

The Role of Corporate Governance In Developing Innovation Dynamic Capabilities: An Exploratory Study of French Service Firms

ABSTRACT

Although the growing body of research on dynamic capabilities theory has expanded, the role of corporate governance remains underexplored. To address this gap, we propose integrating the corporate governance literature with Writz's (2011) model to study how corporate governance influences dynamic capabilities (Teece, 2023). Thus, we conduct an exploratory study, comprising 10 interviews among service-based French firms. Our findings indicate that sensing, seizing, and transforming dynamic capabilities play a key role in developing innovation. Additionally, both spontaneous and intentional mechanisms contribute to developing these dynamic capabilities. However, we found no evidence to support the influence of intentional specific mechanisms on dynamic capabilities. This research makes a significant contribution to the dynamic capabilities theory by incorporating a corporate governance perspective and examining its impact on the development of dynamic capabilities, which in turn foster innovation. Practically, we identify several corporate mechanisms that foster the development of firms dynamic capabilities for innovation.

Key words: Dynamic Capabilities, Corporate Governance, Corporate Mechanisms, Innovation, Exploratory Study.

Track: Strategy & Corporate Governance.

Introduction

How organizations adapt and thrive in changing environments? The competitive dynamics in industries such as aerospace, automotive, and telecommunications highlight the urgent need for an updated framework to understand how firms achieve and sustain competitive advantage. Renowned companies such as Airbus and Renault, have often pursued a "resource-based strategy," accumulating valuable technological assets and establishing strong intellectual property protections (Teece, 2023).

Accordingly, the concept of "dynamic capabilities" emerges as a critical source of competitive advantage. This framework underscores the importance of adaptability and innovation in achieving sustained competitive advantage.

Dynamic capabilities emphasize two key dimensions. The "dynamic" aspect highlights the necessity for firms to adapt to ever-changing environments, where rapid shifts in factors such as time-to-market, the pace of innovation, and the uncertainty of future competition demand swift and strategic responses. Meanwhile, the "capabilities" aspect underscores the crucial role of strategic management in adapting, integrating, and reconfiguring organizational resources, skills, and competencies—both internal and external—to successfully navigate evolving conditions. In essence, dynamic capabilities allow firms to remain competitive in unpredictable and rapidly evolving markets.

Previous research (e.g., Schilke et al., 2018) identifies several key mechanisms that drive the development of dynamic capabilities. These include organizational learning (Zahra and Filatotchev, 2004), accumulated experience (Chen et al., 2012; Pisano, 2002), and organizational structure (Eisenhardt et al., 2010; Felin and Powell, 2016; Schilke and Goerzen, 2010). Human capital (Hsu and Wang, 2012; Kale, 2010), managerial cognition (Dunning and Lundan, 2010; Leiblein, 2011), and leadership (Kor and Mesko, 2013; Rindova and Kotha, 2001) are also pivotal. In addition, the external environment significantly influences capability development, with factors such as environmental dynamism (Fawcett et al., 2011; Killen et al., 2012) and interorganizational structures (Jansen et al., 2005; Roberts and Grover, 2012) playing critical roles. However, one area that remains underexplored is the role of corporate governance in fostering dynamic capabilities. This study seeks to address this gap by investigating the question: ***"How does corporate governance contribute to the development of innovation dynamic capabilities?"***

This paper offers both empirical and theoretical contributions to the literature on dynamic capabilities and corporate governance. It begins by presenting the theoretical background, which includes Teece's (2007; 2010) model of sensing, seizing, and transforming dynamic capabilities (1), Wirtz's (2011) model of corporate governance mechanisms (2), and a proposal for an integrative theoretical framework for this study (3). Next, the methodology is detailed, covering the study's context (1), sampling technique (2), and an overview of the data analysis approach (3). The findings are then presented, addressing the themes of dynamic capabilities (1) and corporate governance (2). This is followed by a discussion that integrates the findings with existing literature. The paper concludes by highlighting key theoretical and managerial contributions, reflecting on the study's limitations, and offering suggestions for future research.

1. Theoretical background

This section introduces the two foundational research streams that underpin this paper. The first explores the dynamic capabilities theory, with a focus on Teece's (2007; 2010) model. The second examines corporate governance mechanisms as outlined by Wirtz (2011).

1.1.The dynamic capabilities theory

Since the seminal article introducing the concept of dynamic capabilities, numerous definitions and models have emerged to deepen our understanding of the framework. In their bibliometric study, Peteraf et al. (2013) identified two primary perspectives within the dynamic capabilities literature.

The framework proposed by Teece et al. (1997; 2007; 2010; 2023) defines dynamic capabilities as “the firm’s ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments” (Teece et al., 1997, p. 516). This generic model (Teece, 2007; 2016; 2023) emphasizes three core clusters—sensing, seizing, and transforming—which are pivotal for firms seeking to sustain competitive advantage in fast-changing environments.

In contrast, Eisenhardt and Martin (2000) offered a more focused perspective, later reinforced by Winter (2003). According to this view, dynamic capabilities consist of a set of predefined routines governed by “simple rules” (Schildt and Rerup, 2023). These routines guide managers in acquiring, shedding, integrating, and recombining resources to create innovative, value-generating strategies (Eisenhardt and Martin, 2000).

In this paper, we adopt Teece’s (2007; 2010; 2023) tripartite model, as it provides a more suitable and relevant framework for our exploratory study.

First, sensing refers to a company's ability to identify new opportunities, even when they are not immediately apparent, or in some cases, to create these opportunities. Under Knightian uncertainty (Teece, 2023), where the future is unpredictable and difficult to quantify, sensing enables a company to detect "signals"—small indicators or emerging trends from the market or environment. Managers with dynamic capabilities are adept at recognizing these signals and knowing how to respond, particularly in product development. They rely on both their experience and intuition to interpret these signals and craft strategies that drive success. For example, many Big Tech companies, such as Apple and Google, were able to succeed by sensing emerging trends early, often before others fully recognized their potential.

Teece (2007; 2023) argues that activities such as R&D, supplier and complementor innovation, exogenous science and technology, target market segmentation, and customer innovation are examples of sensing dynamic capabilities. For instance, studies (Balogh and Kiss, 2024; McNaughton, 2023) show that corporate governance contributes to developing R&D, and that this latter leads to innovation. Also, Hadjikhani, Ghauri, and Kumar (2022) argue that effective value co-creation relies critically on the active and purposeful integration of diverse resources by all actors within the network.

