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Strategic Adaptability in Industrial SMEs Facing Disruption

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Abstract

The ability of small and medium-sized enterprises (SMEs) to strategically adapt to disruptions is a critical determinant of their survival and long-term success. This research investigates the strategic adaptability of industrial SMEs in the face of external disruptions, such as technological advancements, market shifts, and global crises. The primary aim of this study is to examine the key factors influencing strategic adaptability and the strategies employed by industrial SMEs to cope with these challenges. A qualitative research methodology, based on an extensive literature review, was employed to analyze relevant studies and synthesize findings on leadership, organizational culture, innovation, and external disruptions. The research findings indicate that transformational leadership, a culture of innovation, and the adoption of new technologies are central to the strategic adaptability of industrial SMEs. Additionally, the study emphasizes the importance of dynamic capabilities—specifically, the ability to sense, seize, and reconfigure strategies in response to disruptions. The findings suggest that industrial SMEs with strong leadership and adaptive cultures are better equipped to navigate external disruptions and capitalize on emerging opportunities. Moreover, the research highlights the need for SMEs to continuously invest in innovation and develop the flexibility required to adapt to an increasingly volatile and competitive environment. The study's results provide valuable insights for both academic research and managerial practices, offering a foundation for future studies and practical strategies aimed at enhancing the resilience and adaptability of industrial SMEs.

Keywords: *Strategic Adaptability, Industrial SMEs, Leadership, Organizational Culture, Innovation.*

1. Introduction

In an era of rapid technological advancements, shifting market dynamics, and increasingly competitive global markets, small and medium-sized enterprises (SMEs) in the industrial sector face numerous challenges. The capacity to adapt strategically to disruptive changes is essential for their survival and long-term success. Disruptions can emerge in various forms, from technological innovations to global economic shifts, regulatory changes, and evolving consumer preferences. In the context of SMEs, especially those in the industrial sector, the ability to respond effectively to such disruptions determines their competitive advantage and overall sustainability. Small and medium-sized enterprises (SMEs) form the backbone of many economies, particularly in developing regions. These organizations often operate with limited resources, fewer economies of scale, and less access to cutting-edge technologies compared to larger corporations. This makes them particularly vulnerable to disruptions, whether from external forces such as market competition, new technological advancements, or internal challenges like operational inefficiencies. Despite these constraints, many SMEs have exhibited a remarkable ability to adapt to changing

environments. The concept of "strategic adaptability" has become increasingly significant in understanding how these businesses navigate disruption and maintain their competitiveness.

Strategic adaptability refers to an organization's ability to anticipate and react to changes in its environment by modifying its strategies, operations, and goals to align with new opportunities or challenges. For industrial SMEs, this adaptability is particularly important, as the industrial sector is often at the forefront of technological change. Disruptions, such as the introduction of new manufacturing technologies or shifts in global supply chains, can significantly affect their operational processes, market positions, and financial stability. The question of how industrial SMEs can leverage their inherent flexibility to strategically adapt to such disruptions remains underexplored and requires a focused investigation. Several phenomena related to strategic adaptability in SMEs are worth examining in the context of industrial businesses. One of the primary challenges faced by SMEs is the speed at which disruptive forces emerge. The rapid pace of technological advancements, particularly in automation, artificial intelligence, and digitalization, has made it difficult for many small enterprises to keep up. For example, SMEs in the manufacturing industry are increasingly pressured to integrate Industry 4.0 technologies, such as the Internet of Things (IoT) and big data analytics, into their production processes. However, the high initial costs, lack of expertise, and resistance to change often create barriers for these firms. As a result, some industrial SMEs experience stagnation or even decline in the face of technological disruptions.

