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DEVELOPMENT OF DYNAMIC CAPABILITIES

Thesis summary

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Relevance of topic, introduction

It is almost a cliché to say that we live in an accelerated world. However, this acceleration and the increasing speed of acceleration are particularly noteworthy in the business world. In this fast-paced environment, economic organizations behave like living organisms, forced to adapt appropriately to their surroundings. At the same time, this adaptation is bidirectional, as organizations are also capable of changing and modifying their environment (Balaton et al., 2017; Teece, 2007). There can be numerous sources of change, and there is always a dominant direction of movement, but the companies that will benefit the most are those that can not only follow but also shape these market changes (Balaton et al., 2017). This is where complex patterns of change become particularly valuable, as they enable organizations to succeed in both volatile and less volatile environments (Gelhard et al., 2016). If the role of strategic management is to answer why some companies consistently outperform others (Barney & Arik, 2017), then the patterns of change that can reshape an organization's resource base over time will be essential for strategic management and long-term corporate success (Arndt & Pierce, 2018). These recurring transformation patterns that are capable of reshaping organizational resources are referred to as dynamic capabilities (Teece et al., 1997; Helfat et al., 2007). If the long-term success of companies depends on their ability to reliably transform available resources (Arndt & Pierce, 2018), then research on dynamic capabilities must be a priority. Studies on dynamic capabilities began in the previous millennium, and since then, the number of publications on the topic has increased almost every year (Farkas, 2022a). Today, dynamic capabilities have become one of the most influential areas in management science (Schilke et al., 2018).

Due in part to their acknowledged importance, many characteristics of dynamic capabilities are already well understood (Schilke et al., 2018), yet we still lack sufficient knowledge about their formation process (Ruiz-Ortega et al., 2023). The primary reason for this gap is that most studies on dynamic capabilities have been conducted in the context of large corporations. While large corporate environments are suitable for exploring various characteristics of dynamic capabilities, they pose limitations when it comes to studying their formation. The development of a capability can be influenced by numerous factors (Hart & Dowell, 2011), meaning that the older and larger an organization is, the more past events and influences may have shaped its capabilities. In contrast, in a relatively young organization with high growth potential, the patterns related

to the emergence of a specific capability—such as a dynamic capability—can be more clearly outlined. Overall, our understanding of how dynamic capabilities emerge remains limited (Ruiz-Ortega et al., 2023; Wilden et al., 2016), particularly in the context of startup organizations (Wilden et al., 2016). This dissertation aims to address this research gap by exploring the patterns of dynamic capability formation within selected startup organizations.

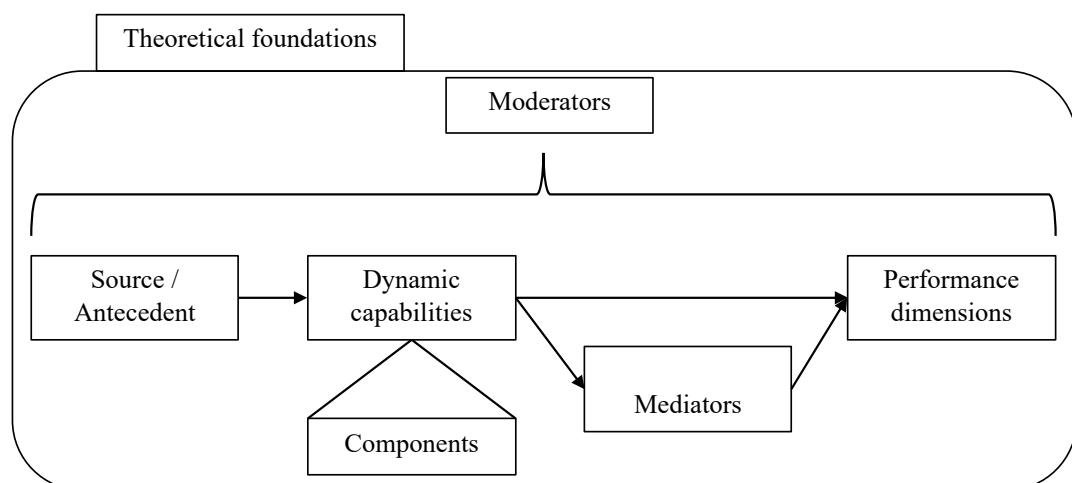
To achieve this research objective, the study seeks to answer the following key research question: **What patterns lead to the formation of dynamic capabilities in the examined startup organizations?** To answer this question, the study is based on case studies of three (and one extra pilot study) Hungarian startup organizations. Data collection for these case studies was conducted through interviews with employees and the analysis of documents provided by the organizations. The findings were subsequently validated through workshops with company leaders if possible.

