



DYNAMIC CAPACITIES FROM A PROCESS AND ROUTINE PERSPECTIVE: A STUDY IN THE METAL MECHANIC SECTOR

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Abstract

Objective: Understand the process of development of dynamic capacities in the perspective of the processes and routines of search and innovation in companies of the metal mechanic sector located in the southern region of Brazil.

Methodology / Approach: Exploratory and descriptive research, qualitative approach. The technical procedure was a multiple case study, carried out with three organizations in the metal mechanic segment in southern Brazil. For data collection, interviews were conducted with eighteen managers. The data were organized and analyzed through content analysis. The established categories were guided by the identification of the component elements and organizational mechanisms for the development of dynamic capacities (DC), proposed by Meirelles and Camargo (2014).

Originality / Relevance: The research presents new and illuminating insights for understanding how DCs are developed. By identifying which routines and processes provide for the development of DCs, the research contributes to the understanding of how the process of DC development takes place in organizations.

Findings: The results show that the DC of the investigated companies are made up of search and innovation processes and routines that enable the management and mobilization of organizational resources, in order to meet the needs and changes of the market.

Theoretical / methodological contributions: The model based on the proposal by Meirelles and Camargo (2014), is capable of contributing to the prioritization of actions necessary for the development of absorptive, adaptive and innovative capacities. This characteristic of the model is important, as it directs the manager to those actions that can actually interfere in the evolution of the organization.

Keywords: Dynamic capabilities. Processes and routines. Absorptive capacity. Adaptive capacity. Innovative capacity. Mechanical metal sector.

CAPACIDADES DINÂMICAS A PARTIR DE UMA PERSPECTIVA DE PROCESSOS E ROTINAS: UM ESTUDO NO SETOR METAL MECÂNICO

Resumo

Objetivo: Compreender o processo de desenvolvimento de capacidades dinâmicas na perspectiva dos processos e rotinas de busca e inovação em empresas do setor metal mecânico localizadas na região Sul do Brasil.

Metodologia/Abordagem: Pesquisa exploratória e descritiva, realizada com abordagem qualitativa. O procedimento técnico foi o estudo de caso múltiplo realizado junto a três organizações do segmento metal mecânico do Sul do Brasil. Para a coleta de dados, foram realizadas entrevistas com 18 gestores. Os dados foram organizados e analisados por meio da análise de conteúdo. As categorias estabelecidas foram pautadas na identificação dos elementos componentes e dos mecanismos organizacionais de desenvolvimento das capacidades dinâmicas (CD), propostos por Meirelles e Camargo (2014).

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Resultados: Os resultados evidenciam que as CD das empresas investigadas são constituídas por processos e rotinas de busca ou inovação que possibilitam o gerenciamento e a mobilização de recursos organizacionais, tendo em vista o atendimento das necessidades e mudanças do mercado.

Originalidade: A pesquisa apresenta novos e esclarecedores insights para o entendimento de como as CD são desenvolvidas. Ao identificar quais rotinas e processos propiciam o desenvolvimento das CD, a pesquisa contribui para o entendimento de como se dá o processo de desenvolvimento de CD nas organizações.

Contribuições teórico/metodológicas: O modelo baseado na proposta de Meirelles e Camargo (2014) é capaz de contribuir para a priorização de ações necessárias para o desenvolvimento de capacidades absorptivas, adaptativas e inovativas. Essa característica do modelo é importante, pois direciona o gestor àquelas ações que, de fato, podem interferir na evolução da organização.

Palavras-chave: Capacidade absorptiva. Capacidade adaptativa. Capacidades dinâmicas. Capacidade inovativa. Processos e rotinas. Setor metal mecânico.

CAPACIDADES DINÂMICAS DESDE UNA PERSPECTIVA DE PROCESOS Y ROTINAS: UN ESTUDIO EN EL SECTOR METALMECÁNICO

Resumen

Objetivo: Comprender el proceso de desarrollo de capacidades dinámicas desde la perspectiva de procesos y rutinas de búsqueda e innovación en empresas del sector metalmeccánico ubicadas en la región sur de Brasil.

Metodología / Enfoque: Investigación exploratoria y descriptiva, enfoque cualitativo. El procedimiento técnico fue un estudio de caso múltiple, realizado con tres organizaciones del segmento metalmeccánico en el sur de Brasil. Para la recolección de datos, se realizaron entrevistas con dieciocho gerentes. Los datos fueron organizados y analizados mediante análisis de contenido. Las categorías establecidas se guiaron por la identificación de los elementos componentes y mecanismos organizacionales para el desarrollo de capacidades dinámicas (CD), propuesta por Meirelles y Camargo (2014).

Resultados: Los resultados muestran que las CD de las empresas investigadas están conformadas por procesos y rutinas de búsqueda e innovación que permiten la gestión y movilización de recursos organizacionales, con el fin de satisfacer las necesidades y cambios del mercado.

Originalidad: la investigación presenta conocimientos nuevos y esclarecedores para comprender cómo se desarrollan los países en desarrollo. Al identificar qué rutinas y procesos proporcionan el desarrollo de CD, la investigación contribuye a comprender cómo se lleva a cabo el proceso de desarrollo de CD en las organizaciones.

Aportes teórico-metodológicos: El modelo basado en la propuesta de Meirelles y Camargo (2014), es capaz de contribuir a la priorización de acciones necesarias para el desarrollo de capacidades absorptivas, adaptativas e innovadoras. Esta característica del modelo es importante, ya que dirige al gerente hacia aquellas acciones que realmente pueden interferir en la evolución de la organización.

Palabras clave: Capacidades dinámicas. Procesos y rutinas. Capacidad de absorción. Capacidad de adaptarse. Capacidad innovadora. Sector metal mecánico.

1 Introduction

The intense competition experienced in the business context has made organizations inserted in dynamic and competitive environments work towards obtaining new forms of competitive advantage (Melo & Machado, 2020). To enjoy the lasting competitive advantage in a context characterized by fast changes, it has become essential that organizations not only adapt to these environments, but also that they develop many capabilities to remain in the market. Among these capabilities, the development of dynamic capabilities (DC) stands out, as they can explain the superior performance of one firm in relation to another in situations of fast and unexpected changes (Teece, Pisano & Shuen, 1997).