Another phenomenon that deserves attention is the role of leadership and organizational culture in shaping strategic adaptability. Research has shown that the ability of SME leaders to envision and drive change plays a critical role in the organization's overall adaptability. Additionally, the organizational culture within SMEs, which often emphasizes flexibility, innovation, and risk-taking, can either foster or hinder strategic adaptability. SMEs with a strong culture of continuous learning and innovation are more likely to perceive disruptions as opportunities for growth rather than threats. Conversely, those with more rigid structures and conservative leadership may struggle to adapt to changing market conditions and technological advancements. Previous research on strategic adaptability in SMEs has highlighted various factors that influence their ability to navigate disruptions. Studies have explored the impact of external factors such as market volatility, technological advancements, and globalization on SME performance. Other studies have focused on internal organizational factors, including leadership styles, innovation capacity, and financial resources. However, while these studies provide valuable insights, they often treat strategic adaptability as a broad concept without offering a comprehensive framework for understanding its various components within the specific context of industrial SMEs. Additionally, there remains a lack of empirical research that examines the practical strategies employed by industrial SMEs to adapt to disruptions and the effectiveness of these strategies in ensuring their long-term success.

This research aims to bridge this gap by providing a detailed exploration of the factors influencing strategic adaptability in industrial SMEs. It will focus on identifying the specific strategies employed by these businesses to cope with disruptions, as well as the internal and external factors that impact their adaptability. Through a quantitative descriptive approach, the study will analyze data from a sample of industrial SMEs that have faced recent disruptions, such as technological advancements, market shifts, and supply chain disruptions. By examining these cases, the research will provide a clearer understanding of how strategic adaptability manifests in the industrial SME sector and offer insights into best practices for overcoming disruptions. The objective of this study is threefold. First, it seeks to identify the key internal and external factors that influence the strategic adaptability of industrial SMEs facing disruption. These factors may include leadership styles, organizational culture, financial resources, and market conditions. Second, the study aims to assess the effectiveness of the strategies employed by industrial SMEs to adapt to disruptions, including their impact on business performance, sustainability, and competitive advantage. Third, the research will provide practical recommendations for policymakers, business leaders, and researchers to support the strategic adaptability of industrial SMEs in the face of future disruptions.

The importance of this research lies not only in its potential to contribute to academic knowledge but also in its practical implications for SMEs operating in the industrial sector. As SMEs continue to face increasing pressure from both local and global challenges, understanding how to adapt strategically to disruptions will be critical for their survival and growth. By investigating the strategies that industrial SMEs have employed in response to disruption, this study will help identify actionable insights that can guide future business practices, policy development, and organizational change initiatives. Ultimately, the goal is to provide a comprehensive understanding of strategic adaptability that will assist industrial SMEs in navigating the complexities of an ever-changing business environment. In conclusion, this study on strategic adaptability in industrial SMEs facing disruption is both timely and necessary. Given the increasing

volatility of markets, technological advancements, and global uncertainties, the ability of industrial SMEs to adapt to disruptions has become a crucial determinant of their success. Through a focused examination of the factors that influence strategic adaptability, this research aims to shed light on the practical strategies that SMEs can employ to overcome challenges and capitalize on new opportunities. By contributing to the body of knowledge on strategic adaptability, the study will offer valuable insights that can help industrial SMEs navigate the complexities of the modern business landscape and thrive in an era of constant change.

2. Literature Review

The concept of strategic adaptability has emerged as a critical area of study, particularly in the context of small and medium-sized enterprises (SMEs). SMEs play an essential role in the global economy, contributing to employment, innovation, and overall economic growth. However, these enterprises face significant challenges when confronted with disruptive changes—whether due to technological advancements, shifts in consumer preferences, economic crises, or regulatory changes. Understanding the concept of strategic adaptability and how it influences SME survival and growth in the face of such disruptions is paramount to improving their competitiveness and long-term sustainability. This literature review aims to delve into the various studies surrounding strategic adaptability in SMEs, with a particular focus on the industrial sector. The following sections will provide definitions, explore relevant theories, and discuss specific studies related to this concept.

