Manufacturing Case Study



CONTEXT

A manufacturing client need needed to improve it's packaging plant cost base as major customers were looking to utilise alternative offshore competitors with larger scale and lower manufacturing costs.



The company ran a medium size packaging facility running 4 canning lines on a 2 shift operation (2 x 8 hrs – Mon-Fri) with a shared, highly automated final packaging cell and also ran an additional 2 shifts on Saturday with overtime rates applying. Each shift had approximately 40 operators and total number of 100 staff plus operators across all shifts. Whilst the bulk of headcount was in manufacturing, the plant also had maintenance, quality/improvement and logistics teams.

The company also had several other packaging sites close to other major cities and had a head office with additional marketing, sales and support staff.

AGREED APPROACH – SOLUTION

A short three-day diagnostic was completed on site with active involvement from the plant's leadership team. Overall Equipment Effectiveness (OEE) was calculated month by month for each of the four lines and compared to benchmarks. OEE was based on Availability x Productivity x Quality (APQ), with a range of 37-39% across the four lines.

Approximately 20 initiatives were identified across the four lines, by focusing on OEE. Initiatives were defined after viewing the lines, interviewing all teams and analysing two years of data. Collectively, if successful, these initiatives were estimated to lift OEE from 37-39% to 60+% - a significant uplift in current performance.



As a result, several major high-level opportunities were defined:

- Increasing Overall Equipment Effectiveness (OEE) from 38% to a target 45% in the short term and immediately reducing required overtime hours on Saturday
- Longer term, further improving OEE to 60+% and either using the additional capacity for new customer demand or shutting down one of the four packaging lines (although the 4th line might still be needed to handle sudden peaks in demand)
- Reducing material cost and scrap rates by 2% improving quality at several points along the value stream (this also reduced the overall OEE losses)

The Plant Manager and Team Leads determined they needed a further two weeks to confirm the opportunities and define in detail the key initiatives to implement.

FIRST THREE WEEKS – PLANNING PHASE

A Transformation program was quickly set-up by the Quality/Improvement team lead with a weekly cadence consisting of the Plant Manager and Team Leads. Each Team Lead was tasked with defining the initiatives with fully defined implementation plans over the next three weeks – with help from the Quality/Improvement team.

The team focused on the short term (next 3 months) initiatives that would result in the initial 8% OEE uplift. These were across all lines and a mix of availability, productivity and quality.

The expectation was also set that the improvement needed to be implemented over the next 3 months without significant capex investment and whilst maintenance/engineering could help with some small line changes no major capex was expected.

The plant decided to use Lypta as the main improvement software to build their Transformation on as the software:

- Was simple and easy to set-up and operate (in an office or on the floor)
- Could be used to both collect initial ideas and also track and report initiatives as they were implemented
- Allowed them to easily share progress with Head Office



The Quality/Improvement team quickly set-up the system over a couple of days including fully customizing the work teams, impact centers, operational metrics and all the user registrations – with approximately 10 users needed (Plant Manager, Team Leads + support staff + 2 users from Head Office).

Over the next three weeks, each area defined a detailed set of initiatives with realistic timeframes for the work plans.

The leadership team also wanted to ensure that the front line was fully engaged and encouraged ideas from the front line to be added to the initial pool of ideas reviewed with focus on OEE but also ideas that would help improve operator conditions.

After three weeks the leadership team had ~30 well defined initiatives each with a detailed work plan, key risks, KPIs (both process and impact) and benefits; these included the original 20 opportunities and an additional 10+ opportunities that had come directly from the front line. The leadership also had an additional 40 ideas which the leadership decided to put on hold until the main priority initiatives were completed; these were smaller or potentially needed capex to implement and the leadership team wanted to 'sweat the assets' before making any major equipment changes.

All initiatives were run through a well-defined stage gating process from initial idea through to evaluating, and then planning so that the whole team knew exactly which initiatives were deemed high priority and needed implementation plans and which were de-prioritised and put on hold.

