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Designing Supply Chain Management (SCM) Strategies To Reduce Operational Risks At PT. Mitra Tirta Andalan

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Abstract

PT Mitra Tirta Andalan is a trading company specializing in cast metal products using a Make-To-Order (MTO) approach. The company collaborates with several production partners to meet customer demands. However, it faces two key challenges: delays in production schedules from partners causing late deliveries, and machinery or facility breakdowns at partner companies. This study aims to develop a Supply Chain Management (SCM) strategy to address these operational risks. One key solution is supplier diversification and a more structured supplier selection process. This approach helps the company reduce dependency on a single partner and enhances flexibility in dealing with production challenges. The findings reveal that supplier diversification improves operational continuity, maintains customer satisfaction, and strengthens the company's position within the supply chain. Recommendations include adding new supplier partnerships, optimizing digital marketing strategies, and expanding product offerings to support future business growth.

Keyword: Supply Chain Management, Supplier Diversification, Risk Mitigation, Cast Metal Products, Make-To-Order

INTRODUCTION

In the era of industrialization and technological advancements, the manufacturing sector, particularly in metal casting, has become a crucial pillar supporting various industries. As a result, the metal casting business has grown increasingly strategic and has significant growth potential. The Indonesian Metal Casting Industry Association

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(APLINDO) projected that the metal casting industry would experience positive growth of 5-10 percent in 2023 (ekonomi.bisnis.com, 2023).

With technological progress, market demand for precise, durable, and innovative metal casting products continues to rise. A deep understanding of material characteristics and casting processes is essential to meet high-quality standards. At the same time, competition within the industry has intensified, pushing companies to not only focus on technical aspects but also adopt smart business strategies.

The writer has applied a business development plan using a market expansion strategy. Their parents own a metal casting company called CV Inti Logam Persada, which focuses on producing piping products for water utilities. The writer established a new division named the Development and Innovation Division, operating separately from CV Inti Logam Persada but sharing human resources. Over time, due to the division's growth and profitability, it was spun off into an independent company named PT Mitra Tirta Andalan on October 17, 2024. This new entity functions as a trading company partnering with external suppliers, committed to providing quality products at competitive prices.

This research aims to develop a Supply Chain Management (SCM)-based strategy to enhance coordination with partners and implement effective mitigation measures in anticipation of operational disruptions caused by production issues at partner companies. The goal is to create a more effective partner management system that ensures supply chain stability, allowing timely and quality delivery to customers. For partner companies, the benefits include improved coordination and structured planning, while customers benefit from timely delivery and adherence to quality standards. PT Mitra Tirta Andalan's activities include sourcing high-capacity suppliers with quality production facilities, marketing through various channels, and sales through direct communication and negotiation with potential buyers.

Operational Management

Operations management is the field of management that focuses on the design, operation, and improvement of the systems that create and deliver a company’s products and services. It plays a crucial role in ensuring efficiency, cost-effectiveness, and the alignment of operational processes with strategic goals. According to Heizer and Render (2017), operations management is concerned with the transformation of inputs (such as materials, labor, and capital) into outputs (products or services), with an emphasis on optimizing processes, reducing waste, and maximizing value creation. The goal is to

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enhance the overall performance of an organization by implementing best practices in supply chain management, quality control, and inventory management to meet customer demands while minimizing costs. In this way, operations management serves as the backbone of a company's ability to deliver high-quality products and services efficiently and profitably.

Furthermore, effective operations management requires an understanding of the broader business environment, including technology, market conditions, and regulatory influences. The integration of sustainability into operational practices has become increasingly important, with companies needing to adopt strategies that not only focus on profit maximization but also on social and environmental responsibility. As stated by Slack et al. (2016), "Operations strategy must be aligned with the corporate strategy, and the capabilities of the operations function must be developed in such a way that they contribute to the competitive advantage of the organization." In this context, operations managers must ensure that every operational decision is informed by strategic goals, balancing the efficiency of internal processes with the need to respond to external pressures such as consumer preferences, competition, and regulatory requirements.