Literature review

The study of dynamic capabilities began as an ambitious research area within strategic management (Helfat & Peteraf, 2009), originally seeking to answer the question of how organizations can develop and sustain a long-term competitive advantage (Teece et al., 1997; Ambrosini & Bowman, 2009). Over the past 20+ years since the inception of this research, the field has evolved into a highly extensive and complex domain.

To effectively present this research area, it is useful to follow a preliminary logic—a meta-model framework. This presentation logic is summarized in Figure 1.

Figure 1: The Framework of Dynamic Capabilities Literature: A meta-model



Source: Own compilation based on the adaptation of the model by Schilke et al. (2018, p. 402)

Based on the meta-model, we can discuss the various subcomponents, lower-order elements, or microfoundations of dynamic capabilities. A significant portion of the literature on dynamic capabilities focuses on their impact on organizational performance. Therefore, this dissertation also examines how these capabilities influence different performance dimensions, both directly and indirectly through various mediators. The relationship between capabilities and performance dimensions, as well as the process through which capabilities emerge, is moderated by context (e.g., the speed of environmental change, individual capabilities). Finally, attention is given to the central element of the dissertation: the sources and antecedents of dynamic capabilities and, accordingly, to how these capabilities develop according to our current knowledge.

Research interest in dynamic capabilities has grown significantly over time, leading to numerous scholars adapting the concept to fit their specific studies. As a result, even widely used definitions differ, sometimes contradicting each other, serving different purposes, and being based on distinct theoretical foundations (Arndt & Pierce, 2018). In the early stages of the dynamic capabilities literature—emerging from 1997 (or even as early as 1994, according to some studies)—significant conceptual variations existed (Ambrosini & Bowman, 2009; Di Stefano et al., 2010). However, over time, this conceptual diversity has diminished, with a few definitions becoming dominant (Schilke et al., 2018). The present dissertation builds on the definition of Eisenhardt and Martin (2000, p. 1107), according to which dynamic capabilities are „*the firm's processes /.../ to match and even create market change. Dynamic capabilities thus are the organizational and strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve, and die.*”

It is a relatively widely accepted finding among management scholars that resources and organizational capabilities, including dynamic capabilities, have some impact on organizational performance (Drnevich & Kriauciunas, 2011). While the literature on resources and static capabilities is extensive, the effect of dynamic capabilities on performance is a less researched and much more controversial area (Schilke et al., 2018). It is controversial in the sense that some studies (e.g., Stadler et al., 2013; Drnevich & Kriauciunas, 2011) show a positive, even direct, relationship between performance and dynamic capabilities, while other studies (e.g., Schilke, 2014; Wilden et al., 2013) suggest that there is no relationship, or even a negative one, between dynamic capabilities and performance. In a comprehensive meta-analysis in 2016, Pezeshkan and colleagues (Pezeshkan et al., 2016) examined what proportion of empirical studies identified a

relationship between dynamic capabilities and some dimension of performance. Overall, the authors conclude that there is an identifiable relationship between dynamic capabilities and performance, and they claim that dynamic capabilities better explain organizational performance than the non-dynamic resource-based view or the transaction cost approach. From this, the authors conclude that the development of the resource-based view in this direction was worthwhile. While we still do not have a complete picture of the relationship between capabilities and performance, dynamic capabilities have clearly brought us closer to understanding this relationship (Pezeshkan et al., 2016).

Since the inception of the literature on dynamic capabilities, numerous moderating factors and contextual elements have been identified that influence how dynamic capabilities affect performance. These include organizational values, norms, behavioral rules, organizational structures, and existing routines (Bojesson & Fundin, 2021), as well as the timing of organizational change (Zott, 2003). However, individuals appear to be the most critical influencing factor (Helfat & Peteraf, 2003; Salvato & Vassolo, 2018). Individuals are not only particularly important in the context of dynamic capabilities (Helfat & Peteraf, 2003; Salvato & Vassolo, 2018), but in some organizations, individual capabilities themselves serve as dynamic organizational capabilities (Adner & Helfat, 2003).

