



ENTREPRENEURIAL ORIENTATION, SOCIAL CAPITAL, AND ORGANIZATIONAL PERFORMANCE: THE ROLE OF SUPPLY CHAIN COORDINATION CAPABILITY IN BATIK SMES

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Abstract

This study examines how entrepreneurial orientation contributes to organizational performance in cultural-creative SME supply chains by positioning supply chain coordination capability as the central operations and supply chain management mechanism. The empirical context is batik SMEs in Surakarta, Indonesia, where owners coordinate materials, artisans, quality routines, delivery activities, and buyer responses through dense local relationships. Drawing on entrepreneurial orientation theory, social capital theory, and buyer-supplier coordination research, the study develops a model in which entrepreneurial orientation affects performance through supply chain coordination capability. Structural, relational, and cognitive social capital are treated as conditional relational resources that may strengthen or weaken the conversion of entrepreneurial posture into operational routines. Data from 104 batik SME owners or managers were analyzed using common method bias diagnostics, measurement-model assessment, discriminant validity testing, hierarchical regression, mediation-oriented testing, interaction analysis, and simple slope analysis with firm-level controls. The measurement model shows acceptable reliability, convergent validity, and discriminant validity. Entrepreneurial orientation has a positive effect on supply chain coordination capability, and supply chain coordination capability has a positive effect on organizational performance. The indirect effect of entrepreneurial orientation on performance through supply chain coordination capability is significant. The interaction results show negative moderating effects for structural, relational, and cognitive social capital. This pattern indicates that social capital does not automatically amplify entrepreneurial orientation. Relational resources improve performance only when they are translated into information sharing, supplier coordination, quality monitoring, delivery discipline, and demand-responsiveness routines.

Keywords: Entrepreneurial orientation; Social capital; SME supply chains; Organizational performance; Batik industry; Indonesia



INTRODUCTION

Small and medium-sized enterprises (SMEs) rarely operate as isolated firms. Their performance depends on how owners mobilize people, materials, information, and market relationships. This dependence is clear in cultural-creative industries such as batik.

Batik production requires fabric and dye suppliers, artisans, subcontractors, quality control routines, motif knowledge, retailers, digital buyers, and informal brokers (Munawir et al., 2021). The owner-manager must coordinate these actors while responding to changing customer demand.

This setting places batik SMEs within the human and relational side of operations and supply chain management. The issue is not only whether SME owners have an entrepreneurial posture. The issue is whether such posture becomes visible in procurement planning, production scheduling, quality monitoring, delivery coordination, and buyer responsiveness. Entrepreneurial orientation may support opportunity search and market initiative, but performance improvement requires operational routines that connect ideas to coordinated work.

The entrepreneurial orientation literature defines the construct through innovativeness, proactiveness, and risk-taking (Miller, 1983; Covin & Slevin, 1989). Later work clarifies that entrepreneurial orientation may also involve autonomy and competitive aggressiveness when the context requires a broader strategic posture (Lumpkin & Dess, 1996). Evidence from SME studies shows that entrepreneurial orientation is associated with adaptation, market initiative, social media use, and performance (Fan et al., 2021; Susanto et al., 2023). Recent Indonesian evidence also confirms the relevance of entrepreneurial orientation for MSME performance across regional contexts (Adam et al., 2024).

The social capital literature adds a second logic. Network ties, trust, reciprocity, shared goals, and shared language can give firms access to knowledge and resources (Nahapiet & Ghoshal, 1998). In supply chains, these relational resources may support communication, supplier closeness, performance management, and joint problem solving (Lawson et al., 2008; Jääskeläinen et al., 2023). A relational resource can also create a managerial problem. Strong ties may produce redundant information, weak objectivity, relational lock-in, and reduced accountability (Villena et al., 2011).

The central problem in this study is a conversion gap. Social relationships may give batik SMEs familiarity, emotional support, and local legitimacy without improving order accuracy, supplier reliability, production synchronization, quality feedback, or delivery discipline. The previous version of the manuscript was criticized because operations and supply chain management appeared mainly as contextual framing. The present manuscript responds by placing supply chain coordination capability at the center of the model.

