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Entrepreneurial Orientation and Digital Marketing Adoption as Enablers of Sustainable Business Performance: Mediating Role of Market Responsiveness in Manufacturing Firms

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Abstract: This study examines the influence of Entrepreneurial Orientation and Digital Marketing Adoption on Sustainable Business Performance in the context of manufacturing firms located in Lahore, Pakistan, with Market Responsiveness serving as a mediating variable. Anchored in the Dynamic Capabilities Theory, the study argues that entrepreneurial behaviors—such as innovation, proactiveness, and risk-taking—combined with the strategic use of digital marketing platforms, enhance a firm's ability to sense and respond to changing environmental, consumer, and regulatory demands. A quantitative research design was employed, with structured questionnaires distributed among 320 managerial respondents from medium and large-scale manufacturing firms in Lahore. Partial Least Squares Structural Equation Modeling (PLS-SEM) was used to test the hypothesized model. Results demonstrate that both Entrepreneurial Orientation and Digital Marketing Adoption significantly improve Market Responsiveness, which in turn enhances Sustainable Business Performance. Furthermore, Market Responsiveness partially mediates the relationship between the independent variables and the performance outcome. The findings provide theoretical and practical insights for manufacturing firms aiming to integrate entrepreneurial and digital capabilities for long-term, sustainable success in competitive markets.

Keywords: Entrepreneurial Orientation, Digital Marketing Adoption, Sustainable Business Performance, Market Responsiveness

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Introduction

The rapid change in the global economic environment in recent years has heightened the need of firms and especially those in the developing economies to change and innovate as a way of guaranteeing long-term sustainability. The combination of digital technologies and the rising environmental and social issues has drastically changed the competitive landscape, which requires enterprises to reorganize the traditional approaches and follow new paradigms of value creation. In the case of manufacturing companies located in Lahore, Pakistan, where industrial growth is usually followed by the lack of resources and inefficiencies of the institutions, sustainable business performance is not only a strategic choice but also a condition of survival and development (Ahmad et al., 2021). In this environment, companies have to strike a balance between the complex inter-dependencies of economic, environmental and social demands and be competitive in the turbulent markets. This increased pressure on sustainability, the complications of

globalization and digitalization necessitate a more active and reactive strategic stance, particularly with manufacturing businesses in the transitional economies where infrastructural and regulatory issues are still a problem (Zekos, 2021).

With the growing uncertainty of competitive environments, two strategic capabilities: entrepreneurial orientation and digital marketing adoption, have been identified to be very important in driving sustainable performance. Entrepreneurial orientation (EO) refers to the willingness of a firm to innovate, risk and be proactive, and is a mindset of an organization that pursues opportunities in uncertain conditions. EO enables companies to be prepared to meet changes in market demand, create innovative products, and strategically place themselves in dynamic environments (Moretti et al., 2020). At the same time, digital marketing adoption (DMA) or the incorporation of digital tools and platforms in marketing practices allows reaching out to customers more effectively, personalizing the interaction, and conducting real-time consumer behaviour analyses. These two capabilities have the potential to empower firms to sense and respond to changes in the environment in a timely and effective manner. However, this change assumes an internal process of connecting strategic orientation to technological preparedness and action-oriented result. In this regard, market responsiveness (MR), which is the ability to sense, interpret, and respond quickly to market dynamics, comes out as a key mediator that operationalises entrepreneurial and digital capabilities to deliver sustainable results (Zebec & Indihar Štemberger, 2024).

In order to explore these dynamics, the dynamic capabilities theory (DCT) provides an interesting conceptual lens. Under the resource-based view, DCT assumes that companies have to be capable of integrating, constructing, and recombining both internal and external competencies to respond to the swiftly changing environments. In this context, EO and DMA are strategic and technological abilities which offer a base of dynamic action and MR is the sensing and responding ability of the firm (Song et al., 2025). The result of this dynamic interaction is sustainable business performance (SBP), which reflects the capacity of the firm to achieve long-term economic, environmental and social goals. The theory highlights that the benefits of advantage and sustainability do not only accrue as a result of resource endowment but rather the ability to adaptively deploy resources and in a timely fashion. Based on this, the key aspect is how the entrepreneurial and digital orientations can be converted into practical responsiveness and how responsiveness, in its turn, can impact long-term performance (Rupeika-Apoga et al., 2022).

