

**HOW CAN INTER-ORGANIZATIONAL LEARNING AND DYNAMIC MANAGERIAL CAPABILITY
IMPROVE CLUSTER PERFORMANCE?**

***COMO A APRENDIZAGEM INTERORGANIZACIONAL E AS CAPACIDADES GERENCIAIS
DINÂMICAS PODEM MELHORAR O DESEMPENHO DE CLUSTERS?***

***¿CÓMO PUEDE EL APRENDIZAJE INTERORGANIZATIVO Y LA CAPACIDAD DE GESTIÓN
DINÁMICA MEJORAR EL RENDIMIENTO DE CLÚSTERS?***

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ABSTRACT

This paper aims to discuss how inter-organizational learning and dynamic managerial capability can improve cluster performance. It proposes a theoretical framework that can contribute to the clustering process by considering a new lens for understanding the relationship between dynamic managerial capability and the mechanisms of learning hitherto not explored at an inter-organizational level. The framework proposed aiming to explain and improve the competitiveness of firms and representing a new way of viewing these theories and understanding how they can work together at an inter-organizational level of analysis.

Keywords: Clustering process; Dynamic managerial capability; Inter-organizational learning; Cluster performance; Theoretical framework.

RESUMO

Este artigo tem como objetivo discutir como o aprendizado interorganizacional e a capacidade gerencial dinâmica podem melhorar o desempenho do cluster. Propõe-se um *framework* teórico que pode contribuir para o processo de gestão de clusters, considerando uma nova lente para entender a relação entre a capacidade gerencial dinâmica e os mecanismos de aprendizagem até então não explorados em nível interorganizacional. O *framework* proposto objetiva explicar e melhorar a competitividade das empresas e representa uma nova maneira de visualizar essas teorias e entender como elas podem trabalhar juntas em um nível de análise interorganizacional.

Palavras-chave: Processo de gestão de clusters; Capacidades gerenciais dinâmicas; aprendizagem interorganizacional; Desempenho do Cluster; Framework teórico.

RESUMEN

Este artículo tiene como objetivo discutir cómo el aprendizaje interorganizativo y las capacidades dinámicas de gestión pueden mejorar el rendimiento del clúster. Proponemos un *framework* teórico que puede contribuir al proceso de gestión de *clusters* al considerar una nueva lente para comprender la relación entre las capacidades dinámicas de gestión y los mecanismos de aprendizaje hasta ahora aún no explorados al nivel interorganizativo. El *framework* propuesto objetiva explicar y mejorar la competitividad de las empresas, y representa una nueva forma de mirar estas teorías y comprender cómo pueden trabajar juntas en un nivel de análisis interorganizativo.

Palabras-clave: Proceso de gestión de *clusters*; Capacidad dinámica de gestión; Aprendizaje interorganizativo; Desempeño del cluster; Marco teórico.

1 INTRODUCTION

Geographically, some firms create productive arrangements to gain competitiveness, bringing together production capacity and/or information to generate and share knowledge (EIRIZ; GONÇALVES; AREIAS, 2017). This collaborative process has gained consistency as firms have become more intensely connected and have started to agglomerate economic activities geographically in interconnected sectors, forming what are called clusters (PORTER, 1998). This clustering process must be created and managed to establish the interconnection of firms, enabling them to gain competitiveness by acting in a specific marketplace. We assume that inter-organizational learning and managerial dynamic capabilities are determinants in the management of this clustering process.

Inter-organizational networks are formed by companies that intend to strategically share knowledge, creating cohesive links with the agents of the organizations, improving the capability to identify valuable knowledge (ORTIZ; DONATE; GUADAMILLAS, 2017). One of the greatest challenges of the competitive environment for organizations is the capacity for strategic renewal (WARNER; WÄGER, 2019). To deal with environmental dynamics, organizations must mobilize a set of features and capabilities to create competitive advantage, but understanding how this process occurs is still problematic.

Gaining competitive advantage is a process that requires the organization start to think strategically and make decisions intentionally to create assets, establish routines and improve their effectiveness in developing dynamic capability. These strategic decisions almost always come from the top and are developed by corporate management, aiming to find a way of influencing the firm's profitability. The knowledge entailed in this process results from long experience accumulated by managers, been part of the human capital, in other words the knowledge accumulated by the experiences had in the time (ÅBERG; SHEN, 2020), thus, benefiting directly the decision making (ADNER; HELFAT, 2003).

Some researchers have described how firms develop the capacity to adapt to changes undergone by the market, thereby gaining competitive advantage (MARTIN; BACHRACH, 2018; PETERAF; STEFANO; VERONA, 2013; TEECE; PISANO; SHUEN, 1997), while others (e.g. EIRIZ; GONÇALVES; AREIAS, 2017) emphasize the relevance of the clustering process in gaining

competitiveness by sharing information, resources and productivity. To some extent, these theories can be related, and firms can develop dynamic managerial capability through inter-organizational cooperation.

