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The Mediating Role of Learning Orientation and Innovativeness in the Relationship Between Market Orientation and Operational Performance: Evidence from Logistics Businesses in Thailand

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Abstract

Thailand's accelerating economic growth has profoundly influenced its logistics business ecosystem, attracting increasing interest from both academics and industry professionals. This study investigates the mediating roles of learning orientation and innovativeness in the relationship between market orientation and operational performance, addressing theoretical gaps and offering practical insights for logistics enterprises. A conceptual framework was developed through a comprehensive literature review, and empirical data were collected using a multi-stage random sampling method from 630 entrepreneurs in small and medium-sized logistics enterprises across Thailand via self-administered questionnaires. Data analysis was conducted using Structural Equation Modeling (SEM). The findings reveal that market orientation has both a direct and indirect impact on operational performance, with learning orientation and innovativeness serving as significant mediators. The model accounts for 45.08% of the variance in operational performance and demonstrates a strong goodness-of-fit. These results underscore the importance of embedding learning and innovation capabilities within operational strategies. Merely adopting a market-oriented approach is insufficient for sustained performance; rather, logistics firms must cultivate a learning-driven and innovation-focused organizational culture. This study makes both theoretical and practical contributions, especially by elucidating the intervening mechanisms through which market orientation enhances performance within the logistics sector.

Keywords: Market Orientation, Learning Orientation, Innovativeness, Operational Performance.

Introduction

This study is grounded in the dual objective of addressing existing theoretical gaps while enhancing practical contributions within the logistics sector. Although considerable research has been funded by both governmental and private entities, many of these studies have struggled to translate theoretical insights into actionable outcomes. This disconnect highlights an enduring challenge: aligning academic research with the practical demands of business operations. Furthermore, the rise of data mining and machine learning in the 21st century has underscored the importance of data-driven decision-making and problem-solving. In this rapidly changing environment, firms are increasingly required to integrate systematic data collection into their strategic processes to remain adaptable and competitive.

Echoing the concerns raised by Markides (2011) and Learmonth et al. (2012), it is evident that while many past studies demonstrate theoretical rigor, they often fall short in serving the

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specific, practical needs of industries. Hair et al. (2007) further emphasize the importance of conducting research that not only advances theoretical knowledge but also delivers tangible value by optimizing time, resources, and financial investments. This research adopts such a perspective, aiming to contribute to both theory and practice by focusing on logistics enterprises in Thailand.

As a core function within supply chain management, logistics involves the movement of goods, services, and information from point of origin to final destination. Banomyong and Supatn (2011) highlight logistics as encompassing both forward and reverse flows to satisfy customer requirements. While logistics primarily concerns intra-firm operations, supply chain management extends beyond firm boundaries, necessitating coordination across multiple stakeholders (Banomyong, 2018). Effective logistics management is crucial for ensuring cost-efficiency, service reliability, and operational adaptability—factors that are especially vital in turbulent business environments.

Thailand offers a compelling context for this research. According to the National Statistical Office (2020), the country's logistics activities include procurement, transportation, production planning, inventory control, packaging, reverse logistics, and administrative documentation. In 2019, the logistics sector contributed 5.98% to Thailand's GDP, with transportation and inventory management playing dominant roles. Despite the economic challenges posed by the COVID-19 pandemic, segments such as postal and parcel delivery displayed remarkable resilience, with a 55.75% increase in sales volume from 2017 to 2019. These dynamics reinforce the urgency of understanding the variables that shape firm performance within the sector.

Firm performance lies at the heart of this research, as it represents the cumulative result of a company's internal capabilities and external strategies. Prior studies have measured firm performance using indicators such as sales growth, profitability, and market share (Hossain et al., 2022; Beneke et al., 2016; Saif, 2015). In an increasingly competitive global environment, firms must prioritize customer satisfaction, innovation, and strategic differentiation to thrive (Pholphirul et al., 2022; Li et al., 2022). Baker and Sinkula (2007) contend that the integration of market orientation and learning orientation is vital for achieving such performance outcomes.

Market orientation is a central construct in this study, defined by its emphasis on customer focus, inter-functional coordination, and competitor awareness. Prior research suggests that market orientation has a direct influence on both learning orientation and innovativeness (Kharabsheh, 2017; Unjai et al., 2020). Learning orientation—marked by organizational commitment, shared vision, and openness to new ideas—has been shown to enhance both innovativeness and firm performance (Kumar et al., 2020; Nybakk, 2012). Innovativeness, in turn, enables firms to develop novel products, services, and processes that improve operational efficiency and outcomes (Salim & Sulaiman, 2011).

