

# CHAPTER 1

## INTRODUCTION

### 1.1. Background

The research and development in the activity of industrial are inevitable, including risk management. Risk management mainly deals with 3 core aspects of an industrial company. They are assets, safety, and environment. In order to protect these three aspects, scientific assessment is required to help the company to prioritize and to map the potential harm which might pose a threat to the company. This assessment term in one-two occasions may address to the wrong format. This is due to it involves normative suggestion from people who are not certified or have a limited capacity of imagination or even knowledge about the research area. Industrial management thrives on overcoming this issue by arising the method of risk assessment and divides them into very distinctive ones, by peering it per case. On the other hand, it means that risk assessment will require special treatment for each case that it deals with. This, in a nutshell, utters that risk management can be as important role as industrial activity goes diverse and develops time by time.

Motet & Bieder (2017) stated that the presence of a technological risk comes from the occurrence of unpredicted circumstances which consists of both possible and probable. The probabilistic approach to risk analysis encompassed a new form to the recommendation claiming that risk analysis are commonly correlated to the unpredicted scenario, by enclosing a probability to the emergence of harm. It is to say that harm does not always have a role to be in the same circumstances as the sequel.

The risk to uncertainty guided the risk analysts to confusion to distinct the wide area of knowledge applied in the domain until Althaus proposed the comparative table of various discipline. The picture below directs into proper treatments for each category of discipline with the aim to make it uniform and provide contributions to the continued development of each discipline (cited Motet & Bieder, 2017).

Discipline	View on risk and safety	Knowledge Applied to the unknown (domain)
Logic and mathematics	A calculate phenomenon	Calculation and modeling (method)
Science and medicine	An objective reality	Principles, postulates, and calculations (ontology, epistemology and methods)
Social sciences	A cultural or societal phenomenon	Culture, social constructs (epistemology and method)
Economics	A decisional phenomenon	Decision-making theory and principles (epistemology and methods)
History and the humanities	As a story	Narrative (epistemology)
Philosophy	A problematic phenomenon	Wisdom (ontology, epistemology)

*Figure 1. 1 Treatment of Risk Based on Discipline Category*

In the economic scale in terms of risk assessment, the focus is to create a decisional phenomenon which also discusses principles and decision-making theory. PT Sport Gloves Indonesia (PT SGI) is the manufacturing company with made to order policy. It has serviced many customers, either local or foreign. According to the short interview conducted by the author to Human Resource Development (HRD) manager, the company received several orders from the customers and there usually the problems emerge, such as the company did not have a number of required labors, qualified labors, production error and even unexpected material. As shown in the table below, the company received order and defect data in 2019 from the customer X. The news becomes one of the company's as it correlates with the revenue of profit.

Table 1. 1 Defect in Sewing in January 2019

1341# PT SGI Project on Product Z				
Production Schedule	Product	Production Target	Defect	Actual Production
Day 1	Z	335	20	315
Day 2	Z	335	38	297
Day 3	Z	335	22	313
Day 4	Z	336	39	297
<b>Total</b>		<b>1341</b>	<b>119</b>	<b>1222</b>
<b>Average</b>		<b>100%</b>	<b>9%</b>	<b>91%</b>

Table 1. 2 Defect in Sewing March 2019

3576# PT SGI Project on Product Z				
Production Schedule	Product	Production Target	Defect	Actual Production
Day 1-5	Z	894	76	818
Day 6-11	Z	894	69	825
Day 12-17	Z	894	68	826
Day 18-23	Z	894	80	814
<b>Total</b>		<b>3576</b>	<b>293</b>	<b>3283</b>
<b>Average</b>		<b>100%</b>	<b>8%</b>	<b>92%</b>

