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## Value Chain and Stakeholders' Analyses of *Batik Tulis* Industry in Indonesia

### Abstract

The study aims to analyze the values added of *batik tulis* production and to analyze stakeholders' objectives and competitiveness of *batik tulis* business. The study used a mixed method, a combination of quantitative and qualitative analysis. The data were analyzed using several analyses namely content analysis, value chain analysis, and stakeholder analysis. The content analysis was carried out to identify and to explain the supply chain of *batik tulis* production. The value chain analysis was undertaken to identify the existing stages of the value chain in *batik tulis* production. The stakeholders analysis was used to analyze stakeholders' objectives and competitiveness of *batik tulis* business. The results revealed that the value chain of *batik tulis* production started from the procurement of raw materials, production processes, and sales. The highest added values obtained were through sales to wholesalers and retailers as compared to sales by displaying the products in galleries. The average profit margin earned by each entrepreneur exceeded 50% of the main production costs. Profit and reputation were revealed as the two stakeholders' objectives that have the strongest and the most dominant influences in the industry. The entrepreneurs are expected to further optimize the activities that contribute the highest added values to be more efficient in managing the production costs, and in maintaining the interrelationship with other players of *batik tulis* entrepreneurs as well as with the suppliers of raw materials so that the cooperation can be carried out effectively.

**Keywords:** *batik tulis*, value chain, creative industry, stakeholders

## Análisis de las cadenas de valor y de los inversores en la industria de *batik tulis* en Indonesia

### Resumen

El estudio tiene como objetivo analizar los valores agregados de la producción, los objetivos de los grupos de interés y la competitividad del negocio de *batik tulis*. El estudio utiliza un método mixto, una combinación de análisis cuantitativo y cualitativo. Los datos se analizan utilizando varios métodos, a saber, análisis de contenido, análisis de la cadena de valor y análisis de grupos de interés. El análisis de contenido se ha llevado a cabo para identificar y explicar la cadena de suministro de la producción de *batik tulis*. El análisis de la cadena de valor pretende identificar las etapas existentes de la cadena de valor en la producción de *batik tulis*. El análisis de los grupos de interés se utiliza para analizar sus objetivos y la competitividad del negocio de *batik tulis*. Los resultados revelan que la cadena de valor de la producción de *batik tulis* se inicia desde la adquisición de materias primas, procesos de producción y ventas. Los valores agregados más altos obtenidos fueron a través de las ventas a mayoristas y minoristas en comparación con las ventas a través de la exhibición de los productos en galerías. El margen de utilidad promedio obtenido por cada empresario superó el 50% de los principales costos de producción. Las ganancias y la reputación se revelaron como los dos objetivos de los grupos de interés que tienen las influencias más fuertes y dominantes en la industria. Se espera que los empresarios optimicen aún más las actividades que aportan los mayores valores agregados para ser más eficientes en la gestión de los costos de producción y en mantener la interrelación de los empresarios de *batik tulis* con otros actores, así como con los proveedores de materias primas para que la cooperación se puede llevar a cabo con eficacia.

**Palabras clave:** *batik tulis*, cadena de valor, industria creativa, grupos de interés

## Anàlisi de la cadena de valor i dels inversors a la indústria de *batik tulis* a Indonèsia

### Resum

L'estudi té com a objectiu analitzar els valors agregats de la producció, els objectius dels grups d'interès i la competitivitat del negoci de *batik tulis*. L'estudi utilitza un mètode mixt, una combinació d'anàlisi quantitativa i qualitativa. Les dades s'analitzen utilitzant diversos mètodes, és a dir, anàlisi de contingut, anàlisi de la cadena de valor i anàlisi dels grups d'interès. L'anàlisi de contingut s'ha fet per identificar i explicar la cadena de subministrament de la producció de *batik tulis*. L'anàlisi de la cadena de valor pretén identificar les etapes existents de la cadena de valor a la producció de *batik tulis*. L'anàlisi dels grups d'interès s'usa per analitzar els objectius i la competitivitat del negoci de *batik tulis*. Els resultats revelen que la cadena de valor de la producció de *batik tulis* s'inicia des de l'adquisició de primeres matèries, processos de producció i vendes. Els valors agregats més alts obtinguts ho són a través de les vendes a majoristes i detallistes en comparació de les vendes a través de l'exhibició dels productes a galeries. El marge d'utilitat mitjana obtingut per cada empresari supera el 50% dels costos de producció principals. Els guanys i la reputació es revelen com els dos objectius dels grups d'interès que tenen les influències més fortes i dominants a la indústria. S'espera que els empresaris optimitzin encara més les activitats que aporten els valors agregats més grans per ser més eficients en la gestió dels costos de producció i en mantenir la interrelació dels empresaris de *batik tulis* amb altres actors, així com amb els proveïdors de matèries primeres perquè la cooperació es pot dur a terme amb eficàcia.

**Paraules clau:** *batik tulis*, cadena de valor, indústria creativa, grups d'interès

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## 1. Introduction

*Batik* is a product that has an artistic value that respects local wisdom based on local natural resources (Mangifera and Isa 2019). The advantage of *batik* business that must be maintained is the mobilization of innovation capabilities and new actors in implying the creation of new value chains. Many owners and managers of this industry have been impacted by the pandemic. As the global economic crisis destroys global value chains, businesses must rely on local value chains to continue to sell their products. Reconstruction of the value chain using alternative local resources requires the industry to improve the knowledge, skills, methods, tools, and readiness of employees required may differ, depending on the natural resources used.

Value chain analysis (VCA) has been widely applied to product research that focuses on the value chain structure (Muflikh et al. 2021, Sandeep and Navitha 2020) and policy interventions to improve income (Acaye and Odongo 2018). However, conventional value chain analysis is rarely adopted to investigate the issue of price volatility (Shaker and Sri 2019). Value chain analysis and statistical methods have been combined to form a better understanding of the market structure, price transmission, and price volatility across the observed value chain (Luckmann et al. 2015). However, conventional value chain analysis has been criticized for its inability to capture feedback and dynamic interactions between the components of the value chain from production to market (Rich; Rich and Dizyee 2018). Although this method is considered comprehensive, it only results in a static feedback assessment of the value chain (Acaye and Odongo 2018) which cannot explain feedback interactions between components across the chain.

The systematic approach by VCA to understanding batik production and trading systems provides evidence for risk analysis and management. It provides a practical framework for analyzing the functioning of the chains linking production systems, trade sites, and consumers,

with particular attention to stakeholder interactions, practices, and motivations (Kaplinsky and Morris 2000, 4-7) that identify hand batik production activities as having implications for control of production and increase industrial competitiveness in many areas around the world and provide essential knowledge to understand aspects of production and competitive advantage (Tang et al. 2021). However, to the best of the author's knowledge, published research documenting the value chain of hand-drawn batik products is lacking. Therefore, very little is known about how production and trade chains work, who is involved, and the governance structures between them. This information is very important for developing a strategy for developing the written batik industry as a cultural heritage that has superior competitiveness.

