

Harnessing Innovation, Green Orientation, and Strategic Agility for Business Performance: The Mediating Role of Sustainable Business Model Innovation

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Abstract: In the face of increasing environmental challenges and market volatility, businesses must strategically adapt to sustain long-term competitiveness. This study examines how Innovation Capability, Green Orientation, and Strategic Agility contribute to improved Business Performance, with Sustainable Business Model Innovation (SBMI) serving as a mediating mechanism. Drawing on the Resource-Based View (RBV) and Dynamic Capabilities Theory, the study proposes that firms integrating environmental values with agile and innovative practices are more likely to develop sustainable business models that enhance performance outcomes. Using a quantitative research design, primary data were collected from 360 managerial-level respondents across manufacturing and service firms in Pakistan. Structural Equation Modeling (SEM) was employed to test the hypothesized relationships. The findings confirm that all three independent variables significantly influence SBMI, which in turn positively mediates their effect on business performance. Notably, SBMI emerges as a vital conduit through which green and innovative orientations translate into sustainable competitive advantage. The study contributes to sustainability and strategic management literature by highlighting the mediating role of business model innovation in green and innovation-driven firms. It also provides practical insights for policymakers and business leaders seeking to align growth with sustainability in emerging economies.

Key Words: Innovation Capability, Green Orientation, Strategic Agility, Sustainable Business Model Innovation (SBMI), Resource-Based View (RBV), Dynamic Capabilities Theory

Introduction

The current environmental degradation and increased market volatility have adjusted the expectations of stakeholders on contemporary businesses prompting companies to shift beyond profit maximization to the incorporation of environmental and social responsibility (Ogunyemi & Ishola, [2024](#)). The traditional business models are being seen as ineffective in this new environment, especially in the developing economies like Pakistan where the institutional inefficiencies and limitations of resources add to the preexisting problems (Abid et al., [2024](#)). In such environments, organizations are required to act on environmental concerns and remain competitive at the same time; this is the reason why innovation, green orientation, and strategic agility capabilities have acquired new significance (Bouguerra et al., [2024](#); Tuan, [2023](#)). However, the necessary strategic responses often require significant reorganizations of the structure and development of business models.

Sustainable Business Model Innovation (SBMI) is a radical tool that enables companies to incorporate environmental and social demands into their strategic operations (Minatogawa et al., [2022](#)). Unlike the traditional business models, where economic value was the only focus, SBMI redefines the value creation concept by including the dimensions of sustainability (Girma et al., [2025](#)). The sources of this transition are core competencies, i.e. innovation, green orientation, and strategic agility. The ability to innovate promotes the generation of new solutions (Makhloufi et al.,

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[2021](#)), green orientation demonstrates the ecological responsibility of the firm (Xiao et al., [2025](#)), and strategic agility gives the firm the power to react and respond flexibly (Okumu, [2023](#)). When such competencies are interconnected with the help of SBMI, firms do not only survive but thrive in an environment with a concurring economic and environmental pressures (Dayioglu et al., [2024](#)).

Innovation capability is a well-known predictor of sustainable competitive advantage, especially when it is involved in the implementation of new business models and the development of stakeholder engagement as meaningful, and not transactional (Sagar, [2023](#)). Green orientation also reinforces this dynamic further since it incorporates ecological values into strategic priorities and operational practices. Business firms that have high environmental commitment are therefore in a better position to gain customer confidence, get regulatory compliance and improve efficiency in their operations. All of these qualities can significantly increase the pace of sustainable change (Yin et al., [2024](#)). At the same time, strategic agility supplements these competencies by allowing companies to go through rapidly changing environments and turn to sustainable opportunities, thus remaining consistent with the requirements and requirements of the environment and stakeholders (Reed, [2021](#); Abdulsamad et al., [2025](#)).

The present study uses the integrated theoretical framework of the Resource-Based View (RBV) and Dynamic Capabilities Theory (DCT). The RBV positions that innovation capacity, green orientation and strategic agility are valuable, rare, inimitable, and non-substitutable resources (Cobbinah et al., [2025](#)). However, the unchanging nature of such resources leads to the integration of DCT, which highlights the importance of the capabilities of firms to reorganize and redistribute resources as a reaction to environmental change (Andrade et al., [2022](#)). In this synthesized framework, Sustainable Business Model Innovation (SBMI) is a result as well as a channel through which businesses can convert their internal capabilities into a sustainable and performance-enhancing approaches. The operationalization of the synergies between the resource possession and resource adaptation of RBV and DCT, respectively, is, therefore, operationalized by SBMI.

