

**IMPROVING LEADTIME OF ENGINE REMANUFACTURING
(FLAT-RATE PROGRAM) THROUGH VALUE STREAM MAPPING
AT PT XYZ**

By

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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.

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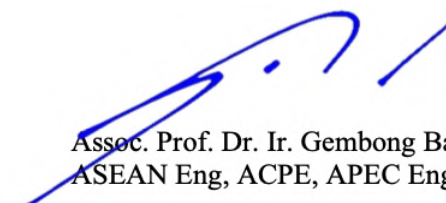
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ABSTRACT

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This study examines lead time inefficiencies in an engine remanufacturing flat-rate program for heavy equipment in the mineral and coal mining industry. The research aims to identify dominant waste types contributing to extended lead time, apply Value Stream Mapping (VSM) to eliminate non-value-added activities, and evaluate the effectiveness of lean-based improvements in reducing lead time and improving the Value-Added (VA) ratio. A case study was conducted at PT XYZ using lean tools such as TIMWOOD analysis, current- and future-state VSM, VA/NVA analysis, and a PDCA-based improvement framework, supported by operational data and cross-functional validation. The results indicate that total internal lead time was reduced from 100 days to 65 days, with production and supply parts lead time decreasing from 58 days to 51 days, and administrative lead time from 42 days to 14 days. In addition, the VA ratio improved from 63% to 93.9%, reflecting a substantial reduction in non-value-added activities. The study concludes that integrating VSM with structured waste analysis is effective in improving remanufacturing performance, although further optimization is required to achieve the planned 45-day lead time target.

Keywords: Lean Manufacturing, Value Stream Mapping, Engine Remanufacturing, Lead Time Reduction, Waste Analysis



DEDICATION

With profound gratitude and deep humility, I dedicate this work to my beloved family, whose endless prayers, sacrifices, and unconditional love have sustained my strength throughout this journey. Their unwavering belief in me has been the light that guided every challenge and achievement.

To my company, for the trust, opportunities, and invaluable experiences that have enriched my professional and personal growth. May this work reflect my dedication to contributing meaningfully to its continuous advancement.

And to my beloved nation, Indonesia may this humble contribution serve as a testament to my commitment to its progress, resilience, and aspiration toward a future built upon innovation, integrity, and sustainable development.

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