*Batik* is one of the industrial products which are labour-intensive, especially for *batik tulis* and *batik cap* (Wajdi et al. 2016). *Batik tulis* is made by painting while *batik cap* is made by sealing. *Batik tulis*, as a part of the Indonesian cultural legacy and also world heritage, become the mainstay of Indonesian textile products (Mangifera 2015). *Batik tulis* is the product of a creative industry that makes a substantial contribution to the regional economy, wherein the creative industry plays a role as a boosting sector that manages to create not only competitiveness with other sectors but also regional competitiveness (Ma'ruf et al. 2017, Mangifera 2019). *Batik tulis* is produced in various regions in Indonesia such as Pekalongan, Yogyakarta, and Surakarta.

Surakarta is reported as the biggest city producer of *batik tulis* in Indonesia (Wajdi et al. 2016). The existence of Batik Laweyan has existed since ancient times before 1500 M (Basworo and Sujadi 2018). Laweyan is a unique, specific, and historic batik industrial center area, with the Laweyan Market and its Kabanaran Bandar being the bustling and strategic centers of trade and sales of clothing (lawe) in the Kingdom of Pajang. Through the years, Surakarta has actively optimized *batik tulis* as one of the creative industry products although the city is currently

competing with *batik cap* business and inadequate natural resources (Mangifera, 2019). Such potential promotes the rise of the creative industry that affects the high economic growth of Surakarta. *Batik tulis* is one of the notable export commodities in Surakarta which has a significant impact on the national economy (Ma'ruf et al. 2017, Wajdi et al. 2016).

The *batik tulis* industry must be supported by good institutions. A good institutional capacity will improve the efficiency and effectiveness of *batik tulis* industry, wherein nowadays institutional efficiency and effectiveness frequently become a serious problem within the industrial development in Indonesia (Ma'ruf et al. 2017). Thus far, there are not many institutional studies of the *batik tulis* industry in Indonesia that explain who are the key stakeholders in developing *batik tulis*, their competitiveness, and the relationship among them (Wajdi et al. 2016; Mangifera, 2019). The sustainability of the industry has also become a crucial agenda of Indonesia Government where all public servants, as well as students, are encouraged to wear *batik* attire every Thursday.

To cope with increasingly stiff competition, *batik tulis* industry is necessitated to be capable of and ready to have high competitiveness. High competitiveness is certainly needed by every industry to stay competitive (Isa and Kusmiati 2013; Ma'ruf et al. 2017). The industry competitiveness for the sake of attaining optimal performances is one of them, influenced by an effective value chain (Setyawan et al. 2015). Setyawan, Isa and Wajdi (2017) explained that value chain refers to a strategic analysis which manages to understand the competitive advantage, to identify the customers' value which can be enhanced or the decrease in costs, and to understand the relationship between the company and the suppliers, customers, and other players within the industry.

Studies by Mangifera, (2015) and Barua, Rahman and Barua (2021) elucidated that an effective value chain is a key to having the competitive advantage that can produce added values for an

industry. The value chain can be depicted as the entirely required activities to carry goods or services from the design place through a variety of production phases (incorporating a physical transformation and input from several service providers), to deliver them to consumers, and to recycle them after use. In addition, the value chain analysis is also functional to identify the value chain stages whereby the industry can increase the added values for customers and make the incurred costs efficient (Gereffi and Lee 2012). The *batik tulis* industry manages to be more competitive through cost efficiency or increasing the added values gained through the value chain activities.

This article is divided into 5 sections structure. First, an introduction that contains the reasons for the research is described, followed by the basis of value chain theory and stakeholder theory. Then, the research methods used are described, and the research results are also explained. The results of the study describe the Supply Chain of *Batik Tulis* Production, Value Chain Analysis, and Stakeholder Analysis. Finally, the closing outlines the conclusions and some recommendations for improving the management of the written batik business.

## 2. Literature Review

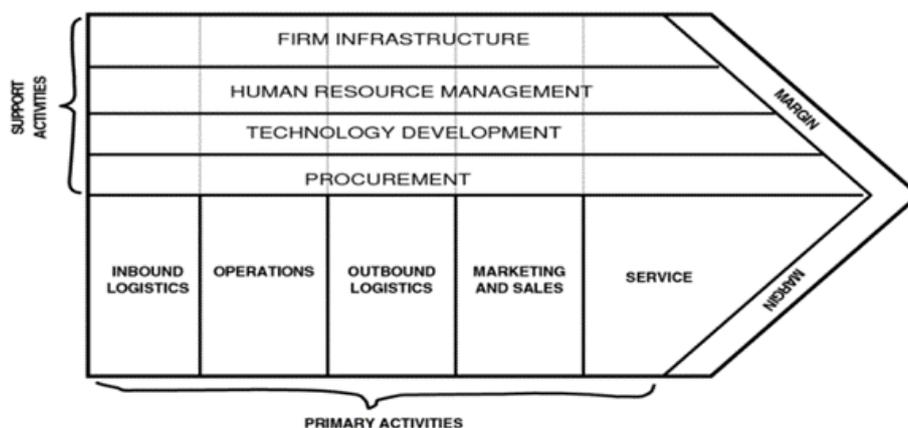
Value Chain Analysis (VCA) is a diagnostic tool to support continuous improvement processes at the overall chain level. Barua, Rahman and Barua (2021) defines VCA as a multidimensional assessment of value chain performance through examining product flows, information flows, and chain management and control. The value chain analysis focuses on three main issues: first, the input of information in the value chain from the final consumer — to the main production and input suppliers, and back again and so on, how inclusive, transparent and responsive is the flow of information in the chain. To what extent are stakeholder decisions (what to produce, when to produce, how to produce) drawn by what consumer values? Second, value creation and flow, in the eyes of the final consumer, at each stage in the value chain — how many production

and processing activities add value? How much investment was made in this critical activity? How much is necessary but does not add value (this should be accomplished with the minimal allocation of resources)? How much is unnecessary (waste activities should be eliminated and resources reallocated to promote value creation and efficiency)? Third, the nature of the relationship — how much trust is there between the different stakeholders? What is the nature of communication within and between organizations? What is evidence of organizational commitment? How risk is shared and risk assumptions are rewarded in the chain. How is the value created shared along the chain? (Bonney et al. 2007).

Dwivedi, Agrawal and Madaan (2019) in their study on the development of a sustainable manufacturing evaluation model for industrial leather for India, stated that due to strict environmental regulations and government sustainability policies regarding the leather industry, it is very difficult to adapt to this sustainable policy. The main challenge facing the leather industry is the significant increase in the value of adaptation options for the product and its sustainable development. Meanwhile, Moktadir et al. (2020) states that interactive associations between key performance indicators such as Government support and trade policies, availability of raw materials, availability of skilled labor, technological capabilities, financial resources, better process management, sustainable work environment, better workforce health well, increased security workforce. Training and skills development, water supply, minimization of hazardous materials, adjustment of environmental regulations and better waste management will help relevant stakeholders to adapt to successful sustainable supply chain policies in Indian leather industry (Moktadir et al. 2020). In addition, Moktadir et al. (2019) states that Asian countries welcome enormous pressure from universal markets related to environmental practices from tackling climate change to protecting the environment.

