LAI ENTERPRISE SELF-ASSESSMENT TOOL

Version 2.0
February 2012

Massachusetts Institute of Technology

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ENABLING ENTERPRISE EXCELLENCE

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(LESAT)
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ACKNOWLEDGEMENTS

This LAI Enterprise Self-Assessment Tool (LESAT) Version 2.0 was developed at the Lean Advancement Initiative (LAI) at the Massachusetts Institute of Technology (MIT) to assist in the enterprise transformation process by providing a structured tool and reference for enterprise assessment.

LESAT 2.0 uses elements of the LAI Enterprise Transformation Roadmap and LAI LESAT 1.0 as sources of information to provide a structure and implementation reference for the self-assessment process. LESAT 1.0, 2.0, and the Enterprise Transformation Roadmap were developed at MIT by the Lean Advancement Initiative (LAI).

LESAT 2.0 builds upon LESAT Version 1.0, which was developed jointly by MIT and the Warwick Manufacturing Group of the University of Warwick under the auspices of the U.K. and U.S. Lean Aerospace Initiatives. LESAT Version 2.0 is based on cumulative LAI knowledge gained through years of enterprise-level research, researcher facilitation experience, and LAI member experience in using LESAT Version 1.0.

The core team consisting of Deborah Nightingale, Leyla Abdimomunova, Thomas Shields, L. Nathan Perkins, Jayakanth Srinivasan, and Ricardo Valerdi developed LESAT Version 2.0. All facts, statements, opinions, and conclusions expressed herein are solely those of the core team members in their capacity as principal co-authors of the tool.

We acknowledge the contributions and/or feedback from real-life testing of the current and previous versions by the following companies alphabetically: AIRBUS (UK), BAE Systems, Boeing Helicopters, Dowty Propellers, FR HiTemp, GenCorp Aerojet, Hurel Dubois (UK), Lockheed Martin Aeronautics, Lockheed Martin Space Systems, Matra BAe Dynamics, Northrop Grumman, Pratt & Whitney, Raytheon, Rockwell Collins, Rolls Royce, Sikorsky Helicopters, Smiths Industries Aerospace, Textron Systems, TRW Aeronautical Systems, United Space Alliance, and the United States Air Force. We would also like to acknowledge the valuable inputs received from the rest of the LAI research team and staff in the preparation of this current version of LESAT and previous assessment versions.

LAI supported the development of LESAT Version 2.0. LAI and its international Educational Network (EdNet) offer organizational members from industry, government, and academia thinking, products, and tools related to lean enterprise transformation. LAI is a unique research consortium that provides a forum for sharing research findings, lessons learned, and best practices.

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STRUCTURE OF LESAT ASSESSMENT MATRICES

The enterprise-level assessment architecture is the basis for the LAI Enterprise Self-Assessment Tool (LESAT). It provides classification for the generic processes found in all enterprises. These classifications provide organizational structure for LESAT. The assessment is organized into three sections:

I. *Enterprise Transformation/Leadership* – processes and leadership attributes nurturing the transformation to enterprise principles and practices
II. *Lifecycle Processes* – processes responsible for the product from conception through post-delivery support
III. *Enabling Infrastructure* – processes that provide and manage the resources enabling enterprise operations

Section I contains practices pertinent to the enterprise transformation process with emphasis on enterprise leadership and change management. Section II contains practices pertinent to the lifecycle processes of an enterprise, i.e., those processes involved in product realization. Section III contains practices pertinent to the infrastructure support units. ***It is important to remember that all practices in these three sections are expressed at the enterprise level.***

The LESAT maturity matrices are organized as shown in Figure 1.

LESAT INSTRUCTIONS

As a respondent, you should score each practice on two dimensions. First, provide a current score based on your perception of the enterprise's present performance. Each practice has five capability levels that provide guidelines and evidence to help assess the appropriate score. Next provide a desired score based on what the enterprise should achieve after the predetermined period (often, the time selected aligns with the enterprise strategic planning process). The intention is not to set all desired scores at the highest possible capability level but to prioritize those practices that you think are both achievable and have a high payoff.

Other key guidelines:

- Make sure to define the **enterprise** and select a consistent **time horizon** as a group before starting.
- Consider the defined enterprise when assessing each practice.
- Attempt to assess every practice; leave a blank only if it is not applicable or if you do not know.
- For the current level of each practice mark the box labeled "C". For the desired level, mark the box labeled "D".
- Read each practice from left to right starting with the practice and indicator. When scoring a practice, every capability level assumes that all lower capability levels have been fulfilled (i.e., you should only select level three if you meet the criteria set out in level two as well).
- If you believe the enterprise is between levels, select the lower level.
- When possible note evidence for the current capability level selected.
- Identify opportunities to achieve the desired capability level.
- If you have questions, seek clarification or assistance from the assessment facilitator.

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Section I – Enterprise Transformation/Leadership

- I.A. Determine Strategic Imperative (3 enterprise practices)
- I.B. Engage Enterprise Leadership in Transformation (3 enterprise practices)
- I.C. Understand Current Enterprise State (2 enterprise practices)
- I.D. Envision and Design Future Enterprise (2 enterprise practices)
- I.E. Develop Enterprise Structure and Behavior (8 enterprise practices)
- I.F. Create Transformation Plan (2 enterprise practices)
- I.G. Implement and Coordinate Transformation Plan (4 enterprise practices)
- I.H. Nurture Transformation and Embed Enterprise Thinking (6 enterprise practices)

Section II – Lifecycle Processes (each practice assessed across lifecycle stages)

- II.A. Acquire, Develop, and Leverage Enterprise Capabilities
- II.B. Optimize Network-Wide Performance
- II.C. Incorporate Downstream Customer Value into Enterprise Value Chain
- II.D. Actively Engage Upstream Stakeholders to Maximize Value Creation
- II.E. Provide Capability to Monitor and Manage Risk and Performance

Section III – Enabling Infrastructure

- III.A. Organizational Enablers (5 enterprise practices)
- III.B. Process Enablers (3 enterprise practices)

Figure 1. Organization of LESAT Maturity Matrices

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LESAT Maturity Matrices

Section I: Enterprise Transformation/Leadership

I.A. Determine Strategic Imperative

I.B. Engage Enterprise Leadership in Transformation

I.C. Understand Current Enterprise State

I.D. Envision and Design Future Enterprise

I.E. Develop Enterprise Structure and Behavior

I.F. Create Transformation Plan

I.G. Implement and Coordinate Transformation Plan

I.H. Nurture Transformation and Embed Enterprise Thinking

The Enterprise Transformation and Leadership section consists of eights groups of practices, and each group corresponds to a primary activity that the enterprise must undertake at some point in the transformation process. These primary activities are organized based on the LAI Enterprise Transformation Roadmap (see Figure 2), which provides a framework for effective and efficient transformation strategy, planning, and execution. The Roadmap also serves as a guide for enterprise leaders when they consider the critical strategic, cultural, and operational changes that are required to transform an enterprise. Creating an enterprise capable of transformation and fostering a future vision and strategy throughout the enterprise leadership enable the enterprise to increase value delivery to stakeholders.

