

Overcoming the Energy Crisis: Strategic Responses of Italian SMEs

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Abstract: Permacrisis is a term that captures the uncertainty of our era, marked by overlapping crises such as wars, pandemics, economic turmoil, and the looming threat of recession. In such volatile times, understanding how organizations adapt and thrive is critical, not just for survival but for future resilience. This study focuses on small and medium-sized enterprises (SMEs), investigating how they develop and leverage dynamic capabilities to effectively navigate crises. Using the energy crisis as a focal point, the research examines the strategic responses of twelve Italian SMEs through three critical phases of crisis management: pre-crisis preparation, in-crisis adaptation, and post-crisis recovery. Adopting a qualitative methodology, this research employs in-depth case studies to construct a comprehensive model that integrates process and variance analyses. By addressing the central research question—*how SMEs develop and use dynamic capabilities to gain competitive advantages in response to crises*—this study uncovers critical insights into organizational response. The findings reveal that SMEs implement tailored strategies for each crisis phase. In the pre-crisis phase, firms focus on risk anticipation, environmental scanning, and building resource flexibility. During the crisis, they engage in rapid reconfiguration, leveraging innovation and collaboration to mitigate disruptions. In the post-crisis phase, they consolidate lessons learned, embedding them into their operational frameworks to enhance long-term resilience. These efforts lead to the emergence of first-order dynamic capabilities, which, over time, evolve into second-order capabilities. This study highlights how these dynamic capabilities enable SMEs to navigate uncertainty, capitalize on emerging opportunities, even in adverse conditions. Furthermore, it provides actionable insights for practitioners seeking to enhance organizational resilience. By combining theoretical rigor with practical relevance, this research advances the understanding of crisis management strategies and the evolution of dynamic capabilities, contributing to academic discussions and providing a roadmap for fostering resilience in SMEs.

Keywords: Crisis Management, Dynamic Capabilities, Energy Crisis, Small and Medium Enterprises, Resilience

1. Introduction

In an era of constant uncertainty and overlapping crises, the term ‘Permacrisis’ describes an extended period of instability and insecurity, driven by a succession of catastrophic events (Collins Dictionary, 2022). From the COVID-19 pandemic to climate, economic, and geopolitical turmoil, the world has been grappling with global challenges that have severely strained economic, social, and political systems.

Small and medium-sized enterprises (SMEs) are particularly exposed to such crises due to their inherently limited financial and organizational resources.

Recent studies have shown that sustainable competitive advantage is rare and short-lived, especially in rapidly changing environments (Wiggins & Ruefli, 2002). Businesses should adopt strategies that explore temporary competitive advantages, which often require aggressive and innovative moves (D’Aveni et al., 2010).

The best strategy depends on the prevailing condition of resources and on the resources and capabilities of a company to adapt. Companies are beginning to understand that, to survive, they have to develop the dynamic capabilities of detecting crises, acting upon opportunities, and have to exploit their strategic reallocation of resources. These dynamic capabilities are the key in times of crisis for companies to see them through the difficulties and thereby transform these challenges into opportunities for growth (D. Teece et al., 2016; D. J. Teece et al., 1997). In this context, recent work by Sanasi and Ghezzi (Sanasi and Ghezzi, 2022) highlights how crises can act as inflection points that trigger strategic reorientations. They introduce the concept of the pivot—a deliberate, experimental shift in strategy aimed at responding to exogenous shocks under conditions of uncertainty. The pivot lens proves valuable for understanding how firms navigate disruption. Viewing crisis responses as sequences of reaction, experimentation, and learning allows us to interpret the strategic behaviour of SMEs not merely as a matter of survival, but as a potential pathway toward transformation.

While extant literature on dynamic capabilities and crisis management provides valuable insights, it often treats the development of these capabilities without accounting for the temporal evolution that crises impose (Khurana et al., 2022; Vasi et al., 2024; Teece et al., 1997). In particular, little attention has been paid to how SMEs activate and evolve capabilities across distinct crisis phases—pre-crisis, during the crisis, and post-crisis—especially in the context of sector-specific shocks like the energy crisis. This paper addresses this gap by asking: *How do SMEs develop and use dynamic capabilities to gain competitive advantages in response to crises?* By

examining this question through a temporal lens, we contribute to a more nuanced understanding of dynamic capability evolution in turbulent environments.

