

STRATEGIC APPROACHES TO ENHANCE BUSINESS MODEL RESILIENCE IN DYNAMIC MARKET ENVIRONMENTS

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Abstract: This study identifies strategic approaches that enhance business model resilience in dynamic market environments through a systematic literature review guided by the PRISMA framework. Literature was sourced from Google Scholar, Wiley Online Library, and Scopus yielding 35 peer-reviewed articles published between 2018 and 2025. The study is grounded in Dynamic Capabilities and Organizational Resilience Theories. Findings indicate that resilience is driven by four interrelated strategic pillars; innovation, adaptability, proactive risk mitigation, and data driven decision-making. These pillars enable firms to anticipate disruptions, adapt effectively, and sustain performance, thus recommends promoting digital transformation, learning, flexibility, analytics, and risk management

Keywords: Business Model Resilience, Dynamic Market Environments.

1. INTRODUCTION

1.1 Background of the Study

The global business landscape has become increasingly unpredictable, shaped by rapid technological advancements, economic shocks, climate-related disruptions, shifting consumer preferences, and geopolitical tensions. Liu et al., (2019) and Der Vegt et al., (2015) in their study opined that Presently organizations are operating in increasingly chaotic business environments which call for proactive action to stay on board.

In a turbulent environment, traditional approaches to business strategy and organizational planning are often insufficient. Firms can no longer rely solely on historical data or stable market trends to guide decision making. Instead, there is a growing need for dynamic and resilient business models that are capable of withstanding shocks, adjusting to new realities, and continuing to deliver value amidst constant change. This is particularly true in the midst of the COVID-19 crisis which has drastically impacted the usual ways of work (Caligiuri, De Cieri, Minbaeva, Verbeke, & Zimmermann, 2020). Organizations are now facing pressures for their very survival

The growing focus on Business Model Resilience (BMR) reflects its rising importance in both academic and business settings. BMR is the ability of an organization to withstand shocks, adapt quickly, recover from crises, and continue creating value even under challenging conditions. It brings together key aspects like strategic agility, innovation, risk management, and learning, linking closely to broader goals such as sustainability and long-term success. Recent global challenges like the COVID-19 pandemic, supply chain issues, climate events, and digital pressures have exposed weaknesses in traditional business models, emphasizing the need for companies to build resilience proactively, not just reactively. The implications of digital transformation are far-reaching, as businesses seek to navigate the complex interplay between technological advancements, evolving customer preferences, and shifting competitive landscapes. Firms that effectively leverage digital capabilities are better equipped to anticipate market changes, enhance operational resilience, and maintain a competitive edge (Hokmabadi et al., 2024).

The current study examines the key strategies and mechanisms that enhance business model resilience in fast changing and high growth markets. Based on Dynamic Capability theory and Organizational resilience theory, it provides deep insights into how resilience can be embedded within core business models and leveraged to secure long term competitive advantage.

1.2 Strategic Pillars of Business Model Resilience

In today's dynamic business landscape characterized by rapid technological change, global disruptions, evolving consumer expectations, and intensified competition, resilient business models have become central to organizational success. Digital transformation has significantly reshaped industry structures while simultaneously creating new opportunities for innovation and growth. As noted by Hokmabadi et al (2024), the accelerating pace of technological advancement and shifting customer demands has compelled organizations to reconsider their strategic orientations, operational processes, and value propositions. In this context, business model resilience extends beyond survival; it reflects the capacity to sustain and enhance value creation amid persistent uncertainty.

Business model resilience is anchored in four interrelated strategic pillars: adaptability, innovation, proactive risk management, and data-driven decision making. Together, these pillars form a robust foundation for navigating volatile, uncertain, complex, and ambiguous environments. Embedding these elements into organizational strategy fosters long-term sustainability and strengthens competitive advantage.

Adaptability is a fundamental component of resilience. It refers to an organization's capacity to adjust its strategies, structures, and operations in response to environmental shifts. In unpredictable markets, firms must anticipate disruptions rather than merely react to them. Adaptable organizations remain efficient under pressure, capitalize on emerging opportunities, and maintain relevance during periods of uncertainty. This capability enables timely responses to regulatory changes, supply chain disruptions, and evolving customer preferences. Gölgeci et al (2020) emphasize that resilience involves proactive anticipation and preparation rather than passive reaction. Similarly, Tajeddini et al. (2020) argue that effective management in dynamic contexts requires strategic foresight and a culture that supports adaptability. Balogh (2023) further highlights the role of resilient leadership in strengthening decision-making under uncertainty and promoting long-term sustainability.

Closely linked to adaptability is innovation. Resilient organizations do not merely respond to change; they actively shape it. Innovation drives the continuous renewal of products, services, and processes, enabling firms to create new value propositions and reposition themselves during crises. It transforms uncertainty into opportunity and embeds change as a routine organizational capability. Empirical evidence indicates that organizational preparedness, innovation capability, and managerial support significantly influence technology adoption, while perceived risks and environmental constraints may hinder progress. The TOE framework provides a comprehensive perspective for understanding these dynamics within real-world organizational settings (El-Haddadeh, 2020).

However, adaptability and innovation must be reinforced by proactive risk management. Traditional risk management approaches, which rely heavily on historical data and reactive controls, are insufficient in complex environments. Contemporary resilience requires forward-looking risk assessment, early warning mechanisms, and strategic contingency planning. Proactive risk mitigation enhances organizational agility, strengthens collaboration, and builds systemic awareness of vulnerabilities. Afifa (2022) underscores the importance of anticipatory risk approaches in reinforcing supply chain resilience, highlighting the relevance of the 3R framework (Ready, Respond, Recover) in aligning resilience initiatives with organizational objectives and operational performance.