The dynamic capabilities have an important role in the company's competitiveness. Achieving superior performance or gaining a competitive advantage in highly changeable environments has been a topic widely discussed in the literature on dynamic capabilities (Meirelles & Camargo, 2014; Guerra, Tondolo & Camargo, 2016), and has drawn the attention of researchers from different fields, mainly with the regard to the development of resources and skills (Teece, Pisano & Shuen, 1997; Ambrosini & Bowman, 2009; Wang & Ahmed, 2007; Biazzi, 2012).

The dynamic capabilities became more relevant in the early 1990s, with the studies of Teece and Pisano (1994), Teece, Pisano and Shuen (1997) and later Eisenhardt and Martin (2000), due to the reducing between markets and the consequent increase in competition, being considered in the research agendas of scholars in the strategic field (Martins & Tavares, 2014). In addition, studies in the DC field aim to understand how an organization directs its resources and activities to address and shape external environments (Heaton; Lewin & Teece, 2019).

Teece, Pisano and Shuen (1997), seminal authors on this theory, define it as the company's ability to integrate, build and reconfigure internal and external competencies, to respond to rapid changes in the environment, reflecting the company's ability to achieve innovative ways of competitive advantage. Wang and Ahmed (2007) state that dynamic capability is the constantly behavior oriented to integrate, reconfigure, renew and recreate its resources and capabilities and, more importantly, update and rebuild key capabilities in response to changes in the environment, to achieve and sustain the competitive advantage. For the authors, dynamic capacities are composed of three component elements: **absorptive capacity, adaptive capacity, and innovative capacity.**

Thus, for the purposes of this article, DC is understood as the capacity that is based on deliberate and recurrent decisions, composed by capacities combinatory processes that allow the creation, extension, modification or reconfiguration of the organization's key capacities and its resources base and competencies, making use of three component elements: (a) behaviors and skills; (b) routines and processes; (c) mechanisms of learning and knowledge governance (Meirelles & Camargo, 2014).

Although the clear origin of DC, its development is not so clear (Zollo & Winter, 2002; Feldman & Worline, 2012). According to Argote and Ren (2012) and Feldman and Worline (2012), there is a long way to establish a consensus about the concept and how to develop DC. So, these mechanisms

proposed by Meirelles and Camargo (2014) were established to analyze how companies develop and sustain their dynamic capabilities. The previous literature establishes a discussion field about the development of DCs in relation to processes and routines (Peteraf; Di Stefano & Verona, 2013). Meirelles and Camargo (2014), in turn, propose an integrative model with different elements of studies on DC and the present research uses a selection of this model, that is, processes and routines of search and innovation.

Then, observing the existing resources internally and those available in the market, as well as the possibilities of quickly configuring it, lead to the new realities of the business environment. Here, it is argued that the base of resources and competences of a company, through the development of processes and routines, is only possible after an adequate reading of the dynamics of the sector (Garcia, 2017). Thus, it is essential to understand the processes and routines that make it possible to seek adequate information, at the right time, and transform this information, aiming to support the organization's competitive adjustment.

In this sense, this study addresses the mechanism, processes and routines of search and innovation, to identify how the CD development process occurs. Although recent research includes new findings on DC (Tondolo & Bitencourt, 2014; Cappellari et al. 2019; Melo & Machado, 2020), there is no evidence of studies that have adopted the perspective of search and innovation processes and routines to understand the CD development process. That said, it is important to highlight that the process perspective is linked to the individual's ability, allied to the organization's needs, as explained by Zahra and George (2002) and Todorova and Durisim (2007). Also, Eisenhardt and Martin (2000) call attention to the notion of business processes by emphasizing that dynamic capabilities are processes that use resources to match or create market changes.

This research, which has one of the propositions of Meirelles and Camargo (2014) as its main guideline, aims to present new and enlightening insights for the understanding of how the DCs are developed. The article answers the need of increasing theoretical accuracy in organizational research that seeks to understand DC development. Additionally, the investigation clarifies how processes and routines are related to managerial practices, advancing knowledge on the topic.

Thus, the question that guided the present study was the following: How does the process of developing dynamic capabilities take place from the perspective of processes and routines of search and innovation? To understand this process, the purpose was to understand the process of developing dynamic capabilities from the perspective of processes and routines of search and innovation in metal mechanic companies located in the southern region of Brazil.

Thereby, was carried out a multiple case study in three organizations of the metal mechanic segment in southern Brazil. The metal mechanic sector is considered strategic in the production matrix in the region where the study was developed. The three companies that participated in the survey serve the national and international markets and significantly contribute to the generation of employment, income, and development in the Southern Region of Brazil.

In addition to this introductory part, this article is structured in four more sections. The first section consists of a brief theoretical review on the topic of this article. The second section aims to present the methodological procedures used for the development of the research. Next, the analysis and discussion of the results are presented and, finally, the final considerations are considered.

2 Literature review

2.1 Dynamic capabilities

The dynamic capabilities (DC) are considered a unique process, dependent on each organization (Teece, Pisano & Schuen, 1997; Lee & Slater, 2007). Teece, Pisano and Schuen (1997) explain that the DC promote a competitive advantage to the organizations with valuable, rare, difficulty and replacement resources. For the authors, the emergence of DC is related to the explanation of superior performance of an organization compared to another in situations of fast change. To Helfat et al. (2007) and de Zahra, Sapienza and Davidsson (2006), as DC can be the processes of competitiveness to the extent that organizations are intentional, directed by the management of the company, in the face of the demands of market competitiveness.

Tondolo and Bitencourt (2014) consider the DC theory one of the references in the understanding search about organizations competitive advantage. In addition, Cardoso, Martins and Kato (2015) state that many researchers in the strategy field have been dedicated to the study of dynamic capabilities, since one of the fundamental questions in the area is to answer how companies obtain and sustain competitive advantage. This has made, over the last few years, the concept of DC as a source of competitive advantage to proliferate.

Takahashi et al. (2017) state that, through the resource's reconfiguration, DCs emerge as a response to fit requirements and address external environmental changes and internal aspects of the organization. In this sense, Wang, and Ahmed (2007), in their research model of dynamic capabilities, suggest the integration of three component factors: absorptive capacity, adaptive capacity and innovative capacity, described as follows:

- *Absorptive capacity (ACAP): the company's ability to acquire external knowledge and assimilate it with internal knowledge, creating mechanisms to exploit this new knowledge.
- *Adaptive capacity: the company's ability to identify and capitalize on emerging market opportunities. It also reinforces the company's ability to adapt at the right time, through resource flexibility and alignment of its resources and capabilities with changes in the environment.
- *Innovative capacity: the company's ability to develop new products and markets, through the orientation of the strategic alignment for innovation behaviors and processes.

