



Value Chain Analysis on Handmade Batik Products

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Abstract

Since the recognition of batik by UNESCO, the batik market has expanded throughout the world. This is marked by the increase in the value of batik exports to various countries. In the midst of increasingly fierce trade competition, industries are demanded to be capable and have high competitiveness. Although batik is considered as one of the strategic industries, in terms of development, batik still faces several problems both internally and externally. The purpose of this research is to discuss about the solution to develop batik in Cibelok Village, Pemalang Regency by analyzing the value chain so that it increases the selling value of written batik. This study used a value chain analysis approach, Competitiveness Diamond, and Critical Success Factor Value. Based on the results of the analysis, it was found that the profit generated per onefabric production is Rp74,700. Increasing profit margins can be done by considering the role of several activities in the batik business process. The activities to consider are operations, followed by marketing and sales, as well as inbound logistics. In addition, product quality and innovation in batik patterns are needed in an effort to increase sales.

Key words : Value chain, Strategic, Competitiveness, Batik industry

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INTRODUCTION

The textile and garment industry in Asia is three of the top five garment exporters in the world, and 10 out of the top 20 (ILO, 2015). The growth of garment exports in Asia-Pacific shows a significant increase in each year. In 2016, Indonesia ranked 17th as the world's TPT (textile and textile product) supplier with a contribution of 1.58%. Countries that are the destinations of Indonesian textile exports are the United States 32.34%, the European Union 14.97% and Japan 10.08% (ILO, 2015).

Table 1. Value of Export-Import Indonesian Textiles and Clothing in 2014-2018 (US Thousand)

Year	Export	Import
2014	12,740,816.37	8,566,200.875
2015	12,282,984.09	7,976,206.101
2016	11,832,191.85	8,160,070.629
2017	12,536,684.69	8,217,340.936
2018	13,216,843	10,017,100

Source: WITS (World Integrated Trade Solution)

The export value of Indonesian textiles and clothing continues to increase from 2014-2018, except in 2016 which decreased. As well as imported by Indonesia on textiles and clothing which tend to fluctuate, until in 2018 the Indonesian import value reached US 10.0171 million.

One of the mainstay textile products from Indonesia is batik. Batik has been a part of Indonesian people's lives since the mid-18th century. Batik craft is a national cultural identity that contains creativity and spiritual values, through the symbolic meaning of colour and design.

Batik was officially recognized as one of Indonesia's cultural heritage by UNESCO on October 2, 2009. The word batik comes from the words "ba" and "tik", which means "the dots". Aside from acting as a cultural heritage, batik also has an economic function.

Furthermore, UNESCO's recognition also had a positive impact on batik sales, especially in terms of promotion.

Table 2. The value of Indonesian Batik Exports in 2012-2016 (US million)

Year	Export
2015	156
2016	149.9
2017	58.46
2018	52.44
2019	17.9

Source: Ministry of Industry

The world recognition of batik had an impact on the spread of the batik market to the world. According to the Ministry of Industry, the value of batik exports in 2015 reached US 156 million. However, batik exports tend to experience a downward trend until 2019. In 2018, batik exports reached US 52.44 million. This value has decreased by 10.3% compared to the previous year. Meanwhile, batik exports in the first semester of 2019 amounted to US 17.9 million. The most significant decline occurred in 2017, where the value of the decline reached 61% compared to the previous year. The main export destinations for batik include Japan, the United States and Europe.

This Indonesian fabric of pride has a multidimensional background, not only economic but also social, cultural and even political. From an economic perspective, batik could enter the realm of industry where this process can increase the added value of batik itself. In the industry, batik has a fairly long value chain. Given the fairly long value chain, if there is a problem in one of the links, it can cause shocks to the sustainability of the industry (Kina, 2013).