At the core of these pillars lies data-driven decision making. In fast-moving markets, reliance on intuition alone is inadequate. Organizations require real-time data, predictive analytics, and actionable insights to inform strategic and operational choices. Data capabilities enable firms to detect trends, allocate resources efficiently, and continuously refine performance. Awan et al. (2021) demonstrate that both Big Data Analytics (BDA) and Business Intelligence and Analytics (BI&A) enhance decision-making quality and sustainability outcomes, with BDA exerting a particularly strong direct effect.

Overall, business model resilience emerges from the integrated application of adaptability, innovation, proactive risk management, and data-driven decision making. When strategically aligned, these capabilities enable organizations not only to withstand disruptions but also to transform challenges into opportunities for sustained growth and long-term success.

1.3 Key Attributes and Forces Characterizing Dynamic Market Environments

To understand why business model resilience is essential, it's important to examine the nature of today's fast-changing market environments. These environments are characterized by continuous change, unpredictability, and frequent disruptions, all of which challenge a firm's ability to stay competitive and responsive. One effective way to capture the defining features of such markets is through the VUCA framework, which stands for volatility, uncertainty, complexity, and ambiguity. This framework not only describes the external conditions businesses face but also highlights the strategic and operational demands placed on leaders. Each element of VUCA reflects a key attribute of dynamic markets, offering a lens through which organizations can better understand the environment and shape more resilient responses.

Policymakers and business leaders are encouraged to promote and support collaborative resilience networks, particularly within industries operating under high levels of volatility, uncertainty, complexity, and ambiguity (VUCA), as such networks enhance collective adaptability and systemic resilience (Chi, M., Li, W., Li, Y. J., Zhou, M., & Huang, R., 2025).

In these dynamic markets, uncertainty is a major challenge. It makes it harder for managers to make quick and effective decisions. Traditional planning methods and long-term forecasts often don't work well anymore. Instead, businesses need to constantly review and adjust their strategies as situations change. This requires flexible leadership, strong decision-making tools, and a mindset that welcomes change. Without these, companies risk making poor decisions or worse, no decisions at all leading to missed opportunities or falling behind.

According to Quansah, Hartz, and Salipante (2022), SME leaders should adopt integrated bundles of adaptive practices such as continuous learning, reciprocal collaboration, and effective communication to enhance strategic responsiveness, build organizational resilience, and support long-term viability in uncertain business environments.

These markets are also complex, with many factors interacting at the same time. Economic shifts, changes in customer behavior, rising competition and rapid technological advances all happen together, making it tough to predict what's next. In addition, businesses must respond to different stages of their industry life cycles whether they're in a period of growth, maturity, or decline. Each stage demands different strategies, from how resources are used to how products are developed and brought to market.

Volatility and ambiguity further increase the difficulty. Volatility refers to how often and how quickly things change, like price swings or shifts in supply and demand. Ambiguity means it's hard to clearly understand what's happening or what the results of a decision might be. In this kind of environment, old ways of doing business may not work. Companies need to rely more on up-to-date data, test new ideas, and be willing to learn and adapt as they go.

Due to these challenges, businesses can't just react to change they need to be ready before it happens. This means having not only strong external strategies but also internal systems that allow for fast thinking and action. These include having a clear vision, strong communication across departments, and decision-making processes that are both fast and flexible. When these internal strengths are combined with key strategic traits like adaptability, innovation, proactive risk management, and data-driven decision making, companies are better prepared to face disruption and come out stronger.

To support this understanding, Table 1 provides a summary of what defines dynamic markets, the forces that shape them, and what these mean for managers. This framework highlights the urgent need for resilience focused strategies and offers a clear view of the conditions in which modern business models must operate.

Table 1: Key Characteristics of Dynamic Market Environments

Characteristic	Description	Driving Forces / Manifestations	Implication for Management
Uncertainty	Limits managerial decision-making due to unpredictable outcomes and lack of reliable forecasts.	Rapid shifts in supply and demand, technological disruptions, evolving consumer behavior, and macroeconomic instability.	Necessitates robust support systems, strategic flexibility, and real-time data access to improve decision quality.
Volatility	Frequent and abrupt changes in market conditions over short time horizons.	Price fluctuations, demand variability, changing regulations, and intensified competition.	Requires agile operations, adaptive planning, and dynamic resource reallocation.

Complexity	Interdependence of multiple, interacting variables that make cause-effect relationships difficult to trace.	Interplay of economic indicators, consumer behavior, technological trends, and regulatory frameworks.	Demands holistic decision-making, cross-functional collaboration, and systems thinking.
Ambiguity	Lack of clarity in interpreting market signals or anticipating outcomes due to incomplete or contradictory information.	Novel market conditions, disruptive innovations, or unprecedented crises.	Calls for experimentation, scenario planning, and tolerance for strategic uncertainty.

1.4 Research Question

1. What are the key strategic approaches that contribute to the development of business model resilience in dynamic market environments?
2. How do these strategic approaches enhance business model resilience and help firms sustain performance in volatile and rapidly changing markets?

