

# Enterprise Value Stream Mapping (EVSM) Workshop

## Lean Aerospace Initiative



**Summary Slides**

January 16-17, 2002

Boeing Co., Seal Beach, CA.

### 1 Hour Breakout Session

- Answer the two main questions:
  - **What are the generic enterprise processes?**
  - **What are the generic enterprise flows?**
- Create a list of possibilities for each question, with any specific reasoning to support the answers
- Prepare to present the two lists to the workshop members (20 minutes)

- **Lead the enterprise**
- **Acquire new business**
- **Manage programs**
- **Develop product**
- **Produce the product**
- **Support the product**
- **Material management**
- **Human resource management**
- **Information technology selection deployment, and management**
- **Provide legal services**
- **Provide business management**

- **Manage Suppliers (PL)**
- **Market product/services (PL)**
- **Secure/execute sales (PL)**
- **Design the product/service (PL)**
- **Produce the product (PL)**
- **Deliver the product/service (PL)**
- **Provide product support service (PL)**
- **Test and evaluate the product/service (PL)**
- **Ensure product quality (PL)**
- **Prepare and manage plans and schedules (PL)**
- **Enable communications (Leadership)**

# **Enterprise-Level Processes Enabling Infrastructure (EI)**

- **Provide and manage appropriate facilities (EI)**
- **Customer interaction (EI)**
- **Ensure safety an environmental regulatory compliance (EI)**
- **E-business (EI)**

- **Something that's being transformed or that's transforming something**
- **Movement of materials, money, or information through sequence of transforming processes**
- **Something that enables product/service transformation**
- **Something that can be pushed or pulled**
- **Something that enters/exits a system**
- **Something that is capable of having a rate of change**

- **Information (physical, electronic, verbal)**
  - **Budget/financial info**
  - **Schedule info**
  - **Market info (5 forces)**
  - **Customer info**
  - **Design info**
  - **Supplier info**
  - **Learning/knowledge**
  - **Policies and procedures**
  - **Rules and regulations**
  - **Performance measurements**
  - **New technology**

- **Materials**
  - **Production components**
  - **Supplies**
  - **Energy**
  - **Raw materials**
  - **Waste disposal**
- **Money**
  - **Receivables**
  - **Payables**
  - **Contributions**
  - **Stocks/bonds/capital**
  - **Dividends**



- **What about**
  - **People skills**
  - **Capital equipment/facilities (time scale may be much different)**

### 1 Hour Breakout Session

- Answer the two main questions:
  - What are the value-based stakeholder metrics at the enterprise level?
  - What are the categories of waste at the enterprise level? Suggest a few examples for each category and some of the likely causes of each example.
- Create a list of possibilities for each question, with any specific reasoning to support the answers
- Prepare to present the two lists to the workshop members (20 minutes)

# Enterprise-Level Metrics

<b>Metrics</b>	<b>ent</b>	<b>shrd</b>	<b>empl</b>	<b>cust</b>	<b>supl</b>	<b>soc</b>
<b>Sales Growth</b>	X	X	X		X	X
<b>Profit</b>	X	X	X	X	X	X
<b>Profit Growth</b>	X	X	X	X	X	X
<b>ROIC</b>	X	X	X			
<b>Cash Flow</b>	X	X	X			
<b>Cost of Non-performance/ non-conformance</b>	X		X	X	X	
<b>On time delivery</b>	X	X	X	X	X	
<b>Customer acceptance %</b>	X		X	X	X	
<b>Cost per unit</b>	X		X			
<b>Market share %</b>	X	X	X		X	
<b>Cycle times (various)</b>	X		X	X	X	
<b>Occupancy/space used</b>	X		X			X

<b>Metrics</b>	<b>ent</b>	<b>shrd</b>	<b>empl</b>	<b>cust</b>	<b>supl</b>	<b>soc</b>
<b>Customer satisfaction</b>	X	X	X	X	X	
<b>Employee retention/turnover</b>	X	X	X	X	X	X
<b>Employee satisfaction</b>	X		X			
<b>Safety – recordable incidents</b>	X		X	X		X
<b>Supplier on time payment</b>					X	
<b>Community involvement</b>	X		X			X
<b>Pollution</b>	X		X			X
<b>Booked orders</b>	X	X	X	X	X	X
<b>Inventory and turns</b>	X	X	X	X	X	
<b>Pull metrics</b>	X	X	X	X	X	