The paper is structured as follows: section 2 presents the literature review, examining key concepts in crisis management and dynamic capabilities; section 3 outlines the methodology, detailing the multiple case study approach; section 4 reports the findings, analysing firms' strategic responses across temporal phases and identifying emergent clusters; section 5 discusses the theoretical and managerial implications and section 6 concludes with a summary of insights and directions for future research.

2. Literature Review

2.1 Crisis Management

A crisis is defined as 'an unstable or crucial moment when a decisive change is imminent, especially with the distinct possibility of a highly undesirable outcome' (Williams et al., 2017). In an organizational context, crises are rare but critical events that stakeholders perceive as potentially devastating (Pearson & Clair, 1998). Effective crisis management involves the coordinated handling of complex technical and relational systems, strategic organizational design, and proactive efforts to shape stakeholder perceptions, ultimately aiming to prevent crises, mitigate their impact, and facilitate recovery (Bundy et al., 2017). As Williams highlights (Williams et al., 2017), the core goal of crisis management is to restore a disrupted or weakened system to its normal state, regardless of the crisis stage.

The literature on organizational crisis management typically differentiates strategic responses into three distinct phases: pre-crisis, crisis (during), and post-crisis (Coombs, 2007; Bundy et al., 2017; Herbane, 2019).

In the pre-crisis phase, it is crucial to focus on signal detection and preparation/prevention strategies (James & Wooten, 2010; Pearson & Mitroff, 1993; Waller et al., 2014). Additionally, fostering positive stakeholder relationships is vital in crisis prevention, as neglecting these relationships can increase the likelihood or severity of a crisis (Bundy et al., 2017). The "readiness model" emphasizes a multidimensional approach to preparedness, highlighting multilevel efficacy and mindset at the individual, team, and organizational levels (Jin et al., 2024).

In the crisis response phase, the focus shifts to containment and damage control (James & Wooten, 2010; Pearson & Mitroff, 1993; Waller et al., 2014). Organizations can adopt four strategic responses: retrenchment (short-term cost-cutting), persevering (maintaining the status quo), innovating (adapting business models), or exiting the market, depending on the crisis's impact (Wenzel et al., 2021).

Managers may take more risks during crises due to "loss framing," which can lead to organizational changes and the pursuit of opportunities (Foss & Saebi, 2017; Gooding et al., 1996; Shimizu, 2007).

In this phase, agility and rapid response capabilities have also gained prominence. Vrinda et al. (2024) analyse the role of decision-making agility in crisis management, showing how flexibility and swift responses enhance organizational resilience. They argue that integrating "crisis agility" into strategic processes can not only mitigate negative impacts but also support innovation and growth during adverse events.

In the post-crisis phase, the literature highlights two critical strategies: restoring business activities and organizational learning (Williams et al., 2017; Doern et al., 2019). The type and depth of lessons learned depend on various factors (Bundy et al., 2017). Recent literature emphasizes the importance of communication and resilience-building frameworks, suggesting that structured discourse and organizational reflection significantly enhance long-term recovery and future preparedness (Seeger et al., 2024).

2.2 Dynamic Capabilities

Ordinary capabilities facilitate the production and sale of a defined and therefore static set of products and services. These capabilities enable a firm to complete defined tasks with a certain level of competence, but do not necessarily support organizational growth (D. Teece et al., 2016).

In contrast, "dynamic capabilities" are defined as an organization's ability to "absorb, generate, and reorganize" internal and external competencies to successfully navigate a rapidly changing environment (Leonard-Barton, 1992). These capabilities are built on the organization's and management's abilities to understand and influence the environment, creating business models that exploit emerging threats and opportunities (D. Teece et al., 2016).

Helfat and Peteraf (Helfat & Peteraf, 2009) define dynamic capabilities as "an organization's ability to intentionally create, extend or modify its resource base." This view aligns with Danneels' (Danneels, 2002) call to integrate a dynamic perspective into the Resource-Based View (RBV) of the firm, which is essential to understand how firms evolve through the deployment and acquisition of resources, ensuring their survival through continuous renewal (Zahra et al., 2006).

In summary, dynamic capabilities are the engines that allow firms to not only keep pace with change, but to actively shape it for their success.

Teece et al. (D. J. Teece et al., 1997) organized dynamic capabilities into three clusters, forming the foundation of the literature. The first cluster, *sensing*, refers to identifying opportunities and threats early through cognitive and creative skills. *Seizing* involves mobilizing resources to create value via strategies like flexible sourcing and innovation. *Transforming* focuses on reorganizing the firm to stay competitive by encouraging adaptability and evolving business models (Khurana et al., 2022; Teece et al., 2016).