2. THEORETICAL FRAMEWORK

The theoretical framework outlines the key theories that guide the study and support its research focus

2.1 Dynamic Capabilities Theory

Dynamic Capabilities Theory, developed by Teece, Pisano, and Shuen (1997), explains how firms sustain competitive advantage in rapidly changing environments. The theory is highly relevant to business model resilience because it emphasizes a firm's ability to sense environmental changes, seize emerging opportunities, and transform its resource base in response to market disruptions. By fostering strategic flexibility, it enables organizations to redesign value propositions, revenue models, and operational processes to remain competitive. It also supports proactive risk management through continuous environmental scanning and encourages business model reconfiguration, including adjustments in partnerships, cost structures, and customer segments. Its focus on adaptability and organizational learning strengthens long-term resilience in turbulent markets.

However, the theory has notable limitations. It is conceptually broad and difficult to operationalize, particularly when measuring intangible capabilities such as learning and transformation. Its predictive power is limited, as it does not clearly specify which capabilities guarantee resilience. Additionally, it may overemphasize internal resources while overlooking external constraints and can be resource-intensive to implement, potentially leading to strategic instability if firms over-adapt without maintaining coherence.

2.2 Organizational Resilience Theory

Organizational Resilience Theory, introduced by Aaron Wildavsky (1988), posits that organizations cope with uncertainty by building adaptive capacity rather than attempting to predict and prevent every disruption. The theory is significant to business model resilience because it highlights the role of leadership, culture, governance, trust, and robust systems in enabling firms to absorb shocks, adapt operations, and recover effectively during crises. It promotes continuous learning, strategic adaptation, and system strengthening, aligning closely with adaptability, innovation, and proactive risk management in dynamic environments.

Despite its relevance, the theory is broad and multidimensional, making resilience difficult to define and measure empirically. It provides limited guidance on which specific organizational factors most strongly determine resilience and may require substantial resources and structural adjustments that smaller firms may find challenging to implement.

3. RESEARCH METHODOLOGY

The study employed a systematic literature review (SLR) guided by the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework, as illustrated in Figure 1. The objective was to identify and synthesize empirical and theoretical scholarship on Business Model Resilience (BMR), particularly within dynamic and volatile market environments. The review focused on four strategic pillars underpinning resilient business models: adaptability, innovation, proactive risk management, and data-driven decision-making.

Literature was sourced from three major academic databases: Google Scholar, Wiley Online Library, and Scopus, selected for their broad coverage of peer-reviewed publications in business and management. The search strategy utilized carefully constructed keyword combinations aligned with the study themes, including “business model resilience,” “organizational resilience,” “dynamic market environments,” “adaptability,” “innovation strategy,” and “proactive risk management.”

To ensure relevance and contemporary significance, only peer-reviewed journal articles published between 2019 and 2025 were considered. The screening process involved an initial review of titles and abstracts, followed by full-text evaluation to confirm alignment with the research focus. Articles meeting all inclusion criteria were retained for final analysis. The PRISMA flow diagram summarizes the identification, screening, eligibility, and inclusion stages.

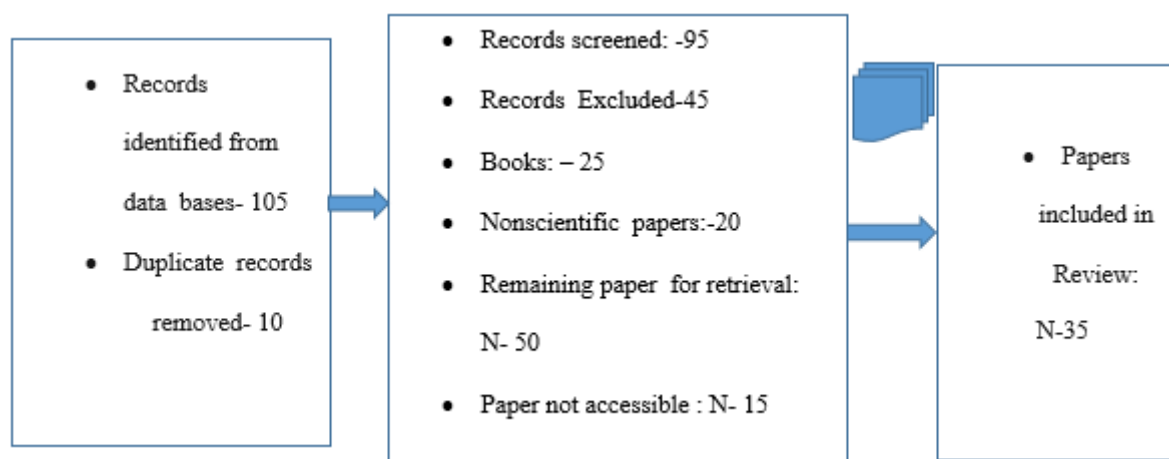


Figure 1. Prisma diagram for the systematic literature review

Figure 2 below illustrates the year-wise publication history, highlighting the temporal trends in research related to the current study. It provides insights into how scholarly interest in the topic has evolved over time.