This study employs Structural Equation Modeling (SEM) to examine the relationships among market orientation, learning orientation, innovativeness, and firm performance, with a specific focus on the mediating effects of the latter two variables. While prior research has demonstrated both direct and indirect effects of market orientation on performance (Al Idros et al., 2019; Njinyah et al., 2023), the nuanced interactions among these constructs within Thailand's logistics context remain insufficiently explored.

Accordingly, this research aims to fill that gap by analyzing how market orientation drives learning orientation, innovativeness, and ultimately, operational performance in logistics SMEs

across Thailand. The results are expected to yield actionable insights for practitioners seeking to leverage these relationships to improve organizational performance. By examining the interplay among these constructs, the study aspires to make a meaningful contribution to both academic literature and practical strategy development.

In the context of an increasingly competitive and dynamic business environment, particularly within Thailand's logistics industry, understanding the internal mechanisms that drive firm performance has become a critical research priority. This study aims to investigate how Learning Orientation and Innovativeness mediate the relationship between Market Orientation and Operational Performance.

The central research question is: "What specific roles do Learning Orientation and Innovativeness play in mediating the relationship between Market Orientation and Operational Performance, based on established theoretical models and empirical evidence?"

From a practical perspective, the study also seeks to answer: "How can logistics firms effectively integrate Learning Orientation and Innovativeness into their strategic operations to enhance performance outcomes?"

By addressing these questions, the study contributes both theoretically—by extending existing knowledge of strategic orientations and performance linkages—and practically, by offering actionable insights for managers seeking to build dynamic capabilities and achieve sustainable competitive advantage. The research ultimately seeks to bridge the gap between conceptual frameworks and real-world application, with a focus on the evolving Thai logistics sector.

In summary, the anticipated outcomes of this research will provide a clearer understanding of the mechanisms that drive performance in Thailand's logistics industry. Through both theoretical insights and applied guidance, the study aims to support the development of more efficient, innovative, and adaptable logistics firms in a globally competitive environment.

Conceptual and Theoretical Development

A growing body of literature underscores the importance of interrelated strategic orientations in enhancing firm performance, particularly within dynamic and competitive industries such as logistics. Market orientation (MO), which involves gathering and responding to market intelligence, has been widely recognized as a critical driver of firm success (Kharabsheh, 2017; Unjai et al., 2020). However, its influence is not always direct; studies suggest that its effect on operational performance (OP) is often channeled through internal capabilities such as learning orientation (LO) and innovativeness (IN) (Kumar et al., 2020; Salim & Sulaiman, 2011).

Firms with a strong learning orientation are more likely to adapt, internalize external market knowledge, and foster a culture conducive to continuous improvement and innovation (Nybakk, 2012). This learning capability not only strengthens a firm's responsiveness to market needs but also serves as a catalyst for innovativeness, which reflects the firm's ability to implement new ideas, products, or processes (Kumar et al., 2020). In turn, higher levels of innovativeness are associated with improved operational efficiency, agility, and competitive advantage (Salim & Sulaiman, 2011; Njinyah et al., 2023).

Past research has also demonstrated a mediated path where MO enhances LO, which then boosts IN, ultimately leading to better OP (Al Idros et al., 2019). This suggests that these constructs interact in a sequential and reinforcing manner, forming a causal chain that links market awareness with operational outcomes.

Research Hypotheses

Based on the conceptual framework and the relationships outlined in the research background, the following hypotheses are proposed to examine the mediating roles of learning orientation and innovativeness within the logistics sector in Thailand:

H1: Learning orientation (LO) and innovativeness (IN) mediate the relationship between market orientation (MO) and operational performance (OP).

H2: Learning orientation (LO) mediates the relationship between market orientation (MO) and innovativeness (IN).

H3: Innovativeness (IN) mediates the relationship between learning orientation (LO) and operational performance (OP).

Research Methodology

To ensure consistency with the research context and alignment with sound methodological principles (Winit & Kantabutra, 2022), this study adopts a structured approach consisting of two core components: (1) the identification of population and sampling methods, and (2) the measurement model, including construct formulation and validation. The methodology was carefully designed to ensure accuracy, appropriateness, and accountability throughout the research process.

Population

The population of this study comprises logistics (transportation) service providers in Thailand. Specifically, the focus is on small and medium-sized enterprises (SMEs) engaged in logistics activities, particularly those categorized under second-party logistics (2PL) services. The scope is limited to businesses officially registered as land transportation service providers, as recorded by the Department of Land Transport, Thailand, which listed 414,417 businesses in 2020.

