

Proposed Strategy for Pharmaceutical Industry (Case Study: PT Bio Farma Persero)

Reynaldy Prayogi, and Harimukti Wandebori

Abstract — PT Bio Farma (Persero) is a state-owned company that runs its business in the pharmaceutical industry, namely Vaccines and Anti-Sera products, so it has an important role to play in improving the quality of life in Indonesia. In addition, Bio Farma already has the capability to export its products because it already has WHO pre-qualifications.

PT Bio Farma (Persero) in distributing its products has two market sectors, namely the domestic and international sectors. In running its business, the company has several business issues, namely Halal Product Regulation, High Rate of Raw Materials, Declining of Export Sales, Polio Eradication, and Global Covid Outbreak.

To analyze the internal condition, it used PESTEL analysis, Porter Five Forces and Competitor Analysis. To analyze the external condition, it used Resource Analysis and Value Chain Analysis are used. From all of these analyzes, a SWOT Analysis will be obtained to formulate the right strategy, and to propose Corporate, Business, and Functional Strategies that can be carried out by the company.

The right corporate strategy is the Diversification Strategy, this strategy aims to develop the company's products and markets to increase its competitiveness. Meanwhile, the right Business Strategy is Integrated Cost Leadership/Differentiation, this strategy aims to provide unique value to the company's products and create value chain efficiency.

Index Terms — Business Strategy, Corporate Strategy, SWOT Analysis, Vaccines.

I. INTRODUCTION

Migas and Non-Migas Processing Industry have become an industry that has the biggest contribution to the growth of Indonesia's Gross Domestic Product (GDP). In 2019, it was noted that this industry had a contribution of 19.7%. The Non-Oil and Gas Industry itself has a greater percentage of GDP distribution compared to the Oil and Gas Industry because it has a distribution value of 17.58%. Non-oil and gas industry in Indonesia consist of many industries. Based on statistical data from BPS Indonesia, the Food and Beverage Industry, the Textile Industry, the Chemical Industry, the Pharmaceutical and Traditional Medicine Industries, and the Metal Goods Industry have the most significant.

PT Bio Farma (Persero) is the only company that manufactures that producing vaccines in Indonesia. The company was first established in the Dutch colonial era, but over time finally, Bio Farma became a State-Owned Enterprise, which was legalized in 1997 based on Government Regulation No. 1/1997. Bio Farma in running its business, has three product lines in production, namely

Vaccines, Anti-Sera, and Diagnostics, but it focuses on Vaccines and Anti-Sera.

PT Bio Farma is currently moving towards Life Science and is the only company that manufactures vaccines for humans in Indonesia. And they focus all of its Company Resources to produce Final Product of Vaccines and Anti-Sera and Bulk that have the international quality to realize Indonesian people who have better health quality. But in the last four years, Bio Farma has experienced a decline in sales of its Virus Vaccine products, while for Anti-Sera and Diagnostic products, it has been running normally.

A. Business Issue

PT Bio Farma (Persero) is a state-owned company that is the only company that runs its business in producing vaccines in Indonesia. Given that the current level of interest in the use of vaccines has increased and the government has required vaccines in steps to improve the quality of life of the people of Indonesia, Bio Farma has an important role in helping these government objectives. Based on the data collection, it is known that Bio Farma is experiencing several problems, namely the Regulation of Halal Product, High Rate of Importing Raw Material, Declining in Export Sales because Polio Eradication, and Global Covid Outbreak. So the company has to immediately create and implement the suitable strategy that can improve its performance to overcome the business issue.

So, PT Bio Farma (Persero) certainly must immediately Based on these problems PT Bio Farma (Persero) has to immediately solve their business issue. Like improving the company's capabilities in order to compete in domestically or globally. So, in this research, author will propose the strategy that suitable for the company to overcome their Business Issue.

B. Research Objective

The purpose of this research is to propose an appropriate strategy for PT Bio Farma (Persero) in dealing with global competition by paying attention to Vaccine Commodity to increase market share on a global market and increase sales of Vaccine products from PT Bio Farma (Persero). To carry out the proposed strategy, the writer will analyze the business situation internally or externally to determine the company's capabilities.

