

LESAT Facilitator's Workshop LESAT Overview

Tom Shields March 27, 2003



Lean Transformation Requires an Enterprise Approach





What Is the Lean Enterprise Self-Assessment Tool (LESAT)?



Source: Lean Aerospace Initiative, MIT © 2001

- A tool for self-assessing the present state of "leanness" 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.)



Perspectives on Assessment

Companies do well in assessing:

- Financial Performance
 - Sales Volume
 - Revenue
 - Operating Costs
 - Financial Ratios
- Operations Performance
 - Production Costs
 - Productivity
 - Quality
 - Schedule



Perspectives on Assessment

- Companies <u>do not</u> 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



Workshop Participants' Views

Are there other reasons that companies do not do well in tracking progress associated with broad change?

- ≻1.
- ≻2.
- ≻3.
- ≻4.
- ≻5.



Perspectives on Assessment

- 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



LAI Process Architecture View of the Lean Enterprise





Source: Lean Aerospace Initiative, MIT © 2001









LESAT Structure is Consistent with Enterprise Architecture





LESAT Sections

Section I	Section II	Section III
Transformation / Leadership	Lifecycle Processes	Enabling Infrastructure
The focus is on lean practices and processes that are developed and maintained at the top level of the enterprise to guide its lean activities.	These processes result in value delivery to the customer and stakeholders over the life of the product or service.	These enabling processes provide supporting services to other organizational units whom they serve as internal customers



Lean Enterprise Practices

- There are 54 lean enterprise practices in the assessment, divided amongst the three major sections
 - Section 1 Leadership/Transformation (28 practices)
 - Section 2 Lifecycle Processes (18 Practices)
 - Section 3 Enabling Infrastructure (8 Practices)
- Each practice is assessed on a capability maturity scale of 1 to 5
- There is a practice maturity definition for every maturity level in every practice, provided on a maturity matrix assessment sheet



Generic Capability Maturity Levels

(Facilitator's Guide, pp.13)

Level 5

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

Level 4

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

Level 3

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

Level 2

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

Level 1

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



Maturity Level Definitions Simplified





Generic LESAT Maturity Matrix Template

(blue text changes for each practice, green text entered by assessor for each practice)

Section, Group # and Group Name: Brief description of this Group number. In Section I, the Group is one of the Primary Activities from the Transition-to-Lean (TTL) Roadmap (blue) 1.0 Generic questions regarding the performance of the enterprise relative to this Group of practices (blue) Diagnostic Questions Capability Levels LP# Lean Practices Level 1 Level 2 Level 3 Level 4 Level 5 Statement A specific lean Statement practice describing little describing worldawareness of this class behavior for associated with lean practice (blue) this Group this lean practice (blue) Sound bit phrase (blue) С D D D D С D Lean Indicators Outcomes and lean behaviors that an enterprise will exhibit as it proceeds on its Lean transformation(blue) Evidence Supporting data utilized in assessing the current capability level of the Enterprise on this lean practice (areen) Inputs to plans of action to leverage opportunities or to move to the desired level of capability (green) **Opportunities**



LESAT Section I





LESAT Section I

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





web.mit.edu/lean



LESAT Section I - 28 Lean Practices

I.A. Enterprise Strategic Planning

- I.A.1 Integration of Lean in strategic planning process
- I.A.2 Focus on customer value
- I.A.3 Leveraging the extended enterprise

I.B. Adopt Lean Paradigm

- I.B.1 Learning and education in "Lean" for enterprise leaders
- I.B.2 Senior management commitment
- I.B.3 Lean enterprise vision
- I.B.4 A sense of urgency

I.C. Focus on the Value Stream

- I.C.1 Understanding current value stream
- I.C.2 Enterprise flow
- I.C.3 Designing future value stream
- I.C.4 Performance measures

I.D Develop Lean Structure and Behavior

- I.D.1 Enterprise organizational orientation
- I.D.2 Relationships based on mutual trust
- I.D.3 Open and timely communications