Recent theoretical advancements prompted a reconsideration of the traditional tripartite categorization of dynamic capabilities, suggesting a more nuanced perspective. Collis (Collis, 1994) introduced the concept of a capability hierarchy, proposing four levels of capabilities, with the fourth being 'meta-capabilities'—abilities to continuously renew capabilities, which can extend infinitely. Building on this, Danneels (Danneels, 2002, 2008) differentiated between first-order dynamic capabilities, which reconfigure existing resources, and second-order capabilities, which enable the creation of new first-order capabilities. This expanded view highlights the distinction between operational management (first-order) and strategic evolution (second-order) capabilities, offering organizations a dual focus on efficiency and long-term agility. This deeper understanding suggests the potential for exploring even higher-order dynamic capabilities to further enhance organizational renewal in a constantly changing business environment (Gupta et al., 2023).

More recently, Brock and Hitt (2024) proposed a distinction between meta dynamic capabilities, such as agility, building capability, and sensing, and strategic dynamic capabilities, such as ambidexterity, resource orchestration, and innovation, emphasizing the complexity and multidimensional nature of dynamic capabilities in multinational firms. In a complementary contribution, Brock et al. (2024) conducted a systematic review identifying twelve dynamic capabilities across international contexts, equally distributed between meta and strategic categories. These works enrich the dynamic capabilities framework with empirical examples and theoretical refinement, particularly in global and cross-border settings, and open the way to new research on capability interdependence and hierarchy (Brock & Hitt, 2024; Brock et al., 2024).

3. Methodology

The methodology adopted has been the inductive multiple case study (Eisenhardt, 1989; Eisenhardt & Graebner, 2007; Meredith, 1998), using a qualitative approach. The primary source of information was semi-structured interviews conducted with 12 Italian energy-intensive small and medium enterprises (SMEs). A total of 24 interviews were conducted, with two interviews per company, to ensure in-depth insights and enhance reliability. The interviewees selected for the study held senior positions such as owners, founders, or C-level executives, chosen specifically for their extensive knowledge (Meredith, 1998).

The multiple case study approach was chosen primarily due to its capability to generate robust findings through cross-case analysis, enabling comparisons across different cases. Such comparisons help identify if the observed phenomena are specific to individual cases or consistently emerge across various contexts, thereby increasing the external validity and generalizability of the study findings (Yin, 2018). Additionally, multiple case studies facilitate a deeper understanding of complex phenomena by examining them within their real-life contexts, thus providing rich and comprehensive data (Eisenhardt & Graebner, 2007).

The qualitative study incorporated secondary data sources, including academic articles, industry reports, and companies' official websites. The use of secondary sources enabled data triangulation, ensuring the reliability and validity of findings (Yin, 2018). By cross-verifying data from multiple sources, primary interviews, and secondary documentation, the study enhanced the robustness of its analytical conclusions and minimized potential biases.

4. Findings

Our study shows that firms responded differently to the crisis, and such differences depend on the development of new dynamic capabilities. Results highlight how the interconnections between the two dimensions, crisis response and dynamic capabilities, may be related. An integrative approach, combining insights from a temporal flow and a comparison between distinct clusters, generated the final model. Through this dual-method approach, it has been possible to realize a more finely understanding of the process of companies' adaptation to and innovation in crisis, putting front and centre how process- and outcome-oriented dynamics are interwoven.

Starting from the temporal flow, our framework examines how companies responded to the crisis chronologically, distinguishing three key phases: pre-crisis, during the crisis, and post-crisis. Each phase highlights the strategic choices made by companies and the corresponding capability developments.

In the pre-crisis phase, some firms demonstrated a preventive approach, anticipating potential impacts and proactively mitigating risks before the crisis fully unfolded. These organizations engaged in risk assessments, developed contingency plans, and implemented energy-efficient practices. A notable example is offered by A8, who reflected: *"In 2020, we realized that the cost per kilowatt-hour would quintuple in a short period. Therefore, we took action, informed ourselves, and tried to prevent it."* Companies with prior experience in navigating crises drew upon these lessons to enhance their preparedness. Others secured fixed energy contracts ahead of price surges, ensuring stable costs for up to two years. These initiatives not only improved their operational readiness but also laid the foundations for first-order dynamic capabilities such as Information Management, Alliance Management, and Risk Management. In contrast, other firms did not undertake any preventive actions, exposing themselves to greater vulnerability when the crisis hit. Some admitted to a lack of awareness regarding the escalating energy prices until the situation had already become critical. As A10 noted: *"The energy crisis was unpredictable and led to exorbitant costs for everyone."* These companies revealed significant gaps in their market monitoring and risk mitigation processes, making minimal efforts toward energy efficiency or strategic optimization. Consequently, they relied exclusively on their existing capabilities and missed opportunities to develop new ones.

