How Product Innovation Fails: Lesson Learned from Majalaya Woven Sarung Cluster

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Abstract: The importance of innovation’s role in driving economic growth emphasizes the need for local and regional to create a convenient environment for innovation development. However, innovation requires various conditions, thus it performs differently in various places. The fail of innovation in particular place could be assessed by the absorptive capacity of economic stakeholders in a process named knowledge diffusion. Using the Majalaya Woven Sarung cluster case, this study aims to identify to what extent can absorptive capacity determines the success of knowledge diffusion as an important process creating product innovation. Incorporating a deductive approach and qualitative method, this study found that outside knowledge channels and networking among economic stakeholders in the internal cluster are playing a significant role to increase their absorptive capacity. The capacity of knowledge acquisition relies on the initiative of economic stakeholders and the cluster environment in attracting outside knowledge. In addition, knowledge assimilation and transformation capacity are determined collective learning within the cluster, which is resulted by intensive face to face communication among stakeholders. Therefore, as a policy consideration, the intervention provided by the government should create a conducive environment for innovation by opening a potential channel of knowledge resources and strengthen the network of economic stakeholders in order to encourage collective learning.

Keywords: cluster, innovation, knowledge diffusion

Abstrak: Pentingnya peran inovasi dalam mendorong pertumbuhan ekonomi menekankan kebutuhan lokal dan wilayah untuk menciptakan lingkungan yang nyaman bagi perkembangan inovasi. Namun, inovasi membutuhkan berbagai persyaratan sehingga pertumbuhan inovasi akan berbeda dari satu tempat dengan tempat lainnya. Kegagalan inovasi di suatu tempat dapat dilihat melalui kapasitas serap dari pemangku yang terlibat dalam proses difusi pengetahuan. Melalui kasus klastor Sarung Tenun Majalaya, studi ini bertujuan untuk mengidentifikasi sejauh mana kapasitas serap menentukan keberhasilan proses difusi pengetahuan yang merupakan proses penting dalam menghasilkan inovasi. Dengan menggunakan pendekatan deduktif dan metode kualitatif, studi ini mendapatkan bahwa saluran pengetahuan dari luar dan jejaring antara pemangku kepentingan di dalam internal klastor memiliki peran yang penting dalam meningkatkan kapasitas serap. Kapasitas dalam menangkap pengetahuan bergantung terhadap inisiatif pemangku kepentingan serta kondisi lingkungan klastor dalam menarik pengetahuan dari luar. Selain itu, kapasitas dalam asimilasi dan transformasi pengetahuan ditentukan oleh pembelajaran kolektif yang dihasilkan dari komunikasi tatap muka intensif antar pemangku kepentingan. Oleh karena, sebagai pertimbangan kebijakan, intervensi yang disediakan oleh pemerintah seharusnya mampu menciptakan lingkungan yang kondusif bagi inovasi melalui membuka potensi saluran sumber pengetahuan dan memperkuat jejaring antar pemangku kepentingan untuk mendorong pembelajaran kolektif.
Introduction

Majalaya Woven Sarung is a local product produced in agglomerated small and medium industries owned by Majalaya local people living in Majalaya Sub-District, Bandung District. Majalaya Sarung with its indigenous local motif was very popular among countries in Asia (Oktaviani et al., 2017). First developed in 1920, Majalaya Sarung had dominated 47% of sarung national demand (Lestari & Siagian, 2018). However, today the situation changes, both the productivity and the popularity of Majalaya Sarung keep declining (Lestari & Siagian, 2018) while the competition in the textile product, including sarung, becomes more aggressive and expands to the global scale. Comparing with sarung produced in Central and East Java, Majalaya Sarung has less variation of motifs, colors, and forms of product. Therefore, Majalaya Sarung does not only struggle in competing with the global market, but the lack of product innovation also made Majalaya Sarung easily defeated in both regional and national markets by other local sarung produced in other regions. Today, Majalaya Woven Sarung is well-known as an inexpensive sarung for middle and low class. Many industries have been closed due to the truculent global and national competition. Limited ability to innovate made the sarung increasingly drowned from the market. Before away sinking, Majalaya Sarung Industries provides employments for not only people living in Majalaya but also outside Majalaya and Bandung District.

