

Mediating Effect of Absorptive Capacity on the Relationship Between Entrepreneurial Competencies and Performance of Small and Medium Enterprises in Nairobi County Kenya

Rose A. Mboya^{1*} Pamela A. Mreji² Hezron M. Osano³ Evans V. Sagwa⁴

1. Department of Business and Management Studies, Technical University of Kenya P. O. Box 52428-00200 Nairobi, Kenya
2. Department of Business and Management Studies, Technical University of Kenya P. O. Box 52428-00200 Nairobi, Kenya
3. Department of Business and Management Studies, Technical University of Kenya P. O. Box 52428-00200 Nairobi, Kenya
4. Department of Business and Management Studies, Technical University of Kenya P. O. Box 52428-00200 Nairobi, Kenya

* Email of the Corresponding author: rsmboya@yahoo.com, rose.mboya@kirdi.go.ke

Abstract

Small and Medium Enterprises (SMEs) are important drivers of employment, industrialization, innovation and economic growth in Kenya, yet many SMEs continue to face low productivity, weak competitiveness and high failure rates. Although entrepreneurial competencies are widely recognized as determinants of enterprise success, the mechanisms through which they influence performance remain insufficiently understood. This study therefore examined whether absorptive capacity mediates the relationship between entrepreneurial competencies and the performance of manufacturing SMEs in Nairobi County, Kenya. Entrepreneurial competencies comprised opportunity identification, networking, leadership and organizational learning, while absorptive capacity was conceptualized as the ability to acquire, assimilate, transform and exploit external knowledge. The SMEs performance was measured using a composite index of innovation rate, sales turnover, market share and profitability. The study was anchored on the Knowledge-Based View Theory and adopted a descriptive research design. The target population comprised 590 SMEs registered with the Kenya Association of Manufacturers (KAM) in food and beverage processing, cosmetics and detergents, leather and leather goods, and metal fabrication sectors. A stratified random sample of 238 SMEs was selected and data collected using structured questionnaire administered to SMEs owners and managers and analyzed using descriptive statistics, Pearson correlation analysis, exploratory factor analysis, multiple linear regression, Hayes PROCESS Model 4 bootstrapped mediation analysis and a supplementary PLS-SEM analysis. Results showed that entrepreneurial competencies strongly predicted absorptive capacity ($B = .659$, $\beta = .641$, $p < .001$, $R^2 = .410$) and significantly predicted SMEs performance in the total-effect model ($B = .444$, $\beta = .418$, $p < .001$). However, when entrepreneurial competencies and absorptive capacity were entered simultaneously, absorptive capacity did not significantly predict performance ($B = .030$, $\beta = .029$, $p = .726$), while the direct effect of entrepreneurial competencies remained significant ($B = .424$, $\beta = .399$, $p < .001$). The bootstrapped indirect effect was small and non-significant ($ab = .020$; 95% bootstrap CI $[-.101, .151]$), indicating that absorptive capacity did not significantly mediate the relationship between entrepreneurial competencies and SMEs performance. A supplementary PLS-SEM analysis was undertaken to assess whether this conclusion remained consistent when the constructs were modelled as latent variables within an integrated structural model. PLS-SEM corroborated this conclusion: EC $\rightarrow$ ACAP was significant ($\beta = .668$, $p < .001$), EC $\rightarrow$ performance remained significant ($\beta = .407$, $p < .001$), ACAP $\rightarrow$ performance was non-significant ($\beta = .009$, $p = .947$), and the indirect EC $\rightarrow$ ACAP $\rightarrow$ performance effect was non-significant ($\beta = .006$; 95% CI $[-.129, .134]$). The findings show that entrepreneurial competencies enhance SME performance primarily through a direct pathway. Absorptive capacity remains strategically important for knowledge processing, but additional innovation, commercialization, technology and market capabilities may be required to convert absorbed knowledge into measurable performance. The findings extend the Knowledge-Based View by distinguishing knowledge absorption from knowledge value realization and suggest that additional mechanisms, such as innovation, commercialization, digital capability and knowledge-management routines, may be necessary to convert absorbed knowledge into superior performance. The study recommends strengthening entrepreneurial competencies alongside investments

in organizational learning systems, staff training, knowledge-management practices and collaborative innovation networks.

Keywords: Entrepreneurial competencies; absorptive capacity; SMEs performance; manufacturing SMEs; Kenya Association of Manufacturers; Knowledge-Based View

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1. Introduction

Small and medium enterprises operate in environments where access to useful knowledge is necessary but rarely sufficient for superior performance. Manufacturing SMEs in particular depend on information from customers, suppliers, competitors, standards bodies, technology providers, research institutions and wider business networks. The ability to recognize the value of such knowledge, internalize it and apply it is therefore central to innovation and competitiveness. This capability is commonly described as absorptive capacity, a concept originating in the seminal work of Cohen and Levinthal (1990) and subsequently re-conceptualized by Zahra and George (2002) as a multidimensional dynamic capability.

The literature generally assumes that absorptive capacity provides an organizational mechanism through which antecedent managerial or strategic capabilities are converted into innovation and performance. In this reasoning, entrepreneurial behaviour encourages firms to search for opportunities and external knowledge, while absorptive capacity allows the firm to recognize, assimilate, transform and exploit that knowledge. The expected result is improved innovation, market responsiveness and firm performance. This mechanism has received empirical support in multiple contexts, including manufacturing SMEs, emerging economies and entrepreneurial ventures (Ato Sarsah et al., 2020; Alshahrani & Salam, 2024; Jallad and Karadas, 2024).

However, there are reasons to question whether absorptive capacity invariably mediates the relationship between entrepreneurial capability and performance. First, absorption is not equivalent to commercial application. A firm may acquire and understand valuable knowledge without having the finance, technology, market access, skilled labour, production systems or commercialization capability required to turn the knowledge into measurable results. Second, absorptive capacity itself contains distinct stages. Zahra and George (2002) distinguish potential absorptive capacity, which concerns acquisition and assimilation, from realized absorptive capacity, which concerns transformation and exploitation. A firm may therefore score highly on knowledge acquisition while remaining weak in the activities that convert knowledge into new products, processes or revenue.