In the midst of increasingly fierce trade competition, the industry must be capable and have high competitiveness. Although batik is considered as one of the strategic industries, in terms of development, batik still faces several problems and challenges, such as the availability of raw materials, marketing, and batik workers who are increasingly diminishing. In addition, challenges also come from outside – for example, technological developments and the entry of batik printing from China and Thailand. Indonesian batik is superior in quality. However, in terms of price competition, it is still lacks where imported batik tends to have lower prices. For this reason, high competitiveness in the international market must be improved. One of them is through an effective value chain (Mangifera, 2015).

The batik industries are spread throughout Indonesia with a variety of patterns and characteristics of each region. One area that produces batik is Pemalang. Pemalang has a variety batik motifs that contain different philosophical values in each motif. Batik is one of the leading commodities in Pemalang besides pineapple. But until now, Pemalang batik is still less competitive compared to batik products from Yogyakarta, Solo and Pekalongan. This is due to production that does not meet market needs, less optimal marketing strategies, fewer resources, and lack of knowledge about technology.

One of the surviving batik producers is Batik Arum Cempaka, and the only producer of handmade batik with government permission, which is located in Cibelok-Pemalang Village. There are several attempts made by producers in order to maintain the existence of Pemalang handmade batik, one of which is by innovating on the motifs and basic fabrics of making batik which are replaced with Goyor cloth (Pemalang typical

fabric). However, the lack of a marketing strategy, the increase in the basic costs of making batik, and the decreasing number of craftsmen are still the main problems for developing the business.

To overcome this problem, a strategic approach will be developed so that it can optimize the existing potential and eliminate existing obstacles. Value chain analysis is the approach that will be used to approach the strategy. Porter (1985) and Kaplinsky & Morris, (2000) explain that an effective value chain is a key to achieving a competitive advantage that will ultimately produce added value. Value chains are all activities that start from diverse production processes, shipping to consumers to recycling after utilization. In addition, value chain analysis can be used to identify the stages that ultimately have an impact on increasing value-added and using costs more efficiently.

METHOD

This research uses a descriptive method with a qualitative approach. The study was conducted at Batik Arum Cempaka, which is located at 14, Kapt. Pierre Tendean Street - Sidomukti IV Alley, Sarwodadi, Cibelok Village, Taman Sub-district, Pemalang Regency. Batik Arum Cempaka is the only producer of handmade batik in the Cibelok village-Pemalang.

The first stage is to do a Value Chain Mapping of Batik Products. In this paper using several studies have apply value chain to their study (see, (Angelis-Dimakis et al., (2016); Hapsari et al., (2017); Marisa et al., (2018); Saraswati et al., (2017); Yuliawati, (2014)). To complete this research, a flow chart is designed in Figure 1.