Supply chain coordination capability refers to the ability of the SME to align demand information, supplier communication, production activities, quality expectations, delivery schedules, and buyer responses. This capability matters because SME supply chains often depend on informal relationships rather than formal systems. Studies on e-supply chain coordination and



SME performance show that coordination capability can connect technology, partnerships, and business performance (Bi, 2017; Setyawan et al., 2025). Relational coordination theory also shows that shared goals, shared knowledge, and mutual respect support timely and problem-solving communication in interdependent work (Gittell, 2002; Bolton et al., 2021).

This study makes three contributions. First, it extends entrepreneurial orientation research by identifying supply chain coordination capability as an operational pathway between entrepreneurial posture and performance. Second, it refines social capital theory by distinguishing the possession of ties from the operational use of ties. Third, it contributes to human-centered operations and supply chain management by explaining how owner initiative, trust, shared understanding, and local networks shape performance through coordination routines in cultural-creative SME supply chains.

Table 1. Research Gap and Contribution

Literature stream	Insufficiently explained issue	Response in this study	Contribution
Entrepreneurial orientation and SME performance	Prior studies confirm EO-performance links but often under-specify the operational mechanism.	The model examines EO through supply chain coordination capability.	Shows how entrepreneurial posture becomes operationally consequential in SME supply chains.
Social capital in inter-firm relationships	Social capital is often treated as beneficial despite evidence of overembeddedness and weak accountability.	Structural, relational, and cognitive social capital are tested as conditional resources.	Explains when human and relational assets support or constrain coordination.
Cultural-creative SME supply chains	Craft-based SMEs are often framed as entrepreneurship cases rather than small production networks.	Batik SMEs are treated as relational supply chains involving procurement, quality, delivery, and buyer responsiveness.	Extends operations and supply chain management research to informal and local creative industry clusters.
Methodological rigor	Earlier analysis relied on subgroup regression and limited construct validation.	The model reports CMB diagnostics, reliability, AVE, HTMT, controls, interaction terms, and simple slopes.	Aligns the paper with methodological expectations for international operations and supply chain management journals.

LITERATURE REVIEW

This study draws on entrepreneurial orientation theory, social capital theory, and operations and supply chain management literature to explain how entrepreneurial posture is translated into organizational performance through coordination capability. The review develops the theoretical logic linking entrepreneurial orientation, supply chain coordination capability, social capital, and organizational performance in cultural-creative SME supply chains. The section also formulates the hypotheses tested in the study.

Entrepreneurial Orientation and Supply Chain Coordination Capability



Entrepreneurial orientation is a firm-level strategic posture. It reflects how strongly a firm supports innovation, proactive market action, and calculated risk-taking (Miller, 1983; Covin & Slevin, 1989). In SMEs, the construct is closely tied to owner-manager behavior because strategic decisions are often centralized in the owner. Entrepreneurial owners search for opportunities, test product variations, approach new buyers, and adjust business routines under uncertainty.

Batik SMEs provide a suitable setting for this argument. Motif development, small-batch production, customer-specific orders, and digital catalogues require initiative. Such initiative does not improve performance by itself. It must be translated into supplier search, material availability, clear order specifications, artisan coordination, and delivery follow-up. The operational value of entrepreneurial orientation depends on this translation process.

Supply chain coordination capability captures this translation. It is the ability to connect information, materials, people, and delivery activities across firm boundaries. In SME settings, coordination capability is often built through simple but disciplined routines, such as supplier communication records, quality checklists, order logs, production updates, and customer follow-up. Prior research on e-supply chain coordination indicates that coordination capability can support SME performance when internal and external resources are aligned (Bi, 2017).

H1. Entrepreneurial orientation has a positive effect on supply chain coordination capability.

Supply Chain Coordination Capability and Organizational Performance

Organizational performance in SMEs is shaped by more than financial outcomes. It also includes customer retention, order fulfillment, product reliability, market responsiveness, and operational consistency. These outcomes are closely linked to coordination. A firm that can align suppliers, artisans, order information, quality expectations, and buyer communication is better positioned to reduce rework, respond to demand, and complete orders reliably.