2.1. The Concept of Strategic Adaptability in SMEs

Strategic adaptability refers to the ability of an organization to adjust its strategies and operations in response to changes in its environment. According to Teece (2007), dynamic capabilities, which include the ability to sense and seize opportunities, are central to an organization's strategic adaptability. In the context of SMEs, strategic adaptability is crucial as these enterprises often operate under resource constraints, with limited access to cutting-edge technologies or markets. Despite these constraints, SMEs have shown resilience in adapting to external disruptions, a phenomenon that is often attributed to their inherent flexibility and smaller organizational structures (Teece, 2007). For industrial SMEs, the need for strategic adaptability becomes even more pronounced. The industrial sector is heavily influenced by technological advancements, such as automation, artificial intelligence, and the Internet of Things (IoT), which can render traditional manufacturing processes obsolete (Choi, 2020). Furthermore, the global supply chain disruptions, such as those caused by the COVID-19 pandemic, have further highlighted the importance of adaptability (Ivanov, 2020). SMEs in the industrial sector, which often lack the robust digital infrastructure and financial resources of larger corporations, must find innovative ways to adapt their strategies to remain competitive. Research on strategic adaptability often focuses on the ability of firms to innovate and embrace new technologies in response to disruptive forces. In a study by Voss and Voss (2020), the authors emphasize that SMEs with a culture of innovation and continuous learning are more likely to adjust their business models successfully. This observation aligns with the dynamic capabilities framework proposed by Teece (2007), which posits that firms must continuously evolve their routines, processes, and strategies to remain relevant in an ever-changing business landscape. As technological advancements such as Industry 4.0 become increasingly important, industrial SMEs must develop the ability to sense these changes early and adapt their strategies accordingly.

2.2. Factors Influencing Strategic Adaptability in SMEs

Several factors influence strategic adaptability in SMEs, including organizational culture, leadership, resources, and external market conditions. The role of leadership is particularly significant in shaping an organization's ability to adapt strategically. Research by Bateman and Crant (1993) suggests that leadership styles, particularly those that emphasize transformational leadership, are positively correlated with strategic adaptability. Transformational leaders inspire innovation, foster risk-taking behavior, and guide the organization through periods of change (Bass, 1990). In industrial SMEs, leaders who embrace change and lead by example can create a culture that supports adaptability, allowing the firm to react quickly to disruptions. Another important factor influencing strategic adaptability is organizational culture. According to Schein (2010), organizational culture plays a crucial role in shaping how organizations perceive and respond to changes. SMEs with an adaptive and flexible culture are better positioned to identify and respond to disruptive changes in their environment. Such organizations are more likely to foster an atmosphere of collaboration, continuous learning, and innovation, all of which are essential components

of strategic adaptability (Kanter, 2006). On the other hand, SMEs with rigid and hierarchical structures may struggle to adapt quickly, as decision-making processes are slower and less responsive to external changes (Kotter, 1996). In addition to internal factors, external market conditions, such as economic volatility, technological advancements, and shifts in consumer preferences, significantly influence an SME's ability to adapt strategically. For instance, the rise of e-commerce and digital platforms has disrupted traditional retail businesses, forcing many SMEs to adopt new business models to remain competitive (Brynjolfsson & McAfee, 2014). Similarly, global economic crises, such as the 2008 financial crash and the recent COVID-19 pandemic, have underscored the need for SMEs to develop resilience and adaptability in response to unpredictable disruptions (Ivanov, 2020). The ability to respond quickly and effectively to such disruptions often determines the success or failure of SMEs in the industrial sector.

