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IMPACT OF ICT READINESS AND KNOWLEDGE MANAGEMENT ON ORGANIZATIONAL PERFORMANCE WITH MEDIATION OF ENTREPRENEURIAL STRATEGIC ORIENTATION

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ABSTRACT

Small and medium-sized enterprises (SMEs) play a critical role in economic development. Yet many struggle to achieve sustainable performance due to limited technological capabilities, poor knowledge utilization, and insufficient strategic orientation. Drawing on Dynamic Capability Theory and the Resource-Based View, this study examines how ICT Readiness and Knowledge Management influence Organizational Performance. It investigates the mediating role of Entrepreneurial Strategic Orientation in this relationship. Using a quantitative, cross-sectional research design, data were collected from 300 owners and senior managers of SMEs operating in the wood manufacturing industry in Lahore, Pakistan. The findings indicate that both ICT Readiness and Knowledge Management have significant positive effects on Organizational Performance. Moreover, ICT Readiness and Knowledge Management strongly enhance Entrepreneurial Strategic Orientation, which, in turn, exerts a substantial positive influence on Performance. Mediation analysis reveals that Entrepreneurial Strategic Orientation partially mediates the relationships between ICT Readiness and Organizational Performance, as well as between Knowledge Management and Organizational Performance. The findings highlight the need for SME managers and policymakers to adopt integrated strategies that simultaneously strengthen ICT Readiness, Knowledge Management, and Entrepreneurial capability to achieve sustainable growth.

Keywords: *ICT Readiness; Knowledge Management; Entrepreneurial Strategic Orientation; Organizational Performance; SMEs; Wood Manufacturing Industry*

Introduction

SMEs are critical contributors to economic development, employment creation, and innovation in developing economies. In Pakistan, SMEs contribute 40% to GDP and 80% of non-agricultural employment, making them the backbone of economic growth (Shah & Ahmad, 2022). Despite their economic worth, many SMEs face challenges such as weak competitiveness, resource constraints, limited technical adoption, and inconsistent performance (Ullah et al., 2021). In this digital and knowledge-driven economy, organizations are required to adapt advanced information technologies and develop flexible strategic capabilities to survive. ICT Readiness has become an important driver of business agility and efficiency, enabling firms to streamline operations and enhance decision-making processes (Khan & Qureshi, 2022).

Similarly, Knowledge Management (KM) plays a vital role in helping SMEs to build learning capabilities and competitive advantage through effective Knowledge utilization (Seleim & Khalil, 2020). However, the extent to which these internal and external capabilities translate into improved Organizational Performance (OP) may depend on the firm's strategic behavior. Entrepreneurial Strategic Orientation (ESO), which reflects a firm's tendency towards innovativeness, proactiveness and calculated risk-taking, can mediate the relationship between business resources and Performance Outcomes (Ibrahim & Shariff, 2022). Research suggests that SMEs with high ESO achieve better market positioning and growth, particularly in dynamic and uncertain environments (Mahmood et al., 2023). Despite growing scholarly interest, limited empirical evidence exists on how ICT Readiness and Knowledge Management influence Organizational Performance through ESO in the context of SMEs in Pakistan. Therefore, this study aims to bridge this gap.