Sample

The sample consists of key representatives within logistics SMEs—such as business owners, managers, or administrative personnel—who are qualified to provide relevant data. Due to the complex nature of the population and the need for a robust sample suitable for Structural Equation Modeling (SEM), a multi-stage random sampling technique was employed, consisting of the following steps:

Step 1: Determining an Adequate Sample Size

To ensure the robustness and validity of the Structural Equation Modeling (SEM) analysis, several scholarly guidelines were considered in determining an appropriate sample size. Kline (2016) recommends a minimum of 100 respondents, while Morrison et al. (2017) suggest a ratio of at least 10 participants per latent variable—resulting in 40 participants for this study's four latent constructs. Pallant (2005) advises a minimum of five respondents per observed item, which equates to 210 for the 42 items used in this model. Notably, Hair et al. (2019) recommend a more rigorous standard of 15 respondents per observed variable, totaling 630 participants—particularly when higher-order constructs are present. In alignment with these established benchmarks, this study selected a sample size of 630 respondents to ensure statistical power, reliability, and generalizability of the results.

Step 2: Regional Stratification

To ensure national representation, Thailand was divided into six major geographical regions, each selected based on the highest concentration of registered logistics businesses:

Northern: Nakhon Sawan Northeastern: Nakhon Ratchasima Central: Ayutthaya Eastern: Chon Buri Western: Suphan Buri Southern: Phuket

These provinces were identified using official data from the Department of Land Transport.

Step 3: Quota Sampling

From each selected province, a quota of 105 businesses was chosen, resulting in a total of 630 respondents across all regions.

Step 4: Respondent Selection and Data Collection

To ensure respondent eligibility:

For small-sized businesses, owners were targeted directly.

For medium-sized businesses, individuals holding similar roles to owners—such as managers or administrators—were considered appropriate respondents.

Convenience sampling was applied within the quotas, with the support of trained field staff assigned to each region.

Data Collection Procedure

Given the typically low response rates in survey research, a dual-mode data collection strategy—offline and online—was implemented to enhance coverage and reliability.

Offline distribution involved paper-based surveys delivered by trained research assistants. Each assistant received professional training to ensure ethical and effective communication, accurate verification, and self-check procedures for respondent comprehension. Teams were assigned to designated provinces with clear responsibilities and supervision protocols.

Online distribution was used for follow-ups, including reminders via email and telephone to encourage response completion and minimize non-response bias.

Symbols and Dimension Components

To enhance clarity and facilitate understanding of the research constructs, the symbols and their respective latent variables are defined below. Each construct is broken down into its associated dimensions, which represent observable components derived from and adapted based on previous validated studies, including Phronchareon (2020), Mahmoud et al. (2016), and

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Market Orientation (MO)

This construct reflects an organization's strategic focus on market intelligence and responsiveness. It comprises three dimensions:

COO – Competitor Orientation

INC – Inter-functional Coordination

CUO - Customer Orientation

Learning Orientation (LO)

Learning orientation refers to the organizational mindset toward continuous learning and knowledge sharing. It includes:

COL – Commitment to Learning

SHV - Shared Vision/Purpose

OPM – Open-Mindedness

Innovativeness (IN)

This construct captures a firm's capability to develop and apply new ideas, products, and processes. It consists of:

OPN - Openness to New Ideas

PDI - Product Innovativeness

PCI – Process Innovativeness

Operational Performance (OP)

Operational performance is measured by the firm's achievement of strategic business outcomes. It is assessed through:

GRS – Growth in Sales

PRO - Profitability

MAS – Market Share

In the context of this research, the rationale and theoretical significance of these constructs were first established through an extensive literature review, which informed the development of the conceptual model and associated hypotheses. To empirically test the model, a structured questionnaire was designed and distributed as the primary data collection instrument.

A total of 630 representatives from logistics SMEs across Thailand participated in the study, meeting the recommended thresholds for conducting robust Structural Equation Modeling (SEM). Data analysis was performed using AMOS version 26, a specialized software tool for SEM, to validate the model and test the proposed relationships among the constructs.

model, a structured questionnaire was designed and distributed as the primary data collection instrument.

Validity and Reliability Assessment

To ensure content validity and criterion-related validity, operational definitions for each construct were developed based on established literature and theoretical foundations. These definitions were reviewed and validated by a panel of three domain experts and professionals, consistent with the validation procedures recommended by Hair et al. (2019).