2.3. The Role of Innovation in Strategic Adaptability

Innovation is a key driver of strategic adaptability. As noted by Schumpeter (1934), innovation is essential for maintaining competitiveness in a rapidly changing market environment. In the context of SMEs, innovation often involves not only product development but also process improvements and the adoption of new technologies. For industrial SMEs, technological innovations such as automation, robotics, and data analytics are critical for improving operational efficiency and adapting to new market demands (Choi, 2020). These innovations can help industrial SMEs reduce costs, increase productivity, and enhance their ability to compete with larger firms. However, the adoption of innovation in SMEs is not without challenges. According to research by Nooteboom (1994), SMEs often face barriers to innovation, such as limited financial resources, a lack of skilled personnel, and resistance to change. These challenges are particularly evident in the industrial sector, where the high costs of implementing new technologies may deter SMEs from investing in innovation. Despite these challenges, research by Voss and Voss (2020) highlights that SMEs that actively pursue innovation are more likely to develop the strategic capabilities necessary to adapt to disruptions. The ability to adopt new technologies and processes is crucial for industrial SMEs, as it allows them to improve their products and services in response to changing consumer preferences and market demands. Furthermore, SMEs that foster a culture of innovation are better equipped to anticipate and respond to disruptive changes in their industry. As noted by Christensen (1997), firms that embrace disruptive innovations often create new markets and business models, which can lead to significant competitive advantages. For industrial SMEs, the ability to harness innovation in the face of disruptions can provide opportunities to differentiate themselves in the marketplace, improve operational efficiency, and ultimately sustain their business in the long term.

2.4. The Impact of External Disruptions on Strategic Adaptability

External disruptions, such as technological advancements, regulatory changes, and economic crises, are key factors that drive the need for strategic adaptability. The concept of disruption, as outlined by Christensen (1997), refers to the process by which smaller firms or new technologies challenge established market leaders, often by providing lower-cost or more accessible alternatives. For industrial SMEs, disruptions such as the rise of automation and the adoption of digital technologies have forced businesses to reassess their operational processes and business models (Brynjolfsson & McAfee, 2014). The COVID-19 pandemic serves as a recent example of how external disruptions can drastically impact SMEs. According to Ivanov (2020), the pandemic has highlighted the vulnerabilities of SMEs in the industrial sector, particularly in relation to supply chain disruptions, fluctuating demand, and workforce limitations. Industrial SMEs have had to quickly adapt their strategies to cope with these changes, shifting to remote operations, altering production processes, and embracing digital technologies. The ability to quickly adapt to such disruptions has been crucial for the survival of many industrial SMEs during the pandemic. Similarly, global shifts in consumer preferences, such as the increasing demand for sustainable and eco-friendly products, have forced many industrial SMEs to innovate and adapt their business strategies (Kanter, 2006). The demand for green technologies and sustainable manufacturing processes has become a key driver of change in the industrial sector, and SMEs that fail to adapt to these shifts may risk losing their competitive edge. As noted by Porter and Kramer (2011), businesses that align their strategies with societal and environmental trends can create shared value and achieve long-term success.

Strategic adaptability is a crucial capability for industrial SMEs facing disruption, particularly in today's rapidly changing business environment. The ability to anticipate and respond to external and internal changes allows these enterprises to survive and thrive in an increasingly competitive and volatile marketplace. As this literature review demonstrates, several factors influence strategic adaptability, including

organizational culture, leadership, innovation, and external market conditions. By developing dynamic capabilities and fostering a culture of innovation, industrial SMEs can better position themselves to navigate disruptions and maintain their competitiveness. The research highlights the importance of strategic adaptability in ensuring the long-term success of SMEs and provides valuable insights for both practitioners and policymakers seeking to support the resilience and sustainability of industrial SMEs.

3. Research Methodology

The research method employed in this study is based on a qualitative approach using a literature review. A qualitative research method is particularly well-suited for exploring complex and nuanced phenomena, such as strategic adaptability in industrial SMEs facing disruptions. This approach allows for an in-depth understanding of the existing body of knowledge, highlighting themes, patterns, and gaps in the current literature. A literature review, as a qualitative method, synthesizes findings from a range of sources, providing a comprehensive overview of the topic at hand. By examining previous studies, this research method enables the identification of theoretical frameworks, empirical evidence, and key concepts that can inform the understanding of how industrial SMEs adapt to disruptive changes. The objective of using a qualitative literature review in this study is to explore the existing research on strategic adaptability, particularly within the context of industrial SMEs, and to synthesize key findings from multiple sources. This method allows for a comprehensive analysis of the factors that influence the strategic adaptability of industrial SMEs, as well as the strategies they employ to cope with disruptions. By aggregating insights from diverse studies, the research aims to provide a clearer picture of the subject matter and contribute to the ongoing academic discourse in the field of strategic management and SME resilience.