Value chain analysis (VCA) provides a systematic framework for describing the roles and relationships of stakeholders (Bolwig et al. 2011). This includes understanding materials flow and activities in various parts of the value chain (Rushton and Leonard 2009). Regardless of the complexity of VCA, analytical procedures can be carried out by implementing the following procedures: first, the company's operating process is divided into various specific business activities or processes; second, analysts try to charge fees for each activity and the costs can be in the form of time and money. Third, analysts change cost data into information that can produce competitive profits or losses. Value chains are characterized as collaborative and interdependent, including internal business policies and external corporate environments (Setyawan, Isa and Wajdi 2017). Value chain analysis (VCA) refers to the process by which a company determines the costs associated with a company's activities from raw materials purchases to production and marketing (Gereffi, Humprey and Sturgeon 2005). VCA aims to identify where low-cost benefits or losses exist throughout the value chain (Mangifera 2015). Porter (1998) developed an approach to analytical tools called value chain analysis. This approach is a systematic way of looking at companies serving their customers (Mangifera 2015). Value chain analysis is shown in Figure 1.

**FIGURE 1.** Generic Value Chain of Porter



Source: Porter (1998).

According to Mangifera, (2015) and Setyawan, Isa and Wajdi (2017), the basic of value chains analysis are grouped into two general groups, namely the main activities and supporting activities. The main activities include the supply of raw materials, operations, marketing, shipping and after-sales support of products or services. The main activities consist of five categories, namely internal (inbound) logistics, operations, external (outbound) logistics, marketing and sales, and services, while supporting activities include the provision of infrastructure or inputs that enable the main activities to continue. Supporting activities include purchasing, technology research and development, public administration and human resource management.

Stakeholder theory is a strategic management concept that aims to help business units to strengthen their relationships with stakeholders in developing competitive advantage (Bracke, De Greef and Hopster 2005; Isa, Fauzi and Susilowati 2019). Based on Friedman and Miles (2006), the business competitiveness is influenced by relationships between stakeholders consisting of suppliers, wholesalers, retailers, and consumers. Thus, the basic premise in stakeholder theory is the stronger the relationship between stakeholders, the better the business and industry, and vice versa (Setyawan et al. 2015).

Stakeholder theory also explained that a business unit is not a single entity that only operates alone but is related to other stakeholders (Isa, Fauzi and Susilowati 2019, Miles 2012). Thus, the existence of a company is strongly influenced by the support provided by stakeholders to the company. The survival of a company depends on the support of stakeholders so that the company's activities are to seek that support (Mangifera 2019). The more powerful the stakeholders, the greater the company to adapt and win the competition. In any industry, the responsibility is not only from the government, but is also the responsibility of all stakeholders involved in it (Mangifera 2019). As a shared responsibility, it is necessary to develop a tough

business that is able to embrace all institutional elements, starting from the aspects of higher education and *batik tulis* entrepreneurs, suppliers of raw materials, wholesalers, retailers, governments, NGOs, and consumers (Setyawan, Isa and Wajdi 2017). The institutional aspect has an important role in the development of *batik tulis* business (Mangifera 2019). Through this institutional aspect, it is expected that *batik tulis* business development will be carried out faster, planned, and sustainable. Gaur and Kumar (2010) explained that without good institutions, transaction costs would be high. The institution is very important as a tool to regulate and control stakeholders.

### 3. Research Method

This study was conducted in Kampong *Batik* Laweyan of Surakarta, Central Java Province, Indonesia. Kampong *Batik* Laweyan is a central area of *batik tulis* industry in Surakarta which is unique, specific, and historical. It has been established since 1935, and *batik tulis* business has become a major income for most of the people in the city. However, through the years, the *batik tulis* industry becomes deteriorated. In 2004, *batik tulis* entrepreneurs incorporated in the Forum of Kampong *Batik* Laweyan Development (FKBLD) and attempted to revive its glory by releasing a branding name so-called Kampong *Batik* Laweyan. In 2018, it was reported that there were 26 enterprises of *batik tulis* who still in the operations and actively produced the products. Among them were 5 large-scale enterprises, 14 medium-scale enterprises, and 7 small-scale enterprises.

This study applied a mixed-method approach that extended to identify the value chain of *batik tulis* production, to analyze the values added along *batik tulis* production, and to analyze stakeholders' objectives and competitiveness of *batik tulis* business. The samples of this study involved target players along *batik tulis* production value chain for both primary and supporting activities. The value chain players were represented by raw material suppliers, entrepreneurs

(producers), wholesalers, and consumers. The samples were selected using a snowball sampling technique (Neuman 2000) in which one key respondent gave some relevant information as regard to other key respondents in a path of the value chain. This study utilized the primary data gathered from the respondents in the study location. The data were obtained through in-depth interviews using a structured questionnaire. Table 1 shows the respondents who involved in this study consisting of 45 respondents to represent value chain players namely suppliers (10 respondents), entrepreneurs (12 respondents), wholesalers (6 respondents), retailers (7 respondents) and consumers (10 respondents).

**TABLE 1.** No of Respondents

Sample	Small Entreprises	Medium Enterprises	Large Enterprises	Total
Supplier	10	0	0	10
Entrepreneur	4	6	2	12
Wholesaler	0	2	4	6
Retailer	3	4	0	7
Consumer	10	0	0	10
Total	17	12	6	45

Source: Own elaboration.

The data analysis was executed by using several analyses such as content analysis, value chain analysis, and stakeholder analysis. The content analysis was carried out to identify and to explain the supply chain of *batik tulis* production. The value chain analysis was undertaken to identify the existing stages of the value chain in *batik tulis* production. In stakeholders' analysis, Matrix of Alliances and Conflicts: Tactics, Objectives, and Recommendations (MACTOR) was used to analyze the influences and interests of stakeholders consisting of raw material suppliers, producers, wholesalers, and consumers. The stakeholder's analysis is very broad because it can be used for up to 20 related purposes and yet it is simple and accessible (Rees and MacDonell 2017, Mangifera 2019). MACTOR includes several stages of matrix preparation, namely: (1) determination of key variables and relevant players; (2) preparation of table of actors; (3) preparation of strategic issues and objectives; (4) determination of players and strategic objectives in the matrix; (5) calculation of convergence and divergence matrices as performed

in three stages; (6) calculation of the direct and indirect relationship of power matrix; (7) calculation of the position matrix value; and (8) analysis of strategic recommendations of each players (Isa, Fauzi and Susilowati 2019, Rees and MacDonell 2017).

## 4. Results and discussion

### 4.1. Value Chain of Batik Tulis Production

The players of *batik tulis* production in Kampoeng *Batik* Laweyan of Surakarta are raw material suppliers, entrepreneurs, wholesalers, and consumers. About 45 respondents were interviewed and their details are as shown in Table 1. Content analysis and value chain analysis were carried out to map and identify the value chain of *batik tulis* production and to analyze the value chain of *batik tulis* production. The results of both analyses are depicted in Figure 2. Based on Figure 2, the *batik tulis* production consisted of four (4) stages of value chain processes. Each activity along production processes had an added value having an impact on the final products. The main processes of the supply chain for *batik tulis* started from buying raw materials from the suppliers, dealing with the production processes, to finally selling the final products to the consumers. *Batik tulis* entrepreneurs included a set of activities which extend to both primary and supporting activities (Mangifera 2015). The main activities comprised inbound logistics, operations, outbound logistics, marketing, and sales, and services.