Innovation plays as a key for competitive advantages and a growth engine for economic growth (Chen et al., 2009; Henderson & Weiler, 2010). Moreover, in an industrial cluster, Porter (2000) argued that cluster encourages innovation by providing spatial proximity. The spatial proximity encourages innovation through creating a conducive environment for the economic stakeholder to interact and collaborate. Intensive communication among stakeholders creates collective learning promoting knowledge diffusion (Klarl, 2009; Malmberg et al., 1996). Knowledge diffusion is characterized by the potential adopters understand and adopt new knowledge that is transferred from the other adopters (Klarl, 2009). Therefore, the knowledge diffusion happens when, at least, there is one has adopted the new knowledge. The process of knowledge diffusion spreading new knowledge and encouraging innovation action conducted by other potential adapters will create innovation on a wider scale. The situation certainly becomes an economic growth machine for the cluster. Knowledge diffusion itself is determined by the absorptive capacity of economic stakeholders (Chen et al., 2009; Klarl, 2009). Absorptive capacity itself is an ability in acquiring, assimilating, transforming, and applying or exploiting knowledge (Hotho et al., 2012; Klarl, 2009; Unceta et al., 2016). Therefore, those capacities could answer why innovation occurs in one area and not in another.

The frustration of product innovation within the Majalaya Sarung industrial cluster revealed that spatial proximity does not always guarantee innovation among economic stakeholders within the cluster. We indicate that the failure has an association with the condition of the knowledge diffusion process hence innovation as a result of the process does not really develop. As mentioned before, the knowledge diffusion process relies on absorptive capacity. Therefore, it is important to understand how absorptive capacity enables or hinders knowledge diffusion.

Using the case of the Majalaya Woven Sarung cluster, this study aims to identify to what extent can absorptive capacity determines the success of knowledge diffusion as an important process creating product innovation. In identifying absorptive capacity that is consisted of several activities mentioned before, this study will focus on knowledge acquisition, assimilation and transformation. This study is important considering there has been limited research studies concern on knowledge diffusion in discussing innovation within an industrial cluster, particularly small and medium industrial cluster in Indonesia. In addition, we also argue that it is important now to see innovation as a social phenomenon.
that is generated by collective learning. This study will provide insights for Indonesian policymaker regarding other softer factors in fostering innovation to promote local and regional economic growth.

In identifying the knowledge diffusion factors, we employed a case study approach. Information needed being collected by in-depth interviews and focus group discussions. This article is developed into five sections. First, in the introduction, we outline a conceptual background in understanding innovation as a result of knowledge diffusion, followed by the methodology section. The next section is the case overview where we describe a general picture of the Majalaya Woven Sarung regarding the characteristic of the firm itself, market performance, and current innovation. The findings and discussion section provide an explanation of the knowledge acquirement, assimilation, and transformation capacity that hinder Majalaya Sarung product innovation. In the conclusion, this study also offers policy consideration in promoting innovation within a cluster in order to boost the local and regional economy.

Research Methods

In identifying the absorptive capacity, this study employed a case study approach with qualitative methods. Using a deductive approach, we first build a conceptual framework regarding absorptive capacity factors in knowledge diffusion through a systematic study literature review. Data and information were primarily collected by in-depth interview. The participant was selected by purposive and snowball sampling. There are several criteria in selecting participants using purposive sampling. She/he is the local community (born and live in Majalaya), she/he is considered a pioneer and the owner of Majalaya Woven Sarung industry. Through purposive sampling, the participant was selected by the recommendation of the previous participant. In order to confirm information that had been collected before and gather new information, this study also incorporated focus group discussion. The discussion was attended by either participant who had been interviewed and not. The triangulation attempt was also conducted by interviewing the representative of the Bandung District Industrial and Commercial Department.

Case Overview

Agglomerated Majalaya Woven Sarung Industries are located in the Majalaya Sub-district, Bandung District, which is 25 km away from center of Bandung City. In addition to contributing to the family income, the sarung production business is also an inheritance that generation maintains as a local product as well as an identity of Majalaya people. In running Majalaya Sarung business, the owners did not take a formal education in the business or textile field. Most of them were graduated from quite low education level, such as senior high school even elementary school. Majalaya Woven Sarung industries developed in Majalaya Sub-District are small-medium industries with investment value is less than one billion and total employee is between 19-30 employees. The business activities are managed by family member, particularly for selling and marketing activities. Other activities, such as production, machine controlling and maintaining are conducted by hired employee. Following sub sections will depict specifically about current situation regarding Majalaya Sarung marketing and innovation.

