Lean Six Sigma Green Belt Project Storyboard

Project Name: Pad Printing Throughput Increase

Project Type: Production Output Increase, Downtime Reduction

Industry: Medical Device Manufacturing

DEFINE: PROBLEM / BASELINE / GOAL

Problem Statement: The throughput with the pad printing process in the Alpha Pad Printing Room is not matching the output from the production line resulting in poor Takt time. In the past three months (Jan-Mar 15) the throughput is at 239 average per shift.

Factoring in a forecast in production demand from customer in July-Nov 15, PAD-001 will not meet this demand at current output rate.

Baseline: Pad Printing Machine PAD-001 in the Alpha Pad Printing Room has a current output rate of 239 average per operator (target 400 on average per shift per operator) pad printed *products* per shift for months Jan - Mar 2015.

The average downtime per shift is 200 minutes for set-up and changeover of tooling. On average there are 3 changeovers per shift of tooling, this can increase to 5 per shift. There is also additional set-up of tooling mid-cycle.

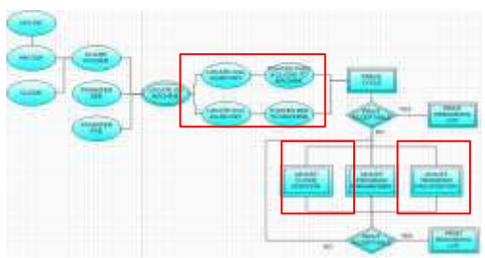
As a direct result of the loss of capacity on PAD-001, we are often in a backlog situation per shift to Pack 1.

Goal:

1. Improve throughput by 161 units to 400 units on average per shift per operator, from Alpha Pad Printing machine PAD-001 by Aug 2015.

2. Reduce changeover time and set-up time to less than 20 minutes per shift

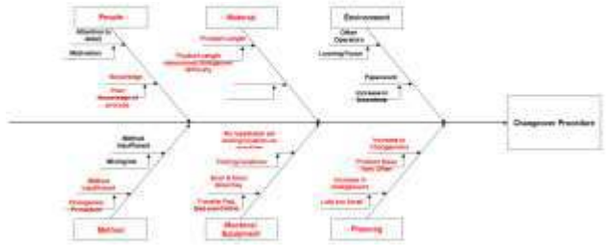
MEASURE: PROCESS / EXPERT KNOWLEDGE / DATA



As–IS process mapping and TIM WOOD Analysis helped narrow down areas that could be investigated – Changeovers and Set-ups.

Another area of interest is LOTS planned on production line before pad printing. Keeping similar size products together if possible should reduce changeovers and set-up downtime. But this is only possible if orders are similar.

ANALYZE: DRIVERS / ROOT CAUSES / VITAL FEW

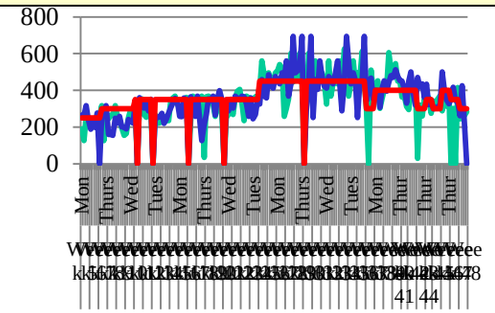


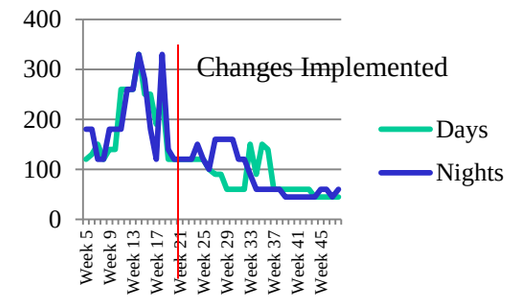
- **Fishbone diagrams of both set-up and changeover processes have identified areas of focus – potential use of customised tools (e.g. allen keys, locking mechanisms) and optimisation of parameter settings**
- **Also having to perform a changeover itself adds to downtime – reducing changeovers per shift will reduce set-up time also and reduce the overall downtime per shift – Planning department need to be involved.**

IMPROVE: INNOVATION / IMPLEMENTATION PLANNING

Recommendation	Action	Owner	Deadline	Status
Improve changeover process	Tooling changes, Run Trials Update SOP's, Complete training	,,,	Aug 15	Completed
Improve Set-up Process	Tooling Changes, Run Trials, Update SOP's, Complete training	,,,	Aug 15	Completed
Create Program Recipes	Up-date SOP Complete Training	,,	Aug 15	Completed
Improve LOT scheduling to reduce changeovers in pad printing	Plan and Program similar size products on production line to reduce changeovers in pad printing	Planning Department	July 15	Completed.

CONTROL: RESULTS / SUSTAINING





- **From the graphs it can be seen that since the tooling improvements, recipes and planning scheduling have been incorporated into the pad printing process, production output has increased to meet the planned target and downtime has been reduced to less than 20 minutes on average.**
- **More often than not production output has surpassed the expected target output.**
- **The average output has increased from 239 units per shift BEFORE improvements to 431 units per shift AFTER the improvements have been implemented.**
- **This has resulted in an average cost saving per shift of approx. €88,000 (X2 shifts €176,000)**