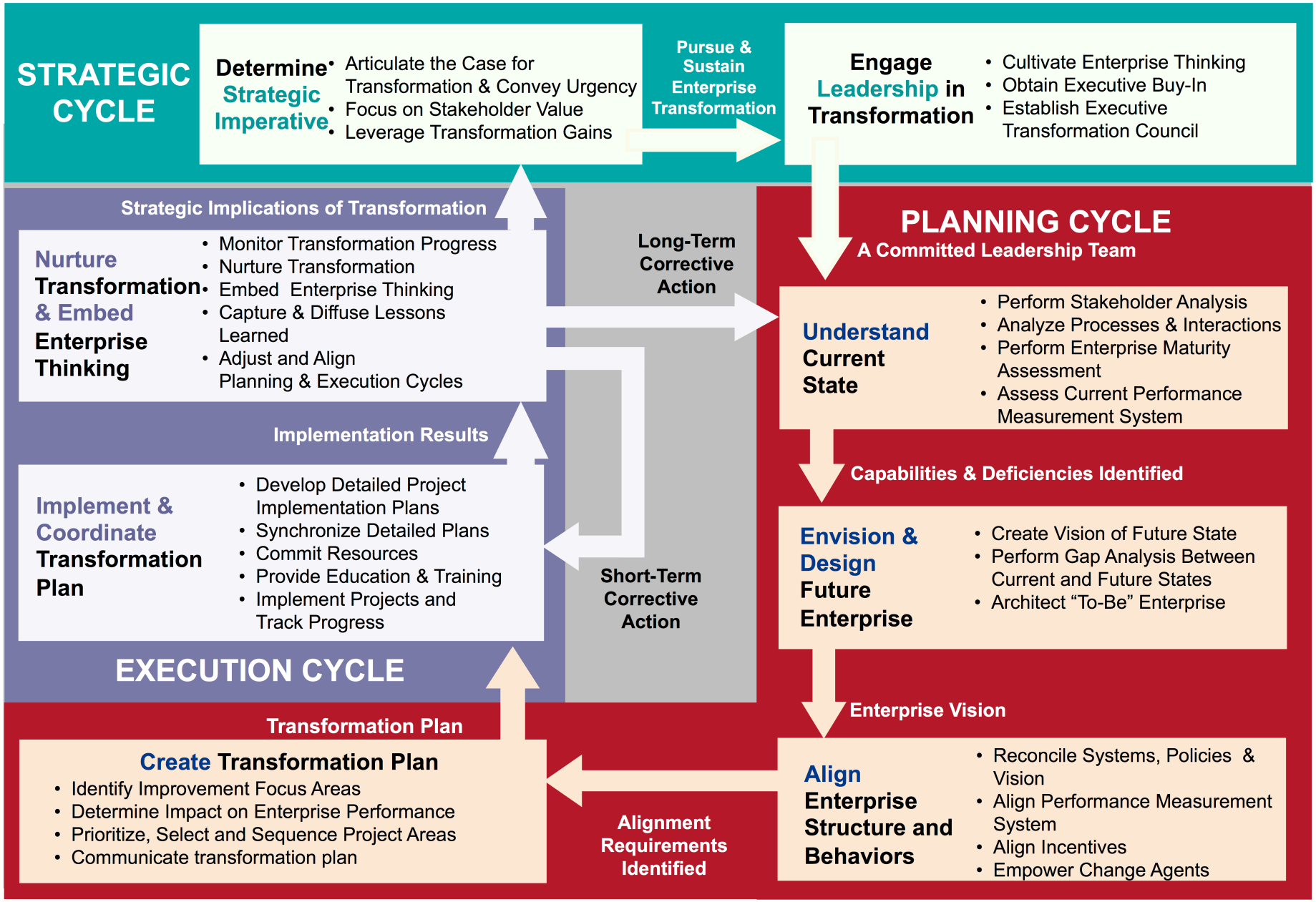

Figure 2. LAI Enterprise Transformation Roadmap

SECTION I: ENTERPRISE TRANSFORMATION/LEADERSHIP

Definition: Develop, deploy, and manage enterprise transformation plans throughout the organization, leading to: (1) long-term sustainability, (2) acquiring competitive advantage, and (3) satisfaction of stakeholders along with a continuous improvement in all three outcomes.

I.A. Determine Strategic Imperative - The decision to pursue an enterprise transformation is strategic in nature and affects all organizational practices and processes in the enterprise. The enterprise is continually striving to eliminate waste and enhance relationships with all stakeholders.

Diagnostic Questions	• **Are enterprise leaders familiar with the dramatic increases in competitiveness that many companies have realized as a result of transforming?**
	• **Are enterprise leaders fully aware of the potential opportunities (i.e., growth, profitability, and market penetration) that can be realized within their own organization as a result of transforming?**
	• **Has a suitable strategy been identified to use resources freed up by improvements?**
	• **Does "stakeholder value" strongly influence the strategic direction?**
	• **Has full leverage of the extended enterprise stakeholders been incorporated into the strategic plan?**
	• **Has a common vision been communicated throughout the enterprise and within the extended enterprise?**
	• **Has a compelling case been developed for transformation?**

EP #	ENTERPRISE PRACTICES	Capability Levels				
		Level 1	***Level 2***	***Level 3***	***Level 4***	***Level 5***
I.A.1	**Integrate Enterprise Transformation into Strategic Planning Process** *Transformation is a key enabler for achieving strategic objectives*	Enterprise transformation efforts are ad hoc. **C** **D**	Enterprise transformation is relegated to lower levels of the enterprise and application is fragmented. **C** **D**	Enterprise transformation plans are formulated, but not integrated into the strategic plan. **C** **D**	Coordination and synergistic relationship exists between transformation and strategic planning. **C** **D**	Strategic plans leverage the results of transformation improvements to achieve enterprise objectives. **C** **D**
	Indicators (Examples)	• Enterprise transformation implementation is included explicitly in the enterprise strategic plan. • Strategic planning makes allowance for anticipated gains from transformation improvements.				
	Evidence					
	Opportunities					
I.A.2	**Focus on Stakeholder Value** *Enterprise creates value for all stakeholders*	Strategy prioritizes outcomes (e.g. revenue or market share) over stakeholder value considerations. **C** **D**	Strategic decisions reflect the value proposition of a subset of stakeholders. **C** **D**	A formal process is in place to identify how well the enterprise delivers value to stakeholders. Recognized opportunities for improving value delivery influence the strategic direction of the enterprise. **C** **D**	Enterprise leadership employs stakeholder analysis process to balance mutual needs of stakeholders and establish a win-win value relationship between stakeholders. **C** **D**	Constant engagement with key stakeholders is part of the way of doing business. Value becomes the predominant driving force throughout the extended enterprise. **C** **D**
	Indicators (Examples)	• The enterprise employs a formal process for identifying stakeholders (e.g., customers, users, suppliers, partners, regulators, employees, etc.) and the value that they receive from or deliver to the enterprise. • The enterprise understands what constitutes success for its stakeholders, and a formal process exists to measure and assess stakeholder satisfaction. • Stakeholder value strongly influences policies, practices, and behavior.				
	Evidence					
	Opportunities					