The literature refers to these as dynamic managerial capabilities—though more accurately, they could be described as dynamic individual capabilities—which are also part of the broader dynamic organizational capabilities framework. The concept of dynamic managerial capabilities was first introduced by Adner and Helfat in their 2003 article, where they define them as "the capabilities with which managers build, integrate, and reconfigure organizational resources and competencies" (Adner & Helfat, 2003, p. 1012). This definition closely aligns with the definition of dynamic organizational capabilities by Teece and colleagues (1997), who describe them as "*the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments*" (Teece et al., 1997, p. 516). In other words, Adner and Helfat (2003) define dynamic capabilities as serving a similar function, but at the individual rather than organizational level.

Organizational and individual capabilities exist in relation to and interwoven with one another (Pigola et al., 2023). The development and survival of organizations depend not only on static and dynamic capabilities at the organizational level but also on individual characteristics (Cristofaro & Lovallo, 2022; Gao & Liu, 2021). Nieves and

Haller (2014), in their studies, pointed out the connection between individual and organizational capabilities. In organizations with higher levels of human capital, organizational capabilities are more likely to develop, as qualified employees are more capable of forming an accurate understanding of environmental changes and adapting organizational operations accordingly (Nieves & Haller, 2014).

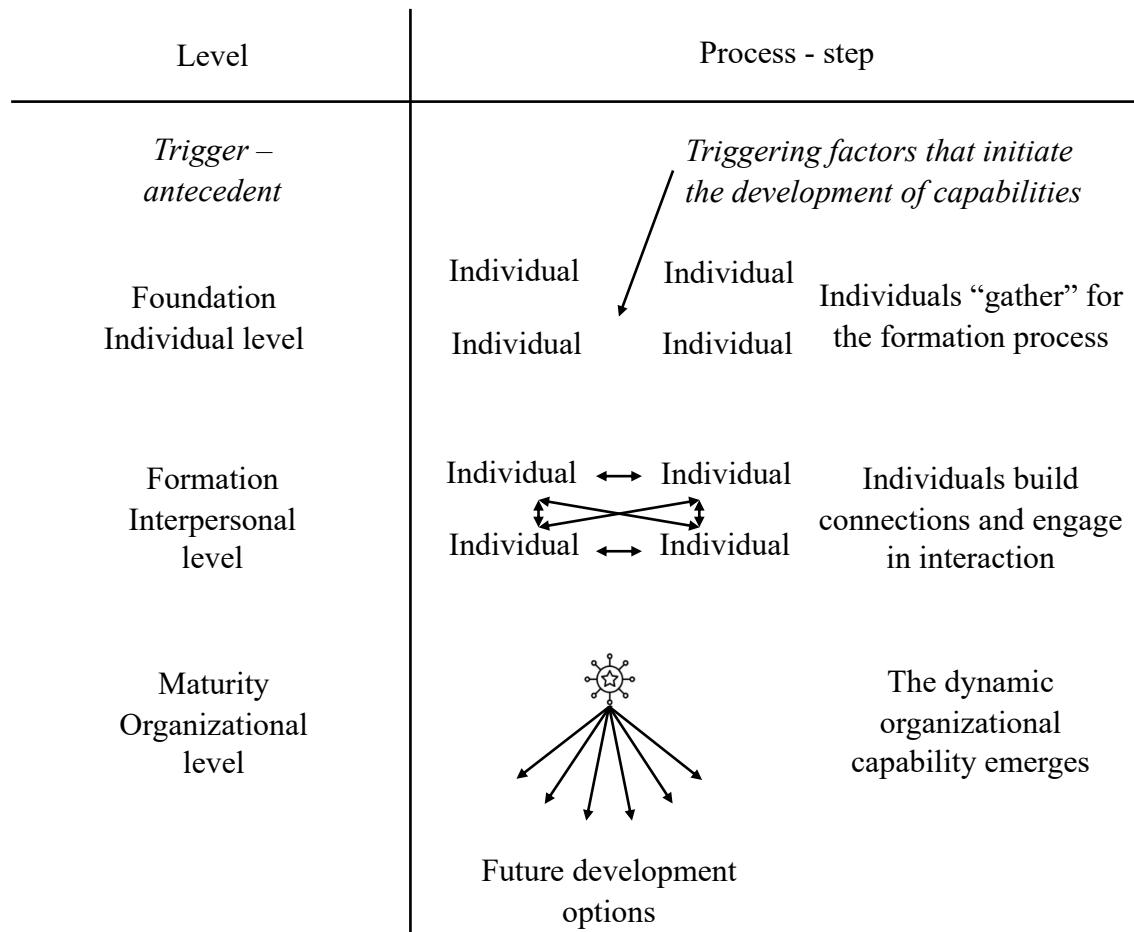
Dynamic capabilities—both individual and organizational—are complex and contain various identifiable components (e.g., Teece, 2007). The notion of microfoundations, as essential elements of dynamic capabilities, first appears in Teece's work (2007), and later in another context in his 2018 publication. According to Teece (2007), the routines underlying dynamic capabilities can be categorized into three groups: (1) sensing routines, which are responsible for identifying and shaping opportunities and threats; (2) seizing routines, which focus on capturing opportunities; and (3) transforming routines, which maintain competitiveness by developing, combining, protecting, and—when necessary—reconfiguring a company's tangible and intangible assets. Behind these routines lie distinct and identifiable skills, processes, and other organizational routines—collectively referred to as microfoundations. This tripartite structure (sensing, seizing, transforming) forms the foundation of dynamic capabilities. These categories can also be understood independently, making them more tangible and thus more suitable for empirical investigation.

