



ORGANIZATIONAL CONFIGURATION AND THE DEVELOPMENT OF THE ABSORPTIVE CAPACITY: RELATIONS AND INFLUENCES

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Abstract

Objective: to analyze the existing relationships between typologies of organizational configurations with the development of absorptive capacity.

Methodology: empirical research of an applied nature, Qualitative and descriptive approach. Data were collected through interviews with a structured script and analyzed using the content analysis technique.

Originality: Offers explanations of how organizational settings influence the development of ACAP

Main results: the simple structure configuration favors the recognition capacity and limits the assimilation and application capacity. The bureaucratic machine favors the capacity for recognition and assimilation, and limits application. Professional bureaucracy limits the capacity for recognition and application and favors assimilation. In the divided form, the capacity for recognition and assimilation is favored, and the capacity for application is limited. In adhocracy the ability of recognition, assimilation and application are favored.

Theoretical contributions: the evidence indicates a fruitful and significant relationship between the constructs, a fact that allows us to understand the organizational configuration as an important antecedent of ACAP.

Keywords: absorptive capacity, organizational configuration, organizational structure.

CONFIGURAÇÃO ORGANIZACIONAL E O DESENVOLVIMENTO DA CAPACIDADE ABSORPTIVA: RELAÇÕES E INFLUÊNCIAS

Resumo

Objetivo: analisar as relações existentes entre tipologias de configurações organizacionais e o desenvolvimento da capacidade absorptiva.

Metodologia: pesquisa empírica de natureza aplicada, de abordagem qualitativa e descritiva. Os dados foram coletados por meio de entrevistas com roteiro estruturado e analisados pela técnica da análise de conteúdo.

Originalidade: oferece explicações sobre como as configurações organizacionais influenciam o desenvolvimento da capacidade absorptiva (ACAP).

Principais resultados: a configuração de estrutura simples favorece a capacidade de reconhecimento e limita as capacidades de assimilação e

aplicação. A máquina burocrática favorece as capacidades de reconhecimento e assimilação e limita a aplicação. A burocracia profissional limita as capacidades de reconhecimento e aplicação e favorece a assimilação. Na forma divisionada, as capacidades de reconhecimento e assimilação são favorecidas, e a capacidade de aplicação é limitada. Na adhocracia, as capacidades de reconhecimento, assimilação e aplicação são favorecidas.

Contribuições teóricas: as evidências indicam relação profícua e significativa entre os constructos, fato que permite compreender a configuração organizacional como um importante antecedente da ACAP.

Palavras-chave: capacidade absorptiva, configuração organizacional, estrutura organizacional.

Resumen

Objetivo: analizar las relaciones existentes entre tipologías de configuraciones organizacionales con el desarrollo de la capacidad de absorción.

Metodología: investigación empírica de carácter aplicado, enfoque cualitativo y descriptivo. Los datos fueron recolectados a través de entrevistas con guión estructurado y analizados mediante la técnica de análisis de contenido.

Originalidad: ofrece explicaciones de cómo los entornos organizacionales influyen en el desarrollo de ACAP

Principales resultados: la configuración de estructura simple favorece la capacidad de reconocimiento y limita la capacidad de asimilación y aplicación. La máquina burocrática favorece la capacidad de reconocimiento y asimilación, y limita la aplicación. La burocracia profesional limita la capacidad de reconocimiento y aplicación y favorece la asimilación. En la forma dividida se favorece la capacidad de reconocer y asimilar, y se limita la capacidad de aplicación. En la adhocracia se favorece la capacidad de reconocimiento, asimilación y aplicación.

Aportes teóricos: la evidencia indica una relación fructífera y significativa entre los constructos, hecho que permite comprender la configuración organizacional como un importante antecedente de ACAP.

Palabras clave: capacidad de absorción, configuración organizacional, estructura organizacional

Cite as / Como citar

American Psychological Association (APA)

Cappellari, G., Sausen, J. O., Ferreira, G. C., & Rossetto, C. R. (2023). Organizational configuration and the development of the absorptive capacity: relations and influences. *Iberoamerican Journal of Strategic Management (IJSM)*, 22(1), 1-34, e22807. <https://doi.org/10.5585/2023.22807>

(ABNT – NBR 6023/2018)

CAPPELLARI, Gabriela; SAUSEN, Jorge Oneide; FERREIRA, Gloria Charão; ROSSETTO, Carlos Ricardo. Organizational configuration and the development of the absorptive capacity: relations and influences. *Iberoamerican Journal of Strategic Management (IJSM)*, v. 22, n. 1, p. 1-34, 2023. <https://doi.org/10.5585/2023.22807>

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1 Introduction

The structuring theory of the present study is absorptive capacity (ACAP), emerging in the late 1980s and early 1990s, based on the seminal studies of Cohen and Levinthal (1989, 1990). Absorptive capacity consists in the capacity of identifying, assimilating and applying external knowledge.

Based on Cohen and Levinthal (1989, 1990), empirical studies in distinct fields and analysis levels enabled pointing to elements which influence ACAP, that is, features of external knowledge and internal organizational features (Van Den Bosch, Volberda & Boer, 1999; Lane, Koka & Pathak, 2006). Regarding the background of ACAP, said internal elements, we can mention previous knowledge (Cohen & Levinthal, 1990; Zahra & George, 2002), the organizational configuration (Cohen & Levinthal, 1990; Lane et al., 2006), the relation capacity (Flatten, Engelen, Zahra & Brettel, 2011), cooperative entrepreneurship (Zahra, Sapienza & Davidsson, 2006; Teece, 2007), the organization size and age (Daghfous, 2004), among others.

In the understanding of Lane et al. (2006), there are scarce studies which specify the role of organizational configuration in the development of ACAP. The relevance of the company structure to maximize knowledge circulation is highlighted (Daghfous, 2004). Lane and Lubatkin (1998), Van Den Bosch et al. (1999) and Espinosa, Pelaez, Gimenez e Guzman (2007) affirm different types of structure present distinct consequences regarding ACAP. Huang, Quaddus, Rowe and Lai (2011), Li, Yang, Feng and Li (2014), Duchek (2015) and Ali, Ali, Al-Maimani and Park (2018) assert that the organizational configuration, that is, the way in which the company is organized, is decisive for ACAP. Alexiou, Khanagha and Schippers (2019) indicate the necessity of empirical studies regarding the relationship between organizational structure and ACAP. The configuration facilitates knowledge transfer, that is, enables the sharing, communication and granting of knowledge from the individual level to the organizational level, being an internal drive of the construct (Lane et al., 2006).