Cohen and Levinthal (1989, 1990, 1994) consider the ACAP as the organizational capacity to identify, assimilate and apply external knowledge commercially. The initial proposition implies that the organization needs prior knowledge, which is related to the assimilation and use of new knowledge to develop innovation or innovative performance.

Later, Zahra and George (2002) adopt a procedural perspective of ACAP and explain that effective distribution of internal knowledge and integration are critical elements of this capability. The authors propose a reconceptualization of the construct, including the transformation capacity, as well as the dimensions of ACAP, potential (PACAP) and realized (RACAP). The PACAP considers the capacities for acquiring and assimilating knowledge, while RACAP comprises the capacities for transforming and applying knowledge. It is worth noting that the four capabilities depend on each other for ACAP to be effective.

The acquisition refers to the ability to value, identify and acquire external knowledge. Assimilation refers to the organizational capacity to analyze, process, interpret and understand the external information obtained. Transformation refers to the ability to recognize information and combine it with existing knowledge. Finally, the application refers to the ability to refine, expand and leverage existing skills, as well as the creation of new skills through the incorporation of acquired knowledge (Zahra; George, 2002).

Staber and Sydow (2002) emphasize that adaptive capacity seeks balance in prospecting and exploration strategies. Akgün, Kestin and Byrne (2012) researched about the market effect, technology, and management system in relation to the adaptive capacity and innovation capacity of products, as well as the role of informal structural dimensions. Based on the determination of adaptive capacity, the authors used the following constructs: a) decision autonomy and management style; b) information and decision support system; and c) plurality and multifunctionality of the team. The authors identified reciprocal interactions between the factors investigated, allowing organizations to adapt their internal structures in the face of external pressures.

According to Wang and Ahmed (2004), the innovation is characterized by the organization's global innovation capacity with the introduction of new products in the market or opening of new markets, with a combination of strategic orientation, behavior, and innovative process. Considering this context, the authors carried out an extensive literature review and identified five dimensions of global innovation in the organization: a) product innovation capacity; b) market innovation; c) behavioral innovation; d) process innovation; and e) capacity for strategic innovation.

Thus, it is important that organizations can identify, implement, (re)configure and renew the essential base of tangible and intangible resources from the analysis of intra-industry microfoundations, aiming at sustainable competitive advantage in the long term (Teece; Pisano & Schuen, 1997; Zott, 2003; Zahra; Sapienza & Davidsson, 2006; Wang & Ahmed, 2007; Teece, 2007; Tondolo & Bitencourt, 2014). Also, the main issues are the intra-organizational antecedents of ACAP, including the roles of

individuals, micro-activities, and units within the company, which serve as determinants of ACAP (Apriliyanti & Alon, 2017).

Although the origin of DCs is understandable, this does not apply to their development (Zollo & Winter, 2002); Feldman & Worline. 2012). What is known about the sources that generate CD is not a consensus, and researchers expose susceptible understandings for discussion.

Teece, Pisano and Schuen (1997), for example, state that competitive advantage comes from three factors that help the organization to indicate its DC: a) managerial and organizational processes (coordination/integration, learning and reconfiguration and transformation); b) position of its assets; and c) available paths (strategic alternatives). Helfat et al. (2007) agree that processes are sources of DC and point out that the identification of the need for change is done through specific processes, such as search processes, decision making and change management. Thus, the advantages arising from DC depend on the effectiveness of organizational and management processes.

Eisenhardt and Martin (2000) indicate that the processes constituting CD can be imitated; thus, the value of DCs for gaining competitive advantage lies in resource configurations, not capabilities themselves. As examples of processes that can be understood as DC, the authors mention the product development routines, the acquisitions and alliances routines, the resource allocation routines and the knowledge transfer and replication routines.

Along the same processes line are the sources generated from DC, Zollo and Winter (2002) emphasize the learning processes. For the authors, there are three learning mechanisms for DCs: a) accumulation of experiences; b) articulation of knowledge; and c) knowledge codification. Meirelles and Camargo (2014), in turn, proposed an integrative model with component elements and DC development mechanisms, which are: behaviors and change and innovation skills, search and innovation processes and routines, and learning and governance mechanisms of the knowledge.

From the above, it is observed that the authors agree that the DCs refer to routines composed by different levels of processes and activities, and the elements that make these processes and routines unique are the DCs. It is understood, therefore, that the DCs are built from several starting points and along different ways. Thus, understanding the component elements and mechanisms of development can collaborate to understand how DC arise, develop, are modified, and transformed over time. The next topic is about this.

2.2 Component elements and organizational development mechanisms

Meirelles and Camargo (2014), based on bibliographic research on the main concepts and components of dynamic capabilities, propose a synthesis of the component elements and mechanisms of DC development. The authors emphasize that it is necessary for the company to develop change and innovation behaviors and abilities, search and innovation processes and routines, and learning mechanisms and governance of knowledge that support the existence of dynamic capabilities. That is,

there must be a continuous cycle of experience accumulation through a recursive process, making the company increasingly able to develop dynamic capabilities. Table 1 demonstrates this concept.

Table 1

Integrated model of dynamic capabilities: behaviors, skills, routines, processes and mechanisms of learning and knowledge governance

Component elements	Dynamic Capabilities	Dynamic capabilities indicators
Change and innovation behaviors and skills		Generating ideas and introducing breakthroughs in the market
Search or innovation processes and routines		Organizational changes
Learning mechanisms and knowledge governance		New markets innovation and development

Source: Adapted from Camargo e Meirelles (2014)

This study aims to identify the processes and routines of search or innovation in the development of dynamic capabilities, as proposed by Meirelles and Camargo (2014). It is based on the idea that processes and routines are stored behavioral capacities that involve knowledge, frequency, regularity, and memory. In this way, this pillar is supported as a unit of analysis to improve the recognition of DCs in organizations in a specific sector, expanding the management perspective.

Thus, the authors improved the literature on dynamic capabilities to relate studies and develop a proposal considering these factors as component elements and mechanisms for the dynamic capability's development. The elements are defined in Chart 2, according to the views of different authors who approach the theme.

Table 2

Component elements and mechanisms for developing dynamic capabilities

Authors	Routines and processes of search or innovation
Nelson (2009); Teece (2009); Gerard (2011); Meirelles e Camargo (2014).	<ul style="list-style-type: none"> -The routines and processes are repeatable patterns of behavior that connect actors in each context and that represent the execution of the framework. -The routines keep organizations committed to the provision of goods and services, which are sustained over time. -Routines are learned behaviors. -The processes comprise all the capabilities needed to transform inputs into desired outcomes. This includes specifications, technology, tools, procedures, policies, practices and methods. -The processes provide the framework for work. They refer to the continuous sequence of events that are reproduced with some regularity. The processes constitute the routines, and because of that, without there being a process to be repeated, there will be no routine.

