

CHAPTER I INTRODUCTION

I.1 Background

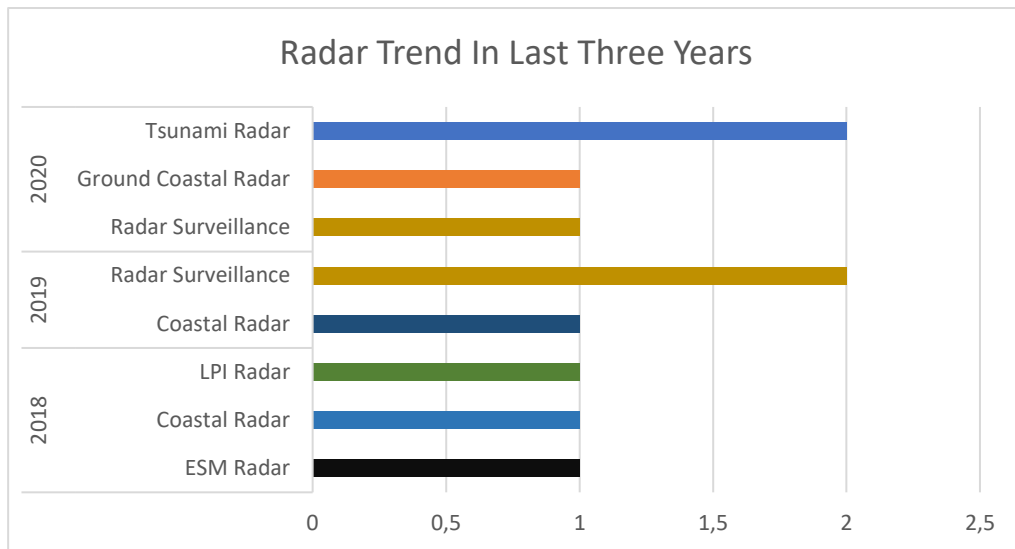
Human resources play an important role in improving the company's competitiveness. In addition, human resources have a role to support the realization of the company's strategic plan and increase company productivity. (Robins, 2012). The availability of human resources in organization is an important element in the organization or company. Even though, human resources itself is one of the biggest expenses of a company's operations, so every company wants to optimize their human resources. To make this happen, human resources planning must be done properly.

PT RTI is one of the companies that run in the Indonesian defense industry. PT RTI is located on Jl. Mandolin No.7 Bandung. PT RTI was established in 2016 and is now one of the official INDHAN certified from the Ministry of Defense. PT RTI's flagship products are defense radars such as LPI radar, ESM radar, Coastal radar and Manpack radar, etc.

PT RTI dominates the radar market in the military, police and other government organizations. Besides that, the radar user of PT RTI is also come from the marine sector. PT RTI is included in the type of telecommunications and electronics manufacturing because the product is focus in telecommunications sector. The company's production process uses a made to order (MTO) process and takes a long time to complete due to the complexity of the radar.

So, the production process is done when there is an order from the customer. The production trend in the last three years is like the graphic on the below.

Figure I.1 Trend Radar Data



From the table above it can be seen the radar trend in the last three years. Total radar that already made during the 2018-2020 is ten radars and in the 2020 increased by one radar with the most produce goods is tsunami radar and radar surveillance.

The number of employees of the production division at PT RTI are 10 persons. Table I.1 is the number of employees of the production division of PT RTI.

Table I.1 Number of Employees
source: (Company Data 2021)

Job Type	Number of Existing Employees
Designer	2 persons
Mechanic	3 persons
System Developer	3 persons
Quality Control Staff	2 persons
Total	10 persons

The data of the number of existing employees is based on company data in 2021. There are two divisions in the company, the research division in charge of developing existing radars and making new innovations as well as conducting market research and production divisions in charge of producing radar. In Table I.1 can be seen the number of employees of each job in the production division.

There are 2 designers, 3 mechanics, 3 system developers and 2 quality control staff. The total number of employees in the production division is 10 persons. The high demand every year causes the company to have regulations that are adding working hours and working days. Poor air circulation and relatively small rooms have an impact on the difficulty of production division employees to work on some of their work and this has an impact on the workload of employees (Perdana, 2021). Here is the production data for the last three years of 2018 to 2020 obtained from PT RTI.

