

**THE COMMUNICATION, SKILL AND KNOWLEDGE THAT AFFECT 5S  
METHODOLOGY TOWARD PERFORMANCE IMPROVEMENT IN PAPER  
MILL MANUFACTURING INDUSTRY**

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This report submitted in partial fulfillment of the requirements for the award of  
Bachelor of Technology Management (Innovation technology)

Faculty of Technology Management and Technopreneurship

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I hereby declared that this thesis entitled  
“THE COMMUNICATION, SKILL AND KNOWLEDGE THAT AFFECT 5S  
METHODOLOGY TOWARD PERFORMANCE IMPROVEMENT IN PAPER  
MILL MANUFACTURING INDUSTRY.”

is my own research except the citation and except of each which I have mentioned in  
the references. This thesis has not been accepted for any degree and is not  
concurrently submitted by candidature of any other degree

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## DEDICATION

I would like to appreciate the dedication of my beloved families who educated me and motivate me to study until this level, the lecturers and friends who give me endless support and advice throughout the research. Without their blessing and encouragement, this research is impossible to complete within short period of time.

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Thank you.

## ABSTRACT

Lean manufacturing system has been infiltrated in manufacturing sectors across the world. In fact, Lean manufacturing system is a practice which regards the use of the resources, creation of value for the end customers, and as the ways to eliminate the waste. There are several tools that can be used to eliminate the waste within industry. This research is study for the 5s methodology toward performance improvement in paper mill manufacturing industry. Despite this, the research study will be focus in paper mill manufacturing industry which has been implemented 5S system. Although there are a number of tools and technique available to help in improve the manufacturing process, however there is only a few industries could implement the tools successfully. In this research, the communication, skill and knowledge of top management and employees is the factors that will affect the implement of 5s system toward performance improvement in the industry. Therefore, it is important to ensure the organization to define which is the most influence of the human capability in the performance improvement within 5s methodology in the industry. This research study has been proposed with the research model of the affecting of performance improvement within 5s in manufacturing industry among the capability of top management and employees. A several research method has been adopted to do the research such as descriptive research design with quantitative method, survey questionnaire and cross-sectional studies.

***Keywords:***

5S Methodology, Paper Manufacturing Industries, Capability of Top Management and Employees, Influencing.

## ABSTRAK

Sistem pembuatan Lean telah menyusup dalam sektor pembuatan di seluruh dunia. Malah, sistem pembuatan Lean adalah satu amalan yang berkenaan dengan penggunaan sumber-sumber, penciptaan nilai untuk pelanggan akhir, dan sebagai cara untuk menghapuskan sisa. Terdapat beberapa alat yang boleh digunakan untuk menghapuskan sisa dalam industri. Kajian ini adalah kajian untuk kaedah 5S ke arah peningkatan prestasi di kilang kertas industri pembuatan. Walaupun begitu, kajian penyelidikan yang akan menjadi tumpuan di kilang kertas industri pembuatan yang telah melaksanakan sistem 5S. Walaupun terdapat beberapa alat dan teknik yang ada untuk membantu dalam meningkatkan proses pembuatan, namun hanya ada beberapa industri boleh melaksanakan alat-alat dengan jayanya. Dalam kajian ini, komunikasi, kemahiran dan pengetahuan pengurusan atasan dan pekerja adalah faktor-faktor yang akan memberi kesan kepada melaksanakan sistem 5S ke arah peningkatan prestasi dalam industri. Oleh itu, ini adalah penting bagi organisasi untuk menentukan keupayaan manusia yang paling mempengaruhi peningkatan prestasi dengan metodologi 5S dalam industri. Kajian penyelidikan ini telah dicadangkan dengan model penyelidikan penagruhi peningkatan prestasi dalam 5S dalam industri pembuatan di kalangan keupayaan pengurusan atasan dan pekerja. Satu kaedah penyelidikan beberapa telah diterima pakai untuk melakukan penyelidikan seperti reka bentuk kajian deskriptif dengan kaedah kuantitatif, kajian soal selidik dan kajian keratan rentas.

