UNIVERSITI TEKNIKAL MALAYSIA MELAKA

PRODUCTIVITY IMPROVEMENT IN TEXTILE INDUSTRY

This report submitted in accordance with requirement of the Universiti Teknikal Malaysia Melaka (UTeM) for the Bachelor Degree of Manufacturing Engineering (Manufacturing Management) with Honours.

By

NURALESYA BINTI RAMLEE

FACULTY OF MANUFACTURING ENGINEERING

April 2010

UNIVERSITI TEKNIKAL MALAYSIA MELAKA (UTeM)

BORANG PENGESAHAN STATUS TESIS*

JUDUL: PRODUCTIVITY IMPROVEMENT IN TEXTILE INDUSTRY

SESI PENGAJIAN: 2009/2010

Saya **NURALESYA BT RAMLEE**

mengaku membenarkan tesis (PSM/Sarjana/Doktor Falsafah) ini disimpan di Perpustakaan Universiti Teknikal Malaysia Melaka (UTeM) dengan syarat-syarat kegunaan seperti berikut:

1. Tesis adalah hak milik Universiti Teknikal Malaysia Melaka.
2. Perpustakaan Universiti Teknikal Malaysia Melaka dibenarkan membuat salinan untuk tujuan pengajian sahaja.
3. Perpustakaan dibenarkan membuat salinan tesis ini sebagai bahan pertukaran antara institusi pengajian tinggi.
4. **Sila tandakan (✓)

☐	SULIT	(Mengandungi maklumat yang berdarjah keselamatan atau kepentingan Malaysia yang termaktub di dalam AKTA RAHSIA RASMI 1972)
☐	TERHAD	(Mengandungi maklumat TERHAD yang telah ditentukan oleh organisasi/badan di mana penyelidikan dijalankan)
☑	TIDAK TERHAD	

(TANDATANGAN PENULIS)

Alamat Tetap:
NO 54, JALAN SG 1/17,
TAMAN SRI GOMBAK,
68100 BATU CAVES,
SELANGOR DARUL EHSAN
Tarikh: 9 APRIL 2010

Disahkan oleh:

(TANDATANGAN PENYELIA)

Cop Rasmi:

Tarikh: 31/5/2010

* Tesis dimaksudkan sebagai tesis bagi Ijazah Doktor Falsafah dan Sarjana secara penyelidikan, atau disertasi bagi pengajian secara kerja kursus dan penyelidikan, atau Laporan Projek Sarjana Muda (PSM).

** Jika tesis ini SULIT atau TERHAD, sila lampirkan surat daripada pihak berkuasa/organisasi berkenaan dengan menyatakan sekali sebab dan tempoh tesis ini perlu dikelaskan sebagai SULIT atau TERHAD.

DECLARATION

I hereby, declared this Bachelor's Project entitled "Productivity Improvement in Textile Industry" is the result of my own study except as cited in references.

Signature	:	
Author's Name	:	Nuralesya bt Ramlee
Date	:	9 April 2010

APPROVAL

This Bachelor's Project submitted to the senate of UTeM and has been accepted as fulfilment of the requirement for the Degree of Bachelor of Manufacturing Engineering (Manufacturing Management) with Honours. The member of the supervisory committee is as follow:

.....31/5/2012.....

Pn Rohana Binti Abdullah

Project Supervisor

Faculty of Manufacturing Engineering

ABSTRACT

This report is intended to explain about the productivity improvement at Textile Industry by implement the Lean Manufacturing Techniques. The focused company for data collection is Prym Consumer Sdn Bhd which is located at Tanjung Kling, Melaka. The focused area in the company for this study is packing department. The objectives of this report is to identify processes that has potential to improve the productivity, determined differences type of waste and propose the ideal ways or techniques to be used to improve the productivity. Work study which are consist methods study and work measurement was used to collected data and identified the waste in the packaging processes. The data also obtained from several methodology included observation and informal interview with the workers. The proposed of improvement was suggested based on the situation and types of waste in a process. The data was analyzed and the outcome was focused on the productivity improvement.