3.1. Data Collection

The data collection process for this study involves an extensive review of academic journals, books, and other scholarly sources that address strategic adaptability in industrial SMEs. The primary sources for this literature review include peer-reviewed journal articles, books, conference papers, and relevant industry reports. The literature review process began by conducting a comprehensive search using academic databases such as Google Scholar, JSTOR, Scopus, and ResearchGate. These platforms provide access to a wide range of high-quality, peer-reviewed research articles that are critical for understanding the factors influencing strategic adaptability in SMEs. The search criteria for the literature review included articles published in the last decade to ensure the inclusion of contemporary research. Keywords such as "strategic adaptability," "small and medium-sized enterprises," "disruptions," "industrial SMEs," "resilience," "innovation," and "dynamic capabilities" were used to identify relevant studies. The focus was primarily on articles that addressed the challenges faced by industrial SMEs, the role of leadership, organizational culture, and innovation in facilitating strategic adaptability, and the impact of external disruptions such as technological advancements, market shifts, and economic crises.

A key criterion for selecting articles was their relevance to the research topic. Only studies that provided empirical data, theoretical frameworks, or detailed analysis related to strategic adaptability in industrial SMEs were included. Articles that explored the relationship between innovation, leadership, organizational culture, and adaptability were prioritized, as these factors are central to the research question. Additionally, studies that addressed specific disruptions, such as technological innovations or market changes, were also included to provide a comprehensive understanding of how SMEs adapt to external challenges. Once the relevant articles were identified, they were carefully reviewed to extract key insights and findings. The data collection process focused on identifying recurring themes, methodologies, and conclusions that could contribute to a deeper understanding of strategic adaptability in industrial SMEs. The extracted data was then categorized based on key themes and concepts to facilitate analysis and synthesis.

3.2. Data Analysis

The data analysis process for this literature review follows a thematic synthesis approach, which is commonly used in qualitative research. Thematic synthesis involves identifying and categorizing recurring themes across multiple sources, allowing for a more structured and coherent analysis of the research findings. In the context of this study, the thematic synthesis approach was used to examine the factors influencing strategic adaptability in industrial SMEs, the strategies employed by these businesses to cope with disruptions, and the outcomes of such strategies. The first step in the data analysis process was to organize the literature into thematic categories. These categories were based on the key concepts identified

in the research question, including leadership, organizational culture, innovation, and external disruptions. Each article was then reviewed and coded based on these themes, with key findings and insights extracted and organized according to the relevant category. For example, studies that examined the role of leadership in fostering strategic adaptability were grouped together, while articles that focused on innovation or market disruptions were categorized accordingly.

After the articles were coded and categorized, the next step was to identify patterns and trends across the literature. This involved comparing and contrasting the findings from different studies to determine whether there were consistent themes or discrepancies in the results. For example, some studies may have highlighted the importance of transformational leadership in fostering adaptability, while others may have focused on the role of innovation or organizational culture. By comparing these findings, the research was able to identify commonalities and differences in the way strategic adaptability is conceptualized and operationalized within the context of industrial SMEs. In addition to identifying recurring themes, the data analysis process also involved evaluating the quality and rigor of the studies included in the literature review. This was done by assessing the research methodologies used in the selected articles, including the sample sizes, data collection methods, and analytical techniques employed. Studies with strong empirical evidence and robust methodologies were given more weight in the analysis, while studies with methodological limitations were considered with caution. This evaluation process ensures that the findings of the literature review are based on high-quality, reliable sources.

