

Managing the VUCA environment: The dynamic role of organizational learning and strategic agility in B2B versus B2C firms

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ABSTRACT

Amid the pandemic, recession, and geopolitical risks from the Russia-Ukraine war, firms must become agile, adapt quickly, and reconfigure resources to sustain competitiveness. In a volatile, uncertain, complex, and ambiguous (VUCA) environment, leaders face increasing challenges in managing operations while responding to external changes. This study explores the organizational context and learning processes that support strategic agility in 28 B2B and B2C UK businesses. Using the Market Intelligence Accumulation and Transfer Model (MIATM) 3.0, it identifies organizational contexts that facilitate or hinder learning and development of strategic agility as a dynamic capability (DC). The findings highlight that capability renewal through vigilant learning requires aligned leadership and an empowering culture, enabling employees to act as learning agents. This study contributes to strategy-as-practice (SAP) research, offering guidance on fostering organizational learning and agility by uncovering context, practices, and praxis, with broader policy implications. Additionally, the MIATM model reveals the dynamic learning processes and the critical role of context in linking micro and macro learning for strategic agility.

1. Introduction

In the current volatile, uncertain, complex, ambiguous (VUCA) business environment, organizations are increasingly confronted with significant challenges due to heightened geopolitical risks, economic sanctions, technological advancements, climate crises, and the post-COVID recession (Ameen, Cheah, & Kumar, 2022; Osburg, Yogananthan, Kunz, & Tarba, 2022). The rapidly changing conditions make it imperative for firms to adopt agile strategies that evolve through continuous learning and adaptation (Christofi, Pereira, Vrontis, Tarba, & Thrassou, 2021). Agility, a key dynamic capability, enables firms to sense and respond to new market changes, integrate and reconfigure resources promptly, and seize emerging opportunities (Brannen & Doz, 2012; Christofi et al., 2021; Junni, Sarala, Tarba, & Weber, 2015; Khan, 2020; Weber & Tarba, 2014). Agile firms excel in creating dynamic portfolios of products, services, and business models, thereby maintaining a competitive edge (Ameen, Hosany, & Tarhini, 2021; Ameen,

Sharma, Tarba, Rao, & Chopra, 2022; Dyer & Ericksen, 2005). They integrate external knowledge to fuel continuous innovation and adaptation, linking agility to the dynamic capability view (Khan, 2020; Magistretti, Pham, & Dell'Era, 2021; Wilson & Doz, 2011). However, there is still a lack of comprehensive insights into the specific micro-to-macro capabilities and context that underpin the formation of dynamic capabilities (Eisenhardt & Martin, 2000; Franco & Haase, 2009). Despite recognizing the importance of context-specific, real-time market information in enabling organizational evolution, there remains a gap in understanding how learning, known as absorptive capacity, can be systematically developed and leveraged across different organizational contexts (Lee & Slater, 2007; Sinkula, Baker, & Noordewier, 1997) to respond to evolving challenges.

Furthermore, particularly the strategy-as-practice (SAP) (Jarzabkowski & Paul Spee, 2009) stream of literature argues that there is a curious absence of human actors and their actions in most strategy theories, even those that purport to examine the internal dynamics of the

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firm, such as the resource-based view and dynamic capability view (Johnson, Langley, Melin, & Whittington, 2007; Johnson, Melin, & Whittington, 2003).

This study aims to conceptualize the processes and factors that enable or impede organizational learning and follow-up practice reconfiguration, adopting the MIATM (the Market Intelligence Accumulation and Transfer) model proposed by Atanassova and Bednar (2022). The MIATM model views organizations as dynamic systems influenced by aspirations, behavior, values, and context (Atanassova & Bednar, 2022). It emphasizes that organizational learning begins with individual learning, stimulated by both external changes and internal contexts in an iterative manner. This model guides the understanding of learning processes/absorptive capacity, their antecedents, and the context enabling or impeding desirable organizational outcomes through strategic agility and practice transformation, seen as dynamic capabilities (DCs). The rationale for adopting the MIATM model lies in its comprehensive approach to examining how organizational contexts facilitate or hinder learning and capability development. By focusing on both internal and external factors, the model provides a holistic understanding of the micro-foundations of dynamic capabilities. This study aims to uncover diverse learning practices at individual and organizational levels within B2B versus B2C company contexts, arguing that the context significantly impacts the formation of agility capabilities seen as dynamic capabilities. The MIATM model is particularly well-suited for this research due to its focus on adaptive capabilities, key enabling or hindering context, and its integration of individual and organizational learning, essential for navigating uncertain environments. Unlike other models that focus narrowly on operational capacities, the MIATM emphasizes the continuous interaction between market intelligence accumulation and adaptive organizational structures.

Our findings reveal that organizational context, leadership, and culture play pivotal roles in fostering or impeding learning and agility. Dynamic B2B organizations demonstrate a higher level of vigilance and adaptability, integrating knowledge from external environments to fuel innovation and strategic actions. In contrast, traditional B2C organizations often exhibit rigidity and a lack of proactive learning, leading to slower adaptation to market changes.

This research contributes to the dynamic capability and SAP literature by highlighting the crucial role of organizational context in enabling organizational actors with vigilant learning processes and praxis from external events, thereby generating value during volatile times. This research demystifies the so-called “black box” of dynamic capabilities and underscores the importance of human actors and their actions in strategy theories (micro-to-macro link), often overlooked in traditional resource-based views (Johnson et al., 2003, 2007; Sirmon, Hitt, & Ireland, 2007), thus contributing to SAP literature stream (Jarzabkowski, 2004; Jarzabkowski, Seidl, & Balogun, 2022). The study provides an actionable model (MIATM) to help develop organizational essential learning/absorptive capacity and context for transformation in VUCA environments. It addresses the idiosyncratic nature of dynamic capabilities by identifying processes and contexts from individual to organizational levels that facilitate dynamic capability/strategic agility. Additionally, the study enriches the SAP research stream by identifying processes, praxis, and people, along with key contextual conditions enabling learning for evolutionary change within companies.

2. Literature review

Tapping dynamic capabilities (DCs) literature as “absorptive capacity”, organizational learning is a foundational organizational capability formed by different types of learning processes feeding one into another, namely: exploratory (detecting/sensing, new relevant information); transformative (sharing and sense-making along with relevant actors); and exploitative (shaping/changing or creating new daily routines/products/processes) learning processes, which ultimately results in new capabilities for long-term resilience and success (Argote, Lee, & Park,

2021; Sun & Anderson, 2010). Such learning processes can be vital for agility (Carmeli, Zivan, Gomes, & Markman, 2021). As Teece (2007) argues, organizational learning is the micro-foundational building block of dynamic capabilities that enable organizational renewal or transformation of daily operating capability in turbulent environments.

Organizational learning is defined as the process through which organizations acquire new knowledge and insights from the shared experiences of their members (Argote & Ingram, 2000; Pisano, 2017). It is a critical success factor for firms to achieve resilience and agility through responsive, and flexible structures that enable timely action (Argyris & Schon, 1978; Carmeli et al., 2021). Organizational learning encompasses the operational process of obtaining information and converting it into knowledge (Franco & Haase, 2009). More precisely, it involves transferring individual knowledge across the organizational departments through shared social interaction and interpretations (Argote et al., 2021; Argote & Ingram, 2000), and it could help to identify the discrepancy between what is aimed to be achieved and what is achieved (Fergnani, 2022; Marinković, Al-Tabbaa, Khan, & Wu, 2022.).

Despite the increasing importance and academic interest in organizational learning for agile capabilities development, there is a scarcity of research on the micro-to-macro link between organizational learning as a micro foundation of dynamic capabilities such as agility and organizational evolution during VUCA times (Eisenhardt, Furr, & Bingham, 2010; Eisenhardt & Martin, 2000; Martinkenaite & Breunig, 2016), as well as in the overall strategy formation process. Eisenhardt et al. (2010, p. 1263) define such micro foundations as: “the underlying individual-level and group actions that shape strategy, organization, and, more broadly, dynamic capabilities”. Barney and Felin (2013, p.145) add that “individuals and their interactions are central for understanding organizations and social systems”.

Currently, there is a scant scholarly understanding of how such individual-to-organizational learning could be developed, retained, and transferred (Jarzabkowski & Paul Spee, 2009; Lane, Koka, & Pathak, 2006), and what the organizational and managerial processes and context enabling it and transforming it into agility in diverse B2B vs B2C context (Cepeda & Vera, 2007; Magistretti et al., 2021; Puthusserry, King, Miller, & Khan, 2022; Teece, 2007).

Based on the preceding gaps, we adapted and applied the MIATM of Atanassova and Bednar (2022), built on the original model of Atanassova and Clark (2015), and propose that the new marketing intelligence accumulation and transformation model MIATM 3.0, built on the DCs foundation, is an actionable and comprehensive model to study, understand, and guide the development of the processes of knowledge acquisition, transfer, and capabilities creation relevant to a firm’s resilient and competitive operations development to deal with the changing and evolving environmental conditions. We also argue that the model is actionable in comparing and showcasing differences and detecting flaws in learning, and capability development processes and the context in both B2B and B2C organizations.

Our investigation particularly focuses on uncovering how organizational context (resources, actors, structure and systems, culture) impacts and shapes the processes of an individual to organizational level learning (micro-to-macro) and follow-up strategic agility actions development during VUCA times. The SAP field of research focuses on the doing of strategy, examining who does it, what they do, how they do it, what they use, and what implications this has for shaping strategy (Johnson et al., 2003, 2007).

