

# Engineering and Manufacturing Industry Continuous Improvement

Project Start Date: June 2002

Project End Date: February 2009

## ***Company profile***

This client is a highly diversified technology and engineering/ manufacturing company. The company is dedicated to creating more livable and suitable environments, which enables better communications and provides a safer environment. The company plays several roles in major markets which include: water and fluids management, global defense and security, & motion and flow control.

## ***Business situation***

Separate manufacturing challenges were being posed company-wide. Plant productivity was at only 84%. Batch and que production forced large footprints for the lines. Production lines were inflexible, forcing equipment to be fixed to a line, thus making changeovers lengthy. The entire manufacturing facility was calling for redesign. Product flow began in the receiving department and carried throughout the plant, ending in the shipping department. Floorspace savings opportunities existed by line and department.

## ***Implementation Approach***

**Manufacturing** – Analyzing each of the Acetators, Filters and Tanks in every plant led to the understanding of the unique characteristics and needs of every plant, as well as helping to identify areas for improvement:

- **Equipment Utilization** – Tracking equipment uptime gave the team the necessary data to identify which equipment was being underutilized or had most downtime due to mechanical failure. This led to the implementation of the necessary solutions to improve the equipment's performance such as preventative maintenance procedures and schedules. Stores of spare parts were identified and located in appropriate geographic locations to allow for quick turn around in a break down situation.
- **Goals and Targets** – Every Acetator was given a production target based on historical data and equipment capabilities. Every operator, manager and upper

manager was aware of such goals. Review of results was made on a daily basis to understand trends and implement changes when necessary.

- Identifying Waste – Creating a Value Stream Map of the entire manufacturing and shipping process in each plant helped facilitate the identification of bottlenecks. This enabled the operation improvement teams to prioritize their efforts and focus on implementing the needed changes.
- Space Utilization – Creating change in the layout
- Data Analysis – A new database system was designed and implemented to track production results, materials received, calibration information, equipment settings/configurations and enable the users to create ad hoc queries which then were used for decision making by employees at different levels of the company.
- Labor Productivity- Process studies introduced the proper staffing needs across plants
- Identifying Waste – Value Streaming the entire process drove Kanban systems, reduced headcount, and higher first time yield.

## **The Numbers**

Through streamlining receiving and shipping layouts,

- Increased FG/RM storage by 29%
- Productivity improvements – Plant productivity from 84% to 97% (across 272,523 hours or 19.6 heads at 1800 hours)
  - Small Pumps – from 95% to 115%
  - Large Pumps – from 101% to 121%
  - Switches – from 102% to 133%
- Floor space savings over 15%
- Developed capacity planning model
- Developed manpower planning model
- Changed the culture from batch to lean
- Developed and implemented 5S system
- Development of productivity tracking
  - Development of time standards
  - Hourly tracking of performance
  - Facilitate daily meetings

During implementation Strategy3 created permanent and sustained change.

## **Results**

Total production performance increased by an average of 20% without any major capital invested in any of the plants. The increase in production allowed the company to be more responsive to short lead times (<24 Hrs) and not have to pay high premiums on shipping. The total trans-shipments and delay orders was reduced by an average of 60% across the company.

Total project savings: **\$900,000 annually**

