UNIVERSITI TEKNIKAL MALAYSIA MELAKA

IMPLEMENTATION OF VALUE STREAM MAPPING (VSM) IN TEXTILE MANUFACTURING COMPANY

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

by

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I hereby declare that I have read this dissertation/ report and in my opinion this dissertation/ report is sufficient in term of scope and quality as a partial fulfillment of Bachelor of Manufacturing Engineering (Manufacturing Management).

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DEDICATION

Special thanks for my beloved father and mother, Encik Hamka Bin Haji Ahmad and Puan Siti Tumiah Binti Tupani and my siblings because of the support for me to do my best in this final year degree project. The motivation and encouragement had inspired me to conduct this research in the best way. Special thanks to Dr Effendi Bin Mohamad as the supervisor for my final year degree project who is always give the knowledge and guiding me to complete this research in the best way.

ABSTRACT

Nowadays, manufacturing industries have becoming more competitive and strive to increase their efficiency. This study was carried out in a textile manufacturing company that has a problem of lead time in their production due to non-value added activities. A lean manufacturing tool for example like Value Stream Mapping (VSM) was proposed in the textile manufacturing company starting from developing a current state map (CSM) followed by analysing CSM to detect waste and ultimately developing future state map (FSM). Focusing on production of yellow brass safety pin, data were analyse using Ishikawa Diagram, Yamazumi Chart and Spaghetti Diagram after being collected using time studies. From the FSM, it is noted that non-value added where reduced from 15 days to 11 days while value added was reduced for 158107.8 second to 15120.8 second. Future works include implementation of the proposed VSM to know its feasibility and efficiency in reducing waste.

ABSTRAK

Pada masa kini, industri pembuatan telah menjadi lebih kompetitif dan berusaha untuk meningkatkan kecekapan mereka. Kajian telah dijalankan di syarikat pembuatan tekstil yang mempunyai satu masalah dari segi masa tunggu dalam pengeluaran mereka disebabkan aktiviti yang tiada nilai (non-value added). Di dalam konsep pembuatan kejat seperti Value Stream Mapping (VSM) telah dicadangkan dan diaplikasi pada syarikat pembuatan tekstil dan apat melakar Current State Map (CSM) telah dilakarkan serta diikuti dengan menganalisis CSM bagi mengesan sisa (waste) dan akhirnya lakaran untuk Future State Map (FSM) dibuat. Fokus kajian ini adalah terhadap pengeluaran peniti loyang, data menganalisis menggunakan Ishikawa Diagram, Yamazumi Chart and Spaghetti Diagram selepas dikumpul menggunakan kajian masa. Dari FSM, dapat dilihat bahawa bukan nilai tambahan (non-value added) berjaya dikurangkan dari 15 hari kepada 11 hari dan putaran masa pada salah satu proses berjaya dikurangkan untuk 158107.8 saat kepada 15120.8 saat. Pelbagai applikasi pada masa akan datang akan dilaksanakan untuk membuktikan bahawa kebolehsanaan VSM dalam kecekapannya dalam mengurangkan sisa.

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LIST OF ABBREVIATION

VSM	-	Value Stream Mapping
CSM	–	Current state Map
FSM	–	Future State Map
LM	-	Lean Manufacturing
VA	-	Value Added
NVA	–	Non Value Added
NNVA	–	Necessary but non value added
SMED	–	Single Minute Exchange Dies
JIT	–	Just In Time
FIFO	–	First In First Out
TPM	-	Total Preventive Maintenance

CHAPTER 1

INTRODUCTION

Throughout this chapter, it contains about the background of study, the problem statement, includes the objectives to be achieved throughout the project and the scope of the study. The limitation of the product study is also included in this chapter. Throughout this chapter, it provides a structure of the report which generally describes about chapter division and related contents to that particular chapter. In overall, it summarizes the progress of the whole project, describing how the whole project has been done.

1.1 Background of study

ABC Consumer Sdn Bhd is one of the companies which manufacture of sewing components and specialized sewing component and garment accessories. With perfect facilities, efficient management and total customer-orientation, they fulfill their claim of always maintain the great performance. Present, industrial sector become competitive market where all the companies faces competition strive to increase their efficiency. Throughout this century ABC Consumer successfully adapted to this new environment, but the commitment to quality has always remained number one priority. As an international group of businesses, they are well aware of

their responsibilities, and seek to minimize their impact on natural resources at every stage of the production process. The fact of increasing labor cost as well as reduce and control the operating cost are just a few reasons companies choose to outsource their operation. Instead of minimize their impact on natural resources at every stage of the production process; they were seeking to maximize customer value while minimizing waste. From these issues, by implement the lean manufacturing tools in the company, they can reduce any waste which is effect on increasing cost and toward on satisfy the customer demand. Leans can be defines as create more value for customer with fever resources which the value is any action or process that a customer would be willing to pay for. The main principle of lean is customer value, value stream, continuous flow, pull and perfection.

