

# Thinking of Blue Ocean-Strategy of Gondorukem Business Model Transformation in Perhutani Regional Division of Central Java

Ulfa Tri Astuti<sup>1</sup>, Lukman M. Baga<sup>2</sup>, Dikky Indrawan<sup>1</sup>

<sup>1</sup>IPB University, School of Business, Jl Raya Padjajaran Bogor, Indonesia

<sup>2</sup>Departement of Agribusiness, Faculty of Economics and Management, IPB University, Jl Agatis Kampus IPB Darmaga, Bogor 16880

Corresponding Author: Ulfa Tri Astuti

## ABSTRACT

Gondorukem is a non-wood forestry product that is produced by steam distillation of pine resin (*Pinus merkusii* junk) aside from turpentine oil. This study aims to compile the current business model canvas, assess 9 business elements using SWOT analysis, and formulate business models recommendation. The analysis used in this study was SWOT analysis, Business Model Canvas (BMC), and Blue Ocean Strategy (BOS). The results showed that the company currently had some troubles in its business. The initial value proposition consists of gondorukem derivative products such as glycerol rostin ester, alpha pinene, betha pinene, limonene, cineol, and alpha terpineol. Furthermore, business revenue can be raised through the sales of the new products from gondorukem production waste such as biopellet.

**Keywords:** biopellet, BMC, BOS, strategic management, SWOT analysis

## INTRODUCTION

Perum Perhutani (Perum perhutani has its branches that are responsible for certain working area (includes provinces in Java Island and Madura Island). In this study, the observation is restricted to Perum Perhutani for Regional of Central Java and referred as Perum Perhutani Central Java in this paper for simplicity) is a state-owned enterprise that is responsible for business operation of forestry products including wood and non-wood product, forestry tourism, and agribusiness. One of forestry

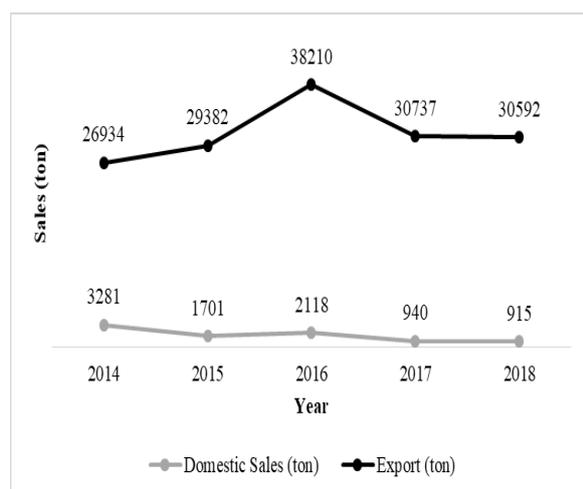
products developed by Perum Perhutani is Gondorukem (Resina colophium). Gondorukem is classified as pine chemical product that is produced by steam distillation of pine resin (*Pinus merkusii* junk) aside from turpentine oil.

Perum Perhutani produced 65 646 tons of gondorukem in 2018. It took up to 94% of production target in the corresponding year and increased by 5% from actual production in 2017. Most gondorukem (up to 90%) is exported while the remaining 10% is sold to the domestic market (Perhutani 2019). Based on yearly report of Perum Perhutani of Central Java, the exported product of gondorukem in the corresponding regional tends to fluctuate in volume from 2014 to 2018 (Figure 1). Meanwhile, domestic sale tends to decrease due to the circulation of its substitution product in the market, such as coconut oil and oil dregs (both are used in soap production). Besides, during the year of observation, the purchasing power of firms in the industry that uses gondorukem as its ingredients (main raw materials or additional ingredients) experienced a decrease (Lestari et al. 2015).

There are several issues (internal and external issues) that should be addressed and solved by Perum Perhutani Central Java to maintain the firm's development target. Internal issue includes financial problem that is indicated by the decrease of product sales (Perhutani 2019). Meanwhile, the

external problem includes market rivalry between countries that produce gondorukem and the absence of government regulation regarding technical rules on the utilization of pine forest's non-wood product.

The underperforming sales of gondorukem are caused by the fact that Perum Perhutani exported gondorukem in the form of raw materials. The price of gondorukem as raw materials is prone to volatility which is highly related to market leader's activity. In this case, China as a country with highest gondorukem production in the international market holds a power to affect the price through its government regulation (includes tax policy) and its firms (includes manufacturing firms or trading firms that is related to gondorukem) in the international market (Fachrodji et al. 2009).