To assess the reliability of the measurement model, Cronbach's Alpha Coefficient was employed to evaluate the internal consistency of each construct, with a threshold of $\alpha > 0.70$ considered acceptable. In addition, construct validity was examined through multiple tests: Composite Reliability (CR) was required to exceed 0.70, Convergent Validity was assessed using the Average Variance Extracted (AVE) with a minimum criterion of 0.50, and Discriminant Validity was confirmed when the AVE of each construct was greater than its Maximum Shared Variance (MSV). These validation benchmarks align with the recommendations of Fornell and Larcker (1981), McKinnon (2007), and Phorncharoen (2020), ensuring the measurement model's reliability and validity for subsequent structural analysis.

As shown in Table 1, all constructs met or exceeded the established thresholds for reliability and validity, confirming the appropriateness of the measurement model for further structural analysis.

Constru ct MO	Latent Variabl e COO	Eigenvalue / Cumulative 3.123/78.0 76	KMO / (p-value) 0.817/(0.00 0)	Reliabilit y 0.906	CR (>0.70) 0.899	AVE (>0.50) 0.691	MVS (<ave) 0.675</ave
	INC	2.691/67.2 73	0.774/(0.00 0)	0.836	0.834	0.561	0.559
	CUO	2.938/73.4 56	0.825/(0.00 0)	0.879	0.872	0.632	0.615
IN	COL	2.852/71.3 11	0.747/(0.00 0)	0.862	0.936	0.789	0.712
	SHV	2.939/73.4 75	0.816/(0.00 0)	0.878	0.856	0.601	0.578
	OPM	2.354/78.4 59	0.736/(0.00 0)	0.863	0.879	0.709	0.689
LO	OPN	2.273/75.7 71	0.727/(0.00 0)	0.840	0.837	0.633	0.629
	PDI	2.255/75.7 54	0.711/(0.00 0)	0.830	0.880	0.711	0.699
	PCI	2.426/80.8 68	0.733/(0.00 0)	0.881	0.881	0.714	0.706
OP	GRS	2.405/80.1 75	0.736/(0.00 0)	0.876	0.864	0.680	0.601
	PRO	2.430/81.0 12	0.712/(0.00 0)	0.880	0.924	0.803	0.786
	MAS	2.433/81.0 95	0.721/(0.00 0)	0.883	0.900	0.752	0.723

 Table 1. Construct Reliability and Convergent Validation

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1696 The Mediating Role of Learning Orientation and Innovativeness **Discriminant Validity Verification**

To assess discriminant validity, the correlation coefficients among the latent constructs were examined to detect potential issues of multicollinearity. According to established criteria, a correlation coefficient below 0.80 is considered acceptable and indicates that multicollinearity is not a concern (Hair et al., 2019).

Furthermore, discriminant validity was evaluated by comparing the square root of the Average Variance Extracted (\sqrt{AVE}) for each construct with its correlations with other constructs. Discriminant validity is confirmed when the \sqrt{AVE} for each construct exceeds its highest correlation coefficient with any other construct, supporting the distinctiveness of each latent variable (Silcharu, 2014; Hair et al., 2019).

The results of the correlation matrix and the \sqrt{AVE} values are presented in Table 2, demonstrating that all constructs satisfy the criteria for discriminant validity within the proposed conceptual model.

Variab	CO	IN	CU	CO	SH	OP	OP	PDI	PCI	GR	PR	MA
les	0	С	0	L	V	Μ	Ν			S	0	S
COO	0.8											
	31											
INC	0.3	0.7										
	98	49										
CUO	0.3	0.4	0.7									
	42	48	95									
COL	0.4	0.4	0.5	0.8								
	04	76	31	88								
SHV	0.2	0.3	0.4	0.3	0.7							
	65	06	10	03	75							
OPM	0.2	0.3	0.4	0.4	0.2	0.8						
	68	06	29	01	66	42						
OPN	0.2	0.2	0.4	0.4	0.3	0.4	0.7					
	55	98	58	55	55	26	95					
PDI	0.3	0.2	0.4	0.4	0.3	0.4	0.4	0.8				
	45	91	60	62	12	73	89	43				
PCI	0.3	0.2	0.4	0.3	0.3	0.3	0.3	0.3	0.8			
	17	98	30	88	85	51	31	99	45			
GRS	0.3	0.2	0.3	0.3	0.4	0.2	0.3	0.3	0.5	0.8		
	93	84	20	53	18	39	10	27	93	24		
PRO	0.2	0.2	0.2	0.2	0.4	0.2	0.3	0.2	0.3	0.5	0.8	
	95	75	59	96	73	74	01	01	70	13	96	
MAS	0.2	0.2	0.2	0.3	0.4	0.2	0.2	0.3	0.4	0.5	0.5	0.8
	23	28	94	89	34	95	96	21	35	58	25	67

Table 2. Discriminant Validity

* \sqrt{AVE} displayed on the diagonal

Data Analysis and Results

The initial assessment of the model fit yielded the following indices: $\chi^2/df = 62.124$, p = 0.000, GFI = 0.769, AGFI = 0.761, CFI = 0.837, and RMSEA = 0.076. These results indicate that the model did not initially exhibit a good fit with the empirical data, as several indices fell outside the acceptable thresholds.

