

How Do the Fashion Industries Make the Supply Chain Design Strategy? A Case Study in Bandung

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Abstract

The fashion industry in Bandung cannot be separated from various risks that will disrupt its supply chain. For the supply chain to endure risks, the fashion industry should develop a Supply Chain Design Strategy (SC Design Strategy) so that the supply chain is resilient to possible risks. SC Design Strategy is the ability to recover from disruptions by developing responsive capabilities, through redundancy and flexibility. So, this research aims to find out what form of SC Design Strategy is currently being implemented by fashion industry entrepreneurs in Bandung so that it can be used to create approaches towards resiliency. Data collection techniques were carried out through observation and interviews with company owners, managers, and employees of the enterprises. Data analysis uses a scoring rubric technique to measure the company's condition. Based on the results, the sourcing strategy dimension is the dimension that is most widely applied by ten fashion industry business actors in Bandung. Business actors said that they implemented strict supplier selection indicators to produce good quality products from suitable raw materials. Few business actors implemented global sourcing indicators, especially about supplying raw materials from abroad. In the redundant strategy dimension, most business actors use multi-sourcing indicators, namely alternative strategies for more than one supplier. For the flexible strategy dimension, several business actors use flexible transportation indicators to minimize transportation risks. Most business actors do not apply factory redesign indicators because most of them do not have their factories, so it will be hard to change the production system.

Keywords: Supply chain Management, Supply chain design strategy, Fashion Industry

1. Introduction

As the capital city of West Java, Bandung is one of the cities with a rapidly growing fashion industry. However, the COVID-19 pandemic in Indonesia has impacted the Indonesian economy. All industries, including the sustainability of the Bandung fashion industry, have been affected. The many risks faced also make fashion industry players have to try to survive. Supply chain risk is the flow of raw materials, information, and business finances relating to costs, quality, and time are all disrupted, and this harms the company's supply chain as well as its ability to meet its objectives. (Hofmann, Busse, Bode, & Henke, 2014). Dalam mengurangi biaya dan menambah nilai kompetitif perusahaan menggunakan jalan globalisasi dan subkontrak yang meningkatkan hubungan dan saling ketergantungan (Durowoju, Chan, & Wang, 2012).

Businesses utilize subcontracting and globalization, which foster greater interdependence and linkages, to save costs and boost competitive value (Wieland & Wallenburg, 2012). It refers to

risks that can modify or prevent part of the efficient movement and flow of information, materials, and products between an organization's supply chain actors or actors in the global supply chain (from suppliers to customers). Supply Chain Risk can be mapped to be used as a reference for SC Design Strategy (SC Design Strategy).

SC Design Strategy can help the fashion industry's supply chain to be resilient to disruptions during the pandemic. Supply Chain Resilience is defined as a company's resilience in dealing with disruptions that occur in the supply chain, namely the company's ability to be alert, adapt, and respond quickly to restore conditions caused by supply chain disruptions (Wang & Gupta , 2011). The understanding of a company's SC Design Strategy is influenced by how the company maps Supply Chain Risk. Companies in the fashion industry must know for sure what risks they will face from the supply chain and the risk traffic to design the supply chain. So this study aims to determine what kind of sourcing strategies, redundant strategies, and flexible strategies are currently being implemented by 10 Bandung fashion industry companies. These 3 strategies are the dimensions of the SC Design strategy according to (Agigi, Niemann, & Kotze, 2016). The implementation of an effective SC Design Strategy will have an impact on the supply chain so that it can survive to avoid, reduce, and reduce the impact of disruptions.

2. Literature Review

Supply Chain Management (SCM) is a relationship between suppliers of raw materials, production processes, transportation, and distribution systems including financial issues and information flow of a product (Wang & Gupta , 2011). The supply chain in its implementation has several risks faced. In managing supply chain risks, SCRM is needed to map these risks into Supply Chain Risk. According to Simba, Kotzé, Agigi, & Niemann (2017), SC Risk is an event that harms supply chain operations. Mapping the risks that occur through SCRM can determine what kind of SC Design strategy the company can adopt to realize a supply chain that is resistant to disruption or risk has resilience.

SC Design Strategy is made by considering the risks that may arise in the supply chain. When a business targets a market, it must take into account the proper supply chain design, be able to adjust in response to unforeseen developments, and foresee disruptions by keeping an eye on and comprehending weaknesses (Sáenz, Revilla, & Acero, 2018). Agigi, Niemann, & Kotze (2016) define SC Design Strategy as the ability to recover from disruptions by developing responsive capabilities, especially through redundancy and flexibility. The SC Design strategy variable is divided into 3 dimensions based on Agigi, Niemann, & Kotze, (2016) as below:

Table 1. The Variable of Supply Chain Design Strategy

NO	Variable	Dimension	Indicator
2	SC Design Strategy: " The ability to recover from disruptions by developing responsive capabilities, particularly through	1. Sourcing Strategy	Strict Supplier Selection : The company uses strict methods in selecting raw material suppliers for a product.