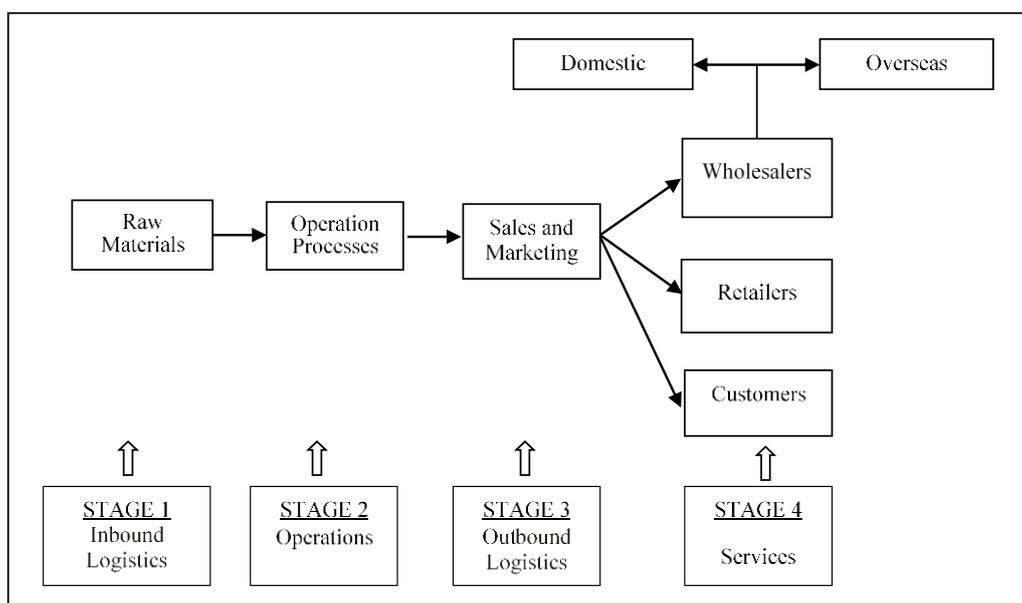
The first stage of the value chain production was inbound logistics that is purchasing raw materials. *Batik tulis* production involved several raw materials namely fabrics so-called *Mori*, wax so-called *malam*, dyes, and other supporting equipment such as *canting* (an equipment which its main function is like a pen usually utilized to apply liquid hot wax in Batik-making), pans so-called *wajan*, and the fabric holder so-called *gawangan*. The aforementioned raw materials as well as the related tools were procured from local suppliers. The suppliers of *Mori* fabrics included those derived from inside and outside Surakarta city, wherein entrepreneurs

procured *Mori* from the suppliers via purchase order, and *Mori* fabrics were further delivered to them.

The entrepreneurs procured raw materials such as *malam* and dyes by making a direct purchase in the shops and as an alternative also sending delivery orders whereby the entrepreneurs only ordered the required goods via telephone or short message (WhatsApp), and the wholesalers further delivered them. Besides, a few entrepreneurs also made their own dyes whose substances were taken from natural resources such as leaves, sap, and fruits from a variety of plants which were available in the surrounding environment.

The primary equipment exerted to make *batik tulis* were *wajan*, *canting*, and *gawangan*. The suppliers of such equipment existed in Surakarta city. The entrepreneurs obtained that equipment by making a direct purchase or getting delivered by the suppliers when a prior delivery order had been made via telephone. The entrepreneurs had a number of different needs with respect to the raw materials resting on the extent of their business scale.

**FIGURE 2.** Value Chain of Batik Tulis Production



Source: Primary data (2022).

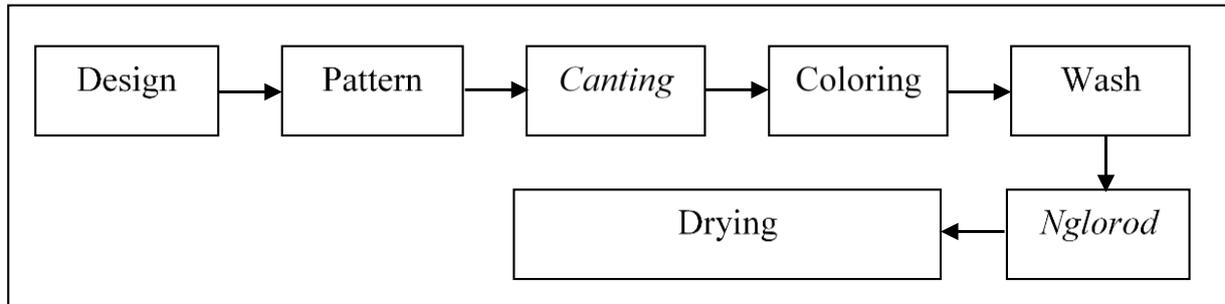
The ways of storing and maintaining raw materials were done not only keeping them in a warehouse, but also treating them with some approaches. The following details are a set of depiction in association with the storage and maintenance of *batik tulis* related materials and equipment.

- a. The storage and maintenance of *Mori* fabrics were done by placing them in a warehouse. Generally, the entrepreneurs had their own warehouses to keep *Mori* and other materials. Nevertheless, there were some entrepreneurs who also treated *Mori* fabrics by covering them with plastic to prevent from dirt and dust. Some others even provided special rooms which only contained *Mori* fabrics.
- b. The storage and maintenance of *malam* were undertaken by placing it in a warehouse or in a particular place.
- c. The storage and treatment of dyes were done by placing them in certain containers, drums or jars.
- d. The storage and maintenance of batik-making equipment were undertaken by placing them in the location of batik-making once the related activities had been finished at some point. The entrepreneurs then only washed the tools and continuously stored them.

The second stage is operations. The processes of *batik tulis* production were composed of seven (7) activities (Figure 3). The processes started by designing the motifs and making the patterns on a *Mori* fabric. The patterns were continuously thickened by utilizing *canting* or this way was commonly known as *mencanting*. The further process went to applying colors on *Mori* whose motifs and patterns had been drawn in prior by using *canting*; *Mori* was then drained; and washing *Mori* was done after the colors had dried. Furthermore, the process called *nglorod* was carried out. *Nglorod* referred to an effort made to prevent *malam* (wax) from adhering to *Mori*

by means of dipping it in hot water. The last stage or process was to dry *Mori* until it was completely dry and ready to display.

**FIGURE 3.** *Batik Tulis* Production Activities



Source: Primary data (2022).

The long-time duration that took in the process of *pencantingan* (painting and coloring by utilizing *canting*) and the high labor wage specifically those dealing with *pencantingan* became the main problem in this industry. Each of the *batik tulis* entrepreneur took different time duration while working with a piece of *batik* fabric. Such difference resulted from the complexity degree of *batik* motifs. The *batik* fabric whose motifs were not too complex could be produced within one day, but that having complex motifs could plausibly take time even up to one week. In general, the work system employed freelance workers, namely part-time workers who took and did the work at home.