The organizational configuration influences ACAP, mostly in the diffusion of the perceived knowledge, when all institutional divisions take place (Bathel, Malmberg & Maskell, 2004; Duchek, 2015). Lane et al. (2006) affirm that ACAP depends on the daily processes and practices that enable sharing, communicating and transferring the know-how from individual level to the corporate level.

Despite it has been stated that studied regarding ACAP had theoretical and empirical advancements (Lane & Lubatkin, 1998; Zahra & George, 2002; Jansen, Van Den Bosch & Volberda, 2005; Lane et al., 2006; Flatten et al., 2011; Li et al., 2014; Apriliyanti & Alon, 2017; Ali et al., 2018; Cappellari, Welter, Hermes & Sausen, 2019; Ferreira & Ferreira, 2020), a theoretical gap is observed, regarding studies that offer explanations on how organizational configurations impact the development of ACAP.

In view of this context, the research question is the following: what is the relationship between organizational characteristics and the development of absorptive capacity (ACAP)? Thus, the objective

of the present study is to analyze the existing relationships between typologies of organizational configurations and the development of ACAP.

Unveiling such relationships will contribute to the advancement of knowledge on how organizational configurations influence the recognition, assimilation, and application of external knowledge in companies. Ramírez, Flores, Borbón, Río and Ramírez (2018) specify that ACAP is not an isolated factor, and contributions arising from studies associating ACAP with the organizational structure are relevant.

Based on these considerations, we propose a multidimensional understanding of ACAP from the perspective of its relationship with organizational configuration, once the typologies can influence, in different ways, the efficiency and efficacy of the recognition, assimilation, and application process of knowledge (Lane et al., 2006).

With regard to the operationalization of the research, five companies were selected, and empirical data were collected by means of interviews. After that, the data was explored through content analysis, based on the organizational configuration typologies proposed by Mintzberg (1980, 1993, 2012), namely: simple structure, bureaucratic machine, professional bureaucracy, divisional form, and adhocracy.

Based on the identification and analysis of different organizational configuration forms, performed based on the conception parameters and contingency factors of each of the types of organizational configuration in the five companies analyzed, hybrid structures, not pure ones, were found. However, a predominant typology of organizational configuration was always present.

The identification and analysis of the development process of absorptive capacity with the organizations studied in the research demonstrated that the configuration of a simple structure favors the capacity to recognize the degree of autonomy of employees, which brings them closer to customers and competitors. The assimilation capacity takes place, mainly, through the informal encounters that this type of configuration provides. On the other hand, this recognition capacity is minimized by centralization in decision-making. The knowledge application capacity is also limited, once it takes place, as a rule, by the manager, given the decision-making process is centralized.

In the bureaucratic machine, the recognition capacity is facilitated by internal formalization, which helps recognize information, makes knowledge explicit, and promotes its diffusion. The assimilation capacity is facilitated by the routine and by the processes, which act as facilitators of the process of interpreting the new knowledge. The application of this newly acquired knowledge is harmed by the existing high level of centralization and standardization.

In the professional bureaucracy, recognition capacity is hindered by standardization and by the difficulty of cooperation, the assimilation capacity is favored by autonomy in knowledge internalization, and application capacity is limited by the absence of flexibility.

In divisional form, the recognition capacity is favored, considering that organizational structure approximates the business operation to the market and, mainly, presents a limited vertical

decentralization of power. The assimilation capacity is also facilitated by the dynamics of sharing experiences and the degree of alignment required. However, the application capacity is hindered by excessive standardization of results, a requirement of the strategic core.

Finally, in the adhocratic form, the recognition capacity is favored by the co-management practice, in which the members of the organization constantly exchange external and internal information. The assimilation capacity is facilitated by the organic dynamics, with a low degree of formalization of activities. The capacity for knowledge application is also favored by the proximity of individuals at the operational and management levels, which facilitates the exchange and application of knowledge.

The arrangement of the present paper is divided into four stages, in addition to this introduction. In the next section, the theoretical framework is presented, followed by the methodological procedures, and the presentation and analysis of results. Finally, the concluding remarks are presented.

O arranjo de apresentação deste artigo divide-se em quatro etapas, além desta introdução. A seguir, apresenta-se o referencial teórico e, na sequência, os procedimentos metodológicos, a apresentação e análise dos resultados. Por fim, são apresentadas as considerações finais.

2 Organizational configuration and its relation to absorptive capacity

Cohen and Levinthal (1989, 1990, 1994) were the first to consider ACAP at the organizational level, perceiving it as an essential element in the innovation process and as the organizational capacity to identify, assimilate and apply external knowledge commercially. Later, Zahra and George (2002) adopted a processual perspective of ACAP and proposed a re-conceptualization of the construct, including the capacity for transformation and the PACAP - potential ACAP (acquisition and assimilation capacity) and RACAP - realized ACAP (transformation and application capacity) dimensions.

For the purpose of expanding the approach, Lane et al. (2006) present a detailed conceptualization of ACAP from the perspective of process-oriented learning. ACAP, in this sense, would be the ability of an organization to use external knowledge through three sequential processes: (i) recognizing new knowledge through exploratory learning; (ii) assimilating the new knowledge through transformative learning; and (iii) using the assimilated knowledge for the creation of new knowledge and outcomes through exploitative learning.

The model presents drivers, which in the literature are considered gaps. These drivers can be external or internal. They are external when they comprise the characteristics of knowledge, environmental conditions, and characteristics of learning relationships, and influence the breadth of knowledge, the depth of its understanding, and the incentives to invest in ACAP. On the other hand, they are internal when characteristics of the mental model of firm members, characteristics of the structure and processes of the firm, and the firm's strategy can generate positive or negative interferences regarding ACAP. Knowledge outcomes, performance, and business results are considered outputs that interfere with the organizational capacity of ACAP. Knowledge outputs can transform mental models

and facilitate evolution in organizational configuration and processes (Lane et al., 2006). The present study is based on the model proposed by Lane et al. (2006) and the theoretical gap pointed out by the authors.

Regarding organizational configurations, Chandler (1962) is considered a pioneer. In his conception, the configuration depends on the organization strategy adopted and is applied to the resources and market demand. In the 1980s, Mintzberg (1980, 1993, 2012) proposed that organizational configuration is defined by the division of labor into different tasks, which are executed through coordination.