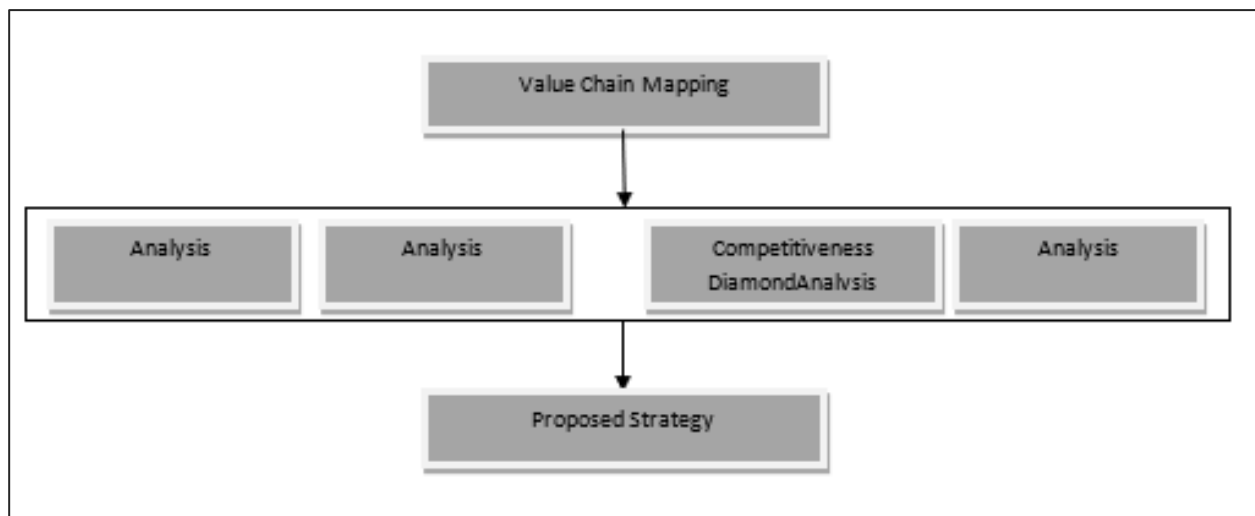


Figure 1. Research Flow Chat

The study began with mapping in the upstream, midstream, and continued with the downstream segment. Porter (1985) explains, Value Chain Analysis is a strategy analysis tool used to gain competitive advantage, discuss customer values that can be done or reduce costs, and understand the relationship between companies with suppliers, customers and other companies in the industry. The purpose of value chain analysis is to approve value chains that are installed anywhere, companies can increase value for customers or additional costs. Lowering costs or adding value helps companies become more competitive (Marisa et al., 2018)

There are three main sets of reasons why value chain analysis is important in this era. They are: with the development of the division of labor and the distribution of components of production, systemic competitiveness is becoming increasingly important; efficiency in production is only necessary for successfully penetrating global markets; and entry into global markets which allows for sustained income growth, requires an understanding of dynamic factors within the whole value chain (Kaplinsky & Morris, 2000).

Porter's model has a structure which is valid for all industries and sectors in economy theoretically. Therefore, the model could be applied to batik industry and can explain the factors that effect the competitive power among national batik industries. However, it cannot be said that the model explains the sector fully. According to Porter, these below mentioned four properties form national advantage diamond both one by one and as a system. These properties are: Factor conditions: the condition of such factors as human resources or the infrastructure necessary for competition in industry; Demand conditions: the quality of market demand for goods and services in the industry; Related and supporting industries: Existence or non-existence of related and supporting industries which can compete; and Firm strategy, structure and rivalry: the way companies are created, organized and managed; and the existence of competition within the country (Esen & Uyar, 2012).

The data used in this study are primary data and secondary data obtained by conducting interviews and literature studies. Data collection techniques are carried out through documentation, interviews, and observation

using data analysis techniques (documentation research) and descriptive analysis.

Operational definition: Raw materials are all the main ingredients involved in the manufacturing process. Then, the production process is every activity carried out to produce products (in the form of batik fabric). And the price of batik is the price sold to consumers.

The next step is value chain analysis. The steps in analyzing are as follows: first, identifying activities in the value chain, is separating activities in batik business to several business activities into primary or supporting categories. Then, identify cost drivers. This is done to identify each producer activity that has advantages in terms of current costs and potential costs.

Besides that, in this paper using diamond competitiveness analysis. Porter's Competitiveness Diamond is a model created by Michael Porter in helping to understand the concept of competitive advantage. Competitiveness Diamond is used to evaluate the value chain. There are several papers used as literature in analyzing Porter's Competitiveness Diamond (see, Esen & Uyar, (2012); Herciu, (2013); Lin & Bai, (2020); Mishra, (2017); Smit, (2010)).

RESULTS AND DISCUSSION

The result of Value chains mapping show the stages in the distribution of batik, which starts from production to the end consumer. Value chain mapping is divided into three main parts, namely the main segment, the main actors, and related institutions that support the sustainability of the batik value chain. The main segment of the value chain is the main actors involved in

it. The main segment consists of upstream, midstream, and downstream.