Source: Authors.

The previous literature is still limited in relation to the explanation of DC development from search or innovation routines and processes. Some recent studies have begun to address this issue, as pointed out by Wohlgemuth and Wenzel (2015), Garcia (2017) and Biesenthal, Gudergan and Ambrosini (2019).

Barney and Felin (2013) argue that routines constitute an important access to the nature of DCs. According to Nelson and Winter (2005), there are three types of routines: a) operational routines; b) investment routines; and c) search routines. The latter is the one that guarantees the existence of a CD; consequently, it has the potential to guarantee the survival of a company. In turn, Eisenhardt and Martin (2000) cite product development routines, acquisitions and alliances routines, resource allocation routines and knowledge transfer and replication routines as examples of organizational processes that can be understood. like CD.

Biesenthal, Gudergan, and Ambrosini (2019) emphasize that DCs are composed of routines that cover rules and systems and, on the other hand, of courses of action and behaviors, with the aim of modifying operational capabilities. Given the above, it can be inferred that if a company does not make use of routines to adapt to changes in the environment (they do not have DCs), but only ad hoc problem solutions (Winter, 2003).

Considering the perspective of processes, Teece, Pisano and Schuen (1997) claim that processes are sources of CD. Collis (1994), Winter (2003), Wang and Ahmed (2007) and Teece (2009) assert that DCs, from the perspective of routines and processes, are seen as the result of a hierarchy of capabilities. At the lowest hierarchical level are functional or common capabilities; at the intermediate level, there are key capabilities related to business process improvements, exploration and selection of opportunities; finally, in the DC would be the third level, there are the creative or superior capabilities, which change the product or the scale and the consumer base.

In the view of Eisenhardt and Martin (2000), the processes that make up a DC are susceptible to imitation, which is why the value of DCs for obtaining competitive advantage lies in the configurations of resources they create, not in their own capabilities. Thus, DCs are constructed from various starting points and along different paths.

In the theoretical lens of DCs, both routines and processes support the generation of new ideas, new products, and services, as well as the selection and implementation of change (Meirelles & Camargo, 2014). In view of the above, it is noted that both the concept and the operationalization of the DC construct are still topics of scientific debate in the academic environment. As claimed by Zollo and Winter (2002), it is known what DCs are, but it is not known how organizations develop them.

Therefore, in view of an evident limitation of previous studies, this research aims to contribute to the understanding of the CD development process, from the perspective of search and innovation processes and routines, in companies in the metal mechanic sector located in the southern region of Brazil.

3 Method

The present paper is characterized as empirical research with a qualitative approach (Flick, 2009; Creswell, 2010), exploratory and descriptive (Martins & Theóphilo, 2009). It was carried out through a multiple case study, aiming to investigate, in detail, three organizations in the metal mechanic segment (Company A, B and C) through the analysis of the procedures, resources, mechanisms and systems that allow them to develop dynamic capabilities

The investigated segment, mechanical metal, is a strategic sector in the production matrix in the region where the study was carried out. The three companies that participated in the research serve both the national and international markets, contributing significantly to the generation of employment, income, and development in the southern region of Brazil.

Firstly, to understand the history of each of the three organizations, information about them was sought from the analysis of internal documents, such as publicity material, evolution history, minutes, newsletters, social networks, and news sites. Then, interviews were carried out with managers appointed by the boards, which led to the interview of 18 managers participating in the research, 6 from each organization. These individuals influence strategic decisions and are linked to the higher command of the organization.

The absorptive capacity was analyzed based on the instrument proposed by Zahra and George (2002), which encompasses four dimensions: a) acquisition; b) assimilation; c) transformation; and d) application of knowledge. For the investigation of adaptive capacity, an instrument adapted from Akgün, Kestin and Byrne (2012) and Staber and Sydow (2002) was used, which consider the following dimensions when analyzing this capacity: a) decision autonomy and management style; b) information and decision support systems; and c) plurality and multiplicity of the team. Innovative capacity, in turn,

was investigated using the instrument adapted from Wang and Ahmed (2004), which measures innovation through the capacity of: a) product innovation; b) market innovation; c) process innovation; d) behavioral innovation; and e) strategic innovation.

The data were organized and analyzed using content analysis, according to Bardin's (2011) three phases of investigation: pre-analysis; exploration of the material and treatment of the results; and inference and interpretation. In the pre-analysis, the interviews were transcribed. Subsequently, a thorough reading of the transcripts was carried out, to obtain the highlights in this stage of analysis. At the end of each of the interviews, a systematization was elaborated with the excerpts of each interview for further analysis.

Regarding the exploration of the material, the established categories were based on the component elements identification and mechanisms organizational to the development of dynamic capabilities, as proposed by Meirelles and Camargo (2014), search or innovation being processes and routines. The analysis categories are presented in Table 3.

Table 3

Theoretical model of analysis

DYNAMIC CAPABILITIES			LITERATURE REVIEW
Component elements:			Wang e Ahmed (2007)
Absorptive Capacity	Adaptative Capacity	Innovative Capacity	
BACKGROUND			LITERATURE REVIEW
-Acquisition; -Assimilation; -Transformation; -Application.	- Decision autonomy and management style; -Information and decision support system; - Team plurality and multifunctionality.	-Product innovation. -Market innovation; -Innovation of processes; -Behavior innovation; -Strategic innovation.	Capacidade Absortiva: Zahra and George (2002); Capacidade Adaptativa: Akgün, Kestin e Byrne (2012), Staber and Sydow (2002). Capacidade Inovativa: Wang and Ahmed (2004).
COMPONENT ELEMENTS AND ORGANIZATIONAL DEVELOPMENT MECHANISMS			LITERATURE REVIEW
Search or innovation processes and routines.			Meirelles and Camargo (2014).

Source: Authors.

Finally, the treatment of results, inference, and interpretation of data, were carried out, considering the theoretical framework of the present study. The data triangulation considered the sources of evidence used (theories, documents, and interviews), with a view to understanding the topic and obtaining theoretical and empirical contributions.

4 Results

In this section are presented the component elements and organizational mechanisms that support the development of dynamic capabilities in each of the companies under study.

