their own managerial ability to advance along the value curve or are not brave enough to involve resources and take the challenge.

Taking Ranbaxy as an example, an Indian company in the pharmaceutical industry, Bartlett and Ghoshal (2000) describe three steps to be taken by a successful late mover in global competition: changing the mindset, finding strategies in which being a late mover can bring competitive advantages and developing a culture of continuous learning in both parent and subsidiary.

As for differentiation strategies, the authors identify two ways these can be obtained: benchmarking and future differentiation or fighting. In the first, the late mover begins by copying global leaders and, later on, explores new niches. An example is Jolibee, a fast food company from Philippines that has suffered from McDonald's competition, but learned and copied their production process and then innovated by focusing on local tastes and preferences. The second and more radical way is to introduce new business models that may be effective in established oligopolies. BRL Hardy, an Australian wine company, has changed the rules of the game by acquiring the total control on sales, distribution and marketing in order to position itself as a global brand. This company decided to buy wine from various parts of the world and was able to get enough scale to bargain in retailing stores.

Shankar, Carpenter and Krishnamurthi (1998), who have also analyzed the pharmaceutical industry, identified competitive advantages in late movers compared to first movers. Late movers that focused on innovation got a sustainable competitive advantage due to a greater market potential. Better than investing resources in marketing activities, late movers can focus their efforts on redesigning the game to their own benefit supported by innovation.

Kim and Mauborgne (2004) have also suggested that in order to obtain success in a competitive environment, companies should strive to create blue oceans, i.e.,

redesign the borders of the market by focusing on markets where there are no competitors. Red oceans, however, are industries where products and services have become commodities with low profit margins and should be avoided.

Sull and Escobari (2004) have studied Latin American enterprises and their difficulties in facing globalization. The authors have indicated that even with “Latin Cost” difficulties, a few Latin American enterprises have become the leaders in their industries and they indicated three steps for success in internationalization: commitment to the global mindset, involvement in daring decisions in order to make this commitment irreversible and realignment of the whole company to compete on a global scale.

Resources and Competences for the Internationalization of Late Movers

Competences are composed and developed by a set of tangible and intangible resources – related to proceedings, the culture and values, relationship networks and important initiatives for organizational changes (Mills *et al.*, 2002). Resources are important when they add value, are rare, unique, irreplaceable and versatile (Barney, 1991). They are combined in a unique way to create the core competences of the company (Prahalad and Hamel, 1990; Mills *et al.*, 2002) that are the most advanced activities of the corporation, keys to the company’s sustainability and strategic performance (Mills *et al.*, 2002).

The core competences according to the organizational competences framework developed by Mills *et al.* (2002) should be analyzed as groups of resources combined in a certain way that create benefits perceived by the clients, as well as benefits for its technical resources that sustain this perception and for the human and collective resources. The emergence of competences in a company is assured by the articulation and mobilization of the technical and human resources and the resources perceived by clients (Mills *et al.*, 2002). Therefore, competences emerge from the coordination and management of resources. The competences that create competitive advantage are based on important resources or on a better coordination of non-important resources or even in the unique coordination of resources that are not necessarily rare. Table 1 (see p. 66) presents the various levels of competences according to Mills *et al.* (2002).

This architecture of organizational competences is the basis for marketing strategies; therefore, companies can diverge in their strategic positioning for the structure of resources and competences created according to those resources (Barney, 2001). Hence, the strategic engine is composed of organizational competences that recreate and adapt competences over time in order to retain their rarity, inimitability, versa-

TABLE 1
Organizational competences

Competence category	Description
Core Competence	Usually refers to high competence activities important at a firm's corporate level which are key to the firm's survival and are central to its strategy.
Distinctive Competence	Refers to high competence activities that customers recognize as differentiator of your firm from competitors and that therefore provide a competitive advantage.
Organizational or business unit competences	The small number of key activities, usually between three and six, expected from each business unit in a company.
Supportive (or meta) competences	An activity that is valuable in supporting a range of other activities. For example, a competence for building and working productively in teams can have a major impact on the speed and quality of many activities in the company.
Dynamic Capability	The capability of a firm to adapt its competences over time. Closely related to resources important for change.