Source: Perhutani (2019), processed

Figure 1 Domestic sales and export of gondorukem by Perum Perhutani of Central Java

However, the business operation of gondorukem is still appealing for Perum Perhutani, especially in the international market. This is due to the high demand for this product in the international market. Currently, there are three major suppliers of gondorukem, they are China, Brazil, and Indonesia. Gondorukem that is produced by Perum Perhutani has been known to have a distinct quality as it has high heat endurance, pleasant fragrance and it is also stickier. Therefore, China that already has the highest number of gondorukem

production still needs a supply of gondorukem from Indonesia (Tokoperhutani 2020). And then, the product is exported to other countries. The consumer includes Asian countries such as India, Singapore, and Taiwan. It also includes the United States, and several European countries, they are France, Netherland, Italy, and the United Kingdom (Fachrodji et al. 2009).

The demand for Indonesia's gondorukem in the international market began to increase in late 2005 and is still increasing up to this day. According to Dewajani et al. (2019), Indonesia has a potential market share for gondorukem in Japan market. The export capacity of Indonesia's gondorukem product to the international market is US\$106 188 million, therefore, Indonesia still has potential US\$104.4 million to fulfill international market demand. Based on those facts, Perum Perhutani still has potential to develop its business on gondorukem. This attempt could be conducted through the advancement of strategic planning to obtain sustainable growth. Environmental issues that become a trend in the industry could also be considered to decide the firm's strategic planning that is aimed to increase the firm's competitiveness.

On the other hand, there is a constraining issue regarding the business operation of gondorukem. It is the absence of government regulation regarding technical rules on the utilization of pine forest non-wood products. People are highly focused on wood-product while in fact, a pine tree needs more than ten years to have its wood (Prastawa et al. 2010). On the other hand, extraction of pine resin can be done to the pine trees which aged 20 to 50 years old. The pine trees that aged more than 50 years tend to have lower productivity and quality of resin (Astuti 2015).

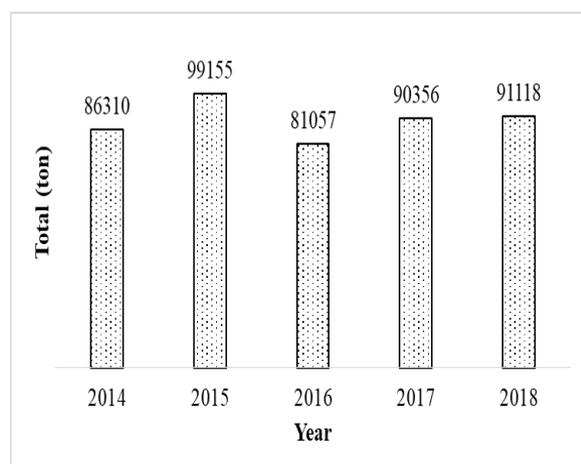
According to Heryadi (2015), some issues prevent a firm from its development. The issues include internal and external issues. Based on this fact, Perum Perhutani Central Java attempts to maintain the firm's target and momentum amidst internal and

external challenges. Therefore, the firm needs a study regarding the transformation of its gondorukem business model.

## LITERATURE REVIEW

### Pine Forest Production in Indonesia

There are about 5,521,985 hectares of pine forests in Indonesia that produce gondorukem (Fachrodji et al. 2009). The normal rotation age for pine forests according to Gotame (2013) is 60 years and resin tapping can be done for 20 years. This shows that pine can be commercialized on a large scale. Various transformation steps were taken to develop this non-timber industry, marked by the existence of bilateral agreements between forest owners and permit holders so that they could consider market demand and the community's socio-economic status. Support is carried out nationally by raising awareness and carrying out assignments through promotional activities from government agencies to convey to the public to improve the pine forest industry without destroying the ecological balance, social welfare and human economy.



Source: Data processed (2020)

Figure 2 Production of Perum Perhutani pine resin forest products in 2014-2018

Based on the data in Figure 2, it is known that the production of Perum Perhutani pine resin forest products fluctuated from 2014 to 2018. This is due to various factors. According to Lempang (2018), pine sap production is influenced by

internal and external factors. Internal factors that influence include genetics, plant age, tree diameter and height, crown conditions, sapwood volume, and stand density. External factors that affect the production of sap include the environment (light, temperature, place to grow, nutrients, air, and water), as well as management activities (grazing, burning, pruning branches, plant thinning, and tapping techniques).