Third, the effect of absorptive capacity appears to be context dependent. Kastelli, Siokas, and Tsakanikas (2024) show that entrepreneurial absorptive capacity contributes to knowledge-intensive entrepreneurship and business performance among European ventures, but their study focuses on relatively knowledge-intensive new firms. Jallad and Karadas (2024) find significant mediation among Palestinian SMEs and also demonstrate that industry type matters. Chagalima, Ismail, and Amani (2025), studying sunflower oil-processing SMEs in Tanzania, show that technological absorptive capacity influences performance partly through e-business innovation. These findings imply that absorptive capacity may require complementary mechanisms before it generates performance.

The African manufacturing context is therefore important. Manufacturing SMEs often face resource constraints, uneven technological infrastructure, financing limitations, restricted access to specialized skills and weak linkages to research and innovation systems. These conditions can disrupt the movement from knowledge acquisition to knowledge exploitation. It is possible for entrepreneurial owners and managers to be highly competent and for firms to display substantial absorptive capability while the indirect route to performance remains statistically weak because commercial conversion mechanisms are underdeveloped. Kenya provides an analytically useful setting for testing this possibility. The manufacturing SMEs population includes firms that process food and beverages, manufacture cosmetics and detergents, produce leather goods and undertake metal fabrication. These sub-sectors differ in technological intensity, regulation, process complexity and knowledge requirements, yet all must respond to changing markets and production conditions. Entrepreneurial competencies can help owner-managers identify opportunities, create networks, lead employees and learn organizationally. Absorptive capacity can help firms to access and process external knowledge. The empirical question is whether the latter actually transmits the performance effect of the former.

This paper used data from 238 manufacturing SMEs in Nairobi County Kenya to examine the mediating role of absorptive capacity in the entrepreneurial competencies–SMEs performance relationship. It makes four

contributions. First, it provides evidence from an African manufacturing context where mediation evidence remains comparatively limited. Second, it distinguishes the statistical significance of each mediation path rather than inferring mediation merely because entrepreneurial competencies and absorptive capacity are correlated. Third, it interprets a non-significant indirect effect as a theoretically meaningful boundary condition rather than as a failed result. Fourth, it extends the Knowledge-Based View by separating knowledge absorption from knowledge value realization.

The paper addresses three questions: Do entrepreneurial competencies enhance absorptive capacity? Does absorptive capacity contribute to SMEs performance after entrepreneurial competencies are controlled? And does absorptive capacity significantly mediate the relationship between entrepreneurial competencies and SMEs performance? The answers are important for theory, management and policy because many enterprise-development programme assume that access to knowledge and learning automatically improve business outcomes. If the indirect pathway is weak, intervention design must place greater emphasis on the capabilities that convert absorbed knowledge into innovation and commercial value.

2. Theoretical Foundation and Literature Review

2.1 *Knowledge-Based View and the Knowledge-to-Performance Problem*

The Knowledge-Based View (KBV) treats knowledge as one of the most strategically important resources of the firm. Grant (1996) argues that the firm exists partly as a mechanism for integrating specialized knowledge that is distributed across individuals. Competitive advantage therefore depends not only on possessing knowledge but on coordinating and applying it productively. This distinction is central to the present study because entrepreneurial competencies and absorptive capacity represent two different levels of the knowledge-to-performance process.

Entrepreneurial competencies operate largely through managerial interpretation and action. Opportunity identification allows entrepreneurs to perceive possible economic uses of information; networking gives access to external knowledge and resources; leadership directs collective action; and organizational learning encourages reflection and updating of routines. These competencies can therefore stimulate knowledge search and create conditions conducive to learning. Absorptive capacity, by contrast, concerns the organizational ability to recognize the value of external knowledge, assimilate it, transform it and exploit it.

The mediation proposition follows naturally from this logic. Entrepreneurial competencies may increase performance because they strengthen the firm's absorptive capacity, which then converts external knowledge into valuable outputs. Yet the KBV also implies a potential break in the chain. Knowledge integration and application are separate from knowledge access. If the firm lacks downstream capabilities, absorbed knowledge may remain latent. Thus, an empirical test of mediation is not merely a statistical exercise; it examines whether the knowledge-processing capability represented by absorptive capacity is the actual mechanism through which entrepreneurial competencies become performance.

2.2 *Absorptive Capacity: From Acquisition to Exploitation*

Cohen and Levinthal (1990) introduced absorptive capacity as the ability to recognize the value of new external information, assimilate it and apply it to commercial ends. Their formulation emphasized the importance of prior knowledge and cumulative learning. Firms that possess relevant prior knowledge are better able to identify the value of external information and integrate it with what they already know. This makes absorptive capacity path dependent and suggests that knowledge-processing capability develops over time.

Zahra and George (2002) re-conceptualized absorptive capacity as a dynamic capability comprising acquisition, assimilation, transformation and exploitation. They grouped acquisition and assimilation under potential absorptive capacity and transformation and exploitation under realized absorptive capacity. This distinction is particularly important for SMEs because a firm may be relatively effective at acquiring and understanding knowledge but less effective at applying it commercially. The distinction also helps explain why high absorptive-capacity scores do not necessarily translate into immediate performance.

Lane, Koka, and Pathak (2006) later cautioned against defining absorptive capacity as a single undifferentiated construct and encouraged researchers to pay closer attention to the underlying learning processes and outcomes. Todorova and Durisin (2007) likewise revisited the transformation logic and argued for a more contingent understanding of knowledge conversion. These developments collectively suggest that mediation should not be assumed. The contribution of absorptive capacity depends on the nature of the knowledge, prior knowledge,

organizational routines and the extent to which exploitation actually occurs.

2.3 Entrepreneurial Competencies as an Antecedent of Absorptive Capacity

Entrepreneurial competencies can strengthen absorptive capacity in several ways. Opportunity identification encourages active scanning of markets and technologies, increasing the probability that valuable external information will be noticed. Networking provides channels through which information, technical knowledge, supplier insights and market intelligence enter the firm. Leadership can create a climate that supports learning, experimentation and information sharing. Organizational learning helps the firm retain and integrate experience. Together, these competencies should increase the firm's ability to acquire, assimilate, transform and exploit knowledge.

