

# CHAPTER I

## INTRODUCTION

This chapter contains the background of the research, the problem formulation, the research objective, the research scopes, and the outline of the report.

### 1.1 Background

The growth and development that occurs in the industrial segment in Indonesia cause the competition that occurs between companies to be increasingly tight. One of them is the pharmaceutical industry, which is currently faced with various conditions that can provide prospects and challenges for the companies that run it. Therefore, pharmaceutical companies in Indonesia are required to compete by making innovations, promotions, good marketing systems, and optimal product quality.

Innovation is starting or introducing something new. The definition of innovation includes the results of new products and processes. High innovation will increase the company's competitive advantage, ultimately impacting company performance (Hartini, 2012). The definition of innovation includes the results of new products and processes. High innovation, both process innovation and product innovation will increase the company's ability to create quality products. Innovation capability is an organization's ability to adopt or implement new ideas, processes, and products (Hurley & Hult, 1998). According to El mquist (2009) in Martinez et al (2011) stated that the ability to innovate is to generate new ideas and knowledge to take advantage of market opportunities. Meanwhile, the ability to product innovation, according to Wonglimpiyarat (2010) in Martinez et al (2011), is the ability to bring new knowledge or technology to develop new products. According to (Martinez et al., 2011), three factors affect the ability of product innovation, namely knowledge, organization, and human factors.

PT Penta Valent Padang, a drug distributor company, is one of the companies that are faced with this condition. The number of competitors makes PT Penta Valent is required to carry out various innovations so that the company can be superior to other companies. Considering several existing competitors is expected that PT Penta Valent can make good changes so that it can outperform other companies. The existence of several competitors requires this company to create a better strategy for seizing the existing market. One way to do this is to make changes in distributing the products sold using two-wheeled vehicles.

Two-wheeled vehicles are considered more flexible than four-wheeled vehicles. Besides, using two-wheeled vehicles is considered more efficient than using four-wheeled vehicles in distribution. So the company hopes that using two wheels as a transportation medium can simplify, speed up and save on pharmaceutical product distribution services. The following is the use of fuel in motor vehicles based on Gross Vehicle Weight (GVW).

**Table 1.1** Vehicle Fuel Consumption Data by Vehicle Type

Vehicle category		Fuel Consumption km/L
Motorcycle	-	51
Passenger car	CC <= 1500	8.9
	1501<=CC<=2500	12.8
	2501<=CC<=3000	7.2
	CC>3001	6
Bus	GVW 5-10 Tons	3.45
	GVW 10-24 TONS	2.22

(Source: Nasri & Utomo, 2015)

Based on **Table 1.1** it can be seen that motorcycles have the highest fuel consumption value of Km/L. It means that motorcycles have more value compared to other vehicles, where the value of motorcycle fuel consumption is 51 Km/L while cars with 1500 to 2500 CC have a value of fuel consumption is 12.8 Km/L, this value is almost four times the value of a motorcycle fuel consumption. So, it is

hoped that using motorbikes can save the company more costs in distributing drugs to several places.

In conducting the distribution process of drugs using PT Penta Valent applies the use of motor boxes in its distribution. Motorcycle boxes are considered to be more flexible in transporting various goods, coupled with a large enough capacity and affordable price, making the motorbike box one of the best choices in distributing or transporting goods in general. In general, there are two types of motorcycle boxes on the market today and they are known as the topbox (motor box placed on the back of the motorcycle seat) and sidebox (motor box installed on the right and left of the motorcycle). However, apart from that, several types of motor boxes are also tailored to the needs, such as those applied by PT Penta Valent.



**Figure 1.1** Drug Distribution Motor Box PT Penta Valent

In **Figure 1.1** can be seen the shape of the motor box used by PT Penta Valent. The box uses a cover with a swing arm concept and safety using a conventional padlock. At the bottom of the box, there is a bracket to connect the box to the motor body, and the bracket is paired to strengthen the position of the motor box. The inside of the motorcycle box only contains an empty space to put

things, and the room is only limited to a motorcycle seat holder. While the bottom of the box is a small room to put the driver's needs.