### Gondorukem Industry in Indonesia

Gondorukem (Resina colophium) is a product of processed steam distillation from the sap of tapped pine cones (oleoresin). The main component of gondorecum consists of unsaturated alkyl tricyclic organic acids, namely abietic acid and pimaric acid which are brownish yellow solids (Khadafi et al. 2014). Gondorukem is used in the batik, leather, washing soap, paper insulating paint, varnish, tire mixture, cosmetics, cement industry, and cable coating materials. Indonesian gondorukem has a comparative advantage when compared to gondorukem from other countries, namely it has a more fragrant, stickier and more durable aroma (Lestari et al. 2015). The largest Indonesian gondorukem produced by the Perhutani Pine Chemical Industry (PPCI) in Pemalang is the largest gondorukem processing plant in Southeast Asia and has a feed stock capacity of 24,500 tons / year of pine resin (Perhutani 2014).

Suranto (2018) states that the gondorukem industry in Indonesia currently only produces and trades four quality classes of gondorukem internationally, namely X, WW, WG, and N quality. X quality is the main quality which means Extra (Rex) and is marked with color. clear yellowish in standard Lovibond color. WW is a symbol of the first quality which means Water White and is marked in yellow by the Lovibond standard. WG is the symbol for quality two (Window Glass) and is marked with brownish yellow in the standard Lovibond color. N is the symbol for the triple quality (Nancy) and is indicated by a

brownish color on the Lovibond color (BSN 2001).

Kencanawati et al. (2017) states that Indonesia contributes 8% more to world gondorukem production, while the annual production volume of Indonesian gondorukem is around 60 thousand tons consisting of 80% exports and 20% to meet the needs of the domestic market. The Gondorukem produced is directly exported to several countries such as the United States, India, Cameroon, France and the Netherlands. According to Abdiansyah (2019), the price of gondorukem in Indonesia is US \$1500 per ton so that the gondorukem can be classified into non-timber export superior commodities.

### **The Obstacles of Gondorukem Industry**

Several key factors hindering the gondorukem business range from tapping to export of products to the market (Mekonnen et al. 2013). Climate change affects the number of tapped pine sap produced so that it has an impact on the quantity of gondorukem products. Tapping and collecting during the dry season tends to be easier. Conversely, during the rainy season it will become an obstacle in tapping and affect the number of gondorukem products produced. According to Prasetyo et al. (2017), the current pine forest management has not reached an optimal condition. The abnormal pine stand structure causes a decrease in pine sap production.

Several issues have become issues and barriers to the export of gondorukem products to Japan. First, the marketing and promotion of gondorukem products has not been actively participated in trade shows. Second, there are still few producers of gondorukem products in Indonesia as well as a new policy from Perum Perhutani to reduce exports to maintain product prices as well as consideration for the private sector to be involved in the implementation of gondorukem production. Third, the increase in labor wages in Indonesia results in an increase in the price of Indonesian gondorukem products which results in a

decrease in competitiveness with its competing countries. Fourth, an increase in domestic demand becomes an obstacle to increasing exports if it is not accompanied by an increase in overall production capacity. Fifth, the existence of the reputation of competitors, especially China, which has become the standard for several companies, hinders the increase in exports of Indonesian gondorukem products (Kemendag 2016).

### **Competitiveness of Gondorukem in Various Producing Countries**

Several periods of gondorukem export experienced problems, namely the fluctuation of production and export offers as well as the price of Indonesian Gondorukem products which did not have a bargaining position in the international market even though they had a competitive advantage when compared to gondorukem products from other producing countries. Indonesia has not been able to meet the demand for gondorukem in the world.

Price fluctuations in gondorukem often occur due to the behavior of businessmen from China, which is the largest producing country. Fachrodji et al. (2009) in their research stated that China has a wider area of tapped pine forests than Brazil and Indonesia, which is 1.3 million hectares, while Brazil is around 100,000 hectares, and Indonesia is around 145,000 hectares for the Java Island area. However, in terms of pine sap productivity, Brazil produces 4.8 tonnes of pine resin per hectare/year, which is higher than China and Indonesia, which are 1.4 tonnes per hectare/year and 0.85 tonnes per hectare/year.

