REDUCING DIE CUT DEFECT USING DMAIC METHOD IN THE PACKAGING COMPANY

UNDERGRADUATED FINAL PROJECT

Submitted as one of the requirements to obtain Sarjana Teknik (S.T.)

By,

Naufal Husamuddin

ID No. 004201900051

FACULTY OF ENGINEERING

INDUSTRIAL ENGINEERING STUDY PROGRAM

CIKARANG

MAY, 2023

PANEL OF EXAMINER APPROVAL

The Panel of Examiners declare that the undergraduate Final Project entitled **"REDUCING DIE CUT DEFECT USING DMAIC METHOD IN THE PACKAGING COMPANY"** that was submitted by Naufal Husamuddin majoring in Industrial Engineering from the Faculty of Engineering was assessed and approved to have passed the Oral Examination on 26th May, 2023.

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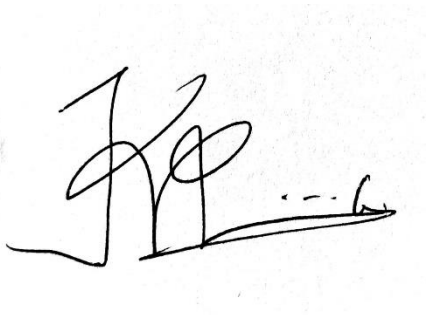

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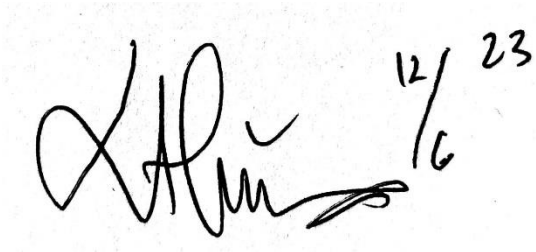

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This Final Project entitled **"REDUCING DIE CUT DEFECT USING DMAIC METHOD IN THE PACKAGING COMPANY"** prepared and submitted by **Naufal Husamuddin** in partial fulfillment of the requirements for the degree of Bachelor Degree in the Faculty of Engineering has been reviewed and found to have satisfied the requirements for a thesis fit to be examined. I therefore recommend this thesis for Oral Defense.

Cikarang, Indonesia, 26th May 2023.

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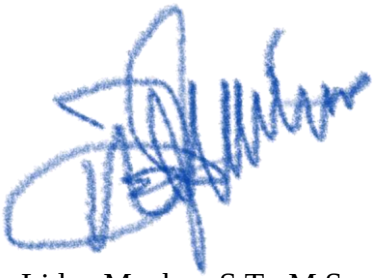

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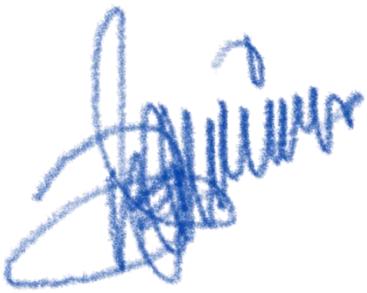

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ABSTRACT

PT. XYZ is a packaging company engaged in the manufacture of toy and food packaging. It is understood that the company has a problem that need to be improve. Because of this, defect packaging usually appears in every manufacturing, quality is one of the most critical things in manufacturing. An increase in defect product can cause losses for the company, therefore it is crucial to be handling that can be increase productivity. In order to avoid the alteration of defective product or even the accumulation of defect product. One of the techniques that can be used to reduce is the Six Sigma Method. In this research, the Six Sigma technique is used with DMAIC (Define, Measure, Analyze, Improve, and Control) method in studying the problems that occured. Based on the study conducted on three types of manufacturing defects, namely Die Cut method, Pond Handle method, and Joint Glue Method, each rejects in the Die Cut process has 48% or 5091 die cut defects, in the Pond Handle process is 29% or 3043 PH defects, and in the Joint Glue process is 23% or 2367 defects, with a total defects is 10501 pcs packaging defects. Also, found the abnormal machine and method factors in Die Cut, there is an abnormality in the machine caused by damaged spark plug that have not been replaced, and the method at the time of changeover carried out by Manpower is still not entirely using a good method. The result of this research, Total reject data has been improved by total percent is 67% more productive, 10501 total packaging defects reduced to 3421 packaging defects.

Keyword: *Product Defect, DMAIC Method, Packaging Industry, Six Sigma Method.*

ACKNOWLEDGMENT

In the Name of Allah, the Most Merciful, the Most Compassionate, Alhamdulillah all praises belongs to Almighty Allah, the Lord of the worlds and prayers and peace be upon Muhammad His servant and messenger. First and foremost, I would like to praise Allah the Almighty, the Most Gracious, and the Most Merciful for His blessing given to me during my study and in completing this final project. May Allah's blessing goes to His final Prophet Muhammad (peace be up on him), his family and his companions. I do really grateful for the help from God in finishing my study. Hereby my expressions of gratitude to:

1. My Advisor, Mam Anastasia. I feel so grateful to have met you and become your student. You are such a very kind person. I do apologize if I am always disturbing your free time with my questions.
2. My Head of Industrial Engineering Program Study, Mam Andira. I do really thankful for every lesson and knowledge that you have given for us in these 3.5 years.
3. The Lecturer of Industrial Engineering and other majors. Thank you for teaching us all these skills and knowledge. I do with you had a good life ahead.
4. My Parents, thank you for the uncountable and unpayable things that you have done for me.
5. My Quality Team from PT. Printec Perkasa II, thank you for all attentions and support, Thank you for the experiences and explanations for support me.
6. My Friends in IEN 2019, thank you for being my friend in 3.5 years of campus life. Without your existence, everything will be different.
7. Others that I cannot mention one by one. My gratitude and appreciations also go to my colleague in developing the final project and people who have willingly helped me out with their abilities.
8. I want to thanks to me for believing myself for all doing this hard work, and the last thanks to myself for having no days off, and never be quit.

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LIST OF TERMINOLOGY

DPMO	:	DPMO stands for (*Defects Per Million Opportunities*), DPMO is a Six Sigma metric used in quality management that is defined as the number of defects per million opportunities. It is a ratio of the number of defects in a sample to the number of defect opportunities multiplied by 1 million.
Continuous Improvement	:	Continuous improvement is a process of making small, incremental changes to a product, service, or process with the aim of making it better over time.
DMAIC Method	:	"Define, Measure, Analyze, Improve, Control " is used in business, to control and continuously improve processes and products continuously.
Six Sigma	:	Is a set of techniques and tools for process improvement. A disciplined approach and methodology for process improvement, aiming to reduce defects and variation in processes to achieve near-perfect results.
Control Map P	:	A Control Map P, as known as proportion chart, is a statistical control chart used to monitor the proportion of nonconforming items or events in a process over time.
Pareto Diagram	:	A Pareto Diagram, also known as a Pareto Chart, is a visual tool used to prioritize and display the relative importance of different categories or causes based on their frequency or impact.