Although the body of literature on entrepreneurial orientation, digital transformation, and sustainability is growing, the literature research on these constructs is usually studied separately or in a combination of two, and there is little research on how these constructs integrate with each other. Mixed-method studies have determined that EO can support firm performance and innovation, and that DMA can support customer engagement and efficiency, but little has been done to understand how the constructs combine to influence sustainability-related outcomes, especially in the manufacturing industry of developing economies (Svensson, 2024). Besides, the mediating effect of MR is under-theorized, despite it being an important process where strategic capabilities can be converted into actual performance improvements. Environmental volatility, changes in consumer preferences, and uncertainty in regulations are more likely to be stronger in emerging market environments, and it is necessary to clarify the mechanisms through which strategic orientation can be linked with digital integration to sustainable performance (Wu & Tham, 2023).

The research problem that will be addressed in the study is the need to know how manufacturing firms in transitional economies can use their strategic and digital capabilities to enhance sustainable performance outcomes. In particular, the research examines the effects of EO and DMA on SBP and whether MR is a significant mediator between them. Such emphasis is especially relevant to the Pakistani environment, where manufacturing industries have to deal with energy crises, policy uncertainty, supply chain shocks, and changing consumer preferences (Duan et al., 2022). In these settings, the traditional competitive approaches can prove to be insufficient, prompting the transformation into the more dynamic, digitally proficient, and sustainability-driven modes of operation. The focus on Lahore, the industrial and commercial center of Pakistan, allows the study to capture a critical part of the manufacturing ecosystem of the country and provides empirical knowledge in a contextually informed and globally important way (Rana, 2025).

The current research has a number of theoretical, policy, and practice contributions. Theoretically, it supports the use of dynamic capabilities theory in the sense that it empirically proves that entrepreneurial orientation (EO) and digital maturity (DMA) act as antecedents of market responsiveness (MR). Simultaneously, MR plays the role of a mediating construct between EO and DMA and their joint effect on strategic business performance (SBP). The given analytic framework builds upon the available body of literature on the reconfiguration of internal resources by firms in order to address environmental complexity and achieve long-term goals. Policy-wise, the findings offer evidence-based advice to governmental and institutional stakeholders who are keen to promote industrial competitiveness and sustainability in Pakistan (Aslam et al., 2022). Such instruments as targeted policy incentives and strong digital infrastructure that would promote entrepreneurship and digital adoption could significantly improve the strategic responsiveness of manufacturing enterprises. In practice, managers and decision-makers are equipped with a clear picture of the internal capabilities, namely, entrepreneurial thinking, digital fluency, and agility, which are critical in maintaining the performance in the context of increased competitiveness and uncertainty (Aniceto et al., 2025). The empirical design that has been used in this study, a quantitative study of medium and large-scale manufacturing companies in Lahore, creates results that are not only statistically powerful but also strategically viable to the companies that are operating at scale. The use of Partial Least Squares Structural Equation Modeling (PLS-SEM) can provide an in-depth analysis of the relationship between the latent variables because it allows evaluating the complex, multi-path relationship between the latent variables, thus providing a sophisticated analysis of the interaction between EO, DMA, MR, and SBP. Such methodological rigor enhances the reliability and validity of findings, allowing more powerful inferences and fortified generalizations in the manufacturing setting of developing economies. In addition, the research bridges an empirical gap by providing data-based evidence in Pakistan- a data-scarce but strategically significant environment in the global manufacturing and sustainability discourses (Khan et al., 2025).

In addition to making a contribution to existing literature, the research is also a reaction to the changing demands of research that incorporates the concepts of strategic orientation and digital transformation and sustainability imperatives. With interdependent global supply chains becoming ever more competitive and as sustainability concerns rise in the strategic planning agenda, it is critical to understand how internal capabilities can meet external needs (Amighini et al., 2023). Though distinctly useful in their own right, EO and DMA have a stronger explanatory potential when combined, and the synergistic effects of the two on market-oriented behavior and performance should be studied systematically. This integrative perspective enhances scholarly research and provides practical advice to companies that have a future-proofing strategy to put in place to withstand external shocks and discontinuities (Postma et al., 2024).

The mediating role of MR is especially relevant. It summarizes the operational flexibility that converts the strategic inputs into performance of the outcomes. Many companies are unable to achieve sustainability goals not due to lack of innovation or technological capabilities, but lack the ability to read and react to market messages with the necessary rapidity and effectiveness. MR closes this gap so that capabilities are dynamic as opposed to being held. As a result, the ongoing market scanning, rapid decision-making, integration of customer feedback, and adaptive learning become other inalienable components of strategic implementation. Improving MR will therefore be a key to the enterprise-wide sustainability efforts.