ABSTRAK

Laporan ini disediakan bagi menerangkan peningkatan produktiviti di Industri Tekstil dengan mengaplikasikan teknik-teknik Lean Manufacturing. Syarikat yang terlibat untuk mengumpul data adalah Prym Consumer Sdn Bhd yang terletak di Tanjung Kling, Melaka. Kawasan yang difokuskan dalam syarikat untuk kajian ini adalah Jabatan Pembungkusan. Objektif laporan ini adalah untuk mengenal pasti proses yang mempunyai keberangkalian untuk meningkatkan produktiviti, menentukan kepelbagaian jenis pembaziran dan mencadangkan cara dan teknik terbaik yang boleh digunakan untuk meningkatkan produktiviti. Kerja piawai yang mengandungi kaedah pergerakan kerja dan pengukuran masa digunakan untuk mengumpul data dan mengenalpasti pembaziran dalam proses-proses pembungkusan. Data juga dikumpul melalui beberapa kaedah kajian termasuk pemerhatian dan temuramah secara tidak rasmi bersama pekerja. Cadangan untuk peningkatan telah dicadangkan berdasarkan situasi dan jenis-jenis pembaziran yang terdapat dalam sesuatu proses. Data telah dianalisis dan hasilnya difokuskan pada peningkatan produktiviti.

DEDICATIONS

For my beloved parents:

Ramlee Bin Dahlan

Norizan Bt Ahmad

For my cherish brothers and sisters

And my treasured friends

ACKNOWLEDGEMENTS

Bismillahirrahmanirrahim...

Praise to Allah Almighty for giving me a chance to complete my PSM 2. First of all, I would like to thank my beloved parents, En. Ramlee bin Dahlan and Pn. Norizan binti Ahmad for their full support and always be there for me in giving ideas and spirits to complete this project. I would like to thank all UTeM lecturers and staffs and special thanks to my supervisors, Pn. Rohana binti Abdullah and both of my project panel, IR Dr. Puvanasvaran and En. Nur Akramin bin Mohamad.

Furthermore, I would like to state my extremely contribution to all Prym Consumer Sdn Bhd staff expecially En. Alnahar bin Johari as a person who supervise me for my research and others whom their name not been stated. I would like to give a lot of thanks for their cooperation, support and assist in term of their experiences, knowledge and information that help me a lot during my research at the company.

Last but not least, a lot of thanks to all my colleagues that always giving support and assist me to finish this PSM 2. Without all of you, I would not able finished this project as good as this. Thank you again. Wassalam....

Nuralesya binti Ramlee

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF EQUATIONS

LIST OF ABBREVIATIONS

CPI	-	Continuous Process Improvement
EMS	-	Environmental Management System
JIT	-	Just In Time
LERC	-	Lean Enterprise Research Center
NPCC	-	National Productivity and Competitiveness Council
PSM	-	Projek Sarjana Muda
ROI	-	Return On Investment
TPM	-	Total Preventive Maintenance
TQM	-	Total Quality Management
WIP	-	Work In Progress
VSM	-	Value Stream Mapping

CHAPTER 1
INTRODUCTION

1.1 Introduction

Productivity improvement is one means for increasing the profitability of a firm. On the other hand, it is common knowledge that the productivity improvement is one of the most important ways to increase competitiveness and especially price competitiveness. It is possible to cut the unit costs of products and services by productivity improvement.

Productivity has been recognized as one of the key factors affecting the competitiveness and profitability of a firm. Productivity can be defined as the relationship between the outputs generated from a system and the inputs provided to create those outputs. Productivity is simply the relationship between the outputs generated from a system and the inputs provided to create those outputs. Inputs in the general form of labor (human resources), capital (physical and financial capital assets), energy, materials, and data are brought into a system. These resources are transformed into outputs (goods and services). Productivity is the relationship of the amount produced by a given system during a given period of time, and the quantity of resources consumed to create or produce those outputs over the same period of time.

Productivity is a performance measure that indicates how effectively an organization converts its resources into its desired products or services. It is a relative measure in that it is used to compare the effectiveness of a country, organization, department, workstation, or individual to itself over time for the same operation, or to other countries, organizations, departments, workstations, or individuals. From a systems

perspective, productivity indicates how well an organization transforms its inputs into outputs. In manufacturing, productivity is generally stated as a ratio of output to input. Productivity may be expressed as partial measures, multifactor measures, and total measures. Partial productivity measures are used to analyze activities in terms of a single input (e.g., units produced per worker, units produced per plant, units produced per hour, or units produced per quantity of material). Multifactor productivity measures take into account the utilization of multiple inputs (e.g., units of output per the sum of labor, capital, and energy or units of output per the sum of labor and materials). A total measure of productivity expresses the ratio of all outputs produced to all resources used.