Operations and supply chain management research treats coordination as a central condition for performance because supply chains require interdependent work. Holweg & Pil (2008) describe coordination as a core theoretical issue in supply chains. Relational coordination research also shows that frequent, timely, accurate, and problem-solving communication supports performance when work is uncertain and interdependent (Bolton et al., 2021). In batik SMEs, these conditions are present because production and market activities depend on multiple actors and variable customer demand.

This study expects supply chain coordination capability to improve organizational performance. It also expects the capability to transmit the effect of entrepreneurial orientation. Entrepreneurial posture creates the motivation to search and adapt. Coordination capability turns that motivation into routines that affect operational and market outcomes.

H2. Supply chain coordination capability has a positive effect on organizational performance.

H3. Supply chain coordination capability mediates the relationship between entrepreneurial orientation and organizational performance.

Social Capital as a Conditional Relational Resource



Social capital refers to resources embedded in relationships. Its structural dimension concerns the pattern, frequency, and reach of network ties. Its relational dimension concerns trust, reciprocity, obligation, and identification. Its cognitive dimension concerns shared goals, shared language, and shared understanding (Nahapiet & Ghoshal, 1998). These dimensions are directly relevant to HRM and operations and supply chain management because small firms coordinate work through people, informal roles, shared norms, and interpersonal trust.

Social capital can support coordination when ties connect SMEs to useful suppliers, buyers, artisans, market information, and peer learning. Structural ties may expand access to actors and information. Relational trust may reduce transaction concerns and support flexible problem solving. Cognitive alignment may reduce misunderstanding about quality, timing, and customer requirements. These mechanisms are consistent with buyer-supplier research showing that social capital supports performance management when it improves interaction and shared understanding (Lawson et al., 2008; Jääskeläinen et al., 2023).

The same resource can weaken coordination when it becomes too closed or too comfortable. Dense ties may circulate similar information. Trust may replace monitoring. Shared identity may discourage difficult conversations about late delivery, quality defects, or cost discipline. This is the dark side of social capital in supply chains (Villena et al., 2011). The moderating role of social capital is therefore conditional rather than automatically positive.

Structural social capital should moderate the EO-SCCC relationship because network reach determines whether entrepreneurial initiative can access diverse suppliers, buyers, and market signals. Relational social capital should moderate the same relationship because trust shapes whether initiative becomes coordinated action or informal dependence. Cognitive social capital should moderate the relationship because shared understanding can align entrepreneurial initiatives with operational standards. In each case, the effect may weaken when social capital produces complacency rather than disciplined coordination. Therefore, social capital is expected to condition the effectiveness of entrepreneurial orientation in generating coordination capability.

H4. Structural social capital moderates the relationship between entrepreneurial orientation and supply chain coordination capability.

H5. Relational social capital moderates the relationship between entrepreneurial orientation and supply chain coordination capability.

H6. Cognitive social capital moderates the relationship between entrepreneurial orientation and supply chain coordination capability.

METHODOLOGY

This study uses a quantitative research design to examine the relationships among entrepreneurial orientation, social capital, supply chain coordination capability, and organizational performance in batik SMEs. The study focuses on owner-managed SMEs because strategic and operational decisions are closely connected in small business settings. The methodology includes



the research context and sample, construct measurement, control variables, and statistical procedures used to assess the proposed relationships.

Research Context and Sample

The empirical context is batik SMEs in Surakarta, Indonesia. Batik SMEs were selected because production and market activities require coordination among owners, artisans, suppliers, subcontractors, retailers, customers, and local institutions (Setyawan et al., 2022).

The context is also relevant for human-centered operations and supply chain management because coordination is shaped by owner behavior, social ties, craft knowledge, trust, and informal work arrangements.

The working sample consists of 104 SME owners or managers. Respondents were selected through purposive sampling because the study required informants who operated batik-related SMEs and understood the firms production and market activities. This approach fits the exploratory nature of the study, but it limits population-level generalization. The interpretation of the findings is kept cautious for this reason. Participation in the study was voluntary. Respondents were informed about the academic purpose of the research, and all responses were treated confidentially and analyzed in aggregate form.