Actually, doesn't exist in the literature authors that mentioned the connection between these theories, but it understood as relevant for the strategic studies. Additionally, the inexistence of a model that integrate and explain, if and how can happen these integration, leading us to reflect on the relation and this process takes place, so, the proposed framework, will advance in the studies and make important contributions for the literature and business research.

This paper aims to discuss how inter-organizational learning and dynamic managerial capability can improve the clustering process to gain competitiveness. It is divided into six parts. Sections 2 and 3 discuss the relation of the manager as an asset and dynamic capability, the development of theories and the implications for the firms. Section 4 discusses the inter-organizational learning process and how this perspective can affect management activity. Section 5 presents a theoretical framework to illustrate how inter-organizational learning and dynamic managerial capability can improve cluster performance and how this interrelation may be beneficial for the competitiveness of the firms. In section 6, some final considerations are presented, indicating the importance of testing empirically the framework proposed.

2 DYNAMIC CAPABILITIES: MANAGERS AS ASSETS FOR COMPETITIVENESS

One of the greatest challenges in the competitive environment of organizations is the capacity for strategic renewal (WARNER; WÄGER, 2019). To address environmental dynamics, organizations must mobilize a set of features and capabilities to create competitive advantage, but understanding how this process occurs is still problematic.

The essential for gaining competitive advantage is by tracking changes, so the firm need develop the capacity to subject the substitution and obsolescence evolved by the market (MARTIN; BACHRACH, 2018). This process of adaptation is possible through a series of procedures and processes developed by the firm as a result of capabilities, competences and learning acquired along its trajectory acting in the marketplace. During the company's

operations, the processes developed by employees lead to learning, in turn contributing to the capability to adapt dynamically.

Studies of dynamic capabilities have emerged to assist researchers and practitioners in understanding how an organization intentionally creates, expands or modifies its central features (HELFAT *et al.*, 2009) to achieve superior performance in dynamic environments (HUY; ZOTT, 2019) and subsidize the emergence of new strategic alternatives (HELFAT; PETERAF, 2003). Helfat *et al.* (2009, p. 1-2) note that dynamic capabilities come in many forms, among which are the “capabilities of the managers responsible for leading profitable firm change and growth”.

Dynamic capability, emphasis in routine (or a set of routines), a behaviour that is learned and refined, and the knowledge developed is combined with the established in the firm (RAMACHANDRAN, 2018). This was said by Zollo and Winter (2002) that associate dynamic capability with a stable pattern and learning from collective activities through which the organization generates and modifies its operating routines in search of greater effectiveness. For Helfat *et al.* (2007), dynamic capability is the capacity of an organization to create, extend or modify its resource base. The resource base of the organization includes its tangible, intangible and human resources. We assume in this paper that the manager is an asset necessary to pursue the competences to combine, recombine or reconfigure the base resources (HELFAT *et al.*, 2007), or as suggested by Tai, Wang and Yeh (2019), the internal and external assets of the organization.

Some authors (TAI; WANG; YEH, 2019; ROBERTS; CAMPBELL; VIJAYASARATHY, 2016) understand the dynamic capability and the usage of informational systems are essential to the firm sense opportunities and threats, directing to innovation and competitive advantage development, especially in high competitive markets. This argument is reinforced by Huy and Zott (2019) that dynamic capabilities are associated with the ability to produce superior performance in dynamic environments.

Eisenhardt and Martin (2000) affirm that the capability for self-development occurs through the learning obtained by the continuous repetition of one practice. The continuity of the practice makes it possible to identify failures and errors along the process and the

correction of failures teaches new ways of doing. In other words, through errors there is learning. In the same way, continuous experiences permit greater gains, as well as enhanced comprehension of what it is done and the dynamic of the marketplace, all of which leads to the development of the capacity and competences of managers (addressed in greater detail in section 3).

Is important the comprehension about the context where dynamics capabilities are developed, because is completed related with the theoretical definition, that can be understand as the ability of the firm to integrate, build or reconfigure the competences internally and externally (TEECE; PISANO; SHUEN, 1997), or use it themselves resources to combine or create market changes (MARTIN, 2011), or, finally, can be comprehended as the capability to create, extend or modify intentionally their resources (HELFAT *et al.*, 2007).

