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ABILITY**

2009 APICS INTERNATIONAL
CONFERENCE & EXPO

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**“RIGHT SIZE”
YOUR LEAN PROGRAM
A CASE STUDY**

**Daniel A. Marino, CPIM
Senior Partner
Marino Associates, LLC**

EVOLUTION OF MANUFACTURING PROCESSES, SYSTEMS AND TOOLS

- 1950-1960 – Manual Systems Began Migrating Onto The First Computers, Order Point, Min-max, EOQ, Scheduling Boards Migrated Into The First MRP Systems
- 1970-1980 – Computer Systems Became More Sophisticated (DBMOP, COPICS), MRP Became MRPII, JIT
- 1990-2009 – Introduction Of Complex ERP Systems, Internet, Extranet, New Tools Lean, SCM, Six Sigma, Kanban, Kaizen, VMI, Etc.





DURING THIS EVOLUTION PROCESS, SYSTEMS AND TOOLS WERE BEING IMPROVED AND IMPLEMENTED


- New Concepts Were Being Introduced
- Companies Invested In Education And Training
- Manufacturing Came Out Of The Closet
- Investment In Technology Was Being Made



MANUFACTURING SHARED A COMMON GOAL

- We Were All In It Together
- Learning The New Tools And Applying These Techniques
- Manufacturing Began To Have A Common Language
- The Basics Were Being Implemented In Companies From Small To Large
- There Was A Desire To Implement Change





MANUFACTURING CONCENTRATED ON THE FUNDAMENTAL BUILDING BLOCKS (BASICS)

- **Bill of Materials**
- **Inventory Management**
- **Shop Floor Control (Routings)**
- **Formal Purchasing**
- **Master Production Scheduling**
- **Material Requirement Planning**
- **Capacity Planning**
- **Forecasting**
- **Production Control**
- **Material Management**



THE BASICS REQUIRED

- Accuracy That Approaches 100%
- Detailed And Continuous Training And Education
- Accountability
- Management Desire To Improve
- Business Rules
- Team Work

THIS EVOLUTION HAS NEVER STOPPED

New Systems, Processes And Tools Exist Today That Have Been Developed To Meet The Demands Of A Very Complex Manufacturing Environment

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THE NEW ENVIRONMENT CHALLENGES

- **Global Competition**
- **Tremendous Cost Pressures**
- **Environmental Issues**
- **Fast Paced Technology Change**
- **Due To Cost Pressures Companies Have Been Forced To Reduce Their Workforce (“Few Skilled Employees Wearing Many Hats”)**
- **Drastic Reductions in Education and Training**





**TO COMPETE TODAY,
MANUFACTURING MUST FIND A
WAY TO EMBRACE AND
IMPLEMENT 21ST CENTURY
SYSTEMS, TOOLS AND
PROCESSES**

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21ST CENTURY BUSINESS CHALLENGES

- Strategic and Tactical Planning
- Information Systems Integration
- Customer Retention and New Customer Acquisition (Customer Relationship Management)
- Profit Pressures
- Process Alignment from Sales and Operations Planning to the Shipment of the Product
- Cost Control and Reduction
- Global Supply Chain Management
- Insure a Highly Trained and Motivated Workforce



2009 CXO'S OBJECTIVES

- Increase Growth Top Line Revenue 64%
- Improve Customer Satisfaction And Retention 64%
- Remain Or Gain Competitive Advantage 9%
- Cut Overall Corporation Expense 41%
- Reduce Fragmented Business Applications 27%
- Create A More Productive Workforce 20%

Lean Manufacturing

A Question That
Senior
Management Must
Ask Is:

**Am I Working On
The Business Or
In The Business?**






LEAN MANUFACTURING

Lean Manufacturing Requires A Company To Redefine Their Value-creating Actions With An **Unrelenting** Effort To Eliminate Waste In All Activities And To Strive For Perfection In Areas Of Performance Such As:

- ✓ **Customer Service**
- ✓ **Quality**
- ✓ **Velocity**
- ✓ **Cost**





***Companies Implementing A
Lean Program Need To
Organize And Size Their
Program Based On The Key
Assumption Of:***

Waste Elimination



ELIMINATION OF THE 7 WASTES

1. Defects

- Returns
- Scrap
- Rework

2. Delay

- Factory flow
- Material shortages
- Missing paperwork
- Maintenance problems

3. Transportation

- Material Handling
- Inbound/outbound freight
- inter-plant or department

4. Processing

- Processing for efficiency measurements
- Poor methods
- Redundant

ELIMINATION OF THE 7 WASTES (cont)

5. Inventory

- Obsolescence
- SMED
- Inventory is money
- Handling and storage

6. Motion

- Work area ergonomics

7. Overproduction

- Supply exceeds demand-even for a day



RIGHT SIZING YOUR LEAN PROGRAM CAN BE DEFINED AS:

Maximizing Your Companies
Profits Through “Right Thinking”
Your Lean Implementations.



