



Absorptive Capacity as a Catalyst for Resilience in SMEs: A Literature Analysis

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Abstract: *Small and medium-sized enterprises (SMEs) are vital for economic development but are particularly vulnerable to disruptions due to limited resources. The concept of absorptive capacity (AC), which refers to a firm's ability to acquire, assimilate, transform, and exploit external knowledge, has emerged as a key mechanism for enhancing resilience in SMEs. While core dimensions of AC are well-researched, additional aspects such as breadth and depth of knowledge search, organisational learning, desorptive capacity, and connective capacity warrant further exploration. This study addresses two main questions: (a) What are the key dimensions of theoretical models of AC? (b) How does AC act as a catalyst for resilience in SMEs? A comprehensive literature analysis was conducted, synthesising empirical and theoretical insights on AC and resilience from peer-reviewed articles published between 1990 and 2024 across various databases. The analysis identifies critical dimensions of AC, including its cumulative nature, strategic alignment with environmental dynamism, and role in ecosystem integration. These factors collectively underpin resilience, enabling SMEs to adapt and recover from disruptions while fostering proactive strategies through collaborative innovation. This study contributes to the literature by highlighting how AC extends beyond internal capabilities to leverage external adaptability and ecosystem partnerships. The findings underscore the necessity for SMEs to adopt dynamic knowledge processes and collaborative frameworks to thrive in volatile environments, providing a foundation for future empirical studies on resilience-building strategies in SMEs.*

Keywords: *Resilience, Adaptability, Knowledge Acquisition, Dynamic Capabilities, Small Enterprises*

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1. Introduction

Organisations today operate in increasingly volatile and uncertain environments, where the ability to adapt and recover from disruptions is critical for survival and sustained performance. Small and medium enterprises (SMEs), in particular, face unique challenges due to their limited resources, smaller operational scales, and vulnerability to external shocks. These challenges were

starkly highlighted during the COVID-19 pandemic, which disproportionately affected SMEs globally, forcing many to adapt to new realities or cease operations altogether (Krzysztof, 2024). In such contexts, resilience is the ability to adapt, recover, and thrive in the face of adversity becomes a vital attribute for SMEs. Absorptive capacity (AC), defined as an organisation's ability to acquire, assimilate, transform, and exploit knowledge, has emerged as a critical enabler of resilience. First conceptualised by Cohen and Levinthal (1990), AC has evolved into a

multidimensional construct that underpins organisational learning, innovation, and adaptability. Zahra and George (2002) expanded on this framework, introducing the concepts of potential absorptive capacity (knowledge acquisition and assimilation) and realised absorptive capacity (knowledge transformation and exploitation). These dimensions collectively enable organisations to leverage external knowledge for competitive advantage and resilience.

1.2 Purpose

The purpose of this paper is to address the gap in understanding how absorptive capacity contributes to resilience in SMEs, particularly in resource-constrained

2. Literature

2.1 Absorptive capacity

Absorptive capacity (ACAP) is a foundational concept in management literature, introduced by Cohen and Levinthal (1990). It is defined as a firm's ability to recognise the value of new external knowledge, assimilate it, and apply it to commercial ends (Cohen & Levinthal, 1990). This definition emphasises the critical role of external knowledge as a resource for innovation and competitive advantage. Over time, ACAP has evolved into a multidimensional construct, encompassing four key dimensions: knowledge acquisition, assimilation, transformation, and exploitation (Zahra & George, 2002). Knowledge acquisition involves identifying and obtaining relevant external knowledge from various sources, which is essential for maintaining competitiveness. Once knowledge is acquired, assimilation occurs, where the organisation integrates and interprets this new information within its existing framework, ensuring it is understood and contextualised. Following assimilation, transformation allows the organisation to adapt and modify the acquired knowledge into new applications or processes that align with its objectives. Finally, exploitation refers to the practical application of this transformed knowledge to achieve tangible outcomes, such as improved performance or innovation.

These dimensions collectively enable firms to integrate external knowledge into their innovation processes, enhancing organisational performance and competitiveness.