3.3. Ethical Considerations

Although this study relies on secondary data from existing literature, ethical considerations are still an important aspect of the research process. The ethical standards for conducting a literature review include proper citation and attribution of sources to ensure that the work of other researchers is acknowledged and respected. All the articles and studies included in the review were carefully cited using APA style, ensuring that the contributions of the original authors are properly credited. Additionally, the research process adhered to the principles of academic integrity, which involve the fair and accurate presentation of information. The data collected from the literature was analyzed without bias or distortion, and the conclusions drawn from the analysis were based solely on the evidence presented in the reviewed studies. By maintaining transparency and rigor in the research process, the study ensures the validity and reliability of the findings.

3.4. Limitations of the Literature Review

One limitation of this literature review is that it relies solely on existing published studies, which means that the findings may not fully capture the most recent developments in the field. Although the search was limited to studies published in the last decade, the rapidly changing nature of the industrial sector and the continuous evolution of technology means that new trends and disruptions may not yet be adequately represented in the existing literature. Additionally, the scope of the literature review is constrained by the availability of research on strategic adaptability in industrial SMEs. While the review includes studies from various disciplines, such as strategic management, organizational behavior, and innovation studies, it may not cover all relevant sources or emerging research in the field. Another limitation is that the literature review focuses primarily on English-language sources, which may result in the exclusion of relevant studies published in other languages. While the majority of academic research on strategic adaptability is published in English, there may be valuable insights from studies in other languages that were not included in the review.

The research method employed in this study—qualitative literature review—provides a comprehensive and nuanced understanding of the factors influencing strategic adaptability in industrial SMEs. By synthesizing existing research, the study identifies key themes, patterns, and trends related to the role of leadership, organizational culture, innovation, and external disruptions in shaping the strategic adaptability of industrial SMEs. The thematic synthesis approach used in the data analysis process allows for a structured and coherent presentation of the findings, providing valuable insights for future research and practical applications in the field of strategic management. Although there are limitations to the study, including the reliance on secondary data and the exclusion of non-English sources, the literature review offers a solid foundation for understanding the complex dynamics of strategic adaptability in industrial SMEs facing disruptions.

4. Result And Discussion

The ability of small and medium-sized enterprises (SMEs) to adapt strategically to disruptive changes is a critical factor that determines their long-term sustainability and success. Industrial SMEs, in particular, face unique challenges when confronted with external disruptions such as technological advancements, market fluctuations, regulatory changes, and global crises like the COVID-19 pandemic. The results of this study, based on an extensive review of the literature, provide insight into the factors that influence the strategic adaptability of industrial SMEs and the strategies they employ to cope with these disruptions. This discussion will delve into key findings related to the role of leadership, organizational culture, innovation, and external disruptions in shaping the strategic adaptability of industrial SMEs. Additionally, it will explore the implications of these findings for future research and practical applications in the field.

4.1. The Role of Leadership in Strategic Adaptability

Leadership plays a pivotal role in driving strategic adaptability in industrial SMEs. According to Bass (1990) and Yukl (2010), leadership style significantly impacts an organization's ability to adapt to changing conditions. Transformational leadership, characterized by a leader's ability to inspire innovation, foster change, and empower employees, is particularly relevant in the context of SMEs. Industrial SMEs, which often operate with limited resources, can benefit from transformational leaders who create a vision for change and guide the organization through periods of uncertainty and disruption. In the industrial sector, leaders who embrace strategic adaptability tend to exhibit a proactive approach to change management. Research by Schein (2010) emphasizes that leaders who cultivate a culture of learning and risk-taking are more likely to drive their organizations toward successful adaptation in the face of disruption. For example, industrial SMEs that faced technological disruptions, such as the adoption of Industry 4.0 technologies, were more likely to thrive when led by leaders who encouraged experimentation with new technologies and processes (Brynjolfsson & McAfee, 2014). In contrast, SMEs led by leaders with a more conservative approach to change often struggled to adapt, as their organizations were less willing to invest in innovation or adapt to new business models (Kotter, 1996).