### **METHODS**

The study is conducted in Perum Perhutani Central Java from February to June 2020. This study consists of several activities, they are study proposal, data collection, data processing, data analysis, and reporting. This study used two types of data, they are primary and secondary data

(includes qualitative and quantitative data). Primary data were obtained from the subject of study by direct observation, in-depth interview, and Focus Group Discussion (FGD). Secondary data were obtained from previous studies and related books.

The decrease in the sale performance of Perum Perhutani's gondorukem indicated that there is a problem in its current business strategy. According to Yuliana (2013)

strategy is pooled, wide, and integrated planning and is related to the firm's strategic competitiveness against challenges. Business strategy is used to obtain an organization's targeted goal (Chaniago 2014) through competitive advantage in the long-term (Herfita et al. 2017). The concept of Perum Perhutani's gondorukem business model transformation is demonstrated in Figure 3.

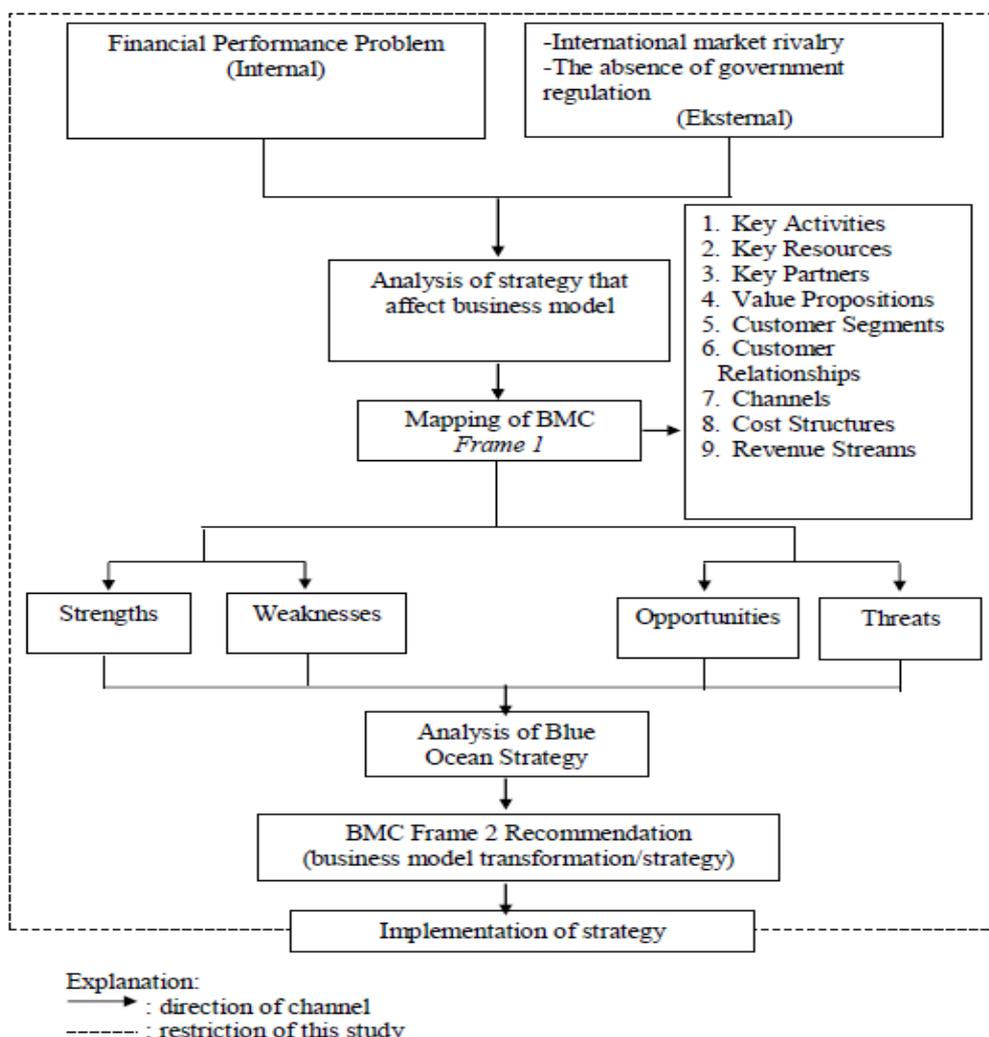


Figure 3 Conceptual framework

## RESULT

### Mapping of Perum Perhutani Central Java's Gondorukem Business Model

The identification of elements within gondorukem's Business Model Canvas (BMC) involved workers in Perum Perhutani, they are Manager of Sale for Non-Wood Forestry Product, Assistant Manager of Sale for Non-Wood Forestry

