Lean Transformation Requires an Enterprise Approach

Customer

Finance/Human Resources, Legal, etc.

Product Support

Supplier Network

Manufacturing Operations

Product Development

Customer

Finance/Human Resources, Legal, etc.

Product Support

Supplier Network

Manufacturing Operations

Product Development
What Is LESAT?

- A tool for self-assessing the present state of “leaness” of an enterprise and its readiness to change
- Comprised of capability maturity model for assessing
  - (1) Enterprise leadership
  - (2) Life cycle and enabling processes
  - (3) Enabling infrastructure
- Supporting materials: (Facilitator’s Guide, Glossary, etc.)
Companies do well in assessing:

- Financial Performance
  - Sales Volume
  - Revenue
  - Operating Costs
  - Financial Ratios

- Operations Performance
  - Production Costs
  - Productivity
  - Quality
  - Schedule
Companies do not do well in tracking progress associated with broad change

- Often expressed in terms difficult to measure, fuzzy or soft metrics, or even a “gut feeling”
- “Good things to do” included without metrics
- Long term improvement tasks – difficult assessing intermediate progress
- Some improvement tasks dependent upon others
- Failure to consider “soft” aspects of change; we focus on technical aspects, ignoring people and social interactions (See Kotter - *Leading Change*)
Are there other reasons that companies do not do well in tracking progress associated with broad change?

1.

2.

3.

4.

5.
Most LAI members have launched “lean change initiatives”. Many have used LAI’s TTL Roadmap.

Experience with TTL led early adopters to ask:

- How lean are we?
- How do we know how much progress we have made?
- Where should we focus next?

LESAT is intended to address these questions
How Do We Assess Our Progress?

- Enterprise TTL application highlighted need for assessment tool
- Lean Enterprise Self-Assessment Tool (LESAT) developed by joint industry / government / MIT team in collaboration with UK LAI
- LESAT supports both
  - “As-Is” Analysis
  - AND
  - “To-Be” Vision
- Targeted at Enterprise Leadership Team (enterprise leader and direct reports)
LESAT Tool Requirements
(Survey of LAI Consortia Members)

- Simple, easy to use by enterprise leadership
- Focus on lean attributes
- Alignment with business performance planning (goals and results)
- Provide guidance for “next steps”
  - Gap analysis capability
- Ability to accommodate both single and aligned organizations (teaming, partnerships, suppliers) within an enterprise
Process Architecture
View of Lean Enterprise

Life Cycle Processes

Enabling Infrastructure Processes

Enterprise Leadership Processes

Source: Lean Aerospace Initiative, MIT © 2001
Lean Enterprise Process Architecture

Life Cycle Processes
- Business Acquisition and 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
- Strategic Planning
- Business Models
- Managing Business Growth
- Strategic Partnering
- Organizational Structure and Integration
- Transformation Management

Source: Lean Aerospace Initiative, MIT © 2001
LESAT Structure is Consistent with Enterprise Architecture

Section I

Life Cycle Processes

Enabling Infrastructure Processes

Enterprise Leadership Processes

Section II

Lean Transformation / Leadership

Life Cycle Processes

Section III

Enabling Infrastructure Processes

Source: Lean Aerospace Initiative, MIT © 2001
Capability Maturity Levels

**Level 1**
Some awareness of this practice; sporadic improvement activities may be underway in a few areas.

**Level 2**
General awareness; informal approach deployed in a few areas with varying degrees of effectiveness and sustainment.

**Level 3**
A systematic approach/methodology deployed in varying stages across most areas; facilitated with metrics; good sustainment.

**Level 4**
On-going refinement and continuous improvement across the enterprise; improvement gains are sustained.

**Level 5**
Exceptional, well-defined, innovative approach is fully deployed across the extended enterprise (across internal and external value streams); recognized as best practice.