***Kata kunci:***

Metodologi 5S, Kertas Industri Pembuatan, Keupayaan Pengurusan Atasan Dna Perkerja, Pengaruhi.



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## CHAPTER 1

### INTRODUCTION

#### 1.1 BACKGROUND OF STUDY

Following to the current technology trend, technology is keep improving and innovating. People can't live without technology because technology helping people to live their life with more luxury and convenience. Not only in human side, technology also changed and reformed a lot in manufacturing sector such as clothing and textiles, petroleum, chemicals and plastics, electronics, computers and transportation, food production, metal manufacturing, wood, leather and paper manufacturing.

Tissues is one of the daily product that have high demand from the human compare with other necessary product. Tissues can be toilet tissues, facial tissues, napkin, wet tissues, kitchen tissues, pop up tissues and serviette. Tissues is use for cleaning, but it also can use for decoration and wrapping food. Normally tissues can seem from any places such as toilet, public toilet, restaurant, food court and canteen. Now believe that, tissues can be found from anyone of person, car and houses.

Face to the tissues have high demand from the market, mass production system is not efficiency for the current paper mill manufacturing industry. This is because of mass production system unable to cope with the urgent and separate order of certain

characteristics production due to the longer preparation time, over stocking in warehouse, complex planning, huge volume waste, costly for equip a heavy machinery (Mária Mičietová, 2011). Hence, the new approach of Toyota Production System which is Lean Production system has been replace the Mass Production system after the final assembly plant of lean production by Ohno's and broadly acceptable be the best manufacturing practices across countries and industries (Taiichi Ohno, *The Machine That Changed The World*, 1990, pp. 55-58).

According to the book of "The Machine that Change the World: Triumph of Lean Production" that developed by Taiichi Ohno and been popularized by James P. Womack, Daniel T. Jones and Daniel Roos (1990), Lean Production system is created by Taiichi Ohno and it is one of the new way of Toyota Production System. Ohno noted that "*The basis of the Toyota Production system is the absolute elimination of waste.*" (The Toyota Production System, Beyond Large-Scale Production, pg. 4). Lean Production system is about doing more with less which are less time, less inventory, less space, less manpower and less costing for eliminating waste, simplifying procedures and speeding up production in design, manufacturing, distribution and customer service processes by using some effective tips, tools and techniques.

In these situation, paper mill manufacturing industry apply Lean Production system to improve the flexibility of industry, enhance performance, increase overall effectiveness and reduce the response time to act upon varying customer demands over a period time to produce high volume of tissues for fulfilling customer demands in the market. After implement Lean Production system to eliminate the waste and improve the performance, it can't be stop on the spot, organization must keep continuous improving and sustain the best production performance for preventing deterioration. Therefore, 5s is one of the effective lean production tool and strategy for manage, sustain and continuously improving the performance of the paper mill organization production.

5s known as five pillars was developed by Hiroyuki Hirano and it is foundation of the Toyota Management System. Five pillars are defined as Sort, Set in Order, Shine,

Standardize, and Sustain. Because these words begin with S, so they are referred to as the 5S's. 5s system is a tool or system that supports a philosophy of operating in an organized fashion. The philosophy of this system supports is one of discipline, efficiency, and attention to detail (Grabau, 2009). Besides that, 5s organize a work space for efficiency and effectiveness by identifying and storing the items used, maintaining the area and items, sustaining the new order and builds understanding among employees of how they should do the work. Thus, 5s activities will make the workplace safer, cleaner and more pleasant.

