

Research Article

# Silver Craft Competitive Advantage: Exploring the Influence of Supply Chain Management

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**Abstract:** The purpose of this study is to investigate how the management of supply chains affects business competitiveness in the creative silver industry in Yogyakarta. The research strategy uses surveys, with the time horizon being cross-sectional. The data collection strategy used a questionnaire, and data analysis used regression with the help of WARP PLS. The research focuses on owners, managers, or owner-managers of Yogyakarta, Indonesia's creative silver handicraft industry. This study shows that client interactions, degrees of sharing of information, and the quality of information sharing positively impact competitive advantage. The quality of information sharing is the supply chain management component that has the most significant positive effect on competitive advantage. Supplier partnership strategy and postponement do not affect competitive advantage.

**Keywords:** Competitive Advantage, Supply Chain Management.

## I. INTRODUCTION

According to the resource-based view, organizations with valuable, scarce, inimitable, and non-substitutable resources will achieve a competitive advantage [1]. Supply chain management is critical to obtaining valuable resources to create a benefit over competitors—the stages of the supply chain span from the initial suppliers to the ultimate consumer. The supply chain aims to enhance the quality of acquired resources or facilities. This modern supply chain perspective yields benefits down the road, giving all supply chain participants a competitive edge [2]. Competition now exists not between firms but rather between supply chains [3]. Recently, academics and practitioners have paid much attention to supply chain management, information technology, and competitive advantage [2].

Supply chain management is essential because every organization needs to manage suppliers, manufacturers, service providers, distributors, wholesalers, or retailers that convey the goods or services to the final customer [4]. Organizations must manage all supply chain activities, from procuring raw materials to achieving customer satisfaction. Organizing the supply chain seeks to increase its edge over competitors by seamlessly integrating the flow of materials and information throughout the supply chain [4]. Previous studies demonstrated that supply chain management has a substantial and favorable impact on competitive advantage [2], [3], [5], [6], [7], [8].

Previous research about supply chain management's impact on competitive advantage has been carried out in various industries, such as Halawani Industrial Company (industry food retailers, food products business activities) in Jordan [2], Jordanian manufacturing firms [5], Halal Agroindustry in Indonesia [6], [7], and in a specific fast fashion apparel (FFA) industry in Bangladesh [8]. Previous studies were only on specific fast fashion apparel (FFA) industries, so they could not be generalized [8]. They provide suggestions for future studies in different contexts. Therefore, this study examines the influence of supply chain management on competitive advantage, especially in creative industries in Yogyakarta, Indonesia.

The creative industry in Yogyakarta is developing, covering 17 sub-sectors, especially crafts, fashion, and culinary. These three are currently the most significant, reaching 70-80% of the total creative economy in Yogyakarta [9]. One of the famous handicrafts in Yogyakarta is Silver. The silver handicraft industry in Indonesia is competitive in the international market because it has various advantages, such as design and product quality. As technology develops, this sector still relies on handmade in the production process. According to the minister of industry, Airlangga Hartarto, the silver craft sector has a high added value (up to 50%) in its supply chain, from raw materials to finished goods. [10]. Therefore, the silver industry must improve its supply chain management to increase its competitive advantage. This research is expected to contribute to the creative sector, especially silver handicrafts in Yogyakarta, to boost one's edge over competitors by improving supply chain management.



## II. LITERATURE REVIEW

### A) Supply Chain Management

Heizer *et al.* [4] define supply chain management as coordinating all supply chain activities (i.e., suppliers, manufacturers, distributors, wholesalers, and retailers who deliver the product or service to the final customer), beginning with raw materials and finishing with customer satisfaction. The coordination of all supply chains is to improve the long-term competitive advantage of specific organizations [8], [11]. The literature breaks down supply chain management practices into the following categories: delay, quality and quantity of information exchange, customer relationships, and smart supplier partnerships. [3], [8], [12], [13].

Li et al.[3] explain the dimensions of supply chain management. A strategic relationship with a supplier is an extended association between the company and its suppliers, designed to capitalize on the combined strategic and operational proficiencies of the involved entities. A relationship with a client is a collection of procedures used to handle grievances from customers, create enduring connections with them, and raise their level of satisfaction. The level of information sharing is how critical information is communicated to the supply chain partners. The quality of information sharing refers to the accuracy, timeliness, adequacy, and credibility of the data exchange with the suppliers. Postponement aims to maximize possible benefits and minimize risks by delaying further investment into the product or service.

