

The Nexus between Logistics Management, Competitive Advantage, and Organizational Performance in SMEs: Evidence from the Jordanian Fabric Sector

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Article

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Abstract

This study examined how logistics management (LM) relates to competitive advantage (CA) and organizational performance (OP) in small and medium-sized enterprises (SMEs) in the fabric sector of Madaba Governorate, Jordan. Drawing on the Resource-Based View (RBV), LM was conceptualised as a firm-level operational capability, and CA was tested as a possible mechanism linking this capability to performance. A cross-sectional survey was administered to a purposive sample of 150 SMEs, with one key informant per firm, and 130 valid responses were analysed with partial least squares structural equation modelling (PLS-SEM) in SmartPLS 4. LM was strongly and positively associated with CA ($\beta = 0.666$, $p < 0.001$) and had a significant direct path to OP ($\beta = 0.439$, $p = 0.008$). CA had a positive but small path to OP ($\beta = 0.281$, $p = 0.042$; $f^2 = 0.077$). The indirect path from LM to OP through CA was not statistically significant ($\beta = 0.187$, $p = 0.058$; 95% bias-corrected CI $[-0.012, 0.389]$), a pattern classified as direct-only non-mediation, although the borderline p-value means that a small indirect effect cannot be ruled out. Because the data are cross-sectional, self-reported by single informants and drawn from a non-probability sample in one sector and one governorate, the results indicate associations rather than causal effects and should be generalised with caution. The study adds firm-level evidence from an under-researched developing-economy sector and proposes, as a question for future testing, that firm size and resource constraints may limit the extent to which capabilities affect performance through competitive advantage.

1. Introduction

Small and medium-sized enterprises (SMEs) form a large part of the economy of Madaba Governorate, Jordan, and the governorate's fabric and textile SMEs are an important source of local employment and trade. These firms face persistent logistical problems, including an inconsistent supply of raw materials, weak distribution arrangements and slow delivery to final customers (Al Haddad et al., 2025). Such inefficiencies raise costs, reduce responsiveness and weaken the ability of SMEs to compete (Tukamuhabwa et al., 2023). Competitive advantage allows firms to create more value for customers than their rivals do and is therefore closely associated with survival and growth in competitive markets (Porter, 1985; Van Nguyen & Ngoc, 2024).

Logistics management is the part of supply chain management that plans, implements and controls the efficient forward and reverse flow and storage of goods, services and related information between the point of origin and the point of consumption in order to meet customer requirements (Christopher, 2016; Mentzer et al., 2001). For fabric SMEs in Madaba, effective logistics management can help firms to order on time, reduce costs and respond quickly to customer requirements (Marjan et al., 2022). Previous studies have reported that logistics management and related logistics capabilities are positively associated with competitive advantage and firm performance in different sectors and countries (Mafini & Omoruyi, 2013; Phan et al., 2025; Tukamuhabwa et al., 2023).

Despite this growing body of work, three gaps remain. First, most studies have examined logistics–performance relationships or competitive advantage–performance relationships in isolation (Tukamuhabwa et al., 2023; Wijetunge, 2016), and few have tested whether competitive advantage actually

transmits the effect of logistics capabilities to performance. Second, research on logistics in Jordan has concentrated largely on national-level infrastructure and trade performance (Samawi et al., 2025), whereas firm-level evidence on the internal logistics practices of SMEs remains limited. Third, the fabric SMEs of Madaba Governorate have received little empirical attention in the logistics literature. Accordingly, this study examined (a) the relationships of logistics management with competitive advantage and organizational performance and (b) whether competitive advantage mediates the relationship between logistics management and organizational performance. The study applied PLS-SEM to data from 130 fabric SMEs and interpreted the results through the Resource-Based View (RBV).

The study makes two contributions. Empirically, it provides firm-level evidence from an under-researched SME sector in a developing economy. Theoretically, it tests a core RBV proposition, namely that valuable capabilities improve performance through competitive advantage (Barney, 1991; Newbert, 2008), and reports a pattern of results that is consistent with a predominantly direct capability–performance link in small firms. Because the design is cross-sectional and the sample is limited to one sector and one governorate, the findings offer tentative rather than definitive guidance to SME managers and policy makers who seek to improve operational efficiency and firm performance.

2. Literature Review

2.1 Theoretical foundation: the Resource-Based View

The RBV holds that firms gain competitive advantage when they control resources and capabilities that are valuable, rare, inimitable and non-substitutable, and that this advantage in turn produces superior performance (Barney, 1991; Karia, 2018). Empirical tests of the RBV have supported this sequential logic, showing that competitive advantage is the mechanism through which valuable combinations of resources affect performance (Newbert, 2008). At the same time, the resource-orchestration perspective argues that the value of a resource depends on how managers structure, bundle and deploy it, so that resources may also affect performance through routes other than a distinct competitive position (Sirmon et al., 2007). For SMEs in Madaba Governorate, logistics management can be viewed as an internal capability that firms use to coordinate suppliers, respond quickly to customer demands and maintain consistent operations. This study therefore used the RBV to hypothesise both a direct capability–performance path and an indirect path through competitive advantage, and it treated the relative strength of the two paths as an empirical question.

2.2 Logistics management in SMEs and its distinction from supply chain management

Logistics management and supply chain management (SCM) are related but distinct concepts. SCM refers to the systemic and strategic coordination of business functions across the firms that make up a supply chain, whereas logistics management is the subset of SCM that concerns the planning and control of the flows of goods and related information into, through and out of the focal firm (Christopher, 2016; Mentzer et al., 2001). In large firms, these flows are often governed by formal inter-organizational arrangements that span several tiers of the supply chain. In small firms, by contrast, logistics is managed mainly at the firm's

immediate interfaces: its relationships with direct suppliers, the information exchanged with them, the handling of customer orders and deliveries, and the internal quality routines that determine how goods are received, processed and dispatched (Mafini & Omoruyi, 2013; Marjan et al., 2022).