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II. RESEARCH METHODOLOGY

The research methodology that will be used in this study is the Qualitative approach. This is done because of the limitations of the author in obtaining confidential company data and the agreement between the author and the company regarding the use of data that will be used during the preparation of this study so that the qualitative approach is the most appropriate approach to carry out this research.

Authors will collect data and study literature from various sources to obtain information about the situation of the industry around the company that is related to research, both internal or external data. The process of collecting these data the author obtained through several sources, namely PT Bio Farma (Persero) Annual Report, previous research containing additional information about the company's condition, and official articles that have information relating to PT Bio Farma (Persero).

III. EXTERNAL ANALYSIS

A. PESTEL Analysis

According to [1], [7] said that this analysis is to see how the environment in general consists of dimensions in a broad (macro) environment that affect directly and indirectly on companies in the industry. In analyzing the company's external conditions, the first Analysis Tool that the Author will use is PESTEL Analysis. There are 6 segments to be analyzed, namely Political/Legal, Economic, Socio-Culture, Technology, and Environment. The following is the company's external analysis using the PESTLE Analysis:

1. Political/Legal

In the political/legal analysis, [1] said that companies and governments try to influence each other. The company tried to be able to make the government in favour of the company.

There are provisions and challenges for food, drink, and pharmaceutical industries regarding the application of Law no. 33 of 2014, regarding Halal Product Guarantee (JPH Law), it will be a challenge for the pharmaceutical industry, especially PT Bio Farma (Persero).

As a state-owned company, PT Bio Farma (Persero) received Law No. 19 of 2003 concerning SOEs. To optimize its role and be able to maintain it in the development of a more open and competitive world economy. Management and supervision of SOEs must be based on the principles of good corporate governance. To date, PT Bio Farma (Persero) has routinely provided performance reports based on GCG principles in each of its Annual Reports.

Also, PT Bio Farma (Persero) also agreed with Law Number 40 of 2007 concerning Limited Liability Companies, one of the objectives of this Act concerning the use of GCG in the company. Because it will help the creation of an efficient, transparent, and efficient market with legislation. The establishment of a Limited Liability Company has two main interests, namely the interests of shareholders and stakeholders.

According to Government Regulation (PP) Number 76 in October 15, 2019 which was signed by the President regarding the addition of state capital participation in PT Bio Farma's share capital, which is also included by government shares in PT Kimia Farma and PT Indofarma. Bio Farma was

approved as the holding company of a pharmaceutical company that oversees **PT Kimia Farma Tbk**, and **PT Indofarma Tbk**.

In 2016, WHO has declared of Polio Eradication because this disease is continuing to decrease in number of cases. So, WHO has stopped the production of Polio Type 2. While this product is the main contributor in export sales of PT Bio Farma (Persero).

2. Economy

In 2014-2018 that the processing industry itself consists of the Migas and Non-Migas Sectors has a good contribution to the Gross Domestic Product (GDP). Where the Non-Oil and Gas Industry Sector consists of various industrial commodities. And as can be seen in Figure 2.3 that the Chemical, Pharmaceutical, and Traditional Medicine Industries have the second-largest contribution from the Non-Oil and Gas Industry at 1.68%.

So that the pharmaceutical industry itself has an important role in the economic growth in Indonesia. This will also encourage the government to be more supportive of the development of companies engaged in the pharmaceutical industry.

Besides that, Bio Farma has a challenges to reduce importing produk of their raw materials, because 90% of pharmaceutical raw materials/Active Pharmaceutical Ingredients (API) come from import product.

3. Socio-cultural

Until now the quality of public health in Indonesia is still very poor, according to the Global Health Index in 2017, Indonesia ranks 101st out of 149 countries in its public health index,

For example, the awareness of the Indonesian people to vaccinate is still very low. This things occur due to various factors, such as the high level of poverty and people's purchasing power to vaccinate, the community's lack of awareness of the importance of using vaccines, and the still high public doubts concern the content and the label of Halal products in vaccines.