The number of workers engaged in the production of *batik tulis* was various. The entrepreneurs had varied workers. Some entrepreneurs had 3 workers, 8 workers, even more up to 25 workers. The number of workers rested on the level of difficulty and the working system which had been legitimized by the respective *batik tulis* entrepreneurs. Some activity stages were carried out by the same workers, and some others were done by diverse ones. The workers in overall had good skills. The entrepreneurs at some point did not need to teach them any longer *vis-a-vis* the related skills such as the mastery in *batik tulis* patterns. The entrepreneurs only took control to direct their workers in order to manage to produce *batik tulis* which was good, smooth, and

neat. Almost every entrepreneur enacted this way. Nonetheless, when someone came to offer himself/herself to become a *batik* worker, the entrepreneurs would just further ask him/her to draw. That *batik tulis* entrepreneurs would continuously assess whether his/her work was acceptable as expected or not yet.

The generalizable convention, such as prior experiences corresponding to *batik*-making those workers should have possessed, did not seem to be a high priority for the entrepreneurs as the formality the entrepreneurs at some degree applied such criterion to the prospective workers. However, all entrepreneurs in average had got the workers who had already been adequately experienced, at least they had got 5-year experiences, and maximally their experiences had even reached 50 years. Some of them had even worked for two to three generations of the ownership, so no wonder if workers there had already been experienced for decades.

The quality control of production was executed at each stage of the production. Some entrepreneurs relied on one worker to help supervise, but there were also other entrepreneurs who directly intervened to check the quality of the production results. The control of quality was more oriented towards checking the stitching and fabric quality. If at some degree the stitched threads were found to be cumulatively bad, the work result could not be acceptable. For colouring, the problem was not often found.

The number of productions amid the entrepreneurs was diverse. This difference resulted from a couple of factors such as demand, complexity, and weather. Within one day, some entrepreneurs only produced one piece of *batik tulis*, but there were also some entrepreneurs who were capable of producing even up to 100 pieces in one day.

The third stage was outbound logistics, that is marketing and sales. The means of marketing was undertaken by displaying the products in galleries. The galleries were generally located

proximately or exactly in the entrepreneur's residence. Some entrepreneurs also promoted their products online. The entrepreneurs felt getting much help from their customers who voluntarily gave their friends information related to the entrepreneurs as the reference so that their customers naturally continued to grow. The consumers of *batik tulis* were comprised wholesalers, retailers, and end consumers. Almost all of the entrepreneurs sold their products to wholesalers. In average, the wholesalers came from outside Surakarta such as Jakarta, Bandung, Kalimantan, Blitar, Pekalongan, Bali, and even from Malaysia. Furthermore, 50% of product sales were executed to retailers. The retailers mostly came from Surakarta (Beteng, Klewer, and Laweyan) and Yogyakarta (Beringharjo).

Commonly, the *batik tulis* entrepreneurs also sold their products to the end consumers. They were the customers or visitors who directly came to the entrepreneurs' galleries or the locations of their businesses. However, there was an entrepreneur who was not served to end consumers on account of focusing on being provided to wholesalers and retailers. The value of selling products in one month ranged from Rp6,000,000 (\$429) to Rp1,000,000,000 (\$71,429). The entrepreneurs marketed their products on a local, national, and foreign scale. The local marketing was done to fulfill the consumers' demand in Surakarta, Yogyakarta and the surrounding areas. At the national level, the marketing pervaded to Jakarta, Bali, Bandung, Semarang, Malang, a number of cities in the Sumatera provinces, and several cities in the Kalimantan provinces. In addition, the marketing at the foreign level spread to various countries in Asia (Japan, Malaysia, and Vietnam), Australia, Europe (Spain) and even the United States of America.

The fourth stage was services. Not all of the entrepreneurs provided after-sales services. Some entrepreneurs believed that their products which were sold had passed strict quality control.

The given after-sales service was only limited to the return of products perceived to be less perfect in terms of their quality.

The performance as regards the main activities of *batik tulis* entrepreneurs value chain was in general good (high) and some activities even had a very high performance. The activities whose performance was categorized as high and very high covered some aspects such as types and variations of motifs, the coloring quality, and the quality of service to enhance and maintain the value of products. On the other side, some activities whose performance was classified as less than good (low) were those pertaining to the entrepreneurs' efficiency in storing raw materials and maintaining the security of *batik tulis* storage.

*Batik tulis* entrepreneurs have three kinds of supporting activities encompassing technology, human resources, and infrastructure (Mangifera 2015). The entrepreneurs did not always exert the up-to-date technology in their businesses. The types of equipment used by the entrepreneurs from time to time were generally the same. In general, the entrepreneurs decided not to replace their tools with more sophisticated ones. As encountered, when some entrepreneurs ever tried to switch to apply the latest equipment, the obtained results in fact were not as good as when utilizing the old equipment. It was noticeable and could be discerned that there needed a special modification of new equipment for production.

The number of workers engaged in the production ranged from 5 to 25 workers. Mostly they were originally from Surakarta especially Laweyan. However, a few of workers also came from other districts out of Solo such as Klaten, Sragen and Wonogiri, wherein they usually elicited the information in respect of working opportunities in entrepreneurs as it was spread by word of mouth. The workers from outside Surakarta took their work home in order to be done there. All production houses had the same work schedule from Monday to Saturday, starting out from 8 a.m. till 4 p.m. This was done in order to inhibit the presence of social gaps amid the

employees. The owners of *batik tulis* production houses mostly did not have supplies in the form of raw materials, and if probably any, they even only stored such materials in a warehouse without any proper management such as recording or reviewing inasmuch as they had to be dealing with the production work every day. In the meantime, concerning with *batik tulis* that had already been in the form of fabric, it usually had been packed in plastic and stored in a storage room.

The maintenance of equipment which was undertaken was at a very standard level by means of merely washing them after use and placing them in a certain place. There was no special treatment because the equipment did not require complex ways of maintenance. In general, the performance associated with supporting activities of the value chain was good (high), and some activities even had very high performance, namely those in relation to the infrastructure owned by entrepreneurs. In the meantime, the supporting activities having a low value were in the aspects of knowledge and technology development of equipment.

#### 4.2. Value Chain Analysis

The processes of *batik tulis* production subsumed several activities. Each of the production processes had an added value which affected the final products (Gereffi and Lee 2005, Sturgeon 2001). The results based on value chain analysis, it revealed that along the value chain production, there were several activities that have been added values. Based on the results in Table 2, the production costs of one piece of *batik tulis* fabric was Rp147,500 (\$10.54) while the costs of accessories and other supporting costs was Rp20,350 (\$14.31). Thus, the total costs incurred for one piece of *batik tulis* was Rp220,600 (\$15.76) and the selling price for one piece of *batik tulis* fabric was Rp700,000 (\$50). Thus, an added value of Rp479,400 (\$34.24) or 68.5% was gained. The highest added value obtained from the activities of sales were associated with the sales to wholesalers and retailers since from these sales entrepreneurs could earn bigger

and faster profits compared to those done to the final consumers through displaying the products in galleries. The average margin of profits earned by each entrepreneur in exceeded 50% of the main production costs.