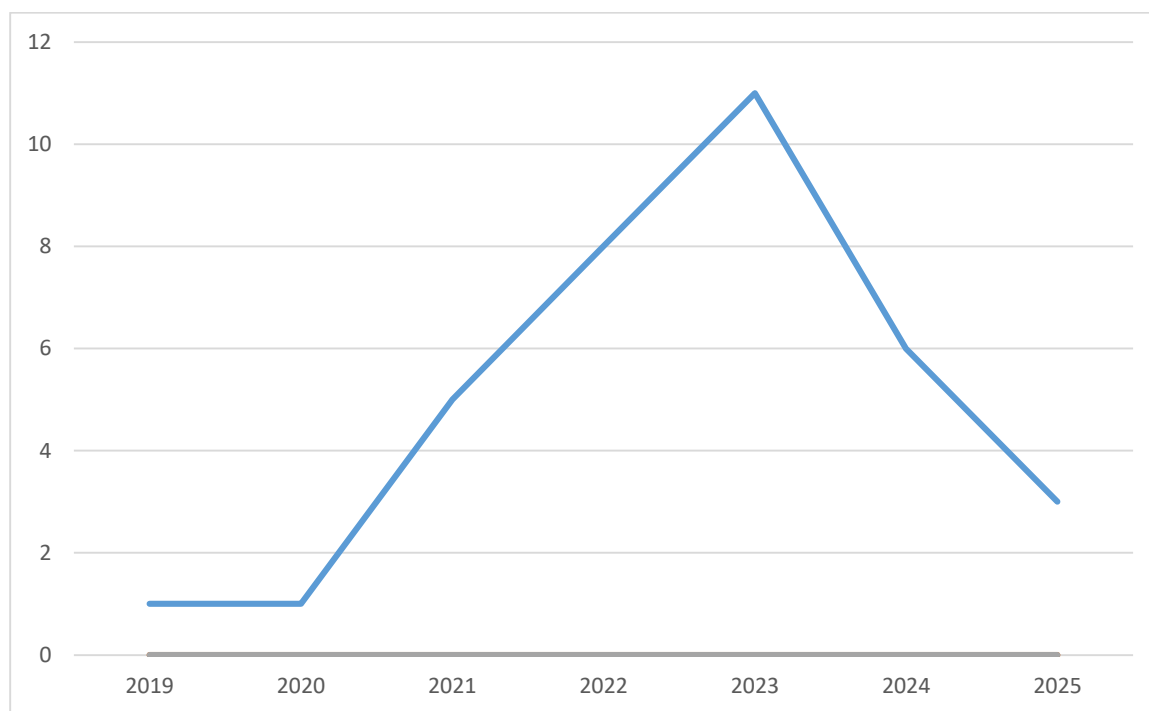


Figure 2. Distribution of publications over time

Table 1 presents the publishers of the journals from which the retrieved studies were sourced, highlighting the distribution of research across various academic publishing platforms

Table 1. Publishers of retrieved Journals

Journal	A abbreviations
Journal of Service Management	JSM
Journal Sensors	JS
Journal of Computer Information Systems	JCIS
Strategic Entrepreneurship Journal	SEJ
Sustainability	MDPI
Transactions on Engineering Management	TEM
Journal of Business Research	JBR
Strategic Entrepreneurship Journal	SEJ
Journal of Small Business and Enterprise Development	JBE
Journal of Heliyon	JH
Technological Forecasting and Social Change	TFSC
Supply Chain Management Journal	SCMJ
Journal of Global Operations and Strategic Sourcing	JGSS
<i>Sustainability</i> (MDPI) Food Research Journal	SFRJ
Sustainability Journal	(MDPI)
Journal of Manufacturing Technology Management	SJ
Center for Management Science Research	SSRN
Social Science Research Network Journal	SSRNJ
Journal ID	JI
International Journal of Artificial Intelligence & Machine Learning	IJAIML
Journal of Organizational Change Management	JOM
Journal Digmensie Management and Public Sector	JDM
Continuity & Resilience Review Journal	CRJ
International Journal of Financial, Accounting, and Management,	IJFAM
Journal of Business Research	JBR
Information Systems Frontiers Journal	ISFJ
The International Journal of Logistics Management	IJLM
Information Technology & People Journal	ITJ
<i>European Journal of Information Systems</i>	EJIS
Journal of Manufacturing Technology Management	JMTM

4. FINDINGS

4.1 Findings

This section synthesizes the principal findings from the reviewed studies, highlighting how innovation, adaptability, data-driven decision making, and proactive risk management collectively shape business model resilience in dynamic and rapidly evolving market environments. The evidence demonstrates that resilience is not a single capability but an integrated system of strategic actions supported by digital transformation, leadership, learning, and risk governance.

4.1.1 Innovation

Innovation, particularly through digital transformation, emerges as a foundational driver of organizational resilience. He et al. (2023) examined how digital maturity influences service organizations' capacity to withstand crises. Their findings revealed that Transformation Management Intensity (TMI) significantly enhances organizational resilience by strengthening individual contributions and systematic control. While individual contributions positively affect performance and employee optimism, systematic control primarily improves performance outcomes. The study underscores the importance of aligning leadership, governance structures, culture, and employee empowerment with technological investments to ensure resilience.

Saeed et al. (2023) further expanded the innovation–resilience nexus by analyzing cybersecurity challenges during digital transformation. Although digital transformation enhances productivity and engagement, it simultaneously increases exposure to cybersecurity threats, particularly in data-intensive sectors. The study emphasized the need for structured cybersecurity readiness frameworks, strategic planning, and employee training to safeguard business continuity.

Mangalaraj et al. (2023) demonstrated that organizations with strong IT capabilities and digital infrastructure exhibit greater agility and responsiveness during disruptions. Similarly, Zhang et al. (2021) established that both exploitative and exploratory innovation mediate the relationship between digital transformation and resilience. Their findings identified multiple pathways to resilience, including combining digital transformation with innovation strategies or leveraging innovation independently.