In this study, logistics management was therefore defined as the set of practices through which an SME manages the flow of materials, products and related information between its direct suppliers, its own operations and its customers. The indicators were drawn from established supply chain practice instruments (Li et al., 2006) and from the SME logistics literature (Marjan et al., 2022), and they were interpreted with reference to the focal firm's own logistics activities rather than to multi-tier supply chain coordination. Strategic supplier partnership and the quality of information sharing capture inbound logistics coordination, customer relationship management captures the order-fulfilment and delivery interface, and total quality management captures the internal handling routines that determine whether goods move without defects or delays. The indicators that were removed during the assessment of the measurement model are discussed in Section 5.1. Because several of these indicators also appear in the broader SCM-practices literature, the construct should be interpreted as firm-level logistics management practices at the supplier–customer interface, not as supply chain management as a whole.

2.3 Competitive advantage in SMEs

Competitive advantage has been defined in several ways. It has been described as a firm's ability to create value that competitors cannot easily replicate (Van Nguyen & Ngoc, 2024) and as the ability to build a defensible position relative to rivals (Chabalala et al., 2024; Tsiu et al., 2025). Firms that pursue competitive advantage must therefore develop strategies that clearly distinguish them from their competitors (Lu & Shaharudin, 2024; Otache & Usman, 2024). Porter (1985) identified cost leadership and differentiation as the two generic sources of advantage, and later studies of SMEs have added dimensions such as price competitiveness, customer value, reliable supply and product innovation (Arda, 2024).

In SMEs, competitive advantage can arise from quality control across product planning, manufacturing and delivery, which reduces defects and increases customer satisfaction and sales (Ariyanto et al., 2025; Tolossa et al., 2024). It can also arise from innovation in products, processes and markets (Al Dhaheri et al., 2024; Wijaya & Suasih, 2020) and from knowledge exchange within business networks, where the short communication lines of small firms help them to adapt their operations quickly (Adeniyi & Adelugba, 2024). Consistent with this literature, competitive advantage in this study was assessed through differentiation, cost leadership and market outreach (Kamukama, 2013).

2.4 Organizational performance in SMEs

Organizational performance refers to the extent to which a firm achieves its financial and non-financial objectives. Studies of SMEs have commonly used growth indicators such as sales, profitability, asset accumulation and return on investment (Nyangoma et al., 2024). However, purely financial indicators give an incomplete picture, especially in small firms whose financial records are often limited. Maltz et al. (2003) therefore proposed the Dynamic Multi-dimensional Performance (DMP) framework, which extends the balanced scorecard by assessing organizational success along five dimensions: financial, market/customer, process, people development and future (preparation for the future). This framework was

used in the present study because it captures both current results and the firm's readiness for future performance, and because its perceptual indicators can be assessed by owner-managers when objective accounting data are unavailable.

Logistics activities such as inventory control, supplier coordination and timely delivery are not only operational requirements; they also shape costs, customer retention and the firm's capacity to grow (Nyangoma et al., 2024). Prior studies have linked logistics capabilities and quality management practices to SME performance (Marjan et al., 2022), logistical competences to organizational performance among Jordanian SMEs (Al Haddad et al., 2025), and reverse logistics practices to competitive advantage and organizational performance in manufacturing firms (Khan et al., 2024).

3. Hypothesis Development

3.1 Logistics management and organizational performance

From an RBV perspective, logistics management is a capability that shapes how efficiently a firm converts inputs into products delivered to customers. Well-managed supplier partnerships reduce procurement uncertainty and input costs, high-quality information exchange reduces errors and delays, and structured customer-order management and quality routines improve delivery reliability (Li et al., 2006; Marjan et al., 2022). These effects appear directly in costs, sales and customer retention, which are core components of organizational performance (Maltz et al., 2003). Empirical studies have supported this link in SMEs (Mafini & Omoruyi, 2013; Nyangoma et al., 2024), including Jordanian SMEs, in which logistical competences were positively related to organizational performance (Al Haddad et al., 2025). Evidence from the transport logistics industry further indicates that barriers to the adoption of Industry 4.0 technologies weaken supply chain capacity and operational efficiency (Tri, 2024). We therefore proposed the following hypothesis:

H1: Logistics management has a positive effect on organizational performance.

3.2 Logistics management and competitive advantage

Efficient logistics management is also expected to strengthen competitive advantage. Sodikin and Susilowati (2024) argued that logistics competence, including supplier relationship planning, production and distribution planning, cost-efficient purchasing and the quality of information flows, enables firms to respond to market needs, reduce operating costs and offer coherent value to customers. Similar conclusions have been reached for logistics resources in hospitality firms (Ahmad & Jais, 2024), for lean supply chain practices (Khawka et al., 2024) and for logistics service providers (Sojipun et al., 2024). In SMEs, logistics capabilities and logistics integration have been found to increase competitive advantage directly (Sugiono et al., 2023; Tukamuhabwa et al., 2023). By building effective relationships with suppliers and customers, SMEs can achieve greater agility, shorter lead times and more consistent delivery, all of which support both cost leadership and differentiation (Karia, 2018; Phan et al., 2025). Hence, the second hypothesis was proposed:

H2: Logistics management has a positive effect on competitive advantage.

3.3 Competitive advantage and organizational performance

The RBV specifies a clear causal ordering in which resources and capabilities generate competitive advantage, and competitive advantage in turn generates superior performance (Barney, 1991; Newbert, 2008). Competitive advantage reflects the firm's relative position, such as lower costs, differentiated offerings or wider market reach, whereas performance reflects the financial, market and future-oriented outcomes that this position yields. A firm with a cost or differentiation advantage can charge premium prices, attract customers from rivals and reinvest in future capabilities, and these outcomes are captured by multidimensional performance measures (Maltz et al., 2003). Empirical studies of SMEs have consistently modelled and supported this direction (Otache & Usman, 2024; Tolossa et al., 2024; Wijetunge, 2016), including studies in which competitive advantage mediated the effects of innovation or entrepreneurial marketing practices on performance (Ariyanto et al., 2025; Tolossa et al., 2024). We recognise that performance can also feed back into competitive advantage over time, for example when profits are reinvested in new capabilities. In a cross-sectional design, however, the theoretically prior direction is the one specified by the RBV, and this direction was therefore tested:

H3: Competitive advantage has a positive effect on organizational performance.