**TABLE 2.** Added Values of *Batik Tulis* Production

No	Costs	Lowest Costs (Rp)	Average Costs (Rp)	Highest Costs (Rp)	Average Production Costs (Rp)	Added values (%)
1.	<i>Mori</i> fabric	34.000	35.000	36.000		5.00%
2.	<i>Malam</i>	17.000	17.000	17.000		2.43%
3.	Dyes	500	750	1.000		0.11%
Raw Material Costs					52.750	7.54%
4.	Designing and painting	5.000	7.500	10.000		1.07%
5.	<i>Penolet</i>	80.000	120.000	160.000		17.14%
6.	Coloring	7.500	14.000	20.000		2.00%
7.	Quality control	4.500	6.000	8.000		0.86%
Production Costs					147.500	21.07%
8.	Supporting Materials	2.500	2.750	3.000		0.39%
9.	Electricity	1.700	1.750	1.800		0.25%
10	Equipments (Gas, <i>Canting</i> , and Computer)	3.950	3.950	3.950		0.56%
11	Sales Fee	14.000	14.500	15.000		2.07%
Supporting Costs					20.350	3.28%
Total Costs of Production					220.600	31.89%
12	Selling Price to Wholesalers/Retailers				700.000	68.11%

Note: Values are in IDR

Source: Primary data (2022).

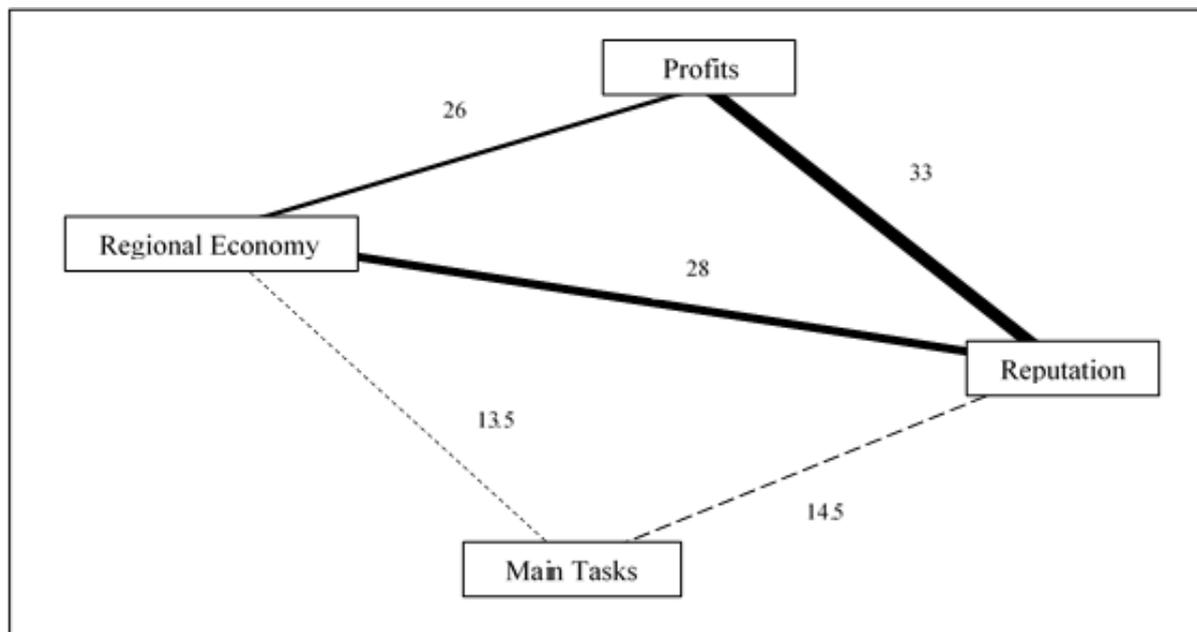
#### 4.3. Stakeholders Analysis

*Batik tulis* industry makes a significant contribution to the regional economy of Surakarta and Indonesia as well. The results of the value chain analysis based on MACTOR showed that not all activities in the *batik tulis* industry were efficiently and effectively operated, thus the operations and coordination among the related stakeholders are really necessary. Based on in-depth interviews with the stakeholders, there were at least nine (9) types of players incorporated into this industry. The stakeholders were comprised suppliers, entrepreneurs, wholesalers, retailers, end consumers, FPKBL, Development Planning Agency at Sub-National Level

(BAPPEDA), Department of Industry, and university. The aforementioned stakeholders have diverse concerns in their activities as elucidated by Mangifera (2019).

Stakeholders in *batik tulis* industry can be categorized into three groups (Reed et al. 2009, Mangifera 2019), namely: (1) beneficiaries, comprised of individuals, or organizations, including entrepreneur, supplier, wholesaler, retailer and end consumer; (2) intermediaries, comprised of organizations, community groups or individuals who can provide strategy and or facility in *batik tulis* industry development, including: university that has programs relation with *batik tulis* industry development; (3) policymakers, comprised of institutions authorized to make decisions, policy and legal basis, such as Development Planning Agency (BAPPEDA), and Department of Industry (DISPERIN).