Majalaya Woven Sarung Marketing

Sarung produced by the Majalaya people is sold to the middle and lower local market in Jakarta, Surabaya, and Makassar. There are two ways of selling Majalaya Sarung. First, they are sold the sarung without brand. This is found in most of the Majalaya Woven Sarung industries. The sarung is sold to the other sarung seller (broker) on a large scale and they are given a brand by the seller before selling the sarung to the end-users or other
sellers. Sarung without brand produced by Majalaya local people happens because they found that in creating or registering brand is difficult and expensive. Therefore, they let their product without brand and it is sold with a lower selling price than the selling price that is determined by the broker.

The second way is selling the sarung to other sarung sellers (broker) or directly to the sarung shop outside Bandung with a brand. The owners do not have their shop displaying their products. Around Majalaya Sub-District, there is also no sarung shop or market hence people who want to buy Majalaya Woven Sarung and deliberately visit Majalaya Sub-District will barely find sarung shop. They need to visit the sarung production place nevertheless they will find difficulty to buy sarung in small amounts.

Majalaya Woven Sarung Innovation

The Majalaya Woven Sarung has traditional motifs, which are maintained by sarung producers. Although they maintain the traditional motif, the motif also develops time by time as other branded sarung produced in Central and East Java dominated the national market. It is because the Majalaya Sarung producer follows the popular branded sarung motif precisely in order to increase their sarung purchases. By following the motifs of branded sarung, they argued that they can benefit from the middle and low-class demand for cheap sarung with branded sarung motif. They call them as followers and good at following the current trend motif. They are only eager to meet existing market demand. They do not really develop new motifs or modify popular motifs followed by their own idea in order to create a possible new market. Not only limited in the sarung motif development, but the Majalaya Woven Sarung also lacks product diversification. There is no other linked activities or industries developing sarung into other forms, such as clothes or accessories like what takes place in Lombok (See Netrawati et al., 2019; Nurmeisarah et al., 2015). In Majalaya Sub-District, besides we will find difficulty to find a sarung shop or market, there is also no market selling products developed from sarung.

The lack of product innovation in the Majalaya Woven Sarung industries is considered as a factor why Majalaya Sarung keeps drowning time by time both in the regional and national sarung market and as a result, many sarung industries finally are closed by the owners. Moreover, the lethargy of Majalaya Sarung production also affects the linked industries such as, yarn coloring industries.

Findings and Discussion

The section presents the result of the analysis that is divided into three capacities, knowledge acquirement, knowledge assimilation, and knowledge transformation. In the next subsection, the knowledge assimilation and transformation will be discussed as a one subsection because of its high linkages.

Knowledge Acquirement

The knowledge acquirement emphasizes the process of how economic stakeholders within-cluster obtain knowledge through recognizing and valuing them (Chen, Lin, & Chang, 2009; Cohen & Levinthal, 1990; Unceta, Castro-Spila, & Garcia Fronti, 2016). Knowledge diffusion depends on the knowledge channel (Klarl, 2009). Several studies regarding innovation and cluster (See Chen et al., 2009; Cohen & Levinthal, 1990; Malmberg et al., 1996; Mitra, 2000) found that innovation is resulted from the idea originated from outside the inventing firm. Therefore, knowledge flowing from outside to internal through the relationship between internal stakeholders with external parties as a sender of outside knowledge is important (Klarl, 2009). After that, the outside knowledge will be adopted by one and then it is transferred to another potential adopter. To localize outside knowledge resources, such as educated talents, technology, even education or research and development institution, the cluster needs to attract them by providing an adequate environment (Malmberg et al., 1996).
According to the explanation regarding the role of knowledge acquirement capacity in knowledge diffusion, we found that the Majalaya Sarung cluster faces limited outside knowledge channels. There are several factors causing limited outside knowledge channels in the cluster. First, they do not really communicate with important knowledge resources, such as buyers. Buyer is one of the resources of outside knowledge (Chen et al., 2009; Cohen & Levinthal, 1990; Malmberg et al., 1996). However, the interaction between the sarung producers and their end buyers is very restricted since most of Majalaya Sarung are not sold to the end-users as discussed in the section of the case overview. As a result, they cannot directly hear the opinion or idea from sarung end-users regarding valuable information such as, what color, motif, and material, which are favored by current sarung users. In other words, they have limited opportunities to learn the current situation of the sarung market from its users as one of the important knowledge resources. Moreover, they tend to maintain their current buyer network that is dominated by non-end users. The network was actually built from previous generations. Moreover, the representative of the Bandung District Industrial and Commercial Department found that they actually attach with several firms reselling Majalaya Sarung. There is an agreement between the owner of the Majalaya Sarung industry and the reseller, in order to maintain their cooperation, the owner is not allowed to supply the sarung to the others firms (only at a particular time, mainly, the time when sarung is produced for the reseller).