Corporation	Sustainability of the Enterprise	Growth in Market Share	Growth in Profits	Expansion into New Markets	Innovation in Products	Knowledge Base	Industry Position	Branding	Barriers to Entry	
Shareholders	Share Price in the Market	Financial Ratios	Growth in Profits	Management of Corporation	Information on Corporate Affairs	Goodwill of Corporation	Reputation of Corporation	Future Outlook	Perception of Ability to Perform	
Employees	Sustainability of the Enterprise	Share in Profits	Job Security	Quality of Work Environment	Information Sharing	Good Management	Information sharing up and down the organization	Goodwill and reputation	Opportunity	Income and Benefits
Customers	Responsive relationship	Quality in Products	Value in Products	Innovation in Products	Quality in Overall Service and Support	On-Time Deliveries	Life cycle value	Perception	Viability of enterprise	Risk sharing
Suppliers	Sustainability of the extended Enterprise	Growth in Market Share	Fair Pricing	On-Time Accounts Receivable	Early Design Involvement	Information and technology sharing	Risk sharing	Customer perception in market	Profit sharing	
Society	Expansion in employment opportunities	Job security	Tax payments	Quality of work environment	Stewardship	Corporate citizenship	Quality and service support			

**What about Gov't, warfighter, end user, etc.....**

<b>Corporation</b>	<b>Resources/ capital infrastructure, people and facilities</b>	<b>Direction and strategy</b>	<b>Legal entity</b>	<b>Management expertise</b>	<b>Inter-function integration</b>			
<b>Shareholders</b>	<b>Financial forecasting and analysis</b>	<b>Capital infusion</b>	<b>Feedback on value</b>					
<b>Employees</b>	<b>Labor, service, expertise</b>	<b>Ideas and source of innovation</b>	<b>Corporate culture (internal)</b>	<b>Contribute to corporate citizenship (external)</b>	<b>Loyalty and commitment to enterprise</b>			
<b>Customers</b>	<b>Define value</b>	<b>Revenue</b>	<b>Drive and competition</b>	<b>Feedback</b>	<b>Design specifications</b>	<b>Business opportunities</b>		
<b>Suppliers</b>	<b>Products, parts, raw materials</b>	<b>Services</b>	<b>Design input</b>	<b>Ideas and source of innovation</b>	<b>Brand recognition</b>	<b>Technology</b>	<b>Business potential</b>	<b>Risk reduction/ sharing</b>
<b>Society</b>	<b>Labor force</b>	<b>Quality of life</b>	<b>Services</b>	<b>Policies and regulations (including oversight)</b>	<b>Public and political support</b>	<b>Cost value benefit</b>	<b>Free market / trade environment</b>	

**What about Gov't, warfighter, end user, etc.....**

- **Redundant systems**
- **Disconnected systems**
- **Inefficient systems**
- **Transportation**
- **Moves and queues (people, product)**
- **Organizational structure (rigid?)**
- **Unsupported initiatives**
- **Excessive, uncoordinated initiative**
- **Bad decisions (re-decided/changed later, or not); reactive decisions**
- **Poor facility layout and location**
- **Multiple hand-offs**
- **Excessive number of meetings/status/reporting**

- **Poorly prepared/facilitated meetings**
- **Buy-offs**
- **Approval**
- **Inspections**
- **Unbalanced resource allocation**
- **Excessive equipment and supplies**
- **Machine downtime**
- **Overproduction**
- **Excessive data collection and storage**
- **Multiple, legacy ways of doing things**
- **Overlapping command and control**
- **Too many suppliers**
- **Inadequate processes**
- **Politics**
- **Product/process specialization**



- **Linear, serial task sequencing**
- **Uncommon part types, non standard stock**
- **Regulatory agency non-compliance**
- **Excess command media**
- **Schedule capability**
- **Excessive metrics**
- **Wrong metrics**
- **Lack of integration**
- **Excess space**
- **Obsolete materials**
- **Expediting costs**
- **Redundant activities**

- **Oversized capital**
- **Poor strategy and execution**
- **Labor issues**
- **Poor motivation**
- **Lost knowledge transfer**
- **Wrong-sized resources**
- **Duplication of effort**
- **Duplication of resources**

- **Specify boundaries of the enterprise**
- **Identify targets for value stream analysis**
- **Study the highest number of**
  - **Interactions and handoffs**
  - **Delays, Costs, Manpower**
  - **Redundancies**
  - **Information System Discontinuities**
  - **Non-Performance**
  - **Negative customer feedback**