Supply Chain Management

Supply Chain Management (SCM) is a critical discipline that focuses on the coordination and management of the flow of goods, services, information, and finances across the entire supply chain, from raw material suppliers to end customers. According to Christopher (2016), SCM aims to optimize the integration of key business processes across the supply chain, with the goal of maximizing customer value while minimizing costs. Effective SCM involves managing the relationships between suppliers, manufacturers, distributors, and retailers to create a seamless process that delivers products and services to customers in an efficient and timely manner. This requires a strategic approach to inventory management, demand forecasting, procurement, and logistics, ensuring that every link in the supply chain operates in harmony to meet customer expectations.

Additionally, modern supply chain management emphasizes the importance of agility and responsiveness to market changes, technological advancements, and global competition. The integration of digital technologies, such as big data, IoT, and artificial intelligence, has further enhanced the capabilities of SCM by enabling real-time monitoring and data-driven decision-making. As stated by Mentzer et al. (2001), "Supply chain management is the integration of key business processes from end-user through

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original suppliers that provides products, services, and information that add value for customers." The ability to manage risks, mitigate disruptions, and ensure sustainability within the supply chain is essential for businesses to maintain competitiveness and resilience in an ever-evolving market landscape.

Business Plan

PT Mitra Tirta Andalan is a trading company that specializes in marketing cast metal products and operates as a subsidiary of CV Inti Logam Persada. Established on October 17, 2024, in Batur Village, Ceper Subdistrict, Klaten Regency, this company is responsible for marketing metal cast products outside the market segment of CV Inti Logam Persada. In its operations, PT Mitra Tirta Andalan utilizes CV ILP's network, including suppliers and expedition services, while also relying on some of CV ILP's human resources to support its business processes. The company aims to become a trusted, competent, and high-quality trading company, focusing on providing excellent products and management systems, ensuring quality control, and maintaining customer trust and satisfaction.

The company adopts a Make-to-Order (MTO) business model, producing goods only after receiving customer orders, thereby minimizing excess inventory and waste. This model allows PT Mitra Tirta Andalan to offer customized products in both B2B and B2C markets, acting as a liaison between customers and selected metal casting partners. The focus on strategic collaboration in B2B relationships emphasizes the importance of understanding customer needs and creating value through partnerships. Utilizing the Business Model Canvas, as described by Osterwalder and Pigneur (2010), the company visualizes its business model, covering key aspects such as customer segments, value propositions, distribution channels, and financial structures, which supports business innovation and adaptation.

Table 1. Business Model Canvas

Key Partners	Key Activities	Value Propositions	Customer Relationship	Customer Segments
- CV Inti Logam Persada - CV Manunggal Baja	- Looking for suppliers - Marketing	- Competitive price - Quality products - Product	- Long term relationship - Direct customer	- Business to business - Business to

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Sejahtera - PT Baja Kurnia - Mr. Alif Expedition - Mr. Udin Expedition	- Sales	customization	service - After sales service	consumer
	Key Resources		**Channels**	
	- CV Inti Logam Persada - Capital funds - Relations - Product innovation		- Exhibition - Brochure - Email marketing - Website - Social media marketing - Google ads	
Cost Structure			**Revenue Streams**	
- Product purchase costs - Operational costs - Marketing costs			- *Sales*	

PT Mitra Tirta Andalan operates with an outsourcing approach, partnering with several local metal casting companies to fulfill customer orders. The company manages logistics efficiently, leveraging its strategic location in Klaten, Central Java, to ensure rapid distribution of products across Indonesia. Quality control is implemented for all products received from partners before they are delivered to customers, ensuring that high-quality standards are maintained throughout the process.

The company's marketing strategy combines direct marketing through participation in industry exhibitions with digital marketing using platforms such as Google Ads and social media. Segmentation involves dividing consumers into groups based on their needs, targeting is selecting the group of consumers that best suits our product, and positioning is placing the product so that consumers have a specific impression of it. PT Mitra Tirta Andalan's primary market consists of construction companies, the automotive sector, and state-owned enterprises. By using proper segmentation, the company targets industries that require high-quality iron cast components. The company's positioning focuses on product quality, customization flexibility, and competitive pricing.

PT Mitra Tirta Andalan maintains a simple and flexible organizational structure. Due to its start-up nature, the company employs a limited number of staff with an

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emphasis on operational efficiency. This organizational structure allows flexibility in managing employee workloads. The company's financial strategy is cautious, utilizing minimal working capital, with revenue primarily generated from the sale of products sourced from metal casting partners. Marketing and operational costs are the primary components of the cost structure, and financial projections indicate a 10% annual revenue increase based on competitive pricing strategies and market expansion efforts.

