

SUPERVISOR'S APPROVAL

I hereby declared that I have read this thesis and this research is sufficient in term of scope and quality. This project is submitted to Universiti Teknikal Malaysia Melaka (UTeM) as a requirement for completion and fulfillment of Bachelor Degree in Technopreneurship with Honours (BTEC).

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A STUDY ON THE ADOPTION OF LEAN MANAGEMENT TECHNIQUES:
CASE STUDY IN BAKERY INDUSTRY

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DECLARATION

“I hereby declare that this project paper is the result of my own and independent work except the summary and experts that have been specifically acknowledgment”

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DEDICATION

This paper is dedicated to both of my parents, who are always support and motivate me in completing this research. They are always gave me support and advice to me in order to fulfil the requirement of the research. Without their support and motivation, it is impossible to complete the research.

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ABSTRACT

Lean manufacturing system (LMS) has infiltrated the manufacturing sector around the world. Other than eliminating waste, the benefits of lean include resource utilization and value creation for end customers. The commonly used lean tools and techniques include kaizen, 5S and visual management. However, some companies have not fully utilized the lean tools and reap the benefits. The objectives of this study is to determine the implementation of lean techniques, to identify the challenges in the implementation of lean technique and to demonstrate a process improvement project via the project Plan, Do, Check, Act (PDCA). The study is conducted at the premise of a bakery in Melaka Tengah, Malacca. The research is conducted via observation and interview where researcher have used semi-structured interview involving four respondents comprising the owners and staff of the company. The findings showed that the lean techniques that are being employed by companies are 5S, Standard Operating Procedure (SOP), Standardized Time, Poka Yoke, Just in Time (JIT), and Visual Management. Factors such as top management support, employee training and education, communication, worker's participation and organizational culture are factors that greatly affect the challenges in the company's lean implementation. In addition, the from the PDCA project, the company has managed to reduce the search time for equipment and materials from 10 min 4 sec to 5 min 25 sec. This is an improvement of 53.81%. 5S and visual management have been used in the PDCA. The research has shown that simple lean tools if properly utilized can produce great impact to the operation of the bakery business.

Keywords: Lean Manufacturing, Bakery, Lean Management Technique, Challenges, PDCA

ABSTRAK

Sistem pembuatan Lean (LMS) telah menyusup dalam sektor pembuatan di seluruh dunia. Selain menghilangkan sisa, manfaat lean termasuklah penggunaan sumber dan penciptaan nilai untuk pelanggan akhir. Alat dan teknik yang biasa digunakan termasuk kaizen, 5S dan pengurusan visual. Walau bagaimanapun, sesetengah syarikat tidak menggunakan sepenuhnya teknik lean. Objektif kajian ini adalah untuk menentukan pelaksanaan teknik lean, untuk mengenal pasti cabaran dalam pelaksanaan teknik lean dan untuk menunjukkan projek penambahbaikan proses melalui rancangan projek Plan, Do, Check, Act (PDCA). Kajian ini dijalankan di premis kedai roti di Melaka Tengah, Melaka. Kajian ini dijalankan melalui pemerhatian dan temubual di mana penyelidik telah menggunakan temuduga separa struktur yang melibatkan empat responden yang terdiri daripada pemilik dan kakitangan syarikat. Penemuan menunjukkan bahawa teknik lean yang digunakan oleh syarikat adalah 5S, Prosedur Operasi Standard (SOP), Standardized Time, Poka Yoke, Just in Time (JIT), dan Pengurusan Visual. Faktor seperti sokongan pengurusan pengurusan, latihan dan pendidikan pekerja, komunikasi, penyertaan pekerja dan budaya organisasi adalah faktor yang sangat mempengaruhi cabaran dalam pelaksanaan kurungan syarikat. Di samping itu, dari projek PDCA, syarikat itu telah berjaya mengurangkan masa pencarian peralatan dan bahan dari 10 minit 4 saat hingga 5 minit 25 saat. Ini adalah peningkatan sebanyak 53.81%. 5S dan pengurusan visual telah digunakan dalam PDCA. Penyelidikan telah menunjukkan bahawa alat lean jika digunakan dengan betul boleh memberi kesan yang besar kepada operasi perniagaan roti.

