



THROUGHPUT IMPROVEMENT SIMULATION™ WORKSHOP

People learn best by doing! CMS' Throughput Improvement Simulation™ workshop helps manufacturers learn how to effectively combine two leading improvement strategies – LEAN Manufacturing and the Theory of Constraints (TOC) as described in *The Goal* by Eliyahu Goldratt.

This hands-on simulation and workshop helps your management team learn about cost-effective tools and techniques to quickly:

- Increase productive capacity
- Improve on-time delivery
- Reduce inventory
- Reduce costs
- Increase net profit!

By physically simulating an actual manufacturing plant, participants have the opportunity to see and experience actually implementing LEAN Manufacturing concepts and Theory of Constraints (TOC) operations and financial management.

The workshop is organized into two parts: Day 1 – Manufacturing Simulation and Day 2 – Theory of Constraints Workshop.

DAY 1: Manufacturing Simulation

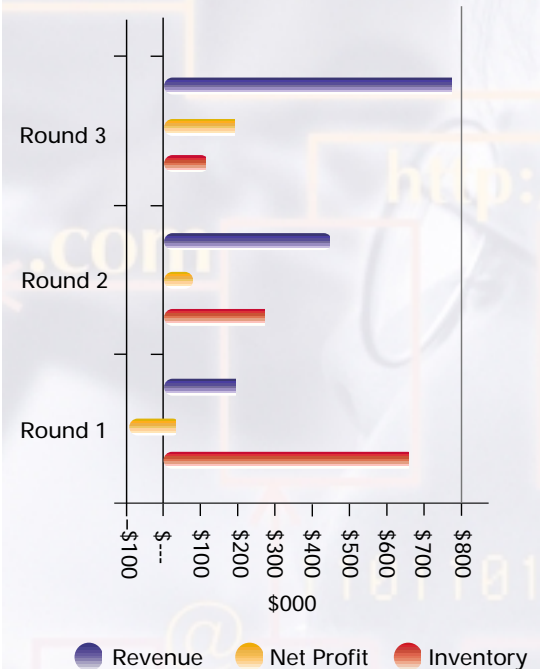
The Manufacturing simulation on Day 1 is comprised of three rounds. At the end of each round the participants engage in a comprehensive financial and operational review of the plant's performance. Based on this review the participants discuss cost reduction and improvement opportunities, brainstorm potential solutions, create implementation plans and describe the expected outcomes. Each round is described as follows.

"I've been to a number of seminars that go in one ear and out the other. This workshop will change the way I think and work – TOMORROW MORNING!"

Steve Parkhill, Plant Manager
J.M. Schneider Inc., Kitchener, ON



KEY MEASURES & AVERAGE RESULTS



Round 1: Traditional/Batch Manufacturing

The first round demonstrates the negative effects of maximizing work centre efficiency (measured as "pieces per hour", "uptime" or "utilization") at every work centre in a typical batch manufacturing environment.

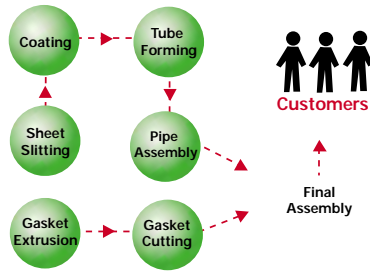
Round 2: LEAN Manufacturing

During the second round the participants discuss common LEAN Manufacturing tools and techniques and their desired outcomes. The participants also see that applying these tools and techniques to every work centre in the operation improves throughput and plant productivity.

Round 3: Theory of Constraints

This round introduces the idea of the system constraint and the role of buffer management in maximizing throughput. Drum-Buffer-Rope production scheduling, in conjunction with the application of "LEAN" to the constraint, can dramatically increase productive capacity, throughput and overall net profit.

**Throughput Improvement Simulation™
Process Flow**



DAY 2: Theory of Constraints Workshop

During the Workshop on Day 2, participants receive an in-depth overview and discussion of the key operational and financial components of Theory of Constraints.

Topics include:

- Drum-Buffer-Rope (DBR)
- Buffer management
- Inventory management – replenishment and stock buffers
- Operational measures required to support DBR
- Financial measurement and Throughput Accounting
- Performance scorecards
- Product profitability in relationship to constraints

What Types of Companies Should Attend?

Manufacturers interested in either LEAN Manufacturing, Theory of Constraints or Six Sigma that are at any one of the following stages of implementation:

- Well down the path
- Just starting on the journey
- Re-energizing the implementation

Who Should Attend?

Three or more people from your manufacturing company including:

- President, VP of Manufacturing or VP of Operations
- General Manager, Plant Manager or Operations Manager
- CFO or Controller
- Materials Manager or Production Planner

“I found this factory simulation to be the best illustration of LEAN and Theory of Constraints-based manufacturing that a manager could possibly share with his or her team members in order to turn theory into real world application!”

Tom Kane, Director of Manufacturing Operations
Northern Digital Inc.,
Waterloo, ON

KEY CONCEPTS AND TOPICS

Constraints Management

- Drum-Buffer-Rope production planning
- Buffer Management to constantly improve your performance
- Protective capacity and the role of inventory

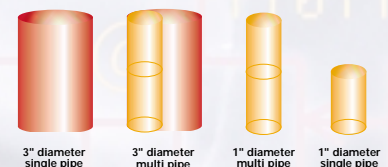
LEAN Manufacturing

- Batch size reduction
- ‘PUSH’ vs. ‘PULL’ flow control (KANBAN)
- Line balancing and waste elimination
- Set-up reduction and layout changes

Finance and Measurements

- The negative impact of efficiency measures in operations
- Using your business constraint to measure the value and the costs of changes such as investments, make/buy and new products
- A scorecard of measures to evaluate the effectiveness of your improvement efforts and to get your staff working towards the same objectives

12 SKUs FROM FOUR PRODUCT FAMILIES



Additional characteristics:
Coating Compound X (nickel) & Y (titanium)
Gasket Type Red (high temp.) & Blue (low temp.)



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