3.4 The mediating role of competitive advantage

Taken together, H2 and H3 imply that logistics management may improve performance partly because it creates competitive advantage. Superior logistics lowers costs, speeds up delivery and increases operational efficiency, which can give the firm a cost or differentiation advantage over its rivals (Li et al., 2006; Sodikin & Susilowati, 2024), and this advantage is then expected to translate into financial, market and future-oriented performance (Newbert, 2008). For example, Li et al. (2006) reported that supply chain management practices were associated with both competitive advantage and organizational performance and that competitive advantage was in turn positively related to performance, and Khan et al. (2024) linked reverse logistics practices with competitive advantage and organizational performance in manufacturing firms. However, the resource-orchestration perspective suggests that in small firms, where a capability is often deployed directly in day-to-day operations, part or all of its effect may bypass a distinct competitive position (Sirmon et al., 2007). To test these competing expectations, the following hypothesis was proposed:

H4: Competitive advantage mediates the relationship between logistics management and organizational performance.

The research model derived from the literature review is presented in Fig. 1.

4. Methods

4.1 Research design and population

The study adopted a quantitative, cross-sectional survey design in which a structured questionnaire was the main data collection instrument. This design was appropriate because the aim of the study was to test

hypothesised relationships among logistics management, competitive advantage and organizational performance. The study population comprised 2,192 SMEs operating in the textile and fabric industry in Madaba Governorate, Jordan.

4.2 Sample, respondents and unit of analysis

The unit of analysis was the SME. Because logistics management, competitive advantage and organizational performance are firm-level constructs, the study used a key-informant approach (Kumar et al., 1993), in which each SME was represented by a single respondent who was knowledgeable about the firm's logistics, operations and market position. In small firms, the owner or general manager is usually directly involved in purchasing, operations and customer relations and is therefore the most appropriate informant. Where the owner or manager was unavailable, the questionnaire was completed by the senior employee responsible for logistics or operations; other employees were not eligible to respond unless they held direct responsibility for, and pertinent knowledge of, the firm's logistics and operational practices. Collecting one response per firm also avoided the non-independence of observations that arises when several respondents represent the same organization.

Purposive (non-probability) sampling was used. To be included, an SME had to have been operating for at least two years and to employ at least five people. The minimum sample size was determined using both the 10-times rule and a statistical power analysis (Hair et al., 2022). The largest number of structural paths pointing at any construct was two (both pointing at organizational performance), which gave a minimum of 20 observations under the 10-times rule. A power analysis in G*Power 3.1 (Faul et al., 2009) for a model with two predictors, a medium effect size ($f^2 = 0.15$), a significance level of 0.05 and a statistical power of 0.95 indicated a minimum of 107 observations. The data were collected between January and June 2025. Of the 150 questionnaires distributed, 136 were returned (a response rate of 90.7%), and 130 were retained after data screening (86.7% of the questionnaires distributed). The final sample therefore exceeded both minimum thresholds.

4.3 Measures

All constructs were measured with previously published scales, and all items were rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Logistics management was measured with seven indicators (LM1–LM7): strategic supplier partnership, level of information sharing, quality of information sharing, customer relationship management, internal lean practices, postponement and total quality management. The first six indicators were adapted from Li et al. (2006), and the seventh was adapted from Marjan et al. (2022). Competitive advantage was measured with three indicators (CA1–CA3) adapted from Kamukama (2013): differentiation, cost leadership and market outreach. The small number of competitive advantage indicators is acknowledged as a limitation in Section 7. Organizational performance was measured with five indicators (OP1–OP5) adapted from the DMP framework of Maltz et al. (2003): financial performance, market/customer performance, process performance, people development and future orientation. Because objective financial data were not available for most firms, all performance indicators were perceptual. Table 1 presents the operationalisation of the constructs. Supplementary File S1 provides a reconstructed version of the survey questionnaire, together with the variable codebook (variable definitions, coding scheme and data transformations) and the analysis settings. Because the original

questionnaire file was not available to the authors at the time of revision, S1 was reconstructed from the constructs, indicators, response scale and measurement sources reported in this article. The item wordings in S1 are therefore reconstructions, are labelled as such, and are not presented as the verbatim items administered to respondents.

Table 1
Operationalisation of the constructs

Construct	Operational definition	Indicators	Source
Logistics management (LM)	The practices through which an SME manages the flow of materials, products and related information between its direct suppliers, its own operations and its customers.	LM1 Strategic supplier partnership LM2 Level of information sharing † LM3 Quality of information sharing LM4 Customer relationship management LM5 Internal lean practices † LM6 Postponement † LM7 Total quality management	Li et al. (2006); Marjan et al. (2022)
Competitive advantage (CA)	The firm's ability to achieve a superior and defensible position relative to its competitors through differentiation, lower costs and wider market reach.	CA1 Differentiation CA2 Cost leadership CA3 Market outreach	Kamukama (2013)
Organizational performance (OP)	The extent to which the firm achieves financial and non-financial success, assessed along the dimensions of the Dynamic Multi-dimensional Performance framework.	OP1 Financial performance OP2 Market/customer performance OP3 Process performance † OP4 People development † OP5 Future orientation	Maltz et al. (2003)

Note: † Indicator removed during the assessment of the measurement model (see Section 5.1).

4.4 Common method bias

Because all data were collected with a single survey instrument, common method bias (CMB) was addressed with both procedural and statistical remedies (Podsakoff et al., 2003). Procedurally, respondents were assured of anonymity, the items were worded to minimise evaluation apprehension, and the constructs were placed in separate sections of the questionnaire to create psychological separation. Statistically, Harman's single-factor test was conducted in IBM SPSS Statistics. The first factor explained 34.2% of the total variance, which is below the 50% threshold. In addition, full collinearity variance inflation factors (VIFs) were calculated in SmartPLS (Kock, 2015), and all values were below 3.3. These results suggest that CMB is unlikely to account fully for the observed relationships. However, neither test can rule out method bias, and Harman's test in particular is known to be insensitive (Podsakoff et al., 2003); the reliance on single-informant, self-reported data is therefore acknowledged as a limitation in Section 7.