Table 1. 3 Defect in Sewing in July 2019

<b>996# PT SGI Project on Product Z</b>				
<b>Production Schedule</b>	<b>Product</b>	<b>Production Target</b>	<b>Defect</b>	<b>Actual Production</b>
January	Z	166	22	144
February	Z	166	15	151
March	Z	166	10	156
April	Z	166	17	149
May	Z	166	44	122
June	Z	166	42	124
	<b>Total</b>	<b>996</b>	<b>150</b>	<b>846</b>
	<b>Average</b>	<b>100%</b>	<b>15%</b>	<b>85%</b>

The table tells us that the number of defects are derived from data history and one of them is obtained from the direct observation done by the author. This percentage is not tolerated by the company with its established line balancing theory ratio. It demands to be accurately 0% of the defect. This has become the fundamental reason for the author to conduct the research which will later also include the root cause problems as the media aiding alternatives and cost-benefit analysis as the comparative visual result for helping the manager to realize feasible and profit-oriented decision-making for the sake of company's revenue on this particular area.

This research does not merely focus on mitigating risk with its fundamental data of defects. The contributions will also include finding root causes of the problem and to provide comparative financial investment, both fixed and variable cost. Root causes of the problem are intended to prevent this research from normative opinions which can lead to mis anticipation. Conducting root causes of the problem will provide a space for an expert who comprehends a little component of trouble and let him aspire his thoughts from a different angle of perspective which is useful for this research. Furthermore, the researcher will input cost-benefit analysis to be an alternative

comparison in this research. The comparative financial investment in the given solution later will help the manager to decide, not based on his interest, yet based on the company's main interest. Thus, this is a great opportunity to release a theme like this research as the form of development in risk management.

## **1.2. Problem Formulation**

In accordance to the background above, the root question is to overcome the Company Business needs in terms of analyzing priority of solution in PT Sport Glove Indonesia (SGI) and to assess the mitigation financially with the available comparison.

1. What are the root cause of the defect in the sewing area for product Z?
2. How are the risk assessment in the sewing area for product Z?
3. How are the risk assessment in the sewing area for product Z after having mitigated ?

## **1.3. Objectives of Research**

The goal of this research is to provide the benefited / appropriate mitigation and analysis of it.

## **1.4. Scope of Problem**

The scope of this research are:

1. The available solutions are only based on the responds from involved manager and workers.
2. The financial of the defect cost is based on the manager's judgement.
3. The restriction of cost is only based on production expense which include defects, overtime, and replacement cost.
4. The risk assessment can only be applied in the process of sewing at PT Sport Glove Indonesia.

### **1.5. Benefits of Research**

This research aims to provide an analysis of the defect that occurs in the sewing process in PT Sport Glove Indonesia (SGI).

### **1.6. Systematic Writing**

This undergraduate thesis adheres the systematic writing in accordance with the format below:

#### **CHAPTER I**

#### **INTRODUCTION**

This chapter contains a preliminary description of research activities, on the background of the problem, formulation of the problem, the objectives to be achieved, the benefits of research and systematic writing

#### **CHAPTER II**

#### **LITERATURE REVIEW**

This chapter elaborates on the theories of reference books and journals as well as the results of previous researches related to the research problem which are used as a reference for problem-solving.

#### **CHAPTER III**

#### **RESEARCH METHODOLOGY**

Contains the description of the framework and lines of inquiry, the research object to be studied and the methods used in the study.

#### **CHAPTER IV**

#### **COLLECTION AND PROCESSING DATA**

Contains the data obtained during the research and how to analyze them. Data processing result is displayed either in the form of tables and graphs. Data processing includes an analysis of the results. In this section is provided a reference for the discussion of the results to be written in Chapter V.

**CHAPTER V**

**DISCUSSION**

It contains discussion on the results of data processing that have been conducted in research, compatibility with the objectives of research so as to produce a recommendation.

**CHAPTER VI**

**CONCLUSIONS AND RECOMMENDATIONS**

Contains the conclusion of the analysis and any recommendations or suggestions based on the results that have been identified during the study.

**REFERENCES**

**APPENDIX**