The limited information channel is not corroborated by the initiative of the Majalaya Sarung industry’s owner. They admitted that they barely involve or even visit the events related to the textile innovation, such as woven product exhibition or woven industry technology exhibition. Some argued that they are not really interested in the kind of events whereas others argued that there is no information shared by other majalaya sarung stakeholders or stakeholders outside the cluster. Information and technology development is not really used by the owners to explore or learn concerning woven sarung product development. Considering most of them are elderly, they found that It is difficult for them to obtain information from internet surfing. Therefore, the second problem in the knowledge acquirement process is the lack of initiative in obtaining outside knowledge.

Third, outside knowledge should be lured by providing a conducive environment, such as adequate infrastructure (Malmberg et al., 1996). However, this sarung industrial cluster in Majalaya Sub-district is not appealing enough to attract new skilled or educated human resources, technology, and other important knowledge resources promoting innovation. Sarung Majalaya Industries hired 15-20 years old employees from other districts around Bandung District without education level requirements. Most of the hired employees quit after having enough experience in the Majalaya Sarung industry and they look for larger textile industries offering a higher salary. This situation certainly disadvantages the learning and developing process within the sarung industry, particularly in production activity. On the other hand, this kind of situation favors higher textile industry to obtain outside knowledge due to the mobility of labor (See Dahl, 2002). Most of the Majalaya Sarung industry stakeholders argue that they need vocational school concerning textile production in Majalaya Sub-district as an attempt to attract talent. However, due to the inadequate infrastructure, investment in textile education or research development does not really develop in Majalaya Sub-district.

The table below summarizes factors related to the knowledge channel hindering knowledge diffusion in the Majalaya Sarung cluster. From this case, we learn that to create innovation, outside knowledge is needed to give not only insight but also important basic knowledge enforcing internal stakeholders to develop the new idea within their own industry.

<table>
<thead>
<tr>
<th>Inhibitor</th>
<th>Impact to the Knowledge Diffusion</th>
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<tr>
<td>Limited interaction with outside</td>
<td>Limited insight and information within-</td>
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</table>
### Inhibitor | Impact to the Knowledge Diffusion
--- | ---
Lack of initiative in obtaining outside knowledge | cluster, thus nothing plays like a basic knowledge encouraging them to start to develop new ideas and take an innovation action
Inadequate environment to attract outside knowledge resources (high-skilled employee, educated employee, education and research development institution) to inside cluster | 

Source: analysis result, 2019

### Knowledge Assimilation and Transformation

Knowledge assimilation and transformation underline integration of outside knowledge with a firm’s local knowledge and applying them as a firm’s objective (Chen et al., 2009; Cohen & Levinthal, 1990; Hoarau, 2014; Mitra, 2000). In the case of the Majalaya Sarung cluster, we found that they are able to imitate other motifs. It reveals that they can reuse the outside knowledge, they are able to adjust the needs to produce new motif sarung with their own technology and existing knowledge which are left behind from those popular and branded sarung industries outside Majalaya. However, they exhibit imitators behavior whereas imitator is different from innovator (Bass, 1969). Both the owners and the representative of the Bandung District Industrial and Commercial Department also agree that the biggest weakness of Majalaya Sarung’s development is combining their own idea with a new idea.

The capacity in assimilating and transformation knowledge is actually associated with social capacities, such as social networks because Klarl (2009) views knowledge diffusion as a cumulative adoption. Communality facilitating face to face interaction among internal industry stakeholders is necessary. In line with the previous argument, Hoarau (2014) also argued that social competencies (collective or social learning) determine the success of the knowledge assimilation process. Therefore, this subsection focuses on how outside knowledge is collectively learned.