Kata kunci: Sistem Pembuatan, Bakeri, Pengurusan Teknik Lean, cabaran, PDCA

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LIST OF ABBREVIATIONS

IV	=	Independent Variable
DV	=	Dependent Variable
JIT	=	Just In Time
PDCA	=	Plan, Do, Check, Act
TPS	=	Toyota Production System
LM	=	Lean Manufacturing
SOP	=	Standard Operation Procedure

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CHAPTER 1

INTRODUCTION

1.1 Background of Study

Today, the world is very competitive especially in manufacturing companies where they face the challenge of fostering customer satisfaction. Manufacturers should always improve the quality of production and delivery at the best possible level. Besides, companies also need to provide reasonable prices and maintain the lowest possible cost of goods to compete with competitors out there to maintain business profits. In achieving this goal, companies need to have excellent control of production systems and companies need to have a clear idea of the objectives to be achieved and to have a good vision of establishing an effective control system within the company. Therefore, the use of lean in the manufacturing world has become one of the most well-known techniques and its use is growing rapidly because of its remarkable role in reducing wastage and lead time reduction (Hossain, 2015).

According to Dutta & Banerjee (2014), lean is the first tool used in the Toyota Production System (TPS) which has led to a revolutionary change in the manufacturer's thinking. Lean manufacturing actually leads to an approach that can be used in maximizing the use of resources to maintain a simple process for the company. To achieve this, tooling utensils, engineering hours and manufacturing space spent on creating new products. The lean can also reduce the defects in the company. In the past,

the company was more focused on customers only. But at the moment, customer satisfaction is important for them to be competitive in the market globally.

Lean is a unique approach to eliminate the excess production and inventory, waiting and delays, redundant movement of material, over processing, the need for rework and corrections and excess worker motion (Dutta & Banerjee, 2014). Lean implementation is one of the ways to increase profits by quadrating reducing waste and reducing time in lead and production. It is more focused to do the right thing at the right place in the right amount of time to achieve a smooth and perfect workflow while reducing waste or wastage. The principle of lean principles is different for each organization and researcher in uplifting the process (Holweg, 2007).

1.2 Problem Statement

Lean can be divided into lean manufacturing, lean managing, lean production and lean enterprise. Lean is a widely used tool in the company to defend and implement as one way to increase the overall value of customers and production efficiency while eliminating wastage. Waste is something that does not add to any value but incremental costs to the company. There is seven waste in the identified management. They are waiting, overproduction, inventory, movement, over-processing and re-work (Modi & Thakkar, 2014). Normally, it is used in the manufacturing chain management and supply to achieve the overall goal of increasing customer value as well as removing waste. The lean used in most companies is for the same purpose (Billesbach, 1994).

Sujatha & Rao (2013) state that manufacturers in the bakery industry often face challenges such as variable demand, market competition, increased customer expectations and problems in production operations. Among the problems that always happen in production the operation is such a hassle of finding equipment, unable to

produce the product at the specified time, inadequate space, reduce product quality, hassle to handle machine, overproduction and so forth. Lopes et. al., (2015) state that manufacturers need always making changes and improvements in their main activities to cope with this problem. One way to continue to be competitive is to implement lean. Lean implementation has become a method of production which has been used continuously by production.

1.3 Research Questions

There is three research question that has been constructed from the problem statement:

1. What are the lean management techniques that are being implemented in the company?
2. What are the barriers/challenges in the implementation of lean management techniques in the company?
3. How a (PDCA) project is to be conducted for process continuous improvement?

1.4 Research Objectives

The following are the research objective of this study:

1. To determine the lean management techniques that are being implemented in the company.
2. To identify the challenges/barriers implementation of lean management techniques in the company.
3. To demonstrate one process improvement (PDCA) project in the company.

1.5 Scope of Study

The scope of the study is about the adoption lean management technique in the bakery industry in which the location was selected in Malaysia. A bakery in Melaka Tengah, Malacca where the location that the research to complete this research. The respondent for this research will be focuses on the owner and employee of the bakery. This research is to investigate the lean management techniques that implemented in bakery in running the operation on the production floor. This study also want to investigate the challenges that faced by a bakery in implementation lean technique and to conduct one process improvement that is Plan, Do, Check, and Act (PDCA) project.