But this is inversely proportional to the state of the global community that has begun to increase awareness of the effectiveness of vaccine products on their health. In 2018 Public trust in the function of vaccines globally 84% believe in vaccines is effective to increase their health quality, but that fact has differences in each country

4. Technology

In the pharmaceutical industry, Indonesia has been awarded as a Center for Excellence in Biotechnology and has support to developing the Biotechnology by OKI. With the advantages of applying Biotechnology, it is expected that the pharmaceutical industry can improve capabilities in the research and development of new pharmaceutical products. So as to accelerate the time of research and development.

In the application of biotechnology in the pharmaceutical industry, especially vaccine and anti-sera producers, it is possible that the RnD or production process can reduce or no longer use animal origin/ingredients, but still produce safe, quality and efficacy products.

5. Environment

In the pharmaceutical industry, the RND process and its production, of course, will use materials that contain chemicals that can pollute the surrounding environment and

can endanger the ecosystem around the company, and the company has the potential to produce waste in the category of Toxic and Hazardous Material (B3). So with these conditions, companies must follow Government Regulation (PP) No. 85 of 1999 concerning the management of Toxic and Hazardous waste by continuing to anticipate the management of waste.

B3 waste generated by the company and the need to manage include, animal carcasses, metals, chemicals, clinical waste, product packaging, product rejects, and expired products. But now Bio Farma is quite good in handling the issue of pharmaceutical waste, because Bio Farma has implemented environmental management innovations through CSR initiatives, that is Waste Management. This is also the company's effort to avoid having fake vaccines circulating in the market.

B. Porter's Five Forces Analysis

According to [1], [7] said that industry is a group of companies that produce products that are close substitutes. Analysis of the industry was carried out using Porter's Five Forces consisting of 5 factors, namely Threat of New Entrants, Bargaining Power of Suppliers, Bargaining Power of Buyers, Threat of Substitutes, and Rivalry Among Existing Firms. Analysis of the industry will determine the level of attractiveness of the industry that affects the profitability that can be expected in the industry.

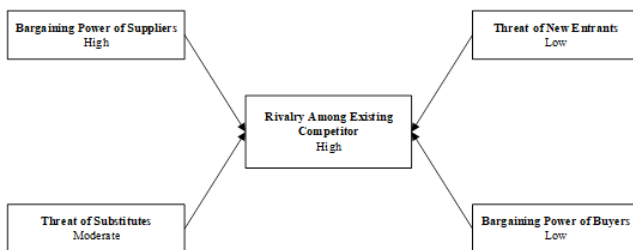


Fig. 1. Porter's Five Forces Analysis of PT Bio Farma (Persero).

As we can see from Figure 1, the conditions of Threat of New Entrants, Threat of Substitutes, and Bargaining Power of Buyers is Low. For **Threat of New Entrants** its cause of the barriers to entry the industry is very difficult, the newcomers have challenge about economics of scale, product differentiation, capital requirements, switching cost, access to distribution channels, and government policy. Then for **Threat of Substitutes** is Low because until now the vaccine is the only pharmaceutical product that is as a preventive actions to avoid several disaesas. And for **Bargaining Power of Buyers** is Low because in the pharmaceutical industry, both in Indonesia and abroad, there are very few companies that produce and sell vaccines. So, buyers in certain countries can only buy or use vaccines from certain companies that have distribution access in certain areas.

However, for **Bargaining Power of Suppliers** and Rivalry Among Existing Competitor is High. Because for Bargaining Power of Suppliers its cause because the raw materials used to produce vaccines that must have guaranteed quality and safety will affect the selection of good raw materials. So, it will be difficult to find and choose suppliers who can meet the qualifications of the company's requirements. So, the suppliers have a higher role, with quality products but limited

quantity.

Then for **Rivalry Among Existing Competitor** its cause the development of emerging disease viruses is still occurring, and people are still consuming vaccines. This has caused all vaccine and bulk producer companies to continue researching to make new products. So, the product differentiation is relatively low. But what can distinguish is the effectiveness and safety of these products to cure and ward off disease. Then all vaccine producing companies continue to improve the quality of all their products to be able to maintain trust and expand their markets.