PT Mitra Tirta Andalan's marketing strategy combines direct and digital marketing approaches, designed to achieve optimal market reach. Direct marketing is carried out through participation in trade shows, where the company can interact directly with potential customers in the industrial sector, especially in the business to business (B2B) segment, which often requires a personal approach in decision making. On the other hand, digital marketing is implemented through the use of online platforms such as Google Ads, social media (Instagram, Facebook, LinkedIn), and the company's website to increase product visibility more widely and efficiently. The distribution model used is direct distribution, where products are sent directly from production partners to customers without going through large storage, in line with the Make To Order (MTO) strategy, which allows for savings in storage costs and avoids the risk of overstocking. To ensure timely delivery, the company collaborates with trusted local expedition partners. The company's pricing policy combines cost-based pricing and competition-based pricing. Through cost-based pricing, the company adds a profit margin to the purchase price from supplier partners to maintain profitability, while through competition-based pricing, prices are adjusted to competitor prices to ensure competitiveness in the market, especially in industrial sectors that are sensitive to price changes.

RESULT AND DISCUSSION

In running a business, it is very natural for business people to experience several obstacles, challenges and problems that must be faced. Of course, there are several factors beyond control or due to lack of good planning in terms of management, strategy and others. This also applies to PT Mitra Tirta Andalan, in running a business there are several obstacles faced that have the potential to affect overall business operations and therefore good risk management is needed. In addition, the implementation of a strategic approach in risk management can also have a significant impact on operational efficiency and sustainability of the global supply chain (Colicchia & Strozzi, 2012). By identifying and managing risks more effectively, organizations can improve the efficiency of their

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operations and reduce the potential for disruptions that can disrupt the flow of goods and services in the global supply chain.

The problem that the author experienced in running the CV Inti Logam Persada business was the delay in delivery due to the inconsistency of the production schedule by the partner with the deadline given which ultimately resulted in the delivery deadline being delayed, in addition to the constraints of machine damage or production facilities in the partner company.

Table 2. Problem Identification

Management Function	Problem
Operational	- Delays in production schedules by partners resulting in delays in delivery deadlines - There are problems with machine damage or production facilities at partner companies
Marketing	Not identified
Finance	Not identified
HRM	Not identified

RESULTS

In identifying its challenges, PT Mitra Tirta Andalan faces operational management issues, primarily delays in production schedules by its partners, resulting in missed delivery deadlines, and equipment failures at partner facilities. The application of risk management in the global supply chain has become increasingly crucial as business environments grow in complexity and uncertainty. Global supply chains connect various parties, including manufacturers, suppliers, distributors, and consumers worldwide, and are vulnerable to numerous risks that can affect the smooth operation and overall performance of the supply chain (Ritchie & Brindley, 2007). Consequently, it is essential to adopt a strategic approach to risk management in order to identify, evaluate, and mitigate risks associated with global supply chains.

In supply chain management, supplier diversification and effective supplier selection strategies are key to reducing the risk of operational disruptions. Priyesh Singh (2017), in his paper "Supplier Relationship Management and Selection Strategies: A

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Comprehensive Review," states that effective supplier selection requires an in-depth analysis of factors such as price, quality, delivery time, and supplier production capacity. This holistic approach allows companies to build stronger relationships with suppliers and enhance supply chain efficiency. Furthermore, Salsabilah Putri Amalia (2024) emphasizes in her journal, "Supplier Diversification Strategy Determination Considering Supplier Reliability Using Monte Carlo Simulation," that supplier diversification can help mitigate supply uncertainties by considering supplier reliability. Using Monte Carlo simulation, companies can evaluate various supplier combinations to identify strategies that minimize risk without compromising operational efficiency, a strategy particularly relevant to mitigating risks such as equipment failures at supplier facilities.