Table 2 Profile of respondents and firms

Characteristic	Category	n	%
Firm age	1-5 years	23	22.1
Firm age	6-10 years	34	32.7
Firm age	More than 10 years	47	45.2
Firm size	1-5 employees	39	37.5
Firm size	6-19 employees	46	44.2
Firm size	20 or more employees	19	18.3
Owner/manager education	Senior high school or below	36	34.6
Owner/manager education	Diploma/Bachelor	57	54.8
Owner/manager education	Postgraduate	11	10.6
Market reach	Local only	41	39.4
Market reach	Regional/national	50	48.1
Market reach	Export/digital external buyers	13	12.5
Digital adoption	Low	31	29.8
Digital adoption	Moderate	48	46.2
Digital adoption	High	25	24.0

Measure and controls

All constructs were measured with reflective indicators using a Likert-type scale. Entrepreneurial orientation captured innovativeness, proactiveness, opportunity seeking, and calculated risk-taking. Social capital was measured through structural, relational, and cognitive dimensions. Supply chain coordination capability captured supplier communication, order coordination, quality monitoring, delivery coordination, and demand responsiveness.



Organizational performance captured sales growth, customer retention, operational reliability, market responsiveness, and overall business performance as perceived by owners or managers.

Perceptual performance measures are common in SME research when objective financial and operational records are incomplete or difficult to compare across firms. The limitation is acknowledged because the responses may reflect owner perception. The model includes firm age, firm size, owner education, market reach, and digital adoption as controls because these characteristics can influence SME performance and coordination capacity.

Table 3. Measurement overview

Construct	Conceptual focus	Indicator domain	Main theoretical source
Entrepreneurial orientation	Firm-level strategic posture toward innovation, proactive action, and calculated risk-taking.	Innovativeness, proactiveness, opportunity seeking, risk-taking.	Miller (1983); Covin and Slevin (1989); Lumpkin and Dess (1996).
Structural social capital	Network pattern and access to relevant actors.	Frequency and reach of ties with suppliers, buyers, artisans, peers, and institutions.	Nahapiet and Ghoshal (1998); Lawson et al. (2008).
Relational social capital	Quality of interpersonal relationships.	Trust, reciprocity, obligation, reliability, and relationship-based support.	Nahapiet and Ghoshal (1998); Villena et al. (2011).
Cognitive social capital	Shared understanding among supply chain actors.	Shared goals, shared language, shared quality expectations, and mutual interpretation of orders.	Nahapiet and Ghoshal (1998); Bolton et al. (2021).
Supply chain coordination capability	Ability to align information, materials, production, quality, delivery, and buyer response.	Supplier communication, order coordination, quality monitoring, delivery coordination, demand responsiveness.	Bi (2017); Holweg and Pil (2008).
Organizational performance	Perceived operational and market outcomes.	Sales growth, customer retention, operational reliability, market responsiveness, overall performance.	Fan et al. (2021); Susanto et al. (2023); Adam et al. (2024).

Data analysis

The statistical analyses were conducted using SPSS. Hierarchical regression, mediation-oriented testing, interaction analysis, and simple slope analysis were used to examine the proposed relationships.

The analysis used a two-stage procedure. The first stage assessed common method bias and the measurement model. It reported Harman's single-factor test, full-collinearity VIF, item loading range, Cronbach's alpha, composite reliability, average variance extracted (AVE), outer VIF, and heterotrait-monotrait ratio (HTMT). These tests respond to the concern that entrepreneurial orientation and social capital may overlap empirically.

The second stage assessed the structural model using hierarchical regression, mediation-oriented testing, interaction terms, and simple slope analysis. Interaction terms were created from mean-centered variables: entrepreneurial orientation x structural social capital, entrepreneurial



orientation x relational social capital, and entrepreneurial orientation x cognitive social capital. The direct, indirect, and conditional effects were interpreted with firm-level controls.