C. Competitor Analysis

According to [1] said that the analysis of competitors consists of four components, namely objective, assumption, strategy, and capabilities. It is necessary to analyze the strategic group of competitors in the industry. Strategic groups are companies in the industry that have similarities in their strategic dimensions. Competitor analysis focuses on companies that compete directly.

Analysis of the objective components of a competitor is related to future target competitors in terms of profits, revenues, asset values, and product diversification. Then the analysis of the assumptions determined by competitors against the industry implies the direction of development in the industry anticipated by competitors. Then an analysis of the strategies carried out by competitors implies the resources, activities, and superior competencies that competitors build to implement strategies. And the last is the analysis of capabilities will provide guidance on products and services that will be built.

The author will choose a company that is engaged in the pharmaceutical industry and has a vaccine product commodity in its business to conduct a competitor analysis. Based on statistical data regarding the global vaccine sales market share, the author will conduct a Competitor Analysis with the object of the GlaxoSmithKline plc, Sanofi, and Merck & Co., Inc.

IV. BUSINESS MODEL CANVAS

In this section the author will analyze the Business Model of PT Bio Farma (Persero) using the Business Model Canvas (BMC) framework. According to [2] said that the Business Model describes the rationale of how an organization creates, delivers, and captures value.

In the Business Model Canvas, there are Nine Building Blocks in which each Block has a relationship with each other so as to produce a value in each element. The nine building blocks include Customer Segments (CS), Value Propositions (VP), Channels (CH), Customer Relationships (CR), Revenue Streams (RS), Key Resources (KR), Key Activities (KA), Key Partnerships (KP), and Cost Structure (C\$). Figure 2 below shows the Business Model Canvas of PT Bio Farma (Persero).

Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
1. State-Owned Corporation (BUMN) 2. The National Agency of Drug and Food Control (BPOM) 3. World Health Organization (WHO) 4. The Organisation of Islamic Cooperation (OKI) 5. Governance 6. Supplier 7. Distributor 8. Bilateral Relationship	1. Demand Forecasting 2. Training of Employee 3. Vaccine and Bulk Production 4. Product Research 5. Domestic and Global Sales 6. Certification Key Resources 1. Human Resource 2. Research and Development 3. Production Operator 4. Marketing 5. Website 6. Building (Company and Clinic) 7. Research and Production Machine	1. Prioritizing Product Quality, Safety and Efficacy 2. Meet WHO Pre-Qualifications 3. Already applying biotechnology 4. Easy Tracking & Tracing of Product Distribution 5. Broad distribution range 6. Developing of Halal Products	1. Website 2. Call Center 3. Customer Relationship Management (CRM) 4. Loyalty Program Channels 1. Company's Website 2. Immunicare (Clinic)	1. Domestic Market - Government Market - National Private Market 2. Global Market - Institutional Exports (WHO, UNICEF, and PAHO) - Partnership Exports (B2B, B2G, Bilateral)
Cost Structure		Revenue Streams		
1. Sales and Promotion Cost 2. Operation Cost 3. Salary Cost 4. Research and Development Cost 5. Maintenance Cost 6. Overhead Cost 7. Electrical Cost 8. Inventory Cost 9. Training Cost		1. Revenue from Vaccine and Bulk Sales 2. Revenue from Clinic Services 3. Revenue from Partnership Products		

Fig. 2. PT Bio Farma (Persero) TOWS Matrix.

V. TOWS MATRIX

TOWS Matrix is a Systematic Tool that is used to create various strategies for companies by looking at the results of an analysis of the company's internal conditions (Strength and Weakness) and external (Opportunities and Threat). The Strength, Weakness, Opportunity, and Threat variables that used in this research through the SWOT Analysis. According to [3], [6] SWOT Analysis is the analysis to formulating strategies through Strength, Weakness, Opportunity, and Threat that obtain from internal and external analysis.

