Implementing Lean
Change?, Ha!

“I’ve learned three things about new programs:

• Never oppose them; if you do you will get fired.
• Never do any work on them.
• In three months you will never hear about them again.

I’ve been here 23 years, and I’ve seen 23 of these things come and 23 of them go.”

(Auto Supplier Supervisor)

D.V. Landvater, 1997. World Class Production and Inventory Management, p.11
Learning Objectives

At the end of this module, you will be able to:

• Describe important steps of implementing Lean principles and practices.

• List the barriers to implementation of Lean principles and practices

• Apply basic planning tools for implementing a Lean improvement project
Success Requirements for a Journey

Leadership \hspace{1cm} \leftarrow \hspace{1cm} \text{Commitment}

The challenges of implementation:

• Lean principles are simple - “a focused application of common sense\textsuperscript{1}”

• The challenge is implementing them - and sustaining the transformation

• Transforming thinking into behavior and action is complex

• Every journey is unique

\textsuperscript{1} Dave Driscoll, Sikorsky
How do you implement and sustain transformational change initiated by your lean activities?
Implementing Lean: A Short Class Discussion

• How would you answer some of the questions about implementing lean:
  • Where should we start?
  • What tools and techniques are available?
  • How will progress be measured?
  • What will be the biggest challenges?
Transition to Lean Roadmap

**Entry/Re-entry Cycle**

**Adopt Lean Paradigm**
- Build Vision
- Convey Urgency
- Foster Lean Learning
- Make the Commitment
- Obtain Senior Mgmt. Buy-in

**Decision to Pursue Enterprise Transformation**

**Enterprise Strategic Planning**
- Create the Business Case for Lean
- Focus on Customer Value
- Include Lean in Strategic Planning
- Leverage the Extended Enterprise

**Initial Lean Vision**

**Focus on the Value Stream**
- Map Value Stream
- Internalize Vision
- Set Goals & Metrics
- Identify & Involve Key Stakeholders

**Detailed Lean Vision**

**Develop Lean Structure & Behavior**
- Organize for Lean Implementation
- Identify & Empower Change Agents
- Align Incentives
- Adapt Structure & Systems

**Environmental Corrective Action Indicators**

**Short Term Cycle**

**Focus on Continuous Improvement**
- Monitor Lean Progress
- Nurture the Process
- Refine the Plan
- Capture & Adopt New Knowledge

**Detailed Corrective Action Indicators**

**Create & Refine Transformation Plan**
- Identify & Prioritize Activities
- Commit Resources
- Provide Education & Training

**Implement Lean Initiatives**
- Develop Detailed Plans
- Implement Lean Activities

**Outcomes on Enterprise Metrics**

**Long Term Cycle**

**Implementing Lean V6.3 - Slide 7 © 2008 Massachusetts Institute of Technology**
Entry/Reentry Cycle

Enterprise Strategic Planning

- Create the business case for lean
- Focus on customer value
- Include lean in strategic planning
- Leverage the extended enterprise
Entry/Reentry Cycle

Adopt Lean Paradigm

- Build vision
- Convey urgency
- Foster lean learning
- Make the commitment
- Obtain senior management buy-in
Enterprise Leader Establishes and Communicates the Vision

Groups that lack vision

Groups with vision
Long Term Cycle

Focus on the Value Stream

- Map the value stream
- Internalize the vision
- Set goals and metrics
- Identify & involve key stakeholders
Lean Applies to All
Enterprise Processes

All enterprise processes have value streams - but not all can be tackled at once.

- **Life Cycle Processes**
  - Business acquisition & program management
  - Requirements definition
  - Product/process development
  - Supply chain management
  - Production
  - Distribution and support

- **Enabling Infrastructure Processes**
  - Finance
  - Information technology
  - Human resources
  - Quality assurance
  - Facilities and services
  - Environment, health, and safety

- **Enterprise Leadership Processes**
Long Term Cycle

Develop Lean Structure & Behavior

• Organize for lean implementation
• Identify & empower change agents
• Align incentives
• Adapt structure & systems
Organizing for Lean

Mass Organization
- Organized by function
- Departments - silos
- Many job categories
- Vertical structure
- Bosses give directions
- “Up and down” communication
- Focus on product
- Suppliers at arms length
- Bureaucratic, sluggish

Lean Organization
- Organized by value stream
- Teams - multi functional
- Few job categories
- Horizontal structure
- Bosses facilitate
- Pervasive and rapid communication
- Focus on customer
- Suppliers as partners
- Flexible, agile