The main purpose of lean manufacturing is to eliminate or reduce waste in an operation, such as long lead times, defect and material waste. In order to detect where waste occurs in the operation flow, a value stream mapping (VSM) is construct. VSM is often used to prove current manufacturing processes to create better future state processes. It is important for companies to increasing and conducts business strategies to satisfy the customer demand.

1.2 Problem Statement

Present, industrial sector becoming competitive market, all companies globally strive to increase their efficiency same goes to ABC Consumer Sdn Bhd. This company produces in high volume of sewing components and garment accessories. Due to the high demand of the product and strive to increase their efficiency, the company needs to reduce their current issues which is waste. Today, many industrial sectors face critical waste so they purpose to reduce their waste. Waste is anything that does not give any value to the product and it will affect the performance for the operation. The existence of seven type of waste which is transportation, defect, waiting, motion, over processing, unnecessary processing and inventory storage will affect the performance for the operation progress if no solution will be implementing. This project was conducted in ABC Consumer Sdn Bhd which is produces in sewing

components and garment accessories supplier to customer such as safety pin, ball pin, straight pin, hook and eyes, snap fasteners and many more. The lack of implementation of lean manufacturing tools and technique, unsystematic arrangement of the workplace, failed to maintain the efficiency of machine, unsystematic planning, certain process have standard operating procedure (SOP), lack of manpower and etc.

Figure 1.1: Unsystematic arrangement of workplace

Figure 1.2: Product waiting for the next workstation

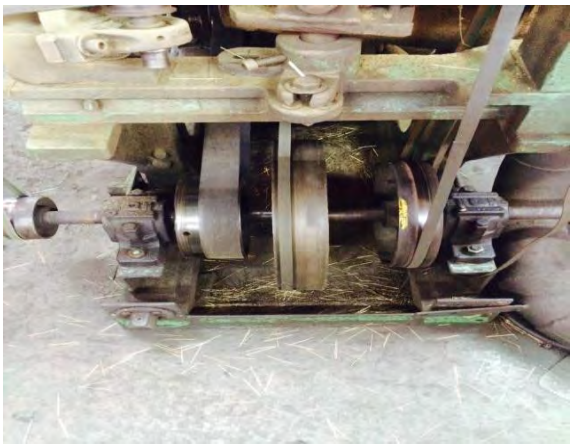

Figure 1.3: Spillage due to the maintenance of the machine issues

Figure 1.1 shows a poor arrangement of workplace, Figure 1.2 shows the product waiting for the next process and figure 1.3 shows the spillage due to the maintenance of the machine issues. If the waste is not eliminate or reduce it can affect the process of the product in terms of lead time, delivery time, quality, system performance, system efficiency and production cost. By implementation of the Lean Manufacturing Tool and Technique, the Value Stream Mapping (VSM) Method is purpose. From this method, the causes of the waste can be identified and then preventive action can be taken to eliminate or reduce any related issues.

1.3 Objective

This study embarks on the following objectives:

1) To develop Current State Mapping of textile manufacturing
2) To determine waste by analyse Current State Mapping
3) To develop future state map

1.4 Scope

This project focuses on the product faces the high demand from the customer for every month. This project focuses on the yellow brass safety pin. Figure 1.4 shows

product of yellow brass safety pin. The operation flows that focus in this project are production process, passivation process, quality inspection, packing and palletizing. The focus on this project is proposing some improvement to the company to eliminate or reduce waste and lead time.

Figure 1.4: The product of yellow brass safety pin

This project focuses on the development of Value Stream Mapping (VSM) as one the tools to improve the performance. The study will also include identifying the Lean Manufacturing practice implemented by the company.

1.5 Structure of the Report

Chapter 1: Introduction

This chapter explains and focus about the background of study, problem statement, objectives and the structure of the report the scope of the study.

Chapter 2: Literature Review

This chapter focus on any information which is related to the project. Then, need to summarize the main idea. By following the information from past studies, research and books, it will show a path and guide for the project in the future.

Chapter 3: Methodology

It describes the overview of research methods, research flow or methodology, and how to conduct the research methods. It shows the procedures and workflow of this project in detail from the beginning.

Chapter 4: Result and Discussion

This chapter focus on process flow analysis from the data, development of current state map and analysis. From the analysis, the action is purposed to develop the future state map.

Chapter 5: Conclusion and Recommendation

This chapter focus on the conclusion based on the research that was conduct. State the recommendation to shows that the research can be applies to another type of product since the company produce variety of product.