Return on Investment Productivity is closely related to, but not dependent on, profit. It can be measured by return on investment (ROI). ROI is determined after the sale of a product or service minus the deductions for the total amount of effort (resources, etc.) put into its design, development, implementation, evaluation, and marketing. The formula for determining ROI is: "Price" minus "Cost" divided by "Sales."

1.2 Background of the study

This study is performed at textile industry, Prym Consumer Sdn Bhd. Productivity improvement had been carried out in the industries for the purpose of increasing current productivity. The difference is only by their methods and tools but the purpose is still the same which is to increase the productivity. However, the difference between the companies is only by the ways of the methods and tools and the purpose is still the same which is to increase the productivity.

Packing department is the important area in the company, since it is the last processes before product get delivered to the customer. All the products must in a good condition and delivered to customer at the exact time**.** Thus, productivity improvement at packing area is important to the company‘s reputation with the customer.

1.3 Problem Statement

Packing department is the most labor intensive area in the company. All the packing activities are done manually and there occurs to be a lot of material and movement at this area. Thus, proper work methods are required to be established in order to ensure efficiency high level of operator at this area. Therefore, a thorough work study of the operators activities are required in order to identify opportunity for improvement.

1.4 Objectives

The objectives of this study are:

1. Perform work study to identify the problem and type of waste in the company that can be eliminated and can be improved.
2. Analyze data taken from the area that have potential to be improved.
3. Proposed improvement opportunities to the company.

1.5 Scope

This study will be held at Prym Consumer Sdn Bhd. and will be focusing on the productivity improvement oppurtunity. The focus area of this study is at packing department. In literature review, past studies on method how to improve the productivity in company will be identified. All the full methodology or process flow of this study will be presented in Gantt chart. The outcome of this study will be state as data analysis, data review, discussions and conclusion. All the information will be documented and presented to the faculty panel.

1.6 Structure of Report

Generally this project is divided into two parts which is PSM 1 AND PSM 2.This report is organized in six chapters. For PSM 1, contains three chapters which are introduction, literature review and methodology. Three more chapters are discussed in PSM 2 including company profile, result and discussion, and lastly conclusion and recommendation.

Chapter 1 explained briefly about the background of the study, the problem statement, objectives, scope and structure of this report. Chapter 2 which is the literature review explains all theories were taken and referred from journals, books, and articles that related to the productivity improvement.

In chapter 3, Methodology, all methods and techniques that have been used are explained specifically in term to achieve the objectives and to obtain the result of the study. These three chapters are parts of PSM 1. In chapter 4, explanation about company profile and specific work area had been conducted during this study.

Meanwhile, in chapter 5 which are result and discussion will focus on data that has been collected and identified the influence factor that achieve to result. The suggestion and recommendation of this study was including in chapter 6 along with the conclusions of this study.

Finally, all chapters are compiled separately in sequences in order to give easy view for the readers.

CHAPTER 2
LITERATURE REVIEW

Manufacturing is currently faced with the conflicting pressure to reduce costs while also improving customer satisfaction and service as well as pressures of cost reduction, improving cycle-time, and quality improvement in order to get better results (Campbell, 2004).

Opportunities for productivity improvement through improved labor efficiency and reduced production loss are critical to organizational survival and these efforts can be driven through a host of productivity improvement initiatives (Longenecker and Stansfield, 2000).

2.1 Definition of Productivity

Stevenson (1999) stated that productivity is an overall measure of the ability to produce a good or service. More specifically, productivity is the measure of how specified resources are managed to accomplish timely objectives as stated in terms of quantity and quality. Productivity may also be defined as an index that measures output (goods and services) relative to the input (labor, materials, energy, etc., used to produce the output).

$$\text{Productivity} = \text{output} / \text{input}. \quad (2.1)$$

Furthermore, Baines (1997) says that productivity can be defined as the application of the various resources (inputs) of an organization, industry or country, in order to achieve certain planned and desired results (outputs).