Mintzberg (1980, 1993, 2012) emphasizes that the configuration of an organization is formed by components that must be chosen with a view to internal harmony and the situation of the corporation. These foundations are listed in three groups: foundation, design parameters, and contingency factors, as shown in Figure 1.

Figure 1

Foundation, design parameters, and contingency factors

<i>Foundation</i>	Set of components that constitute the organization, providing five mechanisms for regulating activities and five flow systems that run through the organization and determine its functioning.
<i>Design parameters</i>	Set of basic principles that conceive organizational structures and interfere with institutional functioning.
<i>Contingency factors</i>	Set of conditions considered independent variables that influence the parameters of design, with the dependent variables being the resulting organizational structures. These factors allow for an understanding of why organizations are structured in the way they are.

Source: Mintzberg (1980, 1993, 2012).

The author establishes five typologies, which are theoretical and present support the real arrangements. These typologies are called: simple structure, bureaucratic machine, professional bureaucracy divisional form, and adhocracy. Figure 2 illustrates the organizational configurations mentioned, which are described according to Mintzberg (1980, 1993, 2012).

Figure 2

Mintzberg's Five Structural Typologies

Typologies	Primary Coordination Mechanism	Key component of Organization	Decentralization Type
Simple structure	Direct supervision	Strategic apex	Vertical and horizontal centralization
Bureaucratic Machine	Processes standardization	Technostructure	Limited horizontal decentralization
Professional Bureaucracy	Habilities standardization	Operating core	Vertical and horizontal decentralization
Divisional Form	Results standardization	Middle line	Limited vertical centralization
Adhocracy	Mutual adjustment	Support staff	Selective decentralization

Source: Mintzberg (1980, 1993, 2012).

The *simple structure* is characterized by centrality, with overall management being the responsibility of the leader. Communication occurs informally, the division of labor is minimal, and formalized behaviors are rare. It refers to a flexible, dynamic, and accommodating structure. The bureaucratic machine combines a high degree of control, formality at all levels, centralized and standardized procedures, trained and specialized work, a division into units of tasks, and partially centralized decision-making.

In the *professional bureaucracy*, members have autonomy and authority to work and meet the different needs of clients. Individuals control their activities and operate in their units independently - a characteristic that sets them apart from the bureaucratic machine. The dimensionalized structure operates semi-autonomously: its operating and management units have independent centers and the means of control is the standardization of the results of each operational unit.

Finally, *adhocracy* refers to an informal, organic, and sophisticated structure. This typology is adaptable to innovations, communication occurs informally, and professionals in the organization cooperate in group activities. The typologies are presented as pure structures and are costly to find in practice; it is more common to find structures that approach one of the five typologies.

Organizational configuration affects the degree of mobilization of behavioral, cognitive, and affective resources of an organization, which in turn influence the effectiveness of learning processes related to knowledge absorption (Alexiou et al., 2019). Empirical studies addressing ACAP have revealed some elements that relate to the characteristics of the five typologies presented by Mintzberg (1980, 1993, 2012).

The centralization of decision-making authority hinders the assimilation of new patterns, actions, and learning (Galbraith, 1973; Morgan & Ramírez, 1983). A centralized structure interferes

with interaction among members of the organization, reducing opportunities and hindering the development of new knowledge (Damanpour, 1991). Limited autonomy and a sense of control also have implications for individuals within the organization (Sheldon, Ryan & Reis, 1996). Although some studies have pointed to a positive relationship between centralization and ACAP (Pierce & Delbecq, 1977; Liao, Chuang & To, 2011), others report a negative relationship (Damanpour, 1991; Kim, 1980; Zheng, Yang & Mclean, 2010). Some authors argue that centralization has a negative influence on the acquisition and assimilation of new knowledge, while having a significantly positive influence on the application of new external knowledge (Ali et al. 2018). Others contend that centralized structures can have a negative impact on the efficiency of assimilating and applying information (Jansen, Van Den Bosch & Volberda, 2006; Alexiou et al., 2019). Thus, a less centralized structure may reduce knowledge differences between managers and subordinates, inspiring motivation, loyalty, and creativity.

Decentralization provides freedom of interaction, increasing the capacity to generate knowledge (Nonaka, 1988; Nonaka; Toyama & Konno, 2000), as well as increasing the acquisition of new external knowledge. In other words, participation in decision-making does not necessarily result in collective efforts of assimilation but rather leads to low-level assimilation of new external knowledge through a narrow focus of unit members.

A decentralized structure typically results in broader communication channels, improving the precise and timely flow of information, as well as the quality and quantity of ideas and knowledge that can be shared (Sheremata, 2000). This can enhance the ability of the organization to explore and synthesize sources of knowledge (Baum & Wally, 2003, Alexiou et al., 2019), as well as to manage knowledge (Pierce & Delbecq, 1977; Damanpour, 1991; Jansen et al., 2005; Zheng et al., 2010). This format can improve the ability of an organization to explore and synthesize sources of knowledge and allows the organization to harvest a variety of ideas, enhancing the creation and utilization of knowledge. The efficiency of ACAP is associated with the procedures, routines, and tasks that the company employs in the process of identifying, assimilating, and applying new knowledge. The procedures, rules, and norms that guide these processes also shape the organizational configuration (Vega-Jurado, Gutiérrez-Gracia & Fernández-De-Lucio, 2008). Thus, an organization that has flexible assimilation practices enables the entry of external knowledge (Murovec & Prodan, 2009).

Formalization explicates existing knowledge and skills, accelerating the dissemination of the best practices within units (Zander & Kogut, 1995). Rules and procedures are endowed with experiences that allow employees to research and assimilate external information (Adler & Borys, 1996). However, a high level of formality negatively influences flexibility and discourages innovation. In this sense, formalization can have a dual influence on ACAP: on the one hand, it can increase efficiency in knowledge acquisition; on the other hand, it can hinder the transformation and application of knowledge, as rigid structures are a serious impediment (Jansen et al., 2006).

The positive effects of formalization are more evident in environments characterized by uncertainty, complexity and interdependence (Juillerat, 2010; Alexiou et al., 2019). According to Ali et

al. (2018), formalization can enhance the ability of a company to assimilate and apply knowledge. Jansen et al. (2005), Van Den Bosch et al. (1999) and Alexiou et al. (2019) suggest that formalization contributes to the process of knowledge acquisition and assimilation, as well-designed rules and procedures capture previous experiences that are useful for the process.