Source: Mills et al. (2002)

tility and value adding characteristics. Should the company fail to change its competences, its competitors may do so, even in a different way, leading them to a different trajectory at a lower speed (Eisenhardt and Sull, 2001). As a result, it is very important for the company to develop its dynamic capabilities (Grant, 1996; Eisenhardt and Martin, 2001; Sull and Escobari, 2004). Also known as combining capabilities (Kogut and Zander, 1992), they are processes that change and recreate resources, generating strategic and organizational routines that create new competences. It is the capacity of the firm to create a competence that enables it to adapt to the various environmental situations it faces. This adaptation would take place due to the constant development of the competence in response to external and internal divergences of the corporative environment.

This takes us to another point which is fundamental to understand competences of first and late movers. If the development of competences is central to their sustainability and the strategy, it must be recognized by the company; this is seldom discussed in the literature (McGrath, MacMillan, Venkataraman, 1995). Recognition is not easy because competences are frequently tacit or because the recognition of one competence may be to the detriment of another that is currently recognized (Tampoe, 1994) if the new one attracts investments that had previously been allocated to the other (Dierickx and Cool, 1989). The greater the recognition and invest-

ments directed to the development of a competence, the more feasible and the stronger the confidence of others become when using the competence (Guallino and Prévot, 2005). This means that if there is no recognition, there are no investments in developing the competence and consequently no use of it in the whole organization.

This capacity to develop competences is the basic assumption that differentiates competences of first and late movers. Although this distinction of competences may be seen as a slant, the development and recognition of diverse organizational competences exemplify the principle of heterogeneity (Barney, 1991; 2001). As a result, the first premise of this study is:

Premise 1: the difference between competences of first and late movers result from different competences developed and recognized in each company.

On analyzing the criticisms of VBR (Priem and Butler, 2001) from the perspective of dynamic capabilities (Grant, 1996; Teece *et al.*, 1997; Eisenhardt and Martin, 2001), it is found that although competences can be unique, rare and value adding, they are sustainable only for a period of time. This is due to the fact that even with heterogeneous resources and different routes of competence development, after a period of time they can be imitated by other companies that compete in the same segment as the leader (Eisenhardt, 2001; Eisenhardt and Martin, 2000). The first assumption accepts that due to different home characteristics of multinationals, late movers do not compete in the same way as leaders, but develop competences and internationalization strategies that are different from those of previously established companies. This is the basis of the second premise:

Premise 2: due to different characteristics in the home countries of first and late movers, the latter develops and recognizes different competences resulting in new internationalization strategies.

CASE STUDY

The case study is an appropriate methodology for “how” and “why” questions that are applied to a set of contemporary events on which researchers have little or no control (Yin, 1994) and is therefore suitable for the present study. The case study in this research can be classified as exploratory both because not many studies have as yet been conducted on the phenomenon and also as the research deals with operational relations that should be examined over time rather than analyzing frequency and incidences (Yin, 1994).

Data sourcing is totally secondary because this research focuses only on recognized competences. The objective of this paper is to identify the organizational architecture

(Mills *et al.*, 2002) of first and late movers. In order to do so, it will focus on competences recognized by the organization and that can be found at two different levels of development (Guallino and Prévot, 2005): institutionalization – recognized competence but not extensively applied – or dynamic capability – recognized and widely applied.

In the case of Lafarge, the data source was the 2004 annual report (Lafarge, 2004), an article and a case study on Lafarge by Som (2003, 2005), an article by Houlder (2002) and information from their website (Lafarge, 2005).

In the case of CEMEX, various corporate documents were consulted such as annual reports of the last three years (Cemex a, 2002, 2003, 2004), official statements made by directors and president (Cemex b, 2002, 2003, 2004), as well as notes and articles from the company's website (Cemex, 2005). Other media were consulted such as an edition of the most competitive companies in Latin America in the *America Economia Magazine* (2003), and articles (De March, 2003; Chung and Paddack, 2003).