Research Problem

SMEs in Pakistan continue to struggle with achieving sustainable performance outcomes due to a combination of structural, technological, and strategic limitations. Despite their critical role in national economic growth, competitiveness, and employment generation, many SMEs exhibit weak technological capabilities, reflected in limited digital readiness, insufficient ICT adoption, and low utilization of technology-driven business solutions (Shah & Ahmad, 2022). At the same time, KM practices remain underdeveloped**,** with firms facing challenges in acquiring, sharing, and applying knowledge to support innovation, problem-solving, and strategic decision-making (Ullah et al., 2021). Existing research has highlighted the individual importance of ICT capability and KM processes in strengthening SME competitiveness. However, limited empirical evidence addresses how these elements may interact with one another and collectively translate into improved organizational outcomes. In particular, the strategic role of entrepreneurs, manifested through ESO, is insufficiently explored as a mechanism that links firm-level technological readiness and knowledge assets to performance. ESO, which encompasses proactiveness, innovativeness, and risk-taking tendencies, is recognized as a behavioral pathway through which firms convert resources into competitive advantage. Yet, studies in emerging markets rarely examine how ESO mediates the relationships among ICT Readiness, KM practices, and Performance, especially within the complex and resource-constrained environment of Pakistani SMEs. Therefore, the central problem addressed in this study is the absence of comprehensive empirical evidence explaining how ICT Readiness and KM practices collectively enhance OP through ESO**.** This gap is particularly salient for SMEs in Pakistan, where resource limitations and environmental volatility make it crucial to understand the strategic mechanisms through which firms can leverage their technological and knowledge-based capabilities to achieve superior performance. By addressing this gap, the study seeks to deepen theoretical understanding and provide practical insights for SME development in emerging economies. SMEs in Pakistan face significant Performance challenges due to weak technological capabilities, inadequate KM practices, and inconsistent access to policy support (Shah & Ahmad, 2022). While prior studies have examined the individual importance of ICT and KM, limited research has investigated how these factors interact through entrepreneurial strategic behavior to influence SME performance. Additionally, the mediating role of ESO in linking firm resources and performance has received limited attention in emerging economies. Therefore, the problem addressed in this study is the lack of empirical evidence on how ICT Readiness and KM enhance OP through ESO among SMEs in Pakistan.

Research Questions

The study seeks to answer the following research questions:

1. Does ICT Readiness influence Organizational Performance among SMEs in Pakistan?

2. Does Knowledge Management Influence Organizational Performance among SMEs in Pakistan?
3. Do ICT Readiness and Knowledge Management influence Entrepreneurial Strategic Orientation in SMEs?
4. Does Entrepreneurial Strategic Orientation influence the relationship between ICT Readiness, Knowledge Management, and Organizational Performance among SMEs in Pakistan?

Research Objectives

The objectives of the study are:

1. To examine whether ICT Readiness influences Organizational Performance among SMEs in Pakistan.
2. To determine whether Knowledge Management influences Organizational Performance among SMEs in Pakistan.
3. To evaluate whether ICT Readiness and Knowledge Management influence Entrepreneurial Strategic Orientation in SMEs.
4. To analyze whether Entrepreneurial Strategic Orientation mediates the relationship between ICT Readiness, Knowledge Management, and Organizational Performance among SMEs in Pakistan.

Literature Review

SMEs represent the backbone of developing economies, including Pakistan, where they significantly contribute to GDP, industrial diversification, and employment generation. Over the past decade, SMEs have faced unprecedented shifts driven by digital transformation, global competition, volatile market conditions, and rapid advances in knowledge-driven business models. These changes have forced SMEs to move beyond traditional business routines and develop capabilities that enhance adaptability, innovation, and resilience. Contemporary literature stresses that SMEs must integrate digital technologies, establish robust KM practices, and cultivate entrepreneurial strategic thinking to sustain better performance in dynamic environments. Within this evolving context, understanding how IR and KM influence OP through ESO has become a key area of inquiry.

ICT Readiness (IR) and Organizational Performance

ICT Readiness today extends beyond basic technological infrastructure. Research since 2022 has highlighted deeper dimensions of IR, such as digital literacy, advanced IT systems, cybersecurity awareness, cloud computing use, data analytics capabilities, and organizational willingness to integrate digital tools strategically (Khan & Qureshi, 2022). Empirical evidence consistently demonstrates that SMEs with higher ICT readiness experience improved financial performance, enhanced communication, streamlined workflows, and greater agility in responding to environmental changes. For instance, Malik et al. (2024) report that SMEs using CRM systems, ERP tools, and digital payment platforms achieve significantly higher operational efficiency. ICT readiness becomes even more critical during disruptions, where digital tools enable SMEs to maintain continuity, support remote operations, and manage supply chain volatility. However, scholars caution that ICT investment alone does not automatically translate into performance gains. SMEs often underutilize digital tools due to skill gaps, lack of strategic alignment, or inadequate long-term digital planning. Thus, technological readiness must be coupled with an entrepreneurial mindset that ensures technology is deployed proactively and strategically.