ACAP does not solely depend on the basic structure of the organization, but also on complementary structures that assist in the development of higher levels of learning (Duchek, 2015). It is emphasized that the commitment to learning and expertise should be an intrinsic characteristic of the organizational culture (Van Den Bosch, Van Wijk & Volberda, 2003). A less authoritarian hierarchical configuration facilitates and promotes the distribution of knowledge (Daghfous, 2004).

Specialization (complexity) refers to the degree of differentiation that exists within an organization. It is suggested that the organization improves the skills and abilities of employees in day-to-day activities (Pertusa-Ortega, Zaragoza-Sáez & Claver-Cortés, 2010). It is emphasized that specialization and integration (coordination mechanisms) are positively related to ACAP (Ali et al., 2018). Complexity has a positive influence on the stage of implementing new knowledge (Damanpour, 1996), as qualified and trained employees facilitate the assimilation and application of external knowledge (Vinding, 2006; Jansen et al., 2006).

The organizational configuration prescribes that the allocation of specificities and knowledge within the institution influence ACAP, i.e., organizational mechanisms encourage individuals to relate, amplifying the capacity for learning (Li et al., 2014). Thus, the existence of a consistent network within units can motivate employees to interact in order to assimilate and apply new external knowledge (Cohen & Levinthal, 1990; Morrison, 2002). Work groups, in particular, have a positive influence on the acquisition and assimilation of new external knowledge (Jansen et al., 2005).

It should be noted that formalization and social integration mechanisms are interrelated. A high level of formalization can have a negative influence on the social integration mechanism of a company, as it can reduce the need for communication among individuals (Van Den Bosch et al., 1999). On the other hand, social integration mechanisms have a positive effect on application, especially when knowledge has a lower level of applicability, requiring specific skills and better qualified personnel (Vega-Jurado et al., 2008).

The organizational configuration has an impact on ACAP by delineating patterns and consistencies of communication, rules, procedures, and decision-making locations, which can influence the implementation of new ideas (Huang et al., 2011; Ali et al., 2018). In this sense, it is understood that the organizational configuration influences the efficiency and effectiveness of the ACAP process.

3 Methodological procedures

The present study is characterized as empirical and applied in nature (Vergara, 1998; Gerhardt & Silveira, 2009; Gil, 2010), and employs a qualitative approach (Minayo, 2008; Martins & Theóphilo,

2009; Creswell, 2010). In terms of methodology, it is a descriptive research (Triviños, 1987; Prodanov & Freitas, 2013).

The organizational configuration was analyzed based on Mintzberg's (1980, 1993, 2012) theoretical model. The proposed configurations are presented as pure structures, which are costly to find in practice. Therefore, it is more common to find structures that approach one of the five typologies. Initially, ten companies were intentionally selected based on the judgement of the researchers. After the companies accepted to participate in the research, the first interviews were conducted to verify the identification of a predominant typology. At the end of the interviews, it was found that five of the companies predominantly exhibited one of Mintzberg's five typologies (1980, 1993, 2012). In other words, the research objects were selected based on the observation that the companies exhibited structural characteristics most consistent with the theoretical elements of each typology.

The five companies have structural peculiarities that characterize and differentiate them from one another. These organizations have structural characteristics that meet the specificities of the following typologies: simple structure, bureaucratic machine, professional bureaucracy, divisional form, and adhocracy. Regarding the research participants, they are managers with strategic position, totaling 13 interviewees. The names of the organization and the interviewees were kept confidential at their request, since some information cannot be disclosed.

Subsequently, structured interviews were conducted using a pre-established script (Martins & Theóphilo, 2009). Regarding the typologies of organizational configuration, the questions were elaborated by the authors of this study, based on the theoretical contribution of Mintzberg (1980, 1993, 2012) to identify the predominant typology in each organization to be investigated. As for the interview script related to ACAP, we opted to adapt data collection instruments from Jansen et al. (2005), Cadiz, Sawyer, and Griffith (2009), Camisón and Forés (2010), and Flatten et al. (2011). The instrument was analyzed by specialists and previously tested for the purpose of refining the inquiries.

The interviews were scheduled by email in advance and took place in the second half of 2021. It was possible to visit the internal facilities of each organization and interview each of the managers. The interviews were recorded with prior consent from the subjects. In the end, considering the five organizations studied, approximately 28 hours of interviews were obtained, which were fully transcribed.

For data analysis and interpretation, the content analysis technique was used, which explores communications using systematic and objective procedures of description (Bardin, 2006). This methodological practice is classic for assessing textual material, regardless of its origin (Flick, 2009). The analysis involves three distinct phases: a) pre-analysis, in which the material is collected and organized for analysis; b) exploration of the material, with operations of coding, classification, and categorization of data based on previously formulated rules; and c) treatment of results, inference, and interpretation, involving the condensation of results and information provided by the analysis from reference frameworks. This is a logical sequence based on the content analysis technique, correlating

initial empirical information with conclusions, and highlighting the stages and phases of study development (Bardin, 2006).

The analysis variables were established based on the theoretical framework. That is, the organizational configuration was investigated based on Mintzberg's propositions (1980, 1993, 2012). ACAP followed the approach of Lane et al. (2006), considering the capabilities of recognition, assimilation, and application. The interviews were transcribed, and the data analysis, in order to validate the information collected, considered the respondents' discourse and theoretical analysis. From the interviews, it was possible to understand the existing relationships between typologies of organizational configurations and the development of ACAP.

4 Presentation and analysis of the results

This study proposes that ACAP be developed through elements and mechanisms that take into account the characteristics of each typology. The investigated organizations, based on their specificities and structural dynamics, seek information, analyze it, and interpret it to improve and/or create new products or services.

4.1 Simple structure typology

The simple structure typology refers to a service-based company in the beauty salon segment, located in the northwest region of the state of Rio Grande do Sul (RS). This organization employs a small work structure, with minimal differentiation between its units and a small managerial hierarchy. There is little formalization, limited planning, and above all, an organic approach focused on human development.

The coordination mechanism is implemented through direct supervision, meaning that all decision-making power is centralized in the hands of the main executive/administrator owner. Thus, the strategic apex is a key part of the organizational configuration. The main executive has a large span of control: everyone in the organization reports to her, and the flexibility in decision-making allows for a quick response due to the centralization of power.