Lean implementation requires fundamental changes
Role of Enterprise Leader

- Develop enterprise level goals and metrics that encourage and promote Lean
- Identify and support Change Agents
- Promote leadership and risk taking at all levels
- Empower teams and individuals
- Remove barriers
- LEAD!!!
Barriers Inhibit Adopting New Concepts

Philosophies Concepts Theories

Barriers
- NIH
- Politics
- Resistance To Change
- Mixed Signals
- Lack of Trust
- Skepticism
- Lack of Commitment
- Inconsistent Direction

Roadblocks

Changed Work Practices

Implementing Lean V6.3 - Slide 16
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Knowledge, Understanding, Skills
Breakthrough Barriers

- Philosophies
  - Concepts
  - Theories

- Knowledge
- Understanding
- Skills
- Barriers

Changed Work Practices
Create & Refine Transformation Plan

- Identify & prioritize activities
- Commit resources
- Provide education and training
Toyota A3 Sheet

Title: What you are talking about.

Background
Why you are talking about it.
What is the business context?

Current Situation
Where do we stand?
Where we need to be?
Where we want to be?

Analysis
-What is the root cause(s) of the problem?
-What requirements, constraints and alternatives need to be considered?

Goal
What is the specific change you want to accomplish now?

Recommendations
What is your proposed countermeasure(s)?

Plan
What activities will be required for implementation and who will be responsible for what and when?

Follow-up
How we will know if the actions have the impact needed? What remaining issues can be anticipated?
Acme Stamping Steering Bracket Value Stream Improvement

**Background**
- Product: stamped-steel steering brackets (left- and right-hand drive).
- 18,400 brackets/month; daily shipments in pallets of 10 trays of 20 brackets.
- **Customer State Street Assembly is requesting price cuts and tightening delivery requirements.**

**Current Situation**
- Production Lead time: 23.6 days
- Processing time: only 188 seconds.
- Large inventories of material between each process.
- Long changeover times; downtime in welding.

**Countermeasures:**
- Create continuous flow in through Weld and Assembly
- Establish Takt Time: Base the pace of work through Weld and Assembly on customer demand
- Set new Weld-assembly cell as pacemaker for entire value stream
- Establish EPEX build schedule for stamping based on actual use of pacemaker cell and pull steel coils from supplier based on actual usage by Stamping.
- Reduce Changeover time in Stamping and Weld
- Improve uptime in Weld
- Establish material handling routes for frequent withdrawal and delivery
- Establish new production instruction system with Leveling Box

**Analysis**
- Each process operates as isolated islands, disconnected from customer.
- Push system; material builds up between each process.
- Each process builds according to its own operating constraints (changeover, downtime, etc.
- Plans based on 90 and 30-day forecasts from customer. Weekly schedule for each department. System is frequently overridden to make delivery.

**Goals:**
- Improve profitability while meeting tougher customer demands:
  - Reduce lead time – 23.6 days to <5 days
  - Reduce inventories: Stamping – <2 days
  - Welding – Eliminate
  - Shipping – <2 days

**Source:** Verble/Shook 12/6/01

**Future State Map**

**Follow-up**
Confirm reviews and involvement of related departments:
Production Control and Material Handling, Purchasing, Maintenance, Human Resources, Finance.

**A3 Sheet Example**

Courtesy of John Shook. Used with permission.
A3 Exercise

- Join your team that prepared the Accounts Payable Value Stream Map
- Develop an A3 plan to respond to Question 8 - “Suppose your are the RPI team leader and have to report back to Joanie. What will you recommend?”
- Spend 20 minutes preparing your A3 plan
  - Verify that the provided information is correct
  - Complete the additional information blocks
- Present the A3 to the class as if you were meeting with Joanie.
Project Selection

- Projects are identified from the Value Stream Map
- Determine the possible impact of each project on the enterprise
- Do the anticipated results lead to the envisioned future state?
- Possible analysis tools:
  - PICK charts - simple and intuitive prioritization
  - Pareto charts - data driven prioritization
  - Cost/Benefit analysis - prioritization based upon return on investment
PICK Charts

Organize Possible Projects

Prioritize Actions

Kill

Consider

Possibly
Implement

Implement

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Roles in Lean Implementation

- **Objectives**
- **Sponsor**
- **Champion**
- **Facilitator**
- **The Team**
- **Team Leader**
Provide Education and Training

- Prepare and motivate people
  - Train workers in tools and appropriate skills
  - Create common understanding of need to change to Lean