Knowledge Management and Organizational Performance

Knowledge Management plays an increasingly central role in enhancing SME competitiveness, especially in the post-pandemic era. KM enables firms to systematically capture, store, share, and apply knowledge for improved decision-making, innovation, and capability development. Aksoy and Ates (2022) highlight that SMEs with structured KM practices are better positioned to spot emerging opportunities, mitigate risks, and enhance internal collaboration. KM strengthens innovation processes by fostering creativity,

accelerating problem-solving, and reducing redundancy. In resource-constrained economies like Pakistan, KM helps SMEs compensate for financial limitations by optimizing internal expertise. By facilitating continuous learning and enhancing strategic flexibility, KM allows SMEs to navigate market uncertainty more effectively. Nevertheless, many SMEs lack formal KM systems or rely on informal, siloed knowledge-sharing practices due to cultural, financial, or technological barriers. These weaknesses limit the performance impact of KM.

Entrepreneurial Strategic Orientation: The Mediating Mechanism

Entrepreneurial Strategic Orientation reflects a firm's propensity to innovate, take calculated risks, and act proactively. Between 2022 and 2025, studies increasingly position ESO as a critical capability influencing strategic agility, innovation, and performance. Mahmood et al. (2023) note that SMEs with strong ESO are more resilient, adaptive, and growth-oriented, especially in uncertain environments. ESO drives organizations to challenge conventions, pursue emerging opportunities, and integrate strategic experimentation into operations. Moreover, ESO acts as a transformative mechanism that directs how firms interpret and utilize their internal resources, such as ICT and knowledge. Without ESO, firms may fail to capitalize on digital tools or knowledge assets despite having access to them. Hence, ESO is essential for converting IR and KM into meaningful performance outcomes.

ESO as Mediator Between ICT Readiness and Organizational Performance

ICT readiness equips SMEs with the digital tools necessary for growth, but ESO determines how effectively those tools are utilized. Firms with strong ESO are more likely to leverage ICT for innovation, market exploration, data-driven strategies, and new product development. ICT-enabled capabilities such as analytics, digital marketing, and automation only become strategically impactful when supported by entrepreneurial initiative and proactive thinking. Conversely, SMEs lacking entrepreneurial drive may use ICT only for operational tasks, fail to explore digital opportunities, or underutilize advanced technologies. Hence, technological capacity alone does not ensure performance unless entrepreneurial vision guides its application.

ESO as Mediator between Knowledge Management and Organizational Performance

While KM builds the knowledge base needed for informed decision-making and innovation, ESO provides the strategic impetus that transforms knowledge into competitive advantage. Firms with strong KM but weak ESO may accumulate information without translating insights into action. ESO encourages experimentation, opportunity identification, collaboration, and strategic risk-taking, all mechanisms through which knowledge generates value. Recent studies confirm that ESO amplifies the effectiveness of KM by embedding learning into strategy, fostering creative problem-solving, and reducing resistance to change. Thus, KM enhances performance more powerfully when filtered through an entrepreneurial mindset.

Organizational Performance in the Contemporary SME Landscape. Organizational Performance today is understood as a multidimensional construct encompassing financial outcomes, operational efficiency, innovation capability, and strategic agility. In highly dynamic business environments, SMEs must balance technological capability, knowledge utilization, and entrepreneurial mindset to achieve sustainable performance. IR contributes to OP by enabling process automation, operational accuracy, and improved customer responsiveness, while KM enhances learning, efficiency, and innovation potential. However, scholars caution that neither ICT nor KM alone guarantees improved performance. SMEs with advanced technologies may underperform due to weak leadership, skill gaps, lack of strategic alignment, or resistance to change. Similarly, firms with rich knowledge assets may struggle if they lack entrepreneurial initiative or a supportive culture. This reinforces the notion that ESO is a crucial

mediator shaping how technological and knowledge resources translate into performance.

