

ENHANCING PRODUCT SUPPORT PERFORMANCE & REVENUE THROUGH
LOCALIZED SERVICE POINT : CASE STUDY AT PT XYZ IN TENGGARONG

By
Rizky Awalul Ramdani
22452032

MASTER'S DEGREE
in

ENGINEERING MANAGEMENT
MASTER OF MECHANICAL ENGINEERING
FACULTY OF ENGINEERING AND INFORMATION TECHNOLOGY



SWISS GERMAN UNIVERSITY
The Prominence Tower
Jalan Jalur Sutera Barat No. 15, Alam Sutera
Tangerang, Banten 15143 - Indonesia

Revision after the Thesis Defense on 19 August 2025

STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.



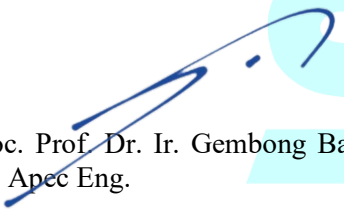
Rizky Awalul Ramdani

2 September 2025

Student

Date

Approved by:



Assoc. Prof. Dr. Ir. Gembong Baskoro, M.Sc., IPU, Asean
Eng, Apec Eng.

2 September 2025

Thesis Advisor

Date

Dr. Dwityapoetra S. Besar

2 September 2025

Thesis Co-Advisor

Date

Dr. Ir. Maulahikmah Galinium, S.Kom, M.Sc

2 September 2025

Dean

Date

ABSTRACT

Enhancing Product Support Performance & Revenue Through Localized Service Point :
Case Study at PT XYZ In Tenggaraong

By

Rizky Awalul Ramdani S.M.

Assoc. Prof. Dr. Ir. Gembong Baskoro, M.Sc.,IPU, Asean Eng, Apec Eng., Advisor
Dr. Dwityapoetra S. Besar, Co-Advisor

SWISS GERMAN UNIVERSITY

The intention of this study is to examine how localized service infrastructure can improve after-sales performance in remote mining operations. PT XYZ faced a persistent problem at its Tenggaraong site, where On-Time In-Full (OTIF) delivery averaged only ~80%—below the 90% target—due to the 140 km distance from the nearest facility. This caused frequent delays, low customer satisfaction, and revenue capture of only ~50% of PT PKSM’s potential parts demand. The objective is to evaluate whether establishing a localized service point can raise OTIF, increase customer satisfaction, and secure full revenue potential. A mixed-method approach was employed, combining descriptive statistics, customer satisfaction surveys, root cause analysis, and a five-year financial feasibility simulation. Tools included DMAIC for problem structuring and financial models (NPV, IRR) for investment evaluation. Findings show OTIF could rise to ~95% (from ~83%), downtime incidents reduced by >70%, and satisfaction scores improved (e.g., delivery timeliness from 2.8 to 4.3 on a 5-point scale). Revenue is projected to grow ~74%, reaching IDR 24 billion annually. Financial analysis confirms feasibility with IRR ~75% and positive NPV; sensitivity scenarios still yield IRRs >50%. In summary, localized support points significantly enhance service reliability, strengthen customer trust, and deliver robust financial returns in remote industrial contexts.

Keywords: *Service Point, OTIF, Revenue, Customer Satisfaction, Feasibility*



© Copyright 2025
by Rizky Awalul Ramdani S.M
All rights reserved

DEDICATION

I dedicated this research for My Family, My Career, & Aulia Shafa Nafisah



ACKNOWLEDGEMENTS

I wish to thank the members of my committee for their support, patience and good humor. Their gentle but firm direction has been most appreciated. Dr. Gembong was particularly helpful in guiding me toward a qualitative methodology. Dr. Gembong's interest in sense of competence was the impetus for my proposal. Finally, I would like to thank Dr. Dwityapoetra. From the beginning, he had confidence in my abilities to not only complete a degree but to complete it with excellence.

I have found my coursework throughout the Curriculum and Instruction program to be stimulating and thoughtful, providing me with the tools with which to explore both past and present ideas and issues.