4.5 Data analysis

Partial least squares structural equation modelling (PLS-SEM) was selected because it is suitable for prediction-oriented research, performs well with complex models and relatively small samples, and does not require normally distributed data (Hair et al., 2019). PLS-SEM is also appropriate when the aim is to explain variance in key target constructs and to test hypotheses in emerging research settings, such as SMEs in developing economies. IBM SPSS Statistics (version 24) was used for data screening and descriptive analysis, and SmartPLS 4 (Ringle et al., 2022) was used to estimate the model. Following Hair et al. (2022), the analysis proceeded in two stages: the measurement model was assessed first, and the structural model was assessed second. Significance was tested with bootstrapping using 5,000 subsamples.

5. Results

5.1 Measurement model

The measurement model was assessed through indicator loadings, internal consistency reliability (Cronbach's α , ρ_A and composite reliability ρ_C), convergent validity (average variance extracted, AVE) and discriminant validity (the Fornell–Larcker criterion and the heterotrait–monotrait ratio, HTMT) (Hair et al., 2019; Hair et al., 2022).

Five indicators had loadings between 0.52 and 0.63: LM2 (level of information sharing), LM5 (internal lean practices), LM6 (postponement), OP3 (process performance) and OP4 (people development). Following Hair et al. (2022), indicators with loadings between 0.40 and 0.70 should not be removed automatically; removal is appropriate only when it raises composite reliability or AVE above the recommended thresholds and when the content validity of the construct is preserved. Each of the five indicators was therefore evaluated on conceptual as well as statistical grounds before it was removed. First, LM2 overlaps conceptually with LM3 (quality of information sharing), so the information-exchange domain of logistics management remained represented. Second, LM5 and LM6 describe internal production practices (lean manufacturing and delayed product differentiation) that are more typical of larger make-to-order manufacturers and may be applied only to a limited extent in small fabric firms, which may explain their weaker loadings. The retained indicators still cover the three logistics interfaces defined in Section 2.2:

inbound coordination (LM1 and LM3), the customer interface (LM4) and internal handling quality (LM7). Third, OP3 and OP4 capture internal process improvement and human-resource development, which are less directly tied to the market-facing outcomes examined in this study; the retained indicators still cover the current (financial and market/customer) and future-oriented dimensions of the DMP framework. Because the removal of these indicators narrows the scope of the constructs, it is acknowledged as a limitation in Section 7.

After removal, the loadings of all retained indicators ranged from 0.748 to 0.858, above the 0.70 threshold (Table 2). Cronbach's α ranged from 0.717 to 0.816, ρ_A from 0.721 to 0.817 and ρ_C from 0.841 to 0.878, all above 0.70, confirming internal consistency reliability. AVE values ranged from 0.639 to 0.673, above the 0.50 threshold, confirming convergent validity.

Table 2
Measurement model results

Construct	Item	Indicator	Outer loading	Indicator reliability	Cronbach's α	ρ_A	ρ_C	AVE
LM	LM1	Strategic supplier partnership	0.812	0.659	0.816	0.817	0.878	0.643
	LM3	Quality of information sharing	0.773	0.598				
	LM4	Customer relationship management	0.824	0.679				
	LM7	Total quality management	0.798	0.637				
CA	CA1	Differentiation	0.804	0.646	0.717	0.721	0.841	0.639
	CA2	Cost leadership	0.843	0.711				
	CA3	Market outreach	0.748	0.560				
OP	OP1	Financial performance	0.858	0.736	0.757	0.763	0.860	0.673
	OP2	Market/customer performance	0.788	0.621				
	OP5	Future orientation	0.811	0.658				
Note: Indicator reliability = squared outer loading. ρ_C was calculated from the reported outer loadings. Source: Processed data, 2025.								

Discriminant validity was assessed with the Fornell–Larcker criterion and the HTMT ratio (Table 3). The square root of each construct's AVE (the diagonal values) exceeded its correlations with the other constructs, satisfying the Fornell–Larcker criterion (Fornell & Larcker, 1981). All HTMT values (0.772–0.857)

were below the threshold of 0.90 recommended for conceptually related constructs (Henseler et al., 2015). However, the LM–CA value (0.857) slightly exceeded the more conservative threshold of 0.85. This indicates that logistics management and competitive advantage, as measured here, share a substantial amount of variance, so the strength of the LM → CA path should be interpreted with caution; this issue is taken into account in the Discussion and acknowledged in Section 7.

Table 3
Discriminant validity

Construct	CA	LM	OP
<i>Fornell–Larcker criterion</i>			
CA	0.798		
LM	0.666	0.802	
OP	0.572	0.625	0.821
<i>Heterotrait–monotrait ratio (HTMT)</i>			
LM	0.857		
OP	0.772	0.778	
Note: Values on the diagonal (in bold) are the square roots of the AVE. Source: Processed data, 2025.			

5.2 Structural model

Before the path coefficients were evaluated, collinearity among the predictor constructs was examined. The inner VIF values were 1.000 for the LM → CA path and 1.797 for both predictors of OP, well below the threshold of 3 (Hair et al., 2019), indicating that collinearity did not bias the structural estimates.

The coefficient of determination (R^2) was 0.444 for competitive advantage (adjusted R^2 = 0.440) and 0.434 for organizational performance (adjusted R^2 = 0.425) (Table 4; Fig. 2). Thus, logistics management explained 44.4% of the variance in competitive advantage, and logistics management and competitive advantage together explained 43.4% of the variance in organizational performance. These values lie between the weak (0.25) and moderate (0.50) benchmarks proposed by Hair et al. (2019), which is acceptable for organizational outcomes that have many determinants.

Table 4
Coefficients of determination

Construct	R^2	Adjusted R^2
Competitive advantage (CA)	0.444	0.440
Organizational performance (OP)	0.434	0.425

Source: Processed data, 2025.