Recent empirical evidence supports the connection between entrepreneurial or strategic orientation and absorptive capacity. Alshahrani and Salam (2024) found that entrepreneurial orientation significantly influenced absorptive capacity among SMEs in an emerging economy. Jallad and Karadas (2024) similarly reported a significant relationship between entrepreneurial orientation and absorptive capacity in Palestinian SMEs. Jang and Lee (2025) found that digital entrepreneurial orientation and technology absorptive capacity were closely linked within a model of digital innovation and business performance.

Although entrepreneurial orientation is not identical to entrepreneurial competencies, both literature emphasize proactive opportunity seeking, managerial capability and the mobilization of knowledge. The present study uses a competency formulation that includes opportunity identification, networking, leadership and organizational learning. These dimensions should provide a strong basis for knowledge acquisition and interpretation.

H1: Entrepreneurial competencies have a positive and significant effect on absorptive capacity.

2.4 Absorptive Capacity and SME Performance

The second component of mediation requires absorptive capacity to contribute to performance when the antecedent is controlled. The theoretical rationale is that knowledge becomes economically useful when firms can internalize and exploit it. Absorptive capacity can improve performance by supporting faster adaptation, reducing uncertainty, strengthening innovation, improving product and process decisions and enabling firms to make better use of external technological and market knowledge.

Empirical evidence is broadly supportive of a positive ACAP–performance relationship, although the pathway varies. Kastelli et al. (2024) found that entrepreneurial absorptive capacity contributed positively to knowledge-intensive entrepreneurship and business performance, including sales and export outcomes. Bedoya-Villa et al. (2023) showed that dynamic absorptive capacity was related to innovation strategy in SMEs operating in technological contexts. Changalima et al. (2025) found that technological absorptive capacity was positively associated with the performance of sunflower oil-processing SMEs in Tanzania.

Yet the recent literature also demonstrates that additional mechanisms matter. Changalima et al. (2025) found e-business innovation to be an important mediator between technological absorptive capacity and performance. Jang and Lee (2025) similarly embed technology absorptive capacity within a model in which digital innovation is a critical performance mechanism. Aloulou (2024) tests a sequential mediation model in which absorptive capacity works together with innovation capability. These studies caution against treating absorptive capacity as an automatic performance engine.

H2: Absorptive capacity has a positive and significant effect on manufacturing SME performance after controlling for entrepreneurial competencies.

2.5 Absorptive Capacity as a Mediator

Mediation implies more than association. It requires entrepreneurial competencies to influence absorptive capacity, absorptive capacity to explain subsequent variation in performance after the antecedent is considered, and the product of these paths to produce a statistically meaningful indirect effect. This mechanism has been supported in a number of studies, but the antecedents and outcomes differ substantially.

Ato Sarsah et al, (2020) examined manufacturing SMEs and found that potential and realized absorptive capacity significantly mediated the relationship between entrepreneurial orientation and radical innovation performance. This study is especially relevant because it demonstrates that both potential and realized components of absorptive capacity can function as mechanisms in manufacturing contexts. Alshahrani and

Salam (2024) likewise found absorptive capacity to mediate the entrepreneurial orientation–SME performance relationship in an emerging economy.

Jallad and Karadas (2024) provide particularly recent evidence. Studying 303 manufacturing SME owners and managers in Palestine, they found that entrepreneurial orientation significantly affected absorptive capacity and several performance outcomes. Absorptive capacity significantly mediated the relationship between entrepreneurial orientation and business sustainability performance, knowledge-management capacity and innovation performance. Their study also found that industry type influenced parts of the model, underlining the possibility that sector conditions shape the strength of knowledge-processing mechanisms.

Other evidence points to more complex mediation structures. Aloulou (2024) reports a sequential model in which absorptive capacity and innovation capability jointly transmit the effects of entrepreneurial orientation to innovation performance. Al-Shami et al., (2023) find absorptive capacity to mediate the relationship between transformational leadership and corporate entrepreneurship. These studies demonstrate that absorptive capacity can operate as a mechanism, but they also reveal that its role depends on the antecedent, outcome and accompanying organizational capabilities. The possibility of non-significant mediation therefore remains theoretically defensible. Entrepreneurial competencies can influence performance directly through opportunity recognition, decision quality, networking and leadership without necessarily operating through absorptive capacity. Similarly, absorptive capacity may require an innovation or commercialization mechanism before it affects sales, market share or profitability.

Despite growing empirical support for the mediating role of absorptive capacity, three gaps remain evident in the literature. First, much of the existing evidence examines entrepreneurial orientation rather than specific entrepreneurial competencies such as opportunity identification, networking, leadership and organizational learning. Entrepreneurial orientation represents a strategic posture, whereas entrepreneurial competencies concern the capabilities through which entrepreneurs recognize opportunities, mobilize relationships, lead organizations and facilitate learning. Second, previous studies frequently use innovation-related outcomes, which are more proximal to knowledge absorption than broader enterprise outcomes such as sales turnover, market share and profitability (Ato Sarsah et al., 2020; Jallad and Karadas, 2024). Third, empirical evidence from African manufacturing SMEs remains limited and suggests that absorptive capacity may operate through additional mechanisms, including innovation and digital capability (Changalima et al., 2025). These conceptual, outcome-related and contextual differences create an important empirical question as to whether absorptive capacity actually transmits the effect of entrepreneurial competencies to broader SME performance. The present study addresses this gap by testing the mediation mechanism among manufacturing SMEs in Nairobi County, Kenya. The mediation hypothesis in this study is consequently tested rather than presumed.

H3: Absorptive capacity significantly mediates the relationship between entrepreneurial competencies and manufacturing SMEs performance.

3. Methodology

3.1 Research Design, Population and Sample

The study adopted a quantitative cross-sectional survey design. The target population comprised 590 manufacturing SMEs in Nairobi County drawn from four sub-sectors: food and beverage processing, cosmetics and detergents, leather and leather goods, and metal fabrication. Stratification was used to ensure representation of the four manufacturing sub-sectors. A stratified random sample of 238 SMEs was selected.

Following data screening and cleaning, 202 usable responses were retained for analysis, representing an 84.9% usable response rate. The achieved distribution comprised 82 food and beverage SMEs (40.6%), 44 cosmetics and detergents SMEs (21.8%), 40 leather and leather-goods SMEs (19.8%) and 36 metal-fabrication SMEs (17.8%). The unit of analysis was the enterprise, while respondents were owners, managers or senior personnel with sufficient knowledge of the firm's entrepreneurial practices, knowledge processes and performance.