**Figure 1.2** Bracket of Drug Distribution Motor Box PT Penta Valent

*Badan pengawas obat dan makanan* (BPOM) of the Indonesian Republic is an organization that regulates and supervises products in the form of drugs and food. BPOM has set guidelines for the implementation of good drug distribution methods. One of the things emphasized by BPOM agency is that the vehicles used for delivery must be in good condition and roadworthy. In addition, BPOM agency also emphasized in the Regulation of *Badan Pengawas Obat dan Makanan Nomor 6 Tahun 2020* there are several requirements for the condition of the storage space in the vehicle such as clean, dry, free from the entry of rodents, animals or other insects.



a. Inside the Box



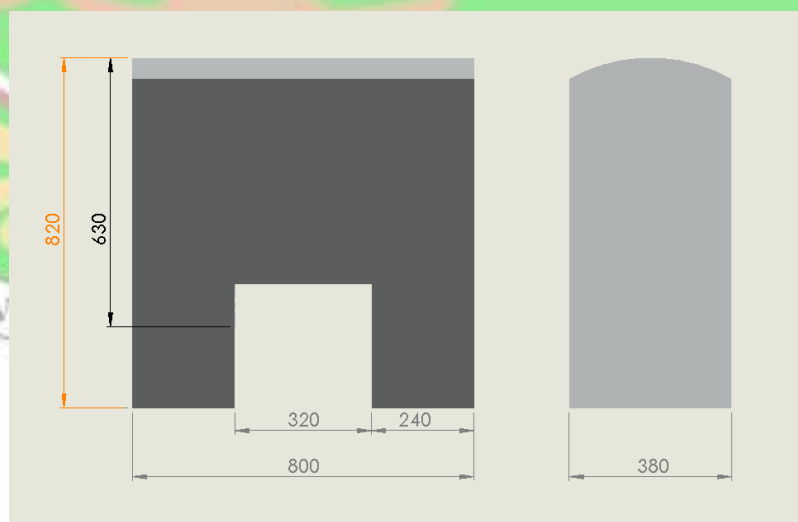
b. Box Cover Part

**Figure 1.3** (a) Inside the Box, (b) Box Cover Part

In **Figure 1.3** it can be seen that the cover of the motor box used is dark and dusty, of course violates the rules that have been made by BPOM where in the *Peraturan Badan Pengawas Obat dan Makanan Nomor 6 Tahun 2020* it is stated that “drugs and/drug ingredients must be handled and stored in such a way as to prevent spills, damage, contamination, and mix-ups. Drugs and/or medicinal ingredients should not be placed directly on the floor”. In **Figure 1.3** it can also be seen that the driver opens the box from the top by swinging so that when it rains, it will cause water to enter heavily, coupled with the absence of a drain hole will cause water in the box to stagnate and trigger bacterial growth. So, it can be concluded that the motor box of PT Penta Valent needs to be updated and developed so that the rules from BPOM can be applied more optimally.

According to *Peraturan Pemerintah Nomor 74 Tahun 2014 tentang Lalu Lintas dan Angkutan Jalan*. In that regulation, the technical requirements for the transportation of goods by motorbike are contained in Chapter 10, Verse 4, namely:

1. The payload has a width not exceeding the steering handlebars.
2. The height of the load does not exceed 90 cm from the top of the driver’s seat.
3. The payload is placed behind the driver.



**Figure 1.4** Drug Distribution Motor Box PT Penta Valent

Based on these rules, it can be concluded that the box delivery PT Penta Valent has not met the standards set by the *Peraturan Pemerintah Nomor 74 Tahun 2014*. It can be seen in **Figure 1.4** box delivery of PT Penta Valent has a seat height of 63 cm with a width of 80 cm, whereas the width of the motorcycle handlebars is 68 cm, so it can be concluded that there are rules that have not been perfectly applied to the motorcycle box. Based on *Peraturan Pemerintahan Nomor 74 Tahun 2014 tentang Lalu Lintas dan Angkutan Jalan* and *Peraturan Badan Pengawas Obat dan Makanan Nomor 6 Tahun 2020*, the following are some of the problems that exist in the drug distribution motor box of PT Penta Valent:

