

**RISK ASSESSMENT OF INVENTORY DISCREPANCIES IN WAREHOUSE
PROCESSES USING FMEA-QFD 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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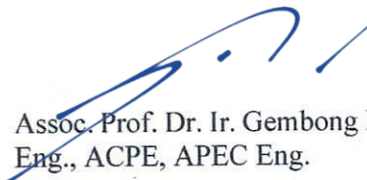
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ABSTRACT

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This study was conducted to identify and mitigate inventory discrepancies in the spare parts warehouse of PT XYZ, following a 0.94% discrepancy rate in 2024 amid rising production and inventory volumes in 2025. A structured methodology was applied by integrating Root Cause Analysis (RCA), Failure Mode and Effects Analysis (FMEA), and Quality Function Deployment (QFD). RCA identified 45 causes across six warehouse processes, FMEA prioritized 25 based on risk scores, and QFD translated them into nine technical requirements (TRs) for mitigation.

Key TRs such as mobile barcode/RFID (TR6), ERP–WMS integration (TR5), CCTV (TR1), and daily briefings (TR3) directly addressed critical failure modes. Implementation of these mitigations reduced discrepancy by 65%, from 0.94% to 0.32%, surpassing the 0.5% target. KPIs also improved: 100% lead time receiving, 100% packing accuracy, 99.66% binning accuracy, and 100% item confirmation. Posting lead time improved by 2.1%, or 129 transactions, due to mobile barcode usage. The combined system, procedural, and behavioral interventions—supported by training (TR2), SOP enhancements, stock taking (TR7), and violation penalties (TR8)—proved effective in enhancing accuracy, discipline, and control. This integrated RCA–FMEA–QFD framework serves as a strategic model for improving inventory performance.

Keywords: Inventory Discrepancy, RCA, FMEA, QFD, Risk Mitigation, Warehouse Operations



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DEDICATION

To Allah SWT
Prophet Muhammad SAW

My Parent :
Faizal and Ramaini, Junaidi and Hasnawati

My Lovely wife, Selly Septyani, and
My Daughter, Azkayra Puti Khaireen, Khawla Puti Al Hurra

My Brother :
Arfan Al Muzdali

My Boss and Teammate :
Aji Bandi, Denna Abdillah F, Nurcahyo, Rizky Hartanto, Fatkur Rahman
and All Supply Management crew's

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