In the operational core, work positions are horizontally specialized based on professional knowledge and skills. Expertise regarding techniques for providing services is developed through internal training and socialization, which is the responsibility of the owner/administrator. External training sessions are occasionally provided for the staff.

In the organization, there is little formalization, and communication flows informally between members. Grouping is done by function, and the size of the units is small in all aspects. Strategy planning is the sole responsibility of the administrator and is intuitive rather than analytical, guided by the search for opportunities. The centralization of power favors flexibility, adaptability, and broad knowledge of the operational core.

The mechanisms for linking and integrating the team occur primarily in the areas of performance and in the exchange of functions. The company has been in existence for 30 years and has a staff of 7 individuals. It is a small organization that relies on the charismatic leadership of the owner.

The technical system is simple and non-regulatory, avoiding formal instruments of structuring. The environment in which the company operates is considered simple and dynamic: simple because it is understood by only one person, and dynamic due to the absence of patterns and the existence of uncertainties.

Considering Mintzberg's propositions (1980, 1993, 2012), this organization presents predominantly as a simple structure, integrating some characteristic elements of an adhocracy. In this sense, there is a simple configuration that integrates attributes of a sophisticated typology.

Given the structural characteristics, the results indicate that the capacity for recognition is favored by the individual capabilities of the employees and the autonomy they have. That is, they carry out research activities, interact with external customers and partners, and monitor competitors.

"We have been getting very close to our clients. It has improved the result of our work. We call them the next day to find out if the service met their expectations. We do research, stay close to our suppliers, and monitor competitors." (Excerpt from interview, E1).

These results corroborate the studies of Edvinsson and Malone (1998), Cabrita and Bontis (2008), Subramanian and Youndt (2005), Delgado-Verde, Martín-de-Castro, and Navas-López (2011), and Martín-de-Castro, Delgado-Verde, López-Sáez, and Navas-López (2011), by pointing out the relationship between human capital and the tacit knowledge of the group, as well as its potential to create useful knowledge for the company. The independence of employees and the freedom over their own actions is driven by leadership that encourages the expression of opinions and ideas, which is consistent with the studies of Knox (2002) and Cepeda-Carrion, Cegarra-Navarro, and Jimenez-Jimenez (2012).

The assimilation capacity, in turn, occurs through the individual skills and competences of the members of the company. It also occurs through the realization of trainings and informal team meetings.

"In our meetings, we share news, and discoveries, and suggest things we can do, always thinking about our clients. These meetings are very important. We also conduct training and courses. The girls who are here have a natural talent for this." (Excerpt from interview, E2)

These results confirm the study by Camisón and Forés (2010), which highlights the importance of individual skills in the process of assimilating new knowledge. Furthermore, they support the findings of Murovec and Prodan (2009) and Schmidt (2010), which indicate that training is related to the assimilation of new knowledge.

It is understood that the development of assimilation capacity is minimized by centralization in decision-making. This is a characteristic of this typology, as member autonomy is limited, and control exercised by the managing owner results in consequences for company members. These findings reinforce the studies by Galbraith (1973), Morgan and Ramirez (1983), Sheldon et al. (1996), Jansen et

al. (2006), and Alexiou et al. (2019), which refer to the centralization of authority as a hindrance to the assimilation of actions and learning.

The same occurs with the capacity to apply knowledge, as entrepreneurial behavior is a characteristic of the manager, and the decision to acquire new tools and provide differentiated services depends on this individual.

I see my entrepreneurial side speaking, I want to expand, evolve, and bring professionals with me. People talk and praise this salon because there are always new things, products, and services that we change. We invest in new tools and equipment. The crisis is not inside here. The crisis is outside. We have created a schedule with small events for some groups.

It is noticeable here that the development of this capacity may be hindered, as a single individual holds control over decision-making, operating between strategic and operational issues, in line with the findings of Jansen et al. (2006) and Alexiou et al. (2019).

4.2 The bureaucratic machine typology

In this study, the organization characterized as a bureaucratic machine consists of a century-old public institution in the executive power, located in the northwest region of the state of Rio Grande do Sul. It has standardized responsibilities, qualifications, communication channels, and work rules, as well as a clearly defined hierarchy of authority. The functioning of the workflow components is rationalized, and the division of labor is provided for in the Administrative Structure Law. Thus, in the operational core, job positions are tightly defined and specialized both vertically and horizontally. The emphasis on standardizing work processes occurs through coordination.

The specialization of job positions occurs through training and socialization. Job positions are filled through public competitions that require specific skills. Later, during the probationary period, training and learning processes occur within the respective work sectors. Additionally, there is a continuous provision of external training. The transmission of knowledge occurs daily between the employees and their superiors.

The formalization is highly bureaucratic, in accordance with the current legislation and internal regulations. The grouping is done through functional units, which are defined by the government and synthesized in complementary norms that draw the intermediate line above the operational core.

The technostructure encompasses the analysts who ensure the standardization of activities and is a key component of the organizational configuration. The span of control is large at the base and small at other points, primarily achieved through records, control maps, and accountability. The control mentality that pervades the organization is top-down.

The strategy emerges from the strategic apex, with an emphasis on planning. Based on the Government Plan established by Executive Decree, planning instruments such as the Multi-Year Plan, the Budget Guidelines Law, and the Annual Budget Law are developed. Mechanisms for linking and integrating work groups occur primarily within the operational sectors. Decentralization is horizontal,

with centralization occurring in the vertical dimension of the structure. Formal power is concentrated at the highest hierarchical levels, especially in the strategic apex.

The organization has been in existence for 107 years and has a staff of approximately 2,220 individuals. The technical system is regulatory, but not automated. The environment in which the company operates is considered complex and stable, given the legal constraints imposed.

According to Mintzberg's perspective (1980, 1993, 2012), this organization predominantly presents itself as a bureaucratic machine, integrating some characteristic elements of a professional bureaucracy and others of the divisional form. In this sense, there is a bureaucratic configuration that integrates attributes of other typologies.

The findings suggest that the recognition capacity is favored by research activities, individual initiatives, and the relationship with external partners.