The concept of dynamic capability is linked to organizational and managerial competence and two of the key ingredients for development are innovation and learning (HELFAT *et al.*, 2009). Learning is a source of the emergence and evolution of dynamic capability based on learning mechanisms (ZOLLO; WINTER, 2002). Several studies have highlighted the role of managers in the development of dynamic capabilities (ADNER; HELFAT, 2003). Success in today's economy requires that managers exhibit a behaviour and/or entrepreneurial action (ROBERTS; CAMPBELL; VIJAYASARATHY, 2016) and put it at the centre of the operational process, developing the ability to grasp and learn from opportunities in the organizational context, then to transform them and reconfigure them as opportunities dictated by competitive forces. The development of a capability transforms the manager into an important and functional resource in the development of dynamic capability (ROBERTS; CAMPBELL; VIJAYASARATHY, 2016) and dynamic managerial capabilities, also in multi-business organizations (MARTIN, 2011).

Thus, the development of dynamic capability is possible through a set of factors related to the persons, learning capability and management support that the firm can develop internally and externally. Some researchers have discussed this topic in light of theory directed at high management, namely related to dynamic managerial capability.

3 DYNAMIC MANAGERIAL CAPABILITY

Dynamic managerial capability entails the ability of managers to create, extend or modify the firm's internal and external resources with competence (ADNER; HELFAT, 2003; HELFAT; MARTIN, 2015). This definition considers dynamic managerial capability to be the ability of managers to use the resources available in the firm, aligned with its knowledge, acquired through practice, to create opportunities that will exert effects inside and outside the organization.

We assume that the same process should occur at the inter-organizational level. This concept extends the dynamic capability perspective because it directs attention to the role of managers – individually or as a team – and focuses on the managerial impact on strategic change (HELFAT; MARTIN, 2015). Helfat *et al.* (2009, p. 3) claim that these “dynamic managerial capabilities arise from ... prior learning and experience” or from patterns and current practices of learning (TEECE; PISANO; SHUEN, 1997). The concept of managerial dynamic capabilities can help explain differences in the ways managers respond to changes in the external environment because it identifies and captures new strategic opportunities through the configuration and reconfiguration of organizational assets or the proposal of new management models and new organizational forms (DEL MAR ALONSO-ALMEIDA *et al.*, 2017).

Zollo and Winter (2002) highlight that the attributes related to the creation and evolution of dynamic capability involve learning mechanisms related to the accumulation of experience and a central process of learning related to the evolution of operating routines. Another mechanism responsible for the learning process is knowledge articulation, a collective process of learning that happens when individuals express their opinions and beliefs, engage in constructive confrontation and challenge each other's viewpoints. The third mechanism is knowledge codification, which involves the institutionalization of routines and processes to facilitate the diffusion of knowledge by way of the creation of tools or systems, such as manuals, decision support systems, project management software, etc.

The studies cited above understand that the resources available to the manager are used, but those decisions are influenced by three underlying factors proposed by Adner and Helfat (2003): managerial human capital, managerial social capital, and managerial cognition.

Nobody becomes a manager overnight. It is a process undertaken over time that is related to professional qualifications, education, training and learning processes evolved in the trajectory of engagement with the firm. Through career progression, a manager takes on new positions in the job and learns different and new aspects along this evolutionary track. The development of certain skills that can be used for a determinate aspect of work can be termed specific training, while the development of other skills can be more general. Thus, knowledge may be usable or not for the formation of managerial human capital (ADNER; HELFAT, 2003; HELFAT; MARTIN, 2015).

Raising levels of professional qualifications, relationships and social influences can help enhance the characteristics of managerial knowledge (HELFAT; MARTIN, 2015), this representing managerial social capital as indicated by Adner and Helfat (2003). It can be argued that social influence can improve firm performance by providing access to external resources, allowing benchmarking or providing information on the practices of other firms. Managers always need information in the decision-making process.

Moreover, decision making needs to be based on managerial beliefs and mental models, aligned with knowledge or assumptions about what will happen in the future based on the decision taken (HELFAT; MARTIN, 2015). Managerial cognition is related to values, preferential ordering, rationality or the form of assumptions regarding the consequences of decisions (ADNER; HELFAT, 2003). In other words, the ways in which managers take decisions, in terms of how the process takes place in the mind, are very distinct from person to person, from manager to manager, making each company unique.

Under the same circumstances, the three managerial factors that can be applied by each manager in different ways depending on their assessment; thus, manager profiles are situated and person-to-person, rather than generic. Nonetheless, it is necessary to consider the possible existence of an interaction between the factors, which might result in heterogeneity (ADNER; HELFAT, 2003). Analysing each factor individually, it is possible to perceive that they can be partially or completely correlated with one another. The human capital aspect can be related to the cognitive aspect, based on education, experience of life or previous work, which can increase the manager's cognitive capability. In turn, managerial cognition can create social relations directly related to managerial social capital (ADNER;

HELFAT, 2003). These factors are responsible for the process of development on the part of the manager and several empirical studies, as indicated by Helfat and Martin (2015), have tested each of these, demonstrating that the development of these characteristics are important for the evolution of the dynamic capability of the manager, which in turn is important for the company's activities in today's highly competitive markets.