Additionally, Basak Kalkanci (2017), in her article "Supply Risk Mitigation Via Supplier Diversification and Improved Supplier Management," explains that supplier diversification is an effective strategy to mitigate risks of delays and supply disruptions. Her research highlights the importance of having multiple alternative suppliers to ensure operational continuity, especially when facing unexpected disruptions like equipment malfunctions or delivery failures from a primary supplier. Based on these theories, supplier selection and diversification are critical for companies to anticipate disruptions in raw materials, production processes, or labor. When selecting suppliers, companies must carefully consider factors such as quality, cost, reliability, supplier capacity, and backup machinery to avoid production delays due to equipment breakdowns. Therefore, diversifying suppliers is essential for businesses to anticipate risks with a single supplier. By implementing supplier selection and diversification as part of supply chain management, companies can avoid various production process disruptions, strengthen their position in the supply chain, and improve product distribution to customers, ensuring timely deliveries and greater customer satisfaction.

Discussion

Given the challenges encountered during the business design and implementation, particularly the production machine issues faced by one of the suppliers, the author decided to shift a portion of the production process to another partner. This strategy ensures that daily production continues, albeit at a reduced capacity, in order to expedite the delivery of products, despite the potential delay in shipment schedules. This approach was taken to maintain customer satisfaction by ensuring product deliveries, even if slightly delayed. The decision to redistribute production aligns with risk management practices aimed at mitigating operational disruptions.

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This solution is consistent with the findings of Basak Kalkanci (2017) in the article "Supply Risk Mitigation Via Supplier Diversification and Improved Supplier Management," which highlights supplier diversification as an effective strategy to mitigate risks of delays and supply disruptions. The research underscores the importance of having multiple alternative suppliers to ensure operational continuity in the face of unforeseen disruptions, such as machine breakdowns or delivery failures from the primary supplier. The theoretical references provided in the review serve as a foundation for addressing the issues faced by PT Mitra Tirta Andalan, indicating the relevance of these strategies. Nevertheless, PT Mitra Tirta Andalan must seek additional suppliers with sufficient competence, production capacity, quality, and competitive pricing to further diversify its supplier base and mitigate future risks as part of a comprehensive supply chain management strategy.

CONCLUSION

In conclusion, PT Mitra Tirta Andalan demonstrates significant market potential and growth opportunities despite challenges encountered during the business design and implementation phase, such as machinery breakdowns at a partner company that led to suboptimal production and delayed product deliveries. The author's decision to reallocate part of the production to another partner ensured operational continuity, albeit with unavoidable delays in shipment schedules. This problem-solving approach has positively influenced the company's strategy to strengthen its supply chain management. To further enhance supply chain resilience, PT Mitra Tirta Andalan should consider expanding its network of qualified suppliers to stabilize production and better meet customer demands, while also focusing on marketing efforts to attract new customers and maintain strong relationships with existing ones. Financial stability, particularly in maintaining positive cash flow and profitability, remains crucial. The company's simple organizational structure allows for operational flexibility and adaptability in a competitive environment. Since its operations began in April 2023, PT Mitra Tirta Andalan has made steady progress, as evidenced by consistent financial growth, reflecting its ability to respond effectively to market fluctuations.

RECOMMENDATION

Based on the conclusions drawn from the business design and implementation of PT Mitra Tirta Andalan, several recommendations can be made for similar industries.

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First, optimizing operational processes through the addition of business partners and suppliers, as well as expanding partnerships with logistics providers, is essential for diversifying risk, mitigating delays, and improving product distribution efficiency. Furthermore, establishing strategic partnerships with new production partners outside the current region can support increased demand from national customers or facilitate international market expansion. Second, expanding the supplier network across various regions in Indonesia will enhance supply chain management and provide access to larger-scale, high-quality production capabilities. Third, customer selection, particularly in the business-to-consumer market, should be carefully managed to maximize revenue from high-volume orders with favorable pricing expectations. Fourth, formalizing agreements with partners and suppliers through contracts, including penalties for non-compliance, ensures accountability and service reliability. Lastly, strengthening digital marketing efforts, such as leveraging social media to showcase project portfolios and customer testimonials, alongside conducting customer relationship surveys, will provide valuable feedback for short-term service improvements and deeper insights into customer needs.