Second, seizing involves the effective execution and deployment of a firm’s resources—human, physical, and financial. This includes implementing business models, managing big data, ensuring strategic alignment, defining company boundaries, and making key investment decisions. Dynamic capabilities demand proactive leadership capable of driving organizational change in anticipation of shifts in the environment, rather than reacting after the fact. A firm's evolution and the development of its capabilities are not strictly governed by past decisions or established best practices. Instead, successful transformation hinges on strong leadership, entrepreneurial decision-making, and a readiness to take calculated risks—even when some of those risks may not succeed.

In the same optic, Teece (2007; 2023) suggests that seizing dynamic capabilities include activities such as Business model, Decision-making protocols, Complement & “control” platforms, Loyalty & commitment. Indeed, Teece (2010) notes that strong governance helps firms align their business model with market demands and technological advancement. Moreover, Akram and Ul Haq (2022) investigate that corporate governance and innovation jointly influence firm performance.

Third, transforming capabilities refer to a firm’s ability to reconfigure its existing resources and competencies to adapt to shifting market conditions and generate new sources of competitive advantage. Teece argues that in today’s fast-paced business environment, companies must continuously evolve and innovate to stay ahead of the competition. This goes beyond simply sensing and seizing opportunities; it also involves transforming a firm’s current resources and capabilities to create new value.

Transforming dynamic capabilities are critical for firms to adapt to changing markets, create fresh sources of competitive advantage, and foster innovation. Teece (2010; 2023) emphasizes that these capabilities extend beyond technology and innovation—they also encompass organizational culture, leadership, and the capacity for learning and adaptation. Firms that successfully develop and apply these transforming capabilities are better positioned to thrive in the competitive, ever-changing business landscape of the 21st century.

Teece (2007; 2023) suggests that transforming dynamic capabilities involve activities such as decentralization, near decomposability, governance, co-specialization, and knowledge management. These capabilities help firms reconfigure and adapt their resources and processes to meet changing market conditions and maintain a competitive advantage. More specifically, Langlois (2023) states that constitutional governance arrangements allow for flexibility and adaptation.

To wrap up, Teece (2007; 2016; 2023) argues that sensing, seizing, and transforming dynamic capabilities are crucial for enhancing a firm's competitive advantage through innovation (Teece, 2009; 2018; 2023). Furthermore, corporate governance mechanisms play a key role in fostering the development of these three capability clusters.

1.2. Corporate governance mechanisms

Charreaux (1997) defines corporate governance as "the set of mechanisms that define powers and influence decisions of the chief executive, in other words, the mechanisms that govern his conduct and define managerial discretion.". His definition extends beyond the corporate board to include a variety of mechanisms that influence the CEO's behavior, including interpersonal trust, the top management team (TMT, the managerial labor market, legal rules and the market for corporate control.

Research on corporate governance has largely focused on large publicly listed firms, often through the lens of agency theory (Berle and Means, 1932; Nelson, 2023; Fama and Jensen, 1983; Jensen and Meckling, 1976; Akram and Ul Haq, 2022; Aguilera, 2023). This theory argues that the primary role of governance mechanisms is to secure financial discipline by effective monitoring, which helps manage agency conflicts and supports corporate success.

On the other hand, Wirtz (2011) highlights four main categories: specific and non-specific mechanisms, as well as spontaneous and intentional governance mechanisms. This framework provides insights into how organizations can structure their governance to adapt to internal and external dynamics while ensuring operational and strategic efficiency. The overall structure is based on a classification initially proposed by Charreaux (1997), which identifies

four types of governance mechanisms categorized by their scope (firm-specific vs. general) and operating mode (intentional/deliberate decision-making vs. spontaneous order).

Governance mechanisms can be firm-specific, such as a company's board of directors with its unique composition and characteristics, or non-specific, including regulations and legal frameworks that apply broadly to many enterprises.

Within these two levels, governance mechanisms can also be categorized as intentional, such as institutional stockholders deliberately advocating for a higher proportion of independent directors on corporate boards, or spontaneous, arising naturally from interactions among governance actors and the CEO, like the work atmosphere and trust developed between directors and managers through their specific interactions.

Based on the above discussion, we present below Writz (2011) model of corporate governance mechanisms in table 1:

Table 1. Corporate Governance Mechanisms (Writz, 2011)

	Specific mechanisms	Non-specific mechanisms
Intentional mechanisms	-Direct stockholder control (frequent face-to-face interactions) - Investment agreements, business plan (Kaplan and Stromberg, 2004) - Management team (TMT) (composition, formal allocation of responsibilities) - Board of directors (proportion of external members; diversity of functional experience)	- Legal and regulatory environment - Existence of an organized profession of capital investors (recent in Europe but growing rapidly) (Sapienza et al., 1996)
Spontaneous mechanisms	- Culture of decision-making - Board process - Network of personal relationships among directors - Network of personal relationships among managers	- Network of venture capitalists - Managerial labor market - Business culture that more or less values risk-taking - Investorsdominant investor philosophy: Hands on or hands off.

The structure of the table above is derived from Charreaux (1997), while its content is based on the findings from Wirtz (2011). It provides a summary of key governance features, drawing insights from their comprehensive literature review.

1.3. Integrative framework

Teece (2007; 2010; 2023) emphasizes the importance of a multidisciplinary approach to fully understand dynamic capabilities. In line with this, we present an integrative framework that incorporates the corporate governance research stream to enhance our understanding of dynamic capabilities theory, as illustrated in figure 1 below:

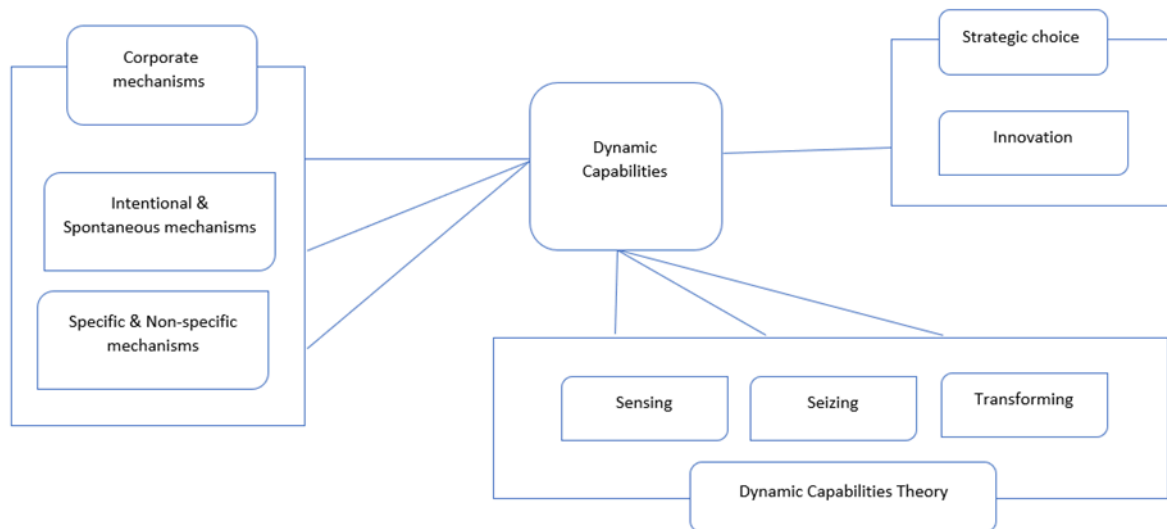


Figure 1. Theoretical framework for effective corporate mechanisms in developing innovation dynamic capabilities