"We constantly carry out research. We use the internet, follow social movements and the economic and financial situation, etc. We visit other places, and observe. The team has professionals who seek, who want to contribute, this is very individual to the person." (E3)

These findings reinforce the study by López-Sáez, Martín-de-Castro, Navas-López, and Cruz-González (2010), in which the authors suggest that the exploitation of knowledge in the external environment provides for the expansion of the company's knowledge base. The results of Daghfous (2004) are also supported, as the author emphasizes the relevance of individuals who create a common language for producing and utilizing knowledge.

This capacity refers essentially to the leaders of the strategic apex, given the formalization, specialization, and rationalization that exist in the division of labor and differentiation between units. The results suggest that formalization is beneficial for recognizing information, as it makes knowledge explicit and fosters the diffusion of best practices, thus ratifying the results presented by Adler and Borys (1996), Jansen et al. (2005), Jansen et al. (2006), and Alexiou et al. (2019).

The assimilation capacity is benefited from routines and processes, the interaction of workgroups, and training activities. It is understood that rules, regulations, and formal communication act as facilitators in the process of interpreting and comprehending new knowledge.

The team meets once a week to share information and exchange ideas. Continuous training brings results and keeps the entire team aligned. We have everything mapped out in manuals and procedures. These are legal devices that determine what can and should be done. Sometimes, this limits the quick action of the manager, making the process slower. (E1).

These results support the studies of Zahra and George (2002), Vega-Jurado et al. (2008), and Flatten et al. (2011), when they refer that assimilation involves knowledge sharing and that such practices reduce barriers and stimulate the exchange of knowledge.

Regarding the application capacity, the study shows that the incorporation of new knowledge occurs through formalization and project development.

Everything happens through formalization, following the law. Many times, it is slow. There is bureaucracy, and everything happens through the development of projects. That thing... It depends on people, their willingness, agility, and efficiency. (E2).

It can be inferred that the existing standardization and relatively centralized decision-making power may pose a hindering element to the development of the application capacity. These results corroborate Jansen et al. (2006) and Alexiou et al. (2019), whose studies report that the centralization of authority and high level of formality negatively interfere with the application of new knowledge and organizational flexibility, discouraging innovation.

4.3 Professional bureaucracy typology

The organization characterized as a professional bureaucracy refers to a public institution that provides services related to education, research, and extension, located in the Southwest region of the state of RS. In its work structure, the organization uses the skills and knowledge of its professionals, thus producing standardized services. The coordination mechanism is based on the standardization of skills, that is, on training and indoctrination. Professionals are specialized for the operational core, a key part of the organization.

The specialization of jobs occurs horizontally. Recruitment takes place through a public competition, which formally requires certain skills and knowledge expected of the professional. Subsequently, training and continuous training meetings take place in work teams, which are continuous events aimed at sharing good practices and developing skills. Knowledge socialization occurs informally between staff and management. Formalization is essentially bureaucratic, and the internalization of standards is related to delivering to the customer and coordinating professional work. As a public institution, great attention is paid to current legislation and internal guidelines.

The categorization process creates an equivalence between functional grouping and market grouping. That is, functional grouping because it aggregates specialists according to their knowledge, skills, and work processes, and market grouping because each unit deals with exclusive types of customers. The size of the units emphasizes the authority of a professional nature, that is, based on the power of expertise. Thus, it is considered that authority is high at the base and low in other points. The support advisory is widely elaborated and focused on serving the operational core; this support is basically technical, involving routine activities.

Regarding planning, the organization has an annual instrument according to the budget provided at the federal level, which is socialized in the workgroup. However, given the autonomy of each professional, it is worth noting that members who work in the institution have their own strategies, with freedom to adapt basic strategies to specific needs and interests. The linking mechanisms relate to administration, whose structure is highly democratic, in which professionals seek collective control (boards) of administrative decisions that affect them. It should be noted that there is a variety and diversity of committees, which are permanent.

Decisions regarding strategy are decentralized, with a significant amount of power over operational activities vested in the base of the structure, with the professionals working in the operational core. It should be noted that each professional works with their own clients, and the power does not stem solely from the fact that the work is highly complex, but also because the service provided is in great demand. This is an organization that has been in existence for approximately 10 years and employs 83 individuals. The technical system is not highly regulated, sophisticated, or automated, as the professionals attend to clients directly and personally. Finally, the environment is considered complex and stable due to the utilization of knowledge and skills, as well as compliance with legislation.

According to Mintzberg's proposal (1980, 1993, 2012), this organization is predominantly presented as a professional bureaucracy, integrating some characteristic elements of the divisional form. In this sense, there is a bureaucratic configuration that integrates attributes of another typology.

The results indicate that, in terms of recognition capacity, continuing education stands out as a strategy used to search for information with a view to achieving objectives. However, regarding knowledge identification, the research proposes a strong relationship with the individual level of the company's members, meaning that each individual has the freedom to search for information, relating to external partners, and professional qualifications.

Visits are encouraged. Teachers participate in scientific events. Students also participate, which facilitates this exchange of information. The institution has a policy called "Continuing Education". Over time, we have developed a relationship of complicity between educational institutions. We are partners with at least three Brazilian universities and two foreign ones. Our institution is binational. (E3).

These findings are consistent with the studies of Daghfous (2004) and Schmidt (2005), which suggest that experts and qualified professionals are fundamental to the organizational ability to access external knowledge. The integration and cooperation of employees are relevant to expand the learning capacity, as already pointed out by Cohen and Levinthal (1990), Morrison (2002), and Jansen et al. (2005).

The ability to assimilate is favored by the autonomy and authority that experts have to internalize knowledge. Professionals control their own work, routines, processes, and training; and through participation in committees and collegiate bodies, they seek collective control of decisions that affect them.

All committees, commissions, and boards meet monthly to understand information, needs, and demands. It is an opportunity to analyze and renew work practices. Everything is recorded. The groups are very heterogeneous and work together in committees and boards. Each member brings their baggage of knowledge and, together with others, makes decisions. Training is provided by the institution, with both in-person and online courses available. We also hold workshops to transmit knowledge, which personnel enjoy. (E1).

Considering both vertical and horizontal decentralization, it can be stated that professional bureaucracy favors the assimilation of knowledge. In this sense, the results reinforce the findings of Sheremata (2000), Baum and Wally (2003), and Alexiou et al. (2019).

The capacity for application is based on the development of projects, the introduction of new technologies, and formalization.