The main actors involved in the value chain are suppliers, craftsmen, wholesalers, retailers, and end customers. Institutions that play a role in the value chain are the Pemalang Regency Department of Industry and Trade Cooperatives which plays a role in providing batik technique training and marketing facilitation in the form of exhibition and promotion activities. Further explanation about value chains mapping in figure 2.

In figure 2 explain that the three main segments in the value chain are:

Upstream Segment, this segment consists of suppliers of main and supporting raw materials. The inbound logistics activities involve receiving, storing, managing, and controlling activities towards fabric, wax, and dye material and also returning those materials to the supplier when it is required (Mangifera, 2015); Midstream Segment, the midstream segment consists of production or process consist of activities to convert raw materials into a finished product (Mangifera, 2015); and downstream Segment, the downstream segment consists of all activities, i.e. distribution, warehousing, transportation, and after-sales service.

The process of making handmade batik which requires a long duration of time. This is one of the problems faced by craftsmen in the village of Cibelok, especially at Batik Arum Cempaka. This is because of the production process is still dependent on the weather. In addition, batik motifs in Pemalang Regency are less able to attract the attention of consumers. This is because the use of colours that are still inferior to batik from Pekalongan, for example.

Pemalangan batik motifs tend not to be compact, meaning that there is still plenty of room on the fabric that is not made. This happens because the craftsmen sometimes do not separate the canting used to make patterns

and the one used for making motives that are more detailed. Non-compact motifs can be utilized by craftsmen from outside the city, by compacting the motif and reselling batik fabric at a higher price. In addition, wage pay for cutting workers is also considered quite expensive.

The marketing system is done by installing the products in the gallery, which is usually in one place with the production process. In addition, marketing is also done by participating in exhibition activities held by the government. There is a well-established

system of marketing (at Batik Arum Cempaka) where consumers who have purchased 40 pieces of batik will get one piece of batik fabric for free.

The average type of equipment used by craftsmen in Cibelok Village is still unchanged from time to time. In other words, there were no significant developments in the equipment used. Working together with other parties in a variety of motifs is one of the advances made by craftsmen. In addition, craftsmen have begun to realize that batik has now come not only as a mere garment but also as a fashion.