The consequences extend further than the manufacturing. The need to achieve sustainable performance in business has never been more urgent in the age of environmental degradation, social inequality and economic volatility. Companies in all industries have a duty to balance profitability, responsibility, innovation, and resilience. The study provides a template that can be replicated by other firms that want to align strategic agility with sustainability goals by demonstrating how such alignment is facilitated by EO and DMA, mediated by MR. The results are thus topical, relevant, and ready to contribute to the debate on the concept of sustainable business strategy in emerging markets and beyond.

Literature Review

The key theoretical framework that the research will use is the Dynamic Capabilities Theory (DCT), which provides a strict perspective of examining how companies plan, execute, and recombine both external and internal resources in

order to address the fast-changing environments in the market. Expanding the resource-based view, DCT asserts that a long-lasting competitive advantage does not only lie in the ownership of rare resources, but in the ability of the organisation to maintain an adaptive stance and react swiftly to the changes in the market needs. In the current context, the Entrepreneurial Orientation (EO) and Digital Marketing Adoption (DMA) are hypothesized as the strategic and technological capabilities that together enable firms to identify opportunities and threats, proactively respond to the emerging changes in the market, and transform the operational processes (Christofide, 2023). In their turn, Market Responsiveness (MR) acts as the dynamic capability that translates these resources and strategies into the tangible, long-term performance results. Synergistic relationships between EO, DMA and MR in the DCT framework allow a more detailed insight into how companies in competitive and turbulent industries, like manufacturing in Pakistan, can use internal agility to achieve sustainable growth goals (Tao et al., 2025).

The positive role of EO in organisational performance has been extensively reported in empirical studies, particularly in situations characterized by uncertainty and dynamic change. Innovativeness, proactiveness, and readiness to take risks define EO, which has always been linked to strategic flexibility, speed of decision making, and a perspective of seeking and taking advantage of market opportunities. Studies carried out in manufacturing settings show that EO enables the launch of new products, the venture into new markets, and the prediction of customer demands, which helps in high performance and sustainability. In emerging markets, where institutional gaps and inadequate infrastructures tend to be the norm, EO plays a critical role in providing firms with the attitude and the skills to thrive in ambiguity as they seek to exploit growth opportunities (Perera, 2024). However, the recent literature is raising more questions about the sustainability of EO, and it is observed that there is a need to ensure that entrepreneurial efforts are aligned with the environmental and social concerns. This questioning is an indication of a change to exploring not just the financial performance but also the ecological and societal long-term performance indicators (Busch et al., 2022).

In line with the advancements of EO-related inquiry, the rapidly increasing digitalisation of the business processes has brought Digital Marketing Adoption (DMA) to the centre of strategic considerations. DMA can be defined as the tactical use of digital tools, such as social media sites, data analytics, search engines, and customer relationship management systems to increase market access and penetration, improve marketing decision-making, and customer relationships. According to empirical evidence, DMA allows companies to interact with consumers on a more personal and interactive level, and as such, it helps to increase customer satisfaction, loyalty and brand positioning (Akdemir & Bulut, 2024). To manufacturing companies, who are traditionally obsessed with efficiency in production, the implementation of digital marketing is a critical step in the shift towards market orientation. DMA provides companies with the opportunity to gather data in real-time and understand the new consumer behaviours, thus making it easy to make quick changes in the offerings. Studies also indicate that companies that use digital marketing practices have higher market agility, competitive differentiation, and innovation--all of which are key contributors to sustainable business performance in the digital age (Farmanesh et al., 2025).

Despite the stand-alone effects of the EO and DMA on organisational performance being well established, there is an increasing view that the interaction between the two is worth considering, especially by the mechanism of MR. MR is the ability of the organisation to sense the changes of customer preferences, competitive forces, and regulatory conditions and to act on these changes quickly and effectively. It encompasses the market-sensing, -interpreting and -reacting activities of the firm, which are critical to the alignment of strategic intent and operational realities. Empirical research suggests that MR mediates the correlation between strategic orientation and performance, which implies that even very innovative or digitally skillful organizations might not achieve performance goals unless they are accompanied by responsiveness (Atobishi et al., 2024). In a manufacturing environment where product cycles are long and customer-feedback loops are drawn out, MR is considered essential to ground entrepreneurial efforts and digital strategies on the needs of the market. Research has continually shown that companies that have high MR translate capabilities into positive results, respond to external shocks and maintain customer relevance, which promotes sustainable performance (Bui & Le, 2023).