Table 1. Distribution of Respondents by Manufacturing Sub-Sector

Manufacturing sub-sector	N	%
Food & Beverages	82	40.6
Cosmetics & Detergents	44	21.8
Leather & Leather Goods	40	19.8
Metal Fabrication	36	17.8
Total	202	100.0

3.2 Measurement of Entrepreneurial Competencies

Entrepreneurial competencies were measured through four dimensions: opportunity identification, networking, leadership and organizational learning. Opportunity identification captured alertness to market opportunities, environmental scanning and evaluation of potential business opportunities. Networking captured relationship development with firms, institutions and key stakeholders and the use of those networks for market and growth opportunities. Leadership measured performance orientation, teamwork, motivation, communication, delegation and direction. Organizational learning measured commitment to learning, employee development, shared purpose, learning from experience, open-mindedness and willingness to embrace change.

The four dimensional means were averaged to create the overall entrepreneurial-competency composite. The overall entrepreneurial-competency scale exhibited high internal consistency (Cronbach's $\alpha = .907$), supporting its use as the antecedent variable in the mediation analysis.

3.3 Measurement of Absorptive Capacity

Absorptive capacity was operationalized through four dimensions reflecting the Zahra and George (2002) framework: knowledge acquisition, knowledge assimilation, knowledge transformation and knowledge exploitation. Acquisition measured the extent to which firms identify and obtain valuable knowledge from customers, suppliers, research institutions, competitors and industry networks. Assimilation assessed the ability to understand, analyze and share acquired knowledge. Transformation captured the firm's capacity to combine new knowledge with existing knowledge and modify routines accordingly. Exploitation assessed the use of knowledge in products, processes, decisions and commercial activities.

The dimension scores were computed as item means and then averaged to form the overall absorptive-capacity composite. Internal consistency in the final $N = 202$ data-set was acceptable to strong across the dimensions: knowledge acquisition $\alpha = .706$, knowledge assimilation $\alpha = .803$, knowledge transformation $\alpha = .815$ and knowledge exploitation $\alpha = .802$. The overall absorptive-capacity scale achieved $\alpha = .895$.

Table 2. Descriptive Statistics and Reliability of Absorptive Capacity

Absorptive-capacity dimension	Mean	SD	Cronbach α
Knowledge acquisition	4.113	.616	.706
Knowledge assimilation	3.791	.690	.803
Knowledge transformation	3.899	.733	.815
Knowledge exploitation	4.014	.673	.802
Absorptive capacity (overall)	3.954	.541	.895

3.4 Measurement of SME Performance

The SMEs performance was measured using an index combining four ordered business outcomes: innovation rate, sales turnover, market share and profitability. Each indicator was coded in ascending performance categories and the four indicators were averaged. The resulting SMEs Performance Index had a mean of 2.536 ($SD = .557$) in the final sample. Because the index is based on ordered categories, the findings are interpreted as associations with a composite performance measure rather than as causal effects on audited financial results.

3.5 Data Analysis and Mediation Testing

The mediation analysis specified entrepreneurial competencies as the antecedent variable (X), absorptive capacity as the mediator (M), and the SME Performance Index as the outcome variable (Y). The analytical

procedure estimated: (i) path a, representing the effect of entrepreneurial competencies on absorptive capacity; (ii) the total effect (c) of entrepreneurial competencies on SME performance; (iii) path b, representing the effect of absorptive capacity on SME performance while controlling for entrepreneurial competencies; and (iv) the direct effect (c') of entrepreneurial competencies on SME performance after absorptive capacity was introduced into the model.

The indirect effect was estimated as the product of paths a and b (ab). Statistical inference for mediation was based on 5,000 non-parametric bootstrap resamples with a 95% confidence interval. Mediation was considered statistically supported when the bootstrap confidence interval for the indirect effect excluded zero. This bootstrap approach was preferred because the sampling distribution of indirect effects is often non-normal and because mediation should be determined from the indirect effect rather than solely from the significance of individual regression paths. The mediation results were interpreted alongside the correlation and regression coefficients to provide a comprehensive assessment of the proposed mechanism.

PLS-SEM Robustness Analysis

To assess the robustness of the regression-based mediation findings, a two-stage hierarchical component PLS-SEM model was estimated using the final N = 202 data-set. The supplementary PLS-SEM analysis was undertaken to assess whether this conclusion remained consistent when the constructs were modeled as latent variables within an integrated structural model. The bootstrapped indirect path from entrepreneurial competencies to SME performance through absorptive capacity was examined alongside the corresponding direct structural relationships. Entrepreneurial Competencies (EC) and Absorptive Capacity (ACAP) were specified as higher-order reflective composites using their dimension scores. EC was represented by opportunity identification, networking, leadership and organizational learning, while ACAP was represented by knowledge acquisition, assimilation, transformation and exploitation. Mode A outer weighting was used and structural coefficients were estimated on standardized construct scores. SME Performance was retained as the study's observed composite index rather than specified as a reflective latent construct because its four components represent heterogeneous business outcomes. The measurement model was assessed using outer loadings, Cronbach's alpha, composite reliability, average variance extracted (AVE), the Fornell-Larcker criterion and HTMT. Structural assessment considered collinearity, path coefficients, R² and f². Statistical significance was evaluated using 5,000 non-parametric bootstrap resamples and 95% percentile confidence intervals. An effect was considered significant when its confidence interval excluded zero.

4. Results

4.1 Correlations Among Entrepreneurial Competencies, Absorptive Capacity and Performance

Entrepreneurial competencies were strongly and positively correlated with absorptive capacity ($r = .641$, $p < .001$), indicating that SMEs with stronger entrepreneurial competencies also tended to display stronger knowledge-acquisition, assimilation, transformation and exploitation capabilities. Entrepreneurial competencies were also positively associated with SME performance ($r = .418$, $p < .001$). Absorptive capacity had a positive but weaker bivariate relationship with performance ($r = .285$, $p < .001$).