TABLE OF CONTENTS

STATEMENT BY THE AUTHOR.....	1
ABSTRACT.....	3
DEDICATION.....	5
ACKNOWLEDGEMENTS.....	6
TABLE OF CONTENTS.....	7
LIST OF FIGURES	9
LIST OF TABLES.....	10
CHAPTER 1 – INTRODUCTION	11
1.1 Background.....	11
1.2 Research Problems.....	17
1.3. Research Objectives.....	18
1.4. Significance of Study.....	18
1.5. Research Questions.....	19
1.6. Hypothesis.....	19
CHAPTER 2 - LITERATURE REVIEW.....	21
2.1 Corporate Strategy and After-Sales Service at PT XYZ	21
2.2 Definition of On-Time In-Full (OTIF) and Its Importance	23
2.3 OTIF, Customer Satisfaction, and Revenue Generation.....	25
2.4 Localized Service Points and Remote Logistics Support	26
2.5 Investment Feasibility.....	28
2.6 Previous Studies.....	29
CHAPTER 3 - RESEARCH METHODS.....	31
3.1 Research Framework DMAIC Analysis	31
3.2 Data Collection and Analysis Methods.....	33
3.3 Implementation Plan and Expected Outcomes	35
CHAPTER 4 – RESULTS AND DISCUSSIONS.....	37
4.1 Problem OTIF Identification.....	37
4.1.1 Identifying the Root Cause.....	39

4.1.2 Recommendation Justification	41
4.2 Measure - Data Preparation and set up Key Performance	43
4.2.1 Measure Investment Analysis.....	43
4.2.2 Product Support Market	44
4.2.3 Project Simulation PT PKSM.....	45
4.2.4 Analysis Internal Rate of Return (IRR) and Net Present Value (NPV)	46
4.2.5 Analysis Infrastructure Support Point PT PKSM.....	50
4.3 Improve and Re-Design Delivery Site PT PKSM	51
4.3.1 Improve Spare Parts Availability	53
4.3.2 Set up Dedicated Manpower for Support	55
4.4 Feasibility Study New Support Point.....	57
4.5 Implementation OTIF	59
4.5.1 Socialize the definition of OTIF with customers	59
4.5.2 Socialize calculation methods and targets for "On Time"	60
4.5.3 Calculations and targets for "In Full".....	60
4.5.4 OTIF Voucher Compensation	61
4.5.5 Monthly Performance OTIF	63
4.5.6 Weekly OTIF Mentoring	64
4.5.7 Report OTIF	66
4.5.8 Control – Performance Audit	67
4.6 Achievement OTIF	68
4.7 Parts and Service Revenue Performance (Jan-June 2025).....	70
4.8 Customer Satisfaction Survey – Semester 1 2025	71
4.9 Strategic Benefits of the Tenggara Service Point	73
CHAPTER 5 – CONCLUSIONS AND RECCOMENDATIONS	75
5.1 Conclusions.....	75
5.2 Further Improvement	76
GLOSSARY	77
REFERENCES	79
CURRICULUM VITAE	81

LIST OF FIGURES

Figure 1. Province with the Largest Coal Reserves in Indonesia	12
Figure 2. Geographical Conditions of PT XYZ.....	13
Figure 3. Product Support Quality Achievement.....	14
Figure 4. Sales PT XYZ in PT KSM 2021-2024.....	15
Figure 5. House of UT Guaranteed Product Support.....	21
Figure 6. Calculation OTIF.....	24
Figure 7. OTIF Measured	24
Figure 8. DMAIC Analysis.....	32
Figure 9. Product Support Quality Achievement & Sales PT XYZ in PT KSM 2021-2024	37
Figure 10. Ishikawa Chart.....	40
Figure 11. Support Point PT PKSM	51
Figure 12. OTIF Part Simulation	51
Figure 13. Mutlitstorage PT PKSM.....	59
Figure 14. Calculation methods and targets for "On Time"	60
Figure 15. OTIF Claim Mechanism.....	61
Figure 16. Monthly Performance OTIF	63
Figure 17. OTIF Real Time by SAP	66

LIST OF TABLES

Three Main Customer Experience	23
Previous Study	29
DMAIC Stage and Steps.....	32
Questioner for Customer Satisfaction Survey.....	33
Time Frame of Study and Research.....	35
Average customer satisfaction scores (PT PKSM, Tenggaraong).....	38
Activity and Lead Time Process	43
Market Size and Population	44
Projection Demand Five Year.....	45
Project Simulation.....	46
Project Simulation NPV and IRR.	47
Plan Capex & Cost Building Support Point.....	48
Support Scheme	52
Leadtime Part Multi Storage.....	53
Activity Increase Availability	54
Projected Inventory Stock at Tenggaraong Support Point (IDR billion) (for Komatsu, Scania & other parts, 2025–2029)	55
Activity Increase Manpower.....	56
Total Man Power.....	56
Project Simulation.....	58
Line Item Part	61
OTIF Mentoring.....	65
Check List Audit Internal.....	67
OTIF Delivery Performance – Tenggaraong Site (Monthly 2025 with Year-End Outlook)	68
PT XYZ Tenggaraong Monthly Revenue – H1 2025 (with full-year outlook).....	70
Customer Satisfaction Scores Before vs. After Local Support Point (PT PKSM, Likert 1–5 scale)	72