Literature on the combination of EO, DMA, and MR into a single analytical framework is rare. A lot of the existing literature is carried out in developed economies or technology-driven industries, and there is a lack of knowledge on how such dynamics play out in the manufacturing industries of developing countries like Pakistan. The unique issues that firms in these settings face such as infrastructural deficiencies, unavailability of capital, inconsistency in regulations, and lack of skills require localised studies of the role of EO and DMA under limited circumstances (Jelinek, 2023). Furthermore, the multidimensional analytic perspective is brought by sustainable business performance, which includes profitability, environmental stewardship, and social responsibility. There is a lack of comprehensive research that measures the extent to which companies are able to direct entrepreneurial and digital orientations to their responsiveness to attain sustainability-oriented objectives especially in environments that are limited in resources (Mishra et al., 2024).

Among the analytic gaps includes the fact that little analysis of the mediating role of market responsiveness (MR) has been done in the literature. In spite of its broad recognition as a dynamic capability, MR has not been addressed in a systematic manner as a channel between strategic orientations and sustainability-related outcomes. The current literature tends to put responsiveness in the background as a secondary process instead of identifying it as the means through which companies implement strategy in a volatile environment (Mueller-Saegebrecht & Walter, 2025). It is important to understand that MR is at the center of this process in order to come up with a more refined picture of how firms dynamically adapt and evolve. Based on this, the present study aims at re-contextualizing MR as a fundamental mediating construct, thus offering a more comprehensive representation of the internal mechanisms through which strategic intent is linked to sustainable effects and addressing the current demands of integrative frameworks capable of aligning entrepreneurship, digital transformation, and responsiveness (Grijalvo Martín et al., 2020).

In that regard, this study develops a model according to which Entrepreneurial Orientation (EO) and Digital Marketing Adoption (DMA) are independent variables that determine Sustainable Business Performance (SBP), whereas MR is a mediating construct. According to the ideas of Dynamic Capabilities Theory, the model implies that EO offers a strategic advantage that is beneficial to innovation and proactivity and DMA increases the capacity of companies to learn and interact in real time with customers. MR operationalizes such capabilities by allowing the firms to identify and react to the market signals effectively, thus converting strategic inputs into sustainability-driven outputs. The combination of these structures gives a comprehensive explanation on how companies adapt, change and sustain performance in a dynamic and uncertain environment.

Methodology

This study uses quantitative research design to empirically examine the correlations between Entrepreneurial Orientation, Digital Marketing Adoption, Market Responsiveness, and Sustainable Business Performance of manufacturing companies in Lahore, Pakistan. This design is selected as it provides objectivity, helps to generalize and is able to test hypothesized associations between latent variables using statistics. Besides, the quantitative model with Partial Least Squares Structural Equation Modeling (PLS-SEM) allows gathering and analysing structured data, which validates the offered conceptual model and determines causal relationships between constructs. The philosophy of the research undertaking is positivist in the sense that it emphasizes observable and measurable phenomena, and empirical evidence is essential in studying theoretical propositions. In line with this, the research employs a deductive logic whereby hypothesis based on the existing literature are subjected to a stringent statistical analysis resulting in firm conclusions on the nature of the analyzed relationships.

The population of interest is the managerial level staff members of medium and large scale manufacturing industry located in Lahore, Pakistan. Lahore has been identified as one of the major industrial and commercial centres with businesses of various sizes, industries and market orientations. The firms are a suitable sample because they have increasingly been exposed to digital transformation and increased competitiveness, which are also characterized by the need to think and act entrepreneurially and sustainably. The respondents were chosen deliberately, as managers have the necessary strategic perspective to evaluate the entrepreneurial stance, digital capacity,

responsiveness to the market, and sustainability performance of the firm. To meet the statistical needs of PLS-SEM, a sample size of 320 respondents was set because the PLS-SEM requires a minimum of ten observations per indicator to facilitate model stability and statistical power.

Sample selection was based on a non-probability purposive design, which focused on individuals who fit specific criteria, including holding a managerial or supervisory position and the decision-making power in the marketing, strategy, operations, or sustainability disciplines. This method was used because the respondents were expected to have the necessary experience and the contextual knowledge to provide valid and reliable evaluations. To collect data, a self-administered questionnaire was used based on validated scales that were used in previous empirical studies. The questionnaire had five parts, namely demographic details, Entrepreneurial Orientation, Digital Marketing Adoption, Market Responsiveness, and Sustainable Business Performance. Perceptions of these constructs were captured using a five-point Likert scale that ranged between strongly disagree and strongly agree. The questionnaire was pre-tested on a small sample of managers whose comments were used to make further improvements to the questionnaire in terms of clarity and precision before full deployment.