As the crisis unfolded, companies adopted a variety of strategies to withstand the impact. A first group opted for retrenchment, focusing on immediate cost-reduction measures, including downsizing and suspending production during periods of high energy costs. A6 offered a clear illustration: *"In August 2022, we did not operate and moved production to September."* These strategies were primarily oriented toward survival rather than innovation, relying on established business-as-usual capabilities. Another group persevered through the crisis by maintaining core operations despite the difficult conditions. These companies adjusted prices, negotiated fixed-price energy contracts, or switched suppliers. Heightened vigilance over energy costs and external markets was common. As A2 explained: *"We paid what we had to pay, recalculated the impact on product costs, and redefined price increases based on the rising energy component."* While such firms avoided drastic measures, they did not engage in capability-building; instead, they drew upon existing resources to weather the storm. A smaller but distinct group embraced innovation, treating the crisis as an opportunity to develop new products, services, or processes. Through the adoption of new technologies and operational optimizations, they achieved notable performance improvements. A11 described their experience: *"We created an information Box Office for idea generation. Every week, we analysed these ideas and implemented small changes, ultimately fostering responsibility across the team."* These innovation-driven responses led to the development of first-order dynamic capabilities such as Resilience, Adaptive Leadership, Organizational Learning, and Process Innovation.

In the post-crisis phase, many firms concentrated on restoring business activities and returning to pre-crisis norms. As A2 succinctly expressed: *"After the crisis, we tried to put things back in their place."* These restoration strategies reflected a widespread focus on stability and continuity, primarily drawing on already-established capabilities to enable a smooth return to normal operations. However, some companies went further, using the crisis as a valuable learning opportunity. They embedded the lessons learned into their long-term strategies, thereby enhancing resilience and adaptability. For instance, energy monitoring routines introduced during the crisis were maintained and expanded. A12 highlighted the benefits: *"Thanks to our energy monitoring system, we can now identify waste and anomalies as they emerge."* These companies pursued lasting improvements in efficiency, refined production processes, and embraced digital innovations. Through this reflective and forward-looking approach, they developed second-order dynamic capabilities, including Inventive, Absorptive, Innovative, and Transformative capacities. Notably, firms that had developed first-order capabilities during earlier phases were better equipped to evolve toward second-order capabilities. Within this group, two subcategories became evident. Innovation-driven firms leveraged the crisis to drive continuous improvement

and growth, while transformation-driven firms fundamentally redefined their strategies and operations based on insights gained through the crisis experience.

Instead, cross-case analysis revealed three clusters of companies based on their responses and dynamic capabilities.

Table 1: Classification of firms based on their reaction to the crisis

Group	Companies	Initial Approach	Crisis Perception	Dynamic Capabilities	Outcome
Group 1 (Reactive)	A2, A5, A10, A12	Adopted reduction and perseverance strategies	Viewed crisis as a threat	Did not develop new dynamic capabilities	Focused on returning to normality; missed the opportunity to innovate
Group 2 (Adaptive)	A1, A3, A6, A7	Not well prepared but seized the crisis as an opportunity; adopted innovative strategies	Viewed the crisis as an opportunity	Developed first- and second-order dynamic capabilities	Became more agile and resilient in the long run
Group 3 (Proactive)	A4, A8, A9, A11	Excelled through prevention strategies and innovation	Recognized and leveraged the crisis	Strengthened both first- and second-order capabilities	Gained greater capacity for adaptation and transformation

After the crisis, firms that have succeeded in learning and developing second-order capabilities will leverage these to enhance their preparedness and strengthen their ability to prevent future crises.

By synthesizing the two perspectives and integrating both the temporal flow and the comparison between clusters, we created the final, complete, and robust model.