Further empirical studies on innovation and sustainability are growing, but large gaps still remain, especially in emerging economies, as the mediating role played by Sustainable Business Model Innovation (SBMI) often is either not researched at all, or studied in isolation in developed markets. This is under-theorized and under-tested factor that limits our understanding of the process by which firms transform internal capabilities into sustainable performance in institutional voids and resource constrained environments. The current paper attempts to fill in this gap by integrating the Resource-Based View (RBV) with Dynamic Capabilities Theory (DCT) to conceptualize SBMI as a dynamic process through which innovation capability, green orientation, and strategic agility are linked to the sustainability effects. The present study contributes to the international knowledge base through the empirical casework based on Pakistan and offers practical recommendations to firms and policymakers interested in developing the human and institutional conditions that can allow business performance to be consistent with environmental responsibility in a fast-changing world.

Literature Review

Modern research has discovered a combination of innovation ability, green orientation, strategic flexibility, and sustainable business model innovation (SBMI) as the key to comprehend how companies are able to maintain extreme performance in an increasingly volatile and environmentally conscious business environment. Basing on the Resource-Based View (RBV) and Dynamic Capabilities Theory (DCT), this literature confirms that companies may achieve sustainable competitive advantage by possessing resources that are valuable, rare, inimitable, and non-substitutable (Zvarimwa & Zimuto, [2022](#)) and through their ability to recombine internal and external capabilities in the face of dynamic environments (Saytari et al., [2025](#)). As a result, companies that mix these internal competencies with a clear transformation of their business models have a better chance of producing excellent and sustainable performance.

A firm ability to produce, adopt and utilize new knowledge with the aim of improving product, process or management is known as innovation capability, and it is one of the most important factors of competitive success

(Mendoza-Silva, [2021](#)). This ability enabled sustained performance to be achieved by allowing firms to predict changes in consumer demand, take advantage of technological advancement, and leverage emerging opportunities. This is confirmed by empirical evidence: Venter and Hayidakis ([2021](#)) discovered that the innovation capability had a positive impact on financial and non-financial performance of family and non-family SMEs in South Africa, and Elgarhy and Abou-Shouk ([2023](#)) revealed that innovation capability had a significant positive effect on the market performance by increasing the operational efficiency. This literature provides the following H1: Innovation capability has a positive statistically significant impact on business performance.

The purposeful incorporation of environmental values into business goals and operations as termed as green orientation has taken on a higher priority due to the mounting demands of the stakeholders and the increasing environmental laws (Bouguerra et al., [2024](#)). By being proactive in the green orientation, organizations plan to design environmentally friendly products, reduce their carbon footprints, and integrate sustainability into the operations, thus, improving the corporate image and trust among stakeholders. The empirical evidence supports these arguments, and one of such cases was shown by Peng ([2024](#)) who demonstrated that green oriented strategies have a high positive impact on corporate performance as they fulfil the expectations of stakeholders. In Pakistani setting, Shaukat et al. ([2023](#)) showed that green orientation enhances the market differentiation and, in turn, increases the financial returns. Collectively, the literature is sufficient to support the hypothesis that green orientation has a strong positive influence on the business performance (H2).

Strategic agility is the ability of the firm to adapt to abrupt changes in the environment and take advantage of the arising opportunities (Dayioglu et al., [2024](#)). Regulatory, customer-driven, or technologically instigated changes that occur involuntarily require a quick response; those organizations which are good at quick responses are strategically agile. This claim is supported by empirical studies: Shams et al. ([2021](#)) show that strategic agility can play an important role in increasing international performance due to the capability to make strategic adjustments in time. AlTaweel and Al-Hawary ([2021](#)) also demonstrate that strategic agility is associated with profitability and growth through innovation and responsiveness. Strategic agility is a higher-order dynamic capability that allows firms to recombine resources and explore new strategic directions, at a very fast pace (Mueller-Saegebrecht & Walter, [2025](#)). Overall, these results support the argument that strategic agility produces a significantly positive impact on the business performance (H3).

The strategic re-alignment of business models in a way that allows incorporating environmental, social and economic sustainability can be referred to as sustainable business model innovation (SBMI). Working both as an output and an enabling tool, SBMI helps companies to redesign their value propositions, delivery models, and income-generating models based on sustainable-focused goals. Empirical studies conducted by Zhou et al. ([2023](#)) revealed that SBMI can improve customer satisfaction, organizational flexibility, as well as efficiency. Within the framework of developing countries, Guo et al. ([2022](#)) discovered that SBMI has contributed to a more active engagement of stakeholders and strengthened long-term competitiveness of businesses. In line with this, H4: The sustainable business model innovation significantly affects business performance positively.