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<td></td>
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<tr>
<td></td>
<td>A specific lean practice associated with this Group</td>
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<td>Opportunities</td>
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The focus is on lean practices and processes that are developed and maintained at the top level of the enterprise to guide its activities.
Section I: Lean Transformation/Leadership

- Practices directly linked to enterprise Transition to Lean Model (TTL)
- Assesses the following elements:
  - Strategic integration
  - Leadership and commitment
  - Value stream analysis and balancing
  - Change management
  - Structure and systems
  - Lean transformation planning, execution and monitoring
Enterprise Transition To Lean (TTL) Roadmap

**Entry/Re-entry Cycle**

- Adopt Lean Paradigm

**Long Term Cycle**

1. Decision to Pursue Enterprise Transformation
2. Enterprise Strategic Planning
3. Initial Lean Vision
4. Focus on the Value Stream
5. Detailed Lean Vision
6. Develop Lean Structure & Behavior

**Short Term Cycle**

- Focus on Continuous Improvement
- Environmental Corrective Action Indicators
- Detailed Corrective Action Indicators
- Enterprise Transition To Lean (TTL) Roadmap

- Implement Lean Initiatives
- Create & Refine Transformation Plan
- Lean Transformation Framework
- Outcomes on Enterprise Metrics

Mize – (032802) 17 © 2002 Massachusetts Institute of Technology
web.mit.edu/lean
## I.B. Adopt Lean Paradigm

Transitioning to lean requires a significant modification to the business model of the enterprise. It is imperative that the enterprise leadership understands and buys into the lean paradigm since they will be required to create a vision for doing business, behaving and seeing value in fundamentally different ways.

### Diagnostic Questions

- Do enterprise leaders and senior managers understand the lean paradigm at the enterprise level?
- Do all senior leaders and management enthusiastically support a transformation to lean?
- Has a common vision of lean been communicated throughout the enterprise and within the extended enterprise?
- Has a compelling case been developed for the Lean transformation?

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New mental model of the enterprise |  
Level 1: Senior leaders have varying vision of lean, from none to well-defined.  
Level 2: Senior leaders adopt common vision of lean.  
Level 3: Lean vision has been communicated and is understood by most employees.  
Level 4: Common vision of lean is shared by the extended enterprise.  
Level 5: Stakeholders have internalized the lean vision and are an active part of achieving it.  
| C | D | C | D | C | D | C | D | C | D |

### Lean Indicators

- The role that lean plays in achieving the vision is clearly defined
- The vision has been communicated to all levels and has extensive buy-in by most employees.
- The vision incorporates a new mental model of how the company would act and behave according to lean principles and practices

### Evidence

### Opportunities
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**Evidence**

**Opportunities**

*Source: U.S. and U.K. Lean Aerospace Initiative, © 2001*
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These processes result in value delivery to the customer and stakeholders over the life of the product or service.
Section II: Life Cycle Processes

Assess:

- Enterprise level core processes
  - Acquisition
  - Program Management
  - Requirements Definition
  - Product/Process Development
  - Supply Chain Management
  - Production
  - Distribution and Support
- Key integrative practices
## II.C. Develop Product and Process

### Diagnostic Questions

- Is the product development process formalized and understood?
- Are customers and other lifecycle stakeholders regularly involved in product and process development?
- Are downstream stakeholder issues in design and development considered and incorporated as early as possible in the process?
- Have most of the unnecessary iterations in the development cycle been removed?
- Has the development cycle been simplified and aligned to the critical path?
- Are products and processes being developed concurrently?

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- Manufacturing issues are considered late in design.
- Manufacturing and assembly issues are considered earlier in projects, but in ad hoc manner.
- Supplier and cost considerations are limited.
- Multi-functional teams include some downstream disciplines and key suppliers.
- Priorities of downstream stakeholders are quantified as early as possible in design, and used for process evaluation and improvement.
- Downstream stakeholders’ values in the extended enterprise are quantified and balanced via tradeoffs, as a continuous part of the process.