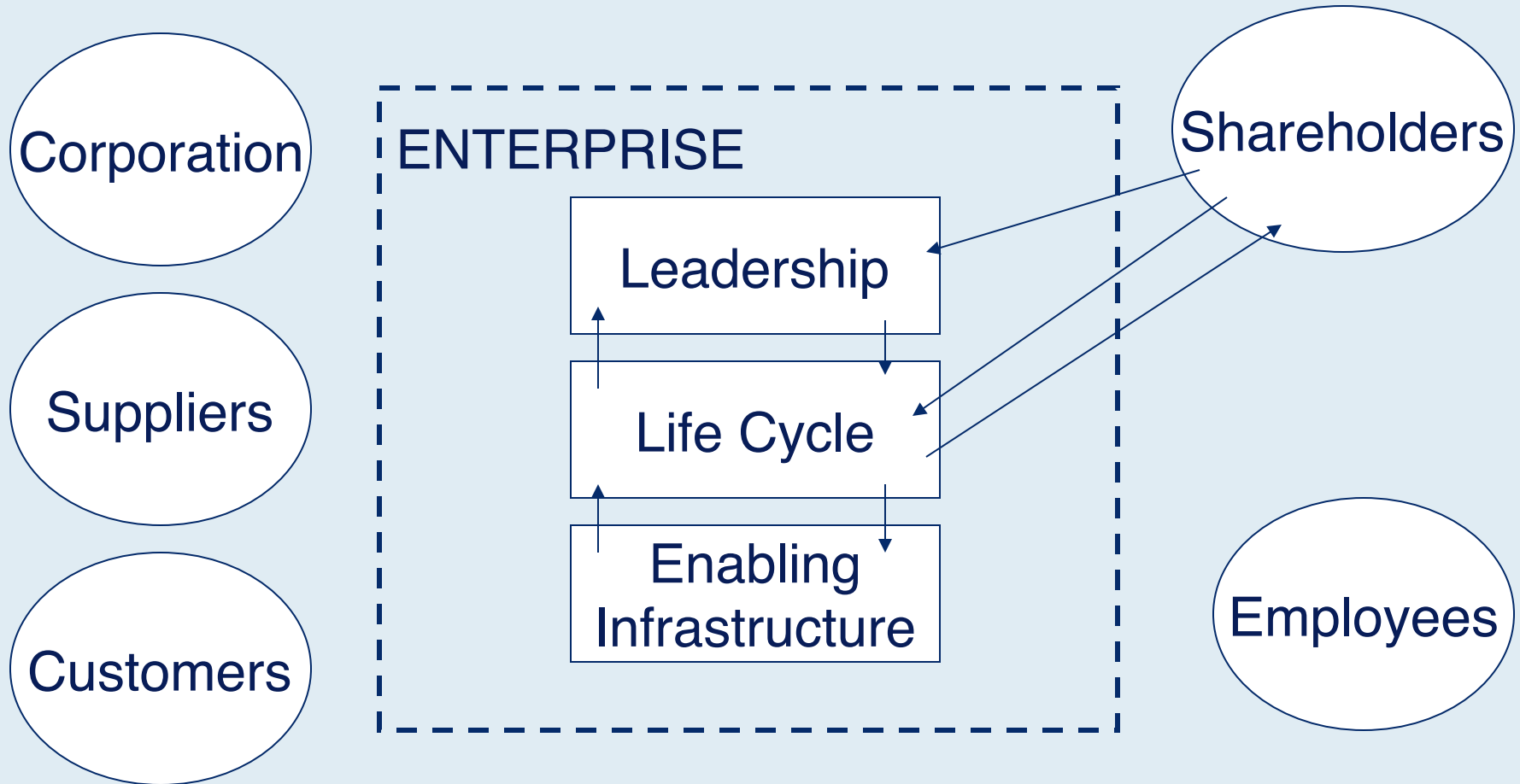
### 1.5 Hour Breakout Session

- **Review the following issues**
  - **What methodology is necessary to identify the various types of waste identified in breakout session #2?**
  - **Review the 7 steps utilized in Debbie's Lean Enterprise Class. Identify the steps that align with waste identification, or the need for additional steps to formally identify the waste.**
- **Summarize your work in a proposed framework for performing EVSMA**
- **Prepare to present your work to the other workshop members (20 minutes)**