4.1 Company A

The company A was founded in the mid-1940s and comprises approximately 2,700 employees. The organization was consolidated in the agricultural, road, automotive and construction segments. It has ISO 9001, ISO/TS 16949 and ISO 14001 certification, in addition to having an integrated management system based on OHSAS 18001:2007.

Regarding search and innovation processes and routines, Company A performs risk management, and the ability to research, plan and control the results helps the company in this process. Nonaka (1994) explains that the ability to recognize value in external information depends (in part) on the individual's capacity and the existing knowledge in the organization, linking a creative activity to specific knowledge. In the same perspective, Cohen and Levinthal (1990) state that the level of prior knowledge present in organizations (initially in the form of human capital) favors the basic elements that allow companies to absorb new related knowledge and improve their ability to evaluate and use the external knowledge, which is largely a function of the level of related prior knowledge in the company.

Thus, the risk management aims to identify and manage multiple risks, seize opportunities, optimize capital, and strengthen decisions. It can be seen, from the interaction with strategic partners, new opportunities, which strengthens the sector competitiveness of the sector (Cassol et al., 2021). Still, these findings corroborate to Teece (2007) when the author points out that companies must constantly research, explore and analyze information to identify and model opportunities and/or threats.

The company assumes risks, they are constantly analyzed and managed (E1).

The search for information about products, customers, competitors, and trends is a constant in the routine of the company. Participation in symposia, seminars, national and international congresses, and visits to clients are the main research sources. This evidence supports the thesis by Vega-Jurado et al. (2008): the most common sources of information by organizations are the so-called “market sources” (competitors, customers, consumers) and “scientific sources” (universities, research institutions, congresses). Such information supports business decision-making, enhancing performance and enabling the organization's long-term success.

Through national and international congresses, symposia, seminars, we seek information and contacts. And trying to see the customer in visits, what are the trends in customers (E5)

We have a document where we map our main competitors. What is the industrial park, plant, if there is painting if there is a complete process. It is formalized. This information helps us to measure which is the fragility and which are the strengths (E2).

The company has a problem-solving methodology that prioritizes customers. The company is proactive, identifying the problems faced by customers, developing projects, and generating solutions. For Dyer and Singh (1998), close relationships with customers favor the search for information, allowing a new view of market conditions and opportunities.

In a complementary sense, Vinding (2004, 2006) explains that close relationships with customers help to expand capabilities, as these relationships stimulate information channels and the flow of knowledge. The orientation is customer-centric, and in addition to becoming aware of the needs, desires and demands of these customers, the company seeks to deliver satisfaction, to create lasting and trusting relationships.

We have meetings to signal problems only with managers, weekly. Other than that, for example, in product development, there are meetings to define how and what the steps will be. The focus is always the customer (E3).

Quality and speed are the hallmarks of process management. The search for improvement is continuous, combining management and technology, with a focus on optimizing results. Cohen and Levinthal (1990) and Zahra and George (2002) state that the development and refinement of processes and routines contribute to the combination of new and existing knowledge.

Considering this perspective, the evidence from Company A confirms the statements by Flatten et al. (2011), since the internalization of knowledge comprises processes of intelligence sharing, knowledge exchange and sharing. Management by results is guided by the commitment and commitment of the team to achieve goals and objectives. The company's activities are integrated and standardized so that it is possible to obtain the desired result, that is, the strategic intentions are converted into concrete and measurable results.

It's okay for the flow to change, the team is very encouraged to do so. We just need to understand why it's changing and formalize it. Writing remains a standard. Everything is standardized (E2).

Everything is structured within the information system from the moment it is generated. For example, the production of a new product began to be generated/planned, these are steps that are falling, that are being approved (E6).

Production processes are flexible, allowing for changes. With little effort we can change an entire weld area, for example. The focus is on the result (E3).

The Strategic alignment takes place through planning, monitoring and production processes control. This alignment guarantees the current flow of information shared by sectors of the organization; moreover, the greater the alignment, the greater the company's performance. These indications are in line with what is emphasized by Nelson and Winter (2005), since the team's ability to communicate is a key element in the assimilation of information, reiterating that the meetings and discussions establish organizational choices.

Every month the results are presented for control purposes and on occasion the team discusses new things to do (E1).

The company's strategic planning is periodically reviewed. SWOT analysis and Porter's Five Forces analysis (E4) are adopted.

The company has a constant demand for improvement of organizational processes, aiming a greater productivity, quality, and cost reduction. It focuses on the innovation of its products and production techniques, which is considered essential for survival in an increasingly competitive environment.

These findings confirm the statement by Damanpour (1996): innovation is a response to the external environment, including new product or service, new process technology, new administrative systems or new plans and programs related to organizational members. The better the company's products and processes, the more competitive it will be.

We use technologies that are pioneering internationally. It's the newest thing. Our machines are new, the processes are lean, everything is new and recent. We study, evaluate, and invest (E3).

We constantly seek to improve our processes. There is no comfort zone. The better our process, the more competitive we are (E5).

In the last five years the company has introduced innovative products and services. For example, on a particular client we solved a problem for him through a study, we present a more versatile process.

We carry out projects because we set out to do it in a different way. For example, instead of delivering parts, I deliver the part sequenced on the line you need, improving the customer's packaging flow (E6).

Table 4 presents the search and innovation processes and routines that support the development of dynamic capabilities in Company A.

Table 4

Company A dynamic capabilities

COMPANY A	ABSORPTIVE CAPACITY	ADAPTATIVE CAPACITY	INNOVATIVE CAPACITY
SEARCH AND INNOVATION PROCESSES AND ROUTINES	-Constant search for market information; -Risk management.	- Strong process management; -Management by results; -Strategic alignment through planning, monitoring, and control systems of production processes.	-Continuous improvement of organizational processes; -Innovation of products and production techniques.

Source: Research data.

In Company A, the organizational processes refer to management and the search for information, as well as to the continuous process's improvement. From this perspective, it is possible to

infer that Company A has a well-defined internal environment, with coordination and optimization of tasks and definition of decision levels (hierarchy) adopted in its organizational structure.

In addition, the coordination involves reconfiguration or transformation of the organizational structure in response to the changes envisaged in the organizational environment. In this context, learning can be recognized as a collective process that allows the common codes establishment of communication and activities reordering because of the constant reassessment of acquired knowledge. As a result, Company A's organizational processes make it possible to reassess the decisions adopted in the allocation of resources (where, when, how, how much to invest), allowing the reassessment and reconfiguration of the management processes adopted. That said, it corroborates what is pointed out by Pelaez et al., (2008): this retroactive evaluation process is also configured as a path-dependence phenomenon, so that the coordination of the firm's resources will determine the scope and procedures search and selection of information considered relevant.