### Lean Indicators (Examples)

- There is early consideration and incorporation of downstream stakeholders issues throughout design development.
- The scope of considerations integrated into designs has been extended to include manufacturing, assembly, serviceability and cost implications.
- Products are easier to produce and have lower life-cycle costs.

### Evidence

### Opportunities

## II.C. Develop Product and Process

### Diagnostic Questions

Is the product development process formalized and understood?

Are customers and other lifecycle stakeholders regularly involved in product and process development?

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### Evidence

-  

### Opportunities

-  

*Source: U.S. and U.K. Lean Aerospace Initiative, © 2001*
## II.C. Develop Product and Process

II. C. Develop Product and Process - Product and process design decisions must be based upon value quantifications and tradeoffs that incorporate inputs from affected stakeholders.

### Diagnostic Questions
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II.C.2 Incorporate *Downstream Stakeholder Values* (Manufacturing, Support, etc.) into Products & Processes - *Understanding downstream stakeholders allows value to flow seamlessly to customer*

**Level 1**
Manufacturing issues are considered late in design

**Level 2**
Manufacturing & assembly issues are considered earlier in projects, but in an ad hoc manner. Supplier & cost considerations are limited

**Level 3**
Multi-functional teams include some downstream disciplines and key suppliers

**Level 4**
Priorities of downstream stakeholders are quantified as early as possible in design, and used for process evaluation and improvement

**Level 5**
Downstream stakeholders’ values in the extended enterprise are quantified, and balanced via tradeoffs, as a continuous part of the process
There is early consideration and incorporation of downstream stakeholder issues throughout design development.

The scope of considerations integrated into designs has been extended to include manufacturing, assembly, serviceability and cost considerations.

Products are easier to produce and have lower life-cycle costs.
These enabling processes provide supporting services to other organizational units whom they serve as internal customers.
Assess critical supporting processes

- Finance
- Information Technology
- Human Resources
- Environmental Health & Safety
### III.A. Lean Organization Enablers

The support units of an enterprise infrastructure must support the implementation of lean principles, practices, and behavior.

#### Diagnostic Questions

- Do the finance and accounting measures support the implementation of lean?
- How well have the financial and accounting systems been integrated with non-financial measures of value creation?
- Can stakeholders retrieve financial information as required?
- Are human resource practices reviewed to assure that intellectual capital matches process needs?
- Are the information technology systems compatible with stakeholder communications and analysis needs?
- Do processes created the least amount of environmental hazards practical?

#### Capability Levels

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<td>Financial system scope is expanded to integrate with non-traditional measures of value creation (e.g., intellectual capital, balanced scorecard, etc.).</td>
<td>Financial systems provide seamless information exchange across the extended enterprise, with emphasis on value creation for all stakeholders.</td>
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#### Lean Indicators

- Financial measures that conflict with lean activity are no longer used to measure progress and performance.
- The financial system handles a balanced set of financial and non-financial measures to assist decision-making.
- The financial system has been overhauled to ensure fast and efficient processing of information as required.

#### Evidence

- 

#### Opportunities

- 

**Source:** U.S. and U.K. Lean Aerospace Initiative, © 2001

*web.mit.edu/lean*
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Financial system supports lean transformation -  *Lean requires accurate assessment of value stream activities*

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Financial systems provide seamless information exchange across the extended enterprise, with emphasis on value creation for all stakeholders.
Financial measures that conflict with lean activity are no longer used to measure progress and performance.

The financial system handles a balanced set of financial and non-financial measures to assist decision-making.

The financial system has been overhauled to ensure fast and efficient processing of information as required.

Financial and performance measurement data can be accessed as needed in user-defined format.

Financial information can be extrapolated to forecast outcomes.

System provides up to date information on request and rationalizes information no longer used.
Participants Should be Able to...

- Understand role of assessment
- Understand “process architecture view of Lean Enterprise”
- Understand that assessment, even of core processes and infrastructure processes is at enterprise level
- Understand the LESAT Maturity Matrix Format and how matrices are completed
- Obtain Enterprise Leader’s commitment to personally sponsor & participate in assessment