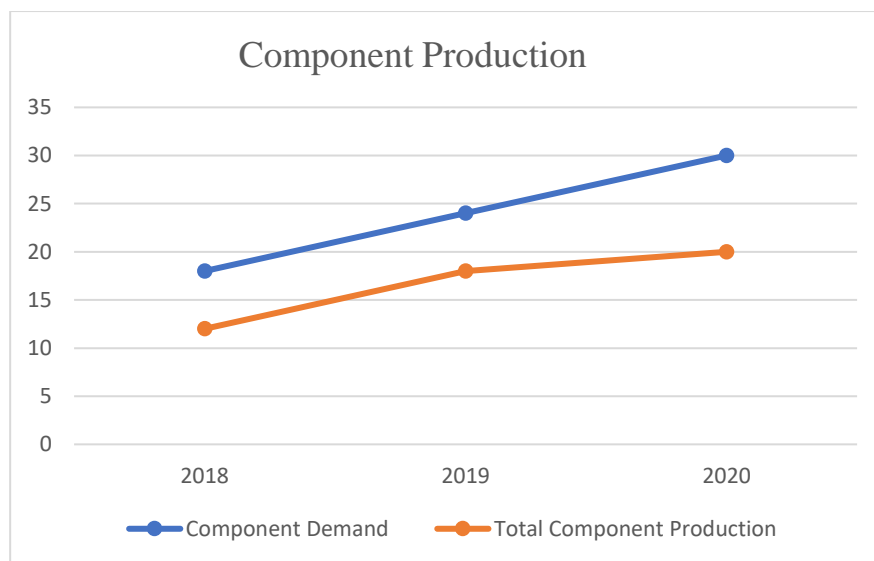


Figure I.2 Component Production Last 3 years
source : (Company Data 2020)

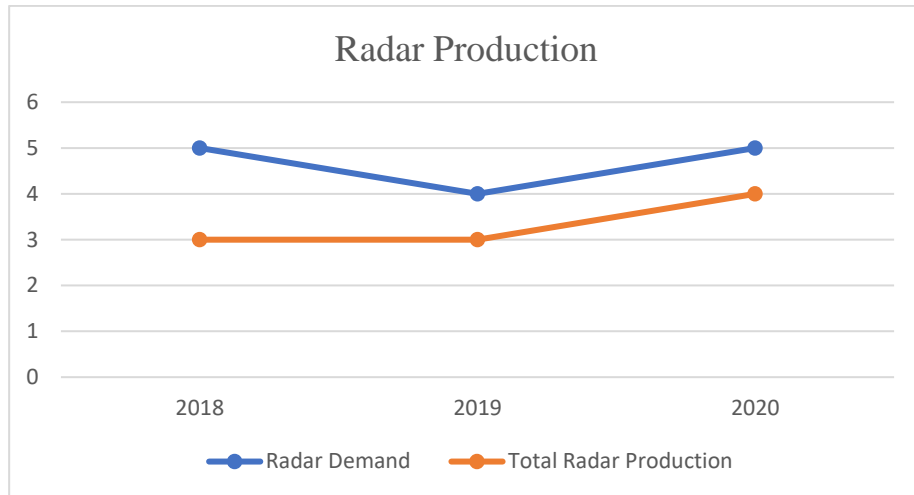


Figure I.3 Radar Production Last 3 years

source : (Company Data 2020)

There are 2 types of production process namely radar production process and component production. Components produced in the form of various types of antennas such as RF antenna and S-Band antenna. There is a gap in production each year. With such a gap, the company's productivity can be said to be low because good company productivity is when the company can reach the company's production target in accordance with the target time (Sedarmayanti, 2001).

Demand increasing causes employees to work more than the hours they should, and this will impact to their physical workload. When demand increases, some employees also must do work that doesn't match to their job description and they think it becomes a multiple workload and it happened because lack of manpower in production division especially in mechanic.

The main activity done by the production division is mostly using their physic. Designer must sit in front of the computer and doing the design for long time. Mechanic doing their job by standing and focused on the precision of material. System developer is kind a same with the designer because they have to sit and their eyes focused on the computer screen for a long time. Quality control staff must walk and controlling the production carefully so that there are no mistakes in goods. This all activity required the fit physic to doing that.

The defense radar industry requires adequate quantity and quality of human resources to increase radar production and fulfill demand to support the government's strategic plan. In addition, the cause of unfulfilled target production is due to hard-to-obtain materials some parts even must be imported from abroad. This import process takes time and costs a lot of money.

Based on the problems described above, observations were made on the production floor of PT RTI on the workload they faced by improving workloads in the production division of PT RTI. Here is a fishbone diagram of the problem at PT RTI contained in Figure I.3.