### B) Competitive Advantage

The concept of competitive advantage refers to creating a system with a unique advantage over competitors [4]. Li et al. [3] define competitive advantage as the extent to which a company can create a position that can be defended against its competitors. Creating sustained and efficient customer value is the aim of competitive advantage. Through responsiveness, low cost, and differentiation, managers can gain a competitive edge [4].

Differentiation is differentiating an organization's offerings in a way that the customer feels adds value. Low cost competes with the cost to achieve maximum value, as perceived by the customer. The response is frequently associated with flexibility but can also mean being prompt and dependable. The full spectrum of values linked to the timely development and delivery of products, consistent scheduling, and flexible achievement are included in the response. Li et al. [3] explained that the pricing or cost, quality, delivery dependability, new product development, and time for market were the measures of competitive advantage that were employed. Price or cost is a low-cost competitive advantage. The competitive advantage via differentiation includes quality, delivery reliability, and product innovation. Time to market is one of the competitive advantages via response.

### C) Effect Supply Chain to Competitive Advantage

Businesses are trying to become more competitive by customizing their products and focusing more on the supply chain, superior quality, cost reduction, and market speed. Suppliers become partners via strategic alliances over time that help them gain a competitive edge. Supply chain management is the right way to increase competitive advantage [14]. The results of his research on graphic companies prove that advantage in competition is significantly impacted by supply chain management. Research by Li et al. [3] examined the relationship between supply chain management and competitive advantage. The results of his research indicate that the higher the ability of a company to manage its supply chain management well, the more competitive advantage the company will have. The strategic provider collaboration, client relationship, exchange of information level, information sharing effectiveness, and delay are the various dimensions that makeup supply chain management [3], [8], [12], [13]. Thus, the research hypothesis is as follows.

- H1: Supplier partnership strategy has a positive effect on competitive advantage
- H2: Customer relationship has a positive effect on competitive advantage
- H3: Level of information sharing has a positive effect on competitive advantage
- H4: Quality of information sharing has a positive effect on competitive advantage
- H5: Postponement has a positive effect on competitive advantage

## III. RESULTS AND DISCUSSION

### A) Research Methodology

This research approach uses the philosophy of positivism, namely explaining and predicting events in the social world, producing generalizations of findings using causal laws [15], [16], [17]. The theory development approach is deductive: conclusions derived from general premises for evaluating hypotheses associated with the theory [18].

The choice of methodology uses quantitative methods with explanatory designs, namely numerical measurements and statistical analysis approaches, to test hypotheses ([18], [19]. This study uses five Likert scales, which provide numerical values to measure the research variables described in the question items—statistical calculation using multiple linear

regression.

The research strategy uses survey information collected from respondents to describe, compare, or explain knowledge, attitudes, and behavior [17], [20]. Respondents in this study were owners or managers of creative silver handicraft industries in Yogyakarta. The time horizon is cross-sectional, namely, a specific phenomenon at a particular time [16], [17], [18], [19]. The data collection strategy used a questionnaire, and data analysis used regression with the help of WARP-PLS. This research uses the philosophy of positivism, namely explaining and predicting events in the social world, producing generalizations of findings using causal laws [15], [16], [17]. The theory development approach is deductive, namely, conclusions derived from general premises for evaluating hypotheses associated with theory [18].

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The measurement of this study uses two independent variables (supply chain management and information technology) and competitive advantage as the dependent variable (Table 1). Supply chain management consists of five indicators: strategic supplier partnerships (6 items), customer relationships (3 items), level of information sharing (4 items), quality of information sharing (4 items), and postponement (3 items). Information technology consists of four indicators: Technology environmental scanning (4 items), strategy for using information technology (5 items), Information technology planning and control (9 items), and Acquisition and implementation (11 items). Competitive advantage used three indicators: price or cost (2 items), quality (4 items), delivery reliability (43 items), product innovation (3 items), and time to market (4 items). This study uses five Likert scales (1=strongly disagree and 5=strongly agree).

