

AN ENGINEERING SYSTEM ANALYSIS OF SALES POTENTIAL DETECTION  
FAILURE IN KOMATSU HEAVY EQUIPMENT

Case Study: Company BEST– East Java

By

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## STATEMENT BY 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.



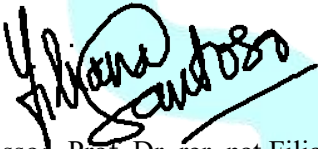
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## ABSTRACT

### AN ENGINEERING SYSTEM ANALYSIS OF FAILURE IN DETECTING SALES POTENTIAL OF KOMATSU HEAVY EQUIPMENT

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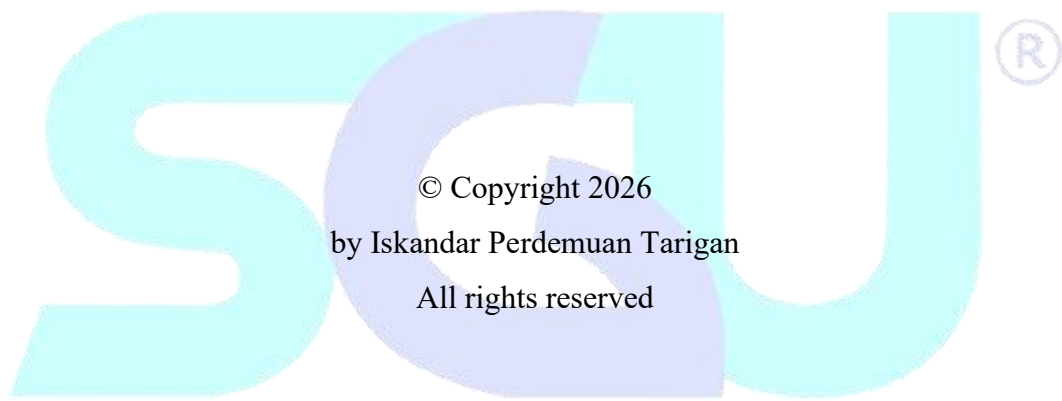
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The heavy equipment sales process in East Java, particularly for Company BEST's Komatsu machinery, has faced repeated failures in detecting sales potential, as evidenced by rising loss coverage rates. This study uses an engineering system approach, analyzing inputs, processes, and outputs through a quantitative method supported by survey data, internal records, and Loss Deal Loss Coverage (LDLC) data from 2021 to 2025. Various analytical techniques, FMEA, and root cause analysis with a fishbone diagram, were employed to identify failure causes. The findings reveal that an excessively large coverage area increases the likelihood of failure due to capacity overload, while higher canvassing frequency helps reduce undetected demand. FMEA highlights coverage area overload as the most critical failure, followed by inadequate service–sales feedback and administrative rigidity. These issues were addressed through targeted interventions, resulting in improved detection of sales potential. Ultimately, the study concludes that failures in detecting sales potential are predictable engineering issues. By redesigning the sales system with better capacity balancing, standardized canvassing, and improved feedback loops, sales detection reliability and overall performance can be significantly enhanced.

**Keywords:** *Systems Engineering, Reliability Engineering, Sales System Failure, FMEA, Heavy Equipment Sales, Root Cause Analysis*



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## DEDICATION

I dedicate this work as an expression of gratitude to the Lord Jesus Christ for His perfect guidance and providence, and to my beloved family whom I cherish dearly:

- Deby Devita Debora Saragih, the soulmate of my life, who has wholeheartedly supported and faithfully stood by me through every circumstance. Thank you for never giving up, for your tireless spirit in overseeing our children's education, and for your dedication as a treasurer in the office's spouses' association. You are the best, honey.
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It is my great hope that this achievement will serve as a stepping stone to improve the standard of living and welfare of my family, while enabling me to make a broader, meaningful contribution to the surrounding environment. May this work not only stand as an academic symbol but also as tangible proof of ongoing dedication and responsibility.

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