Product, Staff of Sale for Non-Wood Forestry Product, Senior Manager of PPIC (Production Planning and Inventory Control), and Human Resource Management. Those respondents involved in this study were considered capable to provide relevant information to obtain data that are needed for this study. The data were used to identify elements within

gondorukem's BMC. Besides their capability, those respondents also hold the authority to formulate a business model for Perum Perhutani Central Java, either for the currently applied model or the model that

will be implemented in the future. The identification result of nine elements within gondorukem's BMC of Perum Perhutani is demonstrated in Figure 4.

Key	Key Activities	Value Propositions	Customer	Customer
<b>Partners</b>			<b>Relationships</b>	<b>Segments</b>
Expedition	Operational activity	-Transaction convenience	-A good handling	-Permanent buyers
BRI	and production	-Fast response	of customer's	buyers
BPJSTK	activity	-Customer's trust	complain	-New buyers
BPJS		-System that allows price	-Price negotiation	buyers
Kesehatan		offer from customers		
	<b>Key Resources</b>	to central office	<b>Channels</b>	
	Human resource	-Selling product by stock	-Selling by	
	Website	instead of by request	WhatsApp	
	Vehicle		application	
	Building		-Word of mouth	
	Production machines			
<b>Cost Structures</b>		<b>Revenue Streams</b>		
-Marketing cost		Gondorukem product sale		
-General well-being cost				
-Wage				
-Business trip cost				
-Facility maintenance cost				
-Production operational cost				
-Office cost				
-Inventory depreciation cost				

Figure 4 Business Model Canvas (frame 1) of Perum Perhutani Central Java

## SWOT Assessment for Each Element of BMC

Table 1 SWOT Assessment for each element within BMC on gondorukem's business model of Perum Perhutani Central Java

Element	Strength	Weakness	Opportunity	Threat
Customer Segments	Perum Perhutani is able to maintain its customer segment	Product sale is still focused on old customer	Some potential customers are not yet to be targeted	The pricing policy of the product in the international market
Value Propositions	Product's quality is higher than its rivals	The product is limited to gondorukem only.	The product's quantity demanded by the market is considerably high.	A higher level of competitiveness in the market
Channels	Two-ways direct communication	Low level of IT utilization	Export and utilization of digital marketing	Low customer satisfaction due to unavailable demanded product
Customer Relationships	Strong connection with permanent buyers	The absence of CRM (Customer Relationship Management) software	IT utilization to interact with customers	Rivals provide better offers
Revenue Streams	Repeated revenue stream	revenue is dominated by gondorukem sale	The opportunity of new income from potential new buyers and the sale of gondorukem derivative product	Decreasing and underperforming sale
Key Resources	Perum Perhutani possess Perhutani Pine Chemical Industry	Limited high skilled human resources	There are assets and natural resources that are not yet to be explored	A natural constraint in the field that disturbs the supply of pine resin raw material
Key Activities	The firm has well maintained its main activity	The key activity can be replicated by rivals	Perum Perhutani can use IT advancement to produce more products with high economic value	The product's quantity demanded has not been fulfilled maximally
Key Partnerships	Too focused on old business partners	The firm is not yet having new business partners since it is already satisfied with its current achievements	There are opportunities to be partnered with many parties	Rivals provide a better offer to potential business partners
Cost Structures	Pine resin raw material is produced from the pine forest of Perum Perhutani	-	Potential maximization of pine resin's quantity	Increase in production cost

After the identification of nine elements within BMC was conducted (BMC frame 1), those elements need to be assessed. According to Ostewalder and Pigneur (2012), assessment of each element of BMC could be conducted in several ways, one of them is by combining internal strengths and weaknesses with external threats and opportunities within BMC. This kind of analysis is widely known as SWOT (Strength, Weakness, Opportunity, and Threat) analysis. SWOT analysis allows the more focused study and assessment to nine elements within BMC which is the base of an organization's BMC. The result of SWOT analysis could be used as a guide for further discussion on decision making and innovation of business models. This analysis is used to identification and definition the basic elements of Diamond Porter's. This analysis has been done keeping in mind the social, economic, historical, geographical, industry related core issues, and existing conditions (Fauzi et al. 2012).

