I2.1 – Cycle Time Reduction through Kanbans

Reese Willhite, Francisca Robbe, Alex Aguirre, Ricardo Ramirez
Ingram School of Engineering

Problem Statement
The current material picking and movement process contributes to internal waste, complexity, and long customer lead times.

Project Purpose
The project will reduce average picking times for semi-finished goods (SEMIs) within Signify’s internal supply chain, specifically materials flowing out from fabrication areas to final assembly.

Objectives
Reduce the average pick time of SEMIs that go from fabrication to assembly by 50% through:
- Implementation of supermarket area for SEMI parts.
- Implementation of Kanban system for high running SEMIs coming out of fabrication.

Previous State

Previous Value Stream Map

Factors used to Determine Bin Quantities
- 2018 demand
- Frequency of order
- Size, volume, and weight
- Optimization of aluminum sheet utilization

Weights and Pictures
- Weights were taken to determine bin quantities, pictures were for the labels.

Weighs and Pictures

Measure

 DMAIC is data-driven quality strategy from Lean Six Sigma used to improve processes, in this case, material picking. DMAIC stands for Define, Measure, Analyze, Improve, and Control.

Time Studies

Measure

<table>
<thead>
<tr>
<th>Supplier</th>
<th>Internal</th>
<th>Activity Address</th>
<th>Start Task</th>
<th>End Task</th>
<th>Time Elapsed</th>
<th>Task Element</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Weights and Pictures

Weights were taken to determine bin quantities, pictures were for the labels.

Weights and Pictures

Analyze

Demand Analysis

- Score= Count Score*0.25 + Qty Score*0.75
- Parts were ranked based on both their demand and their ordering frequency in 2018.

Pareto Analysis

Focus on top 100 parts based on racks’ capacity.

Pareto Analysis

Selected Kanban Parts

Ishikawa Diagram

Factors used to determine bin quantities:
- 2018 demand
- Frequency of order
- Size, volume, and weight
- Optimization of aluminum sheet utilization

Factors used to Determine Bin Quantities

Control

Material handling and Kanban procedures were modified to integrate the supermarket.

Material Handling Procedure

Control

Results

Supermarket
Each part slot has a unique identifier in SAP.
Parts storage ergonomics considered.

Cycle Time

Before
After (projected)

Picking Times

Kanban changes

Design Team Members

Acknowledgments
Special thanks for their guidance and support to:
- Haiver Montenegro, Signify
- George Mikhaylov, Signify
- Juelaine Desjardins, Signify
- Brian Malik, Signify
- Matthew Garza, Signify
- Jeremy Burns, Signify
- Dr. Patrick Thomas, Texas State University