RESULTS

Common Method Bias and Measurement Model

The study relies on single-informant perceptual data. Procedural remedies were used through respondent anonymity, neutral item wording, separation of predictor and criterion constructs, and avoidance of evaluative cues. Statistical diagnostics were also reported. The first unrotated factor explained 31.42% of the total variance, below the 50% diagnostic threshold often used in Harman's single-factor test. Full-collinearity VIF values ranged from 1.31 to 2.72, below the 3.30 threshold suggested for detecting severe common method bias in PLS-SEM contexts (Kock, 2015).

The measurement model shows acceptable reliability and convergent validity. Cronbach's alpha values range from 0.784 to 0.897. Composite reliability values range from 0.861 to 0.923. AVE values range from 0.563 to 0.706. These values meet the common thresholds for internal consistency and convergent validity (Fornell & Larcker, 1981; Hair et al., 2022).

Table 4. Common method bias and reliability-convergent validity results

Panel	Construct/diagnostic	Result	Threshold	Interpretation
CMB	Harman single-factor variance	31.42%	< 50%	No dominant single factor detected.
CMB	Full-collinearity VIF range	1.31-2.72	< 3.30	No severe full-collinearity pattern.
Measurement	Entrepreneurial orientation	alpha = 0.824; CR = 0.883; AVE = 0.654	alpha/CR $\geq$ 0.70; AVE $\geq$ 0.50	Acceptable.
Measurement	Structural social capital	alpha = 0.784; CR = 0.861; AVE = 0.608	alpha/CR $\geq$ 0.70; AVE $\geq$ 0.50	Acceptable.
Measurement	Relational social capital	alpha = 0.897; CR = 0.923; AVE = 0.706	alpha/CR $\geq$ 0.70; AVE $\geq$ 0.50	Acceptable.
Measurement	Cognitive social capital	alpha = 0.801; CR = 0.871; AVE = 0.629	alpha/CR $\geq$ 0.70; AVE $\geq$ 0.50	Acceptable.
Measurement	Supply chain coordination capability	alpha = 0.873; CR = 0.908; AVE = 0.665	alpha/CR $\geq$ 0.70; AVE $\geq$ 0.50	Acceptable.
Measurement	Organizational performance	alpha = 0.845; CR = 0.890; AVE = 0.619	alpha/CR $\geq$ 0.70; AVE $\geq$ 0.50	Acceptable.

Note. CMB = common method bias; CR = composite reliability; AVE = average variance extracted.

Descriptive Statistics, Correlations, and Discriminant Validity

The descriptive statistics and correlations are consistent with the model. Entrepreneurial orientation is positively correlated with supply chain coordination capability and organizational performance. Supply chain coordination capability has the strongest bivariate association with



organizational performance. This pattern supports the decision to place coordination capability at the center of the operations and supply chain management model.

Table 5. Descriptive statistics and correlations

Variable	Mean	SD	1	2	3	4	5	6
1. EO	3.82	0.61	1					
2. SSC	3.74	0.58	0.42**	1				
3. RSC	3.91	0.55	0.36**	0.59**	1			
4. CSC	3.88	0.57	0.39**	0.55**	0.63**	1		
5. SCCC	3.67	0.62	0.51**	0.53**	0.48**	0.52**	1	
6. OP	3.76	0.59	0.31**	0.35**	0.33**	0.37**	0.56**	1

Note. EO = entrepreneurial orientation; SSC = structural social capital; RSC = relational social capital; CSC = cognitive social capital; SCCC = supply chain coordination capability; OP = organizational performance. ** $p < 0.01$.

Discriminant validity was assessed with the HTMT criterion. The highest HTMT value was 0.742 between relational social capital and cognitive social capital. This value is below the conservative 0.85 threshold (Henseler et al., 2015). The HTMT values between entrepreneurial orientation and the social capital dimensions also remain below the threshold. These results address the earlier concern about construct contamination.

Table 6. HTMT matrix

Construct	EO	SSC	RSC	CSC	SCCC	OP
EO	-					
SSC	0.512	-				
RSC	0.438	0.684	-			
CSC	0.476	0.657	0.742	-		
SCCC	0.594	0.621	0.583	0.609	-	
OP	0.386	0.441	0.419	0.458	0.647	-

Note. Values below 0.85 support discriminant validity under the conservative HTMT criterion.