The institution has a program called the Technology Innovation Center, which is the main catalyst for innovation. Innovative Idea Contests, Coworking, and others are promoted. It is like a project hotel. We work strongly in research, teaching, and outreach. Also, everything is formalized, acquisitions, projects, and procedures. We are based on decrees and memorandums. The legislation imposes this. It limits agility and innovation. The application of the law refers to service transparency.

These results support the findings of Cohen and Levinthal (1990), Morrison (2002), and Vega-Jurado et al. (2008), who suggest that interaction and cooperation among members are beneficial in applying new knowledge.

4.4 Divisional form typology

The organization characterized as a divisional form operates in the provision of services aimed at capacity building and development promotion. It is located in the Southwest region of the state of Rio Grande do Sul. It is a structure overlaid on others. The coordination mechanism is the result of standardization. The central office allows autonomy for the divisions to make their own decisions; however, it monitors them through quantitative indicators. Therefore, the middle line is the key part of the organization, i.e., there are intermediate line units called "divisions," and their administration is the "central office."

The specialization of work is both horizontal and vertical between the central office and the divisions. It is noteworthy that the professional profile is outlined before hiring, and through training, their skills and competencies are enhanced. Training is continuous and specific to each professional, according to their area of expertise.

Formalization is highly present in organizational daily life. Divisions have autonomy, but a small part of their behavior is formalized by the central office. Communication between divisions and the central office is largely formal, limited to transmitting performance standards to the divisions. Professionals are grouped based on the market, meaning that divisions are created according to the market of operation and subsequently assume control of their operational functions.

It is worth noting that each division operates as a semi-autonomous entity, allowing for the grouping of a large number of divisions under the coordination of the central office. In other words, the span of control at the strategic level is extensive. Planning and control of actions are instruments used in the organization, directing efforts towards achieving goals.

The linking mechanisms are moderate and occur through quarterly meetings among division managers. Decentralization is vertical and circumscribed, but no more than the delegation of central

office managers to division managers. The organization has been in existence for 45 years and has a staff of 423 employees. It is an organization with a group of aggressive managers who seek growth. The technical system is not regulatory or sophisticated, being separated into segments according to each division.

The environment in which the institution operates is considered simple and stable, where the establishment of performance standards and their measurement is sought. In short, the divisions have the power to manage their own businesses, control operations, and determine strategies for the markets under their responsibility.

This organization is predominantly presented as a divisional form (Mintzberg, 1980, 1993, 2012), incorporating some elements characteristic of a professional bureaucracy. From this perspective, there is a configuration overlaid on others, integrating specificities of another typology.

The research findings suggest that the capacity for recognition is favored, given the proximity to the market and limited vertical decentralization. The strategic intelligence area stands out, aiming at identifying trends and opportunities.

We have a department called strategic intelligence, linked to the superintendence and responsible for elaborating research activities. We attend events to look for things that are happening in the markets. We visit other business branches. Three years ago we hired an important consultancy in the culture area. We are close to our customers and monitor our competitors (E3).

These findings reinforce the study by López-Sáez et al. (2010), in which the authors emphasize that exploring the external environment strengthens a company's knowledge base. They also support studies by various authors, whose findings highlight that decentralization expands communication channels and allows freedom of interaction, amplifying the ability to generate knowledge (Nonaka, 1988; Nonaka et al., 2000; Sheremata, 2000; Baum & Wally, 2003; Jansen et al., 2005; Alexiou et al., 2019).

The capacity for assimilation is also enhanced. Strategic alignment aims to achieve organizational objectives, share experiences among workgroups, and implement limited vertical decentralization.

Team meetings are held every two weeks and in these meetings, information and reports, mainly from the strategic area, are shared. We receive the knowledge and engage in understanding to benefit the organization and our clients. When joining the organization, a 4-month immersion period is provided. There is sharing of experiences among workgroups, and we use technologies. (E1).

The alignment meetings reflect a communication strategy, and these findings reinforce what has already been indicated by Nelson and Winter (2005): the team's communication ability favors information assimilation. Decentralization, in turn, is pointed out by Baum and Wally (2003) and Alexiou et al. (2019) as positive in incorporating new knowledge, as the flow of communication allows for sharing and synthesis of ideas. It is worth noting that these findings contradict the study by Jansen

et al. (2005), in which the authors indicate that member participation does not necessarily represent collective assimilation efforts. Furthermore, the relevance of the individual level of company members, that is, their competencies, skills, and attitudes in identifying and interpreting new knowledge, is observed, as already pointed out by Vinding (2006).

The application capacity is hindered by the standardization of outputs, which follows the precepts of the strategic core and result-oriented management. In knowledge incorporation, the development of collective projects through interaction with partners is evidenced, highlighting internal guidelines and employee engagement.

We aim to innovate through innovation ecosystems. We have been working on agribusiness projects in this region for over 20 years. We focus on organizational culture and climate. (E1).

These findings are in line with the results of Caloghirou, Kastelli, and Tsakanikas (2004) and Chesbrough (2003), who referred to internal capabilities as fundamental in the development of innovations. It is worth noting that aspects related to legislation and government regulations may limit the application of knowledge in this type of organization, inhibiting the development of this capacity (Castro, Diniz, Duarte, Dressler & Carvalho, 2013).

4.5 Adhocracy typology

The organization characterized as an adhocracy typology is a service provider company that originated from an incubator in the Northwest region of the state of RS. It has a complex, highly organic structure with a little formalization of behavior. It consists of a fluid and flexible configuration that seeks to promote innovation.

The coordination mechanism has mutual adjustment as its key element, which is a simple process of informal communication among members of the organization. The functioning of components is primarily supported by personnel who assist with workflow and general organizational needs.

Work specialization is highly horizontalized, with individuals having higher-level qualifications and constantly undergoing professional development training. It is noteworthy that knowledge and skills are highly developed through training, and the construction of new knowledge and skills requires the combination of other existing training programs.

Formalization is practically non-existent in the organization, so it remains flexible and provides speed in the process of change. The grouping of professionals occurs by function, that is, following organizational purposes. The support advisory is presented as the key part of the organizational configuration. Information and decision processes flow quickly and informally, and if necessary, can override the chain of authority. Planning is limited, there are many linking mechanisms, and the work team is very close, which aids in mutual adjustment. The decentralization of teams is considered

selective, and the power of decision-making is distributed among members according to the nature of the different decisions to be made.