The analysis of the data was conducted using PLS-SEM, which is a suitable instrument to analyze a complex model with several constructs and mediating effects. The ability of PLS-SEM to estimate the measurement and structural models simultaneously allowed simultaneous evaluation of construct reliability and validity and allowed testing of hypothesized relationships. The analytic process occurred in a number of steps, namely, the measurement model was tested on internal consistency, convergent validity, and discriminant validity, and the structural model was tested in terms of path coefficients, significance levels, and mediating effects. These estimations and hypothesis tests were accomplished with the assistance of SmartPLS 4.0 software.

Strict ethical considerations were taken during the study. The involvement was purely voluntary and informed consent was sought by all the respondents before the involvement. The objectives of the research, the anonymity of the answers, and the right to withdraw were clearly stated. Data were anonymized to protect individual and organizational identities and all the information obtained was used purely on academic grounds. Lastly, the research was conducted within the institutional ethics to reduce any psychological, professional, or personal damages that could occur due to participation. The study was able to guarantee the reliability, validity, and integrity of its results by keeping high ethical standards and following methodological rigor.

Results

Reliability and Convergent Validity Analysis

Table 1

Reliability and Convergent Validity Analysis

Construct	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
Entrepreneurial Orientation	0.874	0.906	0.659
Digital Marketing Adoption	0.861	0.898	0.686
Market Responsiveness	0.889	0.917	0.688
Sustainable Business Performance	0.878	0.912	0.678

The convergent validity and reliability testing of the measurement model show that all constructs meet the suggested thresholds, thus, confirming the soundness of the instrument. The values of Cronbach Alpha of the Entrepreneurial Orientation (0.874), Digital Marketing Adoption (0.861), Market Responsiveness (0.889), and Sustainable Business Performance (0.878) are higher than 0.70, which shows that there is strong internal consistency of the measurement items. In complement, the values of Composite Reliability (CR) of all constructs are within the acceptable range of 0.898 to 0.917 and exceed the recommended cut off of 0.70, which proves the overall reliability of the constructs. All the Average Variance Extracted (AVE) values of the constructs, which are 0.659 to 0.688, are greater than 0.50, implying

that each construct explains more than 50 percent of the variance of its indicators and, therefore, establishes convergent validity. All these findings confirm the reliability and validity of the measurement model to measure the relationship between the study variables.

Discriminant Validity (HTMT Ratio)

Table 2

Discriminant Validity

Construct	EO	DMA	MR	SBP
Entrepreneurial Orientation (EO)	-	0.622	0.661	0.598
Digital Marketing Adoption (DMA)		-	0.603	0.581
Market Responsiveness (MR)			-	0.648
Sustainable Business Performance (SBP)				-

The results of the empirical analysis of the HTMT (Heterotrait-Monotrait Ratio) analysis provide evidence of sufficient discriminant validity between the constructs. All HTMT values are well below the conservative cutoff point of 0.85, which indicates that the constructs are operationally independent. The HTMT ratios indicate that the connections between Entrepreneurial Orientation and Digital Marketing Adoption (0.622), Entrepreneurial Orientation and Market Responsiveness (0.661) and Entrepreneurial Orientation and Sustainable Business Performance (0.598) are moderately correlated but distinguishable. Similarly, the HTMT coefficients between Digital Marketing Adoption and Market Responsiveness (0.603), and between Digital Marketing Adoption and Sustainable Business Performance (0.581) testify to nontrivial correlations that are not overlapping. Lastly, the HTMT between Market Responsiveness and Sustainable Business Performance (0.648) supports the fact that, even though conceptually related, these constructs are not assessing the same latent variable. Taken together, these findings support the fact that every construct is measuring a unique aspect in the structural model, which protects the proposed paths against the confounding effect of redundancy or multicollinearity.

Collinearity Statistics (VIF Values)

Table 3

Collinearity Statistics

Relationship	VIF
EO → MR	1.532
DMA → MR	1.467
MR → SBP	1.368
EO → SBP	1.419
DMA → SBP	1.387

The values of the Variance Inflation Factor (VIF) that has been reported in the structural model in the current study show that multicollinearity is not a prominent problem. All VIF values are less than the commonly accepted threshold of 3.3, which shows that the predictor constructs are not strongly correlated to one another and that each will contribute uniquely to the model. It is also worth noting that VIFs of Entrepreneurial Orientation (1.532) and Digital Marketing Adoption (1.467) in predicting Market Responsiveness and Market Responsiveness in predicting Sustainable Business Performance are within the acceptable range. In the same way, there is a low multicollinearity between the direct relationships between Entrepreneurial Orientation (1.419) and Digital Marketing Adoption (1.387) and Sustainable Business Performance. These results justify the stability of the structural model and reliability of the estimated path coefficients, which enables a valid interpretation of the relationships between the constructs.