**FIGURE 4.** Main Objectives of Stakeholders



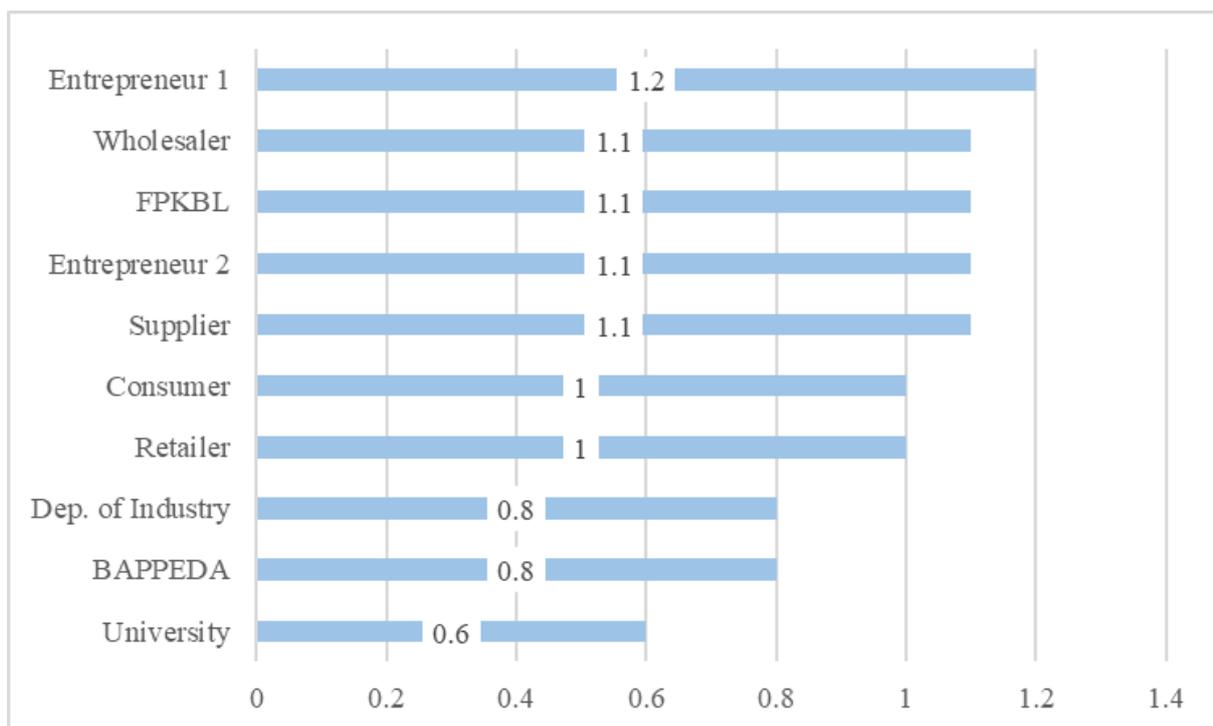
**Note**

- Shortest net dhortestances
- Shot net distances
- Moderate net distances
- Long net distances
- Longest net distances

Source: The results of MACTOR analysis (2022).

Based on Figure 4, there were four (4) major objectives of the stakeholders corresponding to the industry namely profits (profit), reputation, regional economy, and main tasks alongside functions (in Indonesian term called *tupoksi*). The differences of such objectives frequently lead to conflicts of interest in the development of industry; and this result was in line with the results of Mangifera (2019). The aspects of profits and reputation represented two stakeholders' main objectives which were the strongest and the most dominant in the *batik tulis* industry. In general, the stakeholders oriented towards earning profits and gaining a good reputation and so far, being engaged in the activities *vis-a-vis* the development of *batik tulis* industry.

**FIGURE 5.** Stakeholders Competitiveness



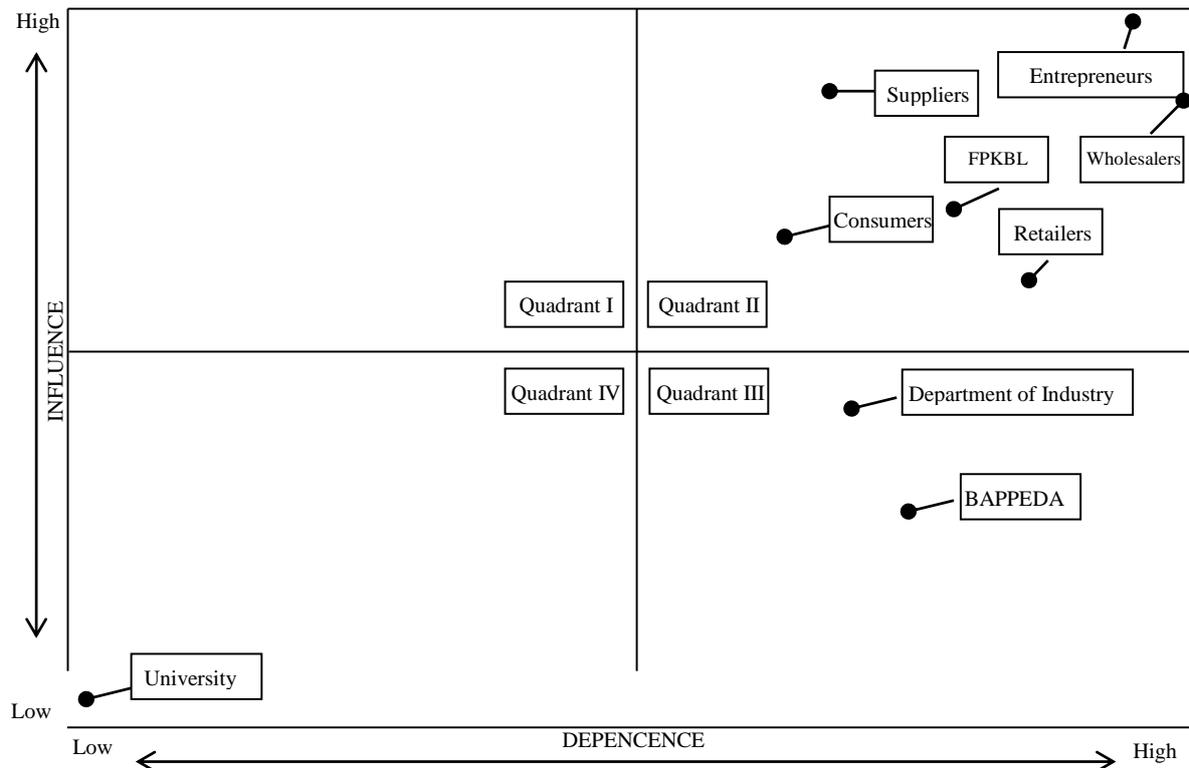
Source: The results of MACTOR analysis (2022).

Anchored in the analysis of stakeholders by using MACTOR, it was also explained as regards the competitiveness of each stakeholder viewed from the influence and the level of interdependence. The entrepreneurs became the key players in the development of this industry since they had been totally engaged and dealing with these entrepreneurs at the middle or large scale, this result is supported by Mangifera (2019). Thus far, the entrepreneurs were those who

determined the progress and deterioration of *batik tulis* industry. This condition was also portrayed in the map of influence and interdependence amid the stakeholders in the development of *batik tulis* industry in Surakarta, whereby the aforementioned map represented the position of each stakeholder alongside the influence and interdependence of one another. The results of the *batik tulis* competitiveness are revealed in Figure 5 and Figure 6.

The results of MACTOR analysis on the stakeholders' influence and dependence in *batik tulis* development were classified into 4 (four) quadrants (Isa, Fauzi and Susilowati et al. 2019, Isa and Kusmiati 2013, Mangifera 2019).

- 1) Quadrant I is an independent factor (strong influence - weak dependent). This quadrant includes a player that has strong strength and weak dependence. The player is the key player in batik tulis development.
- 2) Quadrant II is a linkage factor (strong influence - strongly dependent). It includes players that have a strong influence and strong dependence. They should be determined meticulously since the relationship between goals is unstable.
- 3) Quadrant III is dependent factors (weak influence - strongly dependent). It includes players that have weak influence and strong dependence. The players in this quadrant are non-independent ones.
- 4) Quadrant IV is an autonomous factor (weak influence driver - weak dependent). This quadrant includes players that have a weak influence and dependence. The player is less related to other players in batik tulis development.

