

Enterprise Value Stream Mapping (EVSM) Workshop

Lean Aerospace Initiative



Enterprise Value Stream Mapping at MIT
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- **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.

- **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



➤ 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

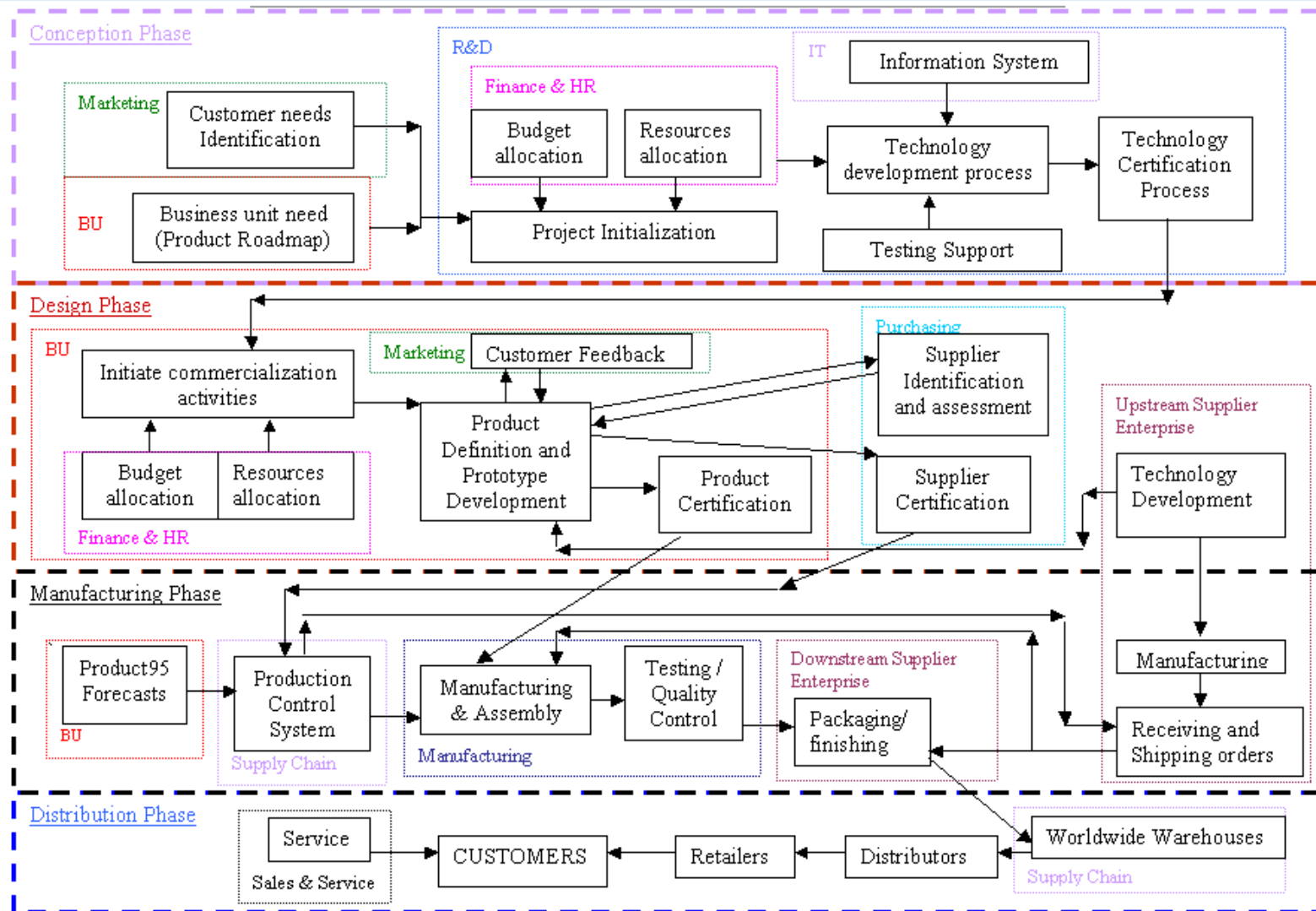
- **Customers**
 - Higher quality
 - Lower cost
 - Customer satisfaction
- **Suppliers**
 - Trust and commitment
 - Lower costs
- **Employees**
 - Connected organization
 - Career development
- **Stockholders**
 - Faster response to the mkt
 - Higher ROI and ROS
 - Lower inventory levels



– 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: Inks Current Value Stream