The dimensional pattern was informative. Knowledge assimilation had the strongest bivariate association with performance ($r = .303$), followed by knowledge transformation ($r = .214$), knowledge exploitation ($r = .195$) and knowledge acquisition ($r = .194$). All four relationships were positive, although their strength was modest. This pattern suggests that understanding and integrating knowledge may be more closely related to performance than knowledge acquisition alone, but the mediation test requires the unique b path to remain significant after entrepreneurial competencies are controlled.

Table 3. Pearson correlations among the mediation variables (N = 202)

Variable	EC	ACAP	SME performance
Entrepreneurial competencies	1.000	.641	.418
Absorptive capacity	.641	1.000	.285
SMEs performance	.418	.285	1.000

4.2 Path a: Entrepreneurial Competencies Predict Absorptive Capacity

The first mediation condition was strongly supported. Entrepreneurial competencies significantly predicted absorptive capacity, $B = .659$, $SE = .056$, $t = 11.80$, $p < .001$, 95% CI [.549, .769]. The standardized coefficient

was $\beta = .641$. The model explained 41.0% of the variance in absorptive capacity ($R^2 = .410$). Thus, entrepreneurial competencies are strongly associated with the development of organizational knowledge-processing capability.

This result supports H1 and is theoretically consistent with the expectation that opportunity recognition, networking, leadership and organizational learning create stronger routines for external knowledge acquisition and use. It also establishes that the absence of mediation cannot be attributed to a weak entrepreneurial competencies–absorptive capacity relationship.

4.3 Total Effect of Entrepreneurial Competencies on SMEs Performance

Entrepreneurial competencies significantly predicted SMEs performance in the total-effect model, $B = .444$, $SE = .068$, $t = 6.51$, $p < .001$, 95% CI [.309, .578]. The standardized coefficient was $\beta = .418$, and the model explained 17.5% of the variance in SME performance ($R^2 = .175$). The total effect therefore confirms that entrepreneurial competencies are positively associated with the study's composite measure of innovation, sales turnover, market share and profitability.

4.4 Path b and the Direct Effect

When entrepreneurial competencies and absorptive capacity were entered simultaneously, the overall model remained statistically significant, $R^2 = .176$, $F(2, 199) = 21.19$, $p < .001$. Entrepreneurial competencies retained a significant direct effect on SME performance, $B = .424$, $SE = .089$, $t = 4.77$, $p < .001$, 95% CI [.248, .599], with a standardized coefficient of $\beta = .399$.

By contrast, absorptive capacity did not significantly predict SME performance after entrepreneurial competencies were controlled, $B = .030$, $SE = .086$, $t = .35$, $p = .726$, 95% CI [-.140, .201], standardized $\beta = .029$. **H2 was therefore not supported**. This result is pivotal to the mediation analysis: although absorptive capacity is positively related to performance at the bivariate level, its unique relationship with performance largely disappears once entrepreneurial competencies are taken into account.

Table 4. Mediation Path Coefficients

Path / effect	B	SE	Standardized β	t	P	95% CI
a: EC → ACAP	.659	.056	.641	11.80	< .001	[.549, .769]
c: EC → Performance	.444	.068	.418	6.51	< .001	[.309, .578]
b: ACAP → Performance EC	.030	.086	.029	.35	.726	[-.140, .201]
c': EC → Performance ACAP	.424	.089	.399	4.77	< .001	[.248, .599]

4.5 Bootstrapped Indirect Effect

The estimated indirect effect of entrepreneurial competencies on SMEs performance through absorptive capacity was $ab = .020$. A 5,000-resample non-parametric bootstrap produced a 95% confidence interval of approximately [-.101, .151]. Because the interval includes zero, the indirect effect is not statistically significant. **H3 is therefore not supported**.

Table 5. Bootstrapped Indirect Effect (5,000 resamples)

Indirect effect	Estimate	95% bootstrap CI	Decision
EC → ACAP → SME performance	.020	[-.101, .151]	Not significant

The complete pattern is theoretically informative. Entrepreneurial competencies strongly predict absorptive capacity; entrepreneurial competencies significantly predict performance; and absorptive capacity is positively correlated with performance. Yet the unique b path is non-significant, and the bootstrapped indirect effect

includes zero. Thus, the data support a strong EC–ACAP linkage and a strong direct EC–performance linkage, but not the proposition that ACAP is the mechanism through which EC affects performance.

4.6 PLS-SEM Measurement Model Assessment

The higher-order measurement model demonstrated satisfactory reliability and convergent validity. For EC, the loadings were .627 for opportunity identification, .812 for networking, .856 for leadership and .789 for organizational learning. Cronbach's alpha was .777, composite reliability was .857 and AVE was .602. Although the opportunity-identification loading was below the commonly preferred .708 threshold, it exceeded .40 and was retained because of its theoretical and content importance; the construct-level reliability and AVE remained acceptable. For ACAP, the loadings were .806 for knowledge acquisition, .773 for assimilation, .837 for transformation and .766 for exploitation. Cronbach's alpha was .807, composite reliability was .874 and AVE was .634. Discriminant validity was supported by the Fornell-Larcker criterion and by an EC-ACAP HTMT value of .814, below the conservative .85 threshold.

4.7 PLS-SEM Structural Model and Mediation Results

The PLS-SEM structural model corroborated the regression-based findings. Entrepreneurial competencies had a strong positive effect on absorptive capacity ($\beta = .668$, bootstrap SE = .045, $t = 14.916$, $p < .001$, 95% CI [.580, .753]) and explained 44.6% of the variance in absorptive capacity ($R^2 = .446$). Entrepreneurial competencies also had a significant direct effect on SME performance ($\beta = .407$, bootstrap SE = .090, $t = 4.522$, $p < .001$, 95% CI [.226, .584]). By contrast, the unique effect of absorptive capacity on SME performance was negligible and non-significant ($\beta = .009$, bootstrap SE = .098, $t = .091$, $p = .947$, 95% CI [-.191, .195]). Together, EC and ACAP explained 17.1% of the variance in SME performance ($R^2 = .171$). Structural VIF values for the predictors of performance were approximately 1.81, indicating no problematic collinearity. The effect size of EC on ACAP was large ($f^2 = .806$), the direct EC effect on performance was small-to-moderate ($f^2 = .111$), and the unique ACAP effect on performance was negligible. Most importantly, the bootstrapped indirect EC $\rightarrow$ ACAP $\rightarrow$ SME Performance effect was $\beta = .006$ (bootstrap SE = .067, $t = .089$, $p = .947$, 95% CI [-.129, .134]). Because the confidence interval included zero, the PLS-SEM analysis did not support mediation. The convergence of the regression/bootstrapped mediation analysis and PLS-SEM therefore strengthens the conclusion that absorptive capacity is strongly associated with entrepreneurial competencies but does not transmit their performance effect in this sample.