2.1. Organizational learning as a pre-requisite of dynamic capabilities formation

DCs enable firms to sense opportunities sooner than rivals, seize them more effectively, and support the organizational transformation needed to stay ahead. When guided by a clear strategic vision, DCs enable a firm to adapt to fluid and uncertain conditions (Atanassova & Bednar, 2022; Teece, 2007). DCs demonstrate different features

depending on market dynamism (Eisenhardt & Martin, 2000), from linear routines based on existing knowledge in moderately dynamic markets to experiential and iterative routines in high-velocity markets. In high-velocity markets, such as the current economic conditions and evolving challenges arising from geopolitical risks, companies' dynamic capabilities focus on creating new knowledge, based on the specific situation to prevent tie-ups to a specific behavior (Khan, 2020; Khan & Khan, 2021; Teece, 2007). Therefore, a key factor for organizational excellence during VUCA times is the possession of organizational real-time learning and adaptation/agile mechanisms and capabilities, seen as unique, heterogeneous resources, due to their valuable, rare, inimitable, and non-substitutable (VRIN) qualities (Barney, 1991). The knowledge resources of an organization are VRIN resources, given that the demands of a constantly changing environment and rapid imitation by competitors make it necessary to continually construct new knowledge and take relevant and timely follow-up actions (Matusik & Hill, 1998; Teece, Pisano, & Shuen, 1997).

2.1.1. Organizational context enabling capabilities development

Three categories of factors dictate the establishment of organizational competitive advantage in forming DCs (Pisano, 2017; Teece et al., 1997). These factors encompass organizational and managerial processes, influenced by the company's assets and chosen trajectory. The term "assets," as employed by Teece and Pisano (1994), broadly encompasses organizational resources, knowledge, technical expertise, and competencies that define the firm's possibilities for expanding future capabilities.

Through investments and managerial interventions, companies can reconfigure their asset positions. However, this ability to reconfigure is bounded and relies on a series of "higher order" routines (such as governance structures, resource allocation processes, management systems, etc.) that mold organizational adaptability. The capability to reposition a firm's assets, particularly the processes of sensing, seizing, shaping, absorbing, reconfiguring, and exploiting, forms the foundation of DCs (Teece & Pisano, 1994). These processes, originating from individual and collective knowledge and learning capacities within the organization (Teece et al., 1997), entail absorbing, transforming/reconfiguring, and capitalizing on opportunities. Furthermore, iterative learning processes improve the speed and quality of organizational tasks. Consequently, complex information exchanges and repeated interactions facilitate knowledge acquisition, learning, and the integration of knowledge into core competencies (Yli-Renko, Autio, & Sapienza, 2001). Thus, as capabilities accumulate gradually through coordinated investments over time, they involve commitments to specific "paths." A crucial strategic challenge for firms lies in identifying and committing to paths for creating capabilities that result in competitive advantage. Managerial discretion in path selection, combined with organizational asset positions and reconfiguration processes, can lead to disparities in firm capabilities (Pisano, 2017; Teece & Pisano, 1994). Levinthal and March (1993) posit that an overemphasis on exploitation can lead to obsolescence (p. 105). Conversely, excessive experimentation may lead to underdeveloped, costly ideas and continuous cycles of unsuccessful search and change (Eisenhardt & Martin, 2000; Levinthal & March, 1993; O'Reilly & Tushman, 2013). Additionally, established firms often struggle to break free from existing routines and processes to explore new opportunities. As underscored by Helfat et al. (2007), barriers such as history, culture, bureaucracy, and organizational routines can be as formidable as physical or strategic entry barriers in protecting a company's core.

Hence, organizations need mechanisms for "unlearning" as well. As March (1991) suggests, companies must carefully balance the exploration of new capabilities and the exploitation of existing operational routines. Such "ambidextrous organizations" effectively manage current operational processes while remaining adaptable to changes in the external environment (O'Reilly & Tushman, 2013).

Furthermore, organizational learning occurs when members of the

organization act as agents of learning, responding to internal and external changes by identifying and rectifying errors in the organizational theory and integrating findings into the shared understanding of the organization (Argyris & Schon, 1978). Effective learning about market opportunities requires immersion in the experiences of customers, and competitors, and data-driven responses to environmental shifts (Fergnani, 2022). An entrepreneurial mindset that identifies market needs and embraces timely action, adaptation, and recombination is essential and should be demonstrated by the leadership team (Dabić et al., 2021).

The significance of firm values, including commitment, open-mindedness, and a shared vision, in the process of knowledge creation and exploitation is acknowledged in existing research (Sinkula et al., 1997). The practice of "open-minded inquiry," involving active environmental scanning and receptiveness to new opportunities, is pivotal for learning (Day, 1992), unlearning, and challenging established routines and beliefs (Sinkula et al., 1997). Embracing trial-and-error learning necessitates a culture that tolerates and sometimes encourages mistakes, requiring leaders to foster an environment where mistakes are seen as part of the learning process. Failure to do so risks functional rigidity, marked by a lack of reflection and substantive reasoning, hindering adaptation to change and innovation (Alvesson & Spicer, 2012; Argyris, 1986; Atanassova & Bednar, 2022).

Consequently, leaders play a pivotal role in modeling, encouraging, and facilitating dialogue, questioning prevailing practices, and nurturing employees' cognitive capacities (Bremner & Eisenhardt, 2022; Zuzul & Tripsas, 2020). Employees should be prompted to look beyond their organizational and market confines, seeking insights from diverse peer companies, partners, customers, competitors, and market participants. The ability to orchestrate resources and align the enterprise often rests with top and middle managers' expertise and knowledge (Barney & Felin, 2013). Leadership must inspire a sense of purpose in the workforce, engaging and conveying the significance of their work by demonstrating its impact (Wong, Wu, Whitla, & Snell, 2022).

3. The VUCA times and the MIATM model

Hence, this research aims to build on the scarce literature on the micro to macro foundations of dynamic capabilities formation in diverse organizational operating contexts - B2B vs B2C - and propose a comprehensive model to be used as a magnifying glass through which to study in-depth how learning forms and what are the key organizational context and factors, which positively or negatively impact company survival, desirable change, and evolution agility through vigilant learning. Our investigation focuses on uncovering the processes of making tacit individual knowledge explicit by institutionalizing it through social interaction and incorporating that knowledge into firm-level operations in various B2B vs B2C organizational contexts. By applying the MIATM model we uncover also processes, people, and praxis, thus adding to the SAP theory (Jarzabkowski et al., 2022; Spee & Jarzabkowski, 2009).

We adapted the MIATSM model (Atanassova & Bednar, 2022; Atanassova & Clark, 2015) and called it the MIATM 3.0 by linking existing contextual components as discussed above to Pisano's (2017) assets, paths, processes and defining outcomes as broadening vs deepening capabilities, and propose that the model is an actionable guide to study organizational context and processes of learning in a diverse organizational context. The model focus has been widened to account for the processes of scanning, information capture, and transformation into learning and the consequent changes in operating capabilities, and not solely for the social media market intelligence use for marketing practice changes, as originally designed. The model is built on the foundation of the absorptive capacity and DCs theory and no theoretical changes have been made to this foundation, nor the contextual factors, solely the scope of the model has been widened to account for a wider array of information sources than social media, and also to capture the

consequent effects of the developed or hindered learning on broader organizational context and not solely in the organizational marketing context.

3.1. The MIATM model

Following the MIATM model, the research aim has been broken down into three objectives, by the three learning processes or absorptive capacity processes leading to DCs development, named processes of DC formation, also absorptive capacity (Pisano, 2017; Teece et al., 1997). Similarly, as per the MIATM model learning starts within an individual, then group and/or firm-level learning as long as the organizational context - culture, structure and systems, and leadership, (path and assets, Pisano, 2017) of course, are aligned to provide the essential internal learning facilitating conditions.

To draw inferences about the interactions between operating and dynamic capabilities and how the latter affect organizational desirable evolution/excellence through the application of the developed learning, this research consisted of three phases/processes, depicted in the MIATM model:

- The organizational background was developed using the MIATM model to better understand context, market dynamism, triggers of organizational learning, and prior knowledge.
- An understanding of how absorptive capacity/learning processes took place at the operating capability level was developed by focusing on the ability to recognize the value and absorb new external information proactively through scanning and alertness and the organizational enabling/hampering conditions/context.
- Following on from the latter, assimilation/sense-making and transferring learning to relevant actors or storage of the learned was studied. Learning processes were explored by again considering the organizational enabling/inhibiting conditions.
- Lastly, the process of capturing value by exploiting the learned was studied, which encompassed the transfer of the learning to a higher-order dynamic level, and its exploitation in terms of how the learning affected subsequent organizational choices, seen as operational practices alterations for desirable change/capabilities and/or VRIN resources development/acquisition or reconfiguration.
- DCs are measured and understood through the changes in ordinary/operating capability (deepening vs broadening capability) (Pisano, 2017).

As shown in Fig. 1, the key conditions that enable interactive learning processes are the exogenous conditions, over which a company usually does not have control but instead must sense and react to market dynamism, exogenous triggers, and the endogenous conditions, on which a company has greater control and influence, endogenous trigger, background/prior knowledge, resources, actors, structure and systems, and internal culture. The latter factors and conditions have been investigated at the operating capability level of daily operational business activities, to achieve an in-depth understanding of how companies detect, absorb, transform, and use external market information to learn and evolve their operations, and how the organizational context impedes or facilitating the learning processes formation (Eisenhardt & Martin, 2000). These factors and processes are aligned with Pisano's (2017) assets, paths, processes, and resulting deepening vs broadening capabilities, with which the model has been upgraded.

A critical distinction between capability deepening and capability broadening strategies is the role of learning from experience. Cumulative incremental learning from experience is a critical mechanism through which firms deepen their existing capabilities. Firms often deepen their existing capabilities using them. Thus, deepening capabilities represent an upgrade to existing routines and capabilities, and broadening capabilities represent the development of completely new routines and competencies (Pisano, 2017). For a detailed explanation of the MIATSM model, please refer to Atanassova and Clark (2015).