NO	Variable	Dimension	Indicator
	redundancies and flexibility." (Agigi, Niemann, & Kotze, 2016)		Global Sourcing : The company takes raw material suppliers from the global market for a product.
			Multi-Sourcing : The company uses several suppliers in procuring raw materials for a product.
		2. <i>Redundant Strategy</i>	Strategic Stock : The company uses a long-term storage strategy (1 year or more) to not be affected by environmental, political, natural, and market changes.
			Flexible Transportation : The company has several choices of transportation of products to be distributed to consumers.
		3. <i>Flexible Strategy</i>	Factory Re-Design : The company redesigned the production plant to ensure continuity of production in the factory effectively and efficiently.

3. Research Method

This descriptive research aims to obtain an overview of the characteristics of the subject or object in the study to formulate a research problem that refers to the facts that are visible or what they are. In this case, research using a descriptive method was carried out to determine the SC design strategy that occurs among fashion industry entrepreneurs in Bandung.

The population is the fashion industry of Bandung City. A single member of a particular population is called an element. So several elements selected from a population are called a sample. In this study, samples were obtained using a non-probability sampling method with a sampling technique, namely purposive sampling, by selecting samples based on certain criteria, and only elements that met the requirements were sampled to provide the desired information. The requirements were taken based on judgmental sampling where 10 MSME fashion industry business actors belonging to Bandung's clothing lines. The definition of a clothing line is an

effort to produce a fashion design and focus on creating a fashion brand such as clothes, t-shirts, and so on (Syahid, 2018).

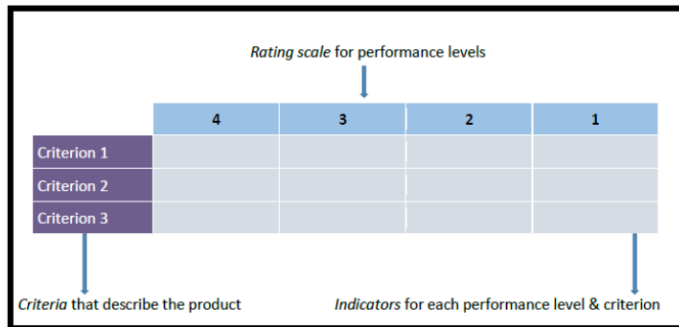
The data collection techniques in conducting this research are:

1. Literature Study - The author collects data and information obtained from journals, news, and the internet, and obtains relevant theories by reading e-books, articles, journals, and internet information that can support this research.
2. Observation - Observations were made by directly visiting the businesses owned by the business owners and observing how the business owners managed several supply chain disruptions.
3. Interview - The author conducted an open-question interview where a list of questions had been prepared to be asked of each respondent, namely the owner and manager of the company, to obtain the required information. The questions were prepared based on SC Design Strategy variables that had been developed based on operational variables. The assessment rubric has three (3) parts as in Figure 1, rating scale, criteria, and indicators. The assessment scale is a number that shows the level of performance on existing indicators. Criteria are what will be assessed. Meanwhile, an indicator is a measure that is the basis for providing an assessment. SC Design Strategy has three dimensions, namely sourcing strategy, redundant strategy, and flexible strategy, each of which has 2 indicators so that the score is determined as follows:

Table 2. The Score Determination for the SC Design Strategy Assessment Rubric with 2 Indicators

Score	Requirement
5	All indicators are met
3	One indicator is met
1	None of the indicators were met

Data obtained from interviews and observations were processed qualitatively. Next, the author quantifies the data obtained qualitatively using the scoring rubric technique. An assessment rubric is an assessment guide that describes the desired criteria for assessing (Abdillah, 2017). The assessment rubric is usually presented in a table containing several aspects or indicators to be assessed, a quality description for each indicator, and an assessment scale for the description (Hima & Saputro, 2017). According to Hima & Saputro (2017) each rubric consists of an arrangement of assessment criteria and point values related to these criteria. Then according to Karkehabadi (2013), the method used to provide a rubric assessment is to compare what happened with what should have happened, according to predetermined standards.



Figures 1. The Example of Scoring Rubric (Reference : (Karkehabadi, 2013))

4. Finding and Discussion

Agigi, Niemann, & Kotze, (2016) define SC Design Strategy as the ability to recover from disruption by developing responsive capabilities, especially through redundancy and flexibility. There are three dimensions in measuring the SC Design Strategy according to Agigi, Niemann, & Kotze (2016), namely the sourcing strategy dimension, the redundant strategy dimension, and the flexible strategy dimension.