To improve the model fit, the Model Modification Indices (MI) were examined, and adjustments were made accordingly. After modifications, the model demonstrated a substantial improvement in fit, with the following revised values:

 $\chi^2/df = 1.056 (< 2)$ p = 0.159 (> 0.05) GFI = 0.953 (> 0.900) AGFI = 0.935 (> 0.900) CFI = 0.998 (> 0.900)RMSEA = 0.009 (< 0.050)

These post-adjustment indices confirm that the final structural model demonstrates an excellent fit with the data. The finalized model structure and relationships among variables are visually presented in Figure 1.



 $\chi^2 \, / df = 1.056, \, p = 0.159, \, GFI = 0.953, \, AGFI = 0.935, \, CFI = 0.998, \, RMSEA = 0.009$

Figure 1. Resulting of Structural Model

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Antecede nts	Consequen ce	Standardiz ed Estimate (β)	Unstandardi zed Estimate	Standa rd Error	Z	р	R ²
МО	OP	0.348	0.354	0.178	1.988*	0.04 6	0.45 8
LO		1.027	1.037	0.216	4.790* **	0.00 0	
IN		0.420	0.449	0.201	2.233*	0.01 2	
МО	IN	0.435	0.467	0.117	4.005* **	0.00 0	0.98 5
LO		0.698	0.660	0.107	6.174* **	0.00 0	
МО	LO	0.833	0.942	0.102	9.222* **	0.00 0	0.69 4
Remark: $z = test statistics$, $p = p$ -value, $R^2 = coefficient of determination$							

Table 3. Mediating Effects

*Significant level of 0.05

**Significant level of 0.01

***Significant level of 0.001

Data Analysis and Results

Path Coefficients and Direct Effects

Based on the results shown in Table 3, the standardized path coefficients indicate significant relationships among the constructs in the model:

1. Operational Performance (OP):

• The path coefficients impacting OP range from $\beta = 0.348$ to 1.027.

The strongest direct effect on OP comes from Learning Orientation (LO) ($\beta = 1.027$, p < 0.001), followed by Innovativeness (IN) ($\beta = 0.420$, p < 0.05), and finally Market Orientation (MO) ($\beta = 0.348$, p < 0.05).

- 2. Innovativeness (IN):
- The influencing path coefficients range from $\beta = 0.435$ to 0.698.

• Learning Orientation (LO) exerts the highest effect on IN ($\beta = 0.698$, p < 0.001), followed by Market Orientation (MO) ($\beta = 0.435$, p < 0.001).

3. Learning Orientation (LO):

• Market Orientation (MO) significantly affects LO with a path coefficient of $\beta = 0.833$ (p < 0.001).

Coefficient of Determination (R²)

The R² values represent the proportion of variance explained in each dependent construct:

• Operational Performance (OP): Explained by MO, LO, and IN at 45.80% (R² = 0.458)

- Innovativeness (IN): Explained by MO and LO at 98.50% (R² = 0.985)
- Learning Orientation (LO): Explained by MO at 69.40% (R² = 0.694)

Following Sulaiman et al. (2021) and Hair et al. (2019), R² values of 0.25, 0.50, and 0.75 are interpreted as indicators of small, medium, and large predictive power, respectively. These results confirm strong explanatory power, especially for Innovativeness and Learning Orientation.

Mediating Effects of Learning Orientation and Innovativeness

According to Hair et al. (2019), mediation occurs when a third (mediating) variable explains part or all of the relationship between two other variables. The direct effect refers to a single connection between constructs, while the indirect effect involves one or more mediators. Mediation helps explain why a relationship exists between two variables (Sabiu et al., 2019; Panda & Sahoo, 2021; Chinelato et al., 2022; Hanaysha et al., 2022; Jha et al., 2022; Kasoga, 2021).

Testing Mediation Requires:

1. Significant relationships among all constructs involved ($A \rightarrow C \rightarrow B$).

2. Estimating the indirect effects and determining their statistical significance.

Mediation can be:

• Full mediation, where the direct effect becomes insignificant when the mediator is included.