4. Method, data collection and analysis

We interviewed employees from an array of functions within the diverse selection of 28 B2B vs B2C organizations (17 B2B, 9 B2C, and 2 both B2B vs B2C) operating in the UK to understand whether they have been provided with the capability and resources to learn from external market signals and apply this learning to develop agile and resilient operations to deal with evolving challenges arising due to prolonged external shocks. The scope of the investigation is to understand if organizational leadership and context empower employees to spot, share, make sense, and act on market signals /opportunities or threats that can evolve into actions that enable organizational change, growth, and better customer value through opportunities captured as they arise. Due to the significant lack of clarity on the micro-to-macro formation of DCs and the impact of idiosyncratic context, processes, and praxis, they form through each organizational case, we used an inductive approach to theory building. Hence, inductive exploratory approaches, qualitative methodologies, and phenomenology in studying the contextual learning

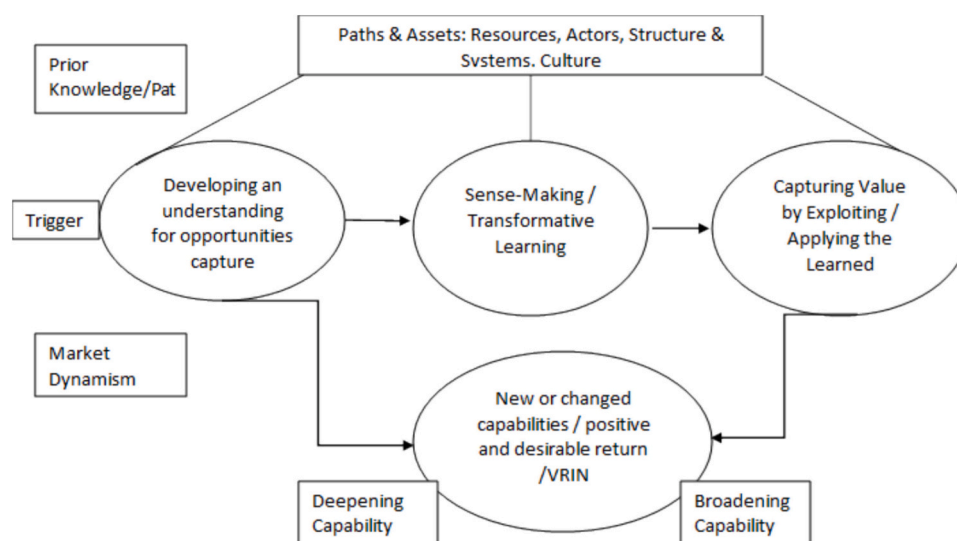


Fig. 1. The Modified MIATM model 3.0 based on the MIATSM model of Atanassova and Clark (2015).

phenomenon are suitable because of the focus of these methodologies on uncovering and understanding dynamic processes and “lived experiences” (Borch & Arthur, 1995). In the adopted interpretative research design, the theory framework is seen as a “sensitizing device” to view the world in a certain way, in opposition to positivist research that aims at “falsifying” and testing theories (Klein & Myers, 1999, p.75).

The DCs concept, and in particular the developed MIATM model was applied as an instrument that links the theory with the data in this under-researched area (Van de Ven, 2007). We aim to extend dynamic capabilities (DC) theory by leveraging qualitative data to explicate the complex social processes involved (Eisenhardt & Graebner, 2007). For our theory-driven research question - how context impacts learning (from individual, micro to organizational, macro level) as a foundation for strategic agility - we build on and extend existing theory (Lee, Mitchell, & Sablinski, 1999). DCs are highly idiosyncratic and often referred to as a “black box,” thus necessitating inductive theory building (Sirmon et al., 2007). We studied employees’ points of view and perceptions to understand the extent to which they are aware and ingrained by organizational leadership in organizational purpose / strategic goal, mission, and vision, alerted to new market information and opportunities, and involved in organizational learning processes and follow up the agile transformation of activities or development of new ones. The latter is important because, even if employees have the capability, they need to be enabled by the organizational leadership to exploit it while performing also their different daily activities. Therefore, it is important to understand how employees experience their leadership support.

We, therefore, conducted in-depth semi-structured interviews with employees to understand how they perform daily routines while engaging or not in organizational learning, and thus, see how the micro-foundations of organizational learning unfold and support the development of dynamic capabilities and organizational follow-up desirable change through organizational agility. The methodology was not unstructured, as it accommodates the modified MIATM model to help structure and explain the studied phenomenon by enhancing validity, and reliability, and by providing structure for the entire research. The study employed a purposive sampling strategy to produce an in-depth understanding of the studied learning and evolution processes and highlight impeding and facilitating organizational context.

The data collection strategy was organized around the MIATM model. The semi-structured nature of the interview data allowed for flexibility of the content, in terms of customizing questions to the unique

circumstances of each firm. When constructing the interview guide, the researcher aimed to develop open questions, which are flexible, and allow for follow-up questions. As the interviews progressed, we iterated between the theoretical framework, the MIATM model, and data, and identified key themes, such as the leadership style, the impact of different structures, communication systems, culture, and the role of external networks. Data was coded under key constructs of the MIATM and thematically analyzed. The MIATM model helped to identify patterns in the studied employees’ learning and transformation practices, and the resulting choices and actions. Something is considered dynamic capability if it changes, creates, or extends organizational operating capabilities by creating or extending VRIN resources and abilities, as per (Eisenhardt & Martin, 2000; Helfat & Peteraf, 2009) recommendation. To develop a robust and systematic thematic analysis and methodological approach that meets the rigorous standards of trustworthy research, this study employed the Gioia methodology (GM) as it is underpinned by the philosophy-of-science stance that organizational phenomena are to a great extent socially constructed (Gioia, Corley, & Hamilton, 2013) (Table 1). We validate our findings by structuring and comparing them with the MIATM model. Due to the heterogeneity of the studied population, the interviews lasted between 40 and 60 min each and were conducted in English by experienced academic researchers.

First-order coding was performed to organize the raw data into conceptual categories. As Miles and Huberman (1994, p.56) note: “Codes are tags or labels for assigning units of meaning to the descriptive or inferential information compiled during a study. Codes are usually attached to ‘chunks’ of varying size – words, phrases, sentences or whole paragraphs.”

The purpose of documenting a code book for the data analysis stage of the research is to demonstrate that the coding process undertaken is universal for all five companies and that all coding is performed repeatedly and in a clear manner consistent with the code book.

Key phrases, words, and patterns were searched and coded, in accordance with the researched processes:

1. Background information
2. Recognize/Seize: The process of operating capability of social media use, recognition, and absorption of market intelligence
3. Assimilation/Sense-making: The process of sense-making and transfer of the learning from operating level to higher-order dynamic capability level, the marketing activities planning

Table 1
Gioia method coding.

Type of Company/ Industry/Size; Dynamic Forerunner vs Dynamic Laggards	Background Information	Recognition / Seize	Assimilation & Sense-making	Exploitation / Shape
	Path, Assets, Perception of Competitive Advantage 1st-Order Themes: Knowledge of mission, vision, industry dynamics, adaptability to new information, technological changes. 2nd-Order Themes: Organizational Awareness, Technological Adaptability. Explanation & Examples: Dynamic forerunners demonstrate clear understanding of mission and vision, and industry dynamics. They quickly adapt to new information and technological changes. Non-dynamic laggards lack this awareness and adaptability	Actors, Structure & Systems, Resources, Culture 1st-Order Themes: Entrepreneurial orientation, team collaboration, real-time feedback, communication, structure, culture. 2nd-Order Themes: Entrepreneurial Mindset, Collaborative Culture, Organizational Structure. Explanation & Examples: Dynamic forerunners exhibit a strong entrepreneurial mindset and collaborative culture, supported by flexible structures. Non-dynamic laggards have a rigid structure and slower decision-making processes.	Actors, Structure & Systems, Resources, Culture 1st-Order Themes: Internal sharing, collective sense-making, technological decision-making, structure, culture. 2nd-Order Themes: Collective Learning, Technological Integration, Organizational Structure Explanation & Examples: Dynamic forerunners excel in collective learning and technological integration, effectively assimilating new information through supportive structures and a collaborative culture. Non-dynamic laggards have siloed information and less effective technology use.	Broader Organizational Impact 1st-Order Themes: Reconfiguration of services, rapid adaptation, strategic partnerships. 2nd-Order Themes: Dynamic Capability Development, Strategic Flexibility. Explanation & Examples: Dynamic forerunners reconfigure services, rapidly adapt to customer needs, and form strategic partnerships. Non-dynamic laggards stick to established routines and are slower to respond to market changes.

4. Exploitation/Shape: The innovative capability or how marketing operating capabilities have been altered as a result of the interaction between operating and dynamic capabilities

The employed data analysis procedures consisted of three phases as recommended by Miles and Huberman (1994), and are discussed below (see Table 1, Gioia method coding).

Data were categorized into themes based on the MIATM model's key dimensions: recognition / seize; assimilation / sense-making and exploitation / shape. Sub-themes were then identified to reflect specific practices within each category.

4.1. Participants selection

Participants from 28 (17 B2B, 9 B2C, and 2 both B2B vs B2C) companies were interviewed. We had ten (9 B2B and 1 both B2C and B2B) knowledge-intensive companies operating in dynamic industries, such as ICT knowledge-intensive business and finance services, consulting, education, and marketing have been interviewed as these are companies "where most work can be said to be intellectual and where well-educated, qualified employees form a major part of the workforce" (Alvesson, 2000). The existence, survival, and development of knowledge-intensive enterprises highly depend on knowledge development, management, and application. As discussed in the prior knowledge section, the greater the prior knowledge (already developed absorptive capacity), the greater the ability to identify and exploit new unmet needs and opportunities or threats. Two entrepreneurial, small companies have been included in the sample of knowledge-intensive companies as they are recognized as better than the larger companies in their learning-by-doing approaches, entrepreneurial mindset, flexibility, and quick learning/unlearning and adaptation capabilities (Carson & Gilmore, 2000; Cope, 2005). Their experiential learning or "learning by doing" approach to business is acknowledged as the most significant core competency concept for small companies (Carson & Gilmore, 2000; Cope, 2005) and is by nature "accidental", experimental, and largely depends on informal communication with customers and stakeholders. Participants from 18 traditional industries businesses (2 B2B and 14 B2C; 2 both B2B and B2C) have been interviewed as well to ensure comparability of the results, as traditional larger companies are often accused of over-reliance on already established and successful routines and are often criticized for being unable to adapt due to their complex organizational structure, bureaucracy, and hierarchy (Alvesson & Spicer, 2012; Centobelli, Cerchione, & Ertz, 2020).