### **New Model Business Recommendation through Blue Ocean Strategy**

Based on the assessment result of the 4-step performance framework for a new business model prototype (business model frame 2) new alternative of Perum Perhutani gondorukem's BMC could be formulated (Figure 5). The starting point of value innovation is the change in the element of value prepositions. Perum Perhutani Central Java will create a new product. Formulation of model business recommendation frame 2 by Perum Perhutani Central Java through Blue Ocean Strategy focused on four main questions, they are; what can be created, eliminated, increased, and reduced. The business model formulation is in accordance with the current condition and potential future condition.

Cidhy et al. (2016) stated that improvement of each element is expected to improve the current business model, increasing the opportunity of business development and innovation, including development in the field that is not the

firm's core competence. In this context, business model innovation is an innovation that creates a new market segment and will create a new skill for entrepreneurs (Euchner and Ganguly 2014). Based on the assessment result of the 4-step performance framework for the new business model prototype (business model frame 2) there are changes in the arrangement of nine elements within BMC. In the business model recommendation frame 2, different colors of blocks indicated corresponding treatment for the aspects in the box. Green represents eliminated building blocks, orange represents reduced building blocks, grey represents increased building blocks while colorless blocks represent maintained (kept still) building blocks.

Perum Perhutani Central Java is expected to create a new product through the concept of reuse. It is implemented by utilizing the waste of gondorukem production. The waste can be re-processed to be a new product that has high economic value so that it can be a new income source of the firm. Several products that are produced from the waste include biopellet. Biopellet that is produced from gondorukem waste added by the solid waste of cajeput oil production is usually used as alternative source fuel. The quality of biopellet combustion is better than direct biomass combustion (Mustamu et al. 2018). In addition to gondorukem products, Perum Perhutani Central Java Regional Division also sells derivative products from gondorukem or commonly referred as gondorukem derivatives including glycerol rostin ester, alpha pinene, alpha terpineol, betha pinene, cineol, d-limonene, d-carene, and dipenten.

The business model that is currently implemented by Perum Perhutani is still fixated on the Business to Business (B2B) sales system, namely transactions that are carried out both physically and electronically that occur between one business entity and another business. The B2B system that implemented by Perum Perhutani is sell products owned by the

business and intended for other businesses and not to end consumers. However, another important aspect of implemented B2B that Perum Perhutani is not only reach customers but also all stakeholders, employees, partners, suppliers, competitors, and members of the surrounding community. Perum Perhutani has not yet maximized the web-based sales and information system for the gondorukem business so that the dissemination of information and product selling power is limited. The recommendations for the new business model offered target new market segments, namely end users, so that product sales reach does not only use the Business to Business (B2B) system but can also apply the Business to Consumer (B2C) system. According to Fadillah and Indrawan (2020), the end users could be developed as the customers as well so it needs customer relationship programs to keep and increase customer loyalty.

Kumar and Raheja (2012) state that the B2C system describes business activities that provide services to end consumers with products owned by the company. Individuals can visit the website of the company before making a product purchase. The target of Perum Perhutani final consumers is for example the batik craftsmen.

Conventional selling that is currently implemented in the firm can be further advanced by adding up online selling. This is an opportunity that needs to be seriously taken by Perum Perhutani in the future. Online selling is expected to reach a broader market segment. Perum Perhutani needs to arrange a special communication channel and marketing channel to promote online selling such as creating a digital catalog, personal service, automated service, and testimonial page. The digital catalog can be arranged by displaying gondorukem products with various levels of quality, derivative products of gondorukem, and new products from gondorukem waste (biopellet). The description and benefit of

each product are also needed to be attached in the catalog so that the customers can get relevant and useful information regarding the products. The information attached to the digital catalog will affect the customer's preference and eventually affect their purchasing decision. Therefore, the firm needs to give comprehensive and complete information to attract potential customers to buy its products.

