APPLICATION OF LEAN PRODUCTION WITH VALUE STREAM MAPPING TO THE BLASTING AND COATING INDUSTRY

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RESEARCH AIM

The purpose of this piece of research is to evaluate the feasibility of existing lean principles by using Value Stream Mapping (VSM) in the blasting and coating industry. VSM is used as the primary tool to identify waste in the process, developing a current map; subsequently, a future map with the proposed improvements is generated, as well as the working plans, used to monitor the implementation project.

METHODS - CASE STUDY

2.1 Stage 1: Collect required data in the Workshop and develop a Current State Map (CSM) using VSM to reflect current operation status.

- Production process overview - interview
- Production process analysis in workshop - site observation
- Current state map

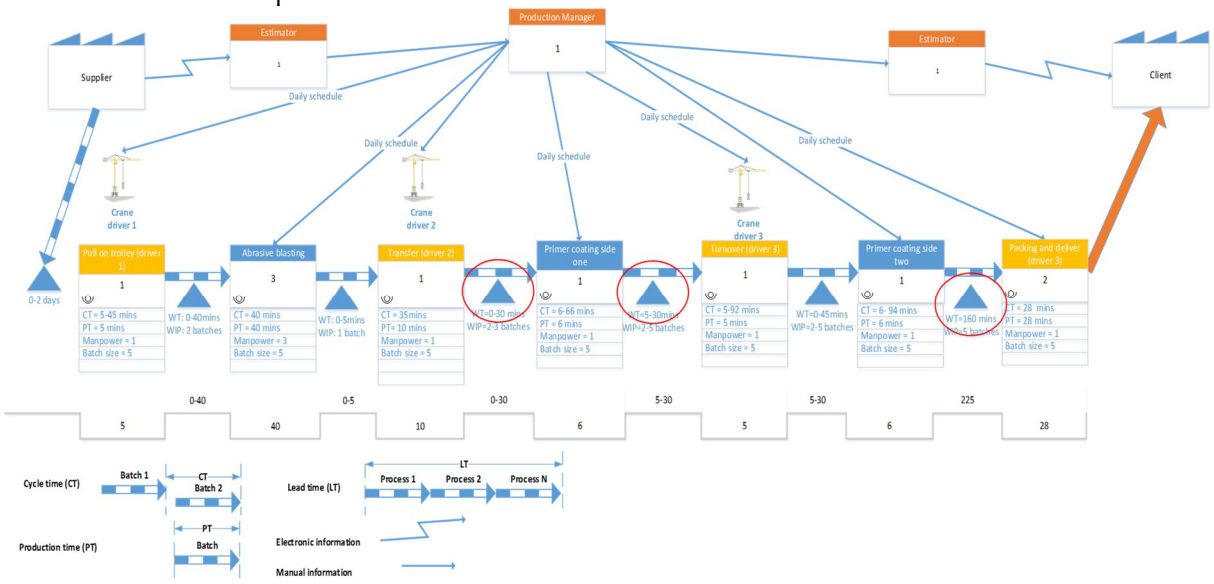

Figure 1 Current state map

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2.2 Stage 2: Identify and analyse value-adding activities and wastes based on CSM developed in Stage 1.

Table 1. Current state analysis

Metrics	Time (mins)	Percentages
Lead time	530	
Production time	100	18.87%
Value adding time	52	9.81%
Non-value adding time but necessary	48	9.06%
Waste	430	81.13%
Pure waiting time	5-310	

2.3 Stage 3: Develop a Future State Map (FSM) for what the process should be.

- Pull system definition with clients - to allow the raw material inventory ≤ 11 batches
- Pull system definition between processes - standardisation and pull scheduling system (weekly work schedule)

2.4 Stage 4: Develop a feasible Working Plan to facilitate the Lean transformation.

- Standardisation
- Schedule planning: think from the end (client) – dynamic planning to response efficiently to changes (rescheduling)

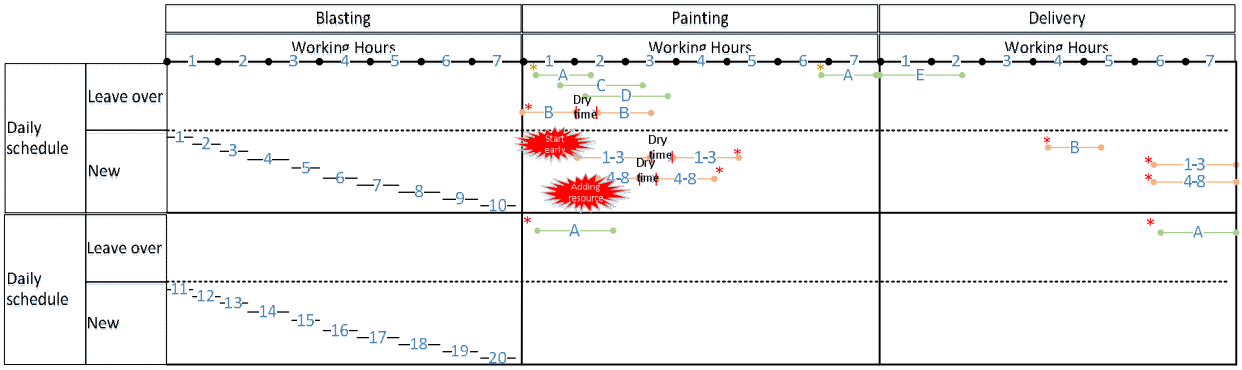

Figure 2 Pull-based scheduling

- Production control: Progress tracking of visual management of the production process
- Workforce involvement - employee participation in decision making of the standardized production processes (feedback of the processing time of the material at each stage)