It is believed that studying companies where change intensively occurs through learning and adaptation, and companies where changes do not occur or occur gradually and not so intensely and intentionally will be both beneficial.

5. Findings

The findings are structured following the three learning processes and contextual conditions of the MIATM model (*information recognition, assimilation, and exploitation; resources, actors, structures and systems, and culture*). Findings revealed that all the interviewed participants have been successful in recognizing, creating, or acquiring new information, but not all were so successful in making sense/transforming and applying that information to their own activities and/or organizational level. Findings show that employees in dynamic organizations pertaining primarily to B2B knowledge-intensive information and communication technology sectors (ICT), education, and marketing events, along with small entrepreneurial companies are able to adjust operations and tap into new opportunities. To do so, they successfully combine networking, entrepreneurial mindset, experimentation, and learning by doing with flexibility, agile project management techniques, and alertness and willingness to accommodate and respond to the changing economic landscape. Moreover, the nature of their business sectors

(dynamic, knowledge-intensive) enabled them with knowledge-sharing routines that proved crucial in seamless adaptation to market shocks. The leaders of these companies supported, and ingrained employees into the organizational mission and vision and provided them with a flourishing, aligned context, quick communication, and information flow, supporting ownership, autonomy, and calculated risk-taking.

On the other hand, respondents, lower in the hierarchy, and particularly pertaining to traditional B2C industries and primarily larger hierarchically structured companies found coping with change initiatives extremely challenging, particularly when adaptation and vigilant learning were not enabled and exemplified by their leadership. Employees had no strategic foresight on market opportunities, nor were ingrained into companies' strategic priorities, mission, and vision, also their organizational context was not supporting internal cross-departmental collaboration, information flow, learning, and quick adaptation. New initiatives and change opportunities were received with resistance by employees, and the overall feel of interviewees was that the fast-paced environment and change initiatives only create confusion and complexity. As traditional bureaucratic and hierarchical organizations' employees, their focus was on existing routines and efficiencies, and they were expecting and acting on leadership directions, taking a defensive position, and waiting for things to "get back to normal".

Our research shows that organizational context and leadership empower or block proactive behavior and quick action regardless of the size of the company. Organizational level differences have been confirmed as accounting for more variance in firm performance than differences between industries also by McGahan and Porter (1997). Therefore, we group findings in our discussion by type of organizational context and leadership into "dynamic forerunners" which were B2B companies, and "non-dynamic laggards' companies" which were primarily B2C companies and discuss organizational context and leadership practices that enable or block proactive learning and desirable change as identified through the lens of the MIATM model 3.0. Please, see the detailed discussion of key findings structured under the MIATM model. Findings are summarised in the table below.

Table 3. Synthesized findings dynamic forerunners vs non-dynamic Table 4 below demonstrates how the data gathered connects with the key concepts of the MIATM model. It applies findings from the study to the structure of the MIATM model.

5.1. Macro, medium, and small dynamic forerunners companies

Respondents from dynamic forerunners companies were ten in total - macro higher education institutions (both B2B and B2C operating model), macro and medium ICT companies, such as cloud services, software company, IT and consultancy business, auditing business; medium businesses, such as marketing agency and software company (All B2B companies). Please, see Table 3 for full details regarding participants' roles, company size, and industries. Synthesis and discussion of the findings follow.

5.1.1. Background, market dynamism, prior history, triggers of learning

Participants from leading dynamic companies demonstrated a keen awareness of emerging information and a strong commitment to adaptability embedded within their organizational operations. These companies have embraced either structured or informal methods for accumulating and transforming knowledge. Notably, B2B technology enterprises and firms in the finance and consulting sectors have systematically integrated knowledge accumulation, collaborative efforts, communication strategies, and swift responsiveness into their operational models. By adopting methodologies like scrum and agile, these organizations have established cross-departmental communication and collaboration processes. These project management-oriented approaches facilitate the efficient sharing of tasks with clients and among teams, permitting work assessment in focused intervals. This framework

enables rapid decision-making and facilitates prompt iterations and error rectification.

For example, ICT company A has already adopted “agile/scrum methodology to manage workloads in small iterations. This helps manage daily ops and project work whilst buying in stakeholders as they see the project plan as well which helps manage expectations.”

In terms of the background information gathered, the interviewed participants shared that they realize well that their companies operate in dynamic unstable, and fast-moving industries and need to constantly monitor and adapt to the quickly changing environmental conditions. The participants from ICT organizations, banking/finance, and consulting businesses reported that their companies have dedicated research and data teams and established information detection and transformation mechanisms in place. The participants demonstrated a profound realization that their competitive edge hinges on their learning routines, particularly their agility in recognizing external changes promptly. Additionally, they highlighted their ability to restructure existing practices and capabilities in response to emerging opportunities and threats. Across all participants from these dynamic companies, there was a unanimous emphasis on the necessity to enhance efficiency, effectiveness, and agile capabilities. This, in turn, enables organizations to deliver value to customers rapidly and on a substantial scale through continuous iterations.

As part of the background phase of the research medium ICT dynamic KIBS companies also said that they are “willing to change – that is what agile is about” “faster delivery and more robust, reliable systems for clients.” For example, a software engineer from medium dynamic technological KIBS shares that the fast-paced change of technology, moving to cloud operations, adopting new technology/software, and remote working are the main drivers of change currently. COO at a digital transformation company also says that essential skills are software knowledge industry knowledge and being able to quickly react and take advantage of opportunities or resolve threads.

Covid and post-Covid reality were the main drivers of change for the dynamic entrepreneurial businesses. The program leader of the marketing and events agency shared that:

“Main changes in the market Covid and now the removal of the restrictions and going back to in-person events. Keeping an eye on the market is vital.”

They have to learn to work remotely and experiment with new software to collaborate.

Software developer at a large ICT company shares “learning the cloud offering and how to integrate in a secure way. Learning to do more online (meetings, mentoring, pairing, in-house training). Practice makes perfect for employees.”

The interviewees from dynamic forerunners companies demonstrated a comprehensive understanding of their organization’s mission, vision, and overarching goals. To illustrate, a software developer from an ICT company (Company A) elucidated that the company’s core values include integrity, innovation, honesty, loyalty, and trust, serving as the foundational principles for all company endeavors. The overarching mission is to spearhead the development and creation of groundbreaking and advanced technologies. The participants expressed a profound sense of pride and personal engagement in contributing to this mission.

Notably, the interviewed software developer from ICT Company A exhibited a strong alignment with the articulated vision of the organization. Furthermore, he conveyed a deep sense of pride in being actively involved, whether directly or indirectly, in the exploratory learning process crucial for developing new products and solutions. This learning process involved collaboration with networked partners, suppliers, and customers, contributing to the creation of innovative offerings.

The COO at digital transformation consultancy also knows the mission well – to move faster than competitors, create flawless digital operations, and remove friction. The COO also believes that strategy helps orient the team towards a common goal and enables the creation

of a mutual vision. The focus of all interviewed participants from ICT B2B companies is on upskilling and retaining employees as key organizational assets. We found a strong alignment between personal purpose and organizational purpose, as articulated by the Software developer at ICT Company A, the COO of the digital transformation company, and the placement advisor.

The COO of a digital transformation consultancy is similarly well-versed in the company’s mission, which centers around outpacing competitors, establishing impeccable digital operations, and eliminating friction. The COO recognizes that a well-defined strategy serves to guide the team towards a shared objective and fosters the development of a unified vision.

Furthermore, a prevailing theme among all interviewed participants from B2B ICT companies is a concerted emphasis on enhancing the skills of employees and retaining them as crucial organizational assets. Notably, a pronounced alignment was observed between personal purpose and organizational purpose. This alignment was evident through various individuals, including the Software developer at ICT Company A, the COO of the digital transformation firm, and the placement advisor. Their perspectives underscored the significance of synchronizing personal values and ambitions with the company’s overarching mission, further reinforcing the notion of a unified purpose that resonates across different levels of the organization.

“To help students learn new skills, complete their courses, and get a placement/job after they graduate.”

The placement advisor has support from the management and the freedom and autonomy required to decide on how to undertake their job in the best possible way. Constant training, adaptation, and maintaining the flexibility of operations is key. The interviewed employee from ICT Company A spoke with pride about Company A’s leading market position and the factors that differentiate the company from its competitors - employee’s specialist knowledge and togetherness - are seen as driving forces and key competitive advantage. Constant adjustment, training, and upskilling of employees also are taking place.

“I believe the collectiveness of the ICT company(A) gives it its competitive advantage.”

...All employees are made sure that they are irreplaceable.”

Clearly, their already established absorptive capacity practices give them an advantage in terms of “prior knowledge” as known in the literature (Grant, 1996), and help them to move faster and maintain a leading position. The Software developer at ICT Company A also adds:

“The company uses history and previous issues that have occurred, to make attempts to plan for the future.” “...the company prides itself through history”.

The already-developed knowledge and experience help them evaluate and make sense of information at speed. “We underpin the understanding and evaluation by the basis of previous experience and that’s how we make assumptions going forward and evaluate.” Software developer at a financial institution.

5.1.2. Recognition, absorption

The findings indicate that dynamic forerunners remained vigilant about seeking and applying insights from the market. The placement advisor shared that education conferences and forums are their main sources of information about industry changes.