EP #	ENTERPRISE PRACTICES	Capability Levels				
		Level 1	*Level 2*	*Level 3*	*Level 4*	*Level 5*
I.A.3	**Articulate the Case for Transformation** *Communicate burning platform*	Inconsistent communication of and lack of consensus on the case for transformation. **C** **D**	The executive team has a shared understanding of the case for transformation. **C** **D**	A well-defined and motivating case for transformation has been communicated throughout the enterprise. **C** **D**	Enterprise stakeholders speak with one voice regarding the case for transformation. **C** **D**	Enterprise internal and external stakeholders have internalized and support the case for transformation. **C** **D**
	Indicators (Examples)	• Enterprise leadership emphasizes the case for transformation at all opportunities. • Line employees can explain rationale behind transformation effort. • Multimodal messaging reiterates the crisp and clear case for transformation.				
	Evidence					
	Opportunities					

I.B. Engage Enterprise Leadership in Transformation – Transformation requires a significant modification to the business model of the enterprise. It is imperative that the enterprise leadership understands and buys into enterprise thinking because 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 holistically understand *efficiency and value creation* at the enterprise level?**
	• **Do enterprise leaders and managers understand the benefits of cross-functional coordination and cooperation?**
	• **Do all senior leaders and management enthusiastically support transformation?**
	• **Is the transformation process being effectively coordinated across parts of the enterprise? Is enterprise leadership overseeing it?**

EP #	**ENTERPRISE PRACTICES**	**Capability Levels**				
		Level 1	***Level 2***	***Level 3***	***Level 4***	***Level 5***
I.B.1	**Cultivate Enterprise Thinking among Leadership** *Leaders think holistically about the enterprise*	Lack of enterprise perspective leads to rigid boundaries that foster local optimization. **C** **D**	Leaders understand and promote the interaction and relationship across boundaries. **C** **D**	Leaders are working across boundaries, and their work is evaluated based on enterprise performance. **C** **D**	Leaders focus on enterprise-level value creation, and demonstrate "enterprise thinking" through their practices and behavior. **C** **D**	Leaders leverage the synergies across the extended enterprise for the benefit of all stakeholders. **C** **D**
	Indicators (Examples)	• A formal transformation education process for enterprise leaders has been established. • Majority of enterprise leaders have received significant exposure and education in enterprise transformation principles, practices, and behavior. • Enterprise leaders regularly apply and use lessons learned in "enterprise thinking". • Enterprise leaders contribute to the development/refinement of the body of knowledge about enterprise transformation.					
	Evidence					
	Opportunities					
I.B.2	**Obtain Senior Leadership Commitment** *Enterprise leadership personally lead transformation*	Level of commitment among senior leaders and management is variable – some endorse while others may actively resist. **C** **D**	Senior management buys into group commitment and engages in the transformation process. **C** **D**	Senior managers personally and visibly lead enterprise transformation. **C** **D**	Senior leaders are championing the transformation within the enterprise. **C** **D**	Senior leaders and management mentor and foster transformation champions internally and throughout the extended enterprise. **C** **D**
	Indicators (Examples)	• There is a consensus commitment supporting an enterprise transformation. • Enterprise leadership and management provide support and recognition for positive actions. • Senior leaders are champions in transforming the enterprise.				
	Evidence					
	Opportunities					

EP #	ENTERPRISE PRACTICES	Capability Levels				
		Level 1	*Level 2*	*Level 3*	*Level 4*	*Level 5*
I.B.3	**Establish Executive Coordination and Oversight** *Leaders choreograph the transformation*	Leaders recognize that strategic coordination and oversight is needed to support enterprise transformation. **C** **D**	The enterprise leadership team formally defines coordination and oversight roles and responsibilities. **C** **D**	Coordination and oversight functions are staffed and engaged with the enterprise leadership team. **C** **D**	The structure and processes for coordination and oversight of the transformation are operating effectively and being continually refined. **C** **D**	Coordination and oversight become intrinsic to the day-to-day actions and decisions of the enterprise leadership team. **C** **D**
	Indicators (Examples)	• Enterprise transformation council established and functioning. • Enterprise leadership team plays an integral role in orchestrating the transformation.				
	Evidence					
	Opportunities					

I.C. Understand Current Enterprise State – Understand how value is delivered to key stakeholders, define current enterprise state, and perform enterprise assessment.

Diagnostic Questions	• **Does the enterprise understand clearly how it currently delivers value to stakeholders?** • **Is a formal process used to explicitly determine "value to the stakeholder"?** • **Have the value streams of all stakeholders been mapped, integrated, and balanced?** • **Does the enterprise understand how material and information flow throughout the various elements of the enterprise?** • **Are enabling infrastructure processes being aligned to value stream flow?**

EP #	**ENTERPRISE PRACTICES**	**Capability Levels**				
		Level 1	***Level 2***	***Level 3***	***Level 4***	***Level 5***
I.C.1	**Analyze Enterprise Processes and Interactions** *Understand process interdependencies*	There is no understanding or a limited understanding of the need for process mapping and analysis. The documented process flow differs from the actual flow. **C** **D**	Core enterprise processes are mapped and have been analyzed. **C** **D**	Mapping and analysis of current processes allows the identification of critical interactions. Significant opportunities for eliminating waste and creating value are identified and aligned with the strategic objectives. **C** **D**	Depth and breadth of knowledge of enterprise processes exposes interdependencies across the enterprise. **C** **D**	Continuously evolving enterprise processes and their interdependencies are evaluated across the extended enterprise. **C** **D**
	Indicators (Examples)	• The practice and language of process analysis (such as value stream mapping) are used to understand important enterprise processes. • Current value streams of major customers/product lines have been mapped, and hand-off points and interfaces clearly defined. • Enterprise leadership actively manages processes that have interactions across functions.				
	Evidence					
	Opportunities					
I.C.2	**Ensure Stability and Flow Within and Across the Enterprise** *Seamless flow of materials, information and resources*	Material and information flows are disjointed and "optimized" process-by-process. "Push" mentality prevails. **C** **D**	Some processes have been stabilized by reducing variability. **C** **D**	Processes are simplified and aligned to the value stream(s), which allows material, information, and resources to flow as required. Variability is actively managed to enable predictable flow of material, information, and resources. **C** **D**	Material, information, and resources flow seamlessly throughout the enterprise. Enterprise inputs are controlled in order to enable better flow and predictability of internal processes. **C** **D**	Actively working with extended enterprise to balance inputs to enterprise capabilities. Material, information, and resources flow seamlessly and responsively throughout the extended enterprise. **C** **D**
	Indicators (Examples)	• Information flows have been rationalized to assure interoperability among enterprise elements. • Material, information, and resource flow paths have been simplified and shortened to enhance flow. • Material, information, and resource flows are responsive to stakeholder needs.				
	Evidence					
	Opportunities					

I.D. Envision and Design Future Enterprise – Identify capabilities and deficiencies by defining enterprise vision, defining "To-Be" state, and performing gap analysis.

