

## Driving Supply Chain Risk Management: The Critical Roles of Supplier Trust

Mahyudin<sup>1</sup>, Yeni Ika Pratiwi<sup>2</sup>,

<sup>1</sup> Program Magister Manajemen Universitas Muhammadiyah Gresik  
mahjudin@umg.ac.id

<sup>2</sup> Prodi Agroteknologi Fakultas Pertanian Universitas Merdeka Surabaya  
yeniikapradiwi.unmer@gmail.com

<sup>3</sup> Program Magister Manajemen Universitas PGRI Kanjuruhan Malang  
adisuroso@unikama.ac.id

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### Abstract

This study examines the impact of Supplier Trust and top management involvement on enhancing Supply Chain Risk Management (SCRM), with a particular focus on the mediating role of Buyer–Supplier Relationships. The research was conducted among China manufacturing companies operating in East and Central Java, Indonesia. A quantitative approach was employed, utilizing a structured questionnaire to collect data from 44 participating firms. The collected data were analyzed using path analysis to assess both direct and indirect relationships among the variables.

The results demonstrate that Supplier Trust and Top Management Involvement have significant and positive impacts on SCRM. Furthermore, both constructs significantly influence the quality of Buyer–Supplier Relationships. In turn, strong Buyer–Supplier Relationships are found to significantly improve the effectiveness of SCRM practices. These findings confirm the importance of fostering trust and leadership engagement at the strategic level, as well as nurturing relational mechanisms between buyers and suppliers to mitigate supply chain risks.

The study contributes to the existing body of knowledge by empirically validating the mediating role of Buyer–Supplier Relationships in the link between internal trust and leadership factors and external risk mitigation outcomes. The practical implications suggest that manufacturing firms should invest in trust-building initiatives and engage top management in proactive supply chain risk strategies.

## INTRODUCTION

The growing intensity of international trade and globalization has increasingly influenced national logistics systems, compelling companies to integrate their logistics operations across borders and establish international, regional, or even multinational supply chain networks. One of the most widely adopted global logistics frameworks is Supply Chain Management (SCM). SCM refers to the strategic integration of key business processes across companies, involving the seamless coordination between suppliers, manufacturers or service providers, distributors, agents, and ultimately, the end customers (Prakash et al., 2012). In today's competitive business environment, success largely depends on an organization's ability to integrate and manage this complex network of interrelated entities (Lambert & Cooper, 2000). Thus, the formation of inter-organizational networks and collaboration across business units is a foundational aspect of SCM.

According to data from Indonesia's Investment Coordinating Board (BKPM), China has been a significant foreign investor across various sectors, ranking ninth in 2016. Since the 1960s, South Indonesian State-owned investment has contributed to industries such as manufacturing, mining, electricity, water, and gas. In the manufacturing sector in particular, China has played a

key role as a supplier of semi-finished and capital goods, activities which are inherently part of SCM processes.

SCM is broadly defined as a network of strategic relationships that span external entities, such as suppliers, as well as internal organizational units (Stock, Boyer & Harmon, 2010). It presents an opportunity to create synergies across the supply chain and signifies a holistic approach to managing business operations and inter-organizational partnerships. However, SCM is not without risk. Preliminary interviews with South Indonesian State-owned firms operating in Indonesia reveal several challenges in SCM execution, including inconsistency in product quality, price volatility, inflated costs, and inaccuracies in distribution logistics.

In response to such uncertainties, many companies have adopted **Supply Chain Risk Management (SCRM)** strategies, which aim to identify, mitigate, and manage risks within the supply chain (Narasimhan & Talluri, 2009). Vilko (2012) suggests that collaboration and information-sharing among supply chain actors have enhanced the effectiveness of SCRM, enabling firms to more promptly identify potential risk sources and make data-driven decisions.