Organizational capacity to innovate and be an entrepreneur is influencing business innovation, which is becoming an antecedent of sustainable business model (SBM) innovation. According to scholars, the innovation of SBM is the change agent that transforms nascent innovations into market success, and it therefore links innovation capability and the performance outcomes. As shown by Bashir et al. ([2020](#)) and confirmed by Clauss et al. ([2022](#)), the innovation capability has a positive impact on the performance of firms through SBM innovation. This empirical evidence overlaps with theoretical assumption that there is a synergy between capability of innovation and SBM innovation. As a result, H5: Sustainable business model innovation mediates the relation between innovation capability and business performance is formulated.

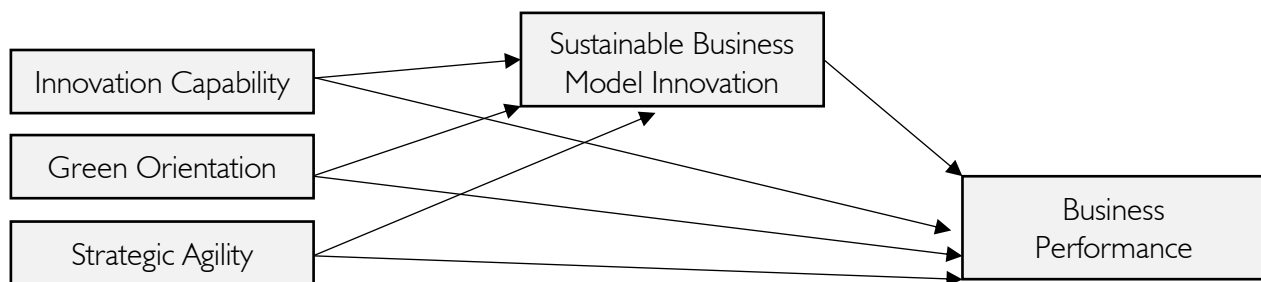
Business models based on sustainability are a critical factor that determines the long-term competitiveness, especially in case of companies with the green orientation. This kind of orientation encourages organizations to adopt environmental practices that force structural adjustments (Xiao et al., [2025](#)). Based on this, firms that are sustainability oriented consistently research, experiment and implement green supply chains, circular product designs and green

energy sources. Considering this phenomenon, Yin et al. (2024) empirically proved the fact that a green orientation stimulated innovation of digital green business models, which brought environmental and financial gains simultaneously. The relationship between the green orientation and firm performance was empirically confirmed by Zhou et al. (2023) that were able to validate a mediating role of sustainable business model innovation. Based on above literature, it can be concluded that sustainable business model innovation is the mediating factor between green orientation and business performance, thereby confirming hypothesis H6.

As empirical studies consistently showed, strategic agility, particularly, can play a central role in sustainable business model innovation by enabling a quick identification of exogenous sustainability pressures and the following reconfiguration of organizational business models. The strategically agile firms are also significantly more adept at exploiting the temporary windows of opportunity, including sustainability-motivated shifts in demand or regulatory incentives. Mueller-Saegebrecht et al. (2025) stated that strategic agility encourages a high level of experimenting and faster model change. Dayioglu et al. (2024) findings supported this conclusion stating that agile firms are good at introducing business model innovation in changing environments. As a result, H7: sustainable business model innovation mediates between strategic agility and business performance.

The current study proposed a synthesizing approach encompassing two most well-known schools of thought, Resource-Based View (RBV) and Dynamic Capabilities Theory (DCT) and considers innovation capability, green orientation, and strategic agility as key drivers of business performance, both directly and indirectly through sustainable business-model innovation (SBMI). Though this model has significant empirical backing in the developed market environment, it is not clear whether it applies in the emerging economies, especially in Pakistan. To this end, therefore, the study fills this gap by focusing on the relationship between such sustainability-oriented capabilities and the role of SBMI in shaping the performance of firms in the dynamic Pakistani economic environment.