Diagnostic Questions	• **Do the enterprise leaders and stakeholders have a shared vision for the future of the enterprise?** • **Does a future enterprise design exist to guide the transformation process?** • **Is the enterprise designed to deliver value to all stakeholders?** • **Is organizational structure designed for flexibility and responsiveness to changes in the external environment?**

EP #	**ENTERPRISE PRACTICES**	**Capability Levels**				
		Level 1	***Level 2***	***Level 3***	***Level 4***	***Level 5***
I.D.1	**Envision the Enterprise Future State** *Create a shared vision of the future enterprise*	Senior leaders have varying points of view regarding the future state of the enterprise. **C** **D**	Senior leaders have a common vision of the future state of the enterprise. **C** **D**	The enterprise vision has been communicated and is understood by most employees. **C** **D**	A common vision of the future state of the enterprise is understood by key stakeholders (e.g., customers, suppliers, etc.). **C** **D**	Stakeholders have internalized the enterprise vision and are an active part of achieving it. **C** **D**
	Indicators (Examples)	• A vivid description of the future enterprise includes processes, organization, information flow, interactions with stakeholders, etc. • The future enterprise vision considers the views of internal and external stakeholders.				
	Evidence					
	Opportunities					
I.D.2	**Architect the Future Enterprise** *Redesign enterprise to meet the shared vision*	Management understands that the present processes do not meet the future enterprise objectives. **C** **D**	A concept for the future enterprise has been created based on balanced stakeholder requirements. **C** **D**	Future enterprise processes have been developed and reflect future goals and satisfy stakeholder requirements. **C** **D**	Future enterprise processes are refined to accommodate a changing environment. **C** **D**	Future enterprise processes are refined to dynamically accommodate a changing environment across the extended enterprise. **C** **D**
	Indicators (Examples)	• The future enterprise processes reflect new and improved ways to realize value and minimize non-value adding activities. • Future enterprise designs have been generated and evaluated for the primary value stream(s) and their supporting processes.				
	Evidence					
	Opportunities					

I.E. Develop Enterprise Structure and Behavior – Organization infrastructure must be assessed and modified throughout the transformation to achieve the future state. Organizational structure, incentives, policies, and processes must be aligned and coordinated, eliciting the desired behavior to support the transformation and sustain the change.

Diagnostic Questions	• **Has an organizational structure been implemented that focuses on core processes along the customer value stream?**
	• **Are relationships with stakeholders based on mutual respect and trust?**
	• **Have policies and procedures been revised to promote and encourage enterprise behavior?**
	• **Have incentives been developed that are consistent with the behavior desired?**
	• **Has decision-making been delegated to the lowest practical level?**
	• **Is prudent risk taking encouraged?**
	• **Are change agents positioned and empowered to provide guidance and leadership for the transformation?**

EP #	Enterprise Practices	Capability Levels				
		Level 1	*Level 2*	*Level 3*	*Level 4*	*Level 5*
I.E.1	**Reconcile systems, policies, and vision** *Align systems and policies to the future vision*	Systems and policies are in conflict with each other and with desired enterprise behaviors. **C** **D**	Systems and policies that most closely relate to the strategic objective have been revised to remove barriers to achieving the enterprise vision. **C** **D**	Systems and policies have been defined, rationalized, and standardized to support the enterprise vision. **C** **D**	Enterprise systems and policies are designed to align with and support the achievement of the enterprise vision. **C** **D**	Enterprise systems and policies are fully aligned and drive the future vision. **C** **D**
	Indicators (Examples)	• Systems and policies and are consistently reviewed and adjusted to reflect only what is necessary. • Systems and policies are standardized throughout the enterprise to support desired behavior. • Example systems and policies include: contracting, information, program management, and human resources.				
	Evidence					
	Opportunities					
I.E.2	**Align Performance Measurement System** *Performance measures drive enterprise behavior*	Performance measures are *ad hoc*, inconsistent, and focused on functional areas rather than the enterprise. **C** **D**	Many performance measures are being collected, but they do not allow adequate assessment of strategic goals. **C** **D**	Key measures have been selected to align with enterprise strategic goals. Performance measurement guidelines encourage reviewing metric selection regularly. **C** **D**	Performance measurement system uses a critical few measures tied to strategic objectives. Measures are available throughout the enterprise in a timely manner. **C** **D**	Measurement systems and target setting pulls performance improvement throughout the extended enterprise. Metrics evolve as the enterprise matures. **C** **D**
	Indicators (Examples)	• A balanced and minimal set of performance measures are used to track transformation progress. • Performance measures assure that local and enterprise measures are aligned.				
	Evidence					
	Opportunities					

EP #	ENTERPRISE PRACTICES	Capability Levels				
		Level 1	***Level 2***	***Level 3***	***Level 4***	***Level 5***
I.E.3	**Align Incentives** *Reward the behavior you want*	There is sporadic use of incentives, and awareness that some incentives elicit localized optimization and harm interactions across functional boundaries. **C** **D**	Parts of the enterprise have implemented incentives that reward and encourage achieving enterprise goals by working across boundaries. **C** **D**	Executive compensation and employee incentives are linked directly to attainment of enterprise objectives. **C** **D**	Incentive systems successfully contribute to achievement and sustainability of enterprise objectives. **C** **D**	Enterprise incentives are deployed, with measurable success across the extended enterprise. **C** **D**
	Indicators (Examples)	• Incentives include a balance of monetary rewards, non-monetary rewards and recognition to encourage transformation activity. • Incentives are based on performance measures that encourage transformation activity. • Incentives encourage local improvements that will benefit multiple processes and/or value steam performance.				
	Evidence					
	Opportunities					
I.E.4	**Empower Change Agents** *Enable key people to inspire and enact change*	Change agents are sporadically distributed but do not have change authority. **C** **D**	There is formal identification of change agents, along with role definition, delegation of authority, definition of roles, and provision of training/education for all change agents. **C** **D**	Appropriately skilled change agents are assigned to key areas with the authority to effect changes. **C** **D**	Change becomes self-generating, initiated by employees as well as change agents. **C** **D**	Change agents are providing a critical resource of enterprise knowledge, skill and experience in transforming the extended enterprise. **C** **D**
	Indicators (Examples)	• Change agents have been designated and empowered. • Change agents operate throughout all areas and cross-transfer transformation implementation experience. • Process for developing transformation process owners and other change agents has been established.				
	Evidence					
	Opportunities					
I.E.5	**Promote Relationships Based on Mutual Trust** *"Win-win" vs. "we-they"*	Relationships tend to be determined by organizational role, resulting in a "we-they" perspective. **C** **D**	Selective application of an enterprise perspective results in breaking down of organizational barriers and developing mutual trust. **C** **D**	Stable and cooperative relationships exist across the enterprise; cooperative relations are established with some enterprise partners. **C** **D**	Mutual respect and trust exists across the extended enterprise with equitable sharing of benefits from continuous improvement initiatives. **C** **D**	Stakeholders modify behavior so as to enhance extended enterprise performance (win-win). **C** **D**
	Indicators (Examples)	• Communication barriers based upon organizational position have been significantly reduced. • Stable and cooperative relationships exist with most enterprise stakeholders.				
	Evidence					
	Opportunities					