RIGHT THINKING YOUR LEAN IMPLEMENTATION

SHOULD BEGIN WITH A LEAN ASSESSMENT:

- ◆ Desire Of Management To Implement Change
- ◆ Management Competency At All Levels.
- ◆ Status Of Existing Systems To Support Lean Thinking
 - Such As:
 - Kanban
 - Supply Chain Management
 - Pull Vs. Push
 - Team Processes
 - 5s
 - Smed
 - Value Stream Mapping

RIGHT THINKING YOUR LEAN IMPLEMENTATION

SHOULD CONCENTRATE ON:

- ◆ The Elimination of Waste
- ◆ Team Development
- ◆ Education and training
- ◆ Detailed Planning
- ◆ System integration
- ◆ Measurements



LEAN MANUFACTURING

Getting Started

- ◆ Review fundamentals
 - Bill of Materials
 - Order Modifiers
 - Routings
 - Item Master Accuracy
 - Transaction Control
 - Supplier Management
 - Manufacturing Organization
 - Factory Flow
 - Discrete Order Management
 - Inventory Management

LEAN CHALLENGES

- **Perfect Product Is Attainable And Essential**
- **Waste Is Intolerable And Must Be Eliminated**
- **Continues Improvement Is Mandated**





LEAN/AGILE MANUFACTURING FACTORY FLOW CORE PRINCIPLES

1. Everything Moves Within Four Hours
2. If The Downstream Center Can't Use It – Don't Do It!
3. Everything Moves To Point Of Consumption
4. Eliminate Steps In Process
5. No Paperwork
6. No Material Handling
7. No Labor Reporting
8. No Computer Transactions/Systems
9. Assume "Pipe Line" Flow (No Backflow)
10. No Inspection Or Testing (Robustness)


LEAN/AGILE MANUFACTURING FACTORY FLOW CORE PRINCIPLES (cont.)

11. No Subassemblies
12. Carrier Control (Robustness)
13. All Parts And Processes Under SPC Control
14. No Holding Containers
15. Direct Ship From Last Operation
16. Direct Receipt For First Operation
17. No Inventory
18. Standardized Processes
19. Standardized Components
20. Standardized Tools
21. Universal Packaging
22. Universal Assembly Lines
23. Universal Equipment

RIGHT SIZE YOUR LEAN PROJECT SCOPE AND PLAN

- ◆ Utilize Information Gained From The Lean Assessment, Value Mapping And The Review Of Your Fundamentals
- ◆ Select The Areas For Lean Based On Operational Need And ROI
- ◆ Based On The Size Of Your Program:
 - Prioritize Selected Areas
 - Develop Teams
 - Develop Plan And Budget
 - Establish Timelines
 - Establish Measurements





Value Stream Mapping Is A Key
Tool In Lean Implementation.
Companies Need To Evaluate
Processes Before Their Lean Plan
Building.

VALUE STREAM MAPPING

A Pen And Pencil Visual Systematic Technique
For:

- ◆ Reducing Lead Time
- ◆ Reducing Inventory
- ◆ Improving Productivity

It Involves All Levels In The Company, And All Levels In Your Supply Chain, To Dramatically Improve The “Order-to-cash” Cycle.

“Time Is Everything!”

WHAT DO WE DO WITH THESE VALUE MAPS?

- ◆ Identify opportunities
- ◆ Break implementation into steps
- ◆ Plan the value stream improvement process
 - Who, will do what, by when, step-by-step
 - Measurable goals
 - Clear checkpoints with real deadlines and named reviewer(s)
- ◆ Assign responsibility
 - Value Stream improvement is management's responsibility
- ◆ Start all over again
 - Make another Future State from your current Future State



DO YOU NEED TO OPTIMIZE YOUR ERP SYSTEM?