Table 5 reports the path coefficients, their bootstrap significance, the effect sizes (f^2) and the inner VIF values. Logistics management had a strong and significant positive effect on competitive advantage ($\beta = 0.666$, $t = 11.228$, $p < 0.001$; $f^2 = 0.799$, large); H2 was therefore supported. Logistics management also had a significant direct positive effect on organizational performance ($\beta = 0.439$, $t = 2.706$, $p = 0.008$; $f^2 = 0.189$, medium), supporting H1. Competitive advantage had a positive and significant but small effect on organizational performance ($\beta = 0.281$, $t = 2.047$, $p = 0.042$; $f^2 = 0.077$, small), supporting H3. Effect sizes were interpreted with Cohen's (1988) benchmarks of 0.02 (small), 0.15 (medium) and 0.35 (large).

Table 5
Structural model results and hypothesis testing

Hypothesis	Path	β	M	SD	t	p	f^2	VIF	Decision
H1	LM → OP	0.439	0.411	0.163	2.706	0.008	0.189	1.797	Supported
H2	LM → CA	0.666	0.676	0.058	11.228	< 0.001	0.799	1.000	Supported
H3	CA → OP	0.281	0.291	0.138	2.047	0.042	0.077	1.797	Supported
Note: β = original sample estimate; M = sample mean; SD = standard deviation; bootstrapping with 5,000 subsamples. Source: Processed data, 2025.									

5.3 Mediation analysis

The indirect effect of logistics management on organizational performance through competitive advantage was 0.187 ($t = 1.906$, $p = 0.058$), and its 95% bias-corrected bootstrap confidence interval included zero (LL = - 0.012, UL = 0.389) (Table 6). H4 was therefore not supported. Because the direct effect of logistics management on organizational performance was significant whereas the indirect effect was not, the relationship is classified as direct-only non-mediation (Zhao et al., 2010). The total effect of logistics management on organizational performance was 0.626 (a direct effect of 0.439 and an indirect effect of 0.187). The p-value of the indirect effect was close to the 0.05 level, so the absence of mediation should be interpreted with caution: with a sample of 130 firms, a small indirect effect may not be detected, and the result does not show that competitive advantage plays no role in the relationship.

Table 6
Specific indirect effect

Hypothesis	Path	β	M	SD	t	p	95% CI [LL, UL]	Decision
H4	LM → CA → OP	0.187	0.202	0.099	1.906	0.058	[- 0.012, 0.389]	Not supported
Note: CI = bias-corrected bootstrap confidence interval (5,000 subsamples). Source: Processed data, 2025.								

6. Discussion

This study examined the structural relationships among logistics management, competitive advantage and organizational performance in fabric SMEs in Madaba Governorate, Jordan. Four main findings emerged.

First, logistics management had a significant direct path to organizational performance. This finding is consistent with earlier studies that reported positive associations between logistics capabilities or quality practices and SME performance (Al Haddad et al., 2025; Marjan et al., 2022; Sugiono et al., 2023). In fabric SMEs in Madaba, timely procurement, close coordination with suppliers, reliable information and consistent quality routines appear to be associated with better financial, customer-related and future-oriented performance. Because the data are cross-sectional and perceptual, however, this result does not establish that these practices cause the observed performance differences.

Second, logistics management was strongly associated with competitive advantage. This result is consistent with the RBV view of logistics capability as a valuable organizational resource (Barney, 1991; Karia, 2018) and with prior evidence from SMEs (Tukamuhabwa et al., 2023). For resource-constrained SMEs that lack substantial financial or technological resources, logistics capability may be one of the few accessible sources of cost efficiency and differentiation. The size of this path should nevertheless be read in light of the high HTMT value between the two constructs (0.857), which suggests some conceptual and empirical overlap between the logistics practices and competitive advantage measures.

Third, competitive advantage had a positive but small path to organizational performance ($\beta = 0.281$; $f^2 = 0.077$). Competitive positioning was therefore associated with performance, but its contribution was considerably smaller than the direct contribution of logistics management.

Fourth, competitive advantage did not significantly mediate the relationship between logistics management and organizational performance. Three explanations are possible, none of which was tested directly in this study. The first is statistical: the indirect effect was positive ($\beta = 0.187$) and its p-value (0.058) was close to the conventional threshold, so the sample of 130 firms may have had insufficient power to detect a small indirect effect. The second lies in the nature of the fabric industry, in which efficiency gains such as faster delivery, better inventory control and improved coordination may be reflected quickly in costs and customer retention without first being consolidated into a distinct market position. The third relates to the local market: in Madaba, business relationships are close and exposure to intense international competition is limited, which may reduce the performance value of formal competitive positioning relative to that of operational reliability. Future research is needed to test these explanations.

6.1 Theoretical implications

We do not interpret the non-significant indirect effect, on its own, as an extension of the RBV. A non-significant result cannot establish that a mechanism is absent, particularly when the p-value is close to the conventional significance level. Any theoretical contribution of the study therefore lies in the overall pattern of effects, and it should be regarded as tentative. In its sequential form, the RBV predicts that capabilities affect performance primarily through competitive advantage (Barney, 1991; Newbert, 2008). The results of this study showed a different pattern: a strong capability $\rightarrow$ advantage path, a small advantage $\rightarrow$ performance path and a medium-sized direct capability $\rightarrow$ performance path that accounted for

approximately 70% of the estimated total effect (0.439 of 0.626). This pattern appears more consistent with the resource-orchestration view that the performance value of a capability depends on how it is deployed (Sirmon et al., 2007), although resource orchestration was not measured in this study. One possible interpretation is that, in small firms, owner-managers deploy logistics capabilities directly in daily operations, so a large share of their value is captured as operational performance rather than being channelled through a distinct and defensible market position.

On this basis, the study proposes, but does not test, firm size and resource constraints as a possible boundary condition for the sequential RBV logic. Because all sampled firms were SMEs from a single sector, firm size could not be examined in this study; future research could test the proposition explicitly by comparing SMEs with large firms or by modelling firm size as a moderator. The results also suggest that, in SME research, competitive advantage should not be assumed to be the dominant mechanism that links operational capabilities to performance; instead, it should be tested alongside the direct path. Finally, by distinguishing firm-level logistics management from multi-tier supply chain management, the study offers an operationalisation of logistics management for small firms that future research can refine and validate.