Model Fit Indices

Table 4

Model Fit Indices

Model Fit Index	Value	Threshold
SRMR (Standardized Root Mean Square Residual)	0.053	< 0.08
NFI (Normed Fit Index)	0.921	> 0.90
RMS_theta	0.112	< 0.12

The structural model tests showed a good overall fit which was above the recommended threshold levels of PLS-SEM analysis. The value of Standardized Root Mean Square Residual (SRMR) of 0.053 was also significantly lower than the highest acceptable value of 0.08, which indicated that the correlations that were predicted were very close to the observed correlations and that the residual differences were quite small. Moreover, the Normed Fit Index (NFI) score was 0.921, which was above the standard of 0.90, a result that strengthened the good-of-fit and explanatory power of the model. The RMS_theta of 0.112 also was less than the cut off of 0.12, which demonstrates that the measurement model specification and internal consistency of the reflective constructs were acceptable.

Structural Model (Path Coefficients and Significance)

Table 5

Structural Model

Hypothesis	Path	β (Beta)	t-value	p-value	Decision
H1	EO → MR	0.411	6.452	0.000	Supported
H2	DMA → MR	0.384	5.973	0.000	Supported
H3	MR → SBP	0.467	7.216	0.000	Supported
H4	EO → SBP	0.258	4.138	0.000	Supported
H5	DMA → SBP	0.243	3.987	0.000	Supported
H6	EO → MR → SBP (Indirect)	0.192	4.681	0.000	Supported
H7	DMA → MR → SBP (Indirect)	0.179	4.314	0.000	Supported

The current structural model analysis reveals that all the hypothesized relationships are statistically significant and well supported thus validating the theoretical assumptions of the study. The impact of Entrepreneurial Orientation (EO) on Market Responsiveness (MR) is significant and positive, and the beta coefficient is 0.411 ($t = 6.452$, $p < 0.001$), indicating that the firms that show entrepreneurial behavior react better to the changes in the market. Similarly, the Digital Marketing Adoption (DMA) is revealed to boost the MR, which indicates the significance of digital tools in increasing organizational adaptability (beta = 0.384, $t = 5.973$, $p < 0.001$). MR, in its turn, has a very positive effect on Sustainable Business Performance (SBP) (beta = 0.467, $t = 7.216$, $p < 0.001$), which indicates that the ability to identify and respond to the changes in the market directly leads to improved sustainability results. Both EO and DMA show a direct, positive influence on SBP (B=0.258 and 0.243, respectively) and thus validate their independent effects. Notably, the indirect influence of EO on SBP via MR (B=0.192, $t = 4.681$, $p < 0.001$) is also significant, indicating the mediating role of MR in the explanation of how entrepreneurial strategies contribute to better sustainable performance. The findings all point to the fact that entrepreneurial and digital skills, when directed through increased market responsiveness leads to better sustainable performance in manufacturing companies.

Discussion

The current research contributes to the critical knowledge of the cooperation of entrepreneurial orientation and digital marketing adoption as the promoters of sustainable business performance in the manufacturing sector in Lahore. The connection between entrepreneurial orientation and market responsiveness proved to be statistically significant and suggests that the firms with innovation, proactiveness, and calculated risk-taking orientation are significantly more responsive to the stimuli in the dynamic market. These results confirm the main principles of the dynamic capabilities theory, according to which success in dynamic environments requires constant recombination of internal capabilities to meet the changing external requirements. The empirical findings also support the fact that

entrepreneurial organizations exhibit better nimbleness in balancing strategic plans with consumer anticipations, technological discontinuities, and regulatory demands, and thus strengthening their sustainable businesses in the long run.

A similar conclusion is made on the effect of the use of digital marketing on market responsiveness. The digital tools and platforms are not perceived as mere communicative channels but strategic assets to increase the agility of the organization. With the help of real-time analytics, customer-focused data, and interactive online systems, companies can be in a position to crack the consumer behaviors, predict market trends, and optimize offerings based on the same. The ability to respond quickly to changes in the environment through the integration of this digital competence into the fundamental organizational strategies will contribute to the strengthening of sustainable business performance. The direct positive correlation between digital marketing adoption and sustainable business performance confirms that responsiveness is not only enhanced by digital enablers but also by independent advantages, such as transparency in operations, enhanced communication with stakeholders, and reduced resource inefficiencies which are all essential to long-term viability.

