



A Lesson in How to Save \$15,000,000 Dollars

The company described in this case study is a golf ball manufacturing plant in Western Massachusetts that employs 600 employees in a multi-shift operation, with a capability of producing in excess of 12 million dozen finished golf balls per year. Embracing and institutionalizing lean philosophies has resulted in this site becoming a profitable manufacturing center for its parent company. The plants continued emphasis on the identification and the elimination of waste has streamlined operations.

II. The Business Case for Continuous Improvement/Lean: The driving force behind the need to implement Continuous Improvement/Lean was the industry trend, by competitors, of outsourcing production to overseas facilities, specifically in China. Given the fierce competition in the marketplace, it was imperative for this organization to exchange its existing practices, behaviors and processes in order to reduce costs, improve quality and throughput and to rise to the challenge being presented. The organization's leadership team recognized the potential to achieve all of these goals by embracing the tools and philosophies of the Toyota Production System, also know as Lean Manufacturing.

III. The Approach to Continuous Improvement Implementation: In 2005, the leadership team developed the first policy deployment document (Hoshin Kanri) that laid out the companies objectives, improvement priorities, measurements and targets. They continued to use this method to align to communicate the improvement priorities to each department and employee throughout the organization. These goals were to achieve a gross margin of 70%, achieve customer service levels of 98% (based upon orders shipped complete and on-time) and to double the inventory turns within the facility. An X-Matrix was also used to develop a 3 year business vision that the leadership team could use to navigate the complexities of implementing Continuous Improvement across the entire plant. In addition to setting the macro view of the implementation plan, a number of other methods were used to incorporate these objectives and the tools to reach these goals into the daily lives of the employees. Additional methods used were Operations Scorecards, Communication Meetings, 5S Audit Systems, the formation of a Continuous Improvement Department and a heavy focus on developing employees skills and capabilities through training. The approach to Continuous Improvement/Lean was to educate the entire workforce on the philosophies and tools of Continuous Improvement. The company provide training and then went to the relevant are of the shop-floor or administrative office to implement what they had learned that day. The organization also focused on getting employees out of the plant to attend meetings, tours and workshops which would allow them to share with and learn from other organizations. Beyond the shop floor, the organization has been successful in spreading lean thinking to over 30% of the office staff.

IV. Metrics: 2005 - 2008: The following achievement would not have been possible if the organization had not adopted Lean philosophies and made the floor operators the focus of all activities.

- ◆ 14% improvement in orders shipped on time and complete
- ◆ Customer returns decreased by 84%
- ◆ Scheduling points reduced from 13 to 2 through the use of a visual pull system
- ◆ Lean time for end to end production went from a typical 21 days to 5 days
- ◆ WIP inventory turns improved 65% from 2005
- ◆ Total inventory turns improved 26% from 2005
- ◆ Finished goods inventory was reduced by \$10,000,000
- ◆ Packaging inventory was reduced approximately 40%
- ◆ Potential loss from obsolescence of packaging is down by 50%
- ◆ Order lead times for Custom Ball improved 44%
- ◆ 33% of production space opened up as a direct result of lower WIP allowing other growth opportunities. One of those growth opportunities was the transfer of one product line from another production facility to this facility.
- ◆ Custom ball customer service level went from 57% in 2006 to 92% in 2007, an increase of 38%
- ◆ Premium freight charges were reduced by 28%

- ◆ Employee grievances are down 42%
- ◆ All employees have received at least 12 hours of training in lean concepts and methods
- ◆ Accidents are down 23.5% resulting in a \$400,000 savings in workers compensation costs
- ◆ Incident Rate was reduced by 2.9%
- ◆ Achieved a 10.0 ton reduction in hazardous solid waste and a 141 ton reduction of non-hazardous solid waste
- ◆ Greenhouse gas emissions were reduced by 1,547 metric tons
- ◆ Average Product Cost was reduced by 8%
- ◆ Cost savings from waste identification and elimination was \$3,000,000 in 2006 and increased to \$9,300,000 in 2007
- ◆ Inventory accuracy went from 68% in 2006 to 99.7% in 2007, directly attributable to the visual pull system and inventory reduction
- ◆ Quality Levels are at 98.7%

V. What specific lean philosophies and techniques were used to achieve these results? These results were accomplished through the implementation of the following lean methods:

- ◆ Introduction to Continuous Improvement Philosophies and Tools
- ◆ 5S - Workplace Organization
- ◆ Elimination of the 7 common operational wastes that traditionally plague manufacturing productivity
- ◆ Standardizing all forms of work
- ◆ Pull method planning and manufacturing of product
- ◆ Visual Control Systems
- ◆ Kanban Systems
- ◆ Value Stream Mapping to identify time consuming and non-value added activities that compromise the quality and productivity of our products and staff

EMPOWERMENT

With the help of GBMP, Inc., employees were introduced to the concept, principles, and techniques associated with Continuous Improvement as the means to change golf ball production. Today, the following qualities and behaviors govern the way we operate our business and empower our employees:

- ◆ "Involvement in decision making
- ◆ "Training and development in all of the lean methods mentioned above
- ◆ Idea generation and recognition
- ◆ Opinion surveys
- ◆ Kaizen events as well as support for spontaneous, on-the-spot improvements
- ◆ Union support and participation
- ◆ Performance reviews and feedback
- ◆ Communications meetings
- ◆ A multi-phased Safety Program

CONTINUOUS IMPROVEMENT DEPARTMENT & METHODS

Senior management recognized that full time resources were necessary to coordinate efforts throughout the plant and in 2007 a formal Continuous Improvement Department was established with a CI Manager and support staff. The 5S Audit System is the backbone for spreading the philosophy of reducing waste so managers conduct monthly 5S audits. Operations Scorecard and Management by Objectives meetings are also held monthly and a Communication Meeting takes place quarterly.

VI. Total ROI: *This organization invested \$330,000 in lean training and implementation which resulted in cost savings of over \$15,000,000.*

For more information about GBMP please visit www.gbmp.org.