A common assumption in research is that the development of dynamic capabilities follows a sequential, step-by-step process. However, this is not always the case—certain stages may repeat or even be skipped entirely (Cyfert et al., 2021). The exact path of development also depends on organizational characteristics, making it locally defined and thus unique (Williamson, 2016). Nevertheless, common features or meta-level groupings can still be identified. This is because, much like dynamic capabilities themselves, the development process is unique in its details but may exhibit generalizable characteristics (Eisenhardt & Martin, 2000).

The most comprehensive classifications are based on the independent yet converging research results of two author pairs: Helfat & Peteraf (2003), and Salvato & Vassolo (2018). The core logic derived from these two models suggests that dynamic organizational capabilities emerge from individual capabilities—possibly from dynamic managerial capabilities—in response to a triggering event. On the path toward developing organizational-level capability, it is essential that the individuals involved in this process “gather” (Helfat & Peteraf, 2003) and engage in interaction (Salvato & Vassolo, 2018).

Through this interaction, they co-create organizational routines, which are then shared with the broader organization after their formation. This fundamental logic is illustrated in Figure 2.

Figure 2: The underlying logic of the emergence of dynamic capabilities



Source: Own construction

It is worthwhile to examine the triggering factors that initiate the development of capabilities, as in most cases, change—and with it, capability-building—begins in response to some form of trigger (Donada et al., 2016; Hart & Dowell, 2011; Schilke et al., 2018). For organizational routines to change, some kind of new stimulus is typically required (Pablo et al., 2007). Organizations may respond to such stimuli in various ways, and developing a dynamic capability is only one of several possible responses (Farkas, 2022b). If an organization does choose to develop a dynamic capability, this process is usually initiated by a decision made by a member of the management (Donada et al., 2016; Pablo et al., 2007)—even if the organization is not consciously aware that it is embarking on the development of a dynamic capability. Once the decision is made, the

process of gathering the individuals involved in capability-building begins (Salvato & Vassolo, 2018), during which management often codifies the expected characteristics of the emerging capability (Donada et al., 2016).

The creation of dynamic capabilities requires individuals and groups (Bingham et al., 2015; Helfat & Peteraf, 2003; Slaouti, 2021; Zollo & Winter, 2002). In the first stage, these individuals come together around a specific goal and, using their prior skills and through future interactions, work to develop a potential new organizational capability (Helfat & Peteraf, 2003). These individuals may appear individually or organized into teams or groups (Wilkens & Sprafke, 2019). At this individual level, they may already apply their dynamic managerial capabilities (Adner & Helfat, 2003). These participants—whether internal or external to the organization (Slaouti, 2021)—possess diverse capabilities (Helfat & Peteraf, 2003) and experiences (Zollo & Winter, 2002), and the organization may even provide them with further training (Slaouti, 2021).

Over time, individual capabilities and organizational capabilities begin to diverge (Newbert, 2005). Between the individual and organizational levels, there exists an interpersonal level where an iterative process and dialogue take place among the participants (Kokshagina, 2021). Individual-level characteristics such as emotions, knowledge, and personal routines are blended (i.e., enter into interaction), which may eventually result in the creation of a new, shared set of routines that may differ significantly from the original individual ones (Cristofaro & Lovallo, 2022).

These interactions continue until the capability becomes suitable for the organization's stakeholders (Cyfert et al., 2021) and a broad consensus is reached (Salvato & Vassolo, 2018). Once the key actors agree that the routine is appropriate for embedding into organizational operations, the integration process begins (Bingham et al., 2015), thereby giving rise to a new dynamic organizational capability.