Empirical evidence from Wang and Chen (2022) confirmed that digital transformation strengthens enterprise resilience by enhancing human capital, innovation, internal controls, and access to finance. Zhou and Zhang (2023) linked digital transformation to corporate sustainability, attributing performance gains to innovation and operational efficiency. Yang et al. (2025) highlighted the mediating role of knowledge sharing and the amplifying effect of transformational leadership in strengthening resilience during the COVID-19 crisis.

For SMEs, Khurana et al. (2022) conceptualized digital transformation as a second-order dynamic capability evolving through sensing, seizing, and transforming processes. El-Haddadeh (2020), applying the TOE framework, emphasized the importance of organizational readiness, IT capabilities, and innovation culture in facilitating cloud adoption. Collectively, these studies affirm that innovation supported by digital capabilities, leadership alignment, and organizational learning forms a critical pillar of resilient business models.

4.1.2 Adaptability

Adaptability represents the organizational capacity to adjust strategies, structures, and operations in response to environmental turbulence. Putritamara et al. (2023) demonstrated that dynamic capabilities significantly influence digital transformation and resilience, particularly in small- and medium-sized family businesses. The mediating role of digital transformation highlights the need for tailored strategies based on firm size and structure.

Chatterjee and Mariani (2022) found that both exploitative and explorative digital transformation strategies enhance organizational flexibility and competitiveness, with explorative strategies exerting a slightly stronger effect. However, Chi et al. (2025) revealed a paradox: while digital transformation improves recovery capacity, it may simultaneously increase operational vulnerability. Integrating Dynamic Capabilities Theory and Resource Dependence Theory, the study emphasized balancing innovation with resilience and strengthening collaborative networks.

Browder et al. (2024), through longitudinal case studies, demonstrated that pre-existing digital capabilities facilitate rapid adaptation during crises and shift strategic focus toward resilience-oriented investments. Balogh (2023) underscored the importance of regional adaptation, showing that resilient management must align with local customer preferences.

Sinha and Ola (2021) highlighted continuous learning and knowledge sharing as essential for disaster resilience, while Nosike et al. (2024) found that combining innovation and adaptability yields stronger post-crisis outcomes. Quansah et al. (2022) emphasized integrated adaptive practices, including communication and reciprocal relationships, in SMEs. Mohamed et al. (2019) further advocated for dynamic and intelligent resilience strategies in power systems, emphasizing technological integration and flexibility.

Overall, adaptability is strengthened through digital readiness, collaborative networks, learning systems, and contextual responsiveness.

4.1.3 Data-Driven Decision Making

The reviewed studies strongly support data-driven decision making as a strategic enabler of resilience. Ciacchi and Penco (2024) found that big data analytics capability (BDAC) plays a central mediating role between digital transformation and business model innovation. Investment in analytics infrastructure, skilled personnel, and a data-driven culture is therefore essential.

Xu et al. (2024) demonstrated that digital transformation enhances innovation performance through the mediating effects of BDAC and organizational agility. Awan et al. (2021) similarly established that big data analytics and business intelligence improve circular economy performance by enhancing decision quality.

In supply chain contexts, Gani and Rahman (2023) and Chenger and Pettigrew (2023) showed that digital and collaborative capabilities strengthen resilience and operational efficiency. Bag et al. (2023) confirmed that big data analytics enhances both internal and external risk management, while Bahrami and Shokouhyar (2022) emphasized the moderating role of risk management culture in amplifying performance outcomes.

Yabe et al. (2022) highlighted the value of data-driven models in guiding recovery planning, and Lin et al. (2025) demonstrated that both proactive and reactive resilience mediate the relationship between big data analytics capability and firm performance, with reactive resilience playing a stronger role in highly dynamic environments. Collectively, these findings position data-driven decision making as a foundational mechanism that enhances strategic foresight, agility, and performance sustainability.

4.1.4 Proactive Risk Management

Proactive risk management constitutes a vital pillar of business model resilience. Pertheban et al. (2023) found that visibility and predefined decision plans significantly enhance SME performance, mediated by ambidextrous capabilities. Afifa and Santoso (2022), using the 3R framework, emphasized collaboration, agility, and risk awareness as central to supply chain resilience.

Lisdiono et al. (2022) demonstrated that leadership capabilities significantly influence organizational resilience through structured risk management systems. Can et al. (2021) showed that resilience and responsiveness positively affect supply chain risk management performance, underscoring the importance of cultivating risk-aware cultures.

Khan (2024) highlighted scenario planning, leadership, and technology integration as essential for addressing modern disruptions. Amuah (2023) illustrated how proactive Enterprise Risk Management enhances early threat detection, stakeholder trust, and sustainable growth. Sugureddy (2024) further demonstrated the potential of AI- and ML-driven risk mitigation systems to strengthen early detection and business continuity through advanced predictive models.

Overall, proactive risk management supported by leadership, analytics, collaboration, and technology enables firms to anticipate, absorb, and recover from disruptions effectively.

Across all four pillars, the findings consistently demonstrate that business model resilience arises from the integration of innovation, adaptability, data-driven decision making, and proactive risk management. Digital transformation serves as a cross-cutting enabler, reinforcing leadership alignment, learning, and technological capability. Firms that strategically align these pillars are better positioned to navigate volatility, sustain performance, and convert disruptions into opportunities for long-term growth.

Table 2. Key findings of literature.