The mediating role of market responsiveness fills the gap between the relationship between entrepreneurial orientation, the adoption of digital marketing and sustainable business performance by explaining the process through which entrepreneurial and digital capabilities translate into outcomes. The research illustrates that the most returns are achieved when both orientations get direct translation into market intelligence and immediate strategic action. A wish to be an entrepreneurial or digital posture, without strong mechanisms of detecting and reacting to market indicators, will not likely bring about long-term sustainability. As a result, building dynamic capabilities that harmonize internal strategic orientation and external exigencies comes out as a pre-condition to organizational success.

Additionally, the direct impacts of entrepreneurial orientation and adoption of digital marketing on sustainable performance highlight the fact that they are independent of responsiveness. Entrepreneurial companies are more likely to be open to change, explore new business models and invest in future-oriented innovations, and digitally competent organizations have greater transparency, better stakeholder engagement, and reduced waste. Such factors are beneficial to the environment, social and economic aspects of sustainability and therefore demonstrates that strategic orientation and adoption of technology are not mutually exclusive but mutually reinforcing success factors.

In theory, the results contribute to the dynamic capabilities theory through empirical confirmation of the intermediate position of market responsiveness in the translation of the entrepreneurial and digital competencies into the results. They affirm that sustainable performance does not only depend on the availability of resources but the ability to use them efficiently in response to the changing contexts. The study further provides a context by locating the analysis in the Pakistani context where companies are subjected to unique institutional, infrastructural and market environments that require both agility and innovation to ensure survival and growth.

Finally, the study confirms that entrepreneurial orientation and the use of digital marketing are essential to the achievement of sustainable performance in manufacturing companies, and that market responsiveness acts as a key mediator. These lessons, which are relevant to the organizations that are working in the unstable and competitive environments, emphasize that the ability to sense, capture, and redesign according to the market forces plays a critical role in the long-term success. Practical implications involve rewarding entrepreneurial cultures, planning to incorporate digital marketing programs beyond cosmetic existence, and establishing strong responsiveness mechanisms by scanning the market, analyzing competitors, and including customer feedback.

To policymakers, the findings prove that there is a need to support digital infrastructure and entrepreneurial ecosystems that would enable manufacturing firms to sustainably thrive. To managers and scholars, the results provide an opportunity to study dynamic capabilities across geographical and industrial settings, especially emerging markets where agility and adaptability are critical. Aligning entrepreneurial behavior with the digital adoption by being responsive to the market, organizations have the potential to not only improve the current performance but also increase resilience and sustainability to future performance.

References

Ahmad, N., Mahmood, A., Han, H., Ariza-Montes, A., Vega-Muñoz, A., Din, M. ud, Iqbal Khan, G., & Ullah, Z. (2021). Sustainability as a "new normal" for modern businesses: Are SMEs of Pakistan ready to adopt it? *Sustainability*, *13*(4), 1944. https://doi.org/10.3390/su13041944

Akdemir, D. M., & Bulut, Z. A. (2024). Business and customer-based chatbot activities: The role of customer satisfaction in online purchase intention and intention to reuse chatbots. *Journal of Theoretical and Applied Electronic Commerce Research, 19*(4), 2961-2979. https://doi.org/10.3390/jtaer19040142

Amighini, A., Maurer, A., Garnizova, E., Hagemejer, J., Stoll, P. T., Dietrich, M., ... & Tentori, D. (2023). *Global value chains: Potential synergies between external trade policy and internal economic initiatives to address the strategic dependencies of the EU*. European Commission.

Aniceto, K., Schneider, S., Brown, O., Patel, S., & Elizabeth, A. (2025). *Agility and Innovation in Business*. Cari Journals USA LLC.

Aslam, H., Nazir, A., & Zia, U. (2022). *Pakistan's Way Forward Towards a Green Economy: Perspectives for a Clean Energy Transition*. Sustainable Development Policy Institute.

Atobishi, T., Moh'd Abu Bakir, S., & Nosratabadi, S. (2024). How do digital capabilities affect organizational performance in the public sector? The mediating role of the organizational agility. *Administrative Sciences, 14*(2), 37. https://doi.org/10.3390/admsci14020037

Bui, M.-T., & Le, H.-L. (2023). Digital capability and creative capability to boost firm performance and formulate differentiated CSR-based strategy. *Heliyon, 9*(3).

Busch, T., Bassen, A., Lewandowski, S., & Sump, F. (2022). Corporate carbon and financial performance revisited. *Organization & Environment*, *35*(1), 154-171. https://doi.org/10.1177/1086026620935638

Christofide, M. (2023). *Antecedents and outcomes of a strategic digital marketing approach* (Doctoral dissertation, University of Leeds).