By using the analysis of the four conditions of the company, four forms of corporate strategy will be produced SO Strategies (Aggressive Strategy): Is a strategy used to maximize the company's internal strength to take advantage of opportunities from the company's external conditions, ST Strategies (Diversification Strategy): This is a strategy used to maximize the company's internal strength to avoid threats from the company's external conditions, WO Strategies (Turn Around): This is a strategy used to maximize the opportunities available by external companies to reduce the company's internal weaknesses, and WT Strategies (Defensive Strategy): This is a strategy used to minimize weaknesses and threats that might occur.

The following is a table of the results of the company's strategy using TOWS Matrix for PT Bio Farma (Persero) based on the results of the SWOT analysis that the author made.

TOWS MATRIX		STRENGTH	WEAKNESS
		S1: Good Distribution Channel (Inbound and Outbound Logistic)	W1: Long time period of RnD Process (Key Activities)
S2: Good Pharmaceutical Technology Resources (Technology Resources)	W2: Lack of Performance Management System (Organizational)		
S3: Good Competency of Human Resource (Human Resources)	W3: High Cost of Procurement (Procurement)		
S4: Already have pre-qualified certification from WHO (Reputational Resources)	W4: Lack of JPH Product (Marketing and Sales)		
S5: Good After-Sale Services (Service)	W5: Lack of Production Capacity (Resources)		
S6: Wide Domestic & International Market (Marketing and Sales)			
OPPORTUNITIES	SO Strategies	WO Strategies	
O1: Full Support from the Government (Political / Legal)	1 Expanding the Sales and Distribution Network in All Countries (S1, O1, O2, O3, O5)	1 Increase Technology Utilization to Increase RnD Capabilities for accelerate the JPH product development (W1, W4, O1)	
O2: Low Bargaining Power of Buyers	2 Improving Research and Development Competencies to develop new products and halal products (S2, S3, O1, O5)	2 Production Capacity for each product commodities (W6, O1, O6)	
O3: Low Threat of Substitutes			
O4: Little Domestic Competitor	3 Improve Customer Relationship program to socialize the benefits of using vaccines to improve health quality (S3, S4, S5, S6, O3, O5)	3 Increase the capability of technological facilities and infrastructure that can improve the operational activities (W1, W6, O1, O6)	
O5: Good Public Awareness of The Importance of Vaccine (Socio-Cultural)			
O6: Has Technology Development Support from Stakeholders (Technology)		4 Improve supervision of research and production activities with health institutions/government (W4, O1)	
THREAT	ST Strategies	WT Strategies	
T1: High Rivalry Among Competitor	1 Making products that using different ingredients but still have effective, efficient, and efficacy qualities that can be consumed by all people in the world (S2, S3, S6, T1, T3)	1 Conduct partnerships with local companies that produce the vaccine and anti-sera raw materials and packaging product (W3, T2)	
T2: High Bargaining Power of Supplier			
T3: Guaranteed Halal Products Law (JPH Law in Indonesia) (Political/Legal)	2 Increase training program to improve HR Competencies (S3, T1, T3, T4, T5)	2 Increasing synergy with subsidiaries to assist in the procurement of raw materials (W3, W4, T2, T3)	
T4: Rapid Development of Vaccine Products (Environment)	3 Conduct Transfer Competence with Expert Scientist or Partnership Institutions/Company (S3, T1, T3, T4, T5)	3 Improving the Performance Management System to increase performance of all employee (W1, W2, W5, T1, T4, T5)	
T5: The Better Human Resource Competencies from Competitors	4 Increase contributions in health programs with international institutions or organizations or bilateral countries (S1, S4, S5, T1)		
T6: Polio Eradication Statement	5 Add new business lines in accordance with the capabilities of the company (S2, S3, T1, T4, T5)		
T7: The emergence of new diseases/viruses	6 Increase production and sales capacity for products that have a high volume of demand in the domestic and global sectors (S1, S3, S4, T4, T6)		
	7 Participate in research and development of new vaccine products (S2, S3, T4, T5, T6, T7)		

Fig. 3. SWOT and TOWS Matrix of PT Bio Farma (Persero).