Paper title	Year of Publication	Strategic Pillar	Objectives	Findings
SMEs and digital transformation during a crisis- The emergence of resilience as a second-order dynamic capability in an entrepreneurial ecosystem	2022	Innovation	To investigate the role of sensing, seizing, and transforming in enabling digital transformation in SMEs. To examine how resilience emerges as a higher-order dynamic capability. To understand the multi-level nature of resilience development.	Through digital transformation, SMEs develop resilience as a second-order dynamic capability, evolving across individual, organizational, and ecosystem levels by leveraging sensing, seizing, and transforming.
Digital Innovation Dynamics Influence on Organizational Adoption: The Case of Cloud Computing Services	2019	Innovation	Analyze how organizational innovativeness impacts cloud computing adoption. Evaluate the influence of perceived innovation risks and barriers. Assess the impact of IT-driven innovation competitiveness. Test how innovative IT capabilities influence cloud adoption.	SMEs are more likely to adopt cloud computing when they foster an innovative culture and possess strong IT capabilities, while perceived risks and barriers significantly hinder adoption
Digital Transformation and Cybersecurity Challenges for Business Resilience	2023	Innovation	Identify cybersecurity challenges in digital transformation. Assess how vulnerabilities impact business continuity. Propose a cybersecurity readiness framework for DT	Digital transformation boosts efficiency and engagement but also amplifies cybersecurity risks, demanding sector-specific strategies, robust planning, and heightened human and technological preparedness
Empowering resilience through digital transformation intentions	2025	Innovation	Assess how digital transformation intentions affect firm resilience. Examine knowledge sharing as a mediator. Analyze the moderating role of transformational leadership. Offer practical insights for integrating digital efforts with leadership and knowledge sharing	Knowledge sharing mediates the impact of digital transformation intentions on firm resilience, and transformational leadership strengthens this effect
Dynamic Capabilities (DC) and Digital Transformation (DT)	2023	adaptability	Examine the effect of DT on business resilience. Assess the direct relationship between DC and resilience. Evaluate the mediating role of DT in the DC–resilience relationship	Dynamic capabilities drive digital transformation, which boosts resilience only in small and medium family businesses, not in micro-family or small non-family businesses

Exploring the Influence of Exploitative and Explorative Digital Transformation on Organization Flexibility and Competitiveness	2022	adaptability	Determine exploitative and explorative influence Organizational flexibility Determine exploitative and explorative influence Organizational competitiveness	Both exploitative and explorative digital transformation enhance flexibility, which boosts competitiveness, with explorative having a slightly stronger effect and flexibility acting as a key mediator
Enhancing business community disaster resilience	2021	Adaptability	To assess empirical studies on the role of dynamic capabilities in organizational resilience. To examine the impact of continuous learning and knowledge sharing on resilience. To identify core processes that drive resilience	Continuous learning and dynamic capabilities manifested through innovation and knowledge sharing are essential for strengthening disaster resilience in business communities.
Adaptive practices in SMEs- leveraging dynamic capabilities for strategic adaptation	2022	Adaptability	To identify the key organizational practices that underlie dynamic capabilities in SMEs. To analyze how these practices, enable SMEs to adapt to ongoing business threats. To offer practical strategies for SME leaders to build adaptive capacity	SMEs that adopt continuous learning, build strong reciprocal relationships, and prioritize effective communication are better able to adapt strategically through dynamic capabilities
Building a Resilient Business Strategies for Risk Management	2024	Proactive Risk Mitigations	To examine how risk identification, assessment, and mitigation enhance organizational resilience. To assess the influence of culture, technology, and strategy on risk preparedness. To highlight effective tools and techniques for managing business risks.	Resilient businesses proactively identify and assess risks using integrated tools and organizational culture, enabling them to adapt, respond, and recover effectively from disruptive events.
Leveraging The Proactive Power of Enterprise Risk Management	2023	Proactive Risk Mitigations	To analyze different types of corporate disasters and their organizational impacts. To explore the core components and benefits of Enterprise Risk Management. To assess real-world cases where ERM mitigated corporate crises.	A proactive and integrated ERM framework significantly strengthens an organization's ability to anticipate, manage, and recover from diverse corporate disasters while enhancing resilience and stakeholder trust.

PROACTIVE DATA GOVERNANCE-USING AI AND ML TO ANTICIPATE AND MITIGATE RISKS	2024	Proactive Risk Mitigations	Examine how AI techniques support risk identification and assessment. Evaluate the performance of AI/ML models in risk prediction. Develop a full methodology for data integration, model building, and deployment. Assess AI's role in enhancing business continuity and decision-making	AI and ML significantly improve proactive risk identification, assessment, and mitigation through predictive analytics, NLP, and real-time monitoring, thereby enhancing organizational resilience and business continuity
Examining Leadership Capabilities, Risk Management Practices and Organizational Resilience	2022	Proactive Risk Mitigations	Test if leadership capabilities impact risk management practices. Assess if risk management practices affect enterprise resilience. Evaluate if risk management mediates the link between leadership and resilience.	Leadership capabilities enhance both risk management and resilience in Indonesian State Owned Enterprises, with risk management partially mediating this relationship
How Big Data Analytics Can Help Manufacturing Companies Strengthen Supply Chain Resilience in the Context of the COVID-19 Pandemic	2023	Data Driven Decision Making	Identify internal and external supply chain risks heightened by the pandemic. Assess how BDA tools help mitigate these risks. Evaluate the link between BDA-enabled internal and external risk management. Validate a structural model connecting BDA to resilience outcomes	Big data analytics enhances supply chain resilience by strengthening internal risk management capabilities, which in turn support external risk mitigation and collaboration.
The role of big data analytics capabilities in bolstering supply chain resilience and firm performance	2022	Data Driven Decision Making	Determine whether BDAC enhances supply chain resilience. Assess whether supply chain resilience leads to better firm performance. Investigate if risk management culture moderates the SCR performance relationship.	Big data analytics capabilities improve firm performance by strengthening supply chain resilience, particularly when supported by a strong risk management culture
Toward Data-Driven, Dynamical Complex Systems Approaches to Disaster Resilience	2022	Data Driven Decision Making	Utilize big data (e.g., mobile phone, satellite, and social media data) for tracking real-time recovery. Demonstrate how these models can support policy decisions and disaster management Develop a model that integrates social, physical, and institutional systems into a coupled resilience framework	Integrating big data with complex systems models enables dynamic, scalable, and interpretable measurement of disaster resilience and recovery trajectories.