- Is ERP Helping You To Improve Customer Satisfaction?
- Is ERP Contributing To Increased Market Share?
- Did ERP Help Decrease Your Operational Expenses?
- Is ERP Managing And Lowering Your Inventory?
- Has ERP Shortened Your Order-to-delivery Cycle Time?
- Has ERP Shortened Your Time-to-market?
- Has ERP Helped You Achieve A Competitive Advantage?
- Is ERP Giving You The Information & Metrics You Need?
- *If Your Answer To Some Of These Questions Is “No”, Then ERP Optimization Should Be On Your Critical Path*

LOOKING FOR THE “HOME RUNS”



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REGARDLESS OF YOUR COMPANY SIZE, A KEY RIGHT THINKING CONCEPT IS CONCENTRATING ON THE HOME RUNS:



- ◆ Major Productivity Improvement
- ◆ Major Cost Reduction
 - Internal
 - External
- ◆ Major Reduction In New Product Introduction
- ◆ Innovation In Capturing Incremental Market Share



LEAN TOOLS AND PROCESSES

- ◆ Efficiency And Utilization Measurements
- ◆ Flexible Layouts
- ◆ TAKT Time Review
- ◆ Kanban
- ◆ Design For Manufacturability
- ◆ Design For Assembly
- ◆ Mixed-model Scheduling
- ◆ Kaizen Blitz
- ◆ Smed
- ◆ 5-s



THE SITUATION

- ◆ ERP System In Place (Poor Implementation)
- ◆ Front Office Systems – Not Integrated
- ◆ Make To Stock
- ◆ Engineer To Order
- ◆ Heavy Seasonality Demand Trend
- ◆ Poor Factory Flow



OPERATIONAL GOALS

- Improve On-time And Complete
- Increase Inventory Turns
- Reduce Lead Times On All Product Lines
- Improve Factory Flow
- Reduce Order Entry And Order Configuration Time
- Improve Supplier On-time And Supplier Communication





Lean Path Forward

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LEAN VISIONING PROCESS

They developed the following Vision:

- ◆ Develop a Lean Program and align it to their Corporate Goals
- ◆ Develop a Global Lean Strategy
- ◆ Develop Factory Goals
- ◆ Develop Factory Lean Strategy
- ◆ Develop Factory Lean Business Rules
- ◆ Develop Departmental Goals
- ◆ Develop Departmental Lean Strategy
- ◆ Develop Departmental Lean Business Goals



COMPANY DECISIONS

- Team Selection
 - Full vs. Part Time?
- Detail Plans
 - Who will do what by when?
- Set Measurable and Realistic Measurements
- Look for Home Runs
- Develop an ROI Matrix
- Early Victory



LEAN PROCESS SELECTED

- 90 Day Teams Concentrating On Home Runs
- Align Their ERP System To Their Lean Goals (ERP Optimization)
- Front Office Lean Program
- Configuration Management)
- Critical Attention To 5S
- ERP Optimization
- Factory Flow
- Product Line Cost Reduction
- Education And Training




THE LEAN PATH FORWARD

1. Lean assessment
2. Review and prioritize results of audit (ROI)
3. Commit to “Lean Journey”
4. Select “in-house” champion (project sponsor)
5. Select “in-house” project leader
6. Form Core Team
7. Conduct basic education in lean technologies
8. They defined Lean at their Company
9. Prepare detailed, comprehensive, project plan
10. Launch first round teams

LEAN ACHIEVEMENTS

- ◆ Inventory Turns Improved From 12 Turns To 30 Turns (In One Inventory Cycle)
- ◆ Lead Time Reduction From 9 Weeks To 3 Weeks (90 Days)
- ◆ Implementation Of Vendor Managed Inventory Program –VMI (3 Months)
- ◆ Elimination Of Purchase Orders Through The Use Of A Portal (1month)
- ◆ Implementation Of A Comprehensive 5S Program (3 Months)
- ◆ Supplier Consolidation (3 Months)
- ◆ Product Line Cost Reductions In Excess Of 3.0M Dollars (4 Months)
- ◆ Factory Layout And Flow Improvements
- ◆ ERP Fine Tuning



“Right Sizing” Your Lean
Program And The
Development Of A Doable
Lean Plan Is Critical To The
Success Of Your Program.



LEAN/AGILE MANUFACTURING

What's new or different about Lean/Agile Manufacturing

- ◆ Certainly, some new concepts
- ◆ Certainly, some new terminology

BUT

What is really new is the packaging and intensiveness by which a company tries to reinvent itself throughout the entire Supply Chain. This is not 5% continuous improvement.



Please leave your Email address or Business Card and Marino Associates will provide you with the following:

- ERP Optimization White Paper
- Lean Manufacturing Readiness Check List
- Lean Supply Chain Management Readiness Checklist
- Customer Relationship Management Checklist