EP #	ENTERPRISE PRACTICES	Capability Levels				
		Level 1	*Level 2*	*Level 3*	*Level 4*	*Level 5*
I.E.6	**Establish Open and Timely Communications** *Right information at right time*	Communication is largely top-down, limited, and lagging. **C** **D**	Basic communication mechanisms are employed but are not uniform; communication strategy is under development. **C** **D**	Enterprise leaders are accessible and visible, developing two-way communications in open, concise, and timely manner. **C** **D**	Communication processes are undergoing continuous refinement and information is exchanged or can be pulled as required. **C** **D**	Comprehensive system of two-way communication is employed throughout the extended enterprise. **C** **D**
	Indicators (Examples)	• Open and timely communications exist among stakeholders, i.e., regular meetings with employees, newsletters, etc. • Technology has been leveraged to speed communications flow and accessibility while filtering unnecessary communications. • Employee input is valued and plays a key part in decision-making.				
	Evidence					
	Opportunities					
I.E.7	**Empower Employees** *Decision-making at lowest possible level*	Centralized decision-making occurs in a hierarchical structure with limited delegation of authority. **C** **D**	Appropriate structure and training is being put in place to enable empowerment. **C** **D**	Organizational environment and management system supports limited decision-making at point of use. **C** **D**	Decision processes are continually refined to promote increased accountability and ownership at point of use. **C** **D**	Decision-making across the extended enterprise is delegated to the point of use. **C** **D**
	Indicators (Examples)	• Managers and supervisors serve as mentors and educators, promoting lower level decision-making. • The extent and types of empowerment are tailored to match the environment and people empowered. • Empowerment enables swift and effective decision-making closest to the point of use.				
	Evidence					
	Opportunities					
I.E.8	**Encourage Innovation** *From risk aversion to risk rewarding*	Innovation initiatives are sporadic and *ad hoc*; security, stability, and risk aversion drive most decision-making. **C** **D**	Initial efforts are under way to develop systems, processes, and procedures for fostering innovation. **C** **D**	Innovation initiatives are under way in selected areas; measures for assessing impact are in use. **C** **D**	Innovation initiatives are flourishing across the enterprise; prudent risk taking is encouraged and rewarded. **C** **D**	A comprehensive innovation program is implemented and positive results recognized across the extended enterprise. **C** **D**
	Indicators (Examples)	• The review process for suggestions has been streamlined and gives clear visibility of the progress of each suggestion. • Suggestion programs have been properly incentivized to give recognition to originators of innovative ideas.				
	Evidence					
	Opportunities					

I.F. Create Transformation Plan - Identify, prioritize, and sequence a comprehensive set of transformation initiatives that collectively constitute the plan for achieving the desired transformation.

Diagnostic Questions	• **Is the enterprise level transformation plan prioritized and aligned with strategic objectives?** • **Has the transformation plan been communicated and adopted throughout the enterprise?** • **Is the progress of transformation being showcased and discussed at all levels of the enterprise?**

EP #	ENTERPRISE PRACTICES	Capability Levels				
		Level 1	***Level 2***	***Level 3***	***Level 4***	***Level 5***
I.F.1	**Create Enterprise-Level Transformation Plan** *Chart the course across the extended enterprise*	Individual planning efforts are mostly bottom-up initiatives with little priority or coordination established at enterprise level. **C** **D**	Enterprise-level planning identifies transformation projects, which are prioritized to meet short- and long-term strategic objectives. **C** **D**	Enterprise improvement plans are coordinated and prioritized across enterprise value stream(s) with a timeline for expected measurable results. **C** **D**	Transformation plan is continuously refined through learning from implementation results and changing strategic requirements. **C** **D**	Transformation plan balances mutual benefits of stakeholders across the extended enterprise. **C** **D**
	Indicators (Examples)	• A process is in place to incorporate lessons learned into the enterprise-level transformation plan. • The milestone targets of the transformation plan are broken down by section and deployed across the enterprise. • Plans balance short- and long-term stakeholder objectives for the best overall solution.				
	Evidence					
	Opportunities					
I.F.2	**Communicate Plan** *Communicate transformation efforts across the enterprise*	Details (e.g., vision, objectives, projects) of the transformation plan are not known at all levels of the enterprise. **C** **D**	Senior enterprise leadership presents the transformation plan, but some or all of the following emerges: only few stakeholders understand the plan, behavior of some enterprise leaders does not support the plan, stakeholders doubt successful outcome of transformation. **C** **D**	Enterprise leaders clearly and regularly explain the transformation plan to enterprise stakeholders and demonstrate its implementation through behavior and examples. **C** **D**	All communication channels existing in the enterprise (e.g., company newsletters, management meetings, training courses, etc.) are used to discuss the transformation plan and progress of its implementation. **C** **D**	All enterprise stakeholders understand the transformation plan, actively participate in its implementation and promote the plan within and outside the enterprise. **C** **D**
	Indicators (Examples)	• Multiple communication channels (e.g., staff meetings, newsletters, speeches, etc.) regularly provide examples of implementation of the transformation plan throughout the enterprise. • Enterprise employees and other stakeholders at various levels explain and promote the transformation plan through media and events (e.g., meetings with clients, conferences, interviews, etc.).				
	Evidence					
	Opportunities					

I.G. Implement and Coordinate Transformation Plan – Flow down the enterprise-level plan into specific actions, programs, and projects that are executed within each process organizational area and determine how they are integrated at the enterprise level.

Diagnostic Questions	
	• **Has the enterprise level transformation plan been translated into detailed execution projects?**
	• **Has a uniform system been established to track the progress of transformation initiatives with respect to the overall plan?**
	• **Do transformation initiative plans contain a feedback mechanism for revision and for sharing lessons learned?**
	• **Have adequate resources been provided to facilitate transformation?**
	• **Does the current education and training program adequately support the strategic direction(s) and transformation?**

EP #	**ENTERPRISE PRACTICES**	**Capability Levels**				
		Level 1	***Level 2***	***Level 3***	***Level 4***	***Level 5***
I.G.1	**Develop Detailed Plans Based on the Enterprise Plan** *Coordinate transformation efforts*	Improvements are generally optimized for individual areas and employees cannot clearly see the links between localized and enterprise goals. **C** **D**	Most employees understand key goals of the enterprise transformation plan. Process owners are involved in developing detailed plans linked to the goals/strategic objectives of the enterprise plan. **C** **D**	Detailed transformation plans supporting the enterprise level plan are developed and coordinated across processes. **C** **D**	Detailed transformation plans accounting for any interdependencies are refined and integrated across the enterprise. Best practices are shared. **C** **D**	Implementation plans from extended enterprise are coordinated with and support the transformation plan. **C** **D**
	Indicators (Examples)	• Detailed implementation plans are aligned to milestone targets of the enterprise-level plan. • A process is in place to incorporate lessons learned in detailed implementation plans. • Detailed improvement plans are coordinated throughout the enterprise where shared implications exist.				
	Evidence					
	Opportunities					
I.G.2	**Commit Resources for Transformation Efforts** *Resource the transformation*	Few or no resources are provided for process improvement or waste elimination. **C** **D**	Limited enterprise-level resources are committed and often applied to the symptom rather than the root cause. **C** **D**	Resources are allocated as required for execution of the transformation plan and prioritized across the value stream. **C** **D**	A pool of earmarked resources is provided for transformation initiatives with minimal justification required. **C** **D**	A pool of earmarked resources is provided for transformation initiatives across the extended enterprise. **C** **D**
	Indicators (Examples)	• Resources are committed to support the level and speed of transformation required. • Time to build on improvements through personal contribution is given at all levels. • The procedure to apply for improvement resources has been simplified and gives priority to improvements that benefit multiple areas.				
	Evidence					
	Opportunities					