- I.D.4 Employee empowerment
- I.D.5 Incentive alignment
- I.D.6 Innovation encouragement
- I.D.7 Lean change agents

I.E. Create & Refine Transformation Plan

- I.E.1 Enterprise-level Lean transformation plan
- I.E.2 Commit resources for Lean improvements
- I.E.3 Provide education and training

I.F. Implement Lean Initiatives

- I.F.1 Development of detailed plans based on enterprise plan
- I.F.2 Tracking detailed implementation

I.G. Focus on Continuous Improvement

- I.G.1 Structured continuous improvement processes
- I.G.2 Monitoring lean progress
- I.G.3 Nurturing the process
- I.G.4 Capturing lessons learned
- I.G.5 Impacting enterprise strategic planning



Example LESAT Practice - I.B Adopt Lean Paradigm -

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. ٠ Do enterprise leaders and senior managers understand the lean paradigm at the enterprise level? Diagnostic • Do all senior leaders and management enthusiastically support a transformation to lean? Questions • 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? . **Capability Levels** LP# Lean Practices Level 2 Level 3 Level 4 Level 1 Level 5 I.B.3. Lean Enterprise Common vision Senior leaders Senior leaders Lean vision has Stakeholders have Vision have varying adopt common been of lean is shared internalized the lean vision of lean. by the extended vision of lean, communicated and vision and are an New mental from none to is understood by enterprise. active part of model of the well-defined most employees. achieving it. enterprise С D D С С С D D D •The role that lean plays in achieving the vision is clearly defined Lean Indicators •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**



Diagnostic	•	Do enterprise leaders and senior managers understand the lean paradigm at the enterprise level?
Juestions	•	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

- 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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Diagnostic Questions for I.B - Adopt the Lean Paradigm

- Do enterprise leader and senior managers understand the lean paradigm at the enterprise level?
- Have all senior managers made a commitment to 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?





Maturity Definitions for Practice I.B.3 - Lean Enterprise Vision

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•Do enterprise leaders and senior managers understand the lean paradigm at the enterprise level?Questions•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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Maturity Definitions for Practice I.B.3 - Lean Enterprise Vision

I.B.3 Lean Enterprise Vision - new mental model of the enterprise

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

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



Lean Indicators for Practice I.B.3 - Lean Enterprise Vision

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.

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Lean Indicators for Practice I.B.3 - Lean Enterprise Vision

- 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





LESAT Section II

Section I	Section II	Section III
Transformation / Leadership The focus is on lean practices and processes that are developed and maintained at the top level of the enterprise to guide its lean activities.	Lifecycle Processes These processes result in value delivery to the customer and stakeholders over the life of the product or service.	 Fnabling II.A Business Acquisition and Program Management II.B Requirements Definition II.C Develop Product and Processes II.D. Manage Supply Chain II.E Produce Product II.F Distribute and Service Product



LESAT Section II

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



Life Cycle Processes Support Value Delivery





LESAT Section II - 18 Lean Practices

- II.A. Business Acquisition and Program Management
 - II.A.1 Leverage Lean capability for business growth
 - II.A.2 Optimize the capability and utilization of assets
 - II.A.3 Provide capability to manage risk, cost, schedule and performance
 - II.A.4 Allocate resources for program development efforts
- II.B. Requirements Definition
 - II.B.1 Establish a requirements definition
 process to optimize lifecycle value
 - II.B.2 Utilize data from the extended enterprise to optimize future requirement definitions
- II.C. Develop Product and Process
 - II.C.1 Incorporate customer value into design of products and processes
 - II.C.2 Incorporate downstream stakeholder values into products and processes
 - II.C.3 Integrate product and process
 development

- II.D. Manage Supply Chain
 - II.D.1 Define and develop supplier network
 - II.D.2 Optimize network-wide performance
 - II.D.3 Foster Innovation and knowledge sharing throughout the supplier network
- II.E. Produce Product
 - II.E.1 Utilize production knowledge and capabilities
 - II.E.2 Establish and maintain a lean production system
- II.F. Distribute and Service Product
 - II.F.1 Align sales and marketing to production
 - II.F.2 Distribute product in a lean fashion
 - II.F.3 Enhance value of delivered products and services to customers and the enterprise
 - II.F.4 Provide post-delivery service, support, and sustainability



Example LESAT Practice - II.C Develop Product and Process -

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Diagnostic Questions for II.C - Develop Product and Process

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Diagnostic Questions for II.C - Develop Product and Process

- 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?