Zahra and George (2002) further refined the concept by categorising ACAP into two strands: potential absorptive capacity (knowledge acquisition and assimilation) and realised absorptive capacity (knowledge

transformation and exploitation). While the concept of AC has been extensively studied in larger organisations, its application in SMEs, especially in developing economies, remains underexplored. This paper aims to analyse existing literature on AC and its role as a catalyst for resilience, with a focus on SMEs. By examining theoretical foundations, empirical evidence, and practical implications, this study seeks to provide insights into how SMEs can leverage AC to navigate uncertainties and achieve sustainable growth. The article seeks to answer two key questions:

- a. What are the key dimensions of the theoretical models of AC ?
- b. How does AC conceptually act as a catalyst for resilience in SMEs?

transformation and exploitation). Potential capacity reflects a firm's ability to acquire and understand knowledge, while realised capacity focuses on applying this knowledge to achieve tangible outcomes. This distinction underscores the dynamic nature of ACAP, where firms must transition from acquiring knowledge to leveraging it effectively. The process begins with knowledge acquisition, which initiates firm-level learning by organising and assessing new knowledge to update the existing knowledge base (Lichtenthaler, 2009). Assimilation involves routines and processes that analyse, interpret, and understand the acquired knowledge (Kim, 1998). However, the context-specific nature of knowledge acquisition means that firms may overlook ideas that do not align with their immediate needs (Leonard-Barton, 1995, as cited in Zahra & George, 2002). This is particularly relevant for SMEs, which often face resource constraints and lack formalised knowledge management systems. Knowledge transformation involves linking internal knowledge with external innovations, integrating technologies to create new frameworks when existing ones are insufficient (Todorova & Durisin, 2007). Finally, knowledge exploitation refers to applying assimilated and transformed knowledge to develop new products, processes, or strategies that drive innovation and performance (Lane et al., 2006; Camisón & Forés, 2010). Exploitation allows firms to extend their competencies, but challenges such as structural barriers and cognitive misalignments can hinder its effectiveness, especially in SMEs (Pérez Sánchez & Toro-Jaramillo, 2018).

While the theoretical framework of ACAP is well-established, its practical application in SMEs remains underexplored. Significant gaps remain in understanding its specific mechanisms, particularly in the context of SMEs. For instance, the role of learning capability in the relationship between ACAP and innovation has received limited attention. Additionally, while ACAP is known to enhance resilience, the precise ways in which it influences

resilience in SMEs are not well understood (Mohammed et al., 2021). Addressing these gaps could provide valuable insights into how SMEs can optimize their absorptive capacity to enhance competitiveness and innovation outcomes.

Much of the existing research focuses on larger firms, leaving SMEs underrepresented despite their unique challenges, such as limited resources and structural constraints. SMEs often struggle with the lack of formalised systems for knowledge management, which can impede their ability to fully leverage ACAP. Moreover, the relationship between ACAP and innovation is not automatic; it requires deliberate alignment of knowledge processes with organisational goals (Zahra & George, 2002, as cited in Cuervo-Cazurra & Rui, 2017). Despite these challenges, ACAP offers significant opportunities for SMEs. It enables them to discover new business opportunities, enhance competitive positioning, and build brand reputation (Filipe & Moutinho, 2016). Furthermore, ACAP enhances resilience by fostering strategic agility and innovation, allowing firms to anticipate market shifts and respond proactively. This is particularly critical in dynamic environments, where planned and realised absorptive capacities help firms adapt and thrive (Anatoliivna, 2013).

2.2 Resilience

The term resilience originates from the Latin word *resilire*, meaning "to jump back" (Xiao & Cao, 2017). Holling (1973) introduced resilience as a concept that determines the persistence of relationships within a system, highlighting its role in absorbing changes in variables. Over time, resilience has been defined in various ways. For instance, Kanyangale and Njoloma (2020) describe it as a strategic asset for preventing disruptions, while Hadi (2020) defines it in business as a firm's ability to respond to threats such as natural threats.

Despite differences in definitions (Burnard & Bhamra, 2011; Duchek, 2020), resilience consistently refers to an organisation's capacity to recover and improve after disruptions. In the context of Small and Medium Enterprises (SMEs), resilience is defined as their ability to withstand and adapt to external shocks (Heeks & Spina, 2019; Nan & Park, 2022). This capability is particularly critical for SMEs, which often face financial constraints, limited market access, and inadequate infrastructure, especially in developing economies (Khan et al., 2020).

