

CHAPTER I INTRODUCTION

I.1 Research Background

Logistics and transportation management is essential part of supply chain management. However in the term of supply chain, the goals of logistics and transportation management is to get minimum cost while maintaining service level and quality of delivered service by planning and coordinating all activities involved in the business. The scope spans from the management of raw materials through to the delivery of the final product (Christopher, 2011). Thus, in achieving desired service and quality at lowest possible cost, a good management and appropriate method implementation should be the main concern in accordance with the characteristics and the needs of the company.

PT. XYZ is the current leading automotive company having a supplier that is a part of its subsidiary company. Its supplier has a role as manufacturer and exporter of vehicle components and provides services in the form of supply and distribution of raw material to the company located in Karawang International Industrial City department of plan production.

Table I. 1 Fleet Information

Fleet Type	#
CDD Long-Box	1
CDD Wing-Box	1

(Source: Company Internal Data)

PT. XYZ provides 2 kinds of fleet especially assigned for department of production, e.g. colt double diesel (CDD) long box & wing pallet that can be seen in Table I.1 with the total fleet as much as 2 (two) fleets. Those fleets are used to deliver raw material. Each fleet has different volume and capacity as seen in Table I.1.

Table I. 2 Fleet Capacity

No	Fleet type	Capacity (tonnage)	Volume
1	CDD Long-Box	14	41 CBM
2	CDD Wing-Box	16	45 CBM

(Source: Company Internal Data)

This research is conducted PT. XYZ where problem appears in plan production control department, the compartment fleet utilization is far from the maximum capacity the fleet can accommodate.

PT. XYZ department plan production control stated that in 1 work day there are 12 times material order where material order is conducted 6 times at 1st shift and the rest at 2nd shift. The lead time of material order is 1 cycle where each cycle is 70 minutes.

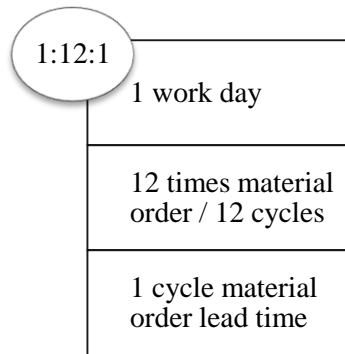


Figure I. 1 Cycle issue of press production department
(Source: Company Internal Data)

Initial identification of the problem existed in fleet compartment utilization is by comparing between ideal loading utilization of compartment usage with the monthly actual average loading compartment fleet usage that can be seen in Figure I.1.

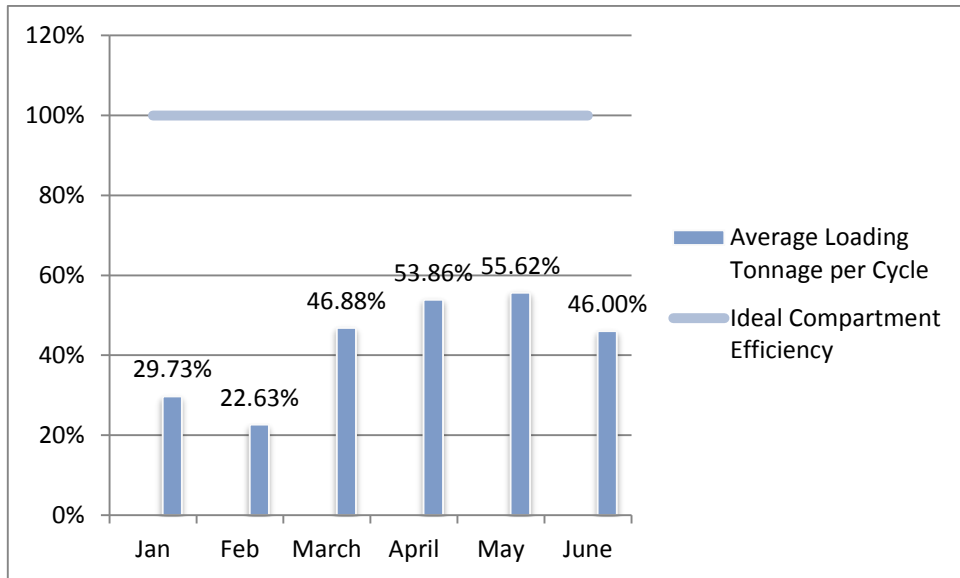


Figure I. 2 Compartment Monthly Efficiency

Figure I.1 above shows the comparison between monthly average ideal utilization (16 ton) and monthly average usage of fleet compartment. Compartment ideal loading utilization as stated by press production department is 16 ton at least.