The Votorantim Cimentos study was based on previous research (Fleury and Fleury, 2005; Rocha, 2003) as well as data from the Votorantim website (Votorantim, 2005).

Cement Industry

The cement industry is characterized by a product of low added value that requires a high level of initial investment and a long maturation period for investments. These structural features make scale revenues increase according to the amount of production and unit costs are sensitive to industrial usage rates.

As for the product, cement cannot be delivered over long distances due to its characteristics and logistic costs and it is dependent on mineral supplies and energy. Thus, companies restrict the plant activities to the region where it is located due to the impossibility of long distance exports. As a result, internationalization in this industry is basically achieved through partnerships and plant acquisition around the world. A movement of consolidation can be observed in a few groups known as global players that hold an outstanding position in the industry. Together they are responsible for 40% of world installed capacity, producing what could supply 15 times the Brazilian market; these groups are expected to reach 50% of total world market in the near future. In recent years, major companies in the industry have taken an aggressive stance to acquisitions with the clear intention of eliminating local producers. There are eight major players around the world, namely five European compa-

nies (Holderbank, Lafarge, Heidelberger, Italcementi, Blue Circle), two Japanese (Taiheiyo and Ube-Mitsubishi) and one Mexican (CEMEX).

Lafarge

Lafarge is a French Group that was founded in 1833 but only started cement production in early 1868 when it became one of the pioneers in the industry. Lafarge recognizes itself as responsible for two of the most important discoveries of the 20th Century: white cement and Ciment Fondu, with high rates of aluminum and higher resistance to aggressive agents. These findings were made at the Research Center Laboratory, established in 1887 and the oldest research center in the cement industry world (Lafarge, 2005).

Lafarge started its internationalization process in the first half of the 20th century. Between 1914 and 1955, it started operations in North Africa and soon became the largest producer in Algeria, Morocco and Tunisia. In 1939 it became leader in France. From 1951 to 1981 the focus was changed to the Americas with mergers and acquisitions. In the 1980's the focus of investment returned to Europe, e.g. Spain, Turkey, Austria and Eastern Europe. In the 1990's Lafarge made a series of acquisitions and joint ventures all around the world, especially in Asia. In 2001, it became global leader by acquiring the British Blue Circle. Bertrand Collomb, Lafarge's president and CEO since 1989, describes the situation of the last decade: "In 2001, Lafarge strengthened its position as a global leader in material construction due to a rigorous acquisition and development policy in each continent" (Som, 2005).

This process of acquisitions has increased considerably in the last decade, as the market has consolidated and the leaders are striving to reinforce their strategic global positioning. The fundamental reasons for the acquisitions are the product features: the consumption must be close to production and the logistic cost is so high that production of cement in Europe to sell in South America is not justifiable.

The merger and acquisition strategy allowed the company to develop a high level in its core competence: the process of acquiring other companies. This process includes not only market prospecting and negotiating capacities, but also the development of a human resources policy that stimulates the sharing of experience and best practices as well as financial competences in raising capital (Lafarge, 2004; Som, 2003).

The human resources management is based on group management capacity. The director identified this clearly in his inaugural speech when he argued that post-acquisition success depends on the balance of culture and value sharing (softer skills)

and technical capacities (harder skills) such as operational excellence. His priority was to develop similar mindsets throughout the company, mainly among the managerial body. In order to facilitate this integration, Lafarge keeps a 100% non-native managerial body. Bertrand Collomb affirms that maintaining a decentralized operation is critical and developing international managers is the best way to become international (Som, 2003, 2005).

The company invests in human resources management as a support to its strategy. The focus is on maintaining a long term relationship with the employees as Lafarge invests in the global managers' development over the years. As a result its remuneration system distinguishes between an annual bonus and long term bonus and separates average and excellent performance in the bonus given. One of the senior vice-presidents stated that Lafarge's human resources management policies and practices are excellent and can be compared not only to those of the best competitors in the cement industry but also of the best companies worldwide. Som (2003) declares that culturally established human resources practices are a source of competitive advantage that are hard to be obtained and once acquired are difficult to duplicate.