1.6 Limitation of Study

Limitation of study can be defined as the problem that every research need to faced when conducting their study. This research also has the same problem as there are limitation while conducting and collecting information that needed for this study. One of limitation of study is time constraints where researchers need to find the right time for interviews because respondents do not have much time due to the busy schedule of work. Therefore, researchers need take a long time while to complete this research. Interviews has held according to their schedule as these conditions will affect production.

1.7 Significance of Study

The information in this study can be used by the management in the bakery and pastry industry especially in Malaysia. This study is significance for the organization where the findings and recommendations can be used by them. The significant of this study will help the organization to make process improvement in their company from

implementation lean technique. This research also help the company to identify the implementation of the challenges lean technique that can give effect to their company especially in running operation production floor. This study can give benefits to the company in gain the knowledge about the how to overcome challenges in implementing lean management techniques.

1.8 Structure of The Thesis

The thesis is organized in five chapter in brief as below:

Chapter 1 Introduction: This chapter introduces the background of study, problem statement, research question, research objective, scope and limitation of the study, significant of the study and the structure of the thesis.

Chapter 2 Literature review: This chapter lays out the previous studies that related to the thesis topic, including historical background of lean, lean concept, five principles of lean, benefits and barrier of implementation lean, lean tools and technique and the last one is a conceptual framework.

Chapter 3 Research methodology: This chapter describes the research method of qualitative research. This research collect data use primary data and secondary data.

Chapter 4 Findings: These chapters specifically describe the main findings of the research question.

Chapter 5 conclusion and recommendations: This chapter discusses about the conclusion of this project and future improvement of the project is also included.

1.9 Summary

In this chapter, the researchers explain about body identification, problem statement, research objectives and research questions, the scope of the study, significant of study and structure of the thesis.

CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

This chapter discussed the historical background of the lean, concept of lean management and lean manufacturing, lean tool and technique, the principle of lean and technique of lean management. It also discussed the benefits and challenges in the implementation of lean management techniques.

2.1 Historical Background of Lean

The lean concept has begun in the twentieth century. General Motors alongside Henry Ford of the Ford Motor Company and Alfred Sloan have made a move in the manufacture of the craft industry. This requires the specific knowledge and skills of individual workers, into the mass production model. In the mid-20th century, Japanese Manufacturers of Toyota have made better progress in their production techniques known as the Toyota Production System (TPS), and also known as Lean manufacturing. In the 1990s, almost all automobile industry in North America and Europe has quickly adapted to the recognized mass production model in the automobile industry (Effah, 2017).

After World War II, Japan's industrial base needs to be rebuilt. During the war, Industrial areas were widely destroyed and their productivity was far behind the United States where nine times higher American Productivity compared to their Japanese counterparts.

The waste reduction focuses on the Toyota Production System is said to be Lean's manufacturing base credited to Taiichi Ohno for its development (Keyes, 2013). Through the use of waste reduction as one of the tools to reduce the productivity gap between the United States and Japan, the development of various techniques by Toyota has been associated with Lean manufacturing. In the pursuit of the most effective method, the original Manufacturer of the Toyota Production System (TPS) has described it as a production system that goes beyond the complete elimination of all waste philosophy which exposes all aspects of production (TOYOTA, 2016). The way they make something called the Just-in-Time (JIT) system has caused the system to become the most famous phenomenon in the world.

Now, the industrial revolution more focused on using machines to replace humanity has helped a lot in taking a short time for production through the use of Lean Management Concepts. The assembly line is one of the famous Lean concepts created by Henry Ford. Henry Ford is the founder of a Ford motor company that has created a model of installation mounting. The car-making process becomes easier than individual expenditure to mass production by the creation of the model. This will indirectly involve the elimination of waste such as resources, times and space wasted in the installation of trains in individual production (Gupta et. al., 2015).

Lean Production is a production philosophy focused on reducing the number of resources used in various activities within the enterprise. It is used to eliminate value-added activities in supply chain management, customer handling, design, and production. The Lean Manufacturer uses a team of skilled workers in the organization and uses sophisticated and automatic machines in producing products for a huge range of potentials (Marodin & Saurin, 2013).