Table 6. PLS-SEM Measurement Model Assessment

Construct	Indicator	Loading	α	CR	AVE
EC	Opportunity Identification	.627	.777	.857	.602
EC	Networking	.812			
EC	Leadership	.856			
EC	Organizational Learning	.789			
ACAP	Knowledge Acquisition	.806	.807	.874	.634
ACAP	Assimilation	.773			
ACAP	Transformation	.837			
ACAP	Exploitation	.766			

Table 7. PLS-SEM Structural and Bootstrap Results

Path / effect	β	SE	t	p	95% CI	Decision
EC $\rightarrow$ ACAP	.668	.045	14.916	<.001	[.580, .753]	Significant
EC $\rightarrow$ SME Performance	.407	.090	4.522	<.001	[.226, .584]	Significant
ACAP $\rightarrow$ SME Performance	.009	.098	.091	.947	[-.191, .195]	Not significant
EC $\rightarrow$ ACAP $\rightarrow$ SME Performance	.006	.067	.089	.947	[-.129, .134]	Not significant

5. Discussion

5.1 *A strong Entrepreneurial Competencies–Absorptive Capacity Relationship*

The strongest component of the mediation model is the relationship between entrepreneurial competencies and absorptive capacity. Entrepreneurial competencies explained approximately 41% of the variance in absorptive capacity, indicating that knowledge-processing capability is closely associated with the competencies of SMEs owners and managers. This is substantively important. Absorptive capacity is often discussed as an organizational routine detached from individual agency, but SMEs frequently depend heavily on the owner-manager for external scanning, networking, learning and internal coordination. The result is consistent with the KBV because managerial competencies can determine which information enters the organization and whether employees recognize its relevance. Opportunity identification increases attention to changes in markets and technology. Networking creates channels to external knowledge sources.

Leadership influences whether knowledge is discussed, legitimized and acted upon. Organizational learning supports the integration of experience into routines. Together, these competencies create the conditions under which absorptive capacity develops.

This finding corresponds with Alshahrani and Salam (2024), who found that entrepreneurial orientation significantly affected absorptive capacity among SMEs, and with Jallad and Karadas (2024), who similarly identified a significant entrepreneurial orientation–absorptive capacity relationship. Jang and Lee (2025) provide more recent evidence in a digital context, where technology absorptive capacity forms part of the mechanism connecting digital entrepreneurial orientation, digital innovation and performance.

The strength of the path also rules out one common explanation for failed mediation. Absorptive capacity does not fail to mediate because entrepreneurial competencies are unrelated to it. On the contrary, the relationship is strong. The break occurs later in the causal sequence, between absorptive capacity and performance after entrepreneurial competencies are controlled.

5.2 *Why Absorptive Capacity Does Not Mediate in This Sample*

The nonsignificant indirect effect is the central contribution of the paper. It contrasts with studies that report significant mediation, including Ato Sarsah et al. (2020), Alshahrani and Salam (2024) and Jallad and Karadas (2024). Rather than treating this divergence as a problem, it should be interpreted as evidence that the role of absorptive capacity is context sensitive and dependent on the specific antecedent, outcome and complementary capabilities included in the model.

One explanation is that entrepreneurial competencies can affect SME performance directly. Opportunity identification can improve decisions about products and markets without first generating organization-wide absorptive routines. Networking can create immediate access to customers, suppliers and financing. Leadership can improve coordination and employee effort. Organizational learning can support process improvement through internal experience. These pathways allow entrepreneurial competencies to influence innovation, sales, market share and profitability even when absorptive capacity does not act as a statistical mediator.

A second explanation is that absorptive capacity may require an application mechanism. Changalima et al. (2025) show that technological absorptive capacity affects SME performance partly through e-business innovation. Jang and Lee (2025) similarly place digital innovation between knowledge-processing capability and performance. Aloulou (2024) models absorptive capacity together with innovation capability in a sequential mechanism. These studies suggest that knowledge absorption may be a necessary but incomplete stage in the journey to performance.

In other words, acquisition, assimilation and even transformation of knowledge do not automatically produce revenue or profitability. Firms must still redesign a product, improve a process, introduce a service, comply with a standard, reach a customer, scale production or commercialize an innovation. If those downstream capabilities are weak, absorptive capacity can be present without yielding a large immediate performance coefficient.

A third explanation concerns the measurement of performance. Several studies that find mediation use innovation performance as the outcome. Ato Sarsah et al. (2020), for example, focus on radical innovation performance. Jallad and Karadas (2024) examine business sustainability, knowledge-management capacity and innovation performance. The present study uses a broader composite that includes innovation rate, sales turnover, market share and profitability. Absorptive capacity may be more proximal to innovation than to

financial and market outcomes. The effect can therefore weaken as the outcome becomes more distal.

A fourth explanation concerns sector heterogeneity. The sample combines food and beverage processing, cosmetics and detergents, leather and leather goods, and metal fabrication. The value and codifiability of external knowledge vary across these industries. Formulation knowledge, technical standards and regulatory information may be critical in food and cosmetics, whereas fabrication experience, tacit skill and customer-specific problem solving may be more important in metal and leather enterprises. Jallad and Karadas (2024) explicitly show that **industry type** can influence relationships involving absorptive capacity. Aggregating sub-sectors can therefore mask stronger mediation in some industries and weaker mediation in others.

A fifth explanation is the potential–realized absorptive-capacity distinction. The dimension means indicate that knowledge acquisition and exploitation were relatively high, but the aggregate mediation model does not reveal whether one specific stage is the bottleneck. Zahra and George (2002) argue that acquisition and assimilation constitute potential absorptive capacity, while transformation and exploitation constitute realized absorptive capacity.

Future modelling that separates these components may show that entrepreneurial competencies strongly enhance potential absorptive capacity without creating a sufficient realized-capacity pathway to performance.