They keep an eye on “relevant examples of tactics working in other student recruitment services and testing it using a cooperative student already on placement and their employers, getting the necessary feedback over the necessary period of time.”

Accountant auditing and consultant company medium dynamic KIBS, also shares that:

“The organization has deep knowledge in multiple industries ... And the competitive advantage is the use of technology and special skills to analyze data and provide an accurate insight of our client needs. If you can’t adapt then you won’t grow”.

The program leader in the marketing and events agency also shared

that information about customers and competitors is also key.

“Information is gathered mainly via the internet and social media. We need to continuously adjust and acquire new skills necessary to stay relevant in the events space as we shift back and forth between virtual and in-person events. We can acquire those skills by trial and error which helps gain knowledge and experience”.

The participants from ICT companies shared interests in both top-down (internal) and bottom-up (external) information; highly technical skills are of key interest. The COO of the digital transformation company also stated that he is closely monitoring key opinion leaders, industry, and technology trends.

“Robotic technologies, automation, efficiency, information from other companies and COOs, CEOs, CTO’s and where they want to invest what kind of technologies they adopt; actionable insights are of key interest and importance.”

The COO of a digital transformation company shared that new understanding is discovered through continuous active scanning, for example on the topic of “the emergence of automation technology in the workplace.” Then, once a promising area has been discovered, follow-up actions are taken by the COO to create cross-departmental teams in innovation groups to work on the adoption and implementation of these technologies for competitive advantage:

“Creating functional and service delivery teams based around these technologies. The aim is to build internal knowledge and capabilities.”

Software developer in banking also shares that technological information is of key importance “Information related to particular software development is key for us. We constantly build in learning and training time into people’s calendars.”

Moreover, the employee shared also that they are proud to become a subject matter expert and transfer their knowledge to other employees:

“I am proud to have been selected as an SME within the company and help, train other employees.”

Hence, digital forerunners continually engage in experimentation with novel work methodologies and actively scan the external landscape for fresh insights that can contribute to more innovative, efficient, and expedited operations.

5.1.3. Assimilation, sense-making

5.1.3.1. Actors, culture. ICT organizations in particular have a strong edge because they already possess the processes and structures (agile, scrum practices) that proved critical to adapting to the COVID-19 crisis. Internal sharing and sense-making are key activities driven by the middle management/project managers in ICT company A:

“Meetings with the team are organized by the management to discuss new incoming information. Understanding comes from other employees and from discussions. You would have to be very adaptable in order to essentially keep up.”

Software developer at ICT Company A also shares that knowledge storage and sharing practices are deliberately taking place in the morning when the mind is fresh.

Software developer at a bank: Meetings and sharing internally are very important “New way of working/processes to develop new applications and how to work with the clients”.

Respondents from dynamic forerunner companies are quick to mobilize their resources, nimble, collaborative, and quickly share information and make decisions. Software developer for ICT company A shares that adaptation, autonomy, and learning by doing are key foundational principles:

“...new understanding emerges through research. We make sense of the information essentially by putting it into practice.”

ICT Company A demonstrated a remarkable aptitude for vigilant learning, coupled with a proactive disposition to identify emerging technological prospects. Moreover, the employees exhibited a keen enthusiasm and drive to collaborate, fostering a culture where intricate

matters like coding errors are addressed through shared perspectives and discussions. This collaborative exploration has been deeply integrated into the company’s ethos. Regular cross-departmental meetings are held weekly to facilitate information sharing, discussions, and decision-making. Among the participants from ICT and software companies, a consistent approach was observed in how they manage their development and operational processes. This involves weekly sprint reviews and adjustments, supported by agile and adaptable processes and structures. These methodologies enable them to iteratively enhance products in real time, expedite project deliveries, and provide greater flexibility and customer value. Software developer in a medium dynamic technology company also says that they also have an iterative approach to project management and software development that helps teams deliver incrementally and react to evolving customer needs:

“...the teams together make sense of information. Principles of ethics, security, and transparency guide the sense-making process.”

Participants from ICT and software companies are experienced and already practicing such agile, learning-by-doing approaches pre-pandemic. Due to the nature of their industry, and the close and long-term relationships with their clients, they are keen to test various hypotheses about emerging technologies and changing markets, rather than over-focusing on existing operations and daily routines as the only source of competitive advantage.

The placement advisor also shares that information is shared and discussed in meetings and often new practices are tested by students who are already on placements:

“Testing and adjusting anonymous hiring and test various remote placement strategies with students on the go.”

Keeping their finger on the pulse of the market, experimentation and constant monitoring of the latest industry trends are taking place also in the educational/placement institution. Also, ongoing discussions with partnering companies are initiated to get them on board to test new ways of working. The educational placement institution employees are experimenting, integrating, and combining extant knowledge into new capabilities and practices and co-creating value with students.

The SME program leader in a small marketing and events agency also says that iteration and experimentation are key:

“Our hope is that any change we implement makes our jobs easier as well. Implications will always arise at the start which are usually just trying to get used to the new practice.”

He also pointed out as a key success factor the collectiveness in the learning processes taking place at their company:

“I am part of the employees in the interpretation and evaluation process. “We are very open to new ideas and information that we collect”. The process is: “Communicated to leadership, evaluated as a team, and put into effect if agreed upon collectively.”

5.1.3.2. Structure & systems, resources. In terms of the structures and systems used for the information sharing the ICT and software companies use considerably more complex software, than the rest of the interviewed companies such as Slack, code reviews, emails, Confluence (a database), Zoom, and Jira. Another interviewee, a software developer at a medium ICT dynamic KIBS:

“a better and more flexible way of doing things. e.g. Kafka messaging system - allow micro service systems to talk through Kafka.” “use it to develop architect systems”.

Another Software developer at a medium software company shares that they use: “Intranet, snap, teams, outlook (email), yammer, virtual meetings”, and for data analysis the research department uses AI”.

In terms of resources and knowledge-sharing mechanisms, the ICT companies use agile ceremonies every day (10–15 min) and sprint ceremonies (once every 2 weeks). Dynamic forerunners also foster a collaborative team focus by measuring and rewarding performance at the team level instead of at the individual level. The placement advisor stated that they use primarily meetings and Outlook and the program

lead at the marketing and events company says that for information-sharing and storage practices they dedicate 1 h per week to new information discussion" and "... save the information in our team database."

5.1.4. *Exploitation DCs*

The dynamic forerunners reported also numerous gains stemming from their collaborative deliberate effort to learn and move quickly, such as adapted products, new ways of working and delivering their services (deepening capabilities), partnerships with leading companies, new products (broadening capability), adapted the operational model to meet the Covid and post-Covid changes of their consumers (deepening capability).

In terms of new capability development, the university placement advisor shares that they adapted their service to the post-Covid reality by developing remote placements and by adapting the hiring process to meet the equality, diversity, and inclusion targets of clients. Thus, due to their timely actions in response to external pressure, they were able to successfully deepen their capabilities:

"Remote placements resulted due to disruption Covid, moved the industry at least 5 years onwards, anonymous recruitment was also due to it. "Anonymous recruitment is an example of applying new information into the workplace." The anonymous recruitment service looks at meeting the needs for diversity, equality, and inclusion in companies by reducing hiring bias, where employers are more likely to hire people more like themselves which proves to be a problem when trying to brainstorm ideas as everyone has a similar mindset or perspective."

The leader-program manager in a small marketing and events agency shares that an example of information they acquired and acted quickly upon recently is: "...that people prefer to have their tickets on their phone rather than printed out. So, we went full paperless as of the last year."

Through sensing and taking actions on their customer changing behavior and preferences, the company was able to not only appeal to customers by providing a desirable paperless experience but also optimize their internal processes and cut delivery time and costs.

5.1.4.1. *Ambidexterity.* ICT companies and software companies also reported that they successfully manage their daily operations while responding to new trends and changes by introducing new products and processes of work, something known as ambidexterity (O'Reilly & Tushman, 2013). ICT company A, a Software developer stated that:

"Yes, again, [ICT Company A] are very adaptable when implementing change. Managing daily operations with this does pose its challenges though, however, we have support systems in place with bug testers and researchers on standby, ready to help."

Thus, the company stays in tune with external influences and adapts to external pressures to stay ahead of market shifts and changing customer needs. Their agile, cross-functional teams provide value faster and have a deeper impact on the communities they serve, resulting in higher employee and customer satisfaction. For example, a medium dynamic KIBS, software company was able to develop two software systems in parallel while undertaking their daily operations.

"The legacy one to deliver and a new system that will then be able to take over. e.g. monolithic - things are taken out slowly into micro-services. Slowly, one by one until monolithic is gone" says the interviewee, a software engineer.

Respondents from dynamic businesses, ICT, financial and consulting, and education reported high reputation, well-established, and value-creating partnerships.

For example, an investment banking consultant says: "Our growth has been fuelled by long-term partnerships with some of the world's leading network and telecommunications specialists including Companies C, D, E, F."

Maintaining long-term relationships with various stakeholders and entering successful partnerships, thus, obtaining access to untapped

markets helped them maintain a leading position. One of the respondents from medium dynamic KIBS a software engineer reported partnerships with start-ups, as a growth mechanism to deepen capability by tapping into new markets and new and innovative technology and thus capability. This collaboration allows the company to find new lines of revenue and capabilities, provide better solutions for their customers, gain innovation insights, improve internal processes, and sustain a competitive edge by innovating faster. As discussed above and indicated in the MIATM model, that's broadening capability.

The program leader at events and marketing agency also claims that actions to implement changes are taken in parallel to their daily routines and the needed autonomy to make decisions is embedded in their operations:

"It is our job to carry out other daily routines while dealing with change simultaneously. We cope just fine with it. Yes, I have been able to pick up additional skills as new practices are implemented in the work. Gaining new skills and resources definitely improves our competitive edge in the market. The best are always adapting."