• Partial mediation, where both direct and indirect effects remain significant but the indirect path accounts for a substantial portion of the total effect.

This approach is widely used and supported by various analytical tools, including IBM SPSS, EQS, LISREL, Mplus, STATA, and SmartPLS for PLS-SEM (Sulaiman et al., 2021; Hanaysha et al., 2022; Brandão & da Costa, 2021; Huang et al., 2018; Wu et al., 2018; Kawabata et al., 2020; Tran & Choi, 2019).

Mediation Testing Results

Based on Table 4 and Table 5, the following significant mediation paths were identified within the logistics sector context:

• $MO \rightarrow LO \rightarrow IN \rightarrow OP$: Market Orientation (MO) exerts a significant direct effect on both Learning Orientation (LO) and Innovativeness (IN) (p < 0.001), and also directly impacts Operational Performance (OP) (p < 0.05).

• LO \rightarrow IN \rightarrow OP: Learning Orientation significantly influences both Innovativeness (p < 0.05) and Operational Performance (p < 0.001).

• IN \rightarrow OP: Innovativeness also demonstrates a significant direct effect on Operational Performance (p < 0.001).

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These findings confirm that both LO and IN act as mediators, supporting partial mediation within the model. The indirect paths contribute substantially to the total effect, aligning with previous studies in strategic and innovation management.

Observed Path	Direct Effect (DE)	Indirect Effect (IE)	Total Effect (TE)	Bias corrected bootstrap 95% Confident Interval Lower - Upper
$MO \rightarrow OP$	0.348*	1.282***	1.630	0.314 - 0.486
$MO \rightarrow LO$	0.833***	-	0.833	0.587 - 0.707
$MO \rightarrow IN$	0.435***	0.581***	1.017	0.536 - 0.672
$LO \rightarrow OP$	1.027***	0.293***	1.320	0.384 - 0.570
$LO \rightarrow IN$	0.698*	-	0.698	0.671 - 0.790
$IN \rightarrow OP$	0.420***	-	0.420	0.538 - 0.681

Table 4. Mediating Effect Tests

*Significant level of 0.05

**Significant level of 0.01

***Significant level of 0.001

To be concluded further indirect effect of some variables affecting to operation performance (OP), Table 5 presents particularly the relative evidence.

Observed Path	How to Calculation	Indirect Effect
$MO \rightarrow LO \rightarrow OP$	0.833 x 1.027	0.855
$MO \rightarrow IN \rightarrow OP$	0.436 x 0.420	0.183
$MO \rightarrow LO \rightarrow IN \rightarrow OP$	0.833 x 0.698 x 0.420	0.244
Total Indirect Effect		1.282
$MO \rightarrow LO \rightarrow IN$	0.833 x 0.698	0.581
Total Indirect Effect		0.581
$LO \rightarrow IN \rightarrow OP$	0.698 x 0.420	0.293
Total Indirect Effect		0.293

Table 5. Indirect Effect of Market Orientation (MO) to Operation Performance (OP) among Logistics Business

Mediating Effect Analysis

Based on the statistical evidence provided in Table 4 and Table 5, the mediating effects within the model are interpreted and concluded in two key components:

The estimation of direct, indirect, and total effects, and

The results of bias-corrected bootstrap confidence intervals, based on 5,000 bootstrap samples (N = 630) with α = 0.05.

1. Mediation of Market Orientation (MO) on Operational Performance (OP)

Three mediated paths were observed in the relationship between MO and OP:

$$MO \rightarrow LO \rightarrow OP$$
: Indirect effect = 0.855
 $MO \rightarrow IN \rightarrow OP$: Indirect effect = 0.183
 $MO \rightarrow LO \rightarrow IN \rightarrow OP$: Indirect effect = 0.244

As shown in Table 4, the direct effect of MO on OP is 0.348, the total indirect effect is 1.282, and the total effect is 1.630. The bias-corrected bootstrap confidence intervals for the indirect effects range from 0.314 to 0.486, and critically, the interval does not include zero, indicating statistical significance (p < 0.05).

Conclusion: Both Learning Orientation (LO) and Innovativeness (IN) significantly mediate the relationship between Market Orientation (MO) and Operational Performance (OP), with LO showing the strongest individual mediating impact.