From this case study, we found that the main problem creating unsuccessful knowledge assimilation and transformation is related to the knowledge spillover within-cluster itself. There are several factors regarding knowledge spillover hindering collective learning. First, moving knowledge from one firm to another firm does not indeed happen among stakeholders of Majalaya Sarung. As revealed in the interview quoted below, we can see that aggressive competition among industries prevents intensive communication among them. Therefore, there is no activity both formal and informal, where stakeholders of Majalaya Woven Sarung can discuss and share the information regarding sarung product hence they can learn from each others.

“We have already competed among family member, we could punch each other’s particularly in high demand season…. we are actually independent and selfish hence we never really gather to share business things information”

They also mentioned that there was a Majalaya Woven Sarung Industry association. However, the association was not effective enough to facilitate them to share information and collectively learn regarding product innovation. As an example, when one firm obtained new information from outside clusters, such as spinning technology exhibition, he did not share the information with the other stakeholders, share the information directly neither indirectly through the association. Here, we learn that one of the characters of stakeholders of Majalaya Sarung industry is individualism depicted by their high independence and they also do not really interact with others.

As the second factor, we found that within the firm itself collective learning among owners, staff, and other positions did not develop. Considering the education, the age, and the lack of initiative in acquiring outside knowledge of Majalaya Woven Sarung industries...
owners, they actually need to absorb new idea from their own potential employee and together learn to take an important action in developing the product in order to increase both the productivity and image of *sarung* that they produce. Although they hire productive aged labor who could be more creative and have experienced in facing various textile product innovations, there is a barrier between the owners (or other important staffs position who are still the owner’s family member) and its labors to communicate their idea. The far different generation among them is really possible in increasing resistance to knowledge absorption. In addition, as a family business, the decision regarding product development is taken in the family circle. By limiting the role of external family member involvement in the firm, particularly in a position enabling them to contribute a new idea in developing *sarung* products, the knowledge assimilation and transformation within the firm itself will be limited.

The table below displays that the two factors fail the collective learning process because they limit the movement of knowledge from one firm to another firm, it also shows moreover that the knowledge is also difficult to move from individual to another within one firm.

<table>
<thead>
<tr>
<th>Inhibitor</th>
<th>Impact to the Knowledge Diffusion</th>
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<tbody>
<tr>
<td>Higher individualism of Majalaya Sarung industry stakeholders</td>
<td>Lack of face to face interaction among firms within cluster, which will facilitate them to learn from each other’s experiences in product development</td>
</tr>
<tr>
<td>Age and status barrier</td>
<td>Resistance to absorb new information and knowledge</td>
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(source: analysis result, 2019)

Conclusion

The case of the Majalaya Woven *sarung* cluster reveals that product innovation is determined by softer factors, named absorptive capacity. The capacity affects innovation because they have a significant role in the process of knowledge diffusion. The capacity for acquiring new knowledge is not enough to enable knowledge diffusion. It is depicted by limited outside knowledge that is caused by several factors, such as lack of interaction with outside knowledge resource, lack of initiative to obtain outside knowledge, and the inadequate environment in attracting outside knowledge resources to the internal cluster. These factors hindering knowledge diffusion by preventing new insight and information to the internal cluster hence there will be limited basic knowledge enforcing the economic stakeholders within-cluster to start an innovation action. So does the capacity of knowledge assimilation and transformation. The higher individualism of the Majalaya *sarung* industry stakeholders causes limited interaction among firms within the cluster. However, in knowledge diffusion, intensive face to face interaction will facilitate stakeholders to assimilate new ideas from each other’s experiences and encourage them to combine the new idea with their local knowledge. A barrier, such as age and status differences also could hinder the knowledge diffusion because it may lead to the resistance of knowledge absorption.

To spur innovation, the policy should be able to open wide access for economic stakeholders in the cluster with outside actors having potential knowledge. To attract outside knowledge, the government could provide adequate infrastructure and start investing in education or research and development institution in the field that is related to the industries developed in the cluster. Activities or events such as exhibitions and workshops could be an attempt to bring internal stakeholders and outside actors closer, and together learn from knowledge sharing. From this study, we also learn that network plays an important role in knowledge diffusion. Therefore, policy intervention should strengthen the network in the internal cluster. It will encourage them to keep sharing new
information even collaborate even though they actually compete with each other to produce a better product.

Preferences