Duchek (2020) provides a widely accepted definition, describing resilience as the ability to anticipate threats, cope with unexpected events, and learn from them to foster

dynamic capabilities that drive organisational change. However, Tennakoon and Janadari (2021) argue that existing definitions often lack clarity in terms of interpretation and measurement.

Rutter (2015) offers a unique perspective, arguing that it is the environment, rather than the individual, that triggers reactions to disruptions. This view expands the understanding of resilience beyond the interaction of experiences and outcomes, emphasising the proactive strategies individuals and organisations implement to prepare for potential disruptions. McManus et al. (2007) further stress the importance of situational awareness, which involves understanding the operating environment, identifying potential crises, and recognising resource availability to effectively navigate challenges.

Indicators of situational awareness include roles and responsibilities, hazard awareness, connectivity, insurance preparedness, and recovery priorities. McManus et al. (2007) also highlight the need for organisations to manage vulnerabilities, such as critical supplies, communication systems, and key personnel, while maintaining commitments to stakeholders.

Resilience, as a multifaceted construct, encompasses several critical dimensions. Adaptive capacity reflects an organisation's ability to respond to and recover from disruptions, emphasising flexibility and resource reconfiguration (Duchek, 2020). Situational awareness involves comprehending risks and opportunities within the operating environment, requiring continuous monitoring and sense-making (McManus et al., 2007). Planning and preparedness focus on proactive efforts like scenario planning and risk assessment to mitigate potential disruptions (Burnard & Bhamra, 2011). Finally, learning and adaptation underscore the importance of drawing lessons from past experiences to improve resilience practices (Annarelli & Nonino, 2016). Collectively, these dimensions highlight the need for a holistic approach to building organisational resilience, particularly for SMEs operating in dynamic and challenging environments.

3. Methodology

This conceptual paper recognises the important critiques and perspectives found in the literature regarding the dimensions and frameworks of absorptive capacity, particularly in the contexts of both developed and developing nations, as discussed in various journal articles and research studies.

3.1 Literature search and article selection

This article adopts a systematic literature review approach to synthesise existing knowledge on absorptive capacity and its role in fostering resilience in SMEs. A systematic review is particularly suited for this research as it allows for a comprehensive and structured analysis of the literature, ensuring that key themes and gaps are identified (vom Brocke et al., 2009). The review draws on peer-reviewed journal articles, books, and conference proceedings published between 1990 and 2024. Databases such as Scopus, Emerald Insight, and ScienceDirect were used to identify relevant studies. Keywords such as "absorptive capacity," "resilience," "SMEs," "knowledge management," "capability" and "process" were employed to ensure a broad yet focused search.

3.1.1 Inclusion and Exclusion Criteria

Journal articles were included if they:

- ◆ Examined absorptive capacity in the context of SMEs.
- ◆ Explored the relationship between AC and resilience.
- ◆ Provided empirical or theoretical insights into AC dimensions.

3.2 Dimensional Analysis

To explore the similarities and distinctions in the essential aspects of existing academic literature on absorptive capacity, the following steps were undertaken:

- a) Any identified models or frameworks related to resilience were categorized as capability based and process based models of absorptive capacity.
- b) A continuous comparison of each identified dimension with those in all generic capability based models was conducted to synthesise and categorize similar dimensions, ensuring there were no overlaps. This ongoing comparison and classification were crucial to prevent redundancy and to guarantee that no dimension was assigned to more than one category.
- c) This comparative analysis also facilitated the identification of every characteristic or subtlety associated with the dimensions of absorptive capacity.
- d) The researcher applied the "mutually exclusive and collectively exhaustive" (MECE) principle to evaluate the foundational dimensions across all

generic absorptive models, aiming for a comprehensive, inclusive classification without overlaps or repetitions.

- e) The dimensions deemed relevant and necessary for enhancing the resilience of SMEs have been discussed.

Based on the aforementioned steps, the dimensions of absorptive capacity are derived from comparison techniques and the application of the MECE principle. The analysis of existing literature contributes to the dimensions that form the discussion on absorptive capacity as a catalyst for resilience in SMEs. Dimensions were identified from two categories of models: Process and Capability-based from models developed between 1990 and 2010.