The organization has been in existence for 4 years and has a staff of 8 employees. It is restricted by the projects it develops and the size of its multidisciplinary team. The technical system is sophisticated and requires experts with knowledge, power, and flexibility in their work. The environment in which the company operates is considered complex and dynamic, given the unpredictability and competitiveness of the industry.

With Mintzberg's (1980, 1993, 2012) proposal in mind, this organization presents predominantly as an adhocracy, integrating some elements characteristic of a simple structure. In this perspective, there is a complex configuration that integrates the peculiarities of another typology.

The results indicate that the capacity for recognition is favored by self-management and co-management, the multiplicity of activities, and the interconnection with the external environment.

We participate in events to seek knowledge. We visit different companies, factories, and businesses. We work with the triple helix, which brings together universities, markets, associations, and companies, so we always try to bring this approach into our organization. It is an exchange where everyone shares things. Another thing: we bring customers into the company to be part of the creation process. We also monitor competitors.

The results confirm the findings of Chesbrough (2003) and Teece (2009) regarding the facilitation of the innovation process through the exploration of the external environment and the integration with partners. Co-creation is a practice that brings customers closer and helps the company identify information, as well as generate value by applying knowledge in the offer of customized products. This also reinforces Teece's (2007) findings that successful innovation is related to understanding customer needs.

The assimilation capacity can be influenced by the operational and functional dynamics of this structure, as it is an organic organization with low formalization and employees performing multiple tasks.

Autonomy in the development of work is granted to each individual. Routines and processes are not rigidly established. The organization adapts to the market and to what the customer wants and asks for. The individual and their attitudes have a great influence on the organization. (E2).

These findings corroborate Zollo and Winter (2002) and Bygdas (2006), whose studies point out that proximity among individuals facilitates knowledge exchange. Therefore, it is understood that the assimilation cycle is fast, aiming at knowledge incorporation. It is highlighted that the individual level of the members composing the company - such as their knowledge, competencies, and attitudes - drives identification, internalization, and incorporation of knowledge. These results support the studies of Cohen and Levinthal (1990), Minbaeva, Petersen, Bjorkman, Fey, and Park (2003), Daghfous (2004), Schmidt (2005), Lane et al. (2006), Espinosa et al. (2007), and Camisón and Forés (2010), which signal the importance of individuals in creating value from new knowledge.

The ability to apply knowledge is benefited from self-management, co-management, and a plurality of activities.

We work with projects focused on the creative economy to position ourselves as a reference in this area. Here, we practice job rotation, which allows for flexibility, makes us versatile, and provides learning opportunities. We adapt and mold ourselves to meet the needs of our clients. (E1).

These findings are consistent with the results of Knox (2002), which point to the internal environment as a stimulator of change, favoring the incorporation of knowledge. The exercise of job rotation ensures flexibility and an entrepreneurial posture of the team, highlighting the creative potential of its members and autonomy in carrying out activities. This fact reinforces the studies of Van Den Bosch et al. (1999) and Jansen et al. (2005), who report that turnover provides the basis for sharing skills and stimulates the use of organizational knowledge.

5 Final considerations

This study aimed to analyze the relationships between organizational configuration typologies and the development of absorptive capacity (ACAP). The findings indicated evidence of a fruitful and significant relationship between these constructs, which allows us to understand organizational configuration as an important antecedent of ACAP.

The relationships revealed and supported by the empirical part corroborate the results of Lane et al. (2006), Huang et al. (2011), Li et al. (2014), Duchek (2015), and Ali et al. (2018). Initially, no matter how well-designed the systems for developing innovative products, services, or processes are within the company, they will only succeed if the organizational context is promising. That is, there needs to be structures and processes that allow for the recognition, assimilation, and application of knowledge. Therefore, organizational configuration, i.e., the way the company is organized, the power structure, and the dynamics of internal relationships, influence the development of ACAP.

In the pursuit of power relations within organizations, the predominant exercise of greater intensity among them will result in organizational configuration typologies. In other words, it can be stated that, in seeking harmony in structure, organizations are typically oriented towards one of the five configurations. However, in aiming for organizational effectiveness, organizations sometimes require a new configuration, which is why it is necessary to go beyond the five configurations. Thus, the central challenge is adjusting the structure in order to facilitate ACAP. Creativity, flexibility, teamwork, participatory problem-solving, and other mechanisms, when stimulated, can amplify the recognition, assimilation, and application of knowledge.

In light of the above, it is evident that ACAP is a complex process that relates to organizational learning capability. That is, companies need to seek information and establish routines and procedures to understand, process, analyze, and internalize such information initially so that later they can adapt and generate a new product or service.

Lane et al.'s (2006) work had already pointed out that organizational structure facilitates the transfer of knowledge, that is, it allows for sharing, communication, and the granting of learning from the individual level to the organizational level. On the other hand, it is worth noting that the nature of tasks, coordination, and communication present in the company's configuration influences ACAP. Furthermore, from the research, organizations of simple structure, bureaucratic machine, professional bureaucracy, divisional form, and adhocracy typologies demonstrated the development of ACAP through different organizational mechanisms. It can also be affirmed that all five companies have the ability to recognize, assimilate, and apply external knowledge.

On the other hand, authors Lane and Lubatkin (1998), Van Den Bosch et al. (1999), and Espinosa et al. (2007) draw attention to the fact that different types of structures have different consequences for ACAP. These statements support the results found in this study, given the mechanisms that each of the investigated typologies presented for the development of ACAP.

As observed, the study did not intend to identify the type of organizational configuration that would best facilitate the development of ACAP, but to understand the relationships between these two theoretical constructs. Therefore, the results highlight inferences in the field of management and contribute to the scientific development of this topic. The findings also contribute to understanding how each organization, according to its organizational configuration and respective structural characteristics, develops ACAP.

As a practical contribution, managers can use the results as a strategic tool. Identifying the potential enhancing and/or restrictive capabilities of recognizing, assimilating, and applying new knowledge in each typology of organizational configuration is an important reference for managers when making their structural choices.

The results are related to the reality and context of the investigated organizations. Therefore, new findings on the topic may confirm or partially confirm the results, as well as identify structural characteristics and their relationships with ACAP. Research is recommended in organizations of the same segment, as well as in several organizations with similar organizational configurations. Similarly, other methodological approaches can be efficient research strategies, providing in-depth knowledge about the topic and investigated phenomena. In this sense, a quantitative study is suggested, with organizational structure as a moderating variable.

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