Integrating IR, KM, and ESO

The combined impact of ICT Readiness and Knowledge Management creates a powerful capability base for SMEs. ICT facilitates the flow and storage of knowledge, while KM enhances the strategic application of digital tools. However, achieving performance gains from both requires the presence of ESO, which acts as a catalyst enabling SMEs to convert capabilities into opportunity-driven action. ESO shapes innovation speed, opportunity recognition, resource deployment, and overall strategic responsiveness. Although ESO serves as a strong performance enhancer, some scholars note that overly aggressive risk-taking could introduce instability. Thus, ESO's role must be balanced with strategic discipline. Nevertheless, ESO remains particularly crucial for SMEs with limited resources, as entrepreneurial behavior often compensates for structural weaknesses.

Conceptual Framework

Figure 1.0: Research Framework

Hypothesis Development

H1: ICT Readiness has a significant positive effect on Organizational Performance among SMEs in Pakistan.

H2: Knowledge Management has a significant positive effect on Organizational Performance among SMEs in Pakistan.

H3: ICT Readiness has a significant positive effect on Entrepreneurial Strategic Orientation among SMEs in Pakistan.

H4: Knowledge Management has a significant positive effect on Entrepreneurial Strategic Orientation among SMEs in Pakistan.

H5: Entrepreneurial Strategic Orientation has a significant positive effect on Organizational Performance among SMEs in Pakistan.

H6: Entrepreneurial Strategic Orientation mediates the relationship between ICT Readiness and Organizational Performance among SMEs in Pakistan.

H7: Entrepreneurial Strategic Orientation mediates the relationship between Knowledge Management and Organizational Performance among SMEs in Pakistan.

Research Methodology

This study is grounded in a positivist research philosophy, which assumes that relationships among organizational constructs can be objectively measured and empirically tested through quantitative methods. Positivism is appropriate for the present study because it seeks to test theoretically derived hypotheses, examine causal relationships among clearly defined variables, i.e., IR, KM, ESO, and OP; and generate generalizable findings within the SME context. Consistent with the positivist stance, a deductive research approach was adopted, whereby hypotheses were developed based on Dynamic Capability Theory and the Resource-Based View and subsequently subjected to empirical testing. This approach aligns with prior high-impact marketing and SME research that emphasizes theory testing rather than theory building.

Research Design

The study employed a quantitative, explanatory research design to examine both the direct and indirect effects of ICT readiness and knowledge management on organizational performance

through entrepreneurial strategic orientation. An explanatory design is particularly suitable when the objective is to test causal relationships and mediation effects within a theoretically grounded framework. A cross-sectional survey strategy was used to collect data at a single point in time. The target population of this study consists of SMEs of the wood manufacturing industry in Lahore, Pakistan.

Respondents included owners, general managers, production managers, and senior marketing or operations managers, as these individuals possess sufficient knowledge of their firms' technological capabilities, knowledge practices, and strategic orientation.

Sampling Technique and Sample Size

A non-probability purposive sampling technique was employed to ensure that data were collected from respondents with adequate strategic and operational insight into their organizations. This sampling approach is appropriate in SME research where access to knowledgeable decision-makers is critical for data accuracy. The sample size was determined following PLS-SEM guidelines, including the 10-times rule and minimum R^2 considerations. Given the complexity of the mediation model and the number of structural paths, a minimum sample size of 200 was deemed necessary. To enhance statistical power and robustness, data were collected from 300 respondents, which exceeds recommended thresholds and aligns with sample sizes used in recent high-impact SME studies. All constructs were measured using previously validated scales and assessed on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree), ensuring consistency and comparability with prior studies. Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4 software. PLS-SEM was selected due to its suitability for complex mediation models, prediction-oriented research objectives, non-normal data distributions, and moderate sample sizes common in SME research. The analysis followed a two-step approach:

1. **Measurement model assessment**, including indicator reliability, internal consistency reliability, convergent validity, and discriminant validity
2. **Structural model evaluation**, including hypothesis testing, mediation analysis using bootstrapping (5,000 resamples), assessment of R^2, f^2, and predictive relevance (Q^2)

Results

Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) through SmartPLS 4, consistent with contemporary marketing and SME research. PLS-SEM was selected due to its suitability for complex mediation models, prediction-oriented objectives, and non-normal survey data.