We propose the above model as an effort to respond to Teece’s (2023) call to integrate dynamic capabilities with other research streams. To this end, we adopt a corporate governance lens. Specifically, we use Wirtz’s (2011) model, which distinguishes between intentional/non-intentional and specific/non-specific corporate governance mechanisms, to explore their influence on the development of dynamic capabilities.

For this purpose, we rely on Teece’s (2007; 2010; 2023) tripartite model of sensing, seizing, and transforming dynamic capabilities. This generic model enables us to explore which dynamic capabilities drive innovation and how corporate governance influences the development of sensing, seizing, and transforming capabilities.

2. Methodology

As a reminder, this study aims to explore the role of corporate governance in developing innovation dynamic capabilities within a French context. Accordingly, our research question is: “How does corporate governance contribute to the development of innovation dynamic capabilities?”

2.1. Locating the study

In order to explore the role of corporate governance mechanisms in developing innovation dynamic capabilities in France, we rely on the Oslo Manual. It defines innovation as “the introduction of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations” (OECD, 2018, p.56). Accordingly, we select participants that belong to innovative French firms complying with the following innovation criteria defined by the Oslo Manual, recapitulated as follows in table 2:

Table 2. The innovative sample overview

Innovation	A new good/ service	A new method of production	A new market	A new source of supply of raw materials	A new organization of any industry (or market)
Stages of innovation					

(1) Sourcing	-Audiovex - Genova - VisioAI	- Hydralis	- Genova -Audiovex		
(2) Transformation	- Genova	Logispeed		Logispeed	Logispeed
(3) Exploitation	- Genova - VisioAI -Audiovex -Graphica -Marketra		-Audiovex - Genova		Graphica

2.2.Sampling technique

The purposeful and snowball sampling techniques were used to conduct semi-structured interviews. According to Patton (2002), the purposeful technique is commonly used in qualitative research to select cases that provide valuable information, ensuring efficient use of resources. This approach involves choosing individuals with specific criteria related to the phenomenon being studied (Cresswell and Báez, 2020). Additionally, researchers (Bernard & Flitman, 2002; Spradley, 1979; Carrido, 2017) highlight the importance of participants' willingness, availability, and their ability to clearly and thoughtfully share their experiences and opinions.

The second technique is a research method that leverages social networks to identify and contact specific participants (Handcock and Gile, 2011). The snowball technique involves initial participants helping to locate additional participants, and through this process, some participants were selected via friends, colleagues, and social contacts, who then assisted in finding additional participants. More specifically, we targeted employees working in firms that offer a significantly improved product or service, and that also use new organizational, management, and/or marketing practices in France. The first participants were contacted via the professional network LinkedIn.

We use a qualitative approach, collecting data through interviews, to explore topics in further details by drawing on participants' experiences, observations, and insights. Following established methodological guidelines, we prepared an interview guide focused on key themes derived from Teece's (2023) model. (Table 4). The questions were then adapted, when necessary, to align with the firms idiosyncrasies. Semi-structured interviews were conducted to allow flexibility in exploring complex and sensitive subjects, offering a deeper understanding of participants' perspectives.

We interviewed 10 participants across seven cases (Arksey and Knight, 1999; Creswell & Poth, 2016). The interviews were conducted online, by phone, and in person, depending on the participants' preferences. On average, the interviews lasted 60 minutes and were recorded with the respondents' consent for transcription, data analysis, and interpretation (McGrath et al., 2019). We also used pseudonyms to name the firms and numbers to refer to participants, ensuring anonymity and confidentiality. The interviews were informal and narrative in nature,

aiming to emphasize genuine and context-rich accounts of experiences. The below table 3 presents an overview of our sample:

Table 3. An overview of our sample

N° of participants	Enterprise	Activity	sector	Location	Year	Legal form	size
P1, P2 & P3	Genova	Digital Services	Services	Toulouse & Paris (France)	1983	Simplified Joint-Stock Company (SAS)	Large Enterprise
P4	Marketra	Marketing consulting	Services	Lille (France)	2006	Limited Liability Company (LLC)	Large Enterprise
P5	Logispeed	Transportation and Logistics	Services	Troyes (France)	1945	Simplified Joint-Stock Company (SAS)	Small & Medium Enterprise (SME)
P6	VisioAI	Development of AI-based Software Solutions	Services	Lille (France)	2019	Simplified Joint-Stock Company (SAS)	Small & Medium Enterprise (SME)
P7	Audiovex	Audiovisual and Digital Solutions	Services	Lille (France)	2005	Simplified Joint-Stock Company (SAS)	Small & Medium Enterprise (SME)
P8	Graphica	Printing services	Services	Lille (France)	2003	Digital business ¹	Small & Medium Enterprise (SME)
P9 & P10	Hydralis	Water and Waste Management	Services	Lille (France)	1880	Simplified Joint-Stock Company (SAS)	Large Enterprise

In qualitative research, sample size is not determined by specific criteria but rather depends on the study's objectives, resources availability, and time constraints (Patton, 2002; Tuckett, 2004). A qualitative approach typically involves a small sample that is not intended to be statistically representative of the entire population. Researchers (Miles, Huberman & Saldaña 2014; Glaser and Strauss, 1967) highlight that the goal of qualitative research is to reach saturation. That is, interviews continue until no new significant information emerges, ensuring a comprehensive understanding of the research topic.

2.3.Data analysis

To explore the role of corporate governance mechanisms in developing dynamic capabilities, we conduct an exploratory study of French firms, as illustrated above (Table 3). This study allows us to investigate why and how sensing, seizing, and reconfiguring dynamic capabilities

¹ businesses that primarily operate through the internet without the need for physical storefronts or offices

enable service-driven firms to innovate, as well as how corporate governance mechanisms influence the development of these capabilities.

