ANALYSIS OF QUALITY CONTROL IN EMBROIDERY TO REDUCE PRODUCT DEFECTS USING DMAIC METHOD

(Study on Bordir Corner)

ANALISIS KONTROL KUALITAS DALAM BORDIR UNTUK MENGURANGI CACAT PRODUK MENGGUNAKAN METODE DMAIC

(Studi pada Bordir Corner)



Submited by:

Rizqi Cipta Anugrah

20180410325

INTERNATIONAL PROGRAM OF MANAGEMENT AND BUSINESS
STUDIES FACULTY OF ECONOMICS AND BUSINESS
UNIVERSITAS MUHAMMADIYAH YOGYAKARTA

ANALYSIS OF QUALITY CONTROL IN EMBROIDERY TO REDUCE PRODUCT DEFECTS USING DMAIC METHOD

(Study on Bordir Corner)

UNDERGRADUATED THESIS

Submitted as a Partial Fulfillment of the Requirement for the Attainment of the

Degree of Bachelor of Economics in Faculty of Economics and Business

Department

of Management Universitas Muhammadiyah Yogyakarta



Submited by:

Rizqi Cipta Anugrah

20180410325

INTERNATIONAL PROGRAM OF MANAGEMENT AND BUSINESS
STUDIES FACULTY OF ECONOMICS AND BUSINESS
UNIVERSITAS MUHAMMADIYAH YOGYAKARTA

2022

DECLARATION PAGE

I hereby:

Name : Rizqi Cipta Anugrah

Student number : 20180410325

Declared the Undergraduate Thesis entitled "ANALYSIS OF QUALITY

CONTROL IN EMBROIDERY TO REDUCE PRODUCT DEFECTS USING

DMAIC METHOD" its content is truly the word of my own and I did not

plagiarism or quotation in ways that are inconsistent with the prevailing ethics in

the scientific community. On this statement, I am ready to bear any risk, or any

sanction imposed to me in accordance with the applicable regulations, if in the

future it is found any breach of scientific ethics, I am willing to accept the

consequences.

Yogyakarta, December 16 2022

METERAL DO 1000 MILES AND A STATE OF THE PROPERTY OF THE PROPE

Rizqi Cipta Anugrah

MOTTO

لَهُ مُعَقِّبَاتٌ مِنْ بَيْنِ يَدَيْهِ وَمِنْ خَلْفِهِ يَخْفَظُونْهُ مِنْ أَمْرِ اللَّهِ ۖ إِنَّ اللَّهَ لَا يُغْيِّرُ مَا بِقَوْمٍ حَتَّىٰ يُغْيِّرُوا مَا بِأَنْفُسِهِمْ ۗ وَإِذَا أَرَادَ اللَّهُ بِقَوْمٍ سُوءًا فَلَا مَرَدُ لَهُ ۖ وَمَا لَهُمْ مِنْ دُونِهِ مِنْ وَالْ

For each (such person) there are (angels) in succession, before and behind him: They guard him by command of Allah. Verily never will Allah change the condition of a people until they change it themselves (with their own souls). But when (once) Allah willeth a people's punishment, there can be no turning it back, nor will they find, besides Him, any to protect. (Ar-Ra'd 13:11)

DEDICATION PAGE

Alhamdulillahi rabbi'alamiin, Thanks to Allah SWT, the Most Gracious and Most Merciful, for his kindness and blessing in allowing me to finish this undergraduate thesis. This undergraduate thesis is dedicated to:

- My Parents,. Tatang Hidayat and Sri Sobariah, Who always gives the best for me and my brothers and sisters. Who always support me in everything I do. Because of your help and prayers I was able to complete this research.
 This achievement is my special offering to My Parents.
- 2. Dr. Ika Nurul Qamari, SE., M.Si as my supervisor who always given me the best advice, knowledge, and also his time. So, I can complete this undergraduate thesis.
- Mam Dr. Indah Fatmawati, SE,M.Si and Mr. Radyan Dananjoyo, SE., MM.,
 M.Sc., Ph.D who always gives a lot of good things and always cares for the
 International program of management class.
- 4. To my little brother and sister Julda and neng Amira thank you for being my best part of my happiness. I really hope you will be more successful in the future.
- 5. To all my friends and relatives that I can't mentions one by one.