Maturity Definitions for Practice II.C.2 -Incorporate Downstream Stakeholder Values

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Maturity Definitions for Practice II.C.2 -Incorporate Downstream Stakeholder Values

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







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



Manufacturing issues are considered late in design

web.mit.edu/lean



Lean Indicators for Practice II.C.2 -Incorporate Downstream Stakeholder Values

II. C. De that inc	velop Pro orporate	oduct and Process inputs from affe	- I cte	Product ed stakel	and hold	l pro ders.	cess (design	decisior	ns n	nust be l	based ι	pon v	alue qu	antificat	ions and	d tradeo	ffs
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	Evidenc	е																
	Opportu	nities																



Lean Indicators for Practice II.C.2 - Incorporate Downstream Stakeholder Values

- 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





LESAT Section III





LESAT Section III

Section III: Enabling Infrastructure

Assess critical supporting processes

- Finance
- Information Technology
- Human Resources
- Environmental Health & Safety



LESAT Section III - 8 Lean Practices

III.A. Lean Organizational Enablers

- III.A.1 Financial system supports Lean transformation
- III.A.2 Enterprise stakeholders pull required financial information
- III.A.3 Promulgate the Learning Organization
- III.A.4 Enable the Lean enterprise with information systems and tools
- III.A.5 Integration of environmental protection, health and safety into the business

III.B. Lean Process Enablers

- **III.B.1** Process standardization
- III.B.2 Common tools and systems
- **III.B.3 Variation reduction**



Example LESAT Practice III.A - Lean Organizational Enablers

III.A. Lea principle	an Orgai s, prac t	nization Enab tices and be	lers - T havior.	he s	support	units	s of an e	nterpris	e infras	tructure	must s	up	port the ii	mplemei	ntation of	lean		
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LP#	Lean F	Practices								Capabilit	y Levels	;			-			
			Level	Level 1Level 2Level 3Level 4Level 5Finance systemInitial efforts areFinance system isFinancial systemFinancial systems														
III.A.1	Level 1Level 2Level 3Level 4Level 5A.1Financial System Supports Lean Transformation Lean requires appropriate financial dataFinance system provides basic balance sheet and cost accounting data; there is little awareness and exploration of broader supportInitial efforts are underway to adapt or modify systems to compensate for the inadequacies of the formal financial system.Finance system is overhauled to provide data and financial information to support and enable a lean transformation at any level.Financial system scope is expanded to integrate with non-traditional measures of value creation (e.g., intellectual capital, balancedFinancial systems scope is expanded to integrate with any level.Financial system scope is expanded to integrate with non-traditional measures of value creation for all stakeholders.															nge ed e		
)	D		С	D		С	D		С	D		С	D	
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Diagnostic Questions for III.A - Lean Organizational Enablers

III.A. Le principle	an Orga es, prac	nization Ena tices and be	blers - The havior.	support	units	s of an e	nterpris	e infras	tructure	e must s	upp	port the i	mpleme	ntation of	lean	
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	Loann	1001000	Level 1		Lev	vel 2		Level	3		L	evel 4		Level 5		
III.A.1	Financi Suppor Transfo Lean r approp financi	ial System rts Lean ormation equires oriate ial data	Finance s provides balance s and cost accountin there is lin awarenes exploratio broader s roles for f	ystem basic heet ng data; ttle s and on of upport finance.	Init und or to the of fina	tial efford derway t modify s compens inadequ the form ancial sy	is are o adapt ystems sate for Jacies al stem.	Finan overh data a inforn suppo lean ti any le	ce syster auled to p nd financ nation to ort and er ransform vel.	n is provide cial nable a ation at	F s ir n c ir c s	inancial s cope is xpanded t ntegrate w on-tradition reasures of reation (e ntellectual apital, bal corecard,	ystem to vith onal of value .g., anced etc.).	Financial provide s informati across th enterpris emphasis creation stakehole	systems seamless on excha e extend e, with s on value for all ders.	nge ed e
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Diagnostic Questions for III.A - Lean Organizational Enablers

- 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 create the least amount of environmental hazards practical?