In this sense, it is stated that ACAP helps to identify and obtain new external knowledge, assimilate this recent knowledge, and combine it to generate new knowledge and solve problems, as something continuous. Taking this into account, Malvestiti, Esteves and Dandolini (2020) state that companies that are proactive are more likely to recognize opportunity and discover ability compared to organizations that are not proactive.

4.2 Company B

Considering the agriculture expansion in Brazil and the electrical systems need for the manufacturing and storage units of the agro-industrial market, Company B was founded in the 1940s, introducing concepts and technologies that were in evidence in Europe. The organization comprises approximately 900 employees, has ISO 9001 certification and is consolidated in the agribusiness and industrial sector.

In relation to the search and innovation processes and routines, Company B constantly monitors the market to identify opportunities and threats. The company seeks information at national and international fairs, from its own customers and from other competing companies, especially regarding investments, customers, trends, and studies being carried out in the segment.

This evidence supports what Teece (2007) points out, as companies need to invest not only in verifying customer needs and technological alternatives, but also in the market's evolution and in the actions of competitors. For Teece (2007), the company must consider how technologies evolve and how competitors and customers behave. That is, competitors may or may not see the opportunity and, if identified, may evaluate it differently. This process ensures improvement, making the company competitive in a market that demands quick actions and decisions.

At national and international fairs and seminars you will see many new things. The internet is a news database, for example, the publication of papers by universities (E2).

Sales representatives are in direct contact with the customer and are attentive to needs, expected quantities of a certain type of item, market fluctuations, planning (E4).

When the company loses a sale by the competitor, a check list is carried out to find out why. This allows evaluating if he is doing something different and providing feedback to engineering (E1).

The organization carries out risk management in all its activities, the events that may occur are analyzed, positively or negatively influencing a project, an objective, or a decision. These indicators support the statements of Wang and Ahmed (2004), that is, the ability to risk is related to the ability to manage goals and use them creatively. In this way, the company improves the decision-making process, raising its level of trust, as it has more tranquility and security.

We carry out risk management in all our decisions. The committee composed of the top management performs the analysis (E3).

Company B strongly manages its routines and processes, enabling the identification of possible bottlenecks, the frequency with which they occur, the percentage of processes and routines completed and in progress. These factors are crucial for the good performance and optimization of the organization's results.

So, these findings confirm what was exposed by Zollo and Winter (2002), in their statement about the company needs to have a recursive learning cycle, that is, it needs to develop solutions to problems, replication and retention through routinization. Company B carries out a systematic evaluation of activities, routines, and processes, to verify whether they are in accordance with the organization's rules, norms, and guidelines, as well as to verify whether they were carried out effectively and in accordance with the business objectives.

The group meets weekly to provide feedback on the progress of activities. This is a systematic evaluation. If there is any deviation or bottleneck, corrective measures are defined (E2).

We have indicators for each process that are seen and analyzed at meetings (E4).

Standards are necessary, enough so that the process is repetitive, so that it does not present failures, so that it is profitable, so that a product, a need, a service that the customer is satisfied can be placed at the end (E3).

Management is based on results, and all the company's actions are based on strategic planning, transforming strategic intentions and flexibility into results, which are systematically managed, monitored, and evaluated. This empirical evidence is related to the statements by Rindova and Kotha (2001), insofar as the DCs are reflected in the organizational adaptation capacity, essentially considering the strategic flexibility of existing resources and internal alignment.

In a complementary sense, Teece (2009) asserts that routines are a key element in knowledge management. The company seeks the best possible result, aiming at optimizing performance and growth.

We work flexibly and with strategic planning normally done at the beginning of the year, where we do it in a SWOT matrix format. Porter also states that it is possible to point out the newcomers, the competition itself, who they are, what they do, what level they are at (E5).

Management is based on results. We gathered all the strategic people of the company, analyzed the market, and drew up action plans (E6).

The company's emphasis is on constant improvement of the organizational processes aiming the greater efficiency and effectiveness. Thus, these indicators are in line to Becker (2001) postulations, as routines and processes reduce organizational uncertainties. Zahra and George (2002) explain that organizations can explore knowledge without systematic routines; however, the existence of such activities provides structural and procedural mechanisms that enable the prolonged application of knowledge. In this sense, the Kaizen methodology helps the company in the search for greater productivity, quality, and cost reduction.

It is used Lean Manufacturing which help to promote flexibility in production methods. It was closed a Kaizen last week in which was gained in movement and organization. The processes, if they bring results, can and should be changed (E1).

This is an ongoing process, we've started in some areas and are expanding in others, and we're also getting off the factory floor. The system preys on making things as lean and simple as possible. Kaizens are a tool to study process, layout, settings (E3).

The company is recognized for its entrepreneurial tradition since its founder, launching innovative products worldwide. Internal entrepreneurship is another characteristic of the organization: it encourages employees to propose new ways of performing tasks and improving products. These results support Guerra, Tondolo, and Camargo (2016), as internal entrepreneurship is one of the central mechanisms in the development of dynamic capabilities. In addition, for Mitchell, Mitchell, and Smith (2008), previous experience can bring important contributions to entrepreneurs, as it can generate learning, making the entrepreneur better prepared, flexible, and realistic in decision making. In this way, it makes possible to recognize opportunities, satisfy needs, and generate value.

We launch several products annually and these are innovative worldwide. We have already made several launches, usually at fairs to have an impact (E2).

We continually seek to improve our products and processes through strategic planning and the creation of strategies. We received a lot of encouragement to propose changes, improvements and the result has been positive (E4).

Table 5 lists the search and innovation processes and routines that support the development of dynamic capabilities in Company B.

Table 5

Company B dynamic capabilities

COMPANY B	ABSORPTIVE CAPACITY	ADAPTATIVE CAPACITY	INNOVATIVE CAPACITY
SEARCH AND INNOVATION PROCESSES AND ROUTINES	-Market constant monitoring in order to identify opportunities and threats; -Risk management.	-Formality in routines and processes, also strong management thereof; -Management by results.	-Organizational processes continuous improvement; -Products innovation and production techniques.

Source: Research data.

In Company B, the processes and routines management are important factors for generating competitive advantage, that is, the role of the individual in the organization is attributed to the context of the team or work group. Considering Ferreira and Ferreira (2017), these processes and routines require companies to allocate resources, be creative, and have the capacity to transfer external knowledge. However, for the innovation development be influenced, factors such as the size of the organization and management characteristics are important to understand whether the innovative process is in the total use of knowledge and its application.