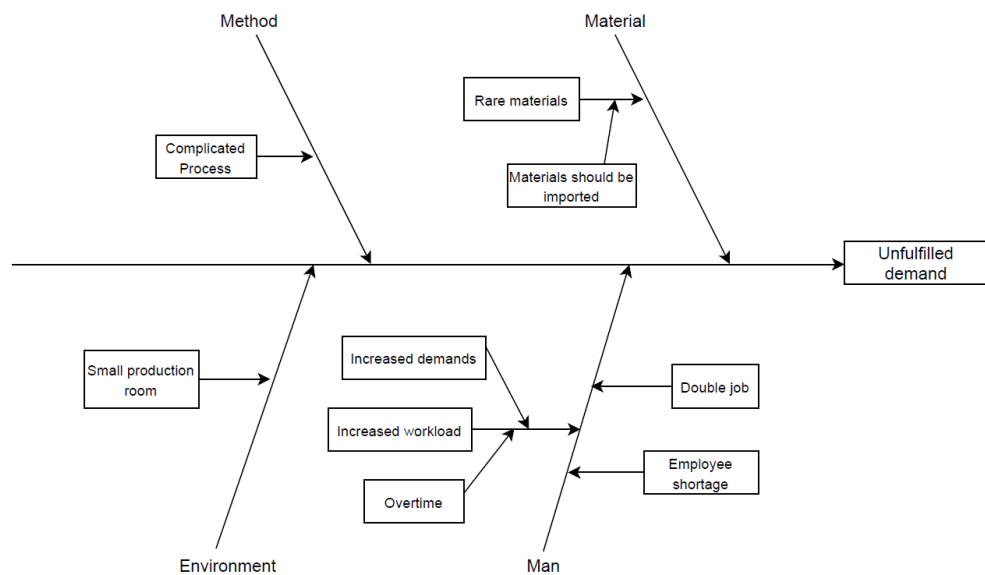


Figure I.4 Fishbone Diagram

Based on the fishbone diagram above can be seen that the main problem is that the production target was unfulfilled. The first problem come from Man sector, there is a lack of employees because the company didn't do their planning for their employee properly before and this cause an increased in workload. The increased workload is due to the increasing demand every year and lack of employee caused production division employees having to work more than the hours they should.

The next factor that affects is method, the process of making radar is very complicated because in the process of making radar it requires precision and

accuracy in making it. If there is only one error then the radar may not work and besides that the cables installment also requires accuracy in the process. Therefore, the manufacture of radar takes a relatively long time and quite complicated process. The next factor is Material. Not all materials are available in Indonesia so it must be imported from abroad and this takes time and costs a lot of money.

The next factor is Environment. The working environment at PT RTI is relatively small and hot due to the many materials piled up in the office and the lack of air ventilation. From the results of the analysis can be concluded into an overview of a problem Here is the conclusion of the analysis of the diagram.

Table I.2 Conclusions of Fishbone Diagram

<p style="text-align: center;">Man</p>	<p>The increasing demand makes the employees of the production division have to work harder, especially the fabrication part to meet the production target and also when the demand increases the employees have to do work that is not in accordance with the job description. This means that the workload has not been optimally distributed.</p>
<p style="text-align: center;">Methods</p>	<p>In a radar there is a complicated system. Because the system is complex, the manufacture of radar takes a long time and this causes more production time than has been determined because of the lack of manpower.</p>

Materials	The materials used are mostly from overseas. It takes a lot of time and money to import the material.
Environment	The working environment of PT RTI is small and hot due to lack of ventilation.

The main problem faced by PT RTI is that there is no balance in the workload of employees in the production division because there are employees who do tasks that are not their job and become a multiple workload and also the number of employees is not proportional to the number of demands received each year and it cause their physical workload increased.

So, it is necessary for company to know if the number of employees is enough to the amount of production target each year and whether the employees work with optimal condition. From the explanation above, it can be known that manpower planning must be designed as soon as possible so not cause losses to the company.

I.2 Problem Formulation

Based on the problems that have been described, the problem formulation is obtained as follows:

1. How are the workload conditions of employees of PT RTI production division based on workload measurement and calculation using work sampling method?
2. How are the suggestion of manpower needs in the production division at PT RTI based on the results of workload calculation?

I.3 Research Objectives

The objectives of this study are as follows:

1. Knowing, measuring and analyzing the workload of employees of PT RTI's production division based on measurements using work sampling method.

2. Provide manpower planning for the production division PT RTI based on the results of workload analysis.

I.4 Problem Limitation

The limitations in this study are as follows:

1. Only discussed about physical workload in the production division of PT RTI.
2. Ignore the financial condition of company.
3. Using demand data in years 2020

I.5 Benefits of Research

In this study has the following benefits:

1. This research can find out the workload of employees and the level of productivity employees.
2. This research can be considered for companies to increase or decrease the number of employees.
3. This research can give a benefit to the readers.

I.6 Writing Systematics

Writing systematics is used as an overview of the subject matter of research so that readers can understand the writing of this research easily.

Chapter I Research Background

This section describes the background, problem formulation, objectives, limitations and benefits of research, and the systematics of proposal writing.

Chapter II Literature Review

This section describes the references used in the study. The theory used in this chapter will be used as a reference in research so that the truth in the method can be accounted for.

Chapter III Problem Solving Systematics

This section contains steps in research that are used to solve problems and achieve research objectives.

Chapter IV Integrated System Design

This section contains data collection and data processing techniques resulting from methods used and integrated design of system and it will be analyzed in the next section.

Chapter V Analysis of Data and Design Result

In this section contains an analysis of the data processing that has been done in the previous section so that author have an idea of the data processing that has been done.

Chapter VI Conclusion &Suggestion

This section contains the conclusion of the results of data processing that has been done. The conclusion illustrates the purpose of the research that has been formulated in the previous section. In addition, this section contains suggestions for further research.