Moreover, leadership's role extends beyond managing technological change. Industrial SMEs that are able to navigate disruptions such as economic crises or market volatility often do so by having strong, decisive leadership that can quickly assess the situation, make informed decisions, and guide the organization through uncertainty. The COVID-19 pandemic, for instance, exposed the importance of leadership in ensuring organizational resilience. SMEs that quickly adapted to remote work, adjusted their production schedules, and reassessed their supply chains were often led by individuals who demonstrated strong adaptive leadership (Ivanov, 2020). In future research, it would be beneficial to explore the specific leadership competencies that facilitate strategic adaptability in industrial SMEs, particularly in the context of rapid technological change and global disruptions. Understanding how leaders can best prepare their organizations for unforeseen challenges will be crucial for fostering resilience in SMEs across various industries.

4.2. The Impact of Organizational Culture on Strategic Adaptability

Organizational culture is another critical factor that influences the strategic adaptability of industrial SMEs. According to Schein (2010), culture is the shared set of values, beliefs, and practices that shape how an organization responds to external and internal changes. In SMEs, a culture that supports flexibility, innovation, and continuous learning is essential for fostering adaptability. This is especially true in industrial sectors where technological advancements and market demands are constantly evolving. Research by Kanter (2006) suggests that SMEs with an adaptive organizational culture are better positioned to respond to disruptions. These firms view changes as opportunities rather than threats, which allows them to innovate and adjust their strategies accordingly. For example, industrial SMEs that have embraced digital transformation initiatives, such as the implementation of IoT, big data analytics, or automation, have been able to streamline their operations and enhance efficiency (Choi, 2020). This cultural openness to innovation is a direct contributor to the firms' ability to stay competitive in an increasingly technological world.

On the other hand, industrial SMEs with rigid or hierarchical organizational cultures may find it difficult to adapt to change. A culture that prioritizes stability over innovation can hinder an organization's ability to pivot when faced with disruptions. SMEs with such cultures often experience slower decision-making processes, less flexibility in responding to market shifts, and resistance to adopting new technologies or

business models (Kotter, 1996). This was particularly evident during the initial phases of the COVID-19 pandemic, where SMEs with more traditional organizational structures struggled to implement changes quickly, resulting in delays in transitioning to remote work or adjusting their production lines. In light of these findings, future studies should examine how organizational culture in industrial SMEs can be cultivated to enhance strategic adaptability. Specifically, research could focus on how SMEs can develop a culture of continuous improvement, learning, and agility that fosters resilience in the face of disruptions. Additionally, understanding the role of leadership in shaping organizational culture in industrial SMEs will be crucial for guiding organizations through future challenges.

4.3. Innovation as a Driver of Strategic Adaptability

Innovation is at the heart of strategic adaptability. Schumpeter (1934) posits that innovation is the driving force behind economic growth and the ability to adapt to changing market conditions. In industrial SMEs, innovation often takes the form of new products, processes, or business models that enable the firm to remain competitive and responsive to disruptions. The adoption of new technologies, such as automation, artificial intelligence (AI), and machine learning, has become a central element of strategic adaptability in industrial SMEs, particularly in the context of Industry 4.0. Research by Brynjolfsson and McAfee (2014) highlights the transformative power of technological innovation in the industrial sector. SMEs that have integrated advanced technologies into their operations have been able to reduce costs, improve product quality, and enhance customer satisfaction. For instance, industrial SMEs that adopted robotics and automation in their production lines were able to increase efficiency and reduce human error, which helped them stay competitive during times of disruption. Moreover, SMEs that embraced digitalization were able to access new markets and customer segments, further enhancing their adaptability (Choi, 2020).

However, the adoption of innovation in industrial SMEs is not without challenges. According to Nootboom (1994), SMEs often face barriers to innovation, including limited financial resources, a lack of skilled labor, and resistance to change. These barriers are particularly prominent in industrial SMEs, where the high upfront costs of adopting new technologies can be a significant obstacle. Despite these challenges, research by Voss and Voss (2020) emphasizes that SMEs that actively pursue innovation are more likely to develop the dynamic capabilities necessary to adapt to disruptions. Therefore, fostering an innovation-driven culture is critical for industrial SMEs seeking to navigate future disruptions. Future research should investigate the specific types of innovation that contribute most to the strategic adaptability of industrial SMEs. Furthermore, studies should explore how SMEs can overcome the barriers to innovation, such as financial constraints and lack of expertise, to effectively implement new technologies and business models.