Based on the business model recommendation frame 2, there is an increase in the firm's income. The increase comes from the sale of gondorukem derivative products and new products from gondorukem waste (biopellet). Production cost of biopellet is considered low since the raw material is the waste of gondorukem production. The revenue stream in this business model can be increase by sales quantity of XB quality gondorukem products, namely the highest quality gondorukem products. If quality of gondorukem is higher, than the selling price of the product is increasing too. Gondorukem marketing is divided into two based on data from Perhutani (2019), namely 90% for the foreign market (exports) and 10% for the needs of the domestic market. However, the new regulation from the management of Perum Perhutani states that the percentage of marketing of gondorukem products in 2020 will be evaluated, that is, 80% of the marketing will be for export needs and 20% for meeting the domestic market. World demand for gondorukem will continue to increase in the future so that various efforts have been made to increase the production of pine resin through expansion of plantations as the main raw material in the production process. This effective step is carried out as an effort to use forests and increase the income of people around the forest as well as an effort to increase the country's foreign exchange (Suwaji et al. 2017; Lateka et al. 2019).



As the population increases, the demand for gondorukem will also increase (Hadiyane et al. 2015). According to Liu (2011), more than 40 countries import gondorukem from China amounting to more than 200 000 tonnes per year. Gondorukem is widely used in various industries both as a main ingredient and as an additive. Gondorukem is an important supporting material for the batik industry, washing soap, printing, batik, paper, insulators, and so on (Kharismawati et al. 2016). This shows that the prospect of gondorukem for the industry is very bright and Indonesia has great potential in this business.

The main activity of Perum Perhutani Central Java includes (1) operational activity and production activity for both PGT (Pabrik Gondorukem dan Turpentine) (Manufacturers of Gondorukem and Turpentine) based and office-based, (2) product promotional activity, marketing activity, and selling activity. The latter activities are conducted conventionally or by using webstore (tokoperhutani.com) so that it can reach a broader market segment and attract potential customers. To do this, the firm needs to decide on a suitable channel to reach its market and potential customers. In this case, besides from the conventional channel, digital communication, and marketing channel are considered prominent in reaching a broader market segment, increasing product sales, and increasing revenue stream. Digital communication and marketing channel use IT. The firm needs to recruit a marketing expert or give the current employee specialized marketing training and make sure that the human resource assigned to this marketing activity (digital marketer) achieves a certain level of performance. Perum Perhutani also needs to arrange a partnership with the firms that are operated in the field of digital marketing or business and communication strategist. Besides that, Perum Perhutani Central Java also needs to arrange a partnership with the firm that provides software developers which are

assigned to create a special application to conduct the transaction of gondorukem products. The application is expected to assist the customer in finding information of the products (description and product availability), in the transaction of the products (including payment), and in giving testimonials to the products, (3) product research, development, and innovation activity in Perhutani Pine Chemical Industry (PPCI) that is located in Pemalang, Central Java, and (4) setting up an exhibition that displays gondorukem-related products (gondorukem, its derivative products, and products made from gondorukem waste)

This new business model recommendation does not need any depreciation costs for the firm's inventory, reduces production cost, operational cost, business trip cost, and office cost. However, it increases marketing and promotional cost. Marketing and promotional activity is conducted by marketing experts so that the products are not only sold using conventional selling but also using webstore as a form of digital marketing. Promotional and marketing activity introduces more cost for the firm. The additional cost includes the cost of marketing training and promotional cost.

BMC frame 2, which is a business model for improvement from BMC frame 1, is effective to be applied in the future because each element that has been improved with SWOT analysis and the principles of Blue Ocean Strategy can improve the business model that is currently being run. Utilization of waste into new products in the form of biopellets is a great opportunity for Perum Perhutani to dominate the market in this business because no competitors have created these products. In addition, the sale of derivative products from Gondorukem in the form of derivative creates a great potential for Perum Perhutani to further improve the quality and quantity in the production process and product sales. This is due to the large demand for this commodity in the

market. The price of derivate products, which is much higher than the sale of Gondorukem products, can be a new alternative as well as a challenge for Perum Perhutani's business to meet market demand.

## CONCLUSION

The result of this study revealed that business model mapping that is currently implemented by Perum Perhutani Central Java through BMC approach demonstrated that the firm face several issues in its business operation, they are (1) customer segment is still dominated by permanent buyers, (2) the selling of gondorukem product quality X, WW, and WO, (3) lack of marketing and promotional activities, (4) product selling is conducted conventionally (offline), (5) lack of business partners and (6) lack of high-skilled human resource and experts in the field of digital marketing. The next studies are encouraged to conduct financial analysis on Perum Perhutani if the firm decides to implement a business model recommendation explained in this study.

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