Methodology

Although the field of dynamic capability building already contains a great deal of knowledge, it is still considered under-researched (Cyfert et al., 2021)—despite the fact that in the post-pandemic world, there is an even greater need to understand this process clearly (Hitt et al., 2021). This is especially true for start-up organizations, which must build dynamic capabilities simply to survive (Santos & de Pádua, 2023). In their systematic review of research gaps in the field of dynamic capabilities, Corte and Del Gaudio (2012) clearly identified the development process as an underexplored topic. Eleven years later, Ruiz-Ortega et al. (2023) noted that while we now have theoretical models and several case studies addressing the development process, significant uncertainty still remains.

The main source of this uncertainty—and the greatest research gap—is understanding the connection between the different levels (individual, interpersonal, organizational) within the development process (Dyduch et al., 2021; Kokshagina, 2021; Ruiz-Ortega et al., 2023). In order to study dynamic organizational capabilities, it is necessary to understand their underlying lower levels as well (Dyduch et al., 2021). Many authors (e.g., Eisenhardt & Martin, 2000; Teece, 2007; Zollo & Winter, 2002) agree that dynamic capabilities evolve across multiple levels before becoming fully organizational. However, the transitions between these levels remain largely unexplored (Corte & Del Gaudio, 2012). Earlier research mainly focused on the organizational level (Scheuer & Thaler, 2022), but the emphasis is gradually shifting to lower levels—such as individual actors and the interactions between them (Wilkens & Sprafke, 2019).

This dissertation contributes to that shifting focus and research gap by aiming to explore the patterns through which dynamic capabilities emerge in the examined start-up organizations. It places particular emphasis on the individual, interpersonal, and organizational levels of development and the transitions between them.

This research employed an exploratory design (Malhotra, 2017), centered around the following primary research question:

What patterns lead to the development of dynamic capabilities in the examined start-up organizations?

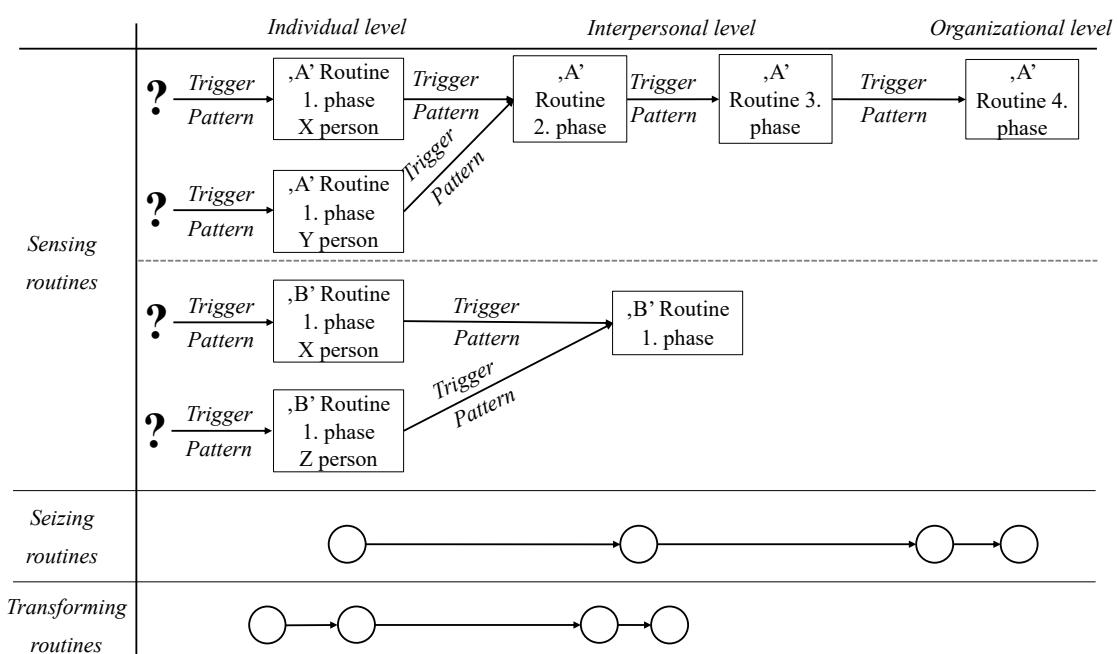
While the entire study aims to answer this main question, the resulting patterns are expected to be complex and difficult to grasp (Di Stefano et al., 2010). Therefore, three

sub-questions stemming from the main research question help to better define the topic and organize the findings:

1. What is the relationship between dynamic individual capabilities and dynamic organizational capabilities during the development process in the examined start-up organizations?
2. What triggers initiate changes in the elements present at the various levels of dynamic capability development in the examined start-up organizations?
3. What change patterns lead to the development of dynamic capabilities in the examined start-up organizations?