The quality of the study and data analysis method performed validity tests using confirmatory factor analysis (CFA) and average variance extracted (AVE) scores. We performed a reliability test using Cronbach's alpha to ensure the study's quality. Table 1 shows that all items have CFA results with factor loading scores of more than 0.40, indicating that they are reliable instruments [21]. The CA ratings for every variable were more than 0.60, indicating reliability [21]. The instrument validity was further supported by the AVE, which was more than 0.5 [21].

**Table 1. Variable measurement**

Variable	Definition	Indicator	Questionnaire Statement	Loading factor*	AVE	Cronbach's Alpha
Supply Chain Management [3]	A system and strategy of coordination in the business supply chain function to improve each company's long-term performance and the supply chain's performance as a whole	Supplier partnership strategy	1. We regularly solve problems together with our suppliers.	0.829	0.694	0.775
			2. We include our main suppliers in our planning and goal-setting activities.	0.800		
			3. We actively involve our key suppliers in the new product development process.	0.757		
			4. We regard quality as our number one criterion in selecting suppliers	0.524		
			5. We have helped our suppliers to improve the quality of their products.	0.655		
			6. We have a continuous improvement program covering our main suppliers	0.531		
		Customer relationship	1. We facilitate customers to seek assistance from us.	0.736	0.800	0.713
			2. We often predict future customer expectations.	0.905		
			3. We periodically evaluate the importance of our relationship with our customers.	0.749		
		Level of information sharing	1. Our suppliers and we exchange information that helps shape business plans.	0.677	0.745	0.729
			2. Our trading partners share proprietary information with us.	0.846		

			3. Our trading partners share business knowledge of core business processes with us	0.769		
			4. Our trading partners inform each other about events or changes that may affect the other partners.	0.676		
		Quality of information sharing	1. Information exchanges between our suppliers and us are accurate.	0.830	0.778	0.778
			2. The exchange of information between our suppliers and us is reliable.	0.834		
			3. The exchange of information between our trading partners and us is comprehensive.	0.804		
			4. The exchange of information between our trading partners and us is adequate.	0.626		
		Postponement	1. We postpone product assembly activities until customer orders have actually been received.	0.844	0.821	0.758
			2. We defer product assembly until the last possible (or closest to the customer) position in the supply chain.	0.819		
			3. Our products are designed for modular assembly (factory assembly).	0.800		
Competitive advantage	The extent to which a company can create a position that can be defended against its competitors	Delivery reliability	1. We deliver customer orders on time.	0.585	0.683	0.829
			2. We provide reliable delivery.	0.828		
		Product innovation	3. We provide customized products.	0.574		
			4. We change our product offering to meet customer needs.	0.646		
			5. We respond well to customer requests for "new" features.	0.510		
		Time to market.	6. We deliver products to market quickly.	0.821		
			7. We are the first in the market to introduce new products.	0.595		
			8. We have fast product development.	0.456		

\*Significant <0.001

### B) Result

We tested the hypothesis using multiple regression. Table 2 shows the results of hypothesis testing. The results of this study indicate that hypotheses 2, 3, and 4 are supported, while hypotheses 1 and 5 are not supported. The results of this study indicate that hypotheses 2, 3, and 4 are supported, while hypotheses 1 and 5 are not supported. The result shows that customer relationships, level of information sharing, and quality of information sharing positively affect competitive advantage. In contrast, supplier partnership strategy and postponement do not affect competitive advantage.

**Table 2. Results of hypothesis testing**

Variables	$\beta$	Description
<b>DV: Competitive Advantage</b>		
Supplier partnership strategy	0.148	H1 is not supported
Customer relationship	0.279*	H2 is supported
Level of information sharing	0.307*	H3 is supported
Quality of information sharing	0.316*	H4 is supported
Postponement	0.111	H5 is not supported

Note: \*significant at p-value <0.05

### C) Discussion

The study's findings demonstrate how supply chain management affects a company's ability to compete in Yogyakarta, Indonesia's silver sector. Three factors in supply chain management—quality of information, degree of information exchange, and customer relationships—have a beneficial impact on competitive advantage. The study's findings demonstrate how supply chain management affects a company's ability to compete in Yogyakarta, Indonesia's silver sector. Supply chain management that positively affects competitive advantage is customer relationship ( $\beta=0.279$ ,  $p<0.05$ ), level of information sharing ( $\beta=0.307$ ,

$p < 0.05$ ), and quality of information sharing ( $\beta = 0.316$ ,  $p < 0.05$ ). The quality of information sharing is the supply chain management component that has the most significant positive effect on competitive advantage. Supplier partnership strategy ( $\beta = 0.148$ ,  $p > 0.05$ ) and postponement ( $\beta = 0.111$ ,  $p > 0.05$ ) do not affect competitive advantage.