5.3 *Comparison With Studies Finding Significant Mediation*

The contrast with Ato Sarsah et al. (2020) is particularly instructive. Their manufacturing- SME study found that potential and realized absorptive capacities mediated the entrepreneurial orientation–radical innovation performance relationship. One key difference is the outcome: radical innovation is directly linked to knowledge-processing activities, making absorptive capacity a theoretically proximal mediator. The present study's performance index includes market and financial outcomes that may depend on additional commercialization and market-access capabilities.

Alshahrani and Salam (2024) found absorptive capacity to mediate the relationship between entrepreneurial orientation and SME performance among 366 SMEs in Saudi Arabia. This provides evidence for the traditional mediation expectation but also highlights institutional differences. Saudi SMEs operate within a different financing, policy, digital and infrastructure environment from Kenyan manufacturing SMEs. The performance value of absorbed knowledge may depend partly on the availability of complementary resources.

Jallad and Karadas (2024) also report significant mediation in Palestinian manufacturing SMEs. Their result is especially important because the firms were manufacturing SMEs and therefore broadly comparable at the sector level. However, their antecedent is entrepreneurial orientation, not entrepreneurial competencies, and their performance outcomes include sustainability, knowledge management and innovation. Moreover, their industry-type analysis suggests that sector conditions matter. The present study therefore adds a useful contrasting case rather than invalidating their findings.

Kastelli et al. (2024) find a positive contribution of entrepreneurial absorptive capacity to business performance among 3,861 new ventures across nine European countries. Yet their concept operates primarily at the founder level and is strongly connected to education, prior experience and knowledge-intensive entrepreneurship. Their firms are also embedded in comparatively mature innovation systems. These contextual differences matter because the translation of external knowledge into market outcomes is influenced by the ecosystem surrounding the firm.

5.4 *Comparison With Studies Showing Contingent or Sequential Mechanisms*

The present findings align more closely with research that treats absorptive capacity as one stage within a broader sequence. Changalima et al. (2025) demonstrate this logic in Tanzania: technological absorptive capacity influences performance, but e-business innovation partially mediates the relationship. Their findings are particularly relevant because they concern African processing SMEs. Knowledge becomes valuable when it is channeled into an identifiable application mechanism.

Aloulou (2024) similarly develops a sequential mediation model in which absorptive capacity and innovation capability jointly explain how entrepreneurial orientation affects innovation performance. The implication is that absorptive capacity can prepare the firm to use knowledge without itself constituting the final conversion mechanism. Innovation capability performs additional work by transforming knowledge into commercially meaningful changes.

Jang and Lee (2025) provide parallel evidence in the digital domain. Technology absorptive capacity is embedded within a system that includes digital entrepreneurial orientation and digital innovation. Their model reinforces the view that absorptive capacity is often enabling rather than sufficient. This interpretation helps explain why the direct EC effect remains strong in the Kenyan data while the ACAP b path is non-significant.

The distinction is theoretically valuable. Absorptive capacity should not be treated as a universal black box placed automatically between any knowledge-related antecedent and performance. Researchers should specify what knowledge is being absorbed, what organizational process converts it and what performance outcome is expected. The more distal the outcome, the more likely that additional capabilities intervene.

5.5 *Implications for the Knowledge-Based View*

The findings refine the Knowledge-Based View in three ways. First, they support the idea that entrepreneurial competencies are important antecedents of organizational knowledge capability. The strong EC–ACAP path shows that the competencies of SMEs managers are closely associated with the firm’s capacity to acquire, assimilate, transform and exploit external knowledge.

Second, the findings demonstrate that knowledge-processing capability and performance are analytically distinct. The KBV sometimes risks implying that stronger knowledge capability should automatically generate competitive advantage. The present evidence shows that this assumption can fail empirically. Knowledge can be acquired and processed without being converted into measurable commercial value.

Third, the findings point toward a knowledge-to-value architecture with at least three stages: managerial capability, knowledge processing and value realization. Entrepreneurial competencies influence how the firm senses and engages with knowledge. Absorptive capacity determines how the knowledge is processed. Innovation, production, commercialization and market capabilities determine whether it becomes economic value. A complete KBV explanation of SMEs performance should therefore incorporate the final appropriation stage rather than stopping at absorption.

This interpretation is particularly important for developing-economy SMEs. Where technology support, finance, commercialization systems and market linkages are constrained, the gap between knowledge absorption and value realization may be larger than in firms embedded in mature innovation systems. The non-significant mediation result thus becomes a theoretically meaningful indicator of an institutional and organizational conversion gap.

6. **Practical and Policy Implications**

6.1 *Implications for SMEs Managers*

For manufacturing SME managers, the findings suggest that building absorptive capacity remains worthwhile, but it should not be treated as an end in itself. Firms need to connect knowledge acquisition and learning to specific implementation routines. External market and technical information should be translated into product decisions, process improvements, quality changes, customer acquisition strategies or cost reductions.

Managers should therefore establish explicit conversion mechanisms. These may include regular product-development reviews, employee problem-solving sessions, customer-feedback integration, and pilot testing of new processes, digital experimentation, technology adaptation and post-implementation learning. The objective is to move from acquiring information to changing what the firm actually does.

The results also suggest that entrepreneurial competencies themselves deserve direct investment. Since their direct effect remains significant after absorptive capacity is included, owner-managers should continue developing opportunity recognition, networking, leadership and organizational learning. These competencies may generate performance through multiple routes, not solely through absorptive capacity.

6.2 *Implications for Enterprise-Support Programme*

Business-development programme frequently provide SMEs with training, information and exposure visits and then assume that knowledge transfer will produce performance. The findings challenge this assumption. Support interventions should include a post-learning application stage in which SMEs receive assistance to adapt, test and commercialize what they have learned.

Technology and innovation support institutions can help firms to bridge the knowledge-application gap through prototyping, process optimization, product testing, standards support, digital adoption, market validation and

commercialization assistance. Universities and research institutions can structure SMEs engagement around applied problem solving rather than one-way knowledge dissemination. Incubators can track whether external knowledge is actually embedded into products, processes or business models.

The policy message is that knowledge access and absorptive capacity are necessary but may not be sufficient for performance. Enterprise support should connect capability development with the resources required for exploitation: finance, technology infrastructure, skilled labour, intellectual property management, market access and commercialization support.