6.2 Practical implications

Subject to the limitations described in Section 7, the findings have several implications for SME managers in Jordan. The results suggest that performance may benefit from stronger logistics practices, for example more careful selection of suppliers and closer partnerships with them, better-quality information exchange, systematic management of customer orders and consistent quality routines. Building competitive advantage remains valuable, but the stronger direct path observed here suggests that investment in internal logistics capabilities may be associated with more immediate performance benefits; this implication should be confirmed with longitudinal or intervention-based evidence before it is used as a basis for major investment decisions. For policy makers and business support organizations, the findings suggest that training and support programmes for fabric SMEs could give greater attention to practical logistics capabilities.

7. Conclusion, Limitations and Future Research

This study tested whether logistics management is related to competitive advantage and organizational performance in fabric SMEs in Madaba Governorate, Jordan, and whether competitive advantage mediates the relationship between logistics management and performance. Logistics management was significantly and positively associated with both competitive advantage and organizational performance, and competitive advantage had a small positive association with performance; however, the indirect effect through competitive advantage was not statistically significant ($p = 0.058$), so H4 was not supported. In this setting, logistics management was associated with performance mainly through a direct path. Given the design and the limitations described below, these results should be interpreted as associations within the studied population rather than as evidence of causal effects or as findings that apply to SMEs in general.

The study has several limitations. First, the cross-sectional design does not permit causal inference, and the relationship between competitive advantage and performance may be reciprocal over time; longitudinal or

panel designs are needed to establish temporal ordering. Second, the firms were selected by purposive (non-probability) sampling, and the 130 firms analysed represent a small share of the 2,192 fabric SMEs in the governorate; the sample is therefore not statistically representative, and non-response bias was not formally assessed. Third, the study was limited to fabric SMEs in one governorate, which restricts the generalisation of the findings to other industries and regions. Fourth, all data were self-reported by a single key informant in each firm, and organizational performance was measured with perceptual rather than objective indicators; although the statistical tests did not indicate serious common method bias, these tests cannot rule it out, and future research should use multiple informants and objective performance data. Fifth, five indicators were removed during the assessment of the measurement model, and competitive advantage was measured with only three indicators; although content coverage was reviewed, the final constructs are narrower than the original scales, and future studies should validate the full scales in SME contexts. Sixth, the HTMT value between logistics management and competitive advantage (0.857) exceeded the conservative 0.85 threshold, indicating partial overlap between the two constructs that may have inflated the LM → CA path. Seventh, the logistics management indicators were derived partly from the SCM-practices literature, and future work should develop and validate a logistics management scale designed specifically for small firms. Eighth, the model did not include control variables such as firm age or number of employees, and the out-of-sample predictive power of the model was not assessed; in addition, a sample of 130 firms provides limited statistical power for detecting small indirect effects, which is relevant to the interpretation of H4. Finally, future research could examine firm size as a moderator of the capability–advantage–performance chain and investigate the role of digital transformation and Industry 4.0 technologies in strengthening the logistics capabilities of SMEs.

Declarations

Ethical Approval:

Before data collection, an application for ethical review was submitted to the Ethical Review Committee of the Amman Chamber of Commerce. After evaluating the study protocol, the committee granted the study an ethical exemption (Decision No. 12/2025, issued on 5 January 2025) because participation involved anonymous surveys and no sensitive personal information was requested. All procedures were conducted in accordance with national research ethics requirements, international research principles and the Declaration of Helsinki.

Informed Consent:

Between January and June 2025, all participants were informed electronically about the purpose and procedures of the research before they took part in the survey. Participation was voluntary, and respondents were assured of confidentiality and anonymity.

Competing Interests:

The authors declare no competing interests.

Supplementary Information

Supplementary File S1 contains a reconstructed version of the survey questionnaire (reconstructed and inferred elements are labelled), the variable codebook (definitions, coding scheme and data transformations) and the analysis settings.

Funding:

Funding information has been removed from this anonymised file and is provided in the cover letter.

Author Contribution

Methodology and writing all the paper

Data Availability

Save me for confidential

References

1. Adeniyi BC, Adelugba IA (2024) Knowledge management adoption and enhancement of competitive advantages of micro, small and medium enterprises in South-West, Nigeria. *Nigerian J Manage Stud* 25(2):35–49
2. Ahmad MA-A, Jais J (2024) The mediating effect of service quality on the relationship between logistics resources and sustainable competitive advantage in Iraqi Kurdistan hotels. *Cogent Bus Manage* 11(1):2360597. <https://doi.org/10.1080/23311975.2024.2360597>
3. Al Dhaheri MH, Ahmad SZ, Papastathopoulos A (2024) Do environmental turbulence, dynamic capabilities, and artificial intelligence force SMEs to be innovative? *J Innov Knowl* 9(3):100528. <https://doi.org/10.1016/j.jik.2024.100528>
4. Al Haddad S, Sharabati AAA, Nasereddin AY, Hafez E, A., Rawashdeh A, R (2025) The impact of logistical competences on organizational performance in SMEs moderated by competitive advantages in social media campaigns. *Sustainability* 17(13):5944. <https://doi.org/10.3390/su17135944>
5. Arda FM (2024) The impact of innovation types on competitive advantage in SMEs in Jordan. *J Syst Manage Sci* 14(7):105–121
6. Ariyanto A, Muis M, Jusni J, Alamzah N (2025) The influence of innovation on SME through competitive advantage: Study of culinary SMEs in Makassar. In *Proceedings of the 9th International Conference on Accounting, Management, and Economics 2024 (ICAME 2024)* (pp. 3380–3390). Atlantis Press
7. Barney J (1991) Firm resources and sustained competitive advantage. *J Manag* 17(1):99–120. <https://doi.org/10.1177/014920639101700108>