Sourcing Strategy. According to Agigi, Niemann, & Kotze (2016) sourcing strategy is a strategy used when one supplier does not provide productivity efficiently, the company still has other alternative suppliers. The sourcing strategy dimension has two indicators, the strict supplier selection indicator and the global sourcing indicator.

Table 3. The Result of Scoring Rubric for Sourcing Strategy

Respondent	Speed Tunner	Kite	Buttonpatch	UNKL37	Proshop	W Clothing Delegation	Hafs	Watchour words	Rabbit and Whels	Holla Club	Total
Indicators											
Strict Supplier Selection	v	v	v	v	v	v	v	v	v	v	10 / 10
Global Sourcing	v	v	v	v	-	-	-	-	-	-	4 / 10
Indicators met	2 / 2	2 / 2	2 / 2	2 / 2	1 / 2	1 / 2	1 / 2	1 / 2	1 / 2	1 / 2	
Scoring Rubric	5	5	5	5	3	3	3	3	3	3	38

Based on the table above, the author creates an indicator assessment rubric for the sourcing strategy dimension based on Table 3. The rightmost table column is the total of each indicator. The eighth row of the table, namely the row of indicators that are fulfilled, is the total of each business actor who implements the strategy in the sourcing strategy dimension. These indicators are the strict supplier selection indicator and the global sourcing indicator. The bottom row of the table is the assessment rubric, the score of this assessment rubric refers to Table 2. If both indicators are fulfilled, the score is 5, if 1 indicator is fulfilled, the score is 3.

The strict supplier selection strategy indicator is an indicator with a higher score because all business actors want the goods they produce to have good quality, according to the wishes of each business actor. Business actors truly consider the market sector they are in while creating. For the necessary raw materials to be specific. Furthermore, business actors can strike a balance between achieving their own goals and sticking to their allocated budgets. Businesses of all sizes, including micro, small, and medium-sized enterprises, use a tight supplier selection process when choosing suppliers. The goal is that the production results of each business actor are of high quality and appropriate.

The global sourcing strategy indicator is an indicator with a lower score than the strict supplier selection indicator. This is because business players don't use the global sourcing indication frequently. A large number of firms, namely small and medium-sized enterprises, keep sourcing from domestic suppliers. This is because domestic suppliers according to the six business actors are still sufficient to meet the raw material needs that business actors need.

Among two indicators of sourcing strategy, business actors who apply both indicators of the sourcing strategy dimension are Speed Tuner, Kitc, Buttonpatch, and UNKL347. The purpose of each business actor in applying the strict supplier selection indicator is because the product concept they have has unique characteristics that require suppliers who can meet the production needs of the concept. For example, Speed Tuner has an artisan clothing concept with an automotive car nuance, Kitc has a geek pop concept, Buttonpatch has a special menswear concept, and UNKL347 has a three-theme concept with distinctive colors each year. To support its characteristics, the 4 business actors need raw materials for certain special products. To get raw materials at affordable prices, these business actors import. The effect of Speed Tuner, Kitc, Buttonpatch, and UNKL347 applying both indicators of the sourcing strategy dimension is that the product concept can be maintained, raw material costs tend to be cheaper, and raw materials that are rarely available domestically can be met respectively. These business actors apply the global sourcing indicator.

Redundant Strategy. According to Jüttner & Maklan (2011), a redundant strategy is a strategy of additional capacity and/or inventory availability when needed. Redundancy is also a strategy to increase capacity by increasing safety stock or also with a multi-sourcing strategy to maintain the production process when there is a risk or disruption related to suppliers. In the redundant strategy dimension, there are two indicators, namely: the multi-sourcing indicator and the strategic stock indicator.

Table 4. The Result of Scoring Rubric for Redundant Strategy

Respondent	Speed Tunner	Kite	Buttonpatch	UNKL37	Proshop	W Clothing Delegation	Hafs	Watchour words	Rabbit and Whels	Holla Club	Total
Indicators											
multi-sourcing	v	v	v	v	-	-	v	-	v	v	7 / 10
strategic stock	-	-	-	-	-	-	v	-	-	-	1 / 10
Indicators met	1 / 2	1 / 2	1 / 2	1 / 2	0 / 2	0 / 2	2 / 2	0 / 2	1 / 2	1 / 2	
Scoring Rubric	3	3	3	3	1	1	5	1	3	3	26

Based on the table above, out of ten business actors interviewed, it shows that seven business actors apply multi-sourcing indicators, and three business actors do not apply multi-sourcing indicators. The multi-sourcing indicator is an indicator with a high score because the multi-sourcing indicator is widely applied in most fashion industry business actors to anticipate the unavailability of raw materials needed to produce a product and to match the budget for raw materials according to the wishes of business actors. SpeedTuner has a multi-sourcing approach, meaning that to reduce demand risks—such as erratic demand or short product cycles—it has many suppliers. If a company cannot meet strong demand and cannot produce, it could experience a decline in sales.