Theoretical Framework



Methodology

The current research is based on a quantitative research design with a positivist philosophical perspective, and the deductive approach is used to the hypotheses based on the Resource-Based View (RBV) and Dynamic Capabilities Theory (DCT). The managerial-level employees of enterprises working in the manufacturing and service industries of Pakistan were the target population because they are the most directly involved in the strategic decision-making process of innovations, sustainability, and performance. To ensure balanced representation in both sectors, stratified random sampling scheme was used. Out of 455 questionnaires distributed, 360 usable responses were collected based on email and face to face method. A validated Likert-scale questionnaire was used to determine the measures of innovation capability, green orientation, strategic agility, sustainable business model innovation and business performance. The pre-testing activities and the feedback given by the subject matter experts were used to ascertain adequate content validity and clarity of responses.

Furthermore, this study was carried out and the Partial Least Squares Structural Equation Modeling (PLS-SEM) methodology was used through Smart PLS software. The choice of PLS-SEM was due to the ability to deal with more complex measures of mediation, and the possibility of using smaller sample sizes. In this regard, the research was carried out in two phases: 1) a confirmation of the measurement model through the indices of composite reliability, Average

Variance Extracted (AVE), and discriminant validity tests; and 2) testing the structural model through the bootstrap method (with 5,000 samples) to prove the significance of paths and mediation effects. Ethical considerations were strictly followed: informed consent was obtained, the involvement was voluntary, the confidentiality of information was ensured, and ethics approval was obtained by the institution where the researcher works. This research design highlights validity, reliability, and ethical soundness of the results.

Data Analysis

Reliability Analysis

The reliability analysis indicated satisfactory internal consistency in all constructs, with Cronbach Alpha of all items more than the standard 0.70. The most reliable scale was Strategic Agility, which indicated a Cronbach Alpha of 0.8378 and Composite Reliability of 0.8829, which are indicative of good internal consistency of the measures. Innovation Capability came next with a similar strength with a Cronbach Alpha of 0.8058 and Composite Reliability of 0.8593.

The value of the Average Variance Extracted (AVE) of each construct exceeded 0.50, which is an indication of sufficient convergent validity. The scores of reliability analysis of Green Orientation and Business Performance were relatively low (0.7073 and 0.71, correspondingly), but acceptable. The overall results support the conclusion that the measurement model has strong reliability and convergent validity, and Strategic Agility and Innovation Capability are the most consistent and interpretative constructs.

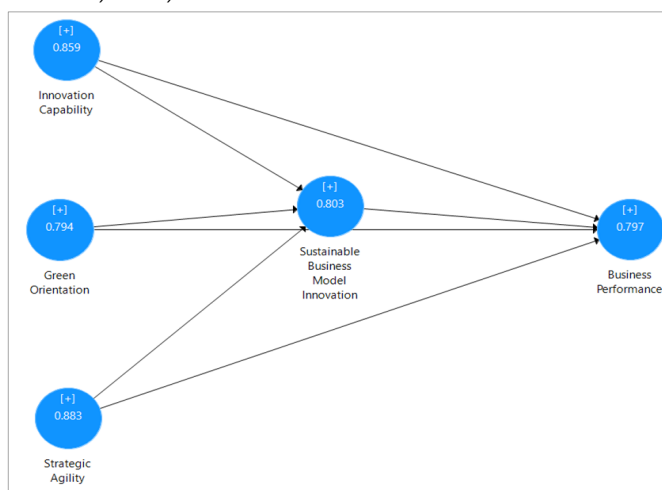
Table I

Reliability Analysis

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Business Performance	0.71	0.7573	0.7974	0.5065
Green Orientation	0.7073	0.7127	0.7935	0.5001
Innovation Capability	0.8058	0.8241	0.8593	0.5041
Strategic Agility	0.8378	0.8356	0.8829	0.5609
Sustainable Business Model Innovation	0.7099	0.7137	0.8027	0.5084

Figure I

Reliability Analysis



Validity Analysis

The results of the Heterotrait-Monotrait Ratio (HTMT) as presented in Table 2 indicate good discriminant validity: all estimates of HTMT were lower than the suggested level of 0.85. The maximum value of 0.7969 is between sustainable business model innovation and innovation capability, which is high and acceptable thus does not violate discriminant validity. These relatively high HTMT values are also observed in strategic agility with sustainable business model

innovation (0.6099) and innovation capability (0.6598), which confirms theoretically anticipated inter-relationship of dynamic capabilities. Conversely, green orientation has lower values of HTMT with strategic agility (0.185) and innovation capability (0.3262), thus, affirming the uniqueness of the constructs. These results confirm the conclusion that all the constructs used are empirically different and validate the strength of the measurement model.