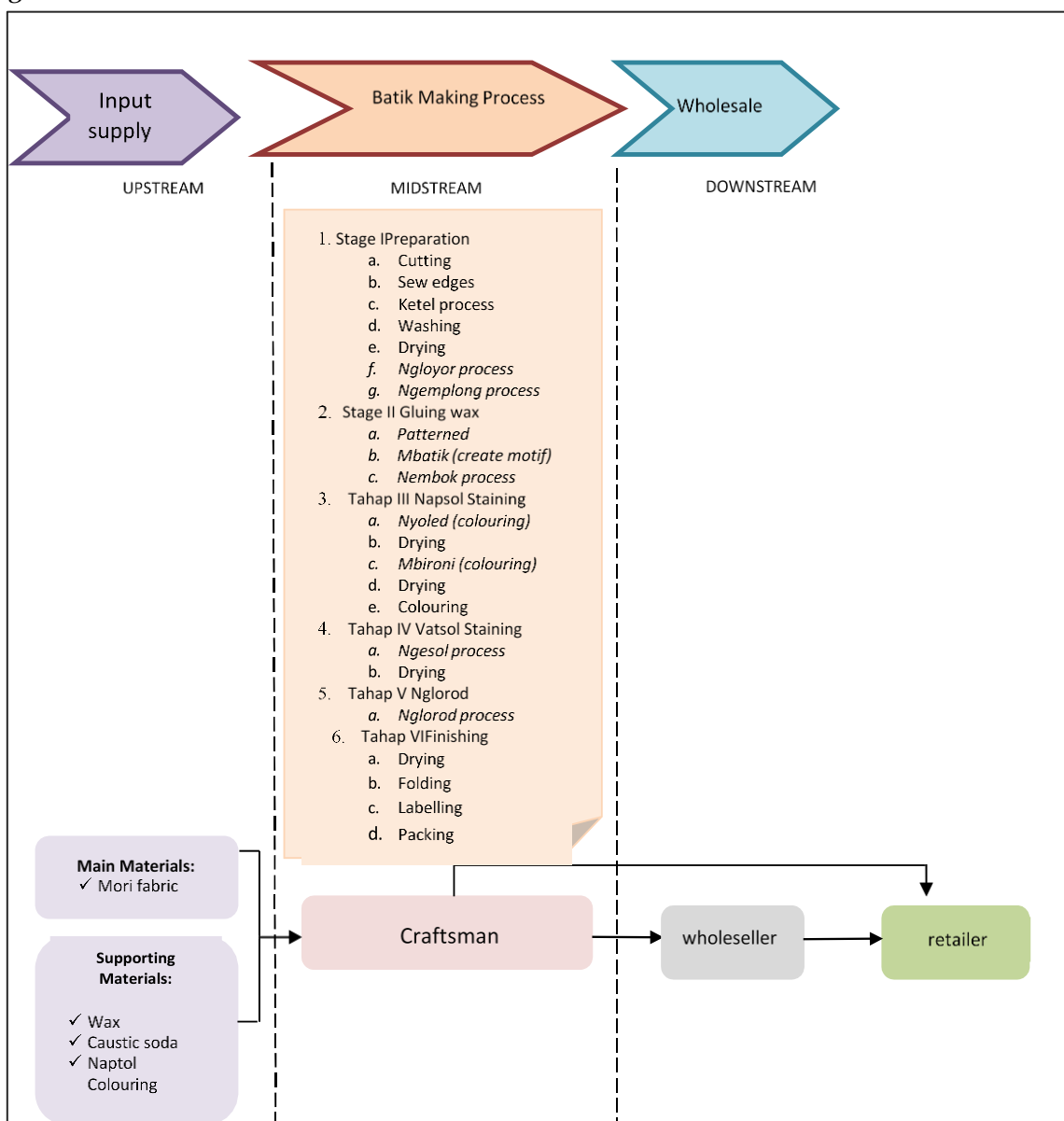


Figure 2. value chains mapping

Every activity and value chain in batik production at Batik Arum Cempaka has added value which will affect the final product. Production costs on batik consist of

labour costs, raw materials, and overhead costs. The following are the details of the costs incurred during the production process.

Table 3. Added Value in the Production Process at Batik Arum Cempaka

No	Cost Type	Lowest Cost	Average Cost	Highest Cost	Average Production Cost per 2m Batik	Average Product Sales Price	Value-added (%)
Production Costs (Raw Materials, Labour Costs, BOP)							
1	Mori Fabric	36,000	37,000	38,000			12.3%
2	Wax (<i>Malam</i>)	25,000	25,000	25,000			8.3%
3	Dye	750	1,000	1,200			0.3%
4	Design and Drawing Workforce	9,000	10,000	11,000			3.3%
5	Isen-Isen Labour	23,000	25,000	26,000			8.3%
6	Penolet Labour	90,000	100,000	110,000			33.3%
7	Dye Labour	15,000	15,000	15,000			5.0%
Average Cost of Batik Production					213,000		
8	Supporting Materials	2,700	3,000	3,200			1.0%
9	Equipment (<i>Canting</i> , large skillet and stove)	700	800	900			0.3%
10	Kerosene	8,000	8,500	10,000			2.8%
Average supporting costs					12,300		4.1%
Average production and supporting costs					225,300		75.1%
The selling value of batik to consumers						300,000	
Value-added						74,700	25%

Note: The cost of producing 1 sheet of fabric (2 x 2 meters)

Source: Primary data 2019 (processed)

In table 3, it is explained that in the production of a batik fabric that has a size of 2 x 2 meters required an average production cost of Rp213,000 and the average supporting cost of Rp12,300. Therefore, the average total cost is Rp225,300. If the average selling price of a batik fabric is Rp300,000, an added value of Rp74,700 or about 25% is obtained. The highest added value is obtained from the "mbatik" process, which is included in the operation process and obtained Rp150,000 or 50%. This is due to the process requiring professional staff, with a high level of accuracy

and complexity, especially in the activities of Isen-Isen, which is valued at Rp100,000.