5. Discussions

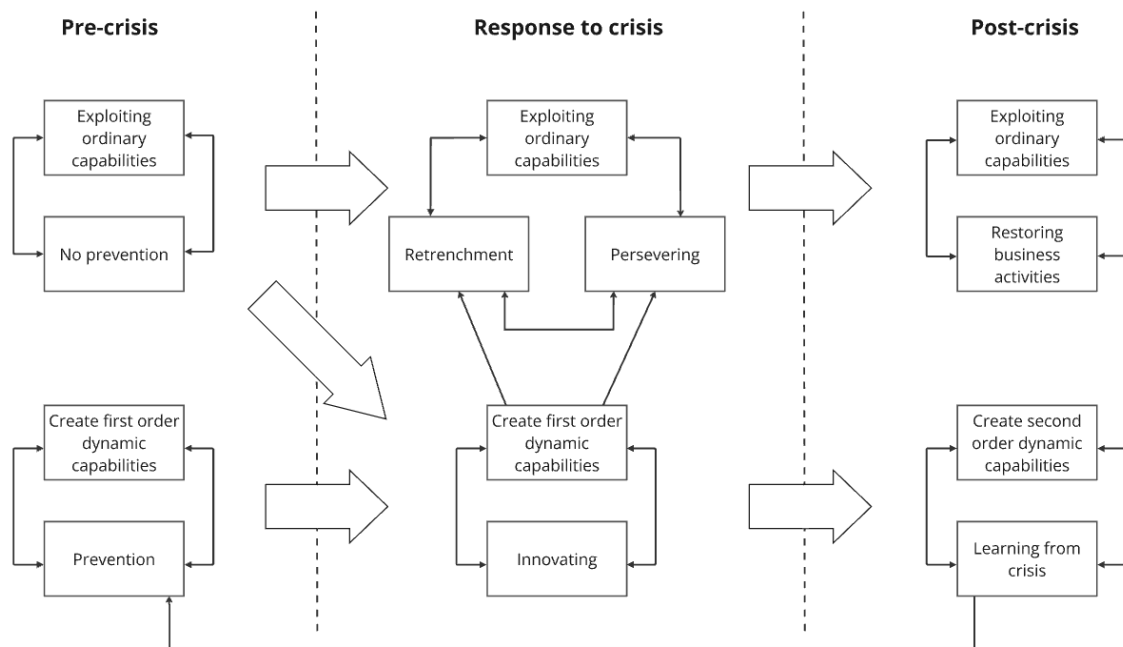


Figure 1: Conceptual framework

By examining the behaviour of SMEs during an energy crisis, this study sheds light on the dynamic capabilities needed to progress and overcome an exogenous crisis. Through the analysis of case studies, our research provides an in-depth understanding of the mechanisms that enable companies to transform crises into opportunities for innovation and subsequent growth. Figure 1 illustrates the final conceptual model developed from the empirical evidence.

While recent studies have advanced our understanding of dynamic capabilities in crisis contexts, they tend to present capability development as an undifferentiated process (Khurana et al., 2022; Vasi et al., 2024). What remains underexplored is how these capabilities unfold and transform across time. Our study addresses this gap by introducing a temporal perspective, segmenting the crisis response into three distinct phases: pre-crisis, in-crisis, and post-crisis (Teece et al., 1997; Danneels, 2008).

Through this lens, we show that SMEs activate different types of capabilities depending on the phase. In the pre-crisis phase, first-order sensing capabilities are essential for threat identification; during the crisis, first-order seizing capabilities support quick responses; and in the post-crisis phase, transforming and second-order capabilities aid in organizational reorganization and resilience improvement.

5.1 Contribution to Crisis Management

When adversity arises, astute administrators remain alert to hidden opportunities. Despite the ambiguity and potential threat posed by sudden changes, scholars argue that organizations should treat them as chances for experimentation and strategic redefinition (Haveman, 1992; Meyer et al., 1990). Our research aligns with this literature, distinguishing between companies that successfully prevented the crisis and those that did not. Companies that avoided the crisis were proactively prepared, enabling them to cope with changes and align with innovative trends, seizing emerging opportunities. In contrast, unprepared companies struggled with unexpected challenges. However, our findings show that a lack of preparation does not always prevent effective crisis navigation. Some companies, despite initial disadvantages, demonstrated adaptability and resilience, innovating and thriving through agile, proactive approaches.

Wenzel, Stanske, and Lieberman (Wenzel et al., 2021) outline four crisis response strategies: retrenchment, persevering, innovating, and exit. Our research shows that firms often combine strategies rather than relying on one—retrenchment, persevering, and innovation—while ‘exit’ is the only strategy that excludes others. Companies perceiving crises as threats typically use retrenchment and perseverance to cut costs and sustain operations. Conversely, firms viewing crises as opportunities may innovate while also retrenching and persevering to adapt. This multifaceted approach illustrates how blending strategies enhances resilience and responsiveness in uncertain environments.