In such highly competitive markets, there is a rapidly changing dynamic (MARTIN, 2011). In this context, the general manager needs to exercise leadership to influence the development of dynamic capability, including optimizing ways of using resource bases and changing markets or competitor realities (MARTIN, 2011). This process may include enhancing the quality of information, reducing barriers and allowing innovation.

All the factors identified above are important for the development of managerial dynamic capability, but in this study managerial social capital is of particular significance as in highly competitive markets, it enables firms to making alliances through which they can generate learning and thus enhance the development of dynamic managerial capacities.

4 CLUSTERS AND INTER-ORGANIZATIONAL LEARNING

Few small firms have the capital to invest in research and development (R&D) processes, although most are born from a revolutionary (innovative) idea and are in themselves thus competitive companies. In contrast, large firms can easily accommodate R&D, or outsource it. Small firms may, however, engage in a benchmarking process, aiming to keep up with the competition. As previously noted, the majority of firms are now immersed in a context of high competitiveness and the development of the capacity to learn collectively and establish trust and collaboration depends on the inter-organizational learning process.

Mozzato and Bittencourt (2014), developing the analytical framework of Crossan, Lane and White (1999), incorporate a fourth level of analysis: inter-organizational learning. This illustrates the importance of the relationships established by means of cooperation between different actors through a fourth learning process. Such a cooperative process occurs through learning episodes with the objective of establishing relational strategies between the different actors involved in the inter-organizational relationship.

At the inter-organizational level, the learning process involves a partnership between firms to share work practices, processes and technological innovation. There are some determinants of such collaboration in terms of the relationships, in particular the inter-organizational communication process, which contributes to a shared vision and the maximization of essential resources through the interactions between the actors. When the knowledge, behaviours and actions of different actors are combined and integrated in several firms, inter-organizational learning becomes effective (SILVA, 2009).

Thus, strategic planning may be the solution to remaining active in the market, as by this means it is possible to make alliances and collaborate to integrate inter-organizational learning and obtain new knowledge. According to Lane and Lubatkin (1998), there are three methods for acquiring knowledge: passive, active and interactive. In accordance of with the proposal of this paper, the focus of the discussion will be on the interactive method. To clarify, the interactive method is important in this theoretical reflection because the passive and active forms do not permit firms to add unique value to their own capabilities. In the passive and active forms companies do not develop their own competencies, rather relying on another firm or learning from others' sources of knowledge (LANE; LUBATKIN, 1998), which is not the case in the interactive form.

The interactive form involves two or more firms, which can notionally be divided into student and teacher firms, the former learning from the latter and gaining an understanding of the process regarding how things are done and why, thus encompassing both observable behaviours and the unobservable aspects underpinning them (LANE; LUBATKIN, 1998). This kind of learning process is considered more efficient than others precisely because the firms seem to learn more together when there is collaborative and integrated planning (LARSSON *et al.*, 1998). This collaborative planning process commonly involves personal contact between the actors, including – but not limited to – the managers. However, even the sharing of human resources and information is not sufficient for the transfer of knowledge; rather, certain active processes, such as seminars, workshops and professional training, are needed to make the knowledge more explicit (EIRIZ; GONÇALVES; AREIAS, 2017).

This collaborative process has gained consistency over time as firms have become more intensely connected and have start to agglomerate their economic activities

geographically or in interconnected sectors, forming what is termed clusters (PORTER, 1998). Interconnection promotes the collaboration of the firms, thus enabling them to gain competitiveness in a specific marketplace. The clustering process can be observed around the world. Perhaps the best-known instance is Silicon Valley in the United States, where many technological areas are concentrated. Here, the presence of the preeminent organizations related to computing and the Internet in the area creates a geographical event stimulating increasing numbers of such companies to migrate there.

Clusters can be understood as agglomerations of industries, horizontally or vertically related (clients, suppliers or competitors), as well as universities and research institutes (POTTER, 1998). This involves the exchange of resources through a collaborative effort which benefits from access to mechanisms permitting vertical and horizontal specialization and facilitating social relations (TAO; TODEVA, 2006). This process of agglomeration in a geographic space permits a strategy of collaboration among actors by virtue of their concentration in a specific location (NEWLANDS, 2003). The clustering process involves personal contact and facilitated access to input because suppliers consequently also tend to be installed in the same area, thus making the process of input distribution easier and faster (RØYNE; BERLIN; RINGSTRÖM, 2015).

The collaboration process permitted by the clustering formation is positive for all those firms that become integrated, not only in terms of the proximity of suppliers but also the access to innovation in products or processes (HERVAS-OLIVER; LLEO; CERVELLO, 2017). The concentration of firms in a cluster and the information shared by the participants can cause the spillover of knowledge and there is empirical evidence to suggest that the location or proximity permits firms to exploit this knowledge (AUDRETSCH; FELDMAN, 1996). Indeed, proximity permits spillovers of technology faster than for others located outside the network (BELUSSI; SAMMARRA; SEDITA, 2010). The installation of many firms close to others in the same field affords them greater access to information and the opportunity to learn from the activities of others, including from suppliers and clients.