This process requires that the organizations analyze their environment and then filter internal knowledge and appropriate it so that it guides future actions (Cassol et al., 2019). Therefore, this confirms that ACAP is represented by the ability of organizations to identify and assimilate knowledge available in the interorganizational environment and, from the reconfiguration of prior knowledge, create new organizational routines and processes capable of promoting a DC (Cassol et al., 2021).

4.3 Company C

Company C began its activities in the 1960s and comprises approximately 2,500 employees. It has ISO 9001 certification and a variety of products, distributed in the following groups: precision agriculture, sprayers, planters and seeders, distributors, tractors, agricultural trailers, among others.

Regarding the search and innovation processes and routines, the company constantly monitors the market in search of information about products, customers, competition, and trends. Lesca, Janissek-Muniz, and Freitas (2003) denote that monitoring the environment favors the identification of scenarios in advance, allowing the organization to adapt and change its strategy, corroborating the findings of this research.

The study by Teece (2009) is confirmed in the sense that research routines are essential for recognizing the value of new external information, allowing the creation of competitive advantage. In this task, the network of dealerships, commercial representatives, salespeople, customers, and fairs support the company in discovering information. This monitoring complements the organization's strategic management, allowing for agile actions and decisions in the face of constant market changes.

The company has developed a network of dealerships. They are responsible for bringing the impression of how the market is doing. Sales representatives are a direct link with the factory and are “the eyes” of the factory together with the end customer (E2).

We work a lot with sellers through direct contact with the farmer. Being together, using his experience to produce the right product (E3).

We attend national and international fairs focused on the industry (E1).

We've analyzed the competitors, all mapped and documented. A thorough analysis is carried out on each product we launch (E4).

The knowledge exploration is relevant to answer quickly to variations in the environment. For Day (1994), knowledge is embedded in routines, procedures, records, databases, and the company. Thus, the higher the level of education, technical training, and experience acquired over time by employees in each field of knowledge, the more apt they will be to assimilate and transform new knowledge. Company C performs risk management, evaluating scenarios, revenue prospects, among other aspects. This routine makes it possible to control acceptable risks, capital, pricing, and customer portfolio management, creating value for the organization. These findings support the research by Lopez-Sáez et al. (2010), in the sense that the exploration of the external environment strengthens the company's knowledge base.

We assume risks based on opportunities, risk management, scenario analysis, revenue prospects are carried out (E6).

The organization achieved a fast growth in the market, directly impacting the execution of organizational activities. So, the company has many informal activities. This informality provides speed to the organization, in addition to complementing the formal structure. The company's processes are flexible, allowing for rapid changes.

This empirical evidence supports the study by Murovec and Prodan (2009), as flexible practices facilitate the adaptation and incorporation of knowledge. The company seeks innovative solutions to achieve the desired results. When it identifies an opportunity, it transforms, increments, creates, and/or incorporates new technologies and innovations.

We grew fast and so far, part of the processes is standardized. Our production methods are flexible, allowing quick changes, whether in layout or system (E5).

We recently changed the production line and changed the commercial strategy that directly influenced the product. We plan, carry out and formalize (E6).

The activity control routines are based on quality management, reports, monthly meetings (with all employees), and weekly meetings (with managers), in which matters related to projects, scenarios, and assets and security and help in the conduct of the company's business.

The social integration mechanisms contribute to accelerating adaptation and knowledge transfer, as well as stimulating the learning environment. Jansen, Van Den Bosch, and Volberda (2005) describe

that socialization mechanisms refer to the density of connections between members and call socialization tactics the experiences of social integration, supporting the findings found in the present research. These mechanisms expand the understanding of rules and help to establish common codes and dominant values, facilitating the exchange of knowledge based on trust and cooperation.

The quality department monitors delivery times and the quality of delivery from suppliers. It is an activity done by indicators. Also, we hold meetings to talk about details, planning (E3). Every week there is a meeting between managers to deal with development projects. We received a report of everything that is happening. There are general meetings with all employees, this happens once a month more or less (E5).

There is the strategic planning organized to four, five years, ten years ahead. Strategic diagnosis, SWOT analysis, BCG Matrix (E6) are carried out.

The company's management is shared and participatory, with emphasis to the people who are part of the organization. Through its systems, environmental conditions, and managerial behaviors, the company motivates and encourages everyone to participate. Knox (2002) explains that the internal environment stimulates organizational change, such as the adoption of new processes, routines, and skills in the knowledge transformation, confirming the results of this study. In addition, the author asserts that the organizational culture and climate can boost individual entrepreneurship and group teamwork.

The president, directors and managers are the main stimulators for the participatory process. The good relationship between managers and employees is the main point of this shared relationship. Such results corroborate the research by Murovec and Prodan (2009), as organizational culture is essential, so that people feel motivated to adjust to the way of working and the desired changes.

There are internal plans for employees to give suggestions, collaborate. People suggest either process or product improvement. At the end of the year, we make a presentation, and these initiatives are awarded. We encourage and practice participatory management (E4).

People wear the company's t-shirt, they are people with twenty or thirty years in the company, who dream together with the president (E2).

The marketing department is a company's business strategy. Marketing influences product planning and the strategies to be used, creating actions to improve customer satisfaction, and taking care of the company's image. It performs an important task in identifying customer needs and satisfying these customers in a profitable way, both for the organization and for the clientele. This fact reinforces the findings of Teece (2007), according to which successful innovation is related to understanding customer needs.

Our marketing department is part of the business strategy. Collaborates in the planning of new products, patents, catalogs, takes care of the company's image, among others (E4).

In Company C innovation is a way of thinking. Internal entrepreneurship and the innovative profile of the company's president enhance the organization's productivity, increasing competitive advantages and differentiation from the competition. According to Takahashi et al., (2017), innovation

is something new, driven by the creative ability to form relationships, detect opportunities that add value and develop new values, increasing the competitive position. Also, Ahlin, Drnovsek and Hisrich (2012) support these results by stating that a company's ability to innovate is directly related to the individual characteristics of the entrepreneur. In the authors' understanding, the entrepreneur's skills influence the ability to apply knowledge, that is, after understanding the information from the market, the entrepreneur plays an active role in the beginning of the change process.

We receive many incentives to propose, to suggest. Everything is well planned together, and the work teams towards it, setting up a schedule all within the concepts of product development and project procedures. We have a giant lab in here. The percentage of new products in the last year was large, representing 30% of sales (E1).