RESEARCH LIMITATION

The research on the business design and implementation of PT Mitra Tirta Andalan is subject to several limitations. First, the study is limited to the specific operational and supply chain challenges faced by the company, which may not fully capture the complexities and variations in other industries or regions. Second, the research primarily focuses on the domestic market, limiting its generalizability to international supply chains or global market dynamics. Third, while the study highlights the importance of partnerships and diversification strategies, it does not explore in depth the financial and logistical implications of implementing these strategies on a larger scale. Additionally, the study relies on qualitative data from internal company reports and partner feedback, which may introduce subjectivity and limit the scope of quantitative analysis. Lastly, external factors such as economic shifts, regulatory changes, or technological advancements were not extensively examined, which could further impact the applicability of the findings over time.

MANAGERIAL IMPLICATION

The managerial implication in the context of operations management highlights the importance of resource and risk management strategies when establishing external

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partnerships, such as with tobacco companies, which must be carefully considered to ensure operational sustainability. Managers need to ensure that resource allocation, both financial and human, is supported by transparent policies to minimize negative impacts on brand reputation while taking into account evolving ethical and regulatory aspects, such as the growing health awareness among younger consumers. Therefore, in designing collaboration strategies, companies must balance financial gains with brand image protection, as this will influence consumer loyalty and long-term operational sustainability.

REFERENCES

Adhiana, T. P., & Sibarani, A. A. (2020). Penentuan Mitigasi Risiko pada Rantai Pasok IKM Manufaktur. *Matrik: Jurnal Manajemen dan Teknik Industri-Produksi*, 21(1), 19-28.

Amalia, S. P. 2024. "*Penentuan Strategi Diversifikasi Pemasok dengan Mempertimbangkan Supplier Reliability Menggunakan Simulasi Monte Carlo*". Jurnal Teknik Industri. Vol. 25, No. 1, hal. 34-45.

Colicchia, C., Strozzi, F. (2012). '*Supply chain risk management: A new methodology for a systematic literature review'*. Supply Chain Management: An International Journal, 17(4), 403–418.

Deloitte. 2012. "*Supply Risk Mitigation: Identifying and Managing Supply Chain Risk*".

Glynn, M. S., & Woodside, A. G. (2012). *Business-to-Business Marketing: A Value-Driven Approach*. Emerald Group Publishing.

Jacobs, F. R., & Chase, R. B. (2018). "*Operations and Supply Chain Management*" (15th Edition). McGraw-Hill Education.

Kalkanci, B. 2017. "*Supply Risk Mitigation Via Supplier Diversification and Improved Supplier Management*".

Kotler, P., & Armstrong, G. (2021). *Principles of Marketing* (18th Edition). Pearson.

Laksmana, D. I., & Kiswandono. (2022). Analisis Strategi Mitigasi Risiko pada Rantai Pasok. *Jurnal Teknologi dan Manajemen Industri*, 11(2), 45-56.

Mardikaningsih, R., Halizah, S. N., Nuraini, R., Darmawan, D., & Hardyansah, R. (2024). Manajemen Risiko pada Penerapan Manajemen Rantai Pasokan Global: Kajian terhadap Pendekatan Strategis untuk Mengidentifikasi, Mengevaluasi, dan Mengelola Risiko. *Yos Soedarso Economic Journal (YEJ)*, 6(2), 1-15.

Maulana Huda, Soepatini. (2021). *Segmenting Targeting Positioning: Apa, Mengapa dan Bagaimana*. Surakarta: Muhammadiyah University Press.

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McKinsey & Company. 2018. "*A Practical Approach to Supply-Chain Risk Management*"

Osterwalder, A., & Pigneur, Y. (2010). *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*. 1: 14-17.

Ritchie, B., Brindley, C. (2007). "*Supply Chain Risk Management and Performance: A Guiding Framework for Future Development"*. International Journal of Operations & Production Management, 27(3), 303–322.

Singh, P. 2017. "*Supplier Relationship Management and Selection Strategies: A Comprehensive Review*".

Heizer, J., & Render, B. (2017). *Operations Management* (12th ed.). Pearson Education.

Slack, N., Brandon-Jones, A., & Johnston, R. (2016). *Operations Management* (8th ed.). Pearson Education.

Christopher, M. (2016). *Logistics & Supply Chain Management* (5th ed.). Pearson Education.

Mentzer, J. T., Min, S., & Bobbitt, M. (2001). Toward a unified theory of supply chain management. *International Journal of Physical Distribution & Logistics Management*, 31(3), 1-25.

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