In other words, the clustering formation can be beneficial for those geographically integrated firms, facilitating access to suppliers and consequently quicker acquisition of inputs. Implicitly, firms can thus work with lower stock levels, facilitating innovative potential

and technological development. Competitors in the field are close at hand and it is possible to know what they are doing differently, including establishing a benchmarking process. From the managerial perspective, this is one way of learning.

The operations of interconnected firms within an industrial cluster contribute to social networking, thus facilitating the transmission of knowledge (HERVAS-OLIVER; LLEO; CERVELLO, 2017). The development of the transferal of knowledge process is important for managers, particularly in terms of socialization and internalization, considering that it can expand managers' experience, which is part of the managerial dynamic capability development process. One of the main roles of managers in clustering is the capacity to appropriate collective assets that improves the performance of the cluster.

The learning process developed by the joining of the firm in the cluster formation is made possible by the accumulation of knowledge resulting from the co-creation and transfer of information between organizations (EIRIZ; GONÇALVES; AREIAS, 2017). As knowledge is the basic resource of the "new economy", one means of being competitive is to use this resource in a strategic manner and thus gain and retain competitive advantage (LISBOA-SOH; CASAROTTO-FILHO; JOSÉ-CUNHA, 2012).

Strategic orientation is related with principles that improve the performance of the firm, and the learning, added by the market and the entrepreneurial orientation are construct's the positively influence this performance. Actin in these three perspectives, affect the competitiveness in the marketplace (DEUTSCHER *et al.*, 2016). The orientations respectively related with the ability to use and generate information, risk-taking and innovate capability and the market intelligence in identify customers need.

To be competitive in the marketplace, today it is necessary to be faster in innovating and to price competitively. For this, the firm needs information, i.e. concerning what others are doing and how they are doing and thus doing better than them. Considering the competitive environment in which firms are immersed, they must act dynamically and develop the ability to enhance their capability. Managers are those most responsible for this process of adaptability, compared to other employees; they need to learn with and from competitors, suppliers and clients, absorbing spillovers effect and using these internally to develop

competitive advantage. Managers must learn with the others and their responsibility is then to lead the group to success; in our view, managerial dynamic capability, integrated with the clustering process and the learning capability, can be the pathway to success. According to Newlands (2003), clustering enables firms to benefit from a “collective learning process” and it depends on the ways in which the actors, mainly the managers, create and maintain a trusting environment of cooperation.

5 THEORETICAL FRAMEWORK FOR INTEGRATING INTER-ORGANIZACIONAL LEARNING AND DYNAMIC MANAGERIAL CAPABILITIES IN THE CLUSTERING PROCESS

Having outlined the fundamental theories, this section aims to link the concepts presented and thus propose a framework that brings together the theories of dynamic managerial capability and inter-organizational learning in the clustering process, with the aim of explaining how strategic theory can move forward through the convergence of these concepts. The central feature in the theoretical framework proposed is *cluster performance*, which depends on the management of a clustering process to develop certain dynamic capabilities at an inter-organizational level through the establishment of a partnership between the firms involved. We propose that there are some levels that warrant clustering performance: *dynamic managerial capability* (managerial human capital, managerial social capital and managerial cognition), *learning mechanisms* (experience accumulation, knowledge articulation and knowledge codification) and *determinants* of the *clustering process* (cooperation, communication, relationships, trust, processes and routines). We assume that the manager is an important asset in the clustering process because it is managers’ responsibility to integrate the basic resources at the organizational and inter-organizational levels.

Management learning is a process that involves managerial education (formal) and managerial development (informal) and it is largely experiential (SILVA, 2009). For this process to become effective in the clustering process, some competences can be mobilized and integrated in the work environment and can be developed through both a formal process of learning (training) and an informal process (knowledge embedded in practice). These elements integrate *inter-organizational managerial human capital*.

Another central attribute is *inter-organizational managerial social capital*, characterized by the social relationships between the managers of the integrated firms of a cluster. Social influence can improve firm performance by providing access to external resources and information about the practices of other firms, enabling benchmarking. This is important because managers need information for the decision-making process, and this can also help in fostering trust and cooperation.

The decision-making process that occurs at the inter-organizational level is based on managerial beliefs and mental models created collectively and aligned with knowledge or assumptions shared between the managers of the firms, which characterizes *inter-organizational managerial cognition*. This also involves frames of reference and value systems (ADNER; HELFAT, 2003), again created and shared collectively. “[D]ifferences in managerial cognition may lead to different strategic decisions and outcomes” (ADNER; HELFAT, 2003, p. 1022) and thus in the clustering process managerial cognition is a determinant of the process of strategizing.