Detailed OEE uplift targets, for availability, quality and productivity, were then defined for each line based on the expected impact of the agreed initiatives and the expected dates when they would deliver benefits.

IMPLEMENTATION

During implementation over the next three months and during the weekly improvement progress reviews, progress was consistently reported against these targets (charts/dashboards) so that the leadership team knew how they were progressing.

In key areas, where the leadership team was falling behind target, the team were able to deep dive instantly into the main initiatives in that area and understand the key issues (and actions needed).



Each Team Lead ran their own weekly progress review before the plant's leadership progress reviews; this allowed them to identify any issues and corrective actions needed and if any issues needed to be escalated for further help.

All initiative owners updated progress for their initiatives each week prior to their team's weekly reviews including work steps completed, any issues/actions and also progress on the process and impact KPIs.

Initiatives continued to be run through the same stage gating process used in the initial planning phase with initiatives moving from planning to implementing, then delivering and finally 'locked-in'. Each stage gate during these implementation stages required approval from both Team Lead and also the Plant Manager with final 'lock-in' only achieved when the required process and impact KPIs showed consistent uplift.

All information, including initiative owner updates and team reviews, was kept in Lypta so that the plant had full transparency on progress in any area or initiative and also overall progress towards the agreed targets. This also gave Head Office a detailed view of progress towards the plant targets.

TRANSFORMATION RESULTS

After three months, the plant reached their priority objectives of increasing OEE from average 38% to 45% across 3 of the 4 lines by 10-12%; the 4th line had a previously planned shut for 2 weeks and was expected to hit 47+% OEE once it restarted (as they had also been to fit in a small line change to increase rate).

Additionally, the team was also able to reach their required quality improvements and reduced scrap rates by 2% with associated raw material cost savings and OEE uplift.

During this time, the team was able to steadily reduce overtime hours on Saturday and eventually eliminate the need for Saturday shift work and instead use Saturday to complete planned maintenance work. The additional available time meant that the plant could use Saturday to manage sprint production when needed to cover retail 'specials' demand peaks – giving the site a lot more production flexibility.



GOING FORWARDS

Longer term, the team realized that there were still additional opportunities that could see them lift OEE to 60+%. Some of these additional initiatives would need engineering work and the team decided that they should allow 6 months for this next phase of improvement.

The site had now proved they had the improvement processes and capability to deliver on their planned improvements. The additional volume uplift potential by moving from 45% OEE to 60+% OEE could be realised in two different ways:

- 1. Offer the additional capacity to existing retail customers and/or new customers. Marketing and Sales were excited to progress some earlier talks in this area. There had been some discussions the previous year but nothing had progressed because the plant had already been close to capacity. They were now able to discuss a 6 month plan with customers showing the planned line availability and potential attractive pricing based on the plant's lower cost base. Additionally, they would be able to confirm, month by month, progress towards the new capacity and fine tune demand from these potential customers
- 2. Reduce the plant's operation to 3 full time lines and then use attrition to slowly reduce shifts/manning and overall reliance on the 4th line. The 4th line was older and had the lowest capacity (even though OEE was quite good). This option, whilst not as attractive as the first option, did also improve profitability significantly. This option also gave the plant even more sprint capacity if ever needed (which was of interest to two of the plant's main customers)

The team were naturally optimistic about the future – especially if they could increase plant output by an additional 30+% with new customer demand. This would hugely increase the plant's profitability and potentially allow further major capex investments at the plant.

Lastly, using Lypta, Head Office had been able to:

- · See the plant achieve it's overall improvement objectives
- View progress of each initiative at a detailed level (KPIs, work plan)
- Understood all the issues and actions taken during implementation.

They decided to implement similar programs at their other plants.

Contact us at <u>www.lypta.com</u> and schedule a call or demo to see how we can help you.

