Enterprise Value Stream Mapping (EVSM) Workshop

Enterprise Value Stream Mapping at MIT
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Presented By:
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Massachusetts Institute of Technology
➢ Course Title: “Integrating the Lean Enterprise

➢ Course Focus: Planning, developing, implementing and sustaining Lean Enterprises

➢ Term Project: Students work in teams to develop an Enterprise Value Stream for an actual organization, followed by the creation of a plan for transitioning to a Lean Enterprise.

On-campus MIT students are assigned to teams that include students in MIT’s Systems Design and Management (SDM) Program, many of whom are taking the course via distance learning.
Term Project Guidelines

➢ Define the boundaries of the Enterprise being mapped
  ➢ Context Specific

➢ Understand the Intended Audience
  ➢ Enterprise Executive Committee
  ➢ Senior Leadership

➢ Intended Usage
  ➢ Enterprise analysis provides basis and direction for achieving future lean state
Steps:
1) Value Identification/Definition
2) Map “Current State” Value Stream
3) Identify Enterprise Metrics
4) Determine Strategic Issues
5) Develop Lean Vision
6) Develop “Future State” Value Stream Map
7) Develop Roadmap for Transitioning to Future State

LESAT used to identify areas for improvement in the enterprise
Example: Kodak Inks

Inks

Large Format Color Ink-Jet Printer
Value measures the worth of a product or service to customer

➢ Usefulness, functionality
➢ Meets customers need
➢ Available when needed
➢ Acceptable price

➢ Life-cycle value: “A product introduced at the right time for the right price which delivers best value in mission effectiveness, performance, affordability, and sustainability, and comparatively retains these advantages over the useful life of the product” - Murman et al, 2000
Kodak: Stakeholder Value

➢ Customers
  ➢ Higher quality
  ➢ Lower cost
  ➢ Customer satisfaction

➢ Suppliers
  ➢ Trust and commitment
  ➢ Lower costs

➢ Employees
  ➢ Connected organization
  ➢ Career development

➢ Stockholders
  ➢ Faster response to the mkt
  ➢ Higher ROI and ROS
  ➢ Lower inventory levels
Step 2 – Map the “Current State” Value Stream

2a) Identify sequence of steps/processes now followed in delivering value to the customer

2b) Determine the time required in each process

2c) Specify all resources consumed/utilized in each process

2d) Determine the information that flows through the sequence of processes

2e) Identify the tools and technologies used within the value stream
Kodak: Opportunities

- Takt Time
  - R&D, Commercialization, Order-to-delivery
  - Digital Imaging Industry
- Excessive Wait Time (Muda)
  - Technology Transfer – R&D to IPT
  - Knowledge Management System
- Fractured Manufacturing / Supplier Base
  - Many Small, Disperse Suppliers
- Distribution
  - Push versus Pull Systems – Inventory Management
- Incongruent Metrics
  - Metrics Don’t Always Flow Coherently into Value Delivery
Step 3 – Identify Enterprise Metrics

➢ Traditional accounting and balance sheet results are inadequate, even counterproductive

➢ Disaggregate traditional corporate overhead costs into direct charges associated with processes along the value stream

➢ Tie metrics to Enterprise Strategy
## Kodak: Lean Metrics

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<thead>
<tr>
<th></th>
<th>Existing Metrics</th>
<th>Added Metrics</th>
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</thead>
<tbody>
<tr>
<td>Concept</td>
<td>➢ Number of patents</td>
<td>➢ Enterprise takt time</td>
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<tr>
<td></td>
<td></td>
<td>➢ Risk/benefit analysis</td>
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<tr>
<td>Development</td>
<td>➢ Unit manufacturing cost</td>
<td>➢ Product development takt time</td>
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<td></td>
<td>➢ Quality supplier matrix</td>
<td>➢ Stakeholder needs % fulfillment</td>
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<tr>
<td>Manufacture and</td>
<td>➢ Quality measure</td>
<td>➢ Takt time and service level</td>
</tr>
<tr>
<td>Distribute</td>
<td>➢ Customer orders over time</td>
<td>➢ Customer orders over time</td>
</tr>
</tbody>
</table>

**Concept**
- Number of patents

**Development**
- Unit manufacturing cost
- Quality supplier matrix

**Manufacture and Distribute**
- Quality measure
- Customer orders over time
Identify issues associated with the current value stream that may impact enterprise strategic directions and goals.
Kodak: Key Strategic Issues