Structural Model and Mediation-Oriented Test

Hierarchical regression was used to predict organizational performance. The control model explains 21.8% of performance variance. Adding entrepreneurial orientation and social capital increases R-squared to 35.4%. Adding supply chain coordination capability increases R-squared to 48.6%. The direct effect of entrepreneurial orientation becomes smaller and statistically non-significant after supply chain coordination capability is included. This result supports the argument that entrepreneurial orientation contributes to performance mainly through an operational coordination pathway.

The mediation-oriented test shows a positive EO-SCCC path and a positive SCCC-OP path. The indirect effect of entrepreneurial orientation on organizational performance through supply chain coordination capability is 0.185 and significant at $p = 0.004$. The 95% confidence interval ranges from 0.073 to 0.314 and does not include zero. H1, H2, and H3 are supported.


Table 7. Hierarchical regression and mediation-oriented results

Panel	Predictor/path	Model/result	Coefficient	Decision
Regression	Control model	R-squared	0.218	Baseline controls explain 21.8% of OP variance.
Regression	EO and social capital added	R-squared	0.354	Incremental explanation = 0.136**.
Regression	SCCC added	R-squared	0.486	Incremental explanation = 0.132***.
Regression	Entrepreneurial orientation	Model 3 beta	0.116	Direct effect becomes non-significant with SCCC.
Regression	Supply chain coordination capability	Model 3 beta	0.512***	Positive effect on OP.
Mediation	EO -> SCCC	beta; 95% CI	0.361; 0.181, 0.542	H1 supported.
Mediation	SCCC -> OP	beta; 95% CI	0.512; 0.342, 0.683	H2 supported.
Mediation	EO -> SCCC -> OP	Indirect effect; 95% CI	0.185; 0.073, 0.314	H3 supported.

Note. OP = organizational performance. Standardized coefficients are reported where applicable. ** $p < 0.01$; *** $p < 0.001$.

Interaction Terms and Simple Slope Analysis

Formal interaction tests were conducted with mean-centered variables. The interaction terms are negative and significant for structural, relational, and cognitive social capital. This pattern indicates that social capital does not operate as a simple amplifier. Entrepreneurial orientation has a stronger effect on supply chain coordination capability when social capital is low, while the slope weakens under high social capital.

The simple slope results clarify the pattern. The EO-SCCC slope is significant at low structural social capital and non-significant at high structural social capital. The same pattern appears for relational and cognitive social capital. These results support H4, H5, and H6 as conditional-effect hypotheses with negative interaction terms.

Table 8. Interaction model predicting supply chain coordination capability

Predictor	Beta	SE	t	p	Decision
Entrepreneurial orientation	0.337	0.087	3.87	<0.001	Positive direct effect.
Structural social capital	0.246	0.093	2.65	0.009	Positive direct effect.
Relational social capital	0.219	0.096	2.28	0.025	Positive direct effect.
Cognitive social capital	0.231	0.092	2.51	0.014	Positive direct effect.
EO x structural social capital	-0.184	0.085	-2.16	0.034	H4 supported.
EO x relational social capital	-0.207	0.086	-2.41	0.018	H5 supported.



Predictor	Beta	SE	t	p	Decision
EO x cognitive social capital	-0.161	0.080	-2.01	0.049	H6 supported.
Model R-squared	0.523	-	-	-	Controls included.
Delta R-squared from interactions	0.071	-	-	0.012	Interaction block significant.

Note. Mean-centered variables were used to create interaction terms.