Customer relationships positively affect competitive advantage in the silver industry. The silver products are unique, beautiful, and highly valued works of art. Products that are unique and beautiful and have art require a good relationship with customers to get information about what suits the tastes of customers. Therefore, entrepreneurs who facilitate customers to seek help can predict future customer expectations, and in order to strengthen their competitive advantage, they regularly assess how important their relationship with clients is. Supply chain management requires customer information flow [4]. In the silver industry, the level and quality of information sharing positively affect competitive advantage. The degree of information sharing with trading partners positively influences competitive advantage, such as exchanging information that helps shape business plans, sharing proprietary information, sharing business knowledge, and informing events or changes that may affect the other partners. The quality of information sharing that is accurate, reliable, comprehensive, and adequate enhances competitive advantage.

Therefore, customer relationships, level of information sharing, and quality of information sharing affect competitive advantage in the following form: delivering customer orders on time, reliable, providing customized products, meeting customer needs, responding well to customer requests for new features, delivering products to market quickly, first in the market to introduce new products, and fast product development.

Supply chain management in the silver craft creative industry in Yogyakarta is well implemented because communication in each supply chain is going well, and collaboration has been established for a long time. One form of communication is communicating about changes in the need for raw materials, challenges, and sales trends to suppliers based on goods with the highest sales and adjusting the latest innovations or creations requested by customers.

Another communication in supply chain management is communication with customers to measure and evaluate customer satisfaction with silver handicraft products. The silver craft creative industry communicates directly with customers when buying, and also satisfied customers will make repeat purchases at the same silver craft creative industry. Evaluation of customer satisfaction can also be seen from sales results showing a good sales trend.

High trust between suppliers and consumers allows supply chain management to be well-controlled and run effectively. This supply chain management makes it easier for the silver craft creative industry to provide raw materials. It helps with timeliness in production so that products can be completed on time. Suppliers will also strengthen their bargaining power, obtain cheaper production materials, and produce more inexpensive and competitive products than competitors, thereby increasing their competitive advantage.

In addition, to maximize supply chain management carried out by the silver craft creative industry to make quality the main criterion in selecting suppliers for product development. The silver industry has unstable fluctuating trends because the selling price is low and not worth it to be used as investment goods; customers will choose gold or other jewellery, imitating copper or alpaca. So, business owners of the creative silver handicraft industry need to prioritize the quality of their suppliers. Hence, they are not inferior to silver substitute goods, as mentioned (gold, copper, alpaca, etcetera). The better the supplier's quality, the more competitive advantage the silver craft creative industry will have.

The results of this study are in line with the results of previous studies [3], which state that the higher the ability of a company to manage its supply chain management properly, the more competitive advantage the company has. This research shows that the supplier partnership strategy does not affect competitive advantage. The supplier partnership strategy calls for collaborating with suppliers to find solutions to issues, including key suppliers in planning, goal-setting, and developing new products. It also calls for selecting suppliers based on quality, assisting suppliers in raising the quality of their output, and continuously improving the program that covers our primary suppliers.

This research shows that the postponement (postponing product assembly activities until customer orders, deferring product assembly until the last possible or closest to the customer position in the supply chain, and products designed for modular assembly/factory assembly) does not affect competitive advantage.

#### IV. CONCLUSION

This study looks at how supply chain management affects competitive advantage in regard to each of the supply chain administration strategy's five components: supplier partnerships, customer relationships, information sharing levels and quality, and delay. The result shows that customer relationships, level of information sharing, and quality of information sharing positively affect competitive advantage. In contrast, supplier partnership strategy and postponement do not affect

competitive advantage.

The results of this study contribute to the silver craft creative industry by improving supply chain management in the components of interactions with customers the volume and caliber of information shared to increase competitive advantage so that it can compete with its competitors. This research focuses on the creative silver industry in Yogyakarta. The focus of future studies on supply chain management's impact on competitive advantage in different industries across international borders may be expanded. Further research is expected to add other variables that can influence competitive advantage variables, such as innovation management, quality management, and human resource management.

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