Table 2

Validity Analysis (HTMT)

	Business Performance	Green Orientation	Innovation Capability	Strategic Agility	Sustainable Business Model Innovation
Business Performance					
Green Orientation	0.503				
Innovation Capability	0.5132	0.3262			
Strategic Agility	0.5424	0.185	0.6598		
Sustainable Business Model Innovation	0.5331	0.4338	0.7969	0.6099	

Direct Effect

All the hypothesized relationships are confirmed by the results of direct-effect analyses, since the p-value is less than 0.05, and the value of t-statistics is larger than the critical one of 1.96. The direct effect of strategic agility is the greatest on business performance (beta = 0.29189, t = 6.68), followed by green orientation (beta = 0.25407, t = 7.21). Another statistically significant effect is that of innovation capability and performance, but it is smaller in terms of magnitude (beta = 0.11979, t = 2.45). Comprehensively, the three capabilities, namely innovation capability (beta = 0.47985, t = 10.35), strategic agility (beta = 0.23868, t = 5.94), and green orientation (beta = 0.14834, t = 4.60) are significant predictors of sustainable business model innovation, which highlights their collective role in promoting sustainability change. In addition, evidence showed that business performance is positively influenced by sustainable business model innovation (beta = 0.09766, t = 2.07), hence confirming its mediating role in the transformation of capabilities to performance results.

Table 3

Direct Effect

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Green Orientation -> Business Performance	0.25407	0.25803	0.03524	7.2098	0
Green Orientation -> Sustainable Business Model Innovation	0.14834	0.15258	0.03227	4.59644	0
Innovation Capability -> Business Performance	0.11979	0.11834	0.04881	2.4545	0.01428
Innovation Capability -> Sustainable Business Model Innovation	0.47985	0.48004	0.04637	10.34771	0
Strategic Agility -> Business Performance	0.29189	0.29238	0.04372	6.67665	0
Strategic Agility -> Sustainable Business Model Innovation	0.23868	0.23474	0.04018	5.94057	0
Sustainable Business Model Innovation -> Business Performance	0.09766	0.0958	0.0472	2.06893	0.03881

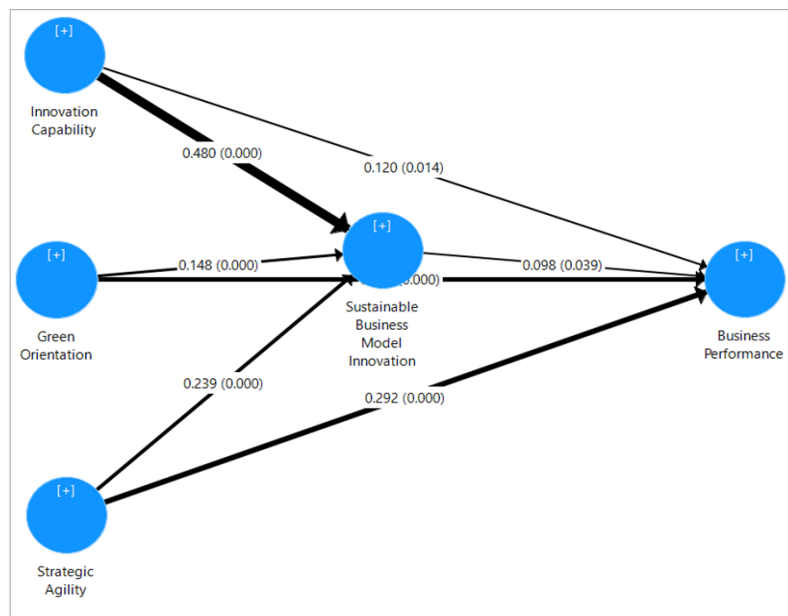
Mediation Effect

The current research showed that sustainable business model innovation (SBMI) mediates significantly the connections between organizational capabilities and business performance. The greatest indirect impact of innovation capability on performance is through SBMI (beta = 0.2148, t = 5.87, p < 0.001) showing that a firm with great innovation capabilities can improve its performance significantly in the event that it directs its efforts towards sustainable innovation. Another

significant mediated effect is presented by strategic agility ($\beta = 0.13546$, $t = 5.24$, $p < 0.001$) demonstrating that it helps to achieve responsive and adaptive business models. Likewise, green orientation has a significant positive indirect impact on performance through SBMI ($\beta = 0.06593$, $t = 5.74$, $p < 0.001$), which highlights the value of environmental values in strategic orientation when incorporated in the business model innovation. Together, the results validated that SBMI is a powerful process in which internal capabilities are converted to sustainable performance results.