For data analysis, we applied thematic analysis, a qualitative method outlined by Braun and Clarke (2016). This approach enables the identification of key themes within large datasets (Gioia et al., 2013). Our study includes 10 interviews from 7 service-based French firms. We chose to conduct a manual thematic analysis, as recommended by Braun and Clarke (2013; 2016), because it allows for a more rigorous examination than software-based methods by capturing the subtle nuances of language that software may miss.

2.4.Coding grid

The coding process follows the Gioia methodology (Gioia, Corley, and Hamilton, 2013). In the first-order analysis, coding is based on key informant verbatim responses (i.e., their own words) to accurately capture the concepts expressed by interviewees and other secondary data sources. This analysis is guided by a cross-case replication logic (Eisenhardt and Graebner, 2007; Yin, 2009) to identify common themes across interviews.

The second-order analysis seeks to identify relationships among the first-order concepts (participants' verbatim responses) in order to develop broader second-order themes. This phase also incorporates a theoretical foundation by highlighting emerging concepts, allowing for the extraction of theoretical insights from the empirical data. The analysis involves translating the replicated practices of dynamic capabilities into theoretical themes, with a particular focus on microfoundations, all while being guided by the theoretical framework.

The final step in the Gioia method involves synthesizing the second-order themes into aggregate dimensions, a process known as theoretical coding. This step includes evaluating the semantic relationships among the second-order themes, which are then coded and grouped based on their alignment with the firm's sensing, seizing, or reconfiguring activities.

The coding process relies on dynamic capabilities theory (Teece, 2023) as a research framework to guide the analysis and strengthen the internal validity of the findings (Yin, 2009; 2015). Table 4 illustrates the grid for the coding process.

Table 4. Coding grid

References	Aggregate dimensions	Second- order dimensions
Teece (2023)	Sensing	R&D
		Supplier & complementor innovation
		Exogenous science & technology
		Target market segment
		Customer innovation
	Seizing	Business model

		Decision-making protocols
		Complement & “control” platforms
		Loyalty & commitment
	Transforming	Decentralization & Near Decomposability
		Governance
		Cospecialization
		Knowledge management

3. Findings

In this section, we first use Teece's tripartite model (2023) to explore how sensing, seizing, and transforming dynamic capabilities drive innovation. Next, we apply Wirtz's (2011) model to examine how corporate governance mechanisms influence the development of these capabilities.

3.1. Dynamic capabilities

3.1.1. Sensing

Sensing dynamic capabilities refer to the capability to detect changes and trends that could impact the organization (Teece et al, 1997; Teece, 2007; 2016; 2023). It involves identifying and assessing opportunities and threats in the business environment.

Our sample includes service-based firms located in France, ranging from small to large in size. The analysis reveals the use of several sensing capabilities, which are discussed in the following paragraph.

First, R&D dynamic capabilities are essential. They play a crucial role in the firm's sensing capabilities. More specifically, 'Exogenous Science & Technology' highlights the firm's ability to stay updated with technological advancements and explore new possibilities to enhance its platforms for clients. It emphasizes the firm's capacity to leverage external technological innovations to improve its offerings. For instance, the IT director's efforts to explore the web for new programming features reflect an active pursuit of external technological advancements. This aligns with 'Exogenous Science & Technology', where the firm identifies and assesses external innovations to enhance its services:

"Our IT director always managed to go on the Web to do a search and see what was possible to do in terms of new features, level of programming, so it is this type of research and development that finally allows us to improve the platforms that was offered to the customer" (Participant 4)

Moreover, the ability to adapt communication to the audience (e.g., simplifying jargon) reflects an understanding of the "target segment's" needs and knowledge. This shows a proactive effort to improve how Marketra engages with its customers, ensuring that they can easily understand the products or services being offered:

Additionally, 'Open innovation' dynamic capabilities enable the use of external and shared resources (such as open-source languages or tools) to drive innovation and value creation:

"the language is basically open source in general This is similar language. It's generally it's a it's a common thing" (Participant 1)

'Strategic Watch' involves monitoring external trends, challenges, and opportunities to adjust strategies accordingly. For instance, Audiovex is identifying and responding to external pressures, particularly environmental concerns and evolving societal expectations:

"Because the problem is that these are the terms CSR, green, where you shouldn't consume. People are much less into digital signage. As a result, we have to take a turn. Now, we are in real discussion about this, about how to take a turn" (Participant 7)

The sample also emphasizes putting the customer first by offering not only products but also complementary services, personalized support, and high-quality assistance, demonstrating a strong commitment to a 'customer-centric approach':

"putting the customer at the centre of concerns" (P8)

"Customer proximity strategies" (P10)

Companies also leverage 'Supplier & Complementor Innovation' dynamic capabilities. By doing so, they engage in innovation driven by or in collaboration with suppliers and complementors, with the goal of enhancing the ecosystem's performance and value creation:

"recommendations because in the north a strength is that there are many teachers who work thanks for example to the name Mulier Mulier manages a certain number of brands such as Auchan, Kiabi, Decathlon" (P4)

The above statement highlights the role of the Mulliez family group, which manages several major brands, including Auchan, Kiabi, and Decathlon. By coordinating and fostering shared innovation across these entities, the group strengthens its network of complementors, driving collective efficiency, innovation, and growth.

To conclude, sensing dynamic capabilities—such as 'Exogenous Science & Technology,' 'Target Market Segment,' 'Open Innovation,' 'Strategic Watch,' 'Customer-Centric Approach' and 'Supplier & Complementor Innovation'—significantly contribute to innovation.

Our exploratory study also reveals some emerging themes. Therefore, we present dynamic capabilities identified in the data that are not included in Teece's (2023) framework.

First, 'Visionary Insight,' which refers to the company's ability to anticipate future trends and align its strategy to seize emerging opportunities:

"He simply noticed that we were increasing the number of cameras in the communities without increasing the number of operators, that is to say the people who look at the cameras. Except that to analyse them, it required too many hours in relation to the number of staff in front" (P6)

Second, 'Notoriety,' which highlights the importance of brand recognition and reputation in attracting customers, partners, and investors:

"Companies that are really known as experts in one field or another" (P4)

Third, 'Research Tax Credit,' a financial incentive that supports the company's investment in research and development, fostering innovation and technological advancement

"The Research Tax Credit enables Genova to develop new solutions to offer to clients. It also facilitates the recruitment of new young Ph.D. graduates... who bring a new vision to our teams" (P1, P2 & P3)

"There is the 'Research Tax Credit' for firms who work on innovative projects" (P10)

Finally, 'Internal Sensing' is inherently part of the sensing capabilities in Teece's framework, though it is not explicitly labeled as such. It highlights the organization's ability to understand and leverage its internal dynamics to strengthen its competitive edge. We chose to explicitly identify it as a sensing dynamic capability, as it emerged as a recurrent theme in our study.