These three managerial attributes constitute dynamic managerial capability and the interest in this paper is to propose how this can be developed at an inter-organizational level in the clustering process. Assuming that these attributes are partial or completely correlated with one another, human capital can be related to cognition in terms of the education received and the lived experiences in the social and professional contexts. Likewise, cognition can create social relations that directly affect social capital (ADNER; HELFAT, 2003).

Regarding the role of the human relationships in the clustering process and the importance of the interchange between the human, social and cognitive attributes of the managers within the firms integrated in the network, it is possible to affirm that there is a strong relationship between the attributes of dynamic managerial capability and cluster performance.

The second level of the theoretical framework involves the inter-organizational learning mechanisms. As pointed out by Zollo and Winter (2002), there are attributes related to the development of dynamic capability, involving three learning mechanisms and dynamic capabilities to generate the evolution of operating routines: experience accumulation,

knowledge articulation and knowledge codification. Although, the attributes proposed by Zollo and Winter (2002), originally, has been developed for the same organization, but considering the main of the approach and the context of clustering formation, is believable that can be adapted to the cluster reality, also.

A central feature is that these learning mechanisms can be used to promote cooperation in the clustering process, helping the actors to share knowledge and improve the interaction process and exploitation of basic resources at the inter-organizational level of learning. This depends on the mechanism of *experience accumulation* among the actors over time, based on the lived experience in and outside the firm and stimuli arising from the situations undergone by the firm. In clusters, generally the experience accumulated involves experience and tacit knowledge. It depends on learning episodes between actors from the firms and occurs during integrated actions aimed at establishing patterns and seeking a common vision.

Another mechanism responsible for the learning process at the inter-organizational level is *knowledge articulation*, i.e. the sharing of individual opinions and beliefs with others in a deliberate process of learning. This is a very important part of the relationship in the learning and clustering process because of the portability of knowledge.

The third mechanism of inter-organizational learning is the *codification of knowledge*, which involves the capacity of the cluster to create tools to institutionalize knowledge through manuals, processes and routines involving the management of the clustering processes. According to Zollo and Winter (2002, p. 342), knowledge codification “facilitates the diffusion of existing knowledge well as the coordination and implementation of complex activities”, developed to integrate the several firms that form a cluster. This learning mechanisms must be managed to create and develop dynamic capability (ZOLLO; WINTER, 2002) and in the context of firm’s network, this process depends on an inter-organizational learning process that is an important feature in the management of the clustering process.

Thus, we consider that there is a link between dynamic managerial capability and the mechanisms of inter-organizational learning that can improve the management of the clustering process by strengthening the ties between firms through the managers. Thus,

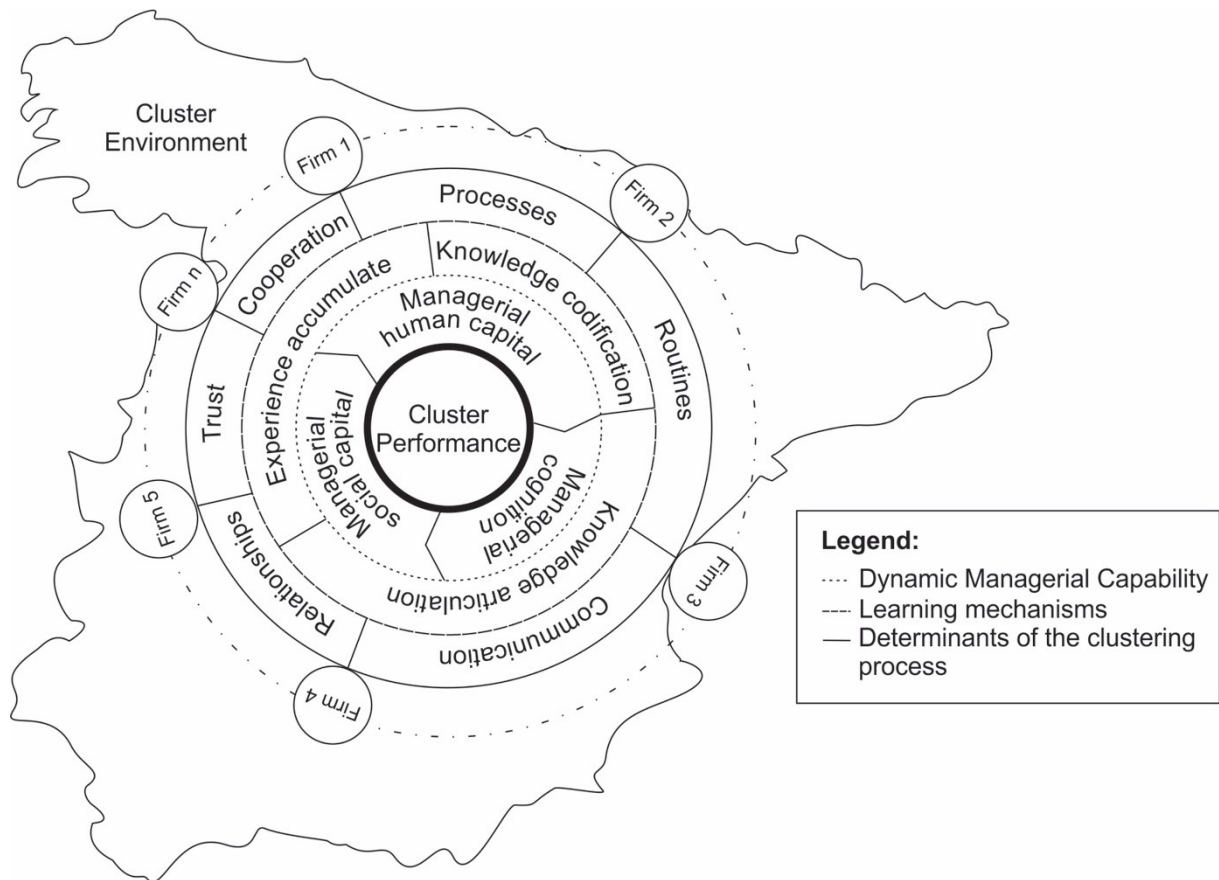
clusters need to identify mechanisms of inter-organizational learning and the attributes of dynamic managerial capabilities to establish learning strategies for the development and maintenance of competitiveness and the cluster's performance.