Table 4 further demonstrates that the strategic stock indication is only used by one business player. The long-term (greater than one month) storage plan for raw materials and completed items is represented by the strategic stock indicator. Since the majority of business actors do not employ the strategic stock indication, it receives a poor grade as an indicator. Because business actors claim that fashion trends change in the fashion sector quite quickly. Additionally, there's an opportunity that when inventory increases, so will the expense of inventory storage. As a result, the majority of business players create clothing in small batches while increasing the variety within a single production.

Thus, Hafs has a fallback source in case one of the suppliers is unable to provide the necessary raw materials. The owner Hafs's perspective on fashion items that never go out of style quickly is the phenomenon that Hafs observed and used to inform the use of the strategic stock indicator. Thus, Hafs maintains a small amount of production inventory throughout time. Because of the several layers of suppliers and inventories, Hafs' use of both indicators from the redundant strategy dimension results in a greater ability to meet consumer demand. However, Hafs must incur inventory costs as a trade-off.

Flexible Strategy. According to Agigi A et al., (2016), a flexible strategy is a strategy used by companies when local suppliers cannot meet the unique specification requests of a product, then the company must supply globally. In the Flexible strategy dimension, there are two

indicators, namely: the flexible transportation indicator, and the factory re-design indicator. Table 5 below displays the outcomes of processing this dimension data:

Table 5. The Result of Scoring Rubric for Flexible Strategy

Respondent	Speed Tunner	Kite	Buttonpatch	UNKL37	Proshop	W Clothing Delegation	Hafs	Watchour words	Rabbit and Whels	Holla Club	Total
Indicators											
Flexible transportation	-	-	v	v	v	-	-	v	-	-	10 / 10
Factory Re-design	-	-	-	v	-	v	v	-	-	-	4 / 10
Indicators met	0 / 2	0 / 2	1 / 2	2 / 2	1 / 2	1 / 2	1 / 2	1 / 2	0 / 2	0 / 2	
Scoring Rubric	1	1	3	5	3	3	3	3	1	1	24

Indicators with higher scores than other indicators are in the flexible transportation indicator. The flexible transportation indicator is an indicator with a high score, only business actors who have not collaborated with a particular logistics service. The reason for this is that these business players take into account customer convenience, delivery location, and accuracy. Business actors who employ this indicator method continue to observe the benefits and drawbacks of all existing logistics services, thus they are not focused on a single logistics provider.

Indicators with lower scores than other indicators are in the factory re-design indicator. The factory re-design indicator is an indicator with a low score because the factory re-design indicator is a strategy that is not used by most business actors. After all, most business actors do not have a factory. The reason is that some business actors are still in the micro and small business category, so they have not thought about making a factory. In producing goods, namely sewing, screen printing, and others, these business actors still use the services of other people.

The business actor who applies both indicators of the flexible strategy dimension is UNKL347. Because UNKL347 respects customer preferences when selecting logistics services, UNKL347 uses the flexible transportation indication. By doing this, customers should feel more at ease selecting logistics providers they already know and trust. UNKL347 is using the factory re-design indicator to make the manufacturing site more pleasant and organized. Additionally, the production process gains efficacy and efficiency. Applying both of the indicators has given UNKL347 the impression that goods are reaching customers more quickly and that manufacturing is moving more quickly due to the factory's good organization. The majority of business actors said that they didn't utilize both metrics. By using the transportation flexibility indicator, several corporate players sought to reduce the risk associated with transportation. Because the majority of business actors did not yet own a factory, they did not apply the factory redesign indication.

5. Conclusion

A lot of company actors already know that improving their supply chain strategy will increase their profitability. But to make the supply chain more robust to disturbances, Bandung's ten business players must make the most of the use of supply chain design methods that meet their demands. SC Design Strategy has three (3) dimensions, namely sourcing strategy, redundant strategy, and flexible strategy. With a total of 38 points, the sourcing strategy component has the highest value according to the scoring rubric's results. The Redundant Strategy, with 26 points, is the second dimension, followed by the Flexible Strategy, with 24 points. This demonstrates that ten prominent figures in the fashion sector apply more on the supplier side. The respondents feel that the optimal value of the supply chain may be achieved if they can receive raw materials with ease, suitably, and at reasonable costs.

Additionally, to fully understand the supply chain and subsequently evaluate it to identify risks in each supply chain, ten business actors in the fashion sector in Bandung should focus more on the supply chain path regularly. Precautions against risks that are anticipated to arise in the supply chain are to be considered. A more comprehensive study is needed to determine whether supply chain design strategies can help business players in the fashion industry in Bandung become more resilient to the current risk map. It is anticipated that more investigation will be able to determine how SCRM may be applied to manage the risks that arise in Bandung's fashion sector business players.

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