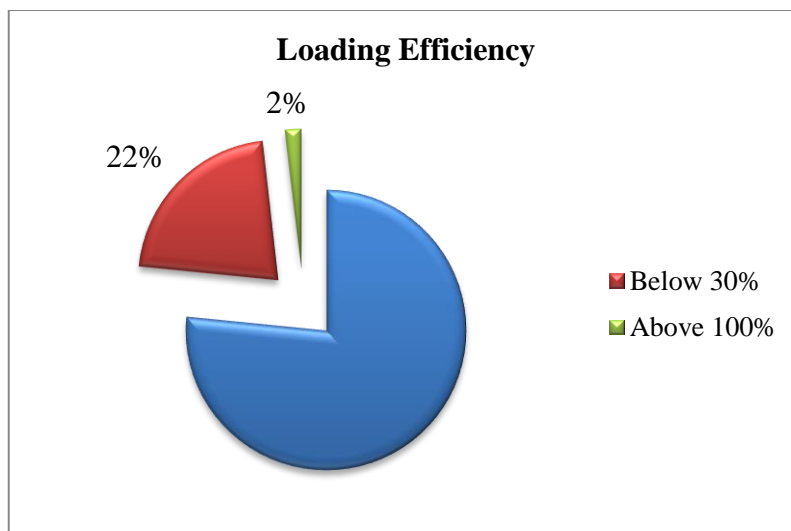


Figure I. 3 Daily Loading Efficiency Comparison (March)

In order to gain specific information toward the utilization in the plan production control, observation is conducted. Based on data collected, there are many deliveries conducted that is extremely far from fleet capacity. As shown in the graph above, for instances there are 22% deliveries that are conducted on March in which the efficiency of loading is below 30%.

All this time, plan production control department ordered material only as much as their production need, at the same time PT. XYZ fleet can accommodate up to 16 ton/delivery and resulting in less efficiency on the fleet compartment capacity because PT. XYZ can not afford delivery on fleet with smaller capacity.

This condition is eventually resulting more cost on operations. Plan production control department should bear the cost caused by an increase from total order cost and PT. XYZ has an increased cost caused by the utilization efficiency of their fleet compartment that is immensely far from maximal capacity they can accommodate in one single trip.

As stated before, plan production control's fleet can accommodate up to 16 ton per delivery at least, based on observation there are 2% of delivery exceeding maximum capacity on March. The overloaded compartment can increase the cost of maintenance, therefore delivery conducted below maximum capacity is preferable for the business.

Therefore in this research, the most suitable loading pattern is needed to improve the utilization of fleet compartment.

I.2 Problems Identification

Based on the background description of the problem, then the problem identification from this research is to find out the most efficient loading pattern with heterogeneous fleet and raw material dimensions.

I.3 Research Objectives

Based on problem identification, then the objective wanted to be achieved in this research is to result in loading pattern that can improve the utilization of compartment capacity.

I.4 Research Limitations

This research is run by considering some limitations, such as:

1. No additional loads to the fleet during the delivery.
2. There are only two kinds of trucks used e.g. CDD Long Box and CDD Wing Box.
3. The data of material list, order & dimension, production pattern, and master list are based on the period of March–June 2018.
4. The loads patterned in the compartment are palletized.
5. The loads pattern is based on material order.
6. There is only one customer.
7. Loading process only conducted in one location (single depot).

I.5 Benefit of Research

The benefit obtained from the research is as a suggestion and decision supporting system for the company to consider loading pattern to improve the utilization of fleet compartment capacity.

I.6 Writing Systematics

This research is described with writing systematics as follows:

Chapter I Introduction

This chapter describes the background of research, problem identification, the purpose of research, the limitation of the research, the benefit of research, and writing systematics.

Chapter II Literature Review

This chapter contains the detail description of the literature study that examined from the existing researches as supporting references in conduct this research. In addition, this chapter will discuss the related theory and method that will be used to solve the problem.

Chapter III Research Methodology

This chapter describes the conceptual model and problem-solving systematics of this research in detail including problem

identification, data collecting, and processing, and conduct the conclusion and recommendation.

Chapter IV Data Collecting and Processing

This chapter shows the data needed in the research and the serial of the process that leads to the result according to the research methodology on the previous chapter.

Chapter V Analysis

This chapter analyses the result of data processing on the previous and explain the comparison between existing condition and the proposed system.

Chapter VI Conclusion and Suggestion

This chapter gives conclusion regarding to the research results and suggestion for the company and next research.