Furthermore, the second largest added value is marketing and sales activities with an added value of Rp74,700 or 25%. The third biggest added value is the inbound logistics activity because the prices of batik raw materials are quite high. This is because all raw materials are obtained from outside the city. With an added value of Rp63,000 or around 21%. This is different from research from (Yuliawati, 2014) on batik products in Jetis - Sidoarjo, where the financial analysis shows inbound logistics, operations, outbound logistics, sales and services

by involving-helping with added value. And study from (Mangifera, 2015) the top three rank activities that bring added value to the margin are Inbound Logistics, Operations, and Marketing and Sales activities.

After financial analysis and value added of handmade batik, the next step is diamond competitiveness analysis. Porter's Competitiveness Diamond is a model created

by Michael Porter in helping to understand the concept of competitive advantage. Competitiveness Diamond is used to evaluate the value chain of batik industry in Cibelok village. This model consists of four pillars, namely: condition factors, demand conditions, related industries and supporters, and competitor companies.

Table 4. Dimensions and Elements of Competitiveness Diamond Model

Pillars	Dimension	Element
Condition Factor Construct	Human resources: Describe the condition of suppliers in meeting the needs of raw materials as well as human resource conditions in meeting the desired workforce needs.	<ol style="list-style-type: none"> 1. Raw materials are easy to obtain. 2. Experienced workforce. 3. The difficulty of obtaining kerosene fuel. 4. The price of raw materials is increasingly expensive. 5. The lack of labour, especially the "mbatik" workforce.
	Physical resources: The need for tools used during the production process.	<ol style="list-style-type: none"> 1. Batik craftsmanship is well-established. 2. The technology used is still traditional.
	Product source: Dimensions of product differences produced.	<ol style="list-style-type: none"> 1. There are no product variations. 2. More motifs are produced. 3. Innovations in raw materials in the form of goyor fabric.
	Capital resources: The use of capital from investors.	<ol style="list-style-type: none"> 1. Working capital is not maximally used. 2. There is no collateral to get a capital loan.
	Location: Place of doing business together with all parties involved in the business.	<ol style="list-style-type: none"> 1. The location is in the village thus less strategic.
	Source of demand: Dimensions of demand factors that describe the origin of demand for batik products produced.	<ol style="list-style-type: none"> 1. Many boutiques use batik. 2. Buyers who have strong bargaining power.
	Number of requests: A dimension that represents the number of requests.	<ol style="list-style-type: none"> 1. The batik products produced have been exported abroad. 2. The number of requests that come from outside the city.

Pillars	Dimension	Element
Demand Conditions Construct	Market development: Efforts are made in order to develop businesses by improving quality and innovating.	<ol style="list-style-type: none"> 1. The quality of batik produced is getting better (especially in terms of colouring). 2. Motives that are increasingly varied 3. The types of fabric are various.
	Material and equipment purchasing system: The system for purchasing materials and equipment.	<ol style="list-style-type: none"> 1. Availability of raw materials from outside the city.
Related and Supporting Industry Construct	The location and distance of supporting industries and related to the business location.	<ol style="list-style-type: none"> 1. The owner has a vision to preserve Indonesian culture 2. UNESCO's recognition of batik. 3. The owner has an artistic spirit and innovation towards batik motifs.
	Company strategy: The strategy used to conduct competition.	<ol style="list-style-type: none"> 1. Supporting market potential 2. The selling price is relatively the same as competitors' products. 3. Provide motif making services according to customer orders.
Competitor Factor Construct	Business competition: The conditions of competition that occur in the batik industry.	<ol style="list-style-type: none"> 1. Market competition is getting stronger. 2. The existence of batik printing and printed batik. 3. Batik motifs from the outside are more interesting.