- i) Capability-based models. Five capability-based models are: Cohen and Levinthal (1990) introduced a foundational model emphasising identification, assimilation, and exploitation of knowledge, focusing on both individual and organisational levels. Kogut and Zander (1992) highlighted combinative capabilities, emphasising the inseparability of a firm's knowledge base from its organisational structure. Zahra and George (2002) categorized absorptive capacity into potential and realised components, focusing on acquisition, assimilation, transformation, and exploitation. Todorova and Durisin (2007) added the recognition of knowledge as a critical step before acquisition, while Volberda, Foss, and Lyles (2010) emphasised the role of organisational, managerial, and environmental factors in linking individual capabilities to organisational capabilities.
- ii) Process-based models. Three process-based models are: Lane et al. (2006) proposed a process-based model focusing on exploratory, transformative, and exploitative learning to explain inter-firm knowledge flows. Lichtenthaler (2009) introduced a process-oriented framework with inventive, absorptive, transformative, connective, innovative, and desorptive capacities. Van Wijk et al. (2001) emphasised the depth and breadth of knowledge flows, while Van den Bosch et al. (1999) combined both process and capability perspectives, focusing on efficiency, scope, and flexibility in organisational forms.

4. Results and Discussion

The findings of this review are presented in three distinct formats. First, it was revealed that the evolution of absorptive capacity showcases a range of emerging interests and significant milestones related to organisational dynamics, beginning with a focus on capability development in acquiring, assimilating, and utilizing knowledge during the early 1990s. These foundational models underscored the crucial role of knowledge in effective organisational management. The second significant milestone in the evolution of absorptive capacity emphasised changes in the process of knowledge acquisition and introduced the idea that recognising knowledge is a critical step preceding its acquisition, which played a pivotal role in shaping the concept of absorptive capacity. The third milestone marks a shift from focusing solely on knowledge recognition, acquisition, assimilation, and exploration to emphasizing the development of knowledge both within an organisation and across its

external networks. This transition represented a major advancement in the conceptualisation of absorptive capacity. Finally, another important milestone highlights a range of emerging viewpoints. In contrast, the process and capability perspectives maintain that absorptive capacity is dynamic, emphasising the necessity of developing both intra- and inter-organisational knowledge to sustain competitive advantage.

4.1 Issues in frameworks and models shaping the understanding of absorptive capacity

At the onset, it is important to shed light on how various existing models and frameworks contribute to our understanding of the nature of absorptive capacity. Table 1 illustrates the contributions made by these different models to the study of absorptive capacity.

Table 1 **Models and their contribution to the development of absorptive capacity**

Model	Dimensions	Contribution	Categorisation
Cohen and Levinthal (1990)	Identification, Assimilation, and Exploitation	Foundational contribution, highlighting the need to discuss absorptive capacity at two levels: individual and organisational	Capability-based
Kogut and Zander(1992)	System, coordination and socialisation	Combinative capabilities (A firm's knowledge base cannot be separated from how it is organised)	Capability-based
Van den Bosch et al. (1999)	Efficiency, scope and flexibility	Organisational forms and Combinative capabilities	Capability and process-based
Zahra and George (2002)	Acquisition, assimilation, transformation, and exploitation; organised into two components.	Potential and realised AC	Capability-based
Van Wijk et al.(2001)	Depth and breadth of Knowledge	Developed the concept of knowledge flows	Process-based
Lane, Koka, and Pathak (2006)	Exploratory learning (acquisition of external knowledge), transformative learning (assimilation and adaptation of knowledge), and exploitative learning (application of knowledge to achieve organisational outcomes).	Developed the idea that inter-firm learning is relative to the characteristics of firms in the network (relative absorptive capacity)	Process-based
Todorova and Durisin (2007)	Recognition of the value of knowledge, acquisition; transformation or assimilation; and exploitation.	Introduced the notion that recognition of knowledge is a key step prior to knowledge recognition	Capability-based
Lichtenthaler's (2009)	Inventive, absorptive, transformative, connective, innovative, and desorptive capacity.		Process-based
Volberda, Foss, and Lyles(2010)	Organisational, managerial, and environmental factors	Amplified the concept of organisational forms (functional, divisional, and matrix forms) on knowledge integration and, argued that organisational capabilities are not resident in any single individual but depends on the links across a mosaic of individual capabilities.	Capability-based

4.1.2 Dimensions of Absorptive Capacity

The results reveal various themes that highlight the commonly recognised dimensions that constitute absorptive capacity, as identified in existing scholarly literature.