Measurement Model Assessment

All constructs, i.e., IR, KM, ESO, and OP, were modeled as reflective constructs consistent with prior SME and marketing studies.

Reliability and Convergent Validity: Internal consistency reliability and convergent validity were assessed using indicator loadings, Composite Reliability (CR), and Average Variance Extracted (AVE).

Table 1.0: Reliability and Convergent Validity

Construct	Items Retained	Standardized Loadings	CR	AVE
ICT Readiness (IR)	8	0.71 – 0.88	0.93	0.61
Knowledge Management (KM)	10	0.70 – 0.87	0.94	0.58
Entrepreneurial Strategic Orientation (ESO)	9	0.72 – 0.89	0.95	0.63
Organizational Performance (OP)	8	0.74 – 0.90	0.94	0.60

All factor loadings exceeded the recommended threshold of 0.70. CR values were above 0.90, indicating strong internal consistency. AVE values exceeded 0.50, confirming satisfactory convergent validity.

Discriminant Validity: Discriminant validity was assessed using the Heterotrait–Monotrait (HTMT) ratio.

Table 1.1: Discriminant Validity

Constructs	IR	KM	ESO	OP
IR	–			
KM	0.64	–		
ESO	0.59	0.61	–	
OP	0.62	0.65	0.68	–

All HTMT values were below the conservative threshold of 0.85, confirming adequate discriminant validity.

Structural Model Assessment

Collinearity Assessment: Variance Inflation Factor (VIF) values for all predictor constructs were below **3.3**, indicating no multicollinearity concerns.

Direct Effects Testing: The direct relationships proposed in the conceptual model were tested using bootstrapping.

Table 1.2: Structural Model Assessment

Hypothesis	Path	β	t-value	p-value	Result
H1	IR → OP	0.18	2.54	0.011	Supported
H2	KM → OP	0.22	3.18	0.002	Supported
H3	IR → ESO	0.41	7.92	< .001	Supported
H4	KM → ESO	0.39	7.11	< .001	Supported
H5	ESO → OP	0.36	6.48	< .001	Supported

Mediation Analysis: The mediating role of Entrepreneurial Strategic Orientation (ESO) was examined using bootstrapped indirect effects.

Table 1.3: Mediation Analysis

Hypothesis	Indirect Path	β	t-value	p-value	Result
H6	IR → ESO → OP	0.15	4.87	< .001	Supported
H7	KM → ESO → OP	0.14	4.41	< .001	Supported

Both indirect effects were statistically significant, confirming partial mediation.

Type of Mediation: Since both direct effects (IR → OP; KM → OP) and indirect effects via ESO were significant, the results indicate complementary partial mediation.

Model Explanatory and Predictive Power

The model explains 52% of the variance in Organizational Performance, indicating substantial explanatory power for SME marketing and strategy research. Positive Q^2 values confirm strong predictive relevance.

Table 1.4: Model Explanatory and Predictive Power

Endogenous Construct	R^2	Q^2	Key f^2 Effects
Entrepreneurial Strategic Orientation	0.47	0.26	IR = 0.26 (medium); KM = 0.24 (medium)
Organizational Performance	0.52	0.31	ESO = 0.21 (medium); KM = 0.08 (small); IR = 0.05 (small)

Findings and Discussion

This study set out to examine how IR and KM influence OP among SMEs in the wood manufacturing industry of Lahore, with particular emphasis on the mediating role of ESO. Drawing on Dynamic Capability Theory and the Resource-Based View, the findings provide a theoretically coherent and empirically robust explanation of how technological and knowledge-based resources are converted into superior performance outcomes through entrepreneurial strategic behavior. Overall, the results demonstrate that IR and KM exert both direct and indirect effects on OP, and that ESO functions as a critical behavioral mechanism that enables SMEs to strategically deploy their technological and knowledge assets. The model explains a substantial proportion of variance in organizational performance (R^2 = 0.52), underscoring the practical and theoretical relevance of integrating digital readiness, knowledge processes, and entrepreneurial strategy in SME performance research.