➢ Executive level lean leadership and support
  ➢ Resource allocation consistent with corporate strategy
  ➢ Extend the Integrated Product Team
  ➢ Create new digital business office
  ➢ Enterprise-wide knowledge management system
  ➢ Executive support of lean training and kaizen events

➢ Measure & incentivize lean behaviors
  ➢ Continuous improvement – reward waste elimination
  ➢ Metrics consistent with corporate strategy – six sigma

➢ Extend the vision of the enterprise to include customers and suppliers
  ➢ Facilitate communications and build trust with suppliers
  ➢ Establish a continuous dialog with lead users
Step 5 – Develop Lean Vision

➢ Determine the **value proposition** for each enterprise stakeholder

➢ Craft a vision of the enterprise functioning according to Lean principles and practices, with particular focus on eliminating waste and creating value
Kodak: Lean Leadership

- Lean enterprise education
  - Lean manufacturing success stories
- Buy-in at all levels of leadership
  - Executive leaders / lean champions
  - Internal network leaders / community builders
  - Local line leaders / local change agents
- Lean enterprise commitment
- Supply and distribution channels
Step 6 – Develop “Future State” Value Stream Map

➢ Portray the new sequence/organization of processes and flows that will deliver best lifecycle value

➢ Estimate time and other resources required in each process

➢ Determine information flows

➢ Specify metrics which will enable Enterprise Leaders to know the status of achieving the Lean vision
Kodak: Cycle/Lead Times and Resources

➢ Excessive wait time between functions

➢ Push manufacturing results in large inventories

➢ Production based on demand forecasts

➢ Quality inspected-in

➢ External package supplier offsite

Eliminate non-value added tasks

Pull manufacturing using aggregated raw material forecasts

Build-in quality

Co-locate final packaging
Kodak: Future Value Stream

Conception Phase
- Project Initialization
  - Integrated Product Team

Design Phase
- Design Integrated Product Team

Manufacturing Phase
- Manufacturing & Assembly
- Process Control Audit
- Co-located Organization
- Packaging / Finishing
- Receiving & Shipping Orders
- Supply Chain
  - Aggregate Forecasts
  - Production Control System

Distribution Phase
- Service
  - Sales & Service
- Customers
- Retailers

Future Map Key
- Pull material flow
- Pull combo material and information flow
- Push material flow
- Push electronic information flow
- Push combo material and information flow
Kodak: Future Value Stream

Innovation Phase

Conception Phase

Design Integrated Product Team Activities
- Includes finance, testing engineers, technologists, R&D, and information technology employees
- Immediate review and decision to move into design phase

Conception Phase

- Includes corporate strategy team, marketing, business unit managers, finance, HR
- Identify corporate strategy, customer needs, product roadmap

Design Phase

- Expand Conception IPT to include purchasers, suppliers, marketing, business unit managers
- Perform real-time customer voice checks, perform lean tests on incoming suppliers and incentivize current suppliers, move through certification for mfg. quickly

Acting Phase

- Manufacture & Assembly
- Process Control Audit
- Packaging / finishing
- Co-located organization
- Returers
- Customers
- Service
- Sales & Service

Acting Phase

- Product forecasts
- Production Control System
- Manufacturing & Assembly
- Manufacturing Audit

Acting Phase

- Receiving & Shipping orders
- Upstream Supply Chain
- Technology Development
- Manufacturing

Acting Phase

- Enterprise
- Key

Kodak: Future Value Stream

web.mit.edu/lean
Step 7 – Develop a Roadmap for Transforming the Enterprise

➢ Stress necessity of Enterprise-wide transformation
➢ Stress criticality of strong Executive Leadership
➢ Focus on behavioral and structural modifications necessary for achieving a Lean Transformation
➢ Emphasis a coordinated, Enterprise-wide program of education and training
➢ Emphasize need for communication
Integrate into Project Initialization Integrated Product Team

Integrate into Conception Integrated Product Team

Integrate into Design Integrated Product Team

Aggregate Forecasts

Establish Pull Manufacturing Systems

Co-locate Packaging

Establish Pull Distribution Systems

Kodak: Future Value Stream Transformation Roadmap