4.1.2.1 Constitutive dimensions of absorptive capacity in capability-based models/frameworks

Fifteen dimensions of absorptive capacity identified as commonly shared in capability-based frameworks/models are; identification; assimilation; exploitation, system; coordination; socialisation; acquisition; transformation; exploitation; recognition; acquisition; exploitation; organisational, managerial, and environmental factors.

a) Identification, Assimilation, and Exploitation (Cohen and Levinthal, 1990)

At the heart of organisational success lies the ability to identify valuable external knowledge. Once recognised, the next step is assimilation, where this knowledge is integrated into the firm's existing framework. Finally, exploitation comes into play, allowing organisations to apply this knowledge strategically. For SMEs, mastering these processes is vital for resilience, enabling them to swiftly adapt to market changes and seize new opportunities that arise. By fostering these capabilities, SMEs can build resilience by staying agile and responsive to external shocks, ensuring their survival and growth.

b) System, Coordination, and Socialisation (Kogut and Zander, 1992)

Effective knowledge management hinges on robust systems that facilitate the flow of information. Coordination among teams ensures that efforts are aligned, while socialization fosters informal knowledge sharing through interpersonal connections. Together, these elements create a dynamic environment where collaboration thrives. For SMEs, nurturing these capacities is essential, as they enhance innovation and enable a cohesive response to challenges, ultimately bolstering organisational resilience.

c) Acquisition, Assimilation, Transformation, and Exploitation (Zahra and George, 2002)

The journey of knowledge begins with acquisition, where external insights are sought after. Following this, assimilation allows firms to understand and integrate this knowledge into their operations. Transformation then adapts this knowledge for new applications, while exploitation ensures that it is put to practical use. For SMEs, these interconnected processes are

crucial for resilience, as they promote continuous learning and innovation, empowering firms to navigate ever-changing landscapes.

d) Recognition of the Value of Knowledge, Acquisition, Transformation, or Assimilation, and Exploitation (Todorova and Durisin, 2007)

Recognising the value of external knowledge is the first step in a strategic journey. Once its importance is acknowledged, firms can proceed to acquire, transform, or assimilate this knowledge into their operations. The ability to recognise the value of new knowledge is a critical yet subjective component of absorptive capacity (AC). Its assessment is not automatic and requires overcoming biases to enable effective absorption. Knowledge often oscillates between assimilation and transformation processes before being fully integrated into organisational structures, highlighting the complexity of incorporating external knowledge (Todorova & Durisin, 2007). Finally, the exploitation of this knowledge allows organisations to achieve their strategic objectives. For SMEs, this thoughtful approach ensures that resources are allocated effectively, enabling them to adapt and thrive in uncertain environments.

e) Organisational, Managerial, and Environmental Factors (Volberda, Foss, and Lyles, 2010)

The interplay of organisational structures, managerial practices, and environmental influences shapes a firm's absorptive capacity. A flexible organisational structure fosters innovation, while effective managerial practices guide decision-making. Additionally, external factors such as market conditions and regulatory frameworks play a significant role. For SMEs, understanding and leveraging these factors is essential for building resilience, as they enhance the ability to integrate knowledge and respond to external pressures with agility.

4.1.2 Constitutive dimensions of absorptive capacity in process-based models/frameworks

Eleven process-based dimensions consist of; depth of knowledge; breadth of knowledge; exploratory learning; transformative learning; exploitative learning; inventive capacity; absorptive capacity; transformative capacity; connective capacity; innovative capacity; and desorptive capacity.