The *Productivity Conceptual Model* below, takes the form of a 'productivity tree'. The roots denote the inputs to the system, the trunk the conversion process and the foliage and fruits the systems outputs. (NPCC,2009)

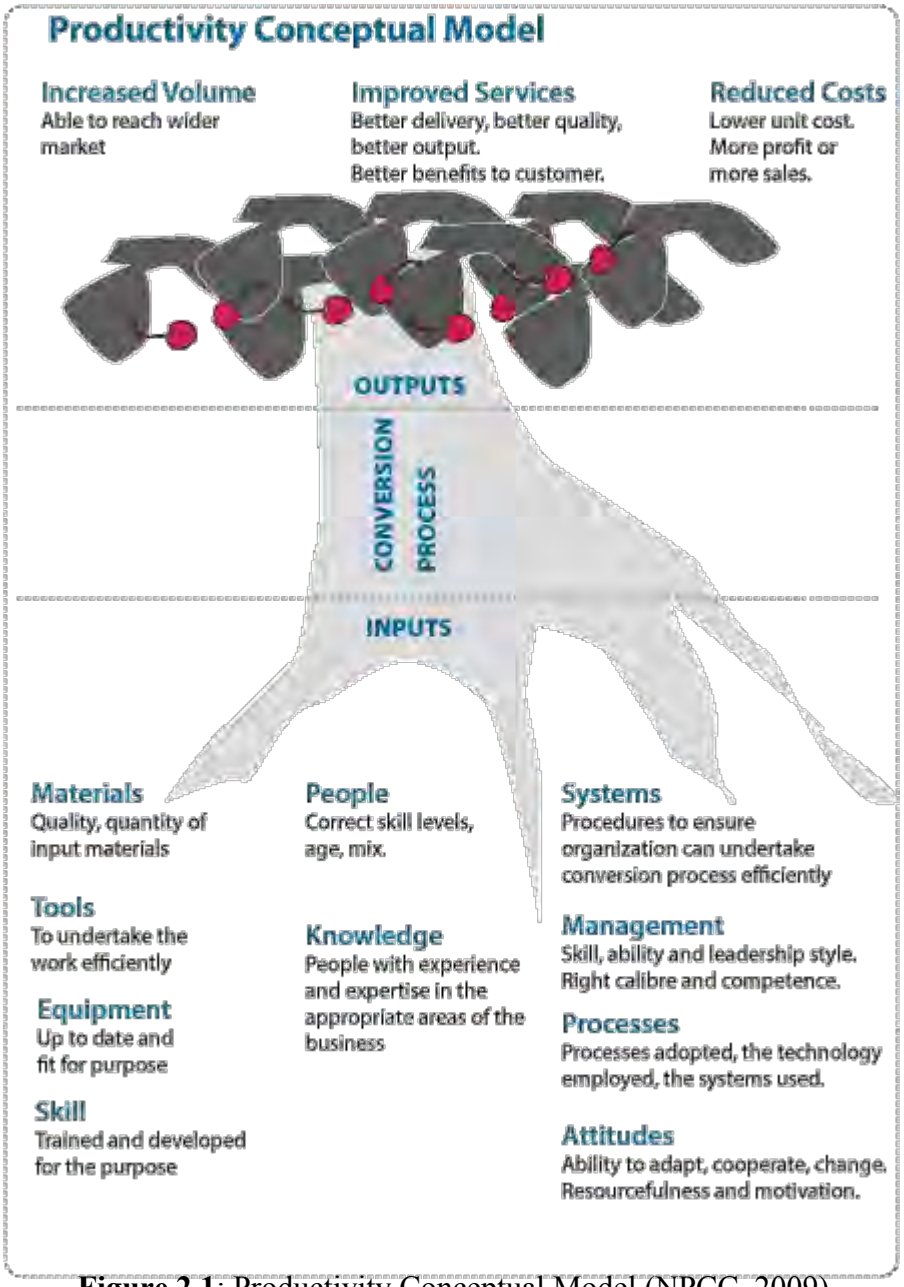

Figure 2.1: Productivity Conceptual Model (NPCC, 2009)