2. Mediation of Market Orientation (MO) on Innovativeness (IN)

An additional observed indirect path evaluates the effect of MO on IN, mediated through LO: $MO \rightarrow LO \rightarrow IN$: Indirect effect = 0.581

From Table 4, LO also shows a direct effect on IN of 0.435, while the total effect of MO on IN is 1.017. The bootstrap confidence interval for the indirect effect ranges from 0.536 to 0.672, again excluding zero, which confirms statistical significance (p < 0.05).

Conclusion: Learning Orientation (LO) significantly mediates the relationship between Market Orientation (MO) and Innovativeness (IN).

3. Mediation of Learning Orientation (LO) on Operational Performance (OP)

Finally, the indirect path from LO to OP, mediated through IN, is observed as follows:

 $LO \rightarrow IN \rightarrow OP$: Indirect effect = 0.293

According to Table 4, LO has a direct effect on OP of 1.027, and the total effect is 1.320. The bootstrap confidence interval for the indirect effect lies between 0.348 and 0.570, with zero not included, indicating a significant mediation (p < 0.05).

Conclusion: Innovativeness (IN) significantly mediates the relationship between Learning Orientation (LO) and Operational Performance (OP).

Summary of Mediation Results

The findings across all paths support partial mediation, as both direct and indirect effects are significant. These results confirm the intervening role of Learning Orientation and Innovativeness in enhancing the effect of Market Orientation on performance outcomes. This is consistent with prior research (e.g., Hair et al., 2019; Sabiu et al., 2019; Sulaiman et al., 2021), where multi-stage mediation frameworks explain complex organizational relationships in dynamic environments like logistics.

Hypotheses Testing Results

As statement mentioned above, the reflection among direct effect, indirect effect, total effect and 5,000 bootstrap sample (N=630) relies on the decision of mediating role hypotected formerly for this research. The results of three hypotheses testing are shown in Table 6.

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Hypotheses	Decision
H1: Learning orientation (LO) and innovativeness (IN) meditate the relationship between market orientation (MO) and operation performance (OP).	Supported
H2: Learning orientation (LO) meditates the relationship between market orientation (MO) and innovativeness (IN).	Supported
H3: Innovativeness (IN) mediates the relationship between learning orientation (LO) and operation performance (OP).	Supported

Table 6. Hypotheses Testing Results

Summary of Mediating Effects

This study aimed to examine the mediating roles of Learning Orientation (LO) and Innovativeness (IN) in the relationship between Market Orientation (MO) and Operational Performance (OP) among logistics businesses in Thailand. The key findings are summarized as follows:

Market Orientation \rightarrow Operational Performance (H1): MO demonstrates a direct effect on OP with a coefficient of 0.348. It also exhibits indirect effects through:

LO alone: 0.855 IN alone: 0.183 LO and IN combined: 0.244

The total indirect effect is 1.282, and the total effect (direct + indirect) is 1.630.

These results provide strong support for Hypothesis 1 (H1), confirming the mediating influence of both LO and IN in the MO–OP relationship.

Market Orientation \rightarrow Innovativeness via Learning Orientation (H2): MO has a direct effect on LO (0.833) and also a direct effect on IN (0.435).

Additionally, MO influences IN indirectly through LO with an effect of 0.581.

These findings validate Hypothesis 2 (H2), establishing LO as a significant mediator between MO and IN.

Learning Orientation \rightarrow Operational Performance via Innovativeness (H3): LO exerts a direct effect on OP (1.027) and an indirect effect through IN (0.293), leading to a total effect of 1.320. These findings confirm Hypothesis 3 (H3), supporting IN as a mediator between LO and OP.

In conclusion, both Learning Orientation and Innovativeness are confirmed as significant mediators within the proposed conceptual framework. These results not only bridge important theoretical gaps but also offer valuable practical implications for stakeholders within the logistics sector. The subsequent section will elaborate on these implications in detail.

Discussion of the Findings

The findings of this study reinforce the causal relationship between Market Orientation (MO) and Operational Performance (OP), with Learning Orientation (LO) and Innovativeness (IN) playing essential mediating roles in the context of logistics businesses. This relationship provides a deeper understanding of how firms that are attentive to market dynamics—such as

customer demands and competitor movements—can enhance their overall performance. However, market orientation alone is not sufficient; it must be supported by a firm's commitment to learning and capacity to innovate, especially in an industry characterized by constant change and complexity.

Logistics businesses today are increasingly required to adapt to diverse and evolving customer requirements, which necessitates the integration of innovation into their operations. The need to embed a learning culture within the firm is thus paramount. This aligns with previous research by Al Idrus et al. (2019), Salim & Sulaiman (2011), Olyanga et al. (2022), Njinyah et al. (2023), Wahyuni & Sara (2020), Prifti & Alimehmeti (2017), and Engin & Omur (2012), all of whom found that SMEs benefit from cultivating learning capabilities to drive market responsiveness, innovation, and ultimately performance.