EP #	ENTERPRISE PRACTICES	Capability Levels				
		Level 1	***Level 2***	***Level 3***	***Level 4***	***Level 5***
I.G.3	**Provide Education and Training** *Continuous enterprise learning develops transformation capabilities*	Education and training programs are not coordinated with the transformation plan and needs. **C** **D**	Education and training focuses on just-in-time delivery of skills required for specific transformation projects. **C** **D**	Education and training program is comprised of a balanced and sequenced set of elements to support the coordinated transformation plan. **C** **D**	An evolving education and training program is used across the enterprise in support of transformation efforts. A common vocabulary results from a standardized approach. **C** **D**	Education and training, as a part of human capital development program, focuses on skills and capabilities that support the upcoming needs of the extended enterprise transformation plan. **C** **D**
	Indicators (Examples)	• Education and training programs, including refreshers, are provided on a just-in-time basis for the needs of specific transformation projects. • Education and training curriculum supports varying levels of skill necessary for transformation efforts. • A common vocabulary for transformation is used across multiple sites of the enterprise. • A common education and training program facilitates successful transformation efforts and continuous enterprise learning.					
	Evidence					
	Opportunities					
I.G.4	**Track Detailed Implementation** *Assess actual outcomes against goals*	Results of process improvement initiatives are observed but not quantified. **C** **D**	Process is under development to permit tracking and quantification of progress of the detailed implementation. Data from some projects is being reviewed. **C** **D**	There is a project management process implemented to track progress of detailed transformation projects against milestones and feedback is provided to enterprise level. Appropriate corrective action is initiated within individual projects. **C** **D**	The project management process can readily assess detailed plans and can accommodate revisions mandated by changes to the enterprise level transformation plan. **C** **D**	The project management process is deployed across the extended enterprise to enable real-time tracking. **C** **D**
	Indicators (Examples)	• Transformation initiatives are coordinated and tracked, and the individual results are "rolled up" and assessed against enterprise-level milestones and targets. • The responsibility and accountability for improvement success is assigned locally to enable fast corrective action on deviations from the plan. • Changes to processes/value stream map(s) are documented and updated regularly.					
	Evidence					
	Opportunities					

I.H. Nurture Transformation and Embed Enterprise Thinking – Successful execution of enterprise implementation plan forms the basis for further improvement. The improvement process is monitored and nurtured, lessons learned are captured, and improved performance becomes a strong driving force for future strategic planning by enterprise executives.

Diagnostic Questions	
	• **Are guidelines for continuous improvement sufficiently developed for effective facilitation of enterprise-wide transformation plans?**
	• **Are enterprise participants being challenged to build on and sustain existing improvements?**
	• **Are senior managers actively involved in monitoring progress of enterprise transformation implementation at all levels?**
	• **Is appropriate support and encouragement being provided to all participants in the transformation process?**
	• **Are lessons learned being captured in a consistent, systematic manner?**
	• **Have lessons learned and best practice been effectively incorporated within transformation planning?**
	• **Are transformation implementation results impacting strategic planning?**

EP #	**ENTERPRISE PRACTICES**	**Capability Levels**				
		Level 1	***Level 2***	***Level 3***	***Level 4***	***Level 5***
I.H.1	**Monitor Transformation Progress** *Assess progress toward achieving enterprise objectives*	Enterprise leaders are not actively involved in the review of overall transformation plan progress. **C** **D**	Transformation implementation plan progress is reviewed against enterprise level milestones and success criteria, for some projects. **C** **D**	Enterprise leaders use a formal methodology to analyze the overall progress of all transformation projects. Projects are adjusted based on learning. **C** **D**	Aggregated review across transformation projects permits reallocation of resources and adjustment of plans to ensure ongoing alignment with strategic objectives. **C** **D**	Transformation progress is collaboratively monitored throughout the extended enterprise. The transformation plan is proactively adjusted to achieve outcomes for extended enterprise. **C** **D**
	Indicators (Examples)	• Enterprise transformation progress is judged by the aggregate benefits rather than individual or localized improvements. • Enterprise leaders actively participate in monitoring implementation progress and addressing deficiencies within the transformation plan. • Transformation project progress reviews are documented in a common format and disseminated. • There is a standard process for tracking and modifying transformation efforts				
	Evidence					
	Opportunities					
I.H.2	**Nurture the Transformation** *Engage executives*	There is minimal support for the transformation effort from enterprise leadership. **C** **D**	Some members of enterprise leadership and management are providing encouragement, support, and recognition of the transformation. **C** **D**	Enterprise leaders and managers actively seek to identify and remove barriers to transformation. Teams and individuals who successfully implement improvements are recognized and rewarded. **C** **D**	There is enthusiastic encouragement of the transformation by enterprise leaders, managers, and other members of the organization. **C** **D**	Enterprise leaders are continuously in tune with the pulse of transformation and proactively inspire transformation ownership throughout the extended enterprise. **C** **D**
	Indicators (Examples)	• Enterprise leadership and management actively support and are involved in ensuring the success of improvement projects. • Positive actions and the effort taken are recognized and rewarded even if improvements are not fully successful. • To track and incentivize improvement enterprise records include information about improvement projects and outcomes.				
	Evidence					
	Opportunities					

EP #	ENTERPRISE PRACTICES	Capability Levels				
		Level 1	***Level 2***	***Level 3***	***Level 4***	***Level 5***
I.H.3	**Capture and Diffuse Lessons Learned** *Build from success; learn from failure*	Lessons learned from transformation activities are not documented and reside only in the memory of participants. **C** **D**	Lessons learned in some areas are documented and maintained, but are not readily accessible throughout the enterprise. **C** **D**	A formal process for readily capturing and communicating lessons learned is being applied. Employee contributions are actively sought. **C** **D**	Lessons learned are consistently captured, communicated and regularly used in a structured manner. An enterprise knowledge base exists. **C** **D**	A formal knowledge management process is adopted. Lessons learned are routinely and explicitly incorporated into the formulation of new initiatives. **C** **D**
	Indicators (Examples)	• Best practices, suggestions, and lessons learned are maintained in a concise and clear standard format. • A formal process has been established throughout the enterprise for capturing and reusing lessons learned. • Lessons learned are periodically reviewed to maintain relevance of information kept.				
	Evidence					
	Opportunities					
I.H.4	**Impact Enterprise Strategic Planning** *Results lead to strategic opportunities*	Results of transformation efforts are not fed back to strategic planning process. **C** **D**	Benefits of transformation efforts are beginning to influence the strategic planning process. **C** **D**	Enterprise leadership actively considers impact of transformation efforts on the strategic plan. **C** **D**	Current and forecasted improvements from transformation efforts are incorporated into enterprise planning and budgeting decisions. **C** **D**	Enterprise leadership leverages current and forecasted results of transformation efforts for the creation of new strategic opportunities. **C** **D**
	Indicators (Examples)	• Overall enterprise performance reflects improvements resulting from transformation efforts. • Strategic planning makes allowance for anticipated gains from transformation improvements. • Gains realized from the transformation are leveraged to achieve strategic objectives.				
	Evidence					
	Opportunities					
I.H.5	**Embed Enterprise Thinking Throughout the Organization** *Enterprise perspective is ingrained*	Actions are informed only by local considerations. **C** **D**	An enterprise culture has been established that enables people to think beyond local considerations. This is reflected in action to some degree. **C** **D**	Enterprise leadership is actively engaged in promoting, mentoring, and incentivizing cross-boundary action throughout the enterprise. **C** **D**	An enterprise perspective is visible in decisions and actions at all levels of the enterprise. **C** **D**	An enterprise perspective is ingrained in the day-to-day decisions and actions of enterprise stakeholders. **C** **D**
	Indicators (Examples)	• Enterprise thinking is both verbalized and enacted. • An environment exists that supports considerations beyond local organization boundaries. • Training and/or management help foster a sense of place within the broader enterprise. • Actions (and consequences) span boundaries. Appropriate incentives are defined at the right level. • Leaders and managers translate the vision so it is understandable and applicable at all levels of the enterprise.				
	Evidence					
	Opportunities					