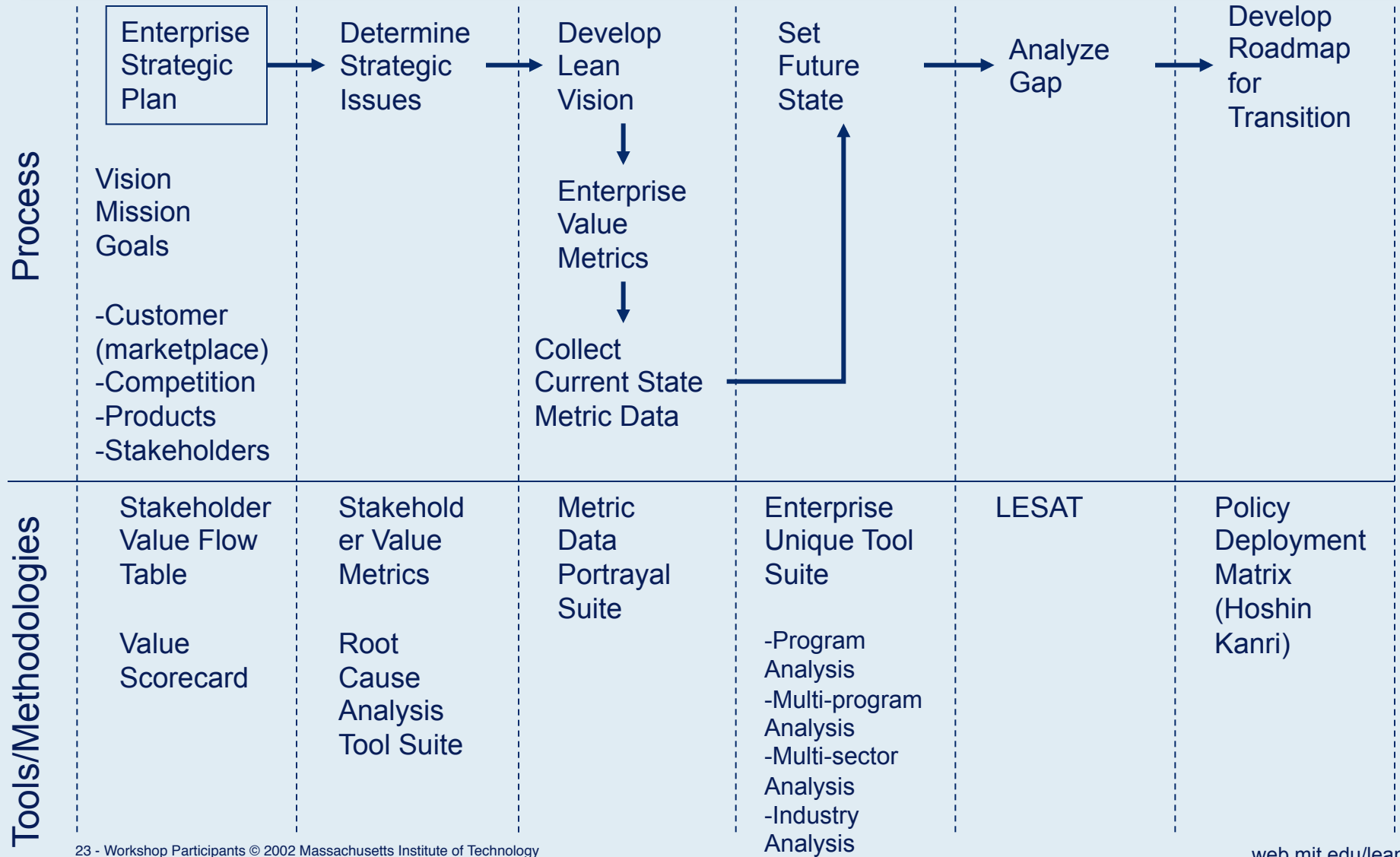
# Proposed EVSMA Framework #1

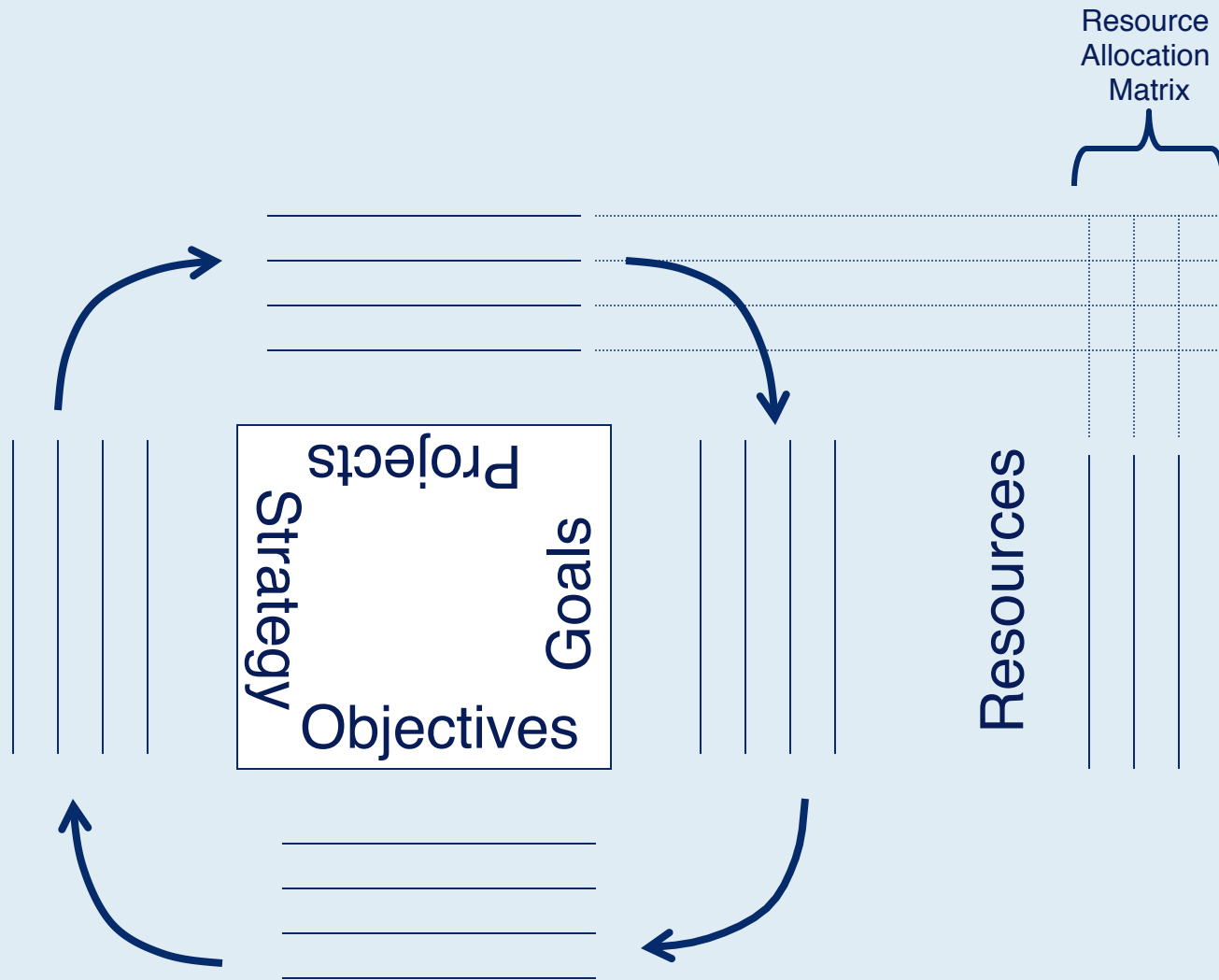
- 1) Identify the Generic Enterprise processes of the company and map each of these at a high level ( life cycle, enabling infrastructure, & leadership)
- 2) Identify stakeholder values and flows (if any) associated with these processes. Correlate and analyze with respect to vision, mission, and/or strategy
- 3) Determine stakeholder values and associated data to be analyzed on the several flows (hard data box, soft data box)
- 4) Correlate interdependencies and “hooks” (gap analysis) for the wastes and values; perform value gap analysis for each stakeholder
- 5) Overlay the non- flowing or “shared” services on the model (HR, enabling infrastructure, legal, financial, etc)
- 6) Identify metrics and wastes throughout the value stream. Keep a list of these measures and a parking lot of potential projects
- 7) Perform risk analysis and confirm projects you would like to do. Do not sub-optimize. Include ROI/financial analysis
- 8) Redesign and develop the future state to remove the wastes and maximize value added