4.4. The Influence of External Disruptions on Strategic Adaptability

External disruptions, such as technological advancements, market fluctuations, and global economic crises, significantly impact the strategic adaptability of industrial SMEs. The rapid pace of technological change and the increasing complexity of global supply chains have created new challenges for SMEs. For example, the COVID-19 pandemic exposed vulnerabilities in the global supply chain, forcing many SMEs to adapt quickly by shifting their production processes, adjusting their workforce, and embracing digital technologies (Ivanov, 2020). The ability of SMEs to respond to these disruptions in a timely and effective manner often determines their survival and growth. Research by Porter and Kramer (2011) suggests that businesses that align their strategies with societal and environmental trends are more likely to succeed in the long term. Industrial SMEs that have embraced sustainability and green technologies have been able to differentiate themselves in the marketplace and respond to growing consumer demand for environmentally friendly products. Similarly, the rise of e-commerce and digital platforms has disrupted traditional business models, compelling many industrial SMEs to shift their strategies and embrace digital transformation (Brynjolfsson & McAfee, 2014). The findings of this study suggest that industrial SMEs must develop the capability to not only react to disruptions but also anticipate them.

5. Conclusion

The findings of this study highlight the critical importance of strategic adaptability for industrial SMEs facing disruptions. This research underscores the multifaceted nature of strategic adaptability, focusing on the role of leadership, organizational culture, innovation, and external disruptions. Theoretical implications from the literature review suggest that dynamic capabilities and transformational leadership play significant

roles in enabling industrial SMEs to successfully adapt to technological, market, and environmental changes. The study reveals that while leadership provides the vision and drive for strategic change, organizational culture, particularly one that encourages flexibility and innovation, fosters an environment conducive to adapting to external disruptions. The ability of industrial SMEs to adopt new technologies and innovate continuously emerges as a central theme that shapes their strategic responses, allowing them to navigate challenges and seize opportunities.

From a managerial perspective, the findings suggest that industrial SMEs need to cultivate leadership that not only embraces change but also drives it across the organization. Managers should focus on creating a culture of innovation and continuous improvement, which fosters both organizational learning and the agility required for responding to disruptive changes. By prioritizing transformational leadership, organizations can empower employees, encourage risk-taking, and build a culture that is more adaptable to external disruptions. Furthermore, industrial SMEs should actively invest in developing dynamic capabilities—specifically, the ability to sense emerging opportunities, seize them, and reconfigure existing strategies to maintain competitive advantage. To this end, fostering an innovation-driven mindset and leveraging technological advancements, such as automation and digitalization, is paramount. Managers should also focus on facilitating the adoption of technologies that enhance operational efficiency and improve their firm's capacity to compete in an ever-changing industrial landscape.

Theoretical and managerial implications suggest a need for further research and practical strategies that can help industrial SMEs better navigate future disruptions. From a theoretical standpoint, future studies could explore how the concept of strategic adaptability evolves in different contexts and industries, identifying more precise mechanisms through which leadership, culture, and innovation contribute to successful adaptation. Empirically, additional research is needed to examine how specific leadership styles interact with organizational culture to influence strategic outcomes in the face of disruptions. Managerially, it is clear that SMEs must invest in leadership development, foster innovation, and continuously monitor and respond to external changes to build resilience. As the global business environment continues to evolve, the strategic adaptability of industrial SMEs will become increasingly vital, not only for their survival but also for their ability to capitalize on new opportunities. The findings of this study provide a foundation for future efforts to better understand and implement strategies that will enable SMEs to thrive amidst uncertainty and change.

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