How Does Big Data Analytics Capability Affect Firm Performance? Unveiling the Role of Organizational Resilience and Environmental Dynamism	2025	Data Driven Decision Making	Assess the impact of BDA capabilities on proactive and reactive resilience. Examine how both types of resilience mediate the relationship between BDA capabilities and firm performance. Evaluate how environmental dynamism moderates these effects.	BDA capability improves firm performance by enhancing proactive and reactive resilience, with reactive resilience playing a stronger mediating role in dynamic environments.
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4.2 Discussion

Table 1 underscores how the four strategic pillars innovation, adaptability, proactive risk mitigation and data driven decision serve as essential foundations for enhancing business model resilience in volatile environments. The reviewed studies consistently emphasize that resilience is not a static attribute but a dynamic capability that evolves through strategic transformation, learning, and technological integration.

The pillar of innovation emerged as a crucial enabler of resilience, especially for SMEs navigating crisis driven environments. Digital transformation enables the development of resilience as a second-order dynamic capability by engaging in sensing, seizing, and transforming activities at individual, organizational, and ecosystem levels. Firms that cultivate an innovative culture and possess strong IT capabilities are better positioned to adopt transformative technologies such as cloud computing. Moreover, transformational leadership and active knowledge sharing were shown to significantly enhance the effectiveness of digital transformation intentions. However, a key limitation across these studies is the contextual focus on SMEs in specific regions or sectors, limiting generalizability. Additionally, some studies did not fully explore the long-term sustainability of innovation driven resilience strategies, especially under prolonged uncertainty.

Adaptability was found to be another cornerstone of resilience, primarily driven by dynamic capabilities and continuous learning. Organizations that engage in exploitative and explorative digital transformation practices exhibit greater flexibility, which enhances competitiveness and crisis responsiveness. These adaptive capabilities are especially critical for SMEs, where strong communication, reciprocal relationships, and a learning culture help navigate ongoing threats. Despite these insights, some studies presented limitations in their methodological designs, such as reliance on qualitative or cross-sectional data, which may not fully capture the evolving nature of adaptability over time. Furthermore, several papers lacked sectoral diversity, focusing largely on manufacturing or family owned businesses, thereby constraining broader applicability.

The third pillar, proactive risk mitigation involves systematically identifying, assessing, and addressing threats before they materialize. Studies highlighted that enterprise risk management (ERM), when integrated with leadership and a proactive organizational culture, enables businesses to effectively anticipate, respond to and recover from disruptions. The use of AI and ML tools has further improved risk identification, real-time monitoring, and decision-making. However, limitations were noted in terms of practical implementation many studies proposed conceptual frameworks without offering empirical validation or longitudinal evidence of effectiveness. Moreover, some models were developed in controlled environments, raising questions about their scalability and adaptability in dynamic real world settings.

Lastly, data driven decision making emerged as a powerful tool in strengthening both supply chain resilience and overall firm performance. Big data analytics capabilities were shown to enhance proactive and reactive resilience, particularly in volatile environments. These tools enable firms to respond quickly by leveraging predictive insights and dynamic systems modeling. Yet, challenges remain regarding data integration, ethical considerations and organizational readiness to implement advanced analytics. A number of studies also acknowledged limitations in data availability, potential algorithmic bias, and the over-reliance on technical infrastructure, which may disadvantage smaller firms or those in developing contexts.

Based on the review, the studies collectively focus on a diverse range of sectors and types of businesses. Below is a categorized list of these sectors and business where most studies focused.