These dimensions are briefly discussed below.

a) **Depth and Breadth of Knowledge (Van Wijk et al., 2001)**

A rich tapestry of knowledge is created through both depth and breadth. Depth represents expertise in specific areas, while breadth encompasses a diverse range of knowledge across various domains. For SMEs, nurturing both dimensions is essential for resilience, as it equips them to address complex challenges with a wealth of insights. This diversity enhances their capacity to innovate and adapt, improving their ability to recover from disruptions. The depth aspect of absorptive capacity facilitates the assimilation of additional knowledge within established domains, bolstered by specialisation that promotes efficiency through rationalisation and routinisation. In contrast, the breadth dimension allows for the acquisition of knowledge in related but distinct areas, broadening the scope of knowledge absorption and fostering exploration, which is vital for innovation and adaptability.

b) **Exploratory, Transformative, and Exploitative Learning (Lane et al. 2006)**

Engaging in exploratory learning opens the door to new knowledge, while transformative learning adapts existing insights for innovative applications. Exploitative learning focuses on applying this knowledge to achieve organisational goals. Forés and Camisón (2008, 2014) emphasise that transformation enhances internal routines to integrate new and existing knowledge, while exploitation pertains to effectively applying this knowledge within organisational processes. The exploration of knowledge involves identifying and acquiring external insights through environmental scanning, positively influenced by dynamic changes in markets and technology, which enhance adaptability (Lichtenthaler, 2016b). Retention is crucial for maintaining and reactivating knowledge over time, ensuring its availability for future use. Ultimately, exploitation transforms retained knowledge into new products and services, with a proactive organisational orientation driving these processes and fostering innovation, which is vital for SMEs to build resilience and adapt confidently to evolving circumstances.

a) **Inventive, Absorptive, Transformative, Connective, Innovative, and Desorptive Capacity (Lichtenthaler, 2009)**

Inventive capacity empowers organisations to

create new knowledge, while transformative capacity adapts knowledge for new contexts. Connective capacity links knowledge across diverse areas. Innovative capacity applies knowledge creatively, while desorptive capacity facilitates the transfer of knowledge beyond the organisation. These interconnected capacities are essential for resilience, as they foster the creation of new ideas, integration of external insights, and the shedding of outdated practices. This adaptability ensures that SMEs remain competitive and adept at navigating uncertain environments.

The new dimensions of connective capacity and desorptive capacity stand out as advancements in understanding how organisations, particularly SMEs, can promote knowledge through inter-organisational networks. These dimensions emphasise the importance of collaboration, knowledge sharing, and external engagement, allowing firms to thrive in dynamic and interconnected environments. By incorporating these capacities, organisations can not only build resilience but also actively contribute to and benefit from.

4.2 Absorptive Capacity as a Catalyst for Resilience

Absorptive capacity, as a dynamic and multifaceted construct, serves as a critical catalyst for resilience in small and medium-sized enterprises (SMEs). It provides the mechanisms through which SMEs can acquire, assimilate, transform, and exploit external knowledge to adapt to disruptions and sustain performance. While its core dimensions are well-documented, additional aspects of absorptive capacity extend its relevance to resilience, particularly in addressing challenges that require external adaptability, strategic foresight, and collaborative innovation (MuhammadSalim et al., 2024)

4.2.1 Breadth and Depth of Knowledge Search

One significant mechanism through which absorptive capacity fosters resilience is the breadth and depth of external knowledge search. SMEs that actively engage in diverse and open knowledge search strategies are better positioned to identify emerging opportunities and threats in their environment. This openness allows firms to tap into a wide array of external knowledge sources, such as industry networks, academic collaborations, and market intelligence. As highlighted by Khin Khin Oo and Rakthin (2022), this proactive approach enables SMEs to anticipate disruptions and adapt their strategies effectively, contrasting with traditional capability-based models that focus primarily on internal resource optimisation.

4.2.2 Organisational Learning as a Mediator

Absorptive capacity enhances resilience through its integration with organisational learning processes. Organisational learning acts as a mediator by ensuring that external knowledge is not only assimilated but also institutionalised within the firm. This involves creating routines and systems that allow SMEs to continuously learn from past disruptions and refine their strategies. As noted by Abourokbah et al. (2023), SMEs that embed learning mechanisms into their operations are better positioned to improve their crisis management practices and develop adaptive strategies for future challenges. This iterative and dynamic learning process is critical for building long-term resilience, enabling SMEs to evolve in response to changing conditions.