Maturity Definitions for Practice III.A - Lean Organizational Enablers

III.A. Lea principle	an Orgai es, prac t	nization Enal tices and be	olers - The s havior.	support	units	s of an e	nterpris	e infras	tructure	must s	upp	port the i	mpleme	ntation of	lean	
Diagnostic Questions		 Do f How Can Are Are Do f 	the finance a v well have th stakeholden human reso the informat processes ci	and accou he financ rs retriev urce pra- tion tech reated th	untin cial ai re fina ctices nolog e leas	g measu nd accou ancial inf s reviewe gy syster st amour	res supp inting sys formation ed to ass ns comp nt of envi	ort the in stems be a as requure that atible wi ronment	mplemen een integ ired? intellectu th stakeh al hazaro	itation of rated wit ual capita nolder co ds praction	f lea th n al m omn cal?	in? ion-financ natches pr nunicatior ?	ial measu ocess ne	ures of valu eeds? alysis nee	ue creatio ds?	n?
LP#	Lean	Practices	Capability Levels													
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			C	D		С	D		С	D		С	D		С	D
	Lean Ir	ndicators	 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															
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Maturity Definitions for Practice III.A - Lean Organizational Enablers

Financial system supports lean transformation - Lean

requires accurate assessment of value stream activities

Level 5	Financial systems provide seamless information exchange across the extended enterprise, with emphasis on value creation for all stakeholders.
Level 4	Financial system scope is expanded to integrate with non-traditional measures of value creation (e.g., intellectual capital, balanced scorecard, etc.).
Level 3	Finance system is overhauled to provide data and financial information to support and enable a lean transformation at any level.
Level 2	Initial efforts are underway to adapt or modify systems to compensate for the inadequacies of the formal financial system.
Level 1	Finance system provides basic balance sheet and cost accounting data; there is little awareness and exploration of broader support roles for finance.
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Lean Indicators for Practice III.A - Lean Organizational Enablers

III.A. Lea principle	an Orgai e s, prac	nization Enat tices and be	olers - The s havior.	support	units	s of an e	nterpris	e infras	tructure	must s	upp	ort the i	mpleme	ntation of	lean	
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LP#	P#Lean Practices.A.1Financial System Supports Lean Transformation Lean requires appropriate financial data		Capability Levels													
			Level 1	Level 2			Level 3			Level 4			Level 5			
III.A.1			Finance sy provides b balance sh and cost accounting there is litt awareness exploration broader su roles for fi	Init un or to the of fin	Initial efforts are underway to adapt or modify systems to compensate for the inadequacies of the formal financial system.		Finance system is overhauled to provide data and financial information to support and enable a lean transformation at any level.			Financial system scope is expanded to integrate with non-traditional measures of value creation (e.g., intellectual capital, balanced scorecard, etc.).			Financial systems provide seamless information exchange across the extended enterprise, with emphasis on value creation for all stakeholders.			
			C	D		С	D		С	D		С	D		С	D
	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															
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Lean Indicators for Practice III.A - Lean Organizational Enablers

- 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 nonfinancial 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.





Review Other LESAT Practices?

• As a LESAT facilitator you will be asked to clarify some of the practices to assessors

Are there any other practices that you would like clarification on now?



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 <u>enterprise level</u>
- Understand the LESAT Maturity Matrix Format and how matrices are completed
- Obtain Enterprise Leader's commitment to personally sponsor & participate in assessment