**Use the same process and substitute “maximize value” for “eliminate waste (strategic planning tool)**

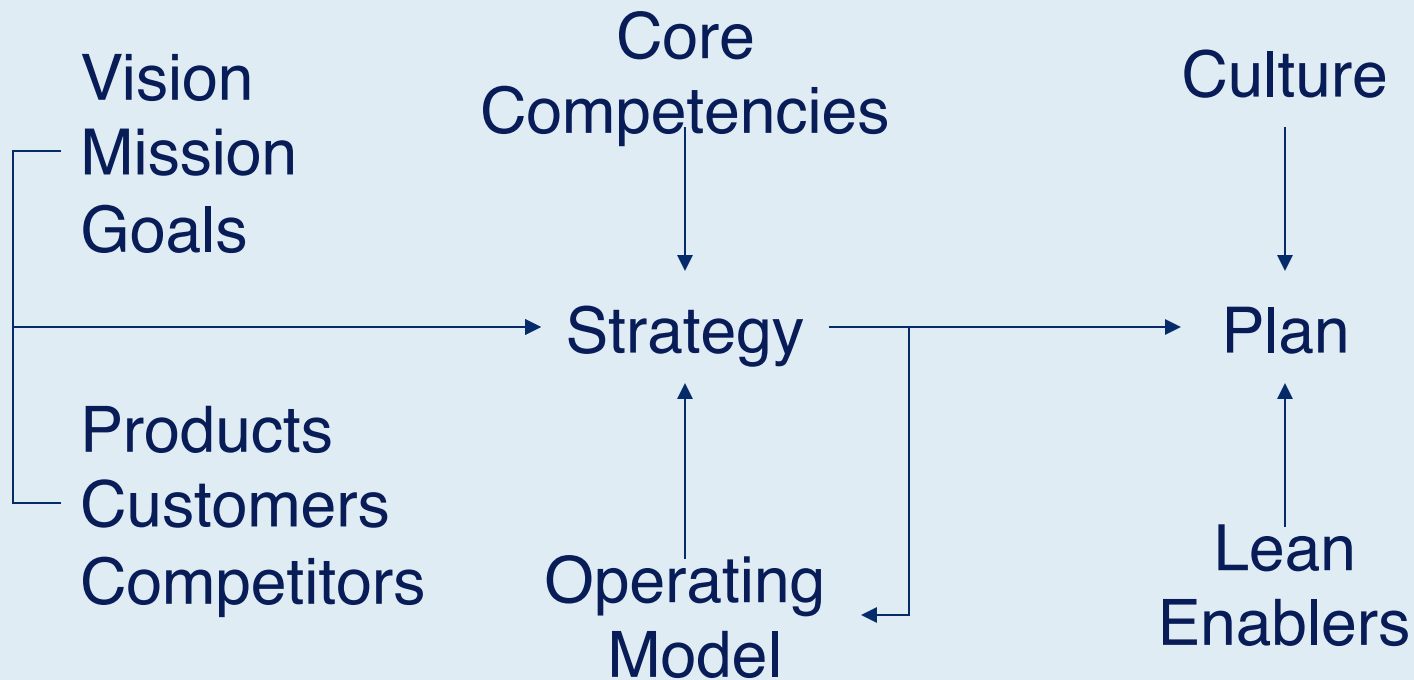


# Proposed EVSMA Framework #2









- **Issues to address**
- **Actions**
- **Next working meeting**

- **Combine the EVSMA steps from the breakout teams into a single framework**
- **How does LESAT influence this (tool or step)?**
- **Consider “what is an enterprise-level lean vision?”**
- **What are the tools/processes to create a lean enterprise vision?**
- **Ask what is missing in the organization (a lean vision?)**
- **We need a graphical representation to communicate enterprise-level lean issues**
- **Can cost metrics be flowed up and down the organization (currently many organizations have non-integrated initiatives)?**
- **Identify and collect examples of existing tools**

- **Is there a generic set of enterprise-level metrics?**
- **What are the elements of a lean vision? These elements should drive the choice of metrics.**
- **Combine business, financial, and lean plan into one plan**
- **What is the case for change?**
- **What organizational structure is associated with a lean enterprise?**
- **What culture change is necessary?**
- **IT and value added versus waste elimination**
- **Rewards and incentives**
- **Efficient work**
- **Who is the intended audience of our work?**

- 1) Create a taxonomy for enterprise waste (Claire, Karen, and Jan)**
  - 2) Define Enterprise Value Metrics (Cory and Joe)**
  - 3) Combine the workshop EVSMA steps into one methodology for enterprise value analysis (Derrell, Art, and Andrew)**
  - 4) Collect and summarize tools and methods (or lack thereof) for doing #3 (Tim and Lee). Perhaps look at LESAT processes to identify where tools are needed to help with the EVSMA.**
- **All should email “word” or “power point” file to Debbie (dnight@mit.edu) on or before February 15th**

- **Monday, March 25th, Day before Plenary Conference**
- **At a Boeing site in LA area**
- **Agenda - TBD**