

**IMPROVEMENT DAYS OF INVENTORY HEAVY EQUIPMENT PARTS IN
PT. UNITED TRACTORS SITE SUMBAWA THROUGH DEMAND
FORECASTING & INVENTORY MANAGEMENT**

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Revision after the Thesis Defense on 23 January 2024

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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ABSTRACT

IMPROVEMENT DAYS OF INVENTORY HEAVY EQUIPMENT PARTS IN PT. UNITED TRACTORS SITE SUMBAWA THROUGH DEMAND FORECASTING & INVENTORY MANAGEMENT

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In the context of a request for spare parts, PT. UT Sumbawa is expected to provide optimal levels of service or spare parts availability to customers. The main challenge in this research is fluctuations in demand for spare parts which result in service level performance not reaching the target of 80%. The high inventory of spare parts causes Days of Inventory (DOI) performance to not be achieved. The research aims to find the most effective spare parts inventory management method to reduce DOI. Problem analysis using the 5 Whys method. Comparison between moving average forecasting methods from several time series and Economic Order Quantity (EOQ) used to control inventory in the hope of identifying the best method to achieve research objectives. The Swiss Cheese Model method is used to analyze the causes of error in the ordering process by employees, as well as the role of the organization in service performance, with the aim of providing prevention recommendations. Task Analysis is also used to analyze spare parts supply flows to increase spare parts lead times to customers. The research results show that the moving average method with a time series of 12 months and EOQ can increase stock effectiveness and efficiency, resulting in a decrease in DOI. The Swiss Cheese Model method is also effective in identifying the causes of error process order and its overall organizational impact. The VHS system was proposed as a solution to improve service level measurement and speed up the supply of spare parts to customers.

Keywords: Moving Average, Economic Order Quantity (EOQ), Swiss Cheese Model, Vendor Held Stock (VHS)

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DEDICATION

Assalamu'alaikum Warohmatullahi Wa Barokatuh,

All praise is due to the author to Allah Subhanahu wata'ala for all His mercy, for all His protection, favors and guidance so that the author can complete this thesis. I dedicate the preparation of this thesis to my beloved company PT. United Tractors Tbk and for the alma mater Swiss German University and as a requirement for completing the undergraduate education program at Swiss German University with the Industrial Engineering Study Program.

This is the thesis that the author has written, hopefully it can be of benefit and increase insight for all readers in future academic and industrial developments.

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All praise is due to the author to Allah Subhanahu wata'ala for all His mercy, for all His protection, favors and guidance so that the author can complete this thesis. The preparation of this thesis is intended as a requirement for completion of the undergraduate education program at Swiss German University with the Industrial Engineering Study Program.

With this, the author also expresses his thanks to all parties for their guidance, assistance, and cooperation so that the writing of this thesis can be completed well, especially to:

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