EP #	ENTERPRISE PRACTICES	Capability Levels				
		Level 1	***Level 2***	***Level 3***	***Level 4***	***Level 5***
I.H.6	**Institutionalize Continuous Improvement** *Systematic approach for improvement*	Improvement initiatives are *ad hoc* and not data driven. **C** **D**	An improvement process for the enterprise is broadly defined and being selectively applied. **C** **D**	A systematic, structured methodology for continuous improvement and value creation is developed and deployed across many areas. **C** **D**	A structured continuous improvement process is deployed at all levels across the enterprise and uses value analysis to target improvements. **C** **D**	A structured continuous improvement process is fully ingrained throughout the extended enterprise. **C** **D**
	Indicators (Examples)	• A consistent improvement/transformation approach is implemented and sustains improvements gained. • The continuous improvement process challenges people to tackle the root cause rather than the symptom. • Enterprise principles are being applied to most enterprise systems and processes using lessons learned.				
	Evidence					
	Opportunities					

LESAT Maturity Matrices

Section II: Lifecycle Processes

II.A. Align, Develop and Leverage Enterprise Capabilities

II.B. Optimize Network-Wide Performance

II.C. Incorporate Downstream Customer Value into the Enterprise Value Chain

II.D. Actively Engage Upstream Stakeholders to Maximize Value Creation

II.E. Provide Capability to Monitor and Manage Risk and Performance

Lifecycle processes are defined by the product lifecycle from initial conception through operational support and ultimate disposal. These processes directly determine the value provided to customers and stakeholders. How successfully an enterprise connects these processes to stakeholder value is a measure of its effectiveness and efficiency. Enterprise leadership provides the direction and resources to break down the barriers among and within the lifecycle processes that result in wasted resources and reduced value to customers and stakeholders. This section assesses the level of enterprise thinking and value creation demonstrated in the enterprise lifecycle processes.

Unlike in Section I and Section III, enterprise practices are assessed at different stages throughout the lifecycle process. Although these practices are important enterprise-wide practices, the level of maturity may vary between activities in the lifecycle process. As a result the five lifecycle practices must be scored for each of six lifecycle activities:

1. Program Management
2. Requirements Definition
3. Product Development
4. Supply Chain Management
5. Production
6. Distribution and Sales

The glossary lists the specific steps in each lifecycle activity.

SECTION II – LIFECYCLE PROCESSES

Definition: Implement effective practices across the lifecycle for defining customer requirements, designing products and processes, managing the supply chain, producing products, distributing products and services, and providing post-delivery support.

EP #	ENTERPRISE PRACTICES	Capability Levels									
		Level 1		***Level 2***		***Level 3***		***Level 4***		***Level 5***	
II.A	**Align, Develop, and Leverage Enterprise Capabilities** *New opportunities build upon enterprise-enabled capabilities and lead to development of new ones*	Capabilities are understood only within individual enterprise elements. Improvements are *ad hoc* and focused on individual competencies. There is little apparent match between capabilities and enterprise strategy.		Potential opportunities arising from core capabilities have been recognized and acted upon within individual enterprise elements. Capabilities of individual enterprise elements are partially visible to the whole enterprise.		Capabilities of individual enterprise elements are understood and used across the enterprise. Enterprise strategy leverages existing capabilities.		Capabilities are integrated and enhanced across the enterprise with the focus on achieving an optimal combination of core competencies that are aligned with enterprise strategy to create competitive advantage.		Strategic plans and enterprise capabilities are dynamically aligned to ensure efficient creation of value for enterprise stakeholders over the entire product lifecycle.	
II.A.1	**Program Management**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• The portfolio of programs is a balanced reflection of the full range of core enterprise capabilities. • The program selection and management process benefits from knowledge of the competitive environment to identify and exploit opportunities arising from the enhanced capabilities of the enterprise.									
	Evidence										
	Opportunities										
II.A.2	**Requirements Definition**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• Product and lifecycle requirements are defined in a clear and concise manner, based on needs of different stakeholders, the competitive environment, and capabilities existing across the enterprise.									
	Evidence										
	Opportunities										
II.A.3	**Product Development**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• The product development process realizes the enterprise strategy by delivering product designs that are timely and relevant. • The development process and product designs leverage distinctive enterprise capabilities.									
	Evidence										
	Opportunities										
II.A.4	**Supply Chain Management**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• The supplier network is defined and developed in line with the strategic plan and is flexible to quickly adapt to changing requirements and unanticipated disruptions. • Supplier expertise and capabilities complement core enterprise capabilities.									
	Evidence										
	Opportunities										

EP #	ENTERPRISE PRACTICES	Capability Levels									
		Level 1		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
II.A.5	**Production**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• Production capability constitutes a major consideration in enterprise-level, long-term strategic planning.									
	Evidence										
	Opportunities										
II.A.6	**Distribution and Sale**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• There is constant feedback between demand and supply elements across the extended enterprise. • Customer needs for the delivery of products and customer support services are anticipated in enterprise strategic plans and fulfilled by adaptation and extension of capabilities already provided.									
	Evidence										
	Opportunities										

EP #	Enterprise Practices	Capability Levels									
		Level 1		***Level 2***		***Level 3***		***Level 4***		***Level 5***	
II.B	**Optimize Extended Enterprise Performance** *Breaking down functional silos enables seamless communication and value flow*	Utilization of resources (incl. people, assets, equipment, materials, etc.) is optimized within individual enterprise elements. There is no or little consideration of the values, competencies, processes and practices of other enterprise elements.		There is evidence of *ad hoc* cooperation between enterprise elements to eliminate waste and share resources. Key resources are narrowly guarded within enterprise elements. Improvements focus on local cost reduction.		Common objectives, responsibilities and points of interaction are established and communicated within the enterprise. Enterprise employs processes that leverage capabilities and balance allocation and sharing of resources with the focus on overall lifecycle implications.		Processes are optimized and synchronized across the enterprise. Cooperation among individual enterprise elements emphasizes high degree of resource-, information-, benefit-, and risk-sharing.		Enterprise processes are seamlessly integrated both internally and with the upstream and downstream stakeholders. They are dynamically optimized to ensure efficient value creation, build durable competitive advantage, and create flexibility and responsiveness to shifts in the marketplace.	
II.B.1	**Program Management**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• Resources, personnel, and skills are continuously balanced across the portfolio of projects and programs, to aid maximum re-use and sharing of knowledge. • Program teams are composed of personnel with multi-disciplinary skills and expertise relevant to the program. • Resources and skills are easily and quickly shifted or divested to balance requirements across all program development efforts.									
	Evidence										
	Opportunities										
II.B.2	**Requirements Definition**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• There is a process in place to determine clear and concise product and lifecycle requirements, based on needs of different stakeholders/customers. • Requirements are defined based on inputs from a range of stakeholders and reflect the multi-disciplinary nature of the project or program. • The requirements definition benefits from knowledge and previous experience available across the enterprise. Whenever possible requirements are re-used.									
	Evidence										
	Opportunities										
II.B.3	**Product Development**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• Suitability and timing of design information released is matched to the requirements of subsequent processes. • Product and production processes are developed in tandem to ensure seamless integration of product flow both internally and across the extended enterprise.									
	Evidence										
	Opportunities										
II.B.4	**Supply Chain Management**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• Production and delivery are synchronized throughout the supplier base to ensure continuous flow, with minimal waste. • Formal processes are in place for supplier assessment and approval. • Roles and responsibilities are clearly defined in contractual relationships, and the allocation of risks and rewards are acknowledged and agreed upon.									
	Evidence										
	Opportunities										