For pilot projects we need a period to develop the prototype. During this period, tests are performed, as well as adjustments, when necessary (E2).

Table 6 lists the search and innovation processes and routines that support the development of dynamic capabilities in Company C.

Table 6

Company C dynamic capabilities

COMPANY C	ABSORPTIVE CAPACITY	ADAPTATIVE CAPACITY	INNOVATIVE CAPACITY
SEARCH AND INNOVATION PROCESSES AND ROUTINES	<ul style="list-style-type: none"> -Constant search for market information; -Risk management; - Knowledge exploration responding quickly to changes in the environment. 	<ul style="list-style-type: none"> --Flexible production methods, allowing changes, and innovations; -Activity control routines; -Alignment of the team in the company's purposes established in the strategic planning; -Shared and participatory management. 	<ul style="list-style-type: none"> -Marketing department as the company's business strategy; -Products innovation and production techniques.

Source: Research data.

Regarding Company C, it is noteworthy that the search for knowledge by managers helps in understanding the decision-making process, by providing useful information for the strategies effective development. In this way, knowledge of what was successful and what was not is used in the strategies design. In addition, the past experiences of managers help to determine influencing attitudes in the process of selective perception and in filtering information about the environment (Karakaya & Yannopoulos, 2008).

From the approach proposed in this study, it is possible to infer that the information collected in the interviews provide evidence that companies develop absorptive, adaptive, and innovative capacity through routines and processes of search or innovation.

5 Analysis and discussion

Specifically in the absorptive capacity, risk management is a common element among the three companies, in addition to the search and monitoring of information from the market. This reinforces that absorptive capacity give emphasis on the importance of obtaining external knowledge, combining it with internal knowledge and absorbing it for the company's use.

The three organizations have well-defined search routines, demonstrating engagement with the market. This evidence is related with the discourse of Teece, Pisano and Schuen (1997), as it is expected that companies can identify opportunities and threats in advance and, thus, develop organizational strategy. In this way, the adaptation to new environments will allow the reach of DC.

In the adaptive capacity, the search and innovation processes and routines are related to management by results, and issues related to formality, rigor, and control became more evident. This is related to the fact that companies can relate their abilities to adapt at the right time, due to the constant changes in the environment in which they are inserted.

Teams that present more interruptions have a greater need to seek or adopt new routines of external origin than internal ones (Melo & Machado, 2020). However, in the analyzed companies, it can be evidenced that the managers reflect their actions and strategies, as well as the changes are readjusted in the organizational daily. In this sense, Teece (2009) highlights that the speed in managing the volatility of the environment is a characteristic of companies that have a DC.

The capacity for innovation, in turn, is centered on the issue of product innovation and production techniques. In the case of companies in the metal-mechanic segment, innovation is centered on the company's ability to develop new products, new solutions, and new markets, guided by strategic alignment.

This ability is based on capturing an opportunity and the availability of resources. Winter (2003), in this perspective, states that it is the existence of search routines that ensures the existence of DCs, which can guarantee the survival of companies.

However, from the empirical evidence, it is observed that the main strategy of the investigated organizations is to ensure long-term growth, and this requires investment in technology and innovation. Therefore, success depends on constant improvement in routines and processes, as well as flexibility in creating new solutions and new products. These, in turn, are formed from the appropriation of practices and the institutionalization of praxis (Belmondo & Roussel, 2014). It is worth emphasizing the importance of the work team, and not just the managers. Besides, it can be said that the processes and routines are configured from the managers' ability, through the knowledge of the routines while maximizing the use of resources by their configuration and reconfiguration, maintaining a condition of potential responses to internal and external environments.

Given the competitive scenario, it is suggested that the search and innovation processes and routines contribute to a positive management, maintaining the position or conquering the market. In

short, in this study, the DC development process from the perspective of search and innovation processes and routines was evidenced in the existence of a learned pattern, with specific and discernible processes and routines, in which the studied companies modify in search of improvements and effectiveness in the face of market dynamism.

6 Final considerations

This study aimed to understand the process of developing dynamic capabilities from the perspective of processes and search and innovation routines in companies in the metal mechanic sector located in the southern region of Brazil. The evidence found on the existence of DCs in the companies is related to market monitoring, strategic alignment, and product and/or service innovation. It is worth noting that the results of this research revealed the presence of an apprehended pattern, with specific and discernible processes and routines for these organizations.

According to the options envisaged, the discussion about processes and routines can improve organizational decision-making and align the company's strategy in the metal-mechanic sector. It is important to remember that this market is competitive, challenging and has a technological influence, whose complex and turbulent environments require the development of DCs.

In addition, it was observed that the DCs are constituted by search or innovation processes and routines that enable the management and mobilization of organizational resources, with a view to meeting the needs and changes of the market. Therefore, in this study, the processes and routines identified in the internal environment provide corporate development and support absorptive, adaptive, and innovative capacities.

The main contribution of this study is the understanding of DC development through organizational practices and routines in a short, explored sector, such as metal mechanics. There is a practical contribution in the sense that DCs are sources of competitive advantage and understanding their development process can help organizations achieve superior performance. It is aiming, therefore, that the reflections listed here are strategic elements of management in the organizations object of investigation.

Also noteworthy is the empirical effort in the application of the theoretical framework of DC, in view of the few studies on the subject. This research contributes with strategies that aim to qualify management with planned actions that can be implemented in the medium term and can generate positive results. In this way, this study contributed to the discussion in the organizational company's context in the metal-mechanic sector, offering insights into the importance of understanding the factors that are characterized as activation triggers capable of boosting the development of processes and routines for the search for innovation, thus provide support for CD development.

Despite the empirical effort, the study has limitations. Thus, it is reiterated that the focus was on the internal environment, not involving suppliers or consumers. Extending the scope of the study to

stakeholders can contribute to the results. Finally, the investigation was restricted to the processes and routines of search or innovation, that is, to operationalize the development of DC from these microfoundations.

It is suggested, in this sense, the advancement of research on the subject, such as studies with the aim to understanding the development of DCs from the perception of stakeholders from one or more organizations. It is also proposed to investigate the component elements and mechanisms of development of dynamic capabilities in their entirety, according to the proposition of Meirelles and Camargo (2014). The model used showed the need for future studies that can expand the scope/sector studied, correlating with other capabilities. It is understood that these findings can expand the theoretical support and enable quantitative studies, with a view to validating the constructs.

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