### **The Role of Trust and Top Management in SCRM**

One of the critical antecedents of successful inter-organizational cooperation in SCM is **trust**. Sako and Helper (1997) emphasize trust as a fundamental prerequisite for collaboration, serving as an organizational control mechanism that can substitute for price, contract enforcement, and authority-based governance (Powell, 1990). Abdullah and Musa (2014) further underscore the influence of trust on organizational relationships in SCM implementation. Similarly, Kwon and Suh (2005) argue that trust significantly enhances the effectiveness of supply chain integration strategies. Yeung et al. (2008) confirm that trust positively affects supplier–buyer relationships, while Szczepanski and Światowiec-Szczepańska (2012) point out that higher trust levels reduce perceived relational risk by lowering uncertainty in supplier interactions. A growing body of literature consistently supports the idea that supplier trust plays a crucial role in reducing supply chain risks.

Equally important is the **involvement of top management** in supply chain oversight. Top executives possess a strategic understanding of the role of SCM in sustaining organizational competitiveness (Hahn et al., 1990). Their commitment is essential for fostering a value-driven organizational culture and promoting effective management practices. Top management can also influence the alignment between supply chain actors (Croom, Romano, & Giannakis, 2000), and their active participation in SCRM facilitates closer collaboration with suppliers. As Breuer et al. (2013) argue,

close coordination among supply chain actors enhances mutual interdependence, and effective supply chain collaboration depends on synchronizing internal business processes with those of external partners (Hudnurkar & Rathod, 2012).

In the context of global competition, top management faces increasing pressure to improve risk oversight. Their leadership is vital in proactively shaping organizational strategies for risk mitigation and in ensuring the availability of accurate, timely risk information.

### **The Importance of Relationship Commitment**

Long-term **relationship commitment** between supply chain partners is often considered a sustainable competitive advantage (Day, 2000). Strong partnerships foster greater willingness to share both risks and rewards, while also enhancing the longevity and stability of the relationship (Chen & Paulraj, 2004). Furthermore, enduring partnerships promote cultural compatibility and reduce conflict, which contributes to overall supply chain cohesion (Kotabe et al., 2003). Over time, such collaboration leads to the development of well-coordinated and competitive supply chain networks. While personal relationships remain important, inter-organizational ties are more resilient in the long term (Seppanen, Blomqvist, & Sundqvist, 2007), as they persist regardless of individual employee turnover. Therefore, the extent of top management’s involvement in fostering

such relationships significantly affects the likelihood of establishing lasting partnerships.

### Research Focus

This study seeks to investigate the influence of **Supplier Trust** and **Top Management Involvement** on **Supply Chain Risk Management**, with **Buyer–Supplier Relationship** acting as a mediating variable. The study specifically addresses the following research questions:

1. To what extent does *Supplier Trust* influence Supply Chain Risk Management?
2. How does *Top Management Involvement* affect Supply Chain Risk Management?
3. What is the effect of *Supplier Trust* on the Buyer–Supplier Relationship?
4. How does *Top Management Involvement* impact the Buyer–Supplier Relationship?
5. What is the influence of the *Buyer–Supplier Relationship* on Supply Chain Risk Management?

## 2. LITERATURE REVIEW

### 2.1. Supply Chain Management

In the current era of intense competition, a company's success is increasingly dependent on its ability to integrate and manage a complex network of interorganizational relationships (Lambert & Cooper, 2000). The concept of Supply Chain Management (SCM) emphasizes the importance of constructing relationship networks, both within the firm and with

external partners such as suppliers. As defined by Stock, Boyer, and Harmon (2010), SCM encompasses strategic coordination among suppliers, internal departments, and distribution channels. SCM represents a comprehensive approach to managing business processes and inter-firm collaboration, offering opportunities for synergy and improved performance across the supply chain.

### 2.2. Supply Chain Risk Management

Supply Chain Risk Management (SCRM), a term first introduced in 1982 in the context of logistics, is still evolving as a multidisciplinary domain (Blos et al., 2009; Smith & Buddress, 2005). SCRM focuses on identifying potential sources of risk and implementing appropriate strategies to mitigate or manage disruptions (Narasimhan & Talluri, 2009). Building a robust risk management capability within supply chain structures, processes, and networks is crucial for resilience (Hollstein & Himpel, 2013). Technological infrastructure, process flexibility, and strategic redundancy are key elements in balancing standardization and adaptability in supply chains.