4.2.3 Cumulativeness and Path Dependency

The cumulative nature of absorptive capacity further strengthens resilience by building on prior knowledge and experiences. SMEs with strong absorptive capacity develop a path-dependent advantage, where their ability to acquire and utilise knowledge improves over time (Cohen & Levinthal, 1990). This cumulative feature allows SMEs to enhance their resilience incrementally, as each disruption or challenge contributes to a deeper reservoir of knowledge and adaptive strategies. This evolving and compounding nature of absorptive capacity contrasts with static resource-based models, highlighting its dynamic role in fostering resilience.

4.2.4 Strategic Alignment with Environmental Dynamism

Absorptive capacity enables SMEs to achieve strategic alignment with environmental dynamism by continuously monitoring and interpreting changes in market conditions, technological advancements, and regulatory landscapes (Weick & Sutcliffe, 2011). This alignment allows SMEs to adjust their strategic priorities and remain competitive in volatile environments. The ability to pivot quickly in response to external changes is a hallmark of resilience, and absorptive capacity provides the tools necessary for such adaptability. This dimension underscores the importance of external adaptability and strategic foresight in building resilience, particularly in contexts where rapid change is the norm.

4.2.5 Desorptive Capacity

Desorptive capacity, an often-overlooked dimension, enhances resilience by enabling SMEs to transfer or share

knowledge with external entities (Lichtenthaler, 2009). This capacity is particularly relevant in open innovation contexts, where SMEs collaborate with partners to co-develop solutions or disseminate innovations. By engaging in knowledge sharing, SMEs can offload non-core activities, share risks, and create value through external partnerships. For instance, SMEs with strong desorptive capacity can license their technologies or engage in joint ventures, ensuring operational continuity during disruptions. This collaborative approach not only enhances the resilience of individual firms but also strengthens the resilience of the broader ecosystem.

4.2.6 Connective Capacity

Connective capacity refers to an SME's ability to establish and maintain collaborative relationships with external stakeholders, such as suppliers, customers, and research institutions. This capacity enables SMEs to integrate external knowledge into their operations and co-create innovative solutions (Jasimuddin & Naqshbandi, 2018). By fostering strong networks, SMEs can access resources, share risks, and develop joint strategies for navigating disruptions. This relational aspect of absorptive capacity underscores the importance of partnerships in fostering resilience, particularly in supply chain contexts where collaboration can mitigate vulnerabilities.

4.2.7 Knowledge Co-Creation and Ecosystem Integration

Absorptive capacity also facilitates knowledge co-creation and integration within broader ecosystems, which is a key enabler of resilience (Carbone et al., 2010).

SMEs that actively collaborate with external stakeholders can co-create innovative solutions and share resources to mitigate disruptions. This collaborative approach not only enhances the resilience of individual firms but also strengthens the resilience of the entire ecosystem. By leveraging external partnerships, SMEs can access resources and capabilities that would otherwise be unavailable, enabling them to recover more effectively from disruptions.

4.2.8 The Synergistic Effect of Absorptive Capacity Dimensions

The integration of absorptive capacity with connective, innovative, and desorptive capacities creates a synergistic effect that significantly enhances the resilience of SMEs. Absorptive capacity provides the foundation for acquiring and utilising knowledge, while connective capacity ensures

access to external resources through strong networks. Innovative capacity enables SMEs to creatively apply knowledge to develop novel solutions, and desorptive capacity facilitates the sharing and leveraging of knowledge collaboratively. Together, these dimensions enable SMEs to anticipate disruptions, adapt to changing environments, and recover more effectively. Empirical evidence supports this conceptual relationship. For instance, Abourobah et al. (2023) demonstrated how absorptive capacity, combined with digital capabilities and supply chain agility, enhances resilience and innovation performance in Saudi Arabia. Similarly, Prakasa et al. (2022) highlighted the role of absorptive capacity in driving innovation and business performance in Indonesian SMEs. These findings underscore the importance of integrating multiple capacities to build a robust and adaptive foundation for resilience.