6.3 *Implications for Kenyan Manufacturing Policy*

Kenyan SMEs and industrial-development policy should recognize a distinction between knowledge acquisition and knowledge conversion. Programmes that create university-industry linkages, technology extension and innovation training should be accompanied by mechanisms that help SMEs implement the knowledge obtained. For example, a firm that learns about a new processing technology may still require engineering adaptation, financing, standards certification and market validation before performance improves.

The findings also support sector-sensitive intervention. Food, cosmetics, leather and metal fabrication have different knowledge requirements and commercialization barriers. A single generic absorptive-capacity programme may therefore be less effective than sub-sector-specific support that identifies the knowledge bottlenecks and downstream conversion constraints unique to each industry.

Finally, performance monitoring should go beyond counting firms trained or knowledge partnerships established. Programme should assess whether acquired knowledge leads to process change, product development, technology adoption, market entry, increased turnover or productivity. This would align policy metrics with the full knowledge-to-performance pathway identified in the study.

7. **Limitations and Future Research**

The first limitation is the cross-sectional design. Mediation is theoretically temporal, but all variables were observed at one point in time. Although the statistical model tests an indirect association, it cannot establish that entrepreneurial competencies preceded absorptive capacity or that absorptive capacity preceded performance. Longitudinal research should measure capability development and subsequent performance changes over time.

Second, the study uses a composite absorptive-capacity construct. Future research should separate potential absorptive capacity from realized absorptive capacity and test serial paths from acquisition to assimilation, transformation and exploitation. This may reveal where the knowledge-conversion process breaks down.

Third, the outcome is a multidimensional ordered performance index combining innovation, sales turnover, market share and profitability. Future studies should test mediation separately for innovation, productivity, sales growth and profitability. Absorptive capacity may have a stronger indirect effect on innovation than on distal financial outcomes.

Fourth, the sample covers four manufacturing sub-sectors in Nairobi County. Sector-specific mediation analysis would be valuable, particularly given Jallad and Karadas's (2024) evidence that industry type can alter relationships involving absorptive capacity. Larger samples could test whether mediation is stronger in knowledge-intensive sub-sectors such as cosmetics and food formulation than in fabrication-oriented sectors.

Fifth, the model does not include possible downstream mechanisms. Future work should test innovation capability, digital capability, commercialization capability, technology capability and intellectual property management as sequential mediators between absorptive capacity and performance. Changelima et al. (2025), Aloulou (2024) and Jang and Lee (2025) provide strong empirical motivation for this direction.

Finally, the use of self-reported survey data introduces possible common-method bias and perceptual measurement error. Future research could combine survey data with objective records on innovation output, sales growth, exports, technology adoption and financial performance.

8. **Conclusion**

This study examined whether absorptive capacity mediates the relationship between entrepreneurial competencies and the performance of manufacturing SMEs in Nairobi County, Kenya. The findings reveal a nuanced knowledge-to-performance relationship. Entrepreneurial competencies strongly and significantly

predicted absorptive capacity and had a significant positive effect on SME performance. However, absorptive capacity did not significantly predict performance after entrepreneurial competencies were controlled, and the bootstrapped indirect effect was not statistically significant. The findings therefore do not support absorptive capacity as the mechanism through which entrepreneurial competencies influence SME performance in the sampled firms. The PLS-SEM robustness analysis reached the same conclusion: EC significantly predicted ACAP and SME performance, but ACAP did not significantly predict performance and the bootstrapped indirect effect remained non-significant. The consistency across the two analytical approaches increases confidence in the substantive interpretation of the model.

The study makes an important theoretical contribution by refining the Knowledge-Based View and distinguishing between knowledge absorption and knowledge value realization. The ability of SMEs to acquire, assimilate, transform and exploit external knowledge does not necessarily guarantee that such knowledge will generate measurable commercial outcomes. Entrepreneurial competencies may strengthen organizational learning and knowledge-processing capabilities, but additional capabilities may be required to translate knowledge into innovation, market expansion, profitability and sustained competitive advantage. The findings therefore suggest a broader knowledge-to-performance pathway comprising managerial capability, knowledge absorption and commercial value realization.

Empirically, the study contributes evidence from manufacturing SMEs in an African developing-economy context and demonstrates that mediation relationships established in other settings should not automatically be generalized across sectors and institutional environments. The non-significant mediation result is therefore theoretically meaningful rather than an absence of effect: it identifies a possible conversion gap between organizational learning and commercial performance.

For managers and policymakers, the findings indicate that strengthening absorptive capacity should be accompanied by deliberate investments in entrepreneurial competencies, innovation capability, technology adoption, intellectual property management, commercialization, finance and market access. SME-support programme should consequently move beyond knowledge transfer and training towards interventions that help enterprises apply, commercialize and capture value from acquired knowledge. Future research should examine these complementary capabilities as sequential mechanisms linking absorptive capacity to SME performance and should distinguish between potential and realized absorptive capacity across different manufacturing sub-sectors.

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Rose A. Mboya is an Assistant Principal Research Scientist and Head of Industrial Linkages, Policy and Intellectual Property at the Kenya Industrial Research and Development Institute (KIRDI), Nairobi, Kenya. She holds a B.Sc. degree in wood science and technology from Moi University, Kenya, and a Master of Intellectual Property degree from Africa University, Zimbabwe, and is a PhD Candidate in Entrepreneurship at the Technical University of Kenya. She has over 20 years of experience in intellectual property (IP) management, innovation, technology transfer, commercialization, research–industry linkages, and SME development. She has served as an external consultant and expert for the World Intellectual Property Organization (WIPO), contributing to the development and implementation of national IP policies and strategies and IP capacity-building initiatives in several African countries. She has also contributed to Kenya's national IP policy and strategy processes and the development of the IP framework under the African Continental Free Trade Area (AfCFTA). She mentors innovators, entrepreneurs, and SMEs on the strategic use of IP, innovation, and commercialization to enhance competitiveness and growth. She is a Registered Patent Agent with the Kenya Industrial Property Institute (KIPI). Her research interests include entrepreneurial competencies, absorptive capacity, IP assets, SME performance, innovation management, technology commercialization, and enterprise competitiveness in Africa.