8. Chabalala K, Boyana S, Kolisi L, Thango B, Lerato M (2024) Digital technologies and channels for competitive advantage in SMEs: A systematic review. SSRN. <https://doi.org/10.2139/ssrn.4977280>
9. Christopher M (2016) *Logistics and supply chain management* (5th ed.). Pearson
10. Cohen J (1988) *Statistical power analysis for the behavioral sciences*, 2nd edn. Lawrence Erlbaum Associates
11. Faul F, Erdfelder E, Buchner A, Lang A-G (2009) Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behav Res Methods* 41(4):1149–1160. <https://doi.org/10.3758/BRM.41.4.1149>
12. Fornell C, Larcker DF (1981) Evaluating structural equation models with unobservable variables and measurement error. *J Mark Res* 18(1):39–50. <https://doi.org/10.1177/002224378101800104>
13. Hair JF, Hult GTM, Ringle CM, Sarstedt M (2022) *A primer on partial least squares structural equation modeling (PLS-SEM)*, 3rd edn. Sage
14. Hair JF, Risher JJ, Sarstedt M, Ringle CM (2019) When to use and how to report the results of PLS-SEM. *Eur Bus Rev* 31(1):2–24. <https://doi.org/10.1108/EBR-11-2018-0203>
15. Henseler J, Ringle CM, Sarstedt M (2015) A new criterion for assessing discriminant validity in variance-based structural equation modeling. *J Acad Mark Sci* 43(1):115–135. <https://doi.org/10.1007/s11747-014-0403-8>
16. Kamukama N (2013) Intellectual capital: Company's invisible source of competitive advantage. *Competitiveness Rev* 23(3):260–283. <https://doi.org/10.1108/10595421311319856>
17. Karia N (2018) Knowledge resources, technology resources and competitive advantage of logistics service providers. *Knowl Manage Res Pract* 16(4):451–463
18. Khan KA, Ma F, Akbar MA, Islam MS, Ali M, Noor S (2024) Reverse logistics practices: A dilemma to gain competitive advantage in manufacturing industries of Pakistan with organization performance as a mediator. *Sustainability* 16(8):3223
19. Khawka ZMH, Abd Rahman A, Sidek SB, Ahmed SAB, Al-Hadeethi RHF, Al-Dabbagh T (2024) Effect of lean supply chain on competitive advantage: A systematic literature review. *Cogent Bus Manage* 11(1):2370445
20. Kock N (2015) Common method bias in PLS-SEM: A full collinearity assessment approach. *Int J e-Collaboration* 11(4):1–10. <https://doi.org/10.4018/ijec.2015100101>
21. Kumar N, Stern LW, Anderson JC (1993) Conducting interorganizational research using key informants. *Acad Manag J* 36(6):1633–1651. <https://doi.org/10.5465/256824>
22. Li S, Ragu-Nathan B, Ragu-Nathan TS, Subba Rao S (2006) The impact of supply chain management practices on competitive advantage and organizational performance. *Omega* 34(2):107–124. <https://doi.org/10.1016/j.omega.2004.08.002>
23. Lu H, Shaharudin MS (2024) Role of digital transformation for sustainable competitive advantage of SMEs: A systematic literature review. *Cogent Bus Manage* 11(1):2419489
24. Mafini C, Omoruyi O (2013) Logistics benefits and challenges: The case of SMEs in a South African local municipality. *South Afr J Entrepreneurship Small Bus Manage* 6(1):145–167

25. Maltz AC, Shenhar AJ, Reilly RR (2003) Beyond the balanced scorecard: Refining the search for organizational success measures. *Long Range Plann* 36(2):187–204. [https://doi.org/10.1016/S0024-6301\(03\)00003-4](https://doi.org/10.1016/S0024-6301(03)00003-4)
26. Marjan Y, Hasanah U, Muliatie YE, Usman I (2022) Logistic capability and total quality management practice on SME's performance. *J Distribution Sci* 20(7):97–105
27. Mentzer JT, DeWitt W, Keebler JS, Min S, Nix NW, Smith CD, Zacharia ZG (2001) Defining supply chain management. *J Bus Logistics* 22(2):1–25. <https://doi.org/10.1002/j.2158-1592.2001.tb00001.x>
28. Newbert SL (2008) Value, rareness, competitive advantage, and performance: A conceptual-level empirical investigation of the resource-based view of the firm. *Strateg Manag J* 29(7):745–768. <https://doi.org/10.1002/smj.686>
29. Nyangoma D, Adaga EM, Sam-Bulya NJ, Achumie GO (2024) Operational excellence in SMEs: A conceptual framework for optimizing logistics and service delivery systems. *J Front Multidisciplinary Res* 5(1):149–156
30. Otache I, Usman TO (2024) Entrepreneurial management, competitive advantage and SME performance: Evidence from an emerging economy. *Eur Bus Rev* 36(6):997–1014
31. Phan B, Long R, Heng L, Breng T (2025) Logistic service quality innovation: Unlocking competitive advantage in supply chain management. *J Econ Bus Commer* 2(1):245–261
32. Podsakoff PM, MacKenzie SB, Lee J-Y, Podsakoff NP (2003) Common method biases in behavioral research: A critical review of the literature and recommended remedies. *J Appl Psychol* 88(5):879–903. <https://doi.org/10.1037/0021-9010.88.5.879>
33. Porter ME (1985) Competitive advantage: Creating and sustaining superior performance. Free
34. Ringle CM, Wende S, Becker J-M (2022) *SmartPLS 4* [Computer software]. SmartPLS GmbH. <https://www.smartpls.com>
35. Samawi GA, Bwaliez OM, Mdanat MF (2025) Benchmarking Jordan's trade role: A comparative analysis of logistics infrastructure, geopolitical position, and regional integration. *Economies* 13(10):282. <https://doi.org/10.3390/economies13100282>
36. Sirmon DG, Hitt MA, Ireland RD (2007) Managing firm resources in dynamic environments to create value: Looking inside the black box. *Acad Manage Rev* 32(1):273–292. <https://doi.org/10.5465/amr.2007.23466005>
37. Sodikin M, Susilowati S (2024) Competitive advantage development model with logistics competence. *J Digit Mark Halal Ind* 6(1):123–136
38. Sojipun W, Aziz ZA, Zain RM (2024) A purpose conceptual framework to examine the correlation of logistics service quality, logistics performance & competitive advantage of logistics service providers in Thailand. *J Technol Oper Manage* 19(1):11–23
39. Sugiono A, Rahmat N, Naway A (2023) Supply chain policy and logistics capability's influence on logistics integration and competitive advantage in SMEs. *Uncertain Supply Chain Manage* 11(3):1013–1025. <https://doi.org/10.5267/j.uscm.2023.3.010>
40. Tolossa AT, Singh M, Gautam RK (2024) Unveiling the nexus: The crucial role of competitive advantage in bridging entrepreneurial marketing practices and sustainable firm performance in small and medium

enterprises. J Innov Entrepreneurship 13(1):43

41. Tri NC (2024) The impact of Industry 4.0 adoption barriers on supply chain capacity and operational efficiency: Empirical evidence in the Vietnamese transport logistics industry. Global Bus Finance Rev 29(7):126–139