To answer these research questions, an analytical model was required—one capable of addressing the individual, interpersonal, and organizational levels, as well as the various routines, triggers, and change patterns identified during the development process. This analytical model is shown in Figure 3.

Figure 3: Model used in the research



Source: Own construction

It is advisable to approach and examine the development of dynamic capabilities as a process (Wenzel et al., 2021). Most authors conducting process-oriented research on dynamic capabilities use case study methodology (e.g., Bingham et al., 2015; Hattore et al., 2021; Santos & de Pádua, 2023). Numerous scholars (e.g., Donada et al., 2016) argue that the literature on dynamic capabilities needs more detailed case studies that describe

events in depth (Langley, 1999). Case studies are particularly suitable when the research questions are focused on “how” or “why,” and the emphasis is placed on a current phenomenon. They are also appropriate when the phenomenon under investigation is influenced by a number of local factors, making the studied organization or situation unique (Yin, 1994). Accordingly, the present study is based on case studies conducted at four domestic start-up organizations.

It is especially important to carefully select which organizations are included in the research (Eisenhardt, 1989). In relation to the research objective, three main arguments support the focus on domestic start-ups: (1) The development of dynamic capabilities can be more easily examined in younger organizations—especially when the founder is still accessible (Ma et al., 2015; Zahra et al., 2006). (2) The literature on dynamic capabilities is still relatively limited in the context of start-ups (Ma et al., 2015), even though their relevance is significant (Gao & Liu, 2021; Santos & de Pádua, 2023). (3) Hungarian start-ups and their surrounding ecosystem differ not only from those in the U.S. but even from other V4 countries (Csákné Filep et al., 2020; Virág & Tímár, 2024). Domestic organizations tend to define success more similarly to market-oriented small enterprises, which contrasts with the conventional understanding of "success" in international contexts (Virág & Tímár, 2024). Therefore, these organizations deserve special attention.

The methodological approach of this research is the case study, with selected data collection methods including semi-structured in-depth interviews and document analysis. The primary data collection method was the semi-structured interview, conducted with leaders (Teece, 2012) and key organizational actors (Kokshagina, 2021). The interviews took place with the organization's leaders or core employees and followed a three-part structure:

- (1) General questions about the interviewee;
- (2) An overview of the organization's life cycle, development, and changes;
- (3) In-depth exploration of routine elements identified from the literature or earlier phases of the study.

Only those organizations were included in the study where the founder—and, if different, the current leader—agreed to participate in the interview. For each organization, the goal was to conduct interviews not only with founders and leaders but also with as many additional individuals as possible.

The foundation of many robust studies lies in the use of multiple data collection methodologies, even if the majority of the data originates from interviews (Gioia et al., 2012). Document analysis is a valuable methodology for examining dynamic capabilities (Bingham et al., 2015), even though documents do not always capture the full reality (Friesl & Larty, 2012). In this study, document analysis served two main purposes. First, documents related to the organization provided support in better understanding its context, history, as well as the market and product at its core. They also enabled us to “speak the same language” as the interviewees. Second, documents themselves may contain data indicating the presence of dynamic capabilities, or even information about their development. Consequently, for each organization, documents to be analyzed were requested and thoroughly examined before conducting the first interview.

Furthermore, the study required the establishment of coding principles concerning the individual, interpersonal, and organizational levels. The logic of the coding process was derived from the general model of dynamic capability emergence. We classify a capability as individual when an individual connected to the organization (not necessarily part of it) employs a personal capability for an organizational purpose, in a way that unfolds independently of any other organizational actor. As long as the routine underlying the capability remains unknown to the rest of the organization’s members, the capability is considered individual—even if the outcome or result of the routine is recognized by others. This is because the defining characteristic of the interpersonal level is precisely the occurrence of dialogue (Kokshagina, 2021) and some form of knowledge sharing (Pablo et al., 2007) between organizational actors regarding the routine. Accordingly, the interpersonal level persists as long as such knowledge sharing (Pablo et al., 2007) and dialogue (Kokshagina, 2021) are present. However, once the characteristics of the routine are accepted by the key stakeholders involved (Cyfert et al., 2021), a broad consensus emerges around it (Salvato & Vassolo, 2018), and its use and embedding into the organizational context begins (Bingham et al., 2015), the routine is then considered organizational.

