CONTROLLING TOOL FOR FILLING RATE OF OUTDOOR STORAGE

Rhenus Warehousing Solutions SE & Co. KG
Hamburg-Altenwerder

FISHING FOR EXPERIENCE

INTRODUCTION

Rhenus Warehousing Solutions is a global logistics service provider, employing 40,000 people across 70+ countries. As a leading outsourcing partner in industry and commerce, Rhenus handles all warehouse processes, including picking, packing, shipping, and returns. The Hamburg - Altenwerder site manages 21,000 m² indoor and 8,500 m² outdoor storage for the customers. This project focuses on optimizing the outdoor storage processes by developing a controlling tool.

PROJECT CONTEXT

The current outdoor storage situation at the Hamburg-Altenwerder site lacks transparency, making it difficult to determine the actual filling rate. The absence of structured data leads to inefficiencies in the storage processes, as decisions are based on estimation rather than factual data. This results in suboptimal space utilization and operational performance challenges.

CHALLENGES

- Lack of proper tool to measure outdoor storage filling rate.
- Improper decision making, Actions are undertaken by guess.
- Time - consuming decision making process.
- Lack of transparency in storage fill rate (for customers and operational staff.)

TEAM OBJECTIVE

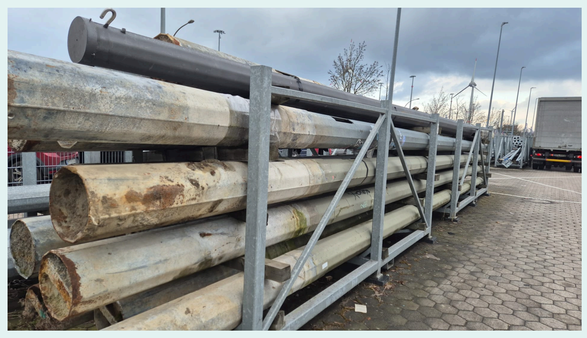
Develop a data-driven tool to monitor and optimize outdoor storage usage!

- Develop a tool to monitor and calculate the storage usage .
- Enable monitoring and trend analysis of storage usage.
- Provide a user - friendly Excel based tool for operational staff.
- Increase transparency of the outdoor storage fill rate.

RUNGE

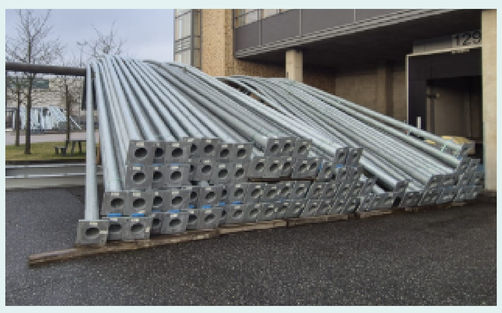
LP - 450-06-09-22
Volumetric Storage Utilization (100%)
Area Storage Utilization (192%)

RUNGE - LANGE MASTE



LP - 450-08-01-23
Volumetric Storage Utilization (100%)
Area Storage Utilization (120%)

MASTBOCK



LP - 450-11-02-11
Area Storage Utilization (71.5%)

1. Volumetric Storage Utilization refers ratio of the total volume occupied by stored articles to the total available volume of the storage racks.
2. Area Storage Utilization refers to the percentage of available surface area efficiently occupied by stored goods within a given storage rack.

METHODOLOGY & APPROACH

Data Collection: Initial data provided by Rhenus, This data consists of inventory details, storage locations, and master data, which collectively provide a comprehensive overview of the current storage situation.

Data Processing & Analysis: Utilized VBA coding. This tool streamlines data tracking, and visualization and improves accuracy in monitoring outdoor storage utilization. It automatically updates inventory data, fill rates and capacity trends.

Implementation & Optimization: Extensive testing was conducted to validate data accuracy, based on feedback from company representative.

Testing & Validation: We manually measured the racks and stored items to verify our tool's accuracy. The results matched the data provided, confirming the software's reliability in monitoring outdoor storage.

ANALYSIS

To effectively monitor outdoor storage utilization, our project leverages key data sources, including inventory records, storage locations, and master data. The primary requirements focus on determining storage capacity, developing a decision-support tool for new orders, optimizing storage allocation, and ensuring transparency of the fill rate. The process involves extracting relevant data and computing code in VBA to analyse trends and improve decision-making. By integrating these steps, we enhance storage efficiency, and provide actionable insights for better storage management.

RESULTS & IMPACT

- **Provided a user - friendly Excel based tool for fill rates.**
- **Accurate decision making, as decisions are based on factual data.**
- **Utilizations can be successfully calculated for all the outdoor storages.**
- **Increased transparency in the outdoor storage fill rates.**

CONCLUSION & FUTURE SCOPE

This project establishes a data - driven approach to outdoor storage management. Future improvements may include automation and integration with warehouse management systems (WMS).

TUHH
Technische Universität Hamburg

PROJECT SUPERVISORS

Michelle Smit - Project management | KVP - Manager
Julia Reimann - Branch Manager

TEAM & WORK PERFORMANCE OVERVIEW

Kumar Swamy H.S. - 120 Hours
Karthik Gorripati - 110 Hours
Ashly Raju - 100 Hours
Usha Kiran Kempegowda - 100 Hours
Mustafa Kerem Topbas - 100 Hours