"It's either following a particular need. an analysis from a particular service" (P5)

3.1.2. Seizing

First, business model dynamic capability emphasizes the firm's ability to innovate, adapt, and strategically leverage its resources. It transforms the business model from a static description into a dynamic tool for navigating competitive and complex environments. All the firms studied rely on a dynamic and agile business model that enables them to create, deliver, and capture value in changing contexts. A business model dynamic capability encompasses elements such as the 'Value Proposition' 'Key Activities' 'Key Resources' and 'Performance' while also incorporating 'Client Feedback' and the use of 'Technology'.

"it's a solid group that has been there for years and years" (P5)

"For dematerialization, that's measurable, because I think that every month already, we count the number of invoices, well, it's a small ratio, the number of invoices unchecked on the number of total invoices"

"Now it's often the price that makes the difference. Local authorities are interested in having better prices" (P9)

"Our advantage is that we come from the profession, we come from the field" (P10)

"What differentiates us from the competitors is the ergonomic aspect of the software" (P4)

"We have developed a tailor-made graphic platform... They can therefore follow the results online in real time and over any period" (P4)

Parallely, firms leverage several key aspects of 'Complement & Control Platforms' as part of their seizing capabilities. First, 'Cospecialization' involves integrating complementary resources to create greater value through synergy. Next, 'Data Privacy & Security' emphasizes the protection of sensitive information, ensuring customer trust and confidence. Lastly, 'Regulatory Compliance' requires adherence to industry regulations and legal standards, which is crucial for maintaining operational integrity and mitigating legal risks. The corresponding extracts are presented below:

"Two people who specialize in computer programming, another was a salesperson, and another was an expert in data analysis, and all of that to do marketing analysis reports." (P1)

"we are on the analysis of images of the video protection park, which induces personal data and the use of data" (P6)

"It's an obligation. That's because from 2024, it's (digitalization) an obligation. The legal obligation" (P5)

'Decision-making protocols' dynamic capabilities, such as 'Decision Documentation' and 'Ethical Considerations,' are also mobilized for seizing capabilities and are presented below:

"In the public contract, a certain number of technical and financial constraints and it is proposed to optimize certain number of operating steps ... a good compromise between the work to be done and the price" (P9)

"Green innovation and respect for the environment." (P10)

Finally, seizing is crucial for translating sensed opportunities into actionable strategies. It is directly linked to firm performance, particularly in environments with varying competitive intensity. One emerging theme we present is the concept of the 'pure player.' This refers to a business that operates primarily in the digital space, with no physical retail presence.

"There are premises in Lille, it seems to me, but in fact, everything happens online... it's called Pure Player" (P6)

"We are a Pure Player, but in the end, we are quite well established in the north of France, in the sense that, we have... We belong to a group that is quite historical in the north of France, with printing presses, as a result, which are well and truly physical" (P6)

3.1.3. Transforming

Transforming dynamic capabilities involves reorganizing resources and capabilities to adapt to new opportunities and threats. This process ensures that the organization remains agile and responsive to change (Teece, 2007; 2016; Mousavi et al., 2018; Garri et al., 2017; Breznik et al., 2018).

First, 'cospecialisation' is one of the most frequently cited capabilities. It refers to a firm's ability to align various components of its business—such as products, services, and methods—so they work together effectively to create added value. By innovating 'around the product,' the company leverages its services and processes to complement and enhance the product's overall value:

"I don't think we can ever postpone innovation on the product itself. So, there you have it, I was telling you that innovation is beyond products, so in terms of services or working methods." (P8)

"We have an innovation entity, so we are always in collaboration with this entity to see the current issues, to see how we can improve our solutions and products? Or even offer new innovative products" (P10)

Second, 'governance' capabilities are also frequently mentioned, encompassing areas such as 'Authority & Decision-making,' 'Compliance & Regulation,' 'Leadership & Strategic Vision,' 'Ethics,' and 'Policies & Procedures'. Below, we present some key excerpts:

"For strategic decisions, it is already the management that decides" (P1)

"Have certifications that ensure that it is done well from an ecological point of view" (P8)

"The manager of the team is ultimately in charge of steering the missions of each person, let's say linking them to each other around a specific project" (P10)

"compliance with CSR terms" (P7)

"In the end, calls for tenders are a document that you receive, and which state their expectations, their most important criteria" (P9)

Last but not least, the 'Knowledge Management' dynamic capabilities encompass several key aspects: 'Knowledge Capture,' which refers to the process of acquiring relevant knowledge from both internal and external sources to build a valuable knowledge base; 'Knowledge Organization,' which involves structuring and categorizing knowledge to make it easily accessible and usable across the organization; 'Knowledge Sharing,' which focuses on disseminating knowledge to ensure it is available to those who need it; 'Knowledge Creation,' which involves generating new insights, ideas, and solutions through innovation and collaboration, thus enhancing the organization's ability to adapt and compete; and 'Learning and Training,' which refers to the continuous development of skills and knowledge to keep pace with evolving demands. Below, we illustrate these concepts with excerpts from participants:

"We try to keep people. It is a form of innovation, but it remains internal to the company. We have to do that to keep these new people, these young people. This is not just an external innovation. We must also innovate internally" (P7)

"We have a roadmap, so we organize by project. And then, we establish a chronology to follow this roadmap" (P6)

"So, for example, we have an internal event. Well internal there are 2 versions, there is external internet which is just dedicated to innovation. It means, we come every year, we present innovative products, there are prizes, that's it" (P10)

"are working on the digitization of user manuals." (P3)

"we have access to several training platforms including Coursera and Udemy" (P2)

To wrap up, reconfiguring capabilities facilitate the firm's continuous adaptation. This is crucial for sustaining innovation and maintaining a competitive advantage. Regarding Transforming Dynamic Capabilities, no new themes emerged. However, all the capabilities outlined in Teece's (2007) framework are prominently present and consistently recurring, as highlighted above.