EP #	ENTERPRISE PRACTICES	Capability Levels									
		Level 1		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
II.B.5	**Production**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• Work is performed only when "pulled" from subsequent "customers" in the value chain. • Product flow optimization has created stability and variation reduction in production allowing for in-process inventory levels to be decreased.									
	Evidence										
	Opportunities										
II.B.6	**Distribution and Sale**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• Product distribution is reliable and timely and allows customers to pull products to the point and time of use. • Deliveries are synchronized to minimize goods in transit and to ease transportation requirements. • Point of use delivery to customers with minimal receipt validation has become a core competency.									
	Evidence										
	Opportunities										

EP #	Enterprise Practices	Capability Levels									
		Level 1		***Level 2***		***Level 3***		***Level 4***		***Level 5***	
II.C	**Incorporate Downstream Customer Value into the Enterprise Value Chain** *Consideration of customer value drives enterprise behavior*	Customer needs are considered only at the beginning of the development process. Products and processes may be revised later in reaction to customer demand.		Customer feedback and product usage data are collected to inform product lifecycle decisions and improved value delivery.		Feedback is continuously collected from customers and other downstream stakeholders. Timely and regular review of the feedback enables improved product and process performance.		Downstream stakeholders are actively involved in enterprise processes to jointly improve the effectiveness and quality of products and processes flowing through the value chain.		The voice of customer is engrained in the extended enterprise culture. The enterprise plays an integral in the customer's business solution. Both current and future decisions proactively reflect customer values.	
II.C.1	**Program Management**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• Program management actively adjusts the program based on changing downstream stakeholder needs and allows the stakeholders to make informed decision regarding the program (e.g., cost/benefit tradeoffs for changing requirements, renewal or extension of budgets, etc.).									
	Evidence										
	Opportunities										
II.C.2	**Requirements Definition**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• Customer feedback is actively sought and provided as input to the requirements definition process. • A knowledge base of product usage, maintenance, and disposal data is maintained and extensively used to establish future requirements definitions.									
	Evidence										
	Opportunities										
II.C.3	**Product Development**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• Customer inputs are sought and used actively throughout the development process. Designs satisfy customer value requirements without unnecessary functionality. • Customers are formerly represented on Integrated Product Teams. • Downstream issues and processes are actively considered in the design process to ensure manufacturability, assembly, serviceability, and cost implications.									
	Evidence										
	Opportunities										
II.C.4	**Supply Chain Management**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• Suppliers receive and act on the detailed information about product demand and design iterations with sufficient lead time.									
	Evidence										
	Opportunities										
II.C.5	**Production**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• Production capacity and capabilities are aligned with current and future customer orders. • Defect free and on demand production maximizes customer value, by enabling on-time reliable product delivery.									
	Evidence										
	Opportunities										

EP #	ENTERPRISE PRACTICES	Capability Levels									
		Level 1		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
II.C.6	**Distribution and Sale**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• Product delivery and support systems are standardized and regularly reviewed against customer feedback. • Customer feedback is proactively collected and used to enhance product value and predict any emerging service issues. • Solutions to product and servicing issues are coordinated throughout the extended enterprise to find fast, cost-effective solutions.									
	Evidence										
	Opportunities										

EP #	Enterprise Practices	Capability Levels									
		Level 1		***Level 2***		***Level 3***		***Level 4***		***Level 5***	
II.D	**Actively Engage Upstream Stakeholders to Maximize Value Creation** *Integrating upstream stakeholders allows value to flow seamlessly to customer*	Enterprise elements focus on internal capabilities. Earlier (upstream) lifecycle decisions, knowledge, and capabilities have little influence. Enterprise elements are reactive, acting only once the upstream outputs have been received.		Enterprise elements informally incorporate upstream stakeholders' knowledge and capabilities. Communication lines are established to allow exchange of relevant information.		There is substantial integration and knowledge sharing with upstream stakeholders. Multi-functional teams include some upstream disciplines and key suppliers. This allows enterprise elements to proactively respond to the needs of upstream stakeholders.		Upstream stakeholders are integrated into planning, design and manufacturing. Upstream priorities are quantified early in the product and process design, and used for evaluation and improvement. Real-time collection and dissemination of data occur throughout the value chain.		A common purpose and strategy permeates the extended enterprise. Seamless communication, knowledge sharing, and behavior allow maximization of customer value.	
II.D.1	**Program Management**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• Programs are actively coordinated with contractors and suppliers to ensure timely implementation and proper allocation of workload and resources.									
	Evidence										
	Opportunities										
II.D.2	**Requirements Definition**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• Stakeholder feedback is actively sought and provided as input to the requirements definition process. • Product and process requirements reflect capabilities of relevant upstream stakeholders.									
	Evidence										
	Opportunities										
II.D.3	**Product Development**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• Product development incorporates innovation, knowledge, and technology from previous projects, suppliers, and the extended enterprise.									
	Evidence										
	Opportunities										
II.D.4	**Supply Chain Management**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• Long-term collaborative relationships with suppliers are established and maintained whenever possible. • Processes to facilitate sharing and transfer of innovation, knowledge and technology are deployed. • A mutually beneficial continuous improvement process is established throughout the supplier network over the entire product lifecycle.									
	Evidence										
	Opportunities										
II.D.5	**Production**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• Production processes incorporate knowledge, technology, and capabilities of upstream stakeholders. • Production has accurate and timely information about incoming components and materials to guide setting capacity and schedules.									
	Evidence										
	Opportunities										

EP #	ENTERPRISE PRACTICES	Capability Levels									
		Level 1		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
II.D.6	**Distribution and Sale**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• Customer orders reflect production schedule and capacity. • Post-delivery support services incorporate knowledge of suppliers' product and technology in order to deliver prompt and needed service. • Coordination between post-delivery support services and production/stakeholders ensures appropriate supply of needed components to customers throughout the product life.									
	Evidence										
	Opportunities										

EP #	Enterprise Practices	Capability Levels									
		Level 1		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
II.E	**Provide Capability to Monitor and Manage Risk and Performance** *Integrated performance management enables better enterprise decision-making*	Each enterprise elements manages its performance as an independent entity.		There is a management system to monitor and control performance. Regular reviews focus on schedule, budget and quality within individual enterprise elements.		Regular progress reviews assess performance (schedule, budget and quality) and risks within individual enterprise elements. Corrective actions are taken as necessary to manage risks. Common metrics are established and shared across enterprise elements.		Regular