Cement is a commodity and the customer's choice is generally based on price. Lafarge dedicates itself to developing differentials in its product by means of the approximation to clients and identification of their specific needs. This added value may allow the company to adopt higher prices. As markets are local and have specific tastes, unit strategies vary from country to country. Bertrand Collomb declares that the company intends to become leader in construction materials with operational excellence and value addition. In 2004, Lafarge was able to minimize its production costs by decreasing the energy per ton produced and diversifying suppliers. It is clear that Lafarge's strategy is to continue competing in scale, but it will invest in the differentiation of products in local markets where there is a place to do so (Som, 2005; Lafarge, 2004).

Mauá Cement manufactured in Brazil, cement mixes in the United States (USA) and concrete cement in India are examples of differentiation. The Mauá Cement is sold in sacks and recognized by its brand, mainly in Southeastern Brazil; another strategy is selling in bulk with low value added. In the USA, they have made cement mixes in order to increase product performance. These mixes are responsible for 30% of sales in the country. In India, market research in 2003 revealed that 70% of final customers built or repaired their houses themselves (homebuilders) and were interested in superior quality products. The main product characteristic developed for this market was the quick fixation cement, perceived as a high quality product (Lafarge, 2004).

For every innovation in terms of product and process, Lafarge counts on a central research laboratory. With local partners like Massachusetts Institute of Technology (MIT) in the USA, they discover things that can be applied in new products. This research is not only useful at the local level, but in particular at the global level. Franz-Josef Ulm, associate professor of civil engineering at MIT, affirms that Lafarge is the only group that dominates the nanometric approach to materials. He believes that this research will lead to the development of extremely high performance materials and extend their lives; he declares that this discovery is comparable to human genome (Lafarge, 2004).

Using the Lafarge case to apply competence architecture developed by Mills *et al.* (2002), the following competences of the company were identified:

TABLE 2
Lafarge's competences

Competence category	Description
Core Competence	Operational excellence (low cost production) and better product.
Distinctive Competence	Product personalized according to region and high quality (where added value is perceived by clients). Low cost products (where competition is based on cost). Research based on sustainable development.
Organizational or business unit competences	Investment in HR. Research and Development (R&D) in products and processes. Production process.
Supportive (or meta) competences	Financial management for investments. Firms acquisition including integration.
Dynamic Capability	Lafarge has developed the capability to research aligned with centers of excellence centers of education and research. HR Management with focus on high mobility, allowing a dynamic sharing of experiences and best practices. Market search and identification of local customers needs.

Source: Authors

CEMEX

CEMEX is the third largest producer of cement in the world. It was established in 1906 in Mexico but its global ascension in the cement market started in the mid 1980's and became strong in the 1990's. CEMEX is run by Lorenzo Zambrano, the founder's grandson, and has reached average margins of 31% in the last 15 years,

becoming one of the most efficient global companies in the sector. Nowadays, the company exploits similar costs of capital to those of its European competitors due to geographical diversification and being in more than fifty countries in Asia, Europe, Africa and America. Why is this Mexican company successful in relation to its powerful European competitors like the French Lafarge or the Swiss Holcim?

When Zambrano became Chairman of CEMEX, he realized that he should change the image of the cement sector. Additionally, he understood that the management information system was vital to decision making. As a result, in 1990 he introduced the “executive information system” (SIE) that provided consolidated information about the performance of its various plants, demanding precise information on production from each unit to support executive decision making.

The CEMEX internationalization process in fact began in the 1990’s with aggressive acquisitions of Spanish and Latin American companies. Zambrano believed that the company would either grow fast or be absorbed by its global competitors. The rapid growth strategy applied was acquisitions; this caused excessive distrust among market analysts on the amount paid in the acquisitions and doubts about Zambrano’s competence to properly manage and integrate all the acquired companies well.

CEMEX’s head office oriented the internationalization process based on the attractiveness of the market and cultural proximity. Though dealing with chaotic environments could be seen as a threat, it was in fact the source of advantage for this company. CEMEX was experienced in dealing with chaotic urban logistics at home in Mexico. This distinctive factor, that is a consequence of its origin, set CEMEX apart from its European competitors.