5.1.4.2. *VRIN.* Additionally, all respondents reported developing new or improving existing intangible benefits such as gaining reputation and trust, efficiency, quick responsiveness, relationships, know-how, flourishing internal climate, and culture and established learning routines, which enable them to learn and adapt faster to deal with the prolonged external environmental shocks.

5.1.5. *Conclusion dynamic forerunners*

Our analysis of digital forerunners companies shows that during VUCA times and evolving environments, the dynamic capabilities become stronger in companies that already have established learning and DCs development routines (prior knowledge, path dependence). These are B2B ICT and consultancy, knowledge-intensive companies. Our research showed how the more agile dynamic capabilities are (successfully) used and their contributions are communicated, exemplified, and reinforced by the leadership, the more those capabilities strengthen their value and continuously keep the firm ahead of rivals. We found out also that the dynamic forerunners prioritize fast execution and calculated risk-taking, rather than bureaucracy. They adopt and apply agile, scrum project management techniques in their work to enable higher order agility capabilities and competitive advantage, perceived disruptions as opportunities, and build organizational resilience and agility to respond to change and even leverage disruption as an opportunity.

5.2. *Non-dynamic traditional large and medium businesses*

Participants from non-dynamic laggard's macro companies were fourteen in total. These were primarily B2C traditional established companies - transportation, retail, hospitality, FMCG utility businesses, defense, banking, construction-oil industry, and intergovernmental institutions (IGO for agriculture, forestry, and fishing; and IGO food program for disadvantaged communities). In total, we had four participants from traditional medium businesses – veterinary clinic, polygraphy and industrial printing and packaging services, fast-food chain, and council/governmental service—all representing, traditional, multi-layered businesses (see Table 2 for more details).

5.2.1. *Background, market dynamism, and prior knowledge*

The studied non-dynamic laggard enterprises have been highly disrupted by the pandemic and as all other companies had to adapt to government regulations, as well as to changing consumer behavior and market volatility. Despite the latter and the seniority level in the companies' hierarchy, in terms of prior knowledge, participants are interested in making their already established operations/routines more efficient, rather than understanding, tapping on, or adapting to or

Table 2
B2B vs B2C context and learning routines in managing change.

Type of Operating Model	Sense	Seize	Shape	Ambidexterity
B2B (ICT, consultancy)	Knows mission and vision well and identify with the company purpose. Competitive advantage lies in the skills and knowledge of the employees. Constant vigilance to market changes and technology advantages; Being recognized as expert and educating other employees is seen as a source of pride; Project based cross functional team -	Frequent interactions and iterations, 15 min weakly meetings, web-based chats, apps. Quick evaluation cycles by putting the information straight into practice; Work in sprints and correct and verify frequently every two weeks; two-way communication. Ownership and autonomy	Change is constant, not shock; manages change through agility; openness to calculated risk and experimentation; pool of prior knowledge and routines; enter new partnership and alliances to enable acquisition of innovative capabilities, products, get access to markets	Manages successfully multiple streams of demand/projects while developing new internal product/software to optimize data capture and manages client work; move operations to cloud
B2C (entrepreneurial)	Know markets, customers and competitors well. Willing to tap on opportunities quickly. A few employees, open to experimentation, entrepreneurial mind set, ad-hoc learning by doing. Constant scanning and experimentation. Initiatives are led and exemplified by owners/senior managers	Limited resources, not established processes, flexibility, willingness, and speed of implementation, flat structure, quick and agile internal processes, and open lines of communication	Quick transformation of services and products where resources are available; huge negative impact of lockdowns on new initiatives and revenue streams	New products- anonymous hiring; processes /business operating model through application of technology–online placement. Transformed the entire business model through deinitialization of operations/ transformation enabling more efficient and effective paperless operations
B2C Traditional	Employees alienated from vision and goals, not involved in information detection nor decision making; Focus on operational daily activities efficiency and effectiveness; cost -efficiencies; Overall perception that changes create complexity and confusion, risk averse	Top-down flow – instructions, training, centralized management; broken lines of communication; strict hierarchy, unaware of mission, vision, goals “waiting to get back to normal”	Overall resistance to change initiatives as clashing with - daily job on which their performance is assessed; Too time consuming and costly; Focus on performing /improving existing operations; cost cutting and efficiency	

Table 3
Synthesized findings dynamic forerunners vs non-dynamic laggards.

Type of Company/ Industry/Size; Dynamic Forerunner vs Dynamic Laggards	Background information	Recognition / Seize Actors, structure & systems, culture	Assimilation & Sense making systems, resources,	Exploitation / Shape			
				Adaptation of Existing Product / Services/ Operations/ Business Model / Deepening Capability	Complete renewal / Broadening Capability	Ambidexterity	VRIN
Dynamic forerunners KIBS (2 in total)- Placement advisor at a higher education institution; Programme leader at marketing & events agency	Covid and post- Covid reality seen as main drivers of change; Perception of dynamic unstable and fast-paced environment and a need to monitor and adapt; Alertness, vigilance to new; Know mission, vision and organizational goals well.	Entrepreneurial orientation and mind set, supported and exemplified by the leadership; Calculated risk- taking, open- minded culture, networking, and collaboration are ingrained in the culture and working practices; Everyone is alert to new information and changes.	Experimentation and constant monitoring of latest industry and customer trends; Information is communicated internally on meetings (at least 1 h a week) and via e- mail outlook; They stay in touch with students/clients and partners and test with them various new tactics/ways of working. Experimentation and co-creation of value, collective sense- making.	Remote placement during Covid; Marketing and Event agency transitioned to paperless delivery of their services - optimized their internal processes and cut expenses in addition to meeting their customers, behavior and needs.	New anonymous hiring practices had been introduced in the placement office to respond to recent movements in ensuring diversity and inclusion by removing bias out of the hiring process and enable creativity by developing teams of people with diverse skills set (product development)	Yes, participants confirm that they stay vigilant and adapt services and products on the go and even ad-hoc, while completing daily operations.	Better teamwork, trust, loyalty, relationship with clients.
Dynamic forerunners Tech companies (8 in total); Software developers 2 x Medium IT companies; Software developer at Large IT services & cloud software business; Software developer at Company A (Large international ICT company); COO digital transformation at Large tech & consultancy business; Auditing consultant at a Medium IT consultancy; Software engineer at Large ICT tech business; Software developer at a Financial Institution	Fast-paced change of technology, moving to cloud operations, adopting new technology/ software and new remote working due to Covid; Competitive advantage are company employees expertise; Know mission, vision, goals well, loyalty, integrity, trust guiding principles; <i>“All employees are made sure that they are irreplaceable; Competitive advantage lies in continuous learning and quick development of new technologies and processes.</i> Constant trainings, adaptation, flexibility are key; Priority is put on moving faster than competitors, create smooth operations, remove friction.	Organized their entire working practices around knowledge accumulation, collaboration, communication mechanisms and quick action; use of scrum, agile methods; cross- departmental project-based teams and techniques, frequent team meetings and communication; Already possess adaptable, responsive processes and structures that proved critical to adapting to the COVID-19 crisis; Constantly experiment with new ways of working and monitoring the market changes, interested in doing work better and faster; Work with market research and consulting companies, follow latest trends; Time for trainings, cross- departmental meetings is built into people’s calendars. Culture: proud to become a subject matter expert and train the	Understanding emerges through internal sharing and collective sense- making; The already- developed knowledge and experience help them evaluate and make sense of new information; Cross- departmental meetings/agile ceremonies/scrum sprints; Autonomy is given to teams to make-sense and take decisions; AI is used to analyze info and info is stored and shared through Kafka (specialized messaging software) slack, emails, confluence (a database), Zoom, Jira, Intranet, Teams, email, yammer, virtual meetings; performance measured at project and team level instead of at individual level; New understanding emerges through research and experimentation. <i>“It’s about constant evolution in the same way as technology is always changing”</i>	Adapted products, new ways of working and delivering their services (deepening capabilities), adapted the operational model to meet the Covid and post-Covid changes of their consumers behavior (deepening capability).	Partnerships with leading companies, and start-ups to source new knowledge and get access to new markets; new products (developed a new system / software, while working on the old one;	Yes, and asserting that agile Is all about managing and responding quickly and timely to changing requirements; created dedicated cross-departmental teams/units to work on innovation projects.	Yes - skills, know how, relations, trust, which are completely crucial for competitive advantage

(continued on next page)

Table 3 (continued)