In order to improve and sustain the performance of the paper mill manufacturing industry on the global market, many Lean techniques have been incorporated into the design but the real focus of next step is to institute continuous flow of the product through the process and to make the process statistically stable. Therefore, 5s methodology was implemented for continuous improving the competence for the better quality tissues products and better performance of paper mill organization production. But, capabilities of human factors are the issues that can't be ignore because it will affect 5s toward performance improvement in industry organization. The capabilities of the knowledge, skill and communication are very important with the human factors of top management and employees in the 5s implementation.

This report is concerning on 5s toward performance improvement in paper mill manufacturing industry with an influenced by capabilities of human factors. In order to fulfill the demand on the current market and create the world-class production system, any of the organization wherever the manufacturing organization, services company, public-sector organization and manager must learn to acquire a long-term forecast and planning with the realization that what to do is a part of a continually improving process (John R. Black, 2008).

## 1.2 PROBLEM STATEMENT

Most of the paper mill industry faced the problem of unable to achieve the customer order due to the high volume of tissues paper in the market. According to Z Zhuang (2005), the production cannot satisfy the consumption, especially for high quality paper products, due to the lack of high-quality raw materials and old mass production technique. Therefore, the lean production is invented for replaced the old mass production to satisfy the current customer demand by producing high quality product with low cost.

According to Raid A. Al-Aomar (2011), the wastes of overproduction, over processing, defects, inventory, transportation, motion, underutilization, and delay will cause the unnecessary or excessive use of materials, space, and production resources to any incurred costs that add no value to the product in the industry production. Besides that, the messy environment, uncomfortable workplace, time consuming, non-efficient working process flow and production, poor handle controlled machines and poor arrangement of plant layout also are the problem faced by current old traditional manufacturing industry unable to satisfy the customer demand (HungLin, Chi, 2011). Therefore, 5s method as the lean tool has been used to eliminated the waste for improve the performance of industry production to fulfill the customer order.

Some key factors in the success of any implementation project have little to do with technology. It is important to have the right individuals and to have clear processes in place for decision making and management (Rick Burke, 2001). The capabilities of human factor which are knowledge, skill and communication of top management and employees that will influenced the organization production performance. In this statement, the lack of knowledge and skill toward 5s, and the poor communication of the human factor will be the problem for the organization failed in the performance improvement within 5s. Thurs, the purpose of this report is identify the capabilities of human factors that will influence the 5s toward performance improvement in paper mill manufacturing industry.

### 1.3 RESEARCH QUESTIONS

This research has been work out to identify the propensity of paper mill industry in 5s system with the capabilities of human factors in the organization for performance improvement. The main purpose of this research is to investigate the influence of capabilities of human factor with the 5s toward performance improvement in paper mill manufacturing industry. Although there have a few case studies that have been done in Malaysia based on 5s performance improvement, but the researcher would like to do the research on the 5s toward performance improvement in paper mill manufacturing industry with the effected of human factors capability.

Therefore, the researcher come out with several research questions to be defined in the research as follow:

- What is the perception of the 5s toward performance improvement in paper manufacturing industry?
- What is the capabilities of human factors that will influence 5s toward performance improvement in industry?
- Which is the most influence of human factor capabilities in the 5s toward performance improvement in industry?

## 1.4 RESEARCH OBJECTIVES

This research is concentrated to provide a theoretical framework to understand the key on capabilities of human factor and concept of 5s as a lean tool and technique that be used in lean production for performance improvement. Therefore, the purpose of researcher is to answer the research questions by providing the research objectives with certain research techniques.

The research objectives of this research are identify the affecting of the human capabilities in 5s toward performance improvement in paper mill manufacturing industry. Hope that this research study will help organization management to improve the production performance by using 5s for performance improvement within capabilities of human factors.

Therefore, the researcher comes out with several research objectives to be obtained in this research as follow:

- To investigate the perception of the 5s toward performance improvement in paper manufacturing industry.
- To determine the capabilities of human factors that will influence 5s toward performance improvement in industry.
- To identify the most influence of human factor capabilities in the 5s toward performance improvement in industry.