Moreover, there are some factors than assume the role of mediators in the other two levels of the theoretical framework proposed, termed *determinants of the clustering process*. In a clustering process, cooperation between the firms is a determinant because the essence of a strategic alliance is the aim to maximize performance and such cooperation involves the establishment of objectives, strategies and actions of the firm's actors involved in the process. Accordingly, managers must create trusting relationships to maintain cooperation.

Another determinant is communication between the firms. Establishing patterns and processes to diffuse and share information and create strategies to develop the relationships between the firms' actors, mainly the managers, is the best strategy to guarantee the development of a cluster. Finally, it is essential to map and institutionalize processes and routines from an inter-organizational perspective with the objective of creating stable patterns and behaviours to address the pressures and dynamics of competitiveness involved in a cluster.

In view of the integration developed by the clustering process and the interchange of knowledge, it is possible to develop a theoretical framework that integrates dynamical managerial capability, mechanisms of learning and certain determinants of the clustering process that contribute to cluster performance. Thus, analysing these theoretical perspectives, Figure 1 illustrates the relationships between them.

Figure 1 - Dynamic Managerial Capability in a Clustering Formation



Source: Authors (2019).

The development of the manager as an asset of the firm and consequently of managerial dynamic capability involves some aspects related to managerial attributes, learning mechanisms and determinants of the clustering process. The figure presents the three levels approximating some dimensions that must be analysed jointly.

At the centre of the framework is cluster performance, which depends on a clustering process in which the manager is considered an asset, carrying responsibility for accessing information, resources and processes both at the organizational level and at the inter-organizational level of the cluster. The first and second levels of the framework involve the main perspectives of our discussion, articulated through the determinants of the clustering process and representing a proposal for managing the clustering process with a view to enhancing its competitiveness.

To illustrate the complexity of the clustering process according to the framework proposed, it is possible to affirm that managerial human capital is integrated with knowledge

codification of processes and routines. Managerial social capital is associated with accumulated experience and is fundamental to create an environment of cooperation and trust. The relationships and the communication process can improve managerial cognition in a cluster and this depends on knowledge articulation. These examples illustrate the potential of the integration of the levels of a clustering process, the final purpose being to enhance cluster performance.

Another reflection on the relationship between the levels of the framework presented concerns the influence exerted by the highest level directly on the lowest level. Managerial human capital, according to Adner and Helfat (2003), results from a learning process, through the capacity building of the manager and both generic and specific skills training. In accordance with Zollo and Winter (2002), the accumulation of experience is related to the individual learning process, entailing the routine execution of processes and also knowledge articulation through the sharing of individual experience, thus resulting in collective learning.

Managerial cognition, in line with Adner and Helfat (2003), is related to the beliefs of managers and the ways in which they make decisions resulting from their experiences and the linkage between the decisions made, which involves changing the way that knowledge is codified (ZOLLO; WINTER, 2002) and also the accumulation of experience over time and with other firms.

Knowledge articulation and the codification are wholly linked to social capital and these three perspectives involve the ways in which the people who are part of the firm share information and the forms of externalizing knowledge; relationships and influence are enhanced with increasing knowledge on the part of the managers.