Type of Company/ Industry/Size; Dynamic Forerunner vs Dynamic Laggards	Background information	Recognition / Seize	Assimilation & Sense making	Exploitation / Shape			
		Actors, structure & systems, culture	actors, structure & systems, resources,	Adaptation of Existing Product / Services/ Operations/ Business Model / Deepening Capability	Complete renewal / Broadening Capability	Ambidexterity	VRIN
Dynamic Laggards - Traditional Macro (14 in total) - Car repair assembly worker, Sales assistant at Retail company, Hospitality -1; Business Architect at Utility business (2); IGO (2 -intergovernmental Institution, agriculture, forestry and fishing; food programme, security sergeant); Defense (Defense officer), Banking (Anti-money laundry analyst; customer satisfaction in banking), Consulting (Investment banking), Construction (Head of finance in oil industry); Library advisor at Higher Education Institution; Service Manager at Hospital; All established companies (20 + y.o); Medium - Traditional in Total (4) (Vet clinic assistant); General Manager in polygraphy and industrial printing services; Middle Manager at Fast food chain; Social Worker in council, social service, government organization	Top-down information flow or through analytics team; Highly disrupted by the pandemic but believe “not their job” Focus on daily operating routines “sticking to the plan”, and on individual performance and KPIs; Not aware of but vaguely recall goals/aims/ mission; on all the traditional companies’ respondents’ agenda is profits increase and operations optimization, while “things get back to normal”; Autocratic leadership, not involving employees in market signals/ information detection nor sense-making and decision-making; Competitive advantage associated with expertise, reputation - established routines.	other employees (intrinsic value, incentives are used). Market information search, detection and decision- making happens on a board level and/or through hired external consultants/ hierarchy; Structure & Systems / platforms and resources involved in the exchange and share of information: Work chat, Slack, Teams, e-mails, WhatsApp, meetings, calls; communication with key workers; Information of interest: Individual targets & KPI, processes and practices optimization, how to develop own role/skills. Participants are split between knowing and not knowing objectives; All participants are concerned about limited time, limited budgets. The industry dynamics cause complexity and confusion. Participants are reluctant to take risks.	Participants believe that it is the management role to detect and decide on external information; Leaders provide directions / train employees about industry changes and follow up company actions/ changes; Strong hierarchy; Information of interest is about daily operations or client information. Information is mainly used for optimization (not to seize new opportunities); Meetings, announcements, e- mails, SharePoint/ intranet, briefings and trainings are used to share and store info, with 2 interviewees being unsure if information is saved at all.	While participants think that it’s essential to adapt, they believe and expect that directions and information will come from the management and employees focus is on the existing business model and established operating routines; They share the view that change creates confusion, complexity. Change is avoided, when and where possible as it disrupts established operations. Focus is on optimization of existing operations.	Participants are very confused as to how to keep up with the vast amount of new information and the rapid pace of changes in the external environment while managing daily work responsibilities. They shared a clear preference to “stick to plan” and only adapt if essential and prescribed by the management:		

navigating the fast-paced market environment. They were all very aware of the volatile economic environment, yet most of them were not aware of their organizational purpose and mission, and neither showed interest, nor involvement in information detection and sense-making, learning, and adaptation.

Among the interviewees from non-dynamic laggard companies, the perception of management’s role revolves around the delivery and interpretation of external cues and information. Traditional large and medium enterprises, which are predominant in our sample, tend to adopt a hierarchical top-down organizational structure. In these settings, the employees demonstrated a notable inclination to adhere to directives from management, adhering to prescribed plans, and implementing gradual adjustments and modifications only when directed by the upper management. Participants share that their organizational competitive advantage lies in their reputation, know-how, skills, products, relationships, and expertise. The interviewees exhibited an inward focus on already-established practices, efficiency, and improving

individual performance KPIs. They all agreed that their companies should be open to change, but at the same time assume that this is not their job. The expectations shared were that their manager would let them know: “Not our job, we need to follow the head office...” retail sales representative. The most common observed and outlined practice is to preserve core operations and return to pre-Covid practices. An employee at a Utility business said:

“Changes that my environment is now facing are stable because the pandemic has ended and there is no need for a sudden change of pace in the industry. We detect changes when my managers advise us or convene a meeting to inform us.”

5.2.2. Recognition, absorption

For the interviews of respondents from non-dynamic laggard companies, the focus was inward on top-down already established practices and internal information related to targets and personal KPIs, processes, and practices, primarily on how to develop their own performance.

Table 4
Findings applied to key constructs of the MIATM model.

Theme/Category	Definition	Example from Data	Connection to MIATM Model
Recognition/Seize/ Developing of understanding of opportunities capture	The ability to detect and absorb new external market information and potential opportunities, market dynamic and customer needs through alertness.	“We noticed the shift in customer preferences towards online platforms during COVID, so we had to transition to remote placements.” Placement advisor	Aligned with the sensing capacity of the MIATM model, where proactive scanning and monitoring of the market enhance recognition of external signals, opportunities and inform potential strategic actions.
Assimilation and sense-making	Transferring and sharing acquired knowledge across departments to enable organizational sense and decision-making.	“By collaborating with students and employers, we tested new hiring methods like anonymous recruitment, which improved our EDI targets.” Placement advisor; “Our weekly meetings are dedicated to discussing new trends we observe, like the shift towards digital events, and how we can respond.” Program manager at marketing agency	This links to the sense-making and transformation process of the MIATM model, ensuring knowledge is interpreted and integrated across the organization from micro (individual) to macro (strategic-level).
Exploitation	Using assimilated knowledge to adapt current operations, products, or services, and implement rapid change.	“We decided to move entirely to paperless ticketing, not only to match customer preferences but also to cut costs and increase efficiency.” Program manager at marketing agency; “We launched a cloud-based software system while maintaining the legacy system, allowing us to shift seamlessly when the time was right.” Software engineer	Part of the exploitation phase, this demonstrates how sensed opportunities are capitalized upon to reshape operational capabilities (deepening vs broadening capabilities) in a timely manner.
Strategic Agility	The organization’s ability to remain flexible and adaptive to external changes while managing ongoing operations – ad hoc learning by doing or formal agile management approaches.	“Agile project management techniques, such as sprints, helped us manage ongoing projects while experimenting with new digital tools.” PM in ICT Company A; “We can acquire those skills by trial and error which helps gain knowledge and experience”. Program manager at marketing agency – also demonstrates feedback loops influencing prior knowledge/future recognition and scanning.	Linked to the overall goal of MIATM, where strategic agility emerges from the accumulation, transfer, and application of market intelligence to drive organizational growth.

Assembly workers in car manufacturers stated:

“Because the managers will inform you in person of this information. Can’t think of an example.”

For retail assistants, the information of interest is how to sell more products.

“An example of this information is it helps to sell products to the customers, that usually comes through training and guidance from the line manager.”

Similarly, the middle manager at a fast-food chain also highlighted COVID-19 and how to recover post-Covid as the main changes, she shared that communication is related to their daily operations – food promotions, etc. The interviewed library advisor from a large educational institution shared that they monitor information from students, staff, and library suppliers but changes do not happen often: “Due to the 5-year cycle of course validation they will tend to stick to their planned practices.”

The veterinary assistant also claimed to process a lot of information, but the information again is only daily job function related, i.e. information about new drugs and customers information.

Interestingly, one of the respondents, a security sergeant in a food program for deprived communities, said that, because of the particularly uncertain environment, they had to hire subject matter experts to monitor and make sense of the dynamic environment:

“Industry is very dynamic and changeable. Company hires external consultant to deal with the fast past market changing signals and information, subject matter experts (SME) to monitor developments in this field” “The SMEs evaluate and break down the new information before staff are trained in it.”

Rather than ingraining employees in mission, vision, and information detection and empowering them to harness knowledge development and strategic action, the leadership of the company brought in external people to deal with and decide the company’s strategic priorities. The team lacked the authority granted by leadership to make decisions, and it also lacked the autonomy and diverse skill set required to

effectively perform its responsibilities, while monitoring external shifts, without being reliant on external consultants. As highlighted by Milliken (1987), given that the environmental context is not well understood and the capacity for rational evaluation of strategic alternatives is limited, protective responses, such as preserving the core operations and over-focus on cost and efficiency to buffer the production process from the effects of uncertainty and attempting to create slack resources are common under these circumstances.

Although the security sergeant thinks also that it is essential to adapt, they outsourced these activities to a third party. The security sergeant in the IGO food program also says that they expect that the external consultants and SME will bring their employees up to speed with the required knowledge and skills by:

“...prepar[ing] videos, trainings, update methodologies, and train staff”. “The SMEs evaluate and break down the new information before staff are trained in it.” SME constantly research and provide information and provide whether changes are required in the organization or for clients.”

“Yes, it is absolutely essential to be able to quickly change methodologies and practices.”

Utility business interviewee shared that they apply a combination of structured and unstructured info: “... structured learning and on the job demand which usually is when a new problem or business area is in focus and then you need to go out and learn and understand how it works.”

They use formal analysis and sense-making tools. Moreover, for the utility business, employee efficiency and cost-cutting were the sole focus of his work, as he highlighted during the interview:

“Reduced overspending and this means we spend less to reach our objectives.”

Time and speed emerged as critical success factors for successful business operations; however, the sole winning practice is cutting costs and optimizing operations, and no attention has been placed on external scanning and opportunity identification. Although participants

acknowledged the need for speedily relevant actions, they did not realize the importance of collective action and context alignment to achieve growth through timely actions.

5.2.3. Assimilation of information

Respondents shared that information is usually shared via meetings, announcements, e-mails, zoom calls, and work chats, with two interviewees being unsure. Overall, they expect that the line manager will inform them.

The sales associate at a fashion retail company shares: “Information flows downwards as a hierarchy organization.” Information of interest is then saved on a database, internal portal.”

The assembly worker at the car repair garage again was not too sure who was responsible for information dissemination and storage: “I’m not too sure, it’s probably stored somewhere safe.”

The traditional medium businesses interviewed also employed a top-down information-sharing system. In veterinary clinics, primary research is conducted by the vet assistant, but only research is linked to job function and new medications, and all new/important information is shared with the vet clinic owner.

“Any information that appears wrong is reassessed by the vet.”; Any problems I find I would make notes (written) and speak with vets when available.”

The general manager (GM) of printing and packaging also employs top-down information flow and sharing within their organization.

“Information more often comes from the hierarchy, from other related stakeholders like the traders and the local banks. Information is given to employees, and with instruction and their previous knowledge, they act accordingly.”

The GM of an industrial printing and packaging company also firmly believes that employees cannot and should not make sense and take relevant actions, this is seen as management’s responsibility:

“It is difficult for employees to make such a decision. Management identifies important information and analyses; it’s best for employees to stick to the plan.”

The GM of the printing and packaging company is also seeing the sole purpose of engaging in change activities to bring efficiency:

“The additional value from these changes needs to be related to the effectiveness of work productivity and efficiency.”

5.2.3.1. Information storage, structure, and systems. Monthly meetings, excels, and e-mail are the most frequently used tools and techniques for sharing information. The security sergeant in the IGO food program says that external consultants produce many documents, instructions, training videos, and methodologies that are all saved on the company cloud repository.

Library advisor says: “Emails or meetings usually and they are noted down into reports which then are saved, but it’s the task of the managers to do so.”

5.2.4. Exploitation activities

The participants exhibited a clear focus on preserving their existing business model and optimizing established operating routines, which ultimately limits their capability to spot and make use of emerging trends. The non-dynamic laggard companies appear to acknowledge the rapid pace of external change and the necessity to adjust accordingly. However, they seem to confine actions, information gathering, and decision-making related to these changes to the realm of leaders, boards, or external consultants. This approach can be attributed to the presence of a rigid hierarchical structure within these companies. They are also reluctant to change and take risks and are also very confused about how to keep up with the vast amount of new information and rapid changes in the external environment while managing daily work responsibilities. Thus, overall, respondents from traditional macro businesses shared a preference to “stick to the plan.”

The retail store manager: “Not my job, would be willing in certain circumstances through.”

The library adviser also says, “I am willing to adapt to change; however, I feel like the existing strategy works very well, so I rather stick to the current plan.”

Information emerges and is shared, sensed, and distributed by management. The Defense Officer of the Ministry of Defense:

“Reconfigure and adjust to whatever practices are directed from center MOD; yes - it’s a challenge, but there are lengthy changeover periods and prior warning.”

The customer service associate in a financial institution: “No, as I lack the authority to do so, but even if I did, the procedures and existing standards are highly accurate and useful, and I would prefer to follow the plan provided.”

5.2.4.1. Ambidexterity. Managing both change initiatives in parallel with managing daily operations also poses significant challenges and disturbs daily operations within non-digital laggards’ companies. The security sergeant in the food program for deprived communities says:

“Applying changes simultaneously is difficult, working routines are easy; get on with the amount of work and change is difficult.”

They think that they should have been allocated additional time: “Allocate time to keep up to date with changes.”

And a service manager in the hospital shares: “When we have to implement changes, we usually stop current daily operations in order to cope with the information and learning processes better.”

5.2.5. Dynamic laggards conclusion

The interviewed participants from B2C non-dynamic laggard companies have a strong inward focus on preserving and excelling in existing daily operating routines. This focus on existing business routines has been an advantage in the past during a stable economic environment but poses a serious obstacle to timely adaptation to the current VUCA environment. To manage volatility, they focus inwards on optimizing existing routines rather than looking outside and carefully managing trade-offs between existing and future routines/capabilities/opportunities. Moreover, leadership does not exemplify, execute, nor enable capabilities to maintain bottom-up internal experimentation and selection processes while simultaneously maintaining top-driven strategic intent. Thus, interviewed employees remain internally focused solely on their own performance KPIs, which are crucial for their individual performance and top-down information, but with no involvement in sensing, seizing external signals, and agile capability development for their organizations’ desirable change and evolution.

6. Discussion and implications

The current combination of shocks - post-pandemic inflation, geopolitical risks arising from the Russia - Ukraine war, energy crisis, economic sanctions, and recession - has created perhaps the most challenging environment that companies and leaders have ever faced. In such a context, organizational agility has become vital for external prolonged shocks. Our research shows that vigilant learning from external events through aligned internal context, speed, and agility are sources of competitiveness in today’s volatile environments. Leaders and organizations that break down internal barriers, streamline decisions and processes, empower employees, and cut through hierarchies and bureaucracies employ technologies to speed up operations and have a clear edge over their rivals. Our research and the application of the MIATM model show that these are B2B ICT and knowledge-intensive entrepreneurial businesses. Leaders of such companies understand and embrace technology and market disruption potential and make the most of the opportunity it presents by empowering employees as learning agents. They engaged in search and purposeful experimentation with new information to resolve technology and market uncertainty by

developing sustainable competitive advantage through strategic agility, seen as a dynamic capability.

We identified two opposite types of leadership practices, respectively. The first one is taking a defensive position, being risk-averse, and pulling back and postponing strategic initiatives. The second one is ambidextrous - successfully managing contradictory demands - daily routines and exploring change as an opportunity to achieve sustainable competitive advantage. The focus in such companies is on discovering opportunities and turning them into new understandings and actions to redefine and reinvent their business model and operations and even shape their industry in response to the market dynamism. Leadership in such organizations invested time and resources in developing a supportive, empowering, and aligned organizational climate and proactive culture of scanning, sensing, seizing, and shaping new initiatives. Moreover, leaders ingrain such meaning and purpose in their employees' daily work and facilitate and encourage cross-departmental collaboration, autonomy, ownership, and calculated risk-taking. Such leaders are trying to tackle volatility by taking relevant efficiency and defensive actions but also by leaning into the volatility, using it as a source of new opportunities. Moreover, employees in such digital fore-runners' companies are autonomous and empowered to sense, seize, and make decisions, given that they are the ones closest to their daily work and the customers.

The second type of companies adopted a cautious and defensive, "short-sighted" position in dealing with the volatility, uncertainty, and ambiguity, focusing solely on efficiency and streamlining current operations, and even waiting for the uncertainty to be resolved and "get back to normal," which severely limited their entire organizations' performance and growth during VUCA times. Employees within these organizations lacked alignment with the leadership's vision, resulting in feelings of confusion and isolation from the development of the organization's learning and agility capabilities. As a result, their focus remained firmly on carrying out their daily tasks in accordance with management directions and enhancing key performance indicators (KPIs).

6.1. Implications

Our findings have important theoretical implications in uncovering the micro-foundations of agile operations through DCs learning (absorptive capacity) and capability development in diverse B2B vs B2C contexts that were not clearly understood (Jarzabkowski & Paul Spee, 2009; Johnson et al., 2003, 2007; Magistretti et al., 2021). Our study clearly shows that vigilant learning from external events gives companies an edge and generates value during volatile times if a flourishing organizational context is purposefully enabled and nurtured within companies. Therefore, employees need to be included and aligned to organizational leadership, purpose, and goal and encouraged to develop and exploit sensing and learning by doing adaptation capabilities that are less tailored to the firm's current operations and more tailored to future trends and uncertainties. This research also contributes to SAP studies by uncovering the embedded nature of strategy-making and the way that localized interactions shape and are shaped by the wider context (Carter, Clegg, & Kornberger, 2008; Chia, 2004; Contu & Willmott, 2003; Jarzabkowski & Paul Spee, 2009), thus strategizing and organizing work in tandem to respond to evolving challenges (cf. Whittington & Melin, 2003). We identified specific industry sectors, such as ICT and KIBS, as well as organizations with historically relationship-based B2B operating models, as having an edge due to already established learning routines and employee informal or formal learning and strategic adaptation practices.

The findings of this study underscore the critical need for policies that foster a learning-oriented organizational culture, decentralize decision-making, and empowerment of employees. Organizational leadership should prioritize continuous learning, cross-departmental communication, and proactive action to enhance adaptability and

competitiveness. Integrating technology and automation, building adaptive capacity through comprehensive training and development programs, and encouraging experimentation and risk-taking are crucial for maintaining operational efficiency and innovation. Reducing organizational rigidity and promoting flexibility are essential to enable rapid adaptation to market changes.

The MIATM model 3.0 can be used as a diagnostic tool to identify and correct flaws and barriers in organizational contexts, particularly in traditional B2C environments, that prevent learning and new capabilities development. Through the application of the MIATM model, managers of both B2B and B2C companies can map their organizational processes, assets, and resources dedicated to learning and opportunities capture, identifying gaps and bottlenecks that hinder collaboration and agility. This model also serves as a guide for transferring best practices to develop agile routines in more transactionally oriented, traditional B2C companies, which often struggle with unprecedented market uncertainty and change. By implementing these policies and practices, organizations can better navigate VUCA environments and achieve sustainable competitive advantage.

In terms of DCs and SAP streams of literature, our study contributes by enlightening how context-specific learning routines in B2B companies, which often engage in collective decision-making and knowledge sharing, differ from those in B2C companies, which may prioritize more transactional relationships. This distinction highlights the need for a tailored approach to developing strategic agility in different organizational contexts, providing a deeper understanding of how individual-to-team and organizational learning processes can be optimized to enhance overall organizational performance (Argote et al., 2021; Argote & Ingram, 2000).

7. Limitations and future research

The study has its limitations, which offer important opportunities for future research on this topic. Although interviews took place over a prolonged time (approximately ten weeks) as part of a larger ongoing socio-technical investigation, and findings were shared, discussed, and confirmed by interviewees, only one person was interviewed per company, which might limit to an extent the findings. The contingent nature of dynamic capabilities, as well as the crucial role of leaders and particularly middle managers, merit greater attention in how organizations can and should adapt when facing a deeply uncertain future. Thus, future research will take a 360-degree perspective and focus on studying in detail and longitudinally the leadership team, employees, and context altogether as a source of learning and flexibility or inertia and develop in-depth, data-rich case study research on learning, as it is a context-dependent phenomenon. Future research should also pay attention to the role of organizational design and boards of directors and how these shape organizational learning and agility in different types of firms. In addition, given the increasingly important role that middle managers play in organizations to deal with evolving challenges, thus future studies could examine the role of middle managers in organizational learning and the development of different sets of capabilities. Future studies could also investigate different managerial roles (cf. Mintzberg, 1973a, 1973b, 1975) across different types of firms and their impact on dynamic capabilities and strategic agility, as well as business model innovation in B2B vs B2C firms in the VUCA environment.

Declaration of generative AI and AI-assisted technologies in the writing process

No AI was used in the writing process.

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CRedit authorship contribution statement

Iva Atanassova: Writing – review & editing, Writing – original draft, Project administration, Methodology, Formal analysis, Conceptualization. **Peter Bednar:** Writing – review & editing, Resources, Methodology, Investigation, Data curation. **Huda Khan:** Writing – review & editing, Resources, Conceptualization. **Zaheer Khan:** Writing – review & editing, Resources, Conceptualization.

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Data availability

Data will be made available on request.

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