When evaluating companies that viewed the crisis as an opportunity, our findings align with existing literature, showing that this perspective enhances strategic action, performance, and adaptability. Resourcefulness is crucial in crises, as Welter, Xheneti, and Smallbone (Welter et al., 2018) highlight in entrepreneurial activities. Firms using ambidextrous strategies—leveraging strengths while exploring new opportunities—respond more effectively. By recognizing and capitalizing on opportunities, companies can turn crises into advantages rather than mere threats (Wan & Yiu, 2009). Additionally, our research supports the link between perceiving crises as threats and rigid strategic responses. Decision-makers under pressure may experience “threat rigidity,” adhering to existing practices (Osiyevskyy & Dewald, 2018). This cognitive barrier hinders exploration, risking competitive loss from reluctance to adapt and consider alternatives.

5.2 Contributions to Dynamic Capabilities

Teece and Pisano (D. Teece & Pisano, 1994) and Teece et al. (D. J. Teece et al., 1997) identify three core elements of dynamic capabilities: coordination/integration, learning, and reconfiguring. Firms use sensing, seizing, and transforming mechanisms to manage resources and adapt to market demands. These first-order dynamic capabilities are vital for competitiveness in evolving business environments. Our research supports this framework but adds insights into their development stages. Sensing capabilities, identifying and assessing opportunities and threats, usually develop before a crisis, helping firms anticipate challenges and gain a strategic edge. Seizing and transforming capabilities are primarily activated during the crisis. Seizing focuses on leveraging opportunities through innovation, while transforming involves reconfiguring the organization to maintain resilience and performance. This temporal distinction underscores the importance of a phased approach to dynamic capability management. By developing sensing, seizing, and transforming capabilities at appropriate stages, firms enhance adaptability and crisis preparedness.

Second-order dynamic capabilities, or “meta capabilities,” enhance first-order capabilities by improving a firm’s ability to “learn to learn” (Schilke, 2014). These capabilities affect performance through their influence on first-order capabilities (Khurana et al., 2022; Williams et al., 2017) and align with knowledge management frameworks, encompassing inventive, absorptive, and transformative capacities (Lichtenthaler & Lichtenthale, 2009). Our findings show that these capabilities primarily evolve during the post-crisis phase, suggesting their

development follows first-order capabilities. This challenges the view that second-order capabilities are prerequisites for first-order capability building. While literature suggests second-order capabilities drive adaptability (Danneels, 2008; Schilke, 2014; Winter, 2003), our research indicates the reverse: first-order capabilities are prioritized in crises, with second-order capabilities emerging later as firms refine their adaptive strategies.

6. Conclusions

This research examines the impact of the energy crisis on Italian energy-intensive small and medium enterprises, focusing on how they developed and implemented dynamic capabilities to address challenges. Through an inductive multiple case study, the research analysed three critical phases of crisis management: before, during and after the crisis. In the pre-crisis period, proactive preparation, including resource optimization and risk mitigation, is crucial. During the crisis, rapid and flexible responses enable firms to restructure operations and exploit new opportunities. In the post-crisis phase, companies consolidate changes and leverage lessons learned to develop second-order dynamic capabilities, enhancing long-term resilience.

The findings underscore that SMEs that were able to develop dynamic capabilities were capable to turn crises into growth and innovation opportunities. Therefore, integrating dynamic capabilities into SME operations is essential for strategic crisis management, enabling firms to adapt quickly, learn from experiences and transform crises into opportunities for long-term success.

We acknowledge the limitations of our work, which open promising avenues for future research. First, the study's temporal scope may not fully capture the evolving nature of dynamic capabilities. Moreover, it focus on SMEs and it excludes insights from larger enterprises. Additionally, the inductive research approach using multiple case studies may introduce bias due to subjective interpretations by both interviewers and interviewees, potentially distorting results. The reliance on a small sample size of twelve Italian SMEs further limits generalizability, particularly as the energy crisis is influenced by country-specific policies. Despite these limitations, the research can serve as a starting point for further exploration of dynamic capabilities in crisis management, especially across different contexts and over extended periods.

Ethical and AI Declaration

No ethical clearance was required.

AI tools were used for copy editing and proofreading

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