- **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**

	Existing Metrics	Added Metrics
Concept	<ul style="list-style-type: none"> ➤ Number of patents 	<ul style="list-style-type: none"> ➤ Enterprise takt time ➤ Risk/benefit analysis
Development	<ul style="list-style-type: none"> ➤ Unit manufacturing cost ➤ Quality supplier matrix 	<ul style="list-style-type: none"> ➤ Product development takt time ➤ Stakeholder needs % fulfillment
Manufacture and Distribute	<ul style="list-style-type: none"> ➤ Quality measure ➤ Customer orders over time 	<ul style="list-style-type: none"> ➤ Takt time and service level ➤ Customer orders over time

- **Identify issues associated with the current value stream that may impact enterprise strategic directions and goals.**

- **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



- **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



Eliminate non-value added tasks

➤ Push manufacturing results in large inventories

➤ Production based on demand forecasts



Pull manufacturing using aggregated raw material forecasts

➤ Quality inspected-in



Build-in quality

➤ External package supplier offsite



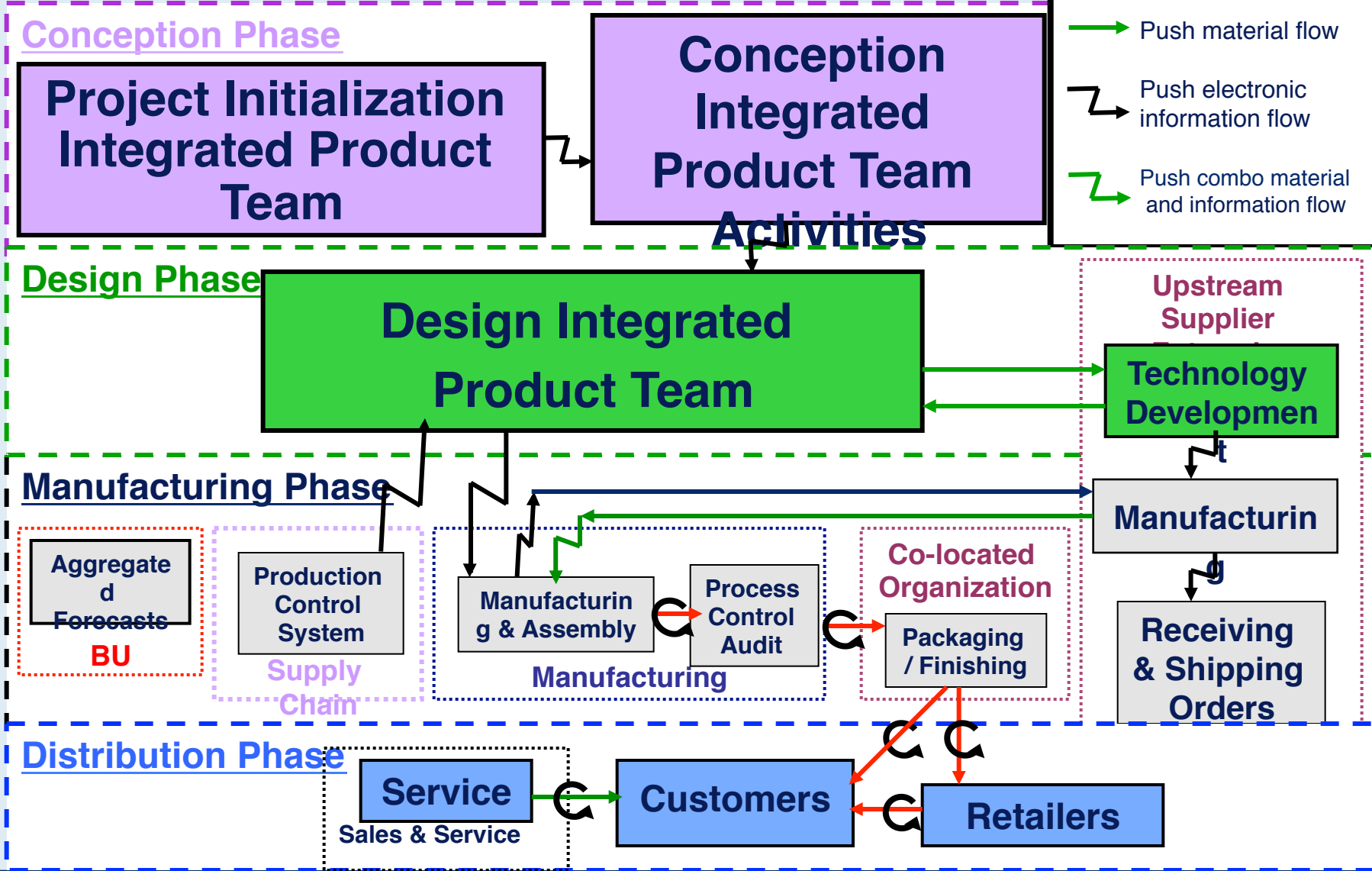
Co-locate final packaging



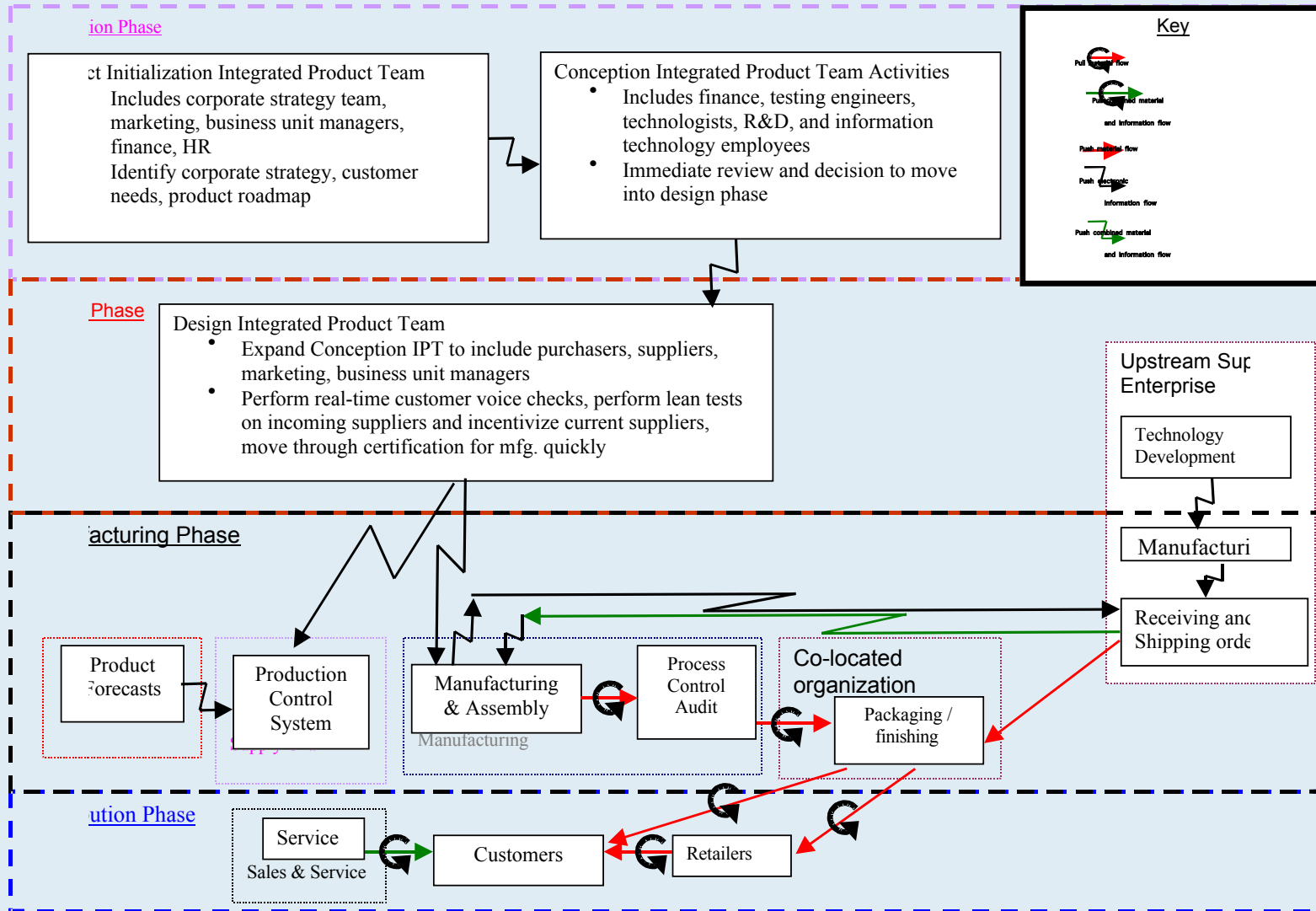
Kodak: Future Value Stream

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



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**

Kodak: Future Value Stream Transformation Roadmap