Table 4*Mediation Effect*

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Green Orientation -> Sustainable Business Model Innovation -> Business Performance	0.06593	0.06629	0.01148	5.74345	0
Innovation Capability -> Sustainable Business Model Innovation -> Business Performance	0.2148	0.21402	0.03661	5.86727	0
Strategic Agility -> Sustainable Business Model Innovation -> Business Performance	0.13546	0.1337	0.02584	5.24269	0

Figure 2*PLS SEM Results*

Discussions

The present study provides clear empirical evidence in support of all the seven hypotheses tested and, therefore, provides a strong foundation to the hypothesized theoretical framework based on Resource-Based View (RBV) and Dynamic Capabilities Theory (DCT). The first finding is that the direct relationships indicates that innovation capability, green orientation and strategic agility has significant and positive effect on the business performance (H1, H2, H3). These results align with the existing literature, which states that companies with the capacity to engage in continuous innovation (Mendoza-Silva, 2021; Venter & Hayidakis, 2021), those with more significant green strategic agendas (Peng, 2024; Shaikat et al., 2023), and those with demonstrable agility in situations of volatility (Shams et al., 2021; AlTaweel & Al-Hawary, 2021) have better performance dynamics. Second, strategic agility stands out as the most decisive forecaster amongst the three, which speaks to the growing importance of responsiveness in the organization in modern, uncertain environments.

The results also support the H4, which assumes that sustainable business model innovation (SBMI) and performance display a direct and positive relationship. This kind of evidence is in line with an increasing body of research that SBMI is both a value-creating process and a strategic reaction to ecology and stakeholder demands (Zhou et al., [2023](#); Guo et al., [2022](#)). The mediating hypotheses (H5, H6, H7) exhibit the main intermediate position of SBMI between the organizational capabilities and the performance outcomes. Innovation capability is the most mediated path, and thus it portrays the need where technological and operational competency has to be ingrained within the sustainable frameworks to achieve long-term value.

The importance of the mediated effects does not only support theoretical claims that SBMI is the outcome of and mediator of the effects of capabilities on performance, but also expands empirical evidence that SBMI is a channel through which internal strengths can be converted into sustainable competitive advantages (Bashir et al., [2020](#); Clauss et al., [2022](#); Yin et al., [2024](#)). The mediating role of SBMI in the relationship of green orientation and performance (H6) and strategic agility and performance (H7) confirms that environmental values and adaptive strategies are best realized when working through innovative and sustainability-driven business models. Collectively, the findings contribute to academic knowledge of interaction between resource configuration, environmental strategy, and transformation of business models as source of sustainable success.

Conclusion

The current research supports all the hypotheses with strong empirical evidence, thus proving that the capability of the innovation, green orientation, and strategic agility affect business performance in an emerging market of Pakistan significantly, with the mediating role of Sustainable Business Model Innovation (SBMI). This research confirmed that SBMI is a strategic key that enables companies to transform internal organizational capabilities into sustainable and competitive advantages. The merging of the Resource-Based View (RBV) and Dynamic Capabilities Theory (DCT) is hence justified since it demonstrates how companies can adapt, reconfigure and recombine the valuable resources with regard to the market forces and environmental demands. The study will enlarge theory and provide practical recommendations to managers who plan to integrate sustainability in strategic frameworks by emphasizing the partial mediation impact of SBMI. To conclude, the findings confirmed the necessity of an integrated capability development and business model innovation strategy as the only way to achieve resilient and sustainable performance in the complex business environment of the current age.

Implications, Limitations, and Future Research

This research provided various practical implications to theory, practice, and policy. Theoretically, it confirmed the convergence of Resource-Based View (RBV) and Dynamic Capabilities Theory (DCT) in explaining how companies can transform internal capabilities into sustained performance via Sustainable Business Model Innovation (SBMI). As a managerial perspective, it provides an accurate model of enhancing innovation capacity, fostering green orientation, and developing strategic agility as the main drivers of integrating sustainability into core business models. The empirical findings highlighted to policymakers the need to develop institutional conditions that enable sustainability-induced change particularly in resource-constrained emerging countries like Pakistan. However, there are limitations to the investigation as well: due to the use of cross-sectional data, the ability to make causal claims is restricted, and the study of a single country setting does not allow its generalizability. The longitudinal designs and cross-country comparisons should be further explored in the future to support and expand these findings. Moreover, the relationship between external factors such as stakeholder pressure, regulatory frameworks, and technological infrastructure should also be examined to have a more complete picture of the factors that determine the dynamics of SBMI and sustainable Business performance.

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