PREFACE

Alhamdulillahirabbil 'alamin, all praise and gratitude we always pray to Allah SWT because of all His grace, blessings and will, the researcher was able to complete this thesis. Sholawat and salam always go to Prophet Muhammad SAW. who has brought His people from darkness to victory. Alhamdulillah, the researcher was able to complete this final project with the title "ANALYSIS OF QUALITY CONTROL IN EMBROIDERY TO REDUCE PRODUCT DEFECTS USING DMAIC METHOD". The struggle and effort in writing this thesis cannot be separated from the many important roles of parties who took the time, expressed ideas and thoughts, shared experiences, provided support and motivation, and accompanied them with prayers. Therefore, the researcher would like to thank all parties involved, including:

- 1. Mr. Dr. Ir. Gunawan Budiono, M.P., IPM, as the Chancellor of the University of Muhammadiyah Yogyakarta.
- 2. Mr. Prof. Rizal Yaya, S.E., M.Sc., Ph.D., Ak., CA., CRP, as the Dean of the Faculty of Economics and Business, University of Muhammadiyah Yogyakarta.
- 3. Mrs. Dr. Rr. Sri Handari W, S.E., M.Sc., as the Head of the Management Study Program at Muhammadiyah University of Yogyakarta.
- 4. Dr. Ika Nurul Qamari, SE., M.Si., as Thesis Advisor who has taken the time, energy, and thoughts in guiding, directing, and sharing his knowledge with researchers.

5. Rahmat Ilham Adicahya who have given permission and helped researchers to carry out this research.

6. Mrs. Sri Sobariah and Mr. Tatang hidayat as the researcher's beloved parents, who have fulfilled moral and material needs since the researcher lived in the world until now. Researchers are grateful to have been raised by both very great parents.

7. All parties who have provided support, assistance, convenience and enthusiasm in the process of completing this Final Project.

May Allah repay the kindness of all parties involved for their respective kindness. Researchers hope that God will always provide physical and spiritual health to all of us. Amen Ya Rabbal 'aalamiin. The researcher realizes that in writing this thesis there are shortcomings and far from perfection, so that researchers need input in the form of criticism and suggestions from readers and the development of further research which is very necessary for the depth of writing this topic. Hopefully this thesis can be useful as it should be.

Yogyakarta, 16 December 2022

Mughah

Rizqi Cipta Anugrah

TABLE OF CONTENTS

| CHAF | PTER I | 1 |
|------------------------------|-----------------------------|------|
| INTR | ODUCTION | 1 |
| A. | Background | 1 |
| В. | Research Problem | 4 |
| C. | Research Objectives | 5 |
| D. | Benefits of research | 5 |
| CHAF | TER II | 7 |
| LITE | RATURE REVIEW | 7 |
| A. | Quality | 7 |
| В. | Quality Control | 8 |
| C. | Six Sigma | . 10 |
| D. | DMAIC Method | . 13 |
| 1. | Define | . 13 |
| 2. | Measure | . 14 |
| 3. | Analyze | . 16 |
| 4. | Improve | . 18 |
| 5. | Control | . 19 |
| E. | Previous Research | . 20 |
| F. | Research Scheme | . 22 |
| CHAF | PTER III | . 23 |
| RESE | ARCH METHODOLOGY | . 23 |
| A. | Research Object and Subject | . 23 |
| В. | Type of Research | . 23 |
| C. | Data Type | . 23 |
| D. | Data Collection Techniques | . 24 |
| E. | Data Analysis Technique | . 25 |
| CHAF | PTER IV | . 29 |
| DATA ANALYSIS AND DISCUSSION | | |
| A. | Overview of the Company | . 29 |
| В. | Research Result | |
| 1. | Define | . 33 |
| 2 | Mascurae | 2 5 |

| 3. | . Analyze | 43 |
|------|-------------------------------------|----|
| 4 | . Improve | 47 |
| CHAI | PTER V | 50 |
| CLOS | SING | 50 |
| A. | Conclusion | 50 |
| В. | Suggestions | 50 |
| C. | Limitations of the Study | 51 |
| D. | Recommendation for Further Research | 51 |
| REFE | CRENCES | 52 |
| ATTA | ACHMENT | 54 |
| A. | Bordir Corner | 54 |
| В. | Proses Bordir | 54 |
| C. | Proses Finishing | 55 |
| D. | Proses Packing | 55 |
| E. | Interview Result | 56 |

LIST OF FIGURE

| Figure 1 Six sigma Motorola with 1.5-Sigma Shifted Normal Distribution | 12 |
|--|----|
| Figure 2 DMAIC Method | |
| Figure 3 Fishbone Diagram | |
| Figure 4 Research Scheme | |
| Figure 5 The stages of the production process | 30 |
| Figure 6 Pareto Chart | 38 |
| Figure 7 Chart of DPMO Distribution | 40 |
| Figure 8 C-Chart Control Map | 45 |
| Figure 9 Fishbone Diagram | |

LIST OF TABLES

| Table 1 Benefits of Achieving Multiple Levels of Sigma | 11 |
|---|------|
| Table 2 5W+1H Method | 19 |
| Table 3 Statement of Purpose | 34 |
| Table 4 Specific Customer Needs Define | 34 |
| Table 5 Defect Product Data | . 37 |
| Table 6 Percentage of Defect Product | . 38 |
| Table 7 Calculation of DPMO and Sigma Value | 40 |
| Table 8 How to Estimate Process Capability | 42 |
| Table 9 The number of defects in custom embroidery production | 44 |
| Table 10 5W+1H Corrective Action Plan | 48 |