### 2.3. Buyer-Supplier Relationship

The buyer-supplier relationship is a critical component of effective supply chain management. Hollensen (2013) underscores its significance in sustaining long-term business relationships. A strong buyer-supplier relationship can enhance operational performance, foster innovation, reduce

costs, and strengthen competitive positioning (Kannan & Tan, 2006; Damlin et al., 2012). Such relationships also support the achievement of strategic objectives and long-term organizational goals.

#### 2.4. Supplier Trust

Trust in suppliers is defined as the willingness to accept vulnerability based on positive expectations of the partner's behavior (Kwon & Suh, 2005; Bonte, 2008). It often functions as a governance mechanism that replaces formal contracts (Dyer & Chu, 2000). Organizations that cultivate trust gain competitive advantages through both social and economic benefits, enhancing collaboration and reducing transaction costs (Ireland & Webb, 2007).

#### 2.5. Top Management Involvement

Top management plays a pivotal role in supporting supply chain initiatives. Their commitment—expressed through the allocation of time, resources, and strategic focus—is essential for building strong supplier relationships and ensuring effective risk management (Zu et al., 2008; Chen & Paulraj, 2004). Their influence shapes organizational priorities, facilitates interdepartmental coordination, and promotes alignment with long-term strategic objectives.

Based on the above literature, the research hypotheses are formulated as follows:

- **H1:** Supplier Trust has a significant effect on Supply Chain Risk Management.

- **H2:** Top Management Involvement has a significant effect on Supply Chain Risk Management.

- **H3:** Supplier Trust has a significant effect on the Buyer-Supplier Relationship.

- **H4:** Top Management Involvement has a significant effect on the Buyer-Supplier Relationship.

- **H5:** Buyer-Supplier Relationship has a significant effect on Supply Chain Risk Management.

### 3. RESEARCH METHODOLOGY

This study adopts a quantitative approach, utilizing empirical methods to collect, analyze, and present data in numerical form. Data collection was conducted through a structured questionnaire survey, and the data were analyzed using Structural Equation Modeling (SEM) with the assistance of SmartPLS software. The findings are presented both statistically and in descriptive narrative form.

#### Population and Sample

The research population consists of State-owned manufacturing firms located in East and Central Java, Indonesia. According to records from Indonesian State-owned Trading Partners, there are 32 Indonesian State-owned companies in this region. The study employed a total population sampling method, involving 38 companies, with respondents drawn from top and middle management levels.

#### 3.1. Supply Chain Risk Management (SCRM)

SCRM refers to the identification and mitigation of risks that could disrupt supply chain activities. It includes:

1. **Planning:** Establishing redundancy buffers and governance processes, and ensuring visibility of potential risks.
2. **Proactive Measures:** Implementing business continuity planning and risk quantification.
3. **Flexibility:** Enhancing adaptability in processes, capacities, and managing interdependencies with vulnerable partners.

### 3.2. Buyer-Supplier Relationship

This construct refers to a company's efforts in nurturing long-term partnerships with suppliers, comprising:

1. **Trust:** Confidence in mutual adherence to commitments.
2. **Empathy:** Understanding and addressing partner needs.
3. **Reciprocity:** Engaging in mutually beneficial exchanges and cooperation

### 3.3. Supplier Trust

Supplier trust is conceptualized as the willingness to take calculated risks based on the credibility and reliability of supply chain partners. Indicators include:

1. **Social Relations:** Trust built through informal, interpersonal interactions.
2. **Duration of Relationship:** Long-term engagement reduces uncertainty and fosters mutual understanding.

3. **Processes and Routines:** Structured interactions that enhance transparency and communication.

4. **Credible Commitment:** Demonstrated long-term intentions and consistency in behavior.

### 3.4. Top Management Involvement

This construct reflects the degree of engagement from top executives in achieving strategic supply chain objectives. It includes:

1. **Strategic Decision-Making:** Long-term strategic alignment with suppliers.