Duan, W., Khurshid, A., Nazir, N., & Calin, A. C. (2022). Pakistan's energy sector—from a power outage to sustainable supply. Examining the role of China–Pakistan economic corridor. *Energy & Environment*, *33*(8), 1636–1662. https://doi.org/10.1177/0958305x211044785

Farmanesh, P., Solati Dehkordi, N., Vehbi, A., & Chavali, K. (2025). Artificial intelligence and green innovation in small and medium-sized enterprises and competitive-advantage drive toward achieving sustainable development goals. *Sustainability*, *17*(5), 2162. https://doi.org/10.3390/su17052162

Grijalvo Martín, M., Pacios Álvarez, A., Ordieres-Meré, J., Villalba-Díez, J., & Morales-Alonso, G. (2020). New business models from prescriptive maintenance strategies aligned with sustainable development goals. *Sustainability*, *13*(1), 216. https://doi.org/10.3390/su13010216

Jelinek, T. (2023). *The Digital Sovereignty Trap: Avoiding the Return of Silos and a Divided World.* Springer Nature.

Khan, M., Wu, Q., Yan, S., Bilal, K., Junaid, M. B., & Hatamleh, W. A. (2025). Multifunctional Role of Land-Use Planning in Peri-Urban and Urban Agricultural Drylands: The Mediating Effect of Urbanization Level. *Journal of Urban Planning and Development*, *151*(1). https://doi.org/10.1061/JUPDDM.UPENG-5160

Mishra, R., Singh, R. K., & Rana, N. P. (2024). Digital orientation, digital eco-innovation and circular economy in the context of sustainable development goals. *Business Strategy and the Environment*, *33*(4), 2752–2770. https://doi.org/10.1002/bse.3619

Moretti, D. M., Alves, F. C., & Bomtempo, J. V. (2020). Entrepreneurial-oriented strategic renewal in a Brazilian SME: a case study. *Journal of Small Business and Enterprise Development*, *27*(2), 219–236. https://doi.org/10.1108/jsbed-07-2019-0254

Mueller-Saegebrecht, S., & Walter, A.-T. (2025). Strategic agility—an urgent capability for successful business model innovation? A conceptual process model and theoretical framework. *Strategic Change*, *34*(3), 407–428. https://doi.org/10.1002/jsc.2645

Perera, S. R. (2024). *Entrepreneurial orientation and export performance in emerging market SMEs: The role of absorptive capacity, explorative and exploitative learning and networking* (Doctoral dissertation, The University of Waikato).

Postma, A., Hartman, S., & Yeoman, I. (2024). *Scenario planning and tourism futures: Theory building, methodologies and case studies* (Vol. 10). Channel View Publications.

Rana, M. A. (2025). Challenges Towards Digitalization for Leadership in Pakistan (Financial Industry). *Digital Repository of Theses-SSBM Geneva*.

Rupeika-Apoga, R., Petrovska, K., & Bule, L. (2022). The effect of digital orientation and digital capability on digital transformation of SMEs during the COVID-19 pandemic. *Journal of Theoretical and Applied Electronic Commerce Research*, *17*(2), 669–685. https://doi.org/10.3390/jtaer17020035

Song, G., Gazi, M. A. I., Waaje, A., Roshid, M. M., Karim, R., Rahaman, M. A., Min, Z., & Senathirajah, A. R. B. S. (2025). The neuromarketing: Bridging neuroscience and marketing for enhanced consumer engagement. *IEEE Access: Practical Innovations, Open Solutions*, *13*, 40331–40353. https://doi.org/10.1109/access.2025.3545742

Svensson, E. (2024). Materiality Matters: Unraveling the Impact of Double Materiality in Swedish Corporate Sustainability. In.

Tao, J., Aamir, M., Shoaib, M., Yasir, N., & Babar, M. (2025). Bridging the Gap Between Supply Chain Risk and Organizational Performance Conditioning to Demand Uncertainty. *Sustainability*, *17*(6). https://doi.org/10.3390/su17062462

Wu, Y., & Tham, J. (2023). The impact of environmental regulation, Environment, Social and Government Performance, and technological innovation on enterprise resilience under a green recovery. *Heliyon, 9*(10).

Zebec, A., & Indihar Štemberger, M. (2024). Creating AI business value through BPM capabilities. *Business Process Management Journal*, *30*(8), 1–26. https://doi.org/10.1108/bpmj-07-2023-0566

Zekos, G. I. (2021). *E-Globalization and Digital Economy. In Economics and Law of Artificial Intelligence: Finance, Economic Impacts, Risk Management and Governance* (pp. 13-66). Springer.