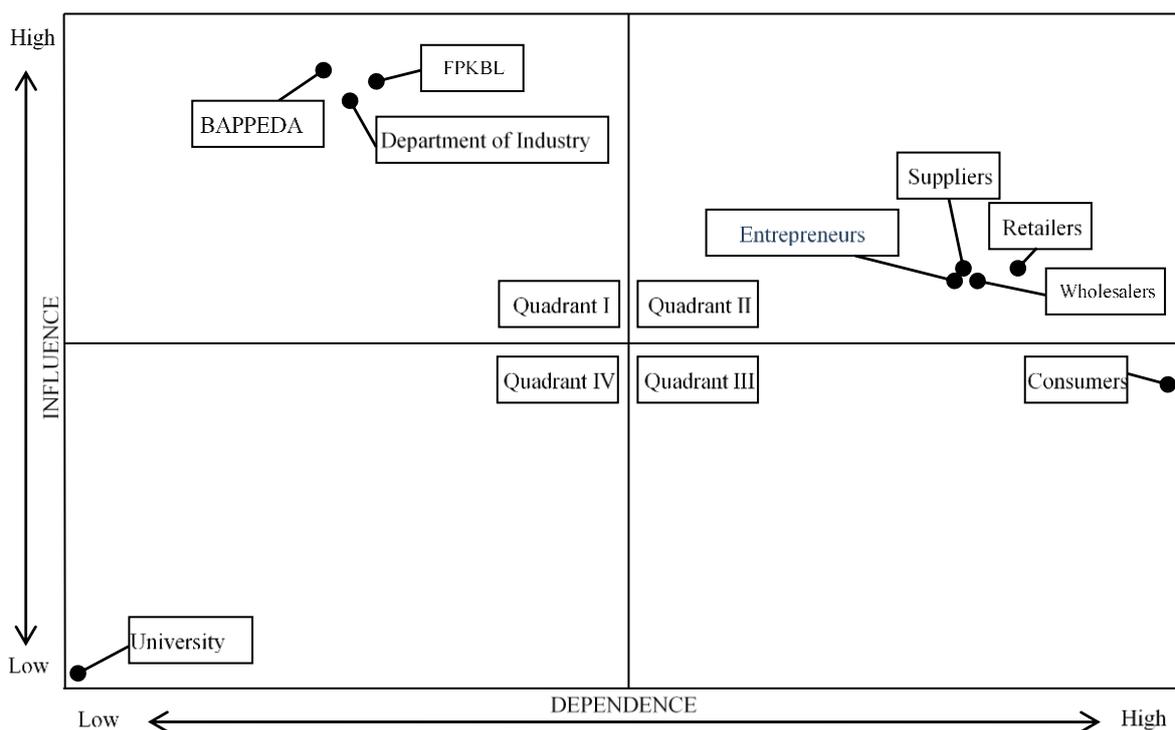
**FIGURE 6.** Influence and Interdependence among Stakeholders

Source: The results of MACTOR analysis (2022).

Based on the stakeholders' analysis, the results revealed in Figure 6 that the stakeholders were at three different quadrants, namely Quadrant II, Quadrant III, and Quadrant IV. There were no players found in Quadrant I which mean that no players have major influence in developing as well as have no greatest impact in developing *batik tulis* industry di Surakarta. Those players who in Quadrant II were suppliers, entrepreneurs, wholesalers, retailers, and FPKBL. They should be determined meticulously since the relationship between these players was unstable because of their main objectives are mainly covered both profit and reputation. Those in Quadrant III were the Department of Industry and BAPPEDA. The players in this quadrant are non-independent ones because of their main objective were not to develop *batik tulis* industry. In turn, the stakeholder in Quadrant IV was the university. The player was less related to batik tulis development and may have few relationships that will be eliminated from the stakeholders in *batik tulis* development (Reed et al., 2009).

As illustrated in Figure 7, the relationship among the stakeholders in the development of *batik tulis* industry in Surakarta showed that their relationship among entrepreneurs manifested strong values for the stakeholders of *batik tulis* entrepreneurs, suppliers, wholesalers, and retailers. It portrayed a more central position of those players in light of having a high level of mutual concerns. The stakeholder with the lowest convergence rate was the university. This was resulted from that the university did not have a firm interrelationship with the objectives of other players.

**FIGURE 7.** Convergent Player Map in Batik Industry Development



Source: The results of MACTOR analysis (2022).

The relationship amid the players eventually classified them into three large groups. The first group consisted of Regional Development Planning Agency (BAPPEDA), Department of Industry, and FPKBL. The second group comprised *batik tulis* entrepreneurs, suppliers, retailers, consumers, and wholesalers. In turn, the third group consisted of university.

University in this regard became an interesting phenomenon on account of having no strong influence in terms of developing *batik tulis* industry in Surakarta.

Based on the results in Figure 7, it is useful for arranging the institutionalism in developing *batik tulis* industry in Surakarta. The stakeholders that were in the same quadrant had the same goals, interests, or concerns, and they could properly cooperate if compared to those from different quadrants. This implied that when they were involved in one or the same institutional, the development of *batik tulis* industry could further run more effectively and efficiently this result is supported by Setyawan et al. (2015), Mangifera (2019) and Isa et al. (2021).

## 5. Conclusion

This study provides a detailed description of the production process of hand-drawn batik in each of its stages, starting with the activity of obtaining raw materials, the production process, and selling to final consumers. The calculation of value addition is also obtained for each chain of activities involved, starting from raw materials to finished products in the form of written batik cloth. Stakeholders involved in the production process and trade of hand-drawn batik are those who interact in the value chain system from suppliers of Mori cloth, sellers of dyes, equipment shops, employees of batik motif makers, the production department from the colouring and dyeing process to drying, to the sales department, and consumers. The sales of *batik tulis* were generally carried out to wholesalers from both domestic and overseas, retailers, and final consumers. The highest added values obtained were associated with the sales to wholesalers and retailers since from these sales activities the players could earn bigger and faster profits compared to those who carried out sales directly to the final consumers through displaying the products in galleries. The average margin of profits earned by each *batik tulis* entrepreneur exceeded 50% of the main production costs.

Profits and reputation represented two stakeholders' main objectives which were the strongest and the most dominant in this industry. The entrepreneurs of *batik tulis* became the key players in the development of the industry since they had been engaged and dealing with this business. The importance of the role of stakeholders starting from the head of local batik craftsmen groups, government, associations, and universities are explained in the form of an engagement diagram and their respective roles in the development of strategies to increase competitiveness along the value chain. Support from the government, universities, and associations is very important to improve business performance, especially in the provision of information, networks, resources, technology, and access to funding, incentives, and training.

An interesting finding here is the importance of considering business characteristics in value chain activities so that they can be considered in formulating strategies considering the characteristics of each batik business are very unique and different, there are values of local wisdom and cultural heritage that are still attached that are maintained because of the business. is a family legacy business. Meanwhile, this study also reveals that the practice of making hand-drawn batik is very heavy depending on the ability of the staff to make the motifs, which are currently increasingly scarce, causing high production costs, considering that the process of making written batik motifs is done manually, it takes days according to the complexity of the pattern. batik made. Therefore, involving universities and the government in terms of providing skilled human resources in the technology-based design phase, will facilitate the implementation of production cost efficiency. However, not a few companies still maintain the value of art and culture through craftsmanship because they believe that every motif made contains a deep philosophy and meaning because of the combination of art, beauty and history, and the feelings of the maker.

This study recommends that the entrepreneurs to further optimize the activities that contribute the highest added values to be more efficient in managing the production costs, and in maintaining the interrelationship with other players of *batik tulis* entrepreneurs as well as with the suppliers of raw materials so that the established cooperation can be done well.

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