To recapitulate, the following table 5 illustrates the sensing, seizing, and transforming dynamic capabilities employed by French service-based companies to innovate and secure a competitive advantage, along with quoted characteristics that further exemplify the dynamic capabilities identified:

Table 5. Verbatims of the participants

1st order concepts (verbatim)	2nd order concepts (themes)	Aggregate dimensions (clusters)
"There are necessarily more constraints. You have to have certifications. In any case, we have to do it properly, that we can't cut down as many trees as we want to make paper and all that."	R&D	Sensing
"recommendations because in the north a strength is that there are many teachers who work thanks for example to the name Mulier Mulier manages a number of brands such as Auchan, Kiabi, Decathlon"	Supplier & complementor innovation	
"Our IT director has always managed to go on the Web to do a search and see what was possible to do in terms of new features, level of programming, so it is this type of research and development that finally allows us to improve the platforms that was proposed to the customer"	Exogenous science & technology	
"The biggest competitor we have now... companies that decided to develop all their online studies so directly, but they couldn't do reporting studies or adhoc studies" "There was competition but not much" "Always up to date, listening to the market to identify these changes" "During the 2000s, you had phoning, that's when you try to find the people - you call the switchboard and you wanted to have the marketing manager"	Target market segment	
"Putting the customer at the centre of concerns" "For example, if today, we receive a lot of complaints from customers, that the service is not good, that there is not good quality, that there is a delay in delivery"	Customer innovation	
"for sales that are rather B2B, even if there is also B2C, we try to offer printed communication media of all kinds to help companies spread their different messages" "Through partnerships, to develop brand awareness a little" "The lower is a... It's not a diesel, it's an alternative to diesel. In fact, it is the waste from rapeseed oil that will be used as fuel for vehicles" "Now it's often the price that makes the difference. Local authorities are interested in having better prices" "A platform for scenario evaluation"	Business model	Seizing
"Sales engineers systematically make briefs" (Decision documentation) "Our customers are local authorities, town halls and water syndicates, it's not individuals with local authorities, there is a contract" "There are regular meetings with the local authorities, it can be once a year or several times a year, it varies when there are exchanges"	Decision-making protocols	
"It's an obligation. That's because from 2024, it's an obligation. The legal obligation" "Subcontracting of transport in certain regions" in fact, it is the supply, it is the supplier of this equipment who presented it to them" "Cybersecurity"	Complement & "control" platforms	

"So in the end, our clients call on us following the recurrence and the quality of the study we had offered them" "some projects which are termed as internal projects, I think these projects are being entirely funded by the company" "they (some innovative project) are being done by employees purely for the sake of innovating."	Loyalty & commitment	
"But it's quite agile in the sense that, because we are a small company, it is still possible for everyone to take the initiative" "In the end, there is still a structure to keep the company organized with managers who take care of the team and who must report to the management" "The main thing is that she must be aware of what is actually going on in the state of progress" "Autonomy allows us to save time and optimize work"	Decentralization & Near Decomposability	Transforming
"compliance with CSR terms" "Green innovation" "Innovation value"	Governance	
"I don't think we can ever postpone innovation on the product itself. So, there you have it, I was telling you that innovation was more about products, so in terms of services or working methods."	Cospecialization	
"Label Lucie is a certification that shows that a company has implemented a successful approach in terms of social responsibility and everything. So, it's a variation of the ISO 26,000 standard," Lucie said. So, the company still tries to be committed to being eco-responsible" "In addition, this label allows the company to benefit from support in the CSR approach." "He retrieves the technical data from the technical databases and they produce this report"	Knowledge management	

3.2. Corporate governance

To explore how corporate governance mechanisms influence the development of sensing, seizing, and transforming dynamic capabilities, we refer to Wirtz's (2011) grid of corporate governance mechanisms, as presented in the literature background. According to Wirtz (2011), corporate mechanisms are categorized as either intentional or spontaneous, and specific or non-specific. The overall structure of the model was originally proposed by Charreaux (1997, p. 427), while the specific content reflects the distilled findings from Wirtz's literature review (2011).

We coded the interviews using Yin's (2013) approach, identifying recurrent patterns and categorizing related themes into higher-order concepts based on Wirtz's (2011) framework. The results are presented in table 6 below:

Table 6. Wirtz (2011) Framework of corporate governance mechanisms

	Specific mechanisms	Non-specific mechanisms
Intentional mechanisms	-Direct stockholder control - Investment agreements, business plan (Kaplan and Stromberg, 2004) -Management Team (TMT) (composition, formal allocation of responsibilities) -Board of directors (proportion of external members; diversity of functional experience)	- Legal and regulatory environment: <i>"In fact, in this sector, at the European level, there's a directive called NIS. So today, all operators in areas such as water, sanitation, and others are legally required to comply with certain measures. In this case, they must have a cybersecurity strategy in place and establish a cybersecurity governance framework"</i> - Existence of an organized profession of capital investors (recent in Europe but growing rapidly (Sapienza et al., 1996))
Spontaneous mechanisms	- Culture of decision-making by the management team: <i>"We will leave the place to the person most able to respond to the concerns, even if it is not necessarily the highest placed hierarchically speaking"</i> – Board process – Network of personal relationships among directors – Network of personal relationships among managers: <i>"Look by keywords manager"</i>	- Network of venture capitalists (in finance, industry and politics) -Managerial labor market (animated by venture capitalists, sometimes the driving force in the replacement of start-up managers and in the professionalism of management teams) -Business culture that more or less values risk-taking (more in the early stage in the U.S. than in France) -Investors philosophy: Hands on or hands off: <i>"There is a managing partner, a technical managing partner, and the third partner, he is just there as a partner. He is not in the company"</i>

3.2.1. Spontaneous and non-specific mechanisms

Our sample includes both SMEs and large firms. For instance, the founders of Marketra and VisioAI actively contribute to the firms' activities. Specifically, they hold key positions, such as Director of IT and Technical Director, respectively. Accordingly, we have a 'hands-on' strategy:

"There is a managing partner, a technical managing partner, and the third partner, he is just there as a partner. He is not in the company" (P6)

"Two people specialized in computer programming, another was a salesman and another expert in data analysis, and all this to make marketing analysis reports" (P4)

In contrast, for Graphica, the founders do not interfere with the day-to-day corporate activities. They recruited a manager to oversee the business and only follow up on the achievement of objectives. That is, a hands-off strategy:

"In the end, they don't intervene too much in the decisions that are taken. They simply give, let's say, trends to follow, there you go, financial objectives too, I imagine. Yes. And then, suddenly, that's it. It is really the director of Rapid Fire who is in charge of using the method he wants to achieve the objectives" (P8)

Consequently, investors philosophy (ie. Hands on /hands off) corporate mechanisms contribute to sensing, seizing and transforming dynamic capabilities

3.2.2. Spontaneous and specific mechanisms

As part of the corporate governance process, the 'Board process' refers to how the board of directors makes decisions. This includes how they meet, discuss, and make key decisions for the company, as well as how they assess its performance and strategy. The participant explains that Hydralis, being a subsidiary of a parent group, adheres to their internal procedures and is overseen by the parent group's board of directors.