VI. CONCLUSION

The strategy that suitable for PT Bio Farma (Persero) according to the external and internal conditions of the company to overcome the business issue such as JPH Law Products, High Rate of Importing Raw Materials, Decreasing in import sales, and Covid-19 Outbreak is through the Business and Corporate Strategy [4], [5].

For the **Business Strategy**, the company must change their strategy from Differentiation Strategy to Integrated Costleadership/Differentiation. In Differentiation Strategy, company should accelerate the developing Halal Product by conducting collaboration with Government and Local/Global institution in developing Halal Product. But in Cost Leadership, the company should reduce their expense from importing the raw materials by conduction collaboration with subsidiary that can produce raw materials which can use by Bio Farma and improving the independency in pharmacy industry, improving Synergy between BUMN, and improve TKDN by reducing importing of raw materials.

For the **Corporate Strategy**, the company has to conduct Diversification Strategy in their business process to overcome

the business issue about decreasing in export sales and Covid-19 outbreaks. It can be done by Develop independently of new vaccine product that has high potential market, develop Covid-19 Vaccine independently or by partnership, increasing vaccine product that has the greatest number of needs, add new vaccine products for vaccines that have high sales potential, and create new business segment like Blood Product, and Bio Similar Products.

In this research, the author will suggest Strategic Maps as a guide for the company to implement the proposed strategy that the author proposed. The figure below is a strategic map for PT Bio Farma (Persero):

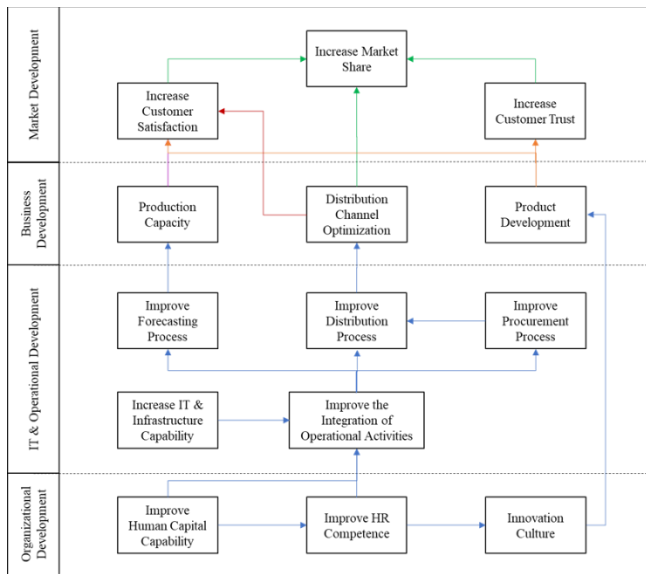


Fig. 4. Strategic Map.

After authors created a Strategic Map for Business Level Strategies in PT Bio Farma (Persero), the next step is to develop an organized process (Implementation Plan Timeline) that will be carried out by the companies. Below is a table of the Implementation Plan Timeline:

Integrated Cost Leadership and Differentiation	Implementation Plan	2021				2022			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Business Development	Expand Distribution Channel according to International Sectors demands								
	Improve marketing and sales relationship with International or Domestic customer								
	Develop New Vaccine and Anti-Sera Products that have JPH-Labelled								
	Develop New Product Lines with Company Subsidiaries								
	Conduct partnership with local company to supply raw materials								
	Conduct synergy with company subsidiaries to supply raw materials								
	Conduct New Partnership with Global Company to develop new vaccine product innovation								
	Conduct knowledge transfer with Global or Local institutions and organizations and scientist experts to Improve Rnd Capabilities								
IT & Operational Development	Develop or Improve existing company production facilities in order to increase company productivity								
	Deploy or Upgrade company infrastructure & IT								
Organizational Development	Placing employees according to their talents and skills								
	Designing new KPI that should measure for each Division or Employee								
	Develop a new Performance Management System to improve Measurement of Employee Performance								
	Improve manpower planning system								
	Designing new training program								
	Conduct knowledge transfer by a partnership with Global or Local institutions and organizations and scientist experts.								

Fig. 5. Implementation Plan.

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