Based on table 4, Cibelok batik industry has the advantage in terms of easy of obtaining raw materials, experienced workforce and new innovations, namely using a goyor fabric that has an impact on increasing the sale value. However, in this industry there are also a number of constraints from rising raw material prices, difficulties for the next generation, limited capital and less strategic production locations. Then, in the demand conditions construct explain that the large number of buyers and variations in motive then quality can be a supporting factor for business. But,

the availability of raw materials from outside the city can be an industrial obstacle. Furthermore, the existence of stronger market competitor and the existence of batik printing and printed batik can also be a deterrent, when unable to manage the business properly.

Based on the results of the analysis, the critical success factors for the batik industry are unique and quality product strategies, pricing strategies, and marketing strategies. The following are recommendations for strategies that can be done to improve the competitiveness of batik products. This is consistent with what is suitable with Porter's Competitiveness Diamond.

Table 5. Strategy Recommendations on the Batik Business

Segment	Policy	Strategy recommendations
Upstream (supplier)	Expanding batik supplier network.	With the expanding network of suppliers it is expected to be able to streamline costs and time.
	The quality of raw materials must meet predetermined criteria.	Raw materials must be high-quality quality and environmentally friendly.
Midstream (batik production process)	Determination of the salaries of craftsmen by considering the number of units produced.	Implementation of the salary system by considering the system of obtaining the number of units that have been produced.
	The uniqueness of the product produced.	Make diversification of other batik products (in terms of motifs and in terms of basic ingredients).
	Product demand generated.	Improve and maintain the quality of products produced.
	Product quality certification.	Having quality certification on products (batik mark, for example).
	Certification to craftsmen. Ownership of patents, increasing motives and following trends.	Having expertise certification. Has a patent for the product produced. Keep abreast of market changes.
Downstream (marketing)	The selling price is relatively the same as competitors' products.	Selling at competitive prices.
	Motifs have many variations.	Increase product variations.
	The batik produced has national standards.	Maintaining the quality of products so they can still compete in the market.
	Market Development.	Trying to develop markets by innovating.

Table 5 explained several strategy recommendations that can be used by batik craftsmen. The recommendations are based on the results of value chain analysis, which includes upstream, midstream, and downstream segments. With these recommendations, it is expected that the craftsmen can increase the productivity of their businesses, thus able to compete in the market. Therefore, it is suggested to prioritize innovation in inbound logistics, operation, and marketing and sales area (Mangifera, 2015; Rizana et al., 2018).

For Porters, success is not achieved in industries which could not realize their external integration, but in business clusters. Business clusters are industrial zones where businesses, various public and private sector industries operate with their suppliers and other connections. Developing these clusters will increase the speed of getting competitive advantage (Porter, 1990). As well as the batik industry, all elements that have advantages in an effort to increase competitive advantage.

CONCLUSION

In the value chain analysis, the profit generated per one fabric production is Rp74,700. Profit margins can be increased by considering the role of several activities in the batik business process. The activities that need to be considered are operations, marketing and sales, as well as inbound logistics.

And then, in competitiveness diamond analysis, it can be seen that, construct of conditions indicate that the system of purchasing raw materials and tools is still not optimal. And construct of demand conditions show product demand and efforts to develop markets by improving quality and innovating, both in terms of motifs and products produced.

The construct of related and supporting industries shows that the purchasing system is still not optimal. The competitor factor consists of company strategy and business competition, which shows that the strategy used is to equalize prices with the competitors. Based on the results of the critical success factor analysis, the success factors for the batik industry are unique and quality product strategies, pricing strategies, and marketing strategies.

For further research, it is advisable to examine in depth the problems in the batik industry (both in terms of the environment and resource efficiency) and test the recommended innovations so as to increase the value added of batik industry.

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