42. Tsiu SV, Ngoben M, Mathabela L, Thango B (2025) Applications and competitive advantages of data mining and business intelligence in SMEs performance: A systematic review. Businesses 5(2):22

43. Tukamuhabwa B, Mutebi H, Kyomuhendo R (2023) Competitive advantage in SMEs: Effect of supply chain management practices, logistics capabilities and logistics integration in a developing country. J Bus Socio-Economic Dev 3(4):353–371

44. Van Nguyen N, Ngoc TTB (2024) Service quality as a catalyst for competitive advantage and business performance in hotel industry: An empirical analysis by PLS-SEM algorithm. Int J Anal Appl 22:141

45. Wijaya PY, Suasih NNR (2020) The effect of knowledge management on competitive advantage and business performance: A study of silver craft SMEs. Entrepreneurial Bus Econ Rev 8(4):105–121

46. Wijetunge WADS (2016) Service quality, competitive advantage and business performance in service providing SMEs in Sri Lanka. Int J Sci Res Publications 6(7):720–728

47. Zhao X, Lynch JG, Chen Q (2010) Reconsidering Baron and Kenny: Myths and truths about mediation analysis. J Consum Res 37(2):197–206. <https://doi.org/10.1086/651257>

Figures

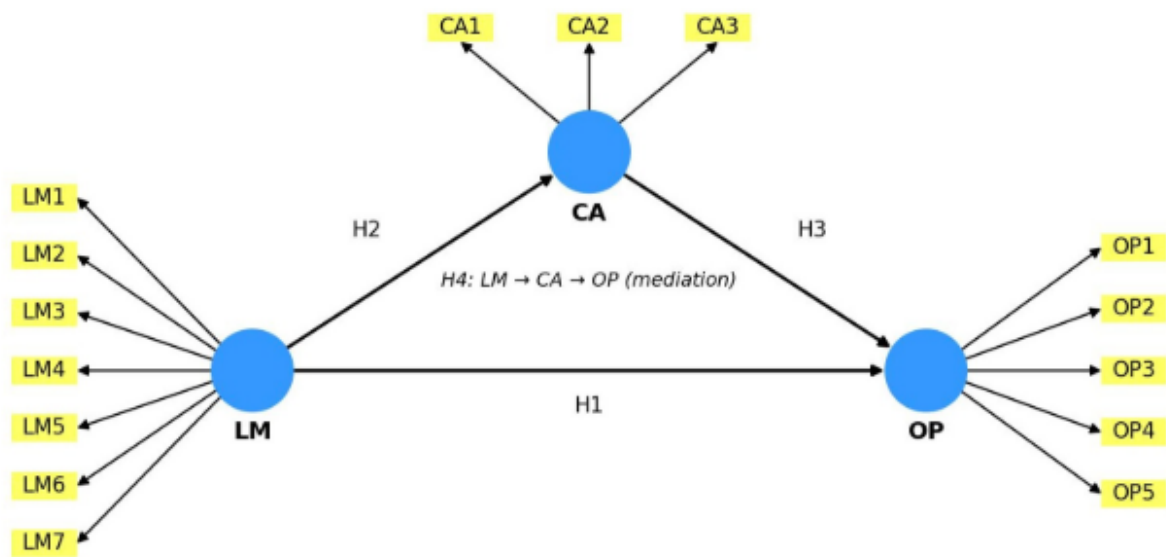


Figure 1

Research model

Note: LM = logistics management; CA = competitive advantage; OP = organizational performance.

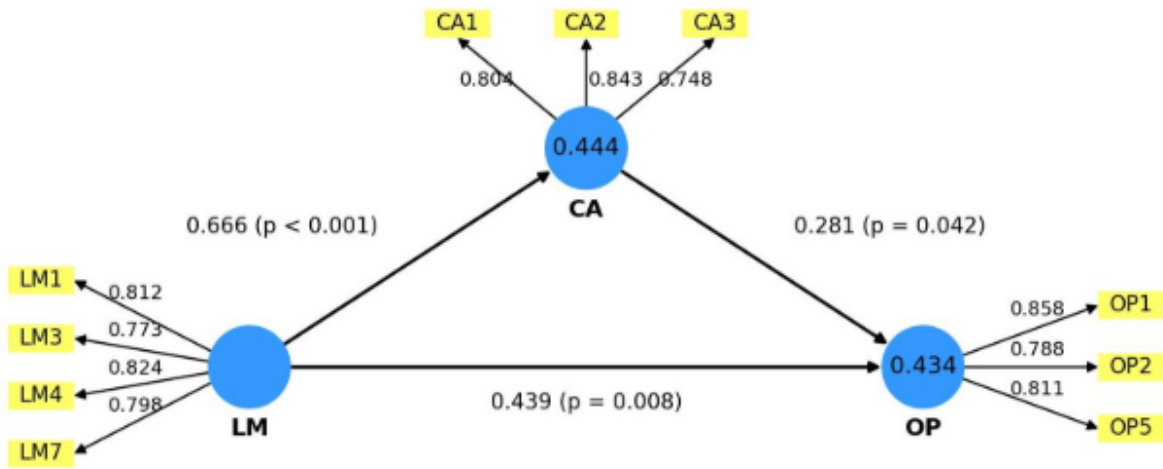


Figure 2

Structural model results

Note: Values inside the constructs are R² values; values on the outer arrows are outer loadings; values on the inner arrows are path coefficients (p-values).

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [SupplementaryFileS1ReconstructedQuestionnaire.docx](#)