Dissertation results

The study produced results that can be useful for both theorists and practitioners. These are presented in separate categories.

Theoretical Findings

The theoretical findings are presented first.

T1, The development process of dynamic capabilities consists of alternating stable and unstable phases

The research confirmed that in some cases, the development of dynamic capabilities can be described using the models of Salvato and Vassolo (2018), as well as Helfat and Peteraf (2003). At the same time, the study also pointed out that development does not always unfold in a strictly sequential order from the individual to the interpersonal to the organizational level. Although dynamic capabilities can always be linked to one of these three levels throughout their development, the actual steps of the process are less predictable, and other patterns also emerged.

A **cyclical model** was identified (in which, after the individual–interpersonal–organizational sequence, a “new” individual–interpersonal–organizational cycle was initiated), as well as a model where the interpersonal and organizational levels alternated during the development of the dynamic capability.

Overall, however, the development of all dynamic capabilities observed in the study can be divided into stable and unstable phases, with these phases appearing in succession. The different types of phases can include:

- stable individual capability levels
- unstable individual capability levels
- unstable interpersonal capability levels
- stable organizational capability levels

T2, The development of dynamic capabilities is unique in its details, yet common elements can be identified

The debate surrounding the uniqueness and path-dependence of dynamic capabilities has received considerable attention in the literature. This issue directly impacts the study of how dynamic capabilities emerge: if these capabilities are entirely unique and path-dependent, then their development processes are difficult to generalize.

Two distinct perspectives emerge in the literature. One school of thought (Teece et al., 1997 and followers) argues that dynamic capabilities are entirely unique, and

therefore their development processes follow organization-specific patterns. In contrast, another approach (Eisenhardt & Martin, 2000 and followers) emphasizes that while certain elements of dynamic capabilities are indeed unique, there exists a shared core composed of best practices and recurring patterns, meaning that generalizable elements can also be found in their development.

The findings of this study tend to support the position of Eisenhardt & Martin (2000) and their followers. When examining the characteristics of the development processes studied in this dissertation, it became clear that each case showed unique and path-dependent features, yet also contained recurring, general characteristics.

While every capability is unique in its details, and the patterns of its development are also distinct, similarities can still be identified across cases.

T3, Dynamic capabilities embedded in the organization's external network can play an active role in the emergence of dynamic capabilities.

During the study, a pattern was also identified in which an organization was able to leverage a dynamic capability possessed by an external partner for its own benefit. One of the examined organizations successfully utilized the individual *transforming* routines of an assigned mentor, allowing the organization to shape its context in a direction advantageous to them by means of the mentor's routines.

In this case, organizational transformation was driven by a *transforming* routine that was not within the organization's own scope and that the organization itself would have been unable—or only with great difficulty—to develop internally.

This finding supports the conclusion of Polo et al. (2020) that mentors are not only one of the most important actors but potentially the *most important* actors in the start-up ecosystem. It also highlights that a mentor is capable of applying their own individual dynamic capabilities in service of the organization.

At the same time, this implies that the dynamic capabilities available to an organization are not necessarily limited to those within its own boundaries. As a result, the value and importance of dynamic capabilities embedded in the organization's broader network and external relationships are elevated.

T4, Adaptation of “ready-made” dynamic capabilities

We know that the individual capabilities of founders and top managers (Durán et al., 2022), as well as those of the broader managerial layer (middle and lower-level

managers) (Altintas & Ambrosini, 2019), are closely linked to organizational capabilities. Furthermore, the personal social capital of individual team members also influences organizational characteristics, including dynamic capabilities (Helfat & Peteraf, 2003).

During the study, a special case of this relationship was identified: one of the organizations examined was able to adapt and operate an already functioning, organizational-level dynamic capability from the prior operations of the founding team at the time of the organization's formation. This indicates that in certain special cases, it may not be necessary to develop a dynamic capability within the organization, as a "ready-made" capability can be adapted from previous work contexts.

T5, Pattern of parallel development of dynamic capabilities

Bingham et al. (2015) examined how an organization can develop multiple dynamic capabilities simultaneously. In their study, they found that this process begins with the creation of a structure—specifically, one in which the codification of knowledge is initiated. Bingham and colleagues thus assumed a level of organizational awareness: that the organization understands the structure it is creating and that this structure is intended to support the development of dynamic capabilities.