- Employee involvement
  - Decision-making and system development happens at the appropriate level
  - Trained and truly empowered people

- Share information and manage expectations

- Identify and empower champions, particularly operations managers
  - Remove roadblocks (i.e., people, layout, systems)
  - Make it both directive yet empowering
Short Term Cycle

Implement Lean Initiatives

• Develop detailed plans
• Implement lean activities
### Project Charter Template

<table>
<thead>
<tr>
<th><strong>Project Description:</strong></th>
<th><strong>Start Date:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>One or two sentences that describe the team’s task</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Preliminary Objectives:</strong></th>
<th><strong>Team Leader:</strong> Person responsible for pre- and post-work follow-up.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The objectives are the measurable outcomes that the sponsor desires from the project. Usually two or three measurable objectives along the lines of reducing cycle time, handoffs, approvals, defects and/or costs are included.</td>
<td><strong>Co-Leader:</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Value:</strong></th>
<th><strong>Team Members:</strong> People that need to participate on the team</th>
</tr>
</thead>
<tbody>
<tr>
<td>The value to the end customer is…? The portion of the value-added by this project area is…?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Process Information:</strong></th>
<th><strong>Process Owner:</strong> Person(s) who owns the process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Should include:</td>
<td><strong>Facilitator:</strong> Person who facilitates the event</td>
</tr>
<tr>
<td>• Project boundaries (where does this process begin and end)</td>
<td></td>
</tr>
<tr>
<td>• Any commandments or monuments</td>
<td><strong>Case For Action:</strong></td>
</tr>
<tr>
<td>• Listing of available process data</td>
<td>One or two sentences that describe the problem the team is addressing and answer the “Why this project, why now?” question</td>
</tr>
</tbody>
</table>

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Kaizen is the process of:
- Identifying & eliminating waste
- as quickly as possible
- at the lowest possible cost

Kaizen requires:
- Continuous, gradual, persistent improvement
- by all employees and management

Kaizen utilizes:
- Cross functional team
- Focused scope
- Aggressive goal

Photo by Greg Harris
Courtesy of Gregory Harris. Used with permission.
Focus on Continuous Improvement

- Monitor lean progress
- Nurture the progress
- Refine the plan
- Capture and adopt new knowledge
Sustaining Lean

- Lean must be self sustaining
- Invest in the process
- Invest in humans and machines to change methods
- Neglected processes need to repaired to bring reliability
- Do not use to reduce head count
- Do not be in the business for next month’s P&L statement, change takes a while
The Ongoing Lean Enterprise

**Long Term Cycle**

- Focus on the Value Stream
- Develop Lean Structure & Behavior

**Short Term Cycle**

- Focus on Continuous Improvement
- Create & Refine Transformation Plan

**Re-entry Cycle**

- Enterprise Strategic Planning
- Lean Impact

**Outcomes**

- Environmental Corrective Action Indicators
- Detailed Corrective Action Indicators

**Implement Lean Initiatives**

- Responses to Voice of the Customer
- Detailed Lean Vision

**Enterprise Level Transformation Plan**

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The Lean Journey

- **Awareness and Training**
  - Assessments, Vision, Crisis, Goals, Train Employees

- **Implement Through Kaizen**
  - Initial Kaizens, VSM, Lean Champions, Steering Committee, Sensei

- **Implement Future State and Change Culture**
  - World Class-Learning Organization
  - Improve and Standardize Systems
  - Implement Future State and Change Culture

- **Culture, Cross Trained, Flexible, Standardize Mgmt**
  - 5s/Layout, Visual, TPM, SMED, Standardization, Poke-Yoke, New Metrics, Data Based Mgmt,
Take Aways

- Effective implementation of lean requires
  - Aligning action with strategy
  - Focus on value streams
  - Leadership and organizational change
  - Training and empowering the workforce
  - Tracking metrics
  - Plan-Do-Check-Act cycles at multiple levels
  - Sustaining commitment

- What you have learned this week prepares you to actively participate in lean improvement projects in your organization
Continuous Process Improvement Transformation Guidebook, DoD, May 2006


Murman, E. et al, Lean Enterprise Value: Insights from MIT’s Lean Aerospace Initiative, Palgrave, Mar 2002, Ch 6


Transition To A Lean Enterprise: A Guide for Leaders, Lean Aerospace Initiative, Sept 2000

• Vol I: Executive Overview
• Vol II: Transition-To-Lean Roadmap
• Vol III: Roadmap Explorations
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