CEMEX used logistics and information systems as the basis for operations in the chaos. The cement mortar can only be delivered at the exact moment of use which means that if the construction chronogram delays as much as a few hours, which is quite frequent in the sector, the cement mixers must wait in front of the construction to deliver. For CEMEX, this means a lack of optimization in the use of trucks, high labor expenses and dried cement mortar so that cement mixers need repairing. For the construction company, delays in delivery mean delays in the construction work because cement companies adopt very long delivery times for safety reasons. As an example, in the early 1990’s, CEMEX used to deliver cement one day after the order with a margin of three hours for delivery time.

Instead of accepting this as a characteristic of the sector applicable to every company, CEMEX decided to take advantage of the promise to deliver cement faster,

optimizing the use of trucks. Zambrano wanted the client to see cement as a solution and not as a mere commodity. In order to achieve this, branding and relationship marketing needed altering and so deep and long lasting changes were made. The delivery system has been changed. Nowadays, the company adopts a system in which the client's orders are delivered in just two hours with expected delays of twenty minutes. The logistic system is one of the support factors for this. Cement mixers are moving around the cities. "CEMEX applies algorithms based on greed (delivering maximum cement, as fast as possible, to the maximum number of clients), and repulsion (avoiding wasted efforts from duplication and keeping all trucks far from the other)" (De Marchi, 2003). It has allowed them to deliver cement with fresh cement mortar and increase trucks' productivity by 35% and guarantee client satisfaction since they know that whenever they need more cement, CEMEX can provide it in less than two hours.

However, none of this would be possible without the use of information technology. The SIE provides the production data for each factory and allows managers to make delivery decisions in the most rational and safe way. Additionally, the company developed IT procedures and practices that allow clients to collect and process information and get feedback. Truck drivers conducted satisfaction surveys in online files.

Although logistics and IT were the most important weapons for its competitive advantage in the sector, the challenge of transferring these competencies to other locations remained. CEMEX used the competences in IT, people and knowledge management. The challenge was to integrate the international units acquired. This involved sending a CEMEX team to the new subsidiary after each acquisition process to transfer the management capacity, improve IT infra-structure, standardize business processes and train employees.

Specifically in IT and knowledge management, a world database has been developed with information on production, sourcing, sales and benchmarking, accessible at various managerial and operational levels; this has decreased skepticism about CEMEX internationalization dream and contributed to new initiatives and organizational learning by sharing best practices through the information system.

All this was achieved because Zambrano understood that technology and information could only be useful if people knew how to use them. The focus has been gradually moved from technology to information because CEMEX saw the IT center, people and technology were just the means of communication. The employees attended several training sessions that take ten percent of their working hours. People

at the company believe in its global commitment and it has resulted in the company becoming the third largest in the world and competing as an important global player.

As a result of its core competences in technology and information management, CEMEX has created paths for new business such as consulting on the implementation of IT systems thanks to the experience acquired by implanting the IT system in every new company acquired by CEMEX and adapting the system to people. Moreover, CEMEX has advanced into internet business, relationship portals with clients and suppliers as the broad and agile database allowed the value chain to be better organized by an online buying and selling system that assures both cost reduction and higher productivity as well as a better relationship with chain participants.

In light of the CEMEX case and the considerations on the types of competences (Mills *et al.*, 2002) the CEMEX competences identified in this study are presented in the Table 3.

TABLE 3
CEMEX competences

Competence category	Description
Core Competence	Use information = executive information system and capacity in the use of information. Delivery = quick mobility of trucks in chaotic cities.
Distinctive Competence	Relationship with clients. Delivery time. Client satisfaction assessment system.
Organizational or business unit competences	Logistics. People. IT and knowledge management.
Supportive (or meta) competences	Post-acquisition integration team. Frequent trainings. Standardization of processes through IT.
Dynamic Capability	Capacity to adapt different organizational situations to the management system applied. Global Mindset and the comprehension that cement is not a commodity.