ICT Readiness and Organizational Performance

Consistent with Hypothesis H1, the results reveal a positive and statistically significant relationship between ICT Readiness and Organizational Performance (β = 0.18, $p < .05$). This finding confirms that SMEs with higher levels of digital infrastructure, ICT integration, and employee ICT competence are more likely to achieve superior financial and non-financial performance outcomes. From a marketing and strategic management perspective, this result reinforces the view that ICT readiness enhances operational efficiency, market responsiveness, customer engagement, and decision-making quality, all of which are essential for competitiveness in contemporary manufacturing markets. In the context of wood manufacturing SMEs in Lahore, ICT readiness likely supports improved supply chain coordination, digital communication with buyers, inventory management, and customer relationship management—capabilities that directly contribute to improved organizational outcomes. However, the modest magnitude of the direct effect suggests that ICT readiness alone is not sufficient to guarantee sustained performance improvements. This aligns with recent scholarship arguing that digital technologies yield performance benefits only when they are strategically aligned with firm behavior and decision-making processes. Thus, while ICT readiness represents an important enabling resource, its true performance value depends on how actively and entrepreneurially it is utilized within the organization.

Knowledge Management and Organizational Performance

Supporting Hypothesis H2, Knowledge Management was found to have a significant positive effect on Organizational Performance (β = 0.22, $p < .01$). This finding underscores the central role of KM practices such as knowledge acquisition, sharing, storage, and application in enhancing SME performance, particularly in resource-constrained environments. For wood manufacturing SMEs, effective KM facilitates

process improvement, innovation, quality consistency and problem-solving, enabling firms to compensate for financial and technological limitations through better utilization of internal expertise. This result aligns with prior empirical studies suggesting that KM strengthens organizational learning and adaptive capacity, which are especially critical in volatile and competitive markets. Notably, the effect size of KM on performance was slightly stronger than that of ICT readiness, highlighting that knowledge-based capabilities may be particularly salient for SMEs where tacit knowledge, craftsmanship, and experiential learning play a central role. Nevertheless, similar to ICT readiness, KM's performance impact appears to be partly contingent on strategic orientation, suggesting that knowledge must be actively leveraged rather than merely accumulated.

5.4 ICT Readiness, Knowledge Management and Entrepreneurial Strategic Orientation: Addressing Hypotheses H3 and H4, the findings indicate that both ICT Readiness ($\beta = 0.41$, $p < .001$) and Knowledge Management ($\beta = 0.39$, $p < .001$) have strong and significant effects on Entrepreneurial Strategic Orientation. These results provide compelling evidence that technological and knowledge-based resources stimulate entrepreneurial behavior by enhancing firms' capacity to innovate, act proactively, and pursue market opportunities. From a theoretical standpoint, these findings align with dynamic capability theory, which posits that firms develop strategic orientations by integrating and reconfiguring internal resources in response to environmental changes. ICT readiness enables SMEs to access market information, analyze trends, and experiment with digital channels, while KM equips them with insights and experiential learning needed for strategic decision-making. Together, these capabilities foster an entrepreneurial mindset that encourages opportunity recognition and strategic flexibility. Importantly, the strong effects of IR and KM on ESO suggest that entrepreneurial orientation is not purely dispositional or cultural, but can be cultivated through deliberate investment in technology and knowledge systems. This insight is particularly valuable for SMEs in emerging economies, where entrepreneurial behavior is often constrained by resource limitations rather than a lack of intent.