Moreover, the study by Wahyono & Hutahayan (2021) found that a strong market orientation fosters learning, which in turn enhances innovation and firm performance—findings echoed by Mokhtar (2014). Similarly, Suliyanto & Rahab (2012) demonstrated that both market and learning orientations positively influence innovativeness and business performance. These insights collectively support the mediating function of LO and IN found in the present research.

The critical outcome emphasized across these studies, and reaffirmed in this one, is operational performance as the final performance metric. However, the mechanism through which MO leads to OP involves more than a direct path—it requires strategic internal capabilities. Firms need to leverage MO to better understand dynamic market environments, including uncertain customer needs and emerging technological disruptions. This kind of understanding can only be transformed into a competitive advantage through learning and knowledge integration (Kruasom & Saenchaiyathon, 2015).

Innovativeness, as demonstrated in the present study, emerges from these foundational elements and manifests in process, product, and service improvements. The innovation process is not isolated but is dependent on the firm's culture of learning and openness to change. Thus, for innovation to thrive, organizational alignment is essential employees at all levels must work cooperatively under a shared vision and mission.

In conclusion, operational performance is not solely driven by external market orientation but by a synergistic interaction between LO and IN. This bundle of capabilities enables firms to interpret, internalize, and act upon market signals more effectively, leading to sustained growth and performance. As highlighted by Phorncharoen (2020) and Ounjai et al. (2020), this integrated approach reflects a dynamic capability framework in which learning and innovation serve as the bridge between market orientation and performance success.

Managerial Implications

Building upon prior research (Phronchareon, 2020; Mahmoud et al., 2016; Mahmoud & Yusif, 2012), the present findings reinforce that in logistics businesses—particularly in transportation services—Learning Orientation (LO) and Innovativeness (IN) play significant mediating roles between Market Orientation (MO) and Operational Performance (OP). These insights offer several practical contributions for managers seeking to strengthen their firm's strategic positioning and performance.

1. Emphasizing Market Orientation for Competitive Responsiveness

To achieve operational effectiveness, firms must actively monitor their target market, which

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Competitor intelligence allows firms to anticipate and outmaneuver rivals through timely strategic actions. Sharing and integrating such information via knowledge management systems ensures that competitive insights are leveraged across all levels of the organization.

On the customer front, understanding evolving demands enables the design of products, services, and processes that align with market expectations. Regular engagement with customer feedback and trends is critical in maintaining relevance and satisfaction.

Ultimately, market orientation serves as a foundation for operational efficiency and enhanced customer value, which in turn translates into a sustainable competitive advantage (Mansouri et al., 2022; Royo-Vela et al., 2022).

2. Strengthening Learning Orientation as a Core Organizational Capability

As recommended by Templer et al. (2020) and Gomes et al. (2021), fostering a culture of learning is essential for strategic agility and organizational growth. Firms should:

Promote a clear and shared understanding of vision and mission, so all employees are aligned with strategic goals.

Institutionalize learning policies and practices, particularly from top management, to ensure long-term growth.

Support lifelong learning, encouraging employees to continuously develop new ideas, assess risks, and respond to unexpected challenges.

Creating an inclusive learning environment where individuals are empowered to propose ideas and contribute to collective decision-making leads to more adaptive and resilient firms. These characteristics are vital for sustaining performance in dynamic markets.

3. Cultivating Innovativeness to Drive Long-Term Success

Innovation is widely acknowledged as a driver of sustainable competitive advantage, yet it requires deliberate management and cultural support. According to Valenza et al. (2023), innovation can take the form of product, service, or process innovation. Managers should:

Encourage openness to new ideas, even those that initially seem impractical or high-risk.

Allocate resources, support, and time to explore and implement novel solutions.

Promote cross-functional collaboration to integrate diverse perspectives into innovation initiatives.

By embedding innovativeness into the organization's operational DNA, firms can continuously evolve and respond to emerging market challenges, thus reinforcing their performance and strategic trajectory.

Conclusion

To successfully translate market awareness into superior performance, logistics firms must go beyond customer focus and competitive monitoring. They must institutionalize a learning mindset and enable innovation as core organizational capabilities. When integrated strategically, Market Orientation, Learning Orientation, and Innovativeness form a powerful triad that drives performance excellence in the logistics sector. These insights not only bridge academic theory

with business practice but also offer actionable pathways for sustained growth and competitiveness in a rapidly changing environment.

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