Source: Authors

Votorantim Cimentos

Votorantim Cimentos belongs to the Votorantim Group which was established in Brazil in 1918 and is one of the biggest Brazilian economic groups with businesses in

the cement, cellulose, paper, aluminum, zinc, nickel, long steel bars, polypropylene films, chemical specialties, orange juice fields and also financial, biotechnological and IT fields. In the internationalization process, Votorantim has acquired strategic businesses to expand its productive capacity and develop talents.

Votorantim Cimentos was formed in 1936 with the Santa Helena plant located in the country area of São Paulo in Brazil. It is now a holding and has plants in Brazil and abroad producing cement, cal, mortar and concrete. The company's advantage is based on principles such as: health and occupational safety as priorities; staff who are motivated, committed and competent; harmony with the environment and commitment to the quality of life; client satisfaction by very reliable solutions that are efficient and rational; improvement in the processes and synergy; optimized performance of installations and equipment; intelligent low costs.

Votorantim is 100% Brazilian and had concentrated its activities in the domestic market. Following economic instability in Asia, the international groups focused their attention on Latin America, including Brazil (sixth in the world and half of South American demand). For example, Lafarge, bought Cia. Materiais Sulfurosos Matsulfur and acquired shares in the Cia de Cimento Portland Maringá and in the Cimento Tupi. The Swiss Holderbank acquired Cimento Paraíso. The Portuguese Cimpor acquired Serrana/Cimbargé, Cisafrá and plants from Brennan Group.

Faced with the threat of these international groups in the domestic market, Votorantim Cimentos started reviewing its strategy to focus on the local market. By trying to expand to other nearby markets (Latin America), the company found itself surrounded by its competitors in places such as Venezuela, Colombia and Argentina. Holderbank, for example, paid a high price for the control of the cement company Juan Minetti which had an 18% share of the Argentinean market so that they could stop Votorantim buying it. In these circumstances, internationalization became increasingly vital to Votorantim's domestic leadership so as to diversify its cash flow and above all to defend itself from the immense wave of acquisitions led by the most important global players.

Its international activity started in 2001 with the acquisition of St. Mary's, a Canadian company with plants in Ontario (39 of mortar and 2 of cement), also in the United States (2) and nine distribution terminals in the Great Lakes area. In 2003, it acquired 50% of Suwannee American Cement that had been built recently in the United States. In 2004, it acquired S&W Materials Inc. in Jacksonville, one of the biggest concrete companies in Florida, United States and two additional plants

in the United States in Illinois and Michigan in the following year. Votoratim is one of the 10 biggest cement companies worldwide and is the leader in Brazil in cement and concrete (Engemix). Whilst investing in domestic expansion by building new plants, the company's goal is also to double its international production in the next three years.

Like its main competitors, the company invests continually in the development of products with higher added value, in differentiated services and solutions for its clients and in the development of its employees. Fourteen of its units have already been certified at the highest level of the international health, security and environmental system.

When acquiring new factories, the greatest challenge was to pass on the culture of operational excellence and low cost operations that embrace various tools (TPM, Six Sigma, Project Management, etc.) known as Votorantim Cimentos Production System. On the other hand, knowledge about logistics (water transportation) and product (whereas a mixture is made and sold basically in sacks in Brazil, the product is pure, type one and sold in bulk in the United States) was acquired from the subsidiary because they found significant differences from the domestic market. Since the acquisition of St Mary's for example, production and sales have become increasingly regular, and there was a 25% reduction in costs and working capital in the first year.

Another great challenge faced by Votorantim in the internationalization process is the cultural diversity between Brazil and Canada and between Brazil and United States in part due to differences in the mindset of Brazilian and Canadian managers. On the Brazilian side, the difficulty arose because Votorantim is a familiar enterprise, proud of its position in the domestic market and had never invested in developing the global mindset of its executives and a new program was therefore required to develop international management talents and expatriation. On the other hand, the Canadians were reluctant to accept the viability of the project and the quality of Brazilian products and this led to 200 managers being invited to visit the Votorantim plants in Brazil. Other problems in the people management related to negotiation with unions, the remuneration system and investments in people training to operate with the new methods.

