

Leveraging Operational Excellence and Lean Tools to Optimise the Production Yard - Case Study



Executive Summary

Founded in 2019, Berka Solutions, Ltd. has emerged as a leader in delivering “Business Transformation Solutions” throughout Europe, specialising in harnessing Lean Continuous Improvement Methodologies. This case study unfolds the collaborative partnership between Berka Solutions and LBS Partners Ltd., showcasing their commitment to addressing operational challenges and initiating a profound transformation within the client organisation.

Project Background

The client organisation was facing challenges in material handling, storage, and layout. These issues not only affected operational efficiency but also compromised safety, customer satisfaction, and overall business performance.

Problem Statement:

Challenges in material handling, storage, and layout led to reduce productivity, space inefficiencies, and operational bottlenecks. Notably, the scarcity of space for raw material deliveries and off-site storage for finished goods posed significant concerns.

Process Performance:

- The organisation operated on a 15,000 m² site, with plans to expand to 24,000 m².
- Material storage challenges included external and off-site storage, along with steep gradients.
- Yard layout misalignment with production areas and loading zones led to increased material movement, impacting productivity.
- On-road storage was required for overflow, posing potential security and safety risks.
- Timber picking difficulties arose due to remote storage of certain items.
- The factory expansion onto an adjacent site was scheduled for construction in Q2/Q3 2023.
- The site's incline and a sharp elevation mid-way presented logistical challenges.

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Impact of Problem

Inadequate planning led to inefficient work practices, ambiguous roles and responsibilities, and impeded continuous improvement. Berka Solutions recognised the necessity to address these challenges, demonstrating their commitment to organisational growth and the scaling of manufacturing operations.

- **Production Impact:** Inadequate space and suboptimal storage practices resulted in inefficiencies, increased yard travel distance and time, and poor resource utilisation, affecting overall productivity.
- **Customer Impact:** Delays caused by material constraints and inefficient logistics could potentially impact customer satisfaction and contractual commitments.
- **Safety Impact:** On-road storage posed security and safety risks.
- **Cost Impact:** Remote storage and inefficient material movement contributed to increased operational costs.

Team

This project was a collaborative effort led by Bernard MacOscair (Managing Director) LBS team and the client's team to champion the operational excellence program within the client organisation.

Existing Process Performance (Before Project and Improvements)

- **Raw Material Optimisation:** Addressing challenges in raw material storage by evaluating the necessity of each Stock Keeping Unit (SKU).
- **Storage Overflow:** Managing seasonal demand variations, manufacturing capacity constraints, and procurement practices causing storage overflow.
- **Off-Site On-Road and Remote Storage:** Utilising on-road, off-site, and remote storage due to frequent breaches of existing yard capacity.
- **Operational Costs:** Increased operational costs due to remote storage, excessive material movement, and suboptimal resource utilisation.

Target

The program implementation took place over three months from February 2023 to April 2023. A Material Movement Modelling assessment was conducted using the following step-by-step process:

- Problem definition and site logistics familiarisation.
- Data measurement phase and process mapping.
- Assessment of process variability.
- Brainstorming of options, assumptions, and constraints.
- Data analysis.

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- Final modelling and mapping of layout to promote flow, increasing process efficiency.
- Sustain the process through site signage and layout marking.

Analysis Tools

- Pareto analysis identified opportunities for stock/raw material optimisation.
- Process mapping and brainstorming sessions were conducted to gain insight into current Work-in-Progress (WIP) movement practices.

Root Cause Identified

- Raw material and finished product storage challenges.
- Material flow inefficiencies due to misalignment between production areas and storage.
- Suboptimal resource utilisation from inefficient material access and movement.
- Storage overflow situation from seasonal demand variations and capacity constraints.

Corrective Actions

- **Optimised Material Layout:** Redesigning the layout for efficient use of space, aligning storage with production areas.
- **SKU Rationalisation:** Implementing an SKU rationalisation program to reduce the number of SKUs and increase space efficiency.
- **Improved Training:** Conducting comprehensive Lean Operational Excellence and 6S training programs.
- **Enhanced Operational Efficiency:** Anticipating increased operational efficiency, cost reduction, and resource productivity.
- **Logistic Flow Optimisation:** Aligning finished goods storage with production and logistics areas for minimal material movement.
- **SKU Analysis:** Reducing SKUs from 154 to approximately 70, optimising timber length increments.

Impact of Results

- Optimised availability of raw materials, freeing up space for storing in-demand timber materials.
- Finished goods storage strategically aligned with production areas, minimising material movement, and optimising logistic flow.
- Lean training program enhancing skill development and fostering a culture of awareness.
- Anticipated ongoing cost reduction and increased resource productivity.
- Project estimated to increase storage and production capacity by 20-40%, allowing business expansion.

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- Contributing to sustainability goals by minimising environmental footprint.

Program Deliverables

- Comprehensive analysis of 2022 material and stock purchases.
- Categorisation and strategic mapping of materials in the expanded site layout.
- Collaborative workshops with the client's team to understand current WIP practices.
- Stakeholder engagement through brainstormed workshops for layout options.
- Examination of finished goods stock levels to optimise storage alignment.
- Critical review of the "Operational Excellence Training" program.
- Pareto analysis to identify opportunities for stock and raw material optimisation.
- Agreement and mapping of volumetric forecasts for future yard and storage areas.

Control Activities:

- Ongoing operational excellence training program.
- Emergency response plan for unforeseen disruptions.
- Continuous monitoring and reinforcement of the 6S program.
- Key Success Metric: Compare Before and After.
- Reduction of Bale SKU count from 154 to 100, streamlining inventory management and optimising space utilisation.