In contrast, one of the organizations studied in this dissertation developed multiple dynamic capabilities in parallel without consciously modifying its organizational structure or establishing a dedicated unit responsible for knowledge codification and dissemination. This suggests that, beyond Bingham et al.'s (2015) findings, certain key decisions (triggers) can lead to the parallel development or modification of multiple dynamic capabilities without the organization deliberately creating a structure or consciously recognizing the need for capability development.

This can also be interpreted to mean that there are cases in which parallel dynamic capability development occurs not as the result of a conscious decision, but rather in response to emerging opportunities and (partially) external pressures.

T6, The potential for self-transformation of dynamic capabilities

If we accept the claim by Helfat & Peteraf (2003) that dynamic capabilities—albeit rarely—are capable of transforming themselves, then one of the identified patterns in this study helps to illustrate the kind of situation in which this may occur. Based on the examined case, there is a possibility for a dynamic capability to self-transform if the

transforming routine within that capability is applied to modify routine patterns similar to those that are part of the capability itself.

T7, Triggers appear at every step of routine development

The study confirmed that dynamic capabilities evolve through multiple steps and phases during their development. This finding is consistent with prior research. At the same time, it became apparent that triggers can also be found between the different phases of dynamic capability development—triggers that prompt further advancement. While earlier studies (Donada et al., 2015; Helfat & Peteraf, 2003; Narayanan et al., 2009a; Salvato & Vassolo, 2018) do not explicitly contradict this, they also do not suggest that **every step** in the development process may be associated with a new triggering effect that "pushes" the capability forward.

However, if distinct phases or steps can be identified in the development of dynamic capabilities—and if further trigger effects are found between these phases that support (ongoing) transformation—then the importance of such triggers is significantly elevated.

T8, During the development of dynamic capabilities, adaptation of existing routines is more common than the creation of new ones

In examining patterns of change, a total of 21 different types were identified. These revealed that the organizational context rarely witnessed the development of entirely new capabilities. A much more frequent pattern involved the adaptation of existing individual or organizational routines, either without modification or with only minor adjustments.

A common pattern was the reuse—sometimes modified, sometimes unchanged—of routines that already existed at the individual level. This result closely aligns with previous findings, which emphasize that dynamic capabilities are largely dependent on individuals (El Hanchi & Kerzazi, 2020), on entrepreneurs' prior experiences, knowledge, and skills (Ma et al., 2015), and that organizations tend to favor utilizing existing capabilities rather than developing entirely new ones (March, 1991).

Practical results

The study also yielded results that may provide value for practitioners or organizations operating within the start-up ecosystem.

P1, Practical findings for entrepreneurs and managers: the rising importance of the individual

In several cases, we found that dynamic organizational capabilities evolved from individual capabilities, or that individual capabilities even assumed the role of organizational ones. While the role of founders and key stakeholders has already been acknowledged in prior research, the present study reinforces this and highlights that the dynamic set of individual capabilities possessed by a start-up's founders can be of critical importance for its success.

Practical findings for members of the start-up ecosystem: the rising importance of supporting actors

The literature on the subject indicates that external actors within the start-up ecosystem—such as accelerators, incubators, or venture capital investors—can support the development of dynamic capabilities (Arthurs & Busenitz, 2006; Polo et al., 2020). It is also known that the more experience these external actors have, the more they can assist in developing specific dynamic capabilities within the organization (Arthurs & Busenitz, 2006).

In this study, we observed an example in which an external mentor acted on behalf of an organization using their own individual *transforming* routines. We also saw a case where potential investors defined expectations regarding dynamic capabilities. The organization, in turn, sought to meet these expectations by beginning to operate dynamic capabilities aligned with them.

These findings highlight the significant influence of other organizations within the start-up ecosystem on the dynamic capabilities of start-ups.

Naturally, the research also has its limitations. Since it is based on three case studies (and a preceding pilot study), the findings primarily reflect the characteristics of the examined organizations and contexts (Yin, 1994). While the in-depth analysis of the case studies provides rich and detailed data, the small sample size and the nature of the methodological approach limit the generalizability of the results. In other organizations

or different economic and social contexts, the patterns identified may differ; therefore, further research is needed to validate the findings on a broader scale.

Moreover, the research was conducted within a specific timeframe and organizational context, meaning that the results may not be applicable over longer periods or in other temporal dimensions.

Data collection was based primarily on interviews and document analysis, which may limit the objectivity of the data to some extent. The interviewees represented subjective perspectives, which could have influenced the content of the responses. In addition, the members of the organizations were able to provide only a small number of documents with limited content for analysis. Although a leadership workshop was held to validate the collected data, this alone does not guarantee that the data and findings presented fully reflect reality.

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