As a result of this process, Votorantim started to position itself as a global player challenging the most important international competitors by applying a strategy of operational excellence strategy based on the competences presented below (Table 4):

TABLE 4
Votorantim's competences

Competence category	Description
Core Competence	Low cost production: Votorantim Cimentos Production System.
Distinctive Competence	Development of highly reliable solutions, with efficiency and rationality for competitive prices.
Organizational or business unit competences	Synergy between subsidiaries and head office supporting learning and continuous improvements: transferring know-how.
Supportive (or meta) competences	Standardization, production with low environmental costs.
Dynamic Capability	Continuous improvements, development of talents.

Source: Authors

DISCUSSION AND CONCLUSIONS

An analysis of the case of the first mover Lafarge reveals that the company based its advantage on technological leadership in product and process by optimizing its processes and innovating in the cement market. In order to compete against important players like Lafarge, the late mover, CEMEX, introduced a new business model based on a managerial information system rather than following the same path as its competitors. The other late mover Votorantim invested in low cost production.

Thus, different strategies and core competences can be identified among the first mover and late movers resulting from the distinct competences developed and recognized by the companies. Lafarge had access to sources of raw materials and investments in R&D and therefore adopted a strategy based on large scale production and high quality. On the other hand, CEMEX was aware that its core competences came neither from its cement production process nor from its product quality, so they adopted the position of developing a closer relationship with clients. They did this by developing a managerial information system to exploit its experience in operating in chaotic environments that demand complex logistics. Votorantim focused on operational excellence based on the Votorantim Production System.

On analyzing the distinctive competences of each company, we find that Lafarge delivers a high quality customized product to customers as a result of its capacities in

R&D or a quality product with optimized production. What sets CEMEX apart from the rest is product delivery in the shortest time whilst maintaining a close relationship with clients thanks to the organizational competences in logistics and IT developed internally. Votorantim has developed very reliable solutions with efficiency and rationality at competitive prices.

Dynamic capabilities of Lafarge, CEMEX and Votorantim are also different. On one hand, Lafarge has invested and developed partnerships to develop capabilities in conducting research in distinct education and research centers with excellence. It is also supported by HR management focused on high mobility to share experiences and best practices along with new market analysis and the identification of local demands in order to create the best products. On the other hand, CEMEX has applied an information system and organizational integration capability to adapt to the most diverse organizational environments while Votorantim has focused on continuous improvements and the development of new talents.

However, some similarities can be found in the architecture of the competences of those companies by analyzing the organizational competence of human resources and the support competences in the integration process following acquisitions; Lafarge, CEMEX and Votorantim work hard to transmit that success in the worldwide market is based on the integration of teams and core processes and the socialization of a global mindset and culture throughout the company.

In light of these findings, we return to the central question of this research: do the different internationalization strategies of first and late movers result from a different architecture of resources and competences? This is certainly true of the cement companies analyzed in this study. Late movers chose a different strategy as opposed to following the leader. CEMEX opted for a risky strategy resulting in high returns by changing the “rules of the game” and based its strategy on the development and recognition of different competences from the leader which were very innovative for a cement company. Despite the high risk, the strategy was properly implemented and the late mover was able to move up the value curve, selling cement not as a commodity, but as an agile service for civil construction in Mexico and in every other country where it operates including developed countries where the first mover was established.

It is also important to observe whether the origin of the company influenced the development and recognition of the competences. For example, CEMEX developed outstanding competences in logistics, due to the confusing Mexican transportation system.

Thus, it is found that the architecture of competences of these companies illustrate various kinds of differences between the competences of first and late movers. These differences, in conjunction with the success in the internationalization process of the late movers under study, reinforce the idea that multinationals from developing markets in the cement sector can develop and recognize new competences and strategies for their internationalization.

It should be noted that this situation cannot be generalized as this study addresses cases in just one industry. However, future research analyzing competences in first and late movers from different sectors may provide results that enable companies to gain a better understanding of strategic decisions in search of internationalization.

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