The relationships between the second and third levels can be comprehended in terms of the accumulation of experience resulting from the level of cooperation and trust developed during cluster formation, mediated by mutual collaboration and the relationships between the managers involved in the communication process. In the same way, these relationships permit the sharing of knowledge, combined with the association of the firms in a collaborative process that permits the development of routines, all of which are connected and conducive to knowledge articulation.

Finally, the routines developed with the aid of the cluster, the communication engaged in as part of the process of sharing information and the processes developed by the firms all working together enable the capacity to institutionalize knowledge through manuals and information systems, thus potentially improving decision making and the management of processes and routines in the search for dynamic capability within the cluster that guarantees good performance and competitiveness.

The main purpose of cluster formation is to intensify the exchange of knowledge, technology, procedures and processes between the firms involved. It is believed that the bigger the cluster, the greater the impact on the knowledge and experience that will be shared and thus the spillover effects in many respects (VILELA JÚNIOR, 2015).

As mentioned earlier, the concentration of the firm in a specific area, forming the cluster, permits focused development in that geographic space and this is attractive for suppliers, clients and competitors. All this together provides, as a consequence, a high concentration of technology, information, inputs and other indispensable resources for the learning process. This high concentration causes spillover effects and proximity permits rapid reutilization of what is not being used by others. For example, let us imagine a company that has a large R&D programme, but not everything researched is effectively produced. The knowledge is still there and is sometimes shared with other companies that are partners or engaged in collaboration and thus being part of near the cluster can be positive for the firm.

The collaborative process described above is concerns product but can also apply to process. Being near where “things happen” is likely to make it easier to gain access and learn with others, not only in terms of what is done well, but especially in terms of mistakes. For managers, the inter-organizational learning process is strengthened by the period within which they have access to information. Normally, the collaborative process involves the sharing of experience among managers of diversified firms.

The spillover of information, technology and ways of doing things can stimulate the development of managers, this being the main trigger for the process of learning, directing the firm and employees towards a new horizon. The cluster formation, which fosters

collaboration among the firms, can help the development of new capabilities on the part of managers and consequently the firm.

This proposal is complex and it is necessary to undertake empirical research to analyse the framework.

6 CONCLUSIONS

The objective of this paper is to discuss how inter-organizational learning and dynamic managerial capability can improve cluster performance in strategic way. Through theoretical explanations, it has been possible to propose a theoretical framework that integrates the basis theories: dynamic capabilities, dynamic managerial capabilities, inter-organizational learning and the clustering process.

The manager is considered an important asset in the clustering process. As pointed out by Adner and Helfat (2003), the development of dynamic managerial capability is a result of the professional history of the manager, the education process, training and learning; it relates to the coordination of experiences obtained over time inside and outside the firm. The social relationships between managers, the influence associated with these social relationships and finally the managers' cognition related to their beliefs and values provide the background for the development of dynamic capability. It is important to note that these linkages are not linear, but are cyclical.

The framework presented contributes to explaining the importance of the development of dynamic managerial capabilities for cluster performance and it clarifies that in the context of cluster formation there are diverse attributes and characteristics that help in the development of the knowledge of the manager – an asset of the firm – and by means of the learning process is conducive to fostering the dynamic capability of the internal processes and employees.

It has been observed that the potential for the development of managerial dynamic capabilities can be enhance by the context in which the firm operates and in which the manager has social capital. Many social aspects are relevant in the trajectory of attaining competitiveness. Thus, the cluster formation and consequently all the characteristics involved

in the geographic area contribute to improving the learning process, stimulating the progress of the firms integrated in the cluster and improving firms' competitiveness.

The framework proposed represents a complex convergence of diverse theories in the strategy field that aim to explain and improve the competitiveness of firms. It represents a new way of viewing these theories and understanding how they can work together at an inter-organizational level of analysis. It constitutes progress in addressing the management of the clustering process, how firms can develop dynamically and what they need to do and the importance of the cluster for accessing certain benefits.

In short, this paper proposes an integrated perspective, which is a complex and challenging process, particularly given that the constructs have not yet been thoroughly tested empirically. The three aspects of dynamic managerial capability, for example, have individually been tested empirically but not together, as indicated by Helfat and Martin (2015). This can be pointed to as a limitation of this study, but it is hoped that the proposed approach will stimulate future studies to provide greater empirical understanding.

Future studies could confirm, reconfigure or recombine the integrated and multi-level perspective proposed in this paper through empirical analysis. This paper can thus contribute to a new research agenda, focused on the inter-organizational level, involving the study of determinants of the clustering process, the inter-organizational mechanisms of learning and managerial dynamic capability. Moreover, the framework proposed can be tested in other collaborative environments, for example technological or process incubators, technological poles or industrial agglomerates.

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