2. **Tactical Decision-Making:** Daily operational alignment and issue resolution.

3. **Organizational Alignment:** Promoting cross-functional collaboration.

4. **Organizational Foundation:** Establishing structures and systems that support effective SCRM.

### 3.5. Data Analysis Technique

To test the proposed hypotheses and evaluate model fit, the study employs Partial Least Squares (PLS) analysis using the SmartPLS software. This technique is suitable for assessing complex relationships among latent variables and is widely applied in supply chain research.

## 4. RESULTS AND DISCUSSION

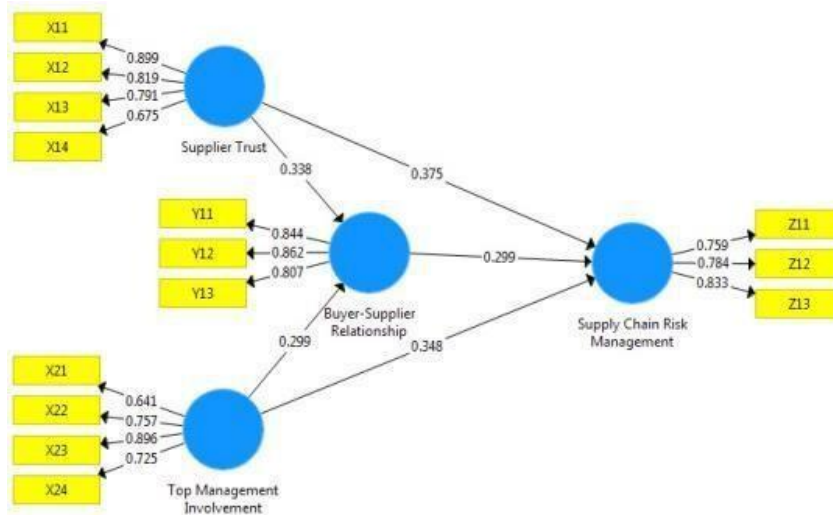
This study involved the distribution of structured questionnaires to a number of State-owned manufacturing

companies located in East and Central Java, Indonesia.

Variabel	Original sample estimate	mean of subsamples	Standard Deviation	T-Statistic
ST -> BSR	0.299	0.302	0.148	2.021
ST -> SCRM	0.338	0.328	0.16	2.115
TMI -> BSR	0.375	0.378	0.136	2.748
TMI -> SCRM	0.299	0.317	0.116	2.565
BSR -> SCRM	0.348	0.34	0.132	2.636

The table above presents the inner weight results from the PLS output, focusing on the relationships among four key variables: Supplier Trust (ST),

Top Management Involvement (TMI), Buyer-Supplier Relationship (BSR), and Supply Chain Risk Management (SCRM).



#### 4.1. The Effect of Supplier Trust on Supply Chain Risk Management

The PLS analysis shows that the path coefficient between Supplier Trust and SCRM is 0.338, with a T-statistic of 2.115, which exceeds the critical value of 1.96. This indicates a statistically significant relationship at the 5% significance level.

These findings are consistent with prior studies suggesting that Supplier Trust plays a pivotal role in enhancing SCRM effectiveness. Hsiao et al. emphasized that trust is a crucial enabler for risk mitigation in supply chains. Li, Fan, Lee, and Cheng (2015) demonstrated that a high level of supplier trust significantly strengthens SCRM practices. Similarly, Cousins et al. (2006) noted that trust promotes more open communication,

which in turn facilitates proactive risk management.

#### **4.2. The Effect of Top Management Involvement on Supply Chain Risk Management**

The path coefficient for Top Management Involvement to SCRM is 0.299, with a T-statistic of 2.565, exceeding the threshold of 1.96. This confirms a statistically significant positive influence at the 5% level.

This finding aligns with previous research by Zsidisin, Panelli, and Upton (2000), who argued that top management support is integral to successful risk management implementation. Lipton et al. (2010) and Ingley & Walt (2008) further supported this, highlighting that strategic guidance and oversight from top executives are essential to ensure organizational resilience and coordination in mitigating supply chain risks.