Therefore, the 'board process' mechanism contributes to sensing, seizing, and transforming dynamic capabilities.

Furthermore, Graphica emphasizes that its 'culture of decision-making' prioritizes skills and expertise over power and politics. In other words, decision-making is based more on individuals' competencies than on their position of power or rank within the hierarchy:

"We will leave the place to the person most able to respond to the concerns, even if it is not necessarily the highest placed hierarchically speaking" (P8)

Accordingly, 'culture of decision-making' corporate mechanism contributes to sensing, seizing and transforming dynamic capabilities.

On another note, VisioAI is a software solutions provider with artificial intelligence as its core technology. It is a startup (i.e., a young innovative company) operating in a high-risk sector with high growth potential: technology. The company operates in a market that requires significant upstream work, involving extensive research and development. This entails substantial upfront investment before it can begin selling, leading to a scissor effect between sales and the personnel costs incurred. As a result, it conducted a growth fundraising round.:

"So, to avoid this and the inevitable collapse, we decided to carry out a fundraising round to generate cash, improve our sales, and address these cash flow issues. Part of it is allocated to R&D, and part of it is dedicated to strengthening our commercial efforts" (P6)

Consequently, the 'venture capitalist' corporate mechanism contributes to sensing, seizing, and transforming dynamic capabilities.

3.2.3. Intentional and non-specific mechanisms

In terms of regulatory frameworks, the NIS Directive (also called Directive (EU) 2016/1148 on the security of network and information systems) was adopted by the European Union to improve cybersecurity within the member states. It applies to operators of essential services and providers of digital services. For instance, Hydralis, a firm that provides environmental services, with its core business centered around water management, waste management, and recycling, focuses on detecting cyber-attacks, seizing related opportunities to counteract cyber threats, enhancing resilience, and building trust with stakeholders:

"In fact this sector and at the European level, you have a directive called NIS. So today, all the operators, including the field of water, sanitation, and others... are legally obliged to

comply with certain measures. And in this case, they have to have a cybersecurity strategy, they have to actually put in place an architecture of cybersecurity governance." (P10)

Therefore, the 'culture of decision-making,' 'venture capitalist,' and 'legal and regulatory environment' mechanisms contribute to the development of sensing, seizing, and transforming dynamic capabilities.

To wrap up, the investors' philosophy, the 'board process,' and the 'legal and regulatory environment' are corporate governance mechanisms, based on Wirtz's (2011) framework, that play a crucial role in enhancing sensing, seizing, and transforming dynamic capabilities.

Moreover, we have identified an emerging theme: the parent-subsidary network. Specifically, several clients of Marketra are part of this network, and as a result, they recommend Marketra for future collaboration opportunities.

Thus, the parent-subsidary network primarily contributes to sensing opportunities. However, there is no evidence to confirm its influence on seizing or transforming capabilities.

4. Discussion

Building on recent empirical advancements, this paper examines how corporate governance mechanisms support the development of dynamic capabilities that drive innovation in companies. Dynamic competition **favors** firms to innovate, adapt, and create new products, services, processes, or methods, thereby contributing to economic progress and delivering long-term benefits to consumers and industries.

Experience, learning, and related mechanisms are integral to the development of Dynamic Capabilities. However, the role of corporate governance mechanisms in fostering these capabilities remains underexplored.

This study focuses on service-based companies located in France, providing an exploratory analysis of their practices. The first overarching insight that emerges from the empirical data is that both small and large firms utilize dynamic capabilities to drive innovation. However, Jeng and Pak (2016) suggest a disparity in performance between large and small firms operating in highly competitive industries. Large firms frequently demonstrate an ability to cultivate dynamic capabilities, while small firms relying exclusively on individual investments in innovation or marketing often experience diminished returns.

Although Aboal et al. (2016) argue that non-technological innovations contribute more significantly to productivity gains in services compared to technological innovations in manufacturing, and other studies (e.g. Akram and Ul Haq, 2022; Sonn and Storper, 2022; Crespi and Zúñiga, 2023) suggest that the service sector relies on technology less frequently than manufacturing, our analysis highlights the role of technology dynamic capabilities in this context. More specifically, Hydralis utilizes artificial intelligence and digital twins to develop its applications, Audiovex leverages technological innovations, and VisioAI conceptualizes AI-based software. This underscores the role of digital services as a key driver of the ongoing service revolution (Bornet et al., 2021; Paluch et al., 2022).

This aligns with Wirtz & Kowalkowski (2023), who argues that digital technologies such as the Internet of Things (IoT), intelligent automation, and digital platforms significantly influence service innovation in B-to-B markets, transforming products, processes, and ecosystems. Similarly, prior research (Demirkan et al., 2015; Nittala et al., 2021; Velsberg et al., 2020) highlights that the Internet, alongside technologies like IoT, cloud computing, and digital platforms, serves as a powerful enabler of service innovations by reshaping service

processes and ecosystems. These technologies facilitate the integration of resources and stakeholders, enabling new service models and enhancing value creation (Dotzel et al., 2013; Kuester et al., 2018; Agrawal et al., 2022).

Furthermore, with the exception of Logispeed, R&D dynamic capabilities proved essential for all the firms examined. We were unable to confirm the existence of these capabilities at Logispeed, despite reviewing their website and the participant responses. This finding supports Teece's (2010) argument that in service-based businesses, the value proposition often focuses on customer experiences or specific outcomes, while value creation and delivery depend significantly on human capital and specialized knowledge.

Although much of the existing literature emphasizes the critical role of R&D in driving innovation (Leiponen, 2012; Li et al., 2020), some studies argue that service industries exhibit lower levels of technological innovation compared to manufacturing industries (Evangelista, 2000; 2006; Trigo, 2013). This divergence highlights an interesting contrast with our findings, which suggest a more significant role of R&D dynamic capabilities in the service sector than previously assumed.