**Table 1.2** Problems Related to *PP No. 74 Tahun 2014* and *Peraturan BPOM No. 6 Tahun 2020*

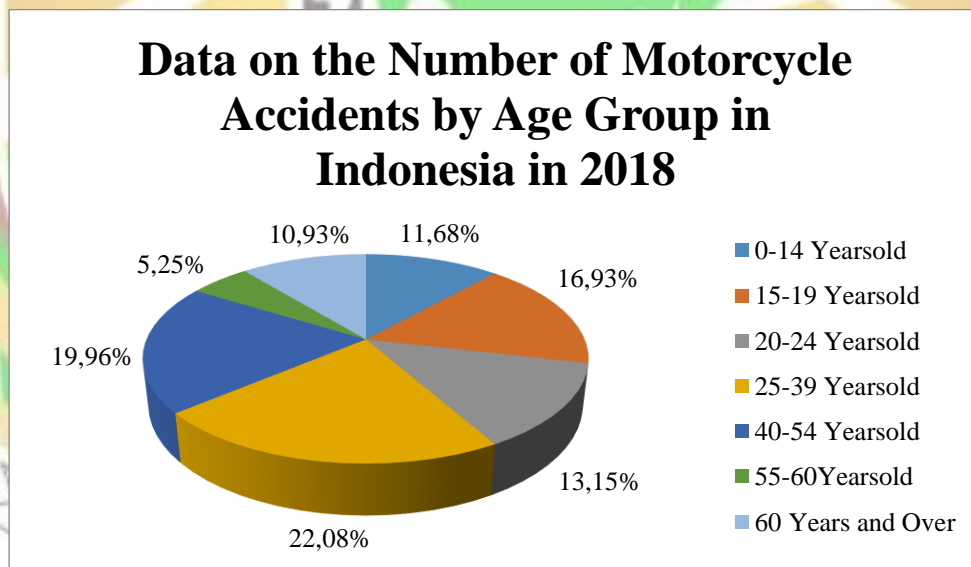
No	Problem
1	Box cannot keep the water coming in rainy conditions
2	There is a shock that affects the condition of the drug when distributed
3	There is no barrier, so if a material spills, it will affect other drugs
4	The width of the motorcycle box violates government regulations.

In the distribution process using a motor equipped with this box, in addition to the constraints in terms of regulation, there are also several obstacles faced by the driver and the company itself. Based on interviews conducted with two motorcycle drivers of PT Penta Valent, several problems became complaints for motor drivers when carrying out the distribution process. Some of these complaints are as follows:

**Table 1.3** Motorcyclists' Obstacles in Distributing Drugs

No	Problem
1	Rainwater enters the seat because the motorcycle seat is cut
2	It is difficult to fill up gas because the fuel tank is a bit closed
3	The center of gravity of the motor is getting higher making it difficult to make corners
4	The view from the rearview mirror is blocked by the box.

Based on these constraints, it can be seen that these factors can lead to accidents while driving. This is certainly not expected by the company or the driver from the drug distributor, so handling is needed in the design of the motor box that has been used. So that the factors that become the possibility of accidents to the driver can be overcome and the company can avoid material and non-material losses. The following is data on motor vehicle traffic accidents by age group in Indonesia in 2018.



**Figure 1.5** Motor Vehicle Traffic Accident Data By Age Group in Indonesia in 2018 (Source: GemaPos)

Based on **Figure 1.5**, it can be seen that the number of victims who experienced motor vehicle accidents was 139,374 people. The number is divided into several age groups, including ages 0-14 years, 15-19 years, 20-24 years, 25-39

years, 40-54 years, 55-60 years, and 60 years and over. The age group that has the highest number of cases is the age range of 25-39 years with 22.08 percent, while the least cases are in the age range of 55-60 years with a total of only 5.25 percent. Most of these ages are productive working age, which is of course also a challenge for the distributor drivers of PT Penta Valent, so it is hoped that there will be an update in minimizing motorcyclists' work accidents, especially at PT Penta Valent drivers. Therefore, in this study, researchers plan to redesign the motor box according to the needs of drivers and companies so that they can meet the wishes and existing provisions.

## **1.2 Problem Formulation**

Based on the previous background discussion, the formulation of the problem in the research that will be raised is How to redesign the drug distribution motor box and its accessories according to the wishes of PT Penta Valent motorbike drivers and distributor companies?

## **1.3 Research Objectives**

The goal to be achieved in this research is to redesign drug distribution motor box so that it is in accordance with the provisions, desires, and convenience of PT Penta Valent motorbike drivers and distributor companies.

## **1.4 Research Scope**

The implementation of the research has several problem limitations so that the discussion is not too broad so that the target of the driver's and company's desires is achieved accurately. The limitations of the research problem are as follows:



1. The research aims to redesign the motor box product without replacing the existing motorcycle.
2. The product to be made is a temporary storage place for distributing drugs

### 1.5 Outline of Report

The systematic writing of this research proposal is as follows:

#### CHAPTER I INTRODUCTION

This chapter contains the background of the research problem, problem formulation, research objectives, problem boundaries, and systematics of writing research reports.

#### CHAPTER II LITERATURE REVIEW

This chapter aims to obtain theories and methods appropriate to the problem.

#### CHAPTER III RESEARCH METHODOLOGY

This chapter contains the stages used in conducting research until the final completion of the research report.

#### CHAPTER IV PRODUCT DEVELOPMENT

This chapter outlines the data collection stages required for problem solving and redesigning motor box.

#### CHAPTER V ANALYSIS

This chapter contains an analysis of the results of drug compartment for distribution purposes.

## CHAPTER VI CLOSING

This chapter contains conclusions from the results and analysis and offers suggestions for improvement to improve further research.