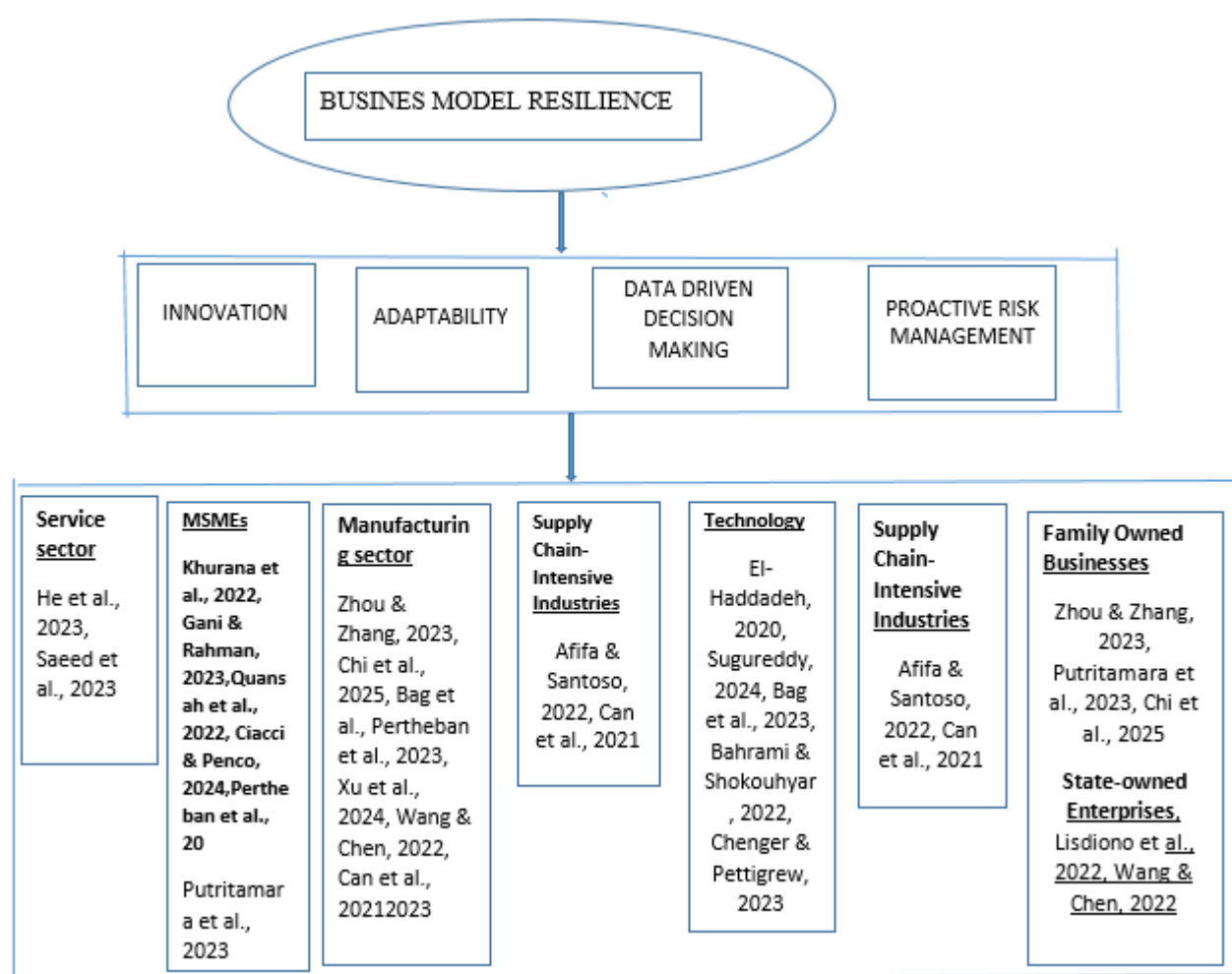


Figure 3. Taxonomy of the literature

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The reviewed studies underscore that building business model resilience in today's volatile environment requires a holistic integration of innovation, adaptability, risk mitigation, and data analytics. Innovation, when strategically aligned with leadership and knowledge-sharing cultures, empowers SMEs to not only adopt digital transformation but to evolve resilience as a higher-order capability. However, to maximize this potential, organizations must move beyond technology adoption to fostering innovation ecosystems that are inclusive and context-aware.

Adaptability is best nurtured through dynamic capabilities, continuous learning, and agile leadership. While SMEs often exhibit resource constraints, those with tailored adaptation strategies and collaborative networks demonstrate superior resilience. This suggests a need for support systems such as capacity building programs and sector specific frameworks that can enhance strategic flexibility across varied contexts.

Data-driven decision-making remains a cornerstone of resilient business models. Big data analytics enhances organizational foresight and responsiveness, yet its benefits are contingent on data accessibility, ethical use, and analytical maturity. Policymakers and industry leaders must invest in digital infrastructure, data governance, and workforce upskilling to ensure these tools translate into equitable resilience gains.

Finally, proactive risk management must be embedded not just in systems, but in culture. The ability to anticipate, plan for, and act on risks before they escalate determines a firm's long-term viability. While technology like AI plays a significant role in early risk detection, fostering an organizational mindset attuned to uncertainty and preparedness is equally critical.

Thus, resilience strategies should integrate technological tools with human, institutional, and contextual considerations to drive sustainable impact.

5.2 Recommendations

Firms should embed digital transformation into core strategies by investing in big data, agile IT infrastructure, and both exploitative and exploratory innovations. Leadership must foster a culture of continuous learning, knowledge sharing, and digital readiness to sustain adaptability and competitiveness.

Organizations should develop dynamic capabilities through continuous learning, collaborative networks, and tailored digital strategies aligned with business size and regional needs. Investing in flexible structures and proactive crisis adaptation enables quicker recovery and long-term resilience.

Businesses should prioritize building big data analytics capabilities and a data-driven culture to enhance innovation, risk management, and supply chain resilience. Policymakers must support SMEs with infrastructure, training, and access to digital tools to close capability gaps.

Firms must institutionalize risk awareness, invest in leadership and adopt proactive strategies like Enterprise Risk Management (ERM) and scenario planning supported by AI and digital tools. Embedding resilience into governance and operations ensures early threat detection and sustainable performance.

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