Table 9. Simple slope analysis and hypothesis summary

Moderator	Condition	Slope of EO -> SCCC	p	Interpretation
Structural social capital	Low (-1 SD)	0.418	<0.001	EO improves coordination when structural ties are limited.
Structural social capital	High (+1 SD)	0.142	0.212	The effect weakens under high structural ties.
Relational social capital	Low (-1 SD)	0.463	<0.001	EO compensates for weak trust-based support.
Relational social capital	High (+1 SD)	0.087	0.475	The effect is neutralized in high-relational settings.
Cognitive social capital	Low (-1 SD)	0.397	0.001	EO matters more when shared understanding is weak.
Cognitive social capital	High (+1 SD)	0.155	0.151	The effect becomes non-significant at high shared cognition.
Hypothesis summary	H1-H3	Supported	-	EO works through SCCC and SCCC predicts OP.
Hypothesis summary	H4-H6	Supported	-	The interactions are negative rather than amplifying.

DISCUSSIONS

The findings clarify the operations and supply chain management contribution of the study. Entrepreneurial orientation matters, but its performance effect is better explained through supply chain coordination capability than through a simple direct path. In batik SMEs, opportunity seeking and proactiveness must be visible in supplier communication, order tracking, quality monitoring, delivery coordination, and buyer responsiveness. The result fits the resource-based view because entrepreneurial orientation becomes valuable when combined with complementary routines that are difficult to imitate in local networks (Barney, 1991).



The interaction results refine the meaning of social capital. Structural, relational, and cognitive social capital have positive direct relationships with coordination capability, yet their interaction with entrepreneurial orientation is negative. This finding does not imply that social capital is harmful in itself. It means that high social capital may reduce the marginal value of entrepreneurial orientation when relationships become too familiar, too redundant, or weakly governed. The result is consistent with the dark-side view of buyer-supplier relationships (Villena et al., 2011).

The strongest EO-SCCC slopes appear under low social capital conditions. This pattern suggests a substitution effect. When relational resources are limited, entrepreneurial owners may rely more strongly on initiative to create coordination routines. When social capital is high, owners may assume that trust and familiarity are sufficient. This assumption can reduce the urgency to document orders, monitor quality, compare suppliers, and follow up delivery performance.

The model moves beyond the claim that batik SMEs are relevant to Operations and Supply Chain Management because they operate in networks. The contribution is more precise. Relational networks become operationally valuable when they are converted into coordination capability. This conversion is central to human-centered Operations and Supply Chain Management because small supply chains depend on people, trust, craft knowledge, shared language, and informal authority. The managerial task is to make these human resources operationally visible.

CONCLUSION

This study concludes that the level of urban fire resilience is shaped by the interaction of five main pillars: social, economic, institutional, technical, and environmental resilience. The MDS results show that the urban fire resilience system is generally in the moderately resilient category, indicating that the basic capacity for fire resilience has been formed but still requires integrated strengthening. The social and technical pillars provide important support for community preparedness and operational response, while the environmental pillar requires further improvement, particularly in spatial planning, settlement density control, green open space, evacuation routes, and vulnerable-area management.

The SEM-PLS results show that the causal relationships among fire resilience pillars are systemic and mutually influential. Fire resilience cannot be strengthened only through technical firefighting capacity, but must also be supported by policy consistency, institutional coordination, community participation, economic recovery capacity, and environmental risk management. The MICMAC analysis identified several strategic variables that function as leverage factors, including fire-related local regulation, inter-agency coordination, IFM budget support, fire policy consistency, local leadership support, fire response speed, early warning systems, GIS-based fire-risk mapping, and digital fire information access. These variables have important roles in directing, stabilizing, and strengthening the overall urban fire resilience system.



The proposed IFM-based Fire Resilience model positions fire management as a systemic, adaptive, and operational approach. The model integrates prevention, mitigation, preparedness, emergency response, recovery, institutional coordination, community participation, and risk-based information management. Therefore, the model is not only oriented toward fire suppression after incidents occur, but also toward long-term risk reduction and sustainable urban governance. In this sense, the IFM-based model contributes to sustainable city development by strengthening urban safety, reducing fire losses, improving community capacity, and supporting more adaptive urban planning.

Based on these findings, local governments need to strengthen institutional integration, policy consistency, budget support, and inter-agency coordination in urban fire management. Communities should also be actively involved in fire education, prevention, preparedness, and early response activities. Future research is recommended to test the IFM-based Fire Resilience model in other cities or regions with different social, institutional, technical, and environmental characteristics.

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