Entrepreneurial Strategic Orientation and Organizational Performance

In support of Hypothesis H5, Entrepreneurial Strategic Orientation exhibited a strong positive effect on Organizational Performance ($\beta = 0.36$, $p < .001$). This finding confirms that SMEs characterized by higher levels of innovativeness, proactiveness and calculated risk-taking achieve superior performance outcomes. This result reinforces the argument that entrepreneurial behavior functions as a strategic accelerator, enabling firms to translate resources into market advantage. In the wood manufacturing sector, entrepreneurial orientation likely manifests through product customization, proactive market expansion, adoption of new production techniques, and exploration of export opportunities—all of which enhance firm performance. The relatively larger effect size of ESO compared to the direct effects of IR and KM highlights that strategic behavior plays a more decisive role in performance than resources alone. This finding resonates strongly with contemporary marketing and entrepreneurship literature, which emphasizes that competitive advantage arises not from resource possession but from resource deployment.

Mediating Role of Entrepreneurial Strategic Orientation

The mediation analysis provides strong support for Hypotheses H6 and H7, demonstrating that Entrepreneurial Strategic Orientation partially mediates the relationships between ICT Readiness and Organizational Performance, as well as between Knowledge Management and Organizational Performance. Specifically, the indirect effects of IR to ESO to OP ($\beta = 0.15$, $p < .001$) and KM to ESO to OP ($\beta = 0.14$, $p < .001$) were both statistically significant, indicating that a substantial portion of the performance impact of ICT readiness and KM is transmitted through

entrepreneurial strategic behavior. These findings extend prior research by empirically validating ESO as a behavioral conversion mechanism through which technological and knowledge-based resources generate value. While SMEs may possess digital infrastructure or knowledge repositories, performance gains materialize more fully when these assets are leveraged through proactive opportunity-seeking, innovation, and strategic experimentation. At the same time, the persistence of significant direct effects suggests complementary partial mediation, meaning that ICT readiness and KM also influence performance through additional pathways, such as operational efficiency and process optimization. This nuanced finding enhances theoretical precision by avoiding overly simplistic full mediation claims and acknowledging the multifaceted nature of performance generation in SMEs.

Integrated Interpretation and Theoretical Implications

Taken together, the findings provide a holistic explanation of SME performance by integrating technological capability, knowledge processes, and entrepreneurial strategy within a single explanatory framework. The results demonstrate that ICT readiness and knowledge management serve as foundational resources, while entrepreneurial strategic orientation functions as the strategic catalyst that activates these resources. This integrated perspective contributes to marketing and SME literature in several important ways. First, it advances dynamic capability theory by empirically illustrating how digital and knowledge capabilities are transformed into performance through strategic orientation. Second, it extends the resource-based view by highlighting ESO as an internal capability that enables firms to extract value from resources. Third, it enriches entrepreneurship research by positioning entrepreneurial orientation as a mediator rather than solely a direct antecedent of performance. Importantly, the industry-specific focus on wood manufacturing SMEs in Lahore grounds these theoretical contributions in a realistic and under-researched context, enhancing both academic relevance and practical applicability.

Theoretical Implications

This study makes several important theoretical contributions to the marketing, entrepreneurship, and SME performance literature. First, the study advances Dynamic Capability Theory by empirically demonstrating how IR and KM operate as lower-order capabilities that require a higher-order strategic orientation, i.e., ESO, to generate Performance Outcomes. By positioning ESO as a mediating mechanism rather than a direct antecedent alone, the study enriches dynamic capability research with a clearer explanation of how resource reconfiguration leads to competitive advantage in SMEs. Second, the findings extend the Resource-Based View by highlighting that resource possession is insufficient for performance unless accompanied by strategic behavioral capabilities. ICT infrastructure and knowledge repositories, while valuable, become sources of sustained advantage only when firms possess the entrepreneurial orientation necessary to deploy them proactively and innovatively. This contribution responds to longstanding critiques of the RBV regarding its limited attention to resource utilization processes. Third, the study contributes to entrepreneurial orientation theory by empirically validating ESO as a behavioral conversion mechanism linking organizational resources to performance. Unlike prior studies that predominantly model entrepreneurial orientation as a direct predictor, this research demonstrates its mediating role, offering a more integrative and process-oriented perspective. Finally, by focusing on wood manufacturing SMEs in Lahore, the study enriches the empirical base of SME research in emerging economies and traditional manufacturing sectors, which remain underrepresented in high-impact marketing and management journals. This contextual contribution enhances the generalizability and boundary refinement of existing theories.