5. Conclusion and Recommendations

This study has explored the pivotal role of absorptive capacity in fostering resilience among small and medium enterprises (SMEs). The systematic review of the literature reveals that absorptive capacity is not merely a theoretical construct but a practical framework that enables SMEs to navigate the complexities of their operating environments. By effectively acquiring, assimilating, transforming, and exploiting knowledge, SMEs can enhance their adaptability, innovation, and overall performance. The findings underscore the importance of organisational learning as a mediator between absorptive capacity and resilience. SMEs that embed learning mechanisms into their operations are better positioned to institutionalise knowledge, facilitating continuous improvement and strategic refinement. This dynamic process not only strengthens individual firms but also contributes to the resilience of the broader business ecosystem. Moreover, the cumulative nature of absorptive capacity plays a crucial role in strengthening resilience. SMEs that develop robust absorptive capacity benefit from a path-dependent advantage, allowing them to improve their knowledge acquisition and utilisation over time. Each disruption encountered contributes to a richer reservoir of knowledge and adaptive strategies, further reinforcing resilience. The capacity for strategic alignment with environmental dynamism also emerged as a vital factor. By continuously monitoring and interpreting changes in market conditions, technological advancements, and regulatory landscapes, SMEs can adjust their strategic priorities and maintain competitiveness. This responsiveness is a hallmark of resilience, supported by the tools provided by absorptive capacity. Furthermore, the dimensions of desorptive capacity and connective capacity enhance resilience. Desorptive capacity enables SMEs to share and disseminate knowledge externally, fostering collaboration

and co-creating innovative solutions. This collaborative approach not only boosts individual firm resilience but also strengthens the broader ecosystem. Connective capacity allows SMEs to establish and maintain relationships with external stakeholders, integrating their knowledge and co-creating solutions that further enhance resilience. In conclusion, absorptive capacity serves as a strategic enabler of resilience, equipping SMEs with the necessary tools to adapt, recover, and thrive in challenging conditions.

To maximise this potential, SMEs should invest in organisational learning and knowledge-sharing practices, ensuring that they are well-prepared to respond to disruptions. Emphasising strategic flexibility and fostering external collaborations will further enhance their ability to navigate uncertainties. By understanding the interconnectedness of knowledge management, innovation, and resilience, SMEs can position themselves for sustainable success in an increasingly complex business landscape.

6. Limitations of the Article

While this study provides valuable insights into the role of absorptive capacity in fostering resilience among SMEs, several limitations must be acknowledged: The systematic review primarily focuses on studies published in English and may not capture relevant research published in other languages or in niche journals. This could limit the comprehensiveness of the findings. The majority of the studies reviewed are concentrated in specific regions, particularly in developed economies. As a result, the applicability of the findings to SMEs in different cultural and economic contexts, especially in developing regions, may be limited. Further, the constructs of absorptive capacity and resilience may be measured differently across studies, leading to variability in findings. This lack of standardisation can complicate comparisons and synthesis of results. Lastly, while the paper discusses various theoretical frameworks and empirical studies, there is a need for more longitudinal studies that explore the long-term impact of absorptive capacity on resilience in SMEs.

7. Managerial Implications

The findings of this article provide several practical implications for managers of small and medium enterprises (SMEs) who aim to enhance their organisational resilience through the development of absorptive capacity (AC). These implications are as follows:

- Invest in Knowledge Acquisition Mechanisms: Managers should prioritise systems and processes

that enable their organisations to acquire external knowledge effectively. This includes encouraging participation in industry networks, engaging with customers and suppliers, and investing in tools for market research. By staying informed about external opportunities and threats, SMEs can proactively adapt to changing environments.

- Develop a Knowledge-Oriented Culture: Managers should cultivate a workplace culture that values learning and knowledge sharing. Creating an environment where employees are encouraged to assimilate and share external knowledge fosters collaboration and enhances the organisation's ability to make informed decisions.
- Align Knowledge Transformation with Organisational Goals: Managers must ensure that newly acquired knowledge is aligned with the company's strategic goals. This involves reconfiguring internal processes and capabilities to integrate external insights effectively. Training programs and workshops can be implemented to help employees adapt to these changes.
- Leverage Innovation for Resilience: Exploiting knowledge to create innovative solutions is key to sustaining performance during disruptions. Managers should encourage experimentation and allocate resources for research and development (R&D) to transform knowledge into competitive advantages.
- Policy Advocacy and Collaboration: Managers can also advocate for policies that support SMEs' access to knowledge resources and funding. Collaborating with academic institutions and public organisations can further strengthen their absorptive capacity.

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