#### **4.3. The Effect of Supplier Trust on Buyer-Supplier Relationship**

The relationship between Supplier Trust and the Buyer-Supplier Relationship yielded a path coefficient of 0.299 and a T-statistic of 2.021, which is also greater than 1.96. This suggests a statistically significant impact at the 5% significance level.

This outcome supports earlier findings by Abdullah and Musa (2014), who demonstrated that trust positively influences inter-organizational relationships. Kwon and Suh (2005) similarly concluded that supplier trust

enhances relationship quality. A high degree of trust reduces uncertainty and perceived risk, thus fostering a more collaborative and enduring partnership (Szczepanski & Światowiec-Szczepańska, 2012; Lambert et al., 2000).

#### **4.4. The Effect of Top Management Involvement on Buyer-Supplier Relationship**

The path coefficient from Top Management Involvement to Buyer-Supplier Relationship is 0.375, with a T-statistic of 2.748, surpassing the critical threshold of 1.96. This confirms a significant relationship at the 5% significance level.

This result is consistent with findings by Jack and Power (2013), who emphasized the importance of managerial involvement in maintaining strong interfirm partnerships. Hoffman and Hegarty (1993) explained that strategic actions by top management directly affect the success of buyer-supplier collaboration. Sandberg (2007) also asserted that managerial engagement fosters alignment and collaboration across supply chain partners.

#### **4.5. The Effect of Buyer-Supplier Relationship on Supply Chain Risk Management**

The path coefficient for Buyer-Supplier Relationship to SCRM is 0.375, with a T-statistic of 2.748, indicating a statistically significant relationship at the 5% level.



This is in line with research conducted by Lavastre et al. (2014), which found that well-developed buyer-supplier relationships contribute to effective SCRM practices. Li, Fan, Lee, and Cheng (2015) also found that such relationships foster risk awareness and improve information and risk-sharing mechanisms. Tang (2006) similarly highlighted that coordination and collaboration between buyers and suppliers are critical for effective risk management in supply chains.

## 5. CONCLUSION

### 5.1. Summary of Findings

Based on data analysis and hypothesis testing, the following conclusions can be drawn :

1. **Supplier Trust has a significant positive effect on SCRM.** When suppliers trust the company, it enhances communication, coordination, and the effectiveness of risk management implementation.
2. **Top Management Involvement significantly influences SCRM.** Managerial commitment to formulating and enforcing strategies strengthens the firm's ability to manage supply chain risks.
3. **Supplier Trust significantly affects Buyer-Supplier Relationships.** Higher levels of trust foster long-term, collaborative relationships that are more resilient to disruptions.
4. **Top Management Involvement positively impacts Buyer-Supplier Relationships.** Active leadership and cross-functional integration by senior management enhance relationship quality with suppliers.

5. **Buyer-Supplier Relationship significantly contributes to SCRM.** A strong relationship between buyers and suppliers facilitates better coordination, shared risk management, and overall resilience.

### 5.2. Managerial Implications and Recommendations

1. **Enhancing Supplier Trust**  
The study highlights the importance of fostering supplier trust to improve SCRM implementation. Among the various trust indicators, social relations emerged as the most influential. Therefore, companies should invest in building strong interpersonal relationships with suppliers through effective communication and mutual adaptation. This will reduce misunderstandings and build long-term trust.
2. **Strengthening Top Management Involvement**  
Organizational alignment was found to be the most critical factor reflecting top management involvement. Thus, it is essential for top executives to facilitate collaboration across functional departments and provide strategic direction. A well-aligned and structured organization enables smoother implementation of SCRM and enhances overall performance.
3. **Improving Buyer-Supplier Relationships**  
Empathy was identified as the most significant indicator of buyer-supplier relationship strength. Companies must understand and align with their partners' goals and needs. Enhancing synchronization of business processes and sharing information openly will promote mutually beneficial and

resilient partnerships that support effective supply chain risk management.

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