Managerial Implications

The findings offer several actionable insights for SME owners, managers, and policymakers. First, SME managers should recognize that ICT investments must be strategic rather than symbolic. Merely acquiring digital tools or infrastructure is unlikely to yield substantial performance gains unless these technologies are actively integrated into marketing, operations, and decision-making processes. Managers should therefore focus on developing ICT competencies, data-driven decision practices, and cross-functional digital integration. Second, the results underscore the importance of formalizing knowledge management practices within SMEs. Managers should encourage systematic knowledge sharing, documentation of best practices and learning from both successes and failures. In industries such as wood manufacturing, where tacit knowledge and craftsmanship are critical, structured KM systems can significantly enhance consistency, innovation, and quality. Third, the study highlights entrepreneurial strategic orientation as a critical managerial lever. SME leaders should actively cultivate innovativeness, proactiveness, and calculated risk-taking within their organizations by encouraging experimentation, tolerating reasonable failure, and fostering opportunity-seeking behavior. Training programs, incentive systems, and leadership development initiatives should be aligned to reinforce entrepreneurial thinking. Fourth, policymakers and SME support institutions should design interventions that simultaneously strengthen ICT readiness, knowledge management, and entrepreneurial capability. Isolated technology subsidies or training programs may yield limited impact unless complemented by initiatives that promote strategic orientation and entrepreneurial behavior. Integrated SME development policies can thus generate more sustainable performance outcomes.

Policy and Practical Implications for SME Development

From a policy perspective, the study suggests that national and regional SME development strategies should move beyond narrow technology adoption metrics and incorporate behavioral and strategic dimensions of firm performance. Government agencies, industry associations, and chambers of commerce can play a vital role by providing entrepreneurship-focused digital training, knowledge-sharing platforms, and mentorship programs tailored to traditional manufacturing sectors. For the wood manufacturing industry in Lahore specifically, cluster-based initiatives that promote shared ICT infrastructure, inter-firm knowledge exchange, and entrepreneurial collaboration could significantly enhance sector-level competitiveness. Such collective approaches are particularly valuable in resource-constrained environments where individual SMEs may struggle to invest independently.

Conclusion

The primary objective of this study was to examine how IR and KM influence OP among SMEs operating in the wood manufacturing industry in Lahore, Pakistan, with particular focus on the mediating role of ESO. Grounded in Dynamic Capability Theory and the Resource-Based View, the study provides a comprehensive explanation of how technological and knowledge-based resources are transformed into superior performance outcomes through entrepreneurial strategic behavior. The findings demonstrate that both IR and KM exert significant direct effects on OP, confirming their importance as foundational capabilities for SME competitiveness in contemporary markets. However, the results further reveal that these effects are substantially amplified when mediated by ESO, underscoring the critical role of strategic behavior in converting resources into tangible performance gains. SMEs that exhibit higher levels of innovativeness, proactiveness, and calculated risk-taking are better positioned to leverage digital infrastructure and organizational knowledge to achieve enhanced efficiency, market responsiveness, customer satisfaction and sustainable growth. Importantly, the study shows that entrepreneurial strategic orientation is not merely an outcome of firm culture or leadership disposition, but rather a strategically developable capability shaped by

investments in IR and structured KM practices. This insight is particularly salient for SMEs in emerging economies, where resource constraints often limit performance potential. By demonstrating that entrepreneurial behavior acts as a behavioral conduit through which technological and knowledge resources generate value, the study advances a more nuanced understanding of SME performance dynamics. Overall, the study concludes that organizational performance in SMEs is not driven by technology or knowledge in isolation, but by the strategic integration of these capabilities through an entrepreneurial orientation. In the absence of such orientation, investments in ICT and KM may remain underutilized, yielding only incremental performance improvements. Conversely, when guided by entrepreneurial strategic thinking, these resources become powerful drivers of competitive advantage and long-term sustainability.

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