Furthermore, our results highlight the critical role of “cospecialization” dynamic capabilities in driving innovation within the service-based sector. In essence, outperforming competitors is not solely about the product or service itself but also about the interconnected services that add value. For example, factors such as delivery time (e.g., Logispeed and Graphica) and service quality (e.g., Audiovex) play a pivotal role in achieving competitive advantage.

Cospecialization dynamic capabilities often arise from collaborative efforts within service value networks, where stakeholders jointly create innovative service offerings that would be unattainable individually. This collaboration fosters customer engagement and enhances collaborative agility, both of which are essential for driving service innovation (Agarwal and Selen, 2009).

To summarize, ‘R&D’ is the most frequently deployed dynamic capability across our sample. More specifically, ‘strategic watch’ which includes monitoring technological advancements, market trends, laws, and regulations, plays a key role. To seize dynamic capabilities, firms rely on their ‘Business Model’, which encompasses value creation, key activities and resources, performance, technology, and value propositions. Additionally, transforming dynamic capabilities are rooted in ‘knowledge management’. Whether small or large, firms prioritize continuous learning and training, aiming to earn labels and certifications. On one hand, these efforts significantly contribute to the firm’s performance and success. On the other hand, they help foster trust-based relationships with stakeholders, including customers.

In terms of corporate governance mechanisms, both spontaneous (specific and non-specific) and intentional (non-specific) mechanisms contribute to the development of dynamic capabilities in our sample. Specifically, spontaneous mechanisms, whether specific or non-specific, often reflect the unique culture and leadership dynamics within the company. For example, decision-making culture, networks of personal relationships among managers, and the philosophy of venture capitalists and investors—whether “hands-on” or “hands-off”—play significant roles.

As for intentional non-specific mechanisms, these primarily involve laws and regulations that guide the organization’s overall behavior and operations. Similarly, firms consider the regulatory framework as a key factor in fostering sensing, seizing, and transforming dynamic capabilities. However, there is no evidence supporting the influence of intentional specific mechanisms in the development of sensing, seizing, and transforming dynamic capabilities.

The results show that spontaneous and specific mechanisms are primarily associated with small firms. For instance, companies like VisioAI, Marketra, and Audiovex tend to involve employees in decision-making, placing greater emphasis on competencies and expertise rather than hierarchical power. Consequently, these corporate mechanisms significantly contribute to the development of sensing, seizing, and transforming dynamic capabilities.

In contrast, large firms such as Hydralis and Genova, which operate within more formal and global governance structures, focus on promoting sensing and transforming dynamic capabilities. They achieve this by fostering an innovation mindset and values, as well as enhancing knowledge management, including the organization, creation, and sharing of knowledge. Accordingly, spontaneous and specific mechanisms contribute to the development of sensing, seizing, and transforming dynamic capabilities.

5. Conclusion and future research

This paper seeks to further contribute to the existing knowledge on dynamic capabilities by integrating insights from corporate governance research and dynamic capabilities theory. Specifically, we address the gap in understanding how corporate mechanisms contribute to the development of sensing, seizing, and transforming dynamic capabilities.

Our findings demonstrate that corporate governance mechanisms—both intentional and spontaneous, as well as specific and non-specific—play a significant role in developing dynamic capabilities. More specifically, we identify that laws and regulations, decision-making culture, managerial networks, and venture capital funding mechanisms all contribute to fostering sensing, seizing, and reconfiguring dynamic capabilities, which, in turn, drive innovation.

Furthermore, the sensing, seizing, and transforming dynamic capabilities deployed by service-based French firms contribute to innovation. Specifically, R&D, exogenous science and technology, customer-driven innovation, and targeted market segments enhance sensing capabilities, which lead to innovation. For seizing, key factors include business models, complementary and "control" platforms, decision-making protocols, and customer loyalty and commitment. In terms of transforming capabilities, co-specialization, decentralization and near decomposability, governance, and knowledge management play a crucial role in driving innovation.

Theoretically, we contribute to enriching the literature by integrating dynamic capabilities theory with other research streams, thereby deepening our understanding of its implications. In this regard, we draw on Writz's (2011) framework of corporate governance mechanisms.

While previous studies (e.g., Barbosa et al., 2019) have explored macro-level corporate governance mechanisms and their influence on the development of dynamic capabilities, our study shifts focus to examine the impact of micro-level corporate governance mechanisms on dynamic capabilities.

Given that dynamic capabilities and corporate governance are context-specific, we aim to contribute to the literature by providing an exploratory study set in the French context. Finally, we propose a qualitative approach that offers deeper insights into the development of dynamic capabilities.

This study offers valuable insights for practitioners and managers, particularly in the context of service firms looking to enhance their innovation capabilities. First, we emphasize the importance of fostering innovativeness within service firms, as it enables them to differentiate themselves from competitors and capitalize on technology-based innovation. Service firms that prioritize innovation are better positioned to maintain a competitive edge and adapt to rapidly changing market conditions.

Key corporate governance mechanisms play a significant role in driving the performance of these firms. For instance, venture capital funding, as described in Writz's (2011) model, provides essential financial support and strategic guidance, enabling firms to invest in new technologies and innovation initiatives. Additionally, mechanisms emerged in this study, such as Research Tax Credits and parent-subsidiary networks, provide both financial incentives and valuable resources that enhance firms' ability to innovate and scale their operations.

Moreover, the culture of decision-making within these firms is crucial. A culture that encourages strategic risk-taking, agility, and collaboration fosters an innovation-driven mindset. This, in turn, supports the development of dynamic capabilities—specifically in the areas of sensing, seizing, and transforming activities. Managers should focus on cultivating an learning and knowledge management that promotes these capabilities, as they are critical to identifying emerging trends, seizing new business opportunities, and reconfiguring the organization to meet evolving market demands.

In summary, managers should consider leveraging these governance mechanisms and cultivating an innovation-oriented decision-making culture to strengthen their firm's dynamic capabilities. This approach will not only enhance operational performance but also position the firm as a leader in innovation within its sector.

Although this study provides theoretical and managerial contributions, it also has some limitations. First, the study examines only a French sample, therefore, we recommend conducting similar studies in other contexts to further enrich the literature on dynamic capabilities and corporate governance particularly considering the unique contextual factors. In line with this, we suggest employing a mixed-methods approach to capture both qualitative and quantitative data, which could provide a more comprehensive understanding of the mechanisms at play.

Finally, this paper presents an exploratory study that examines the role of corporate governance in developing dynamic capabilities and how these capabilities contribute to innovation. We encourage future research to use comparative analysis to enrich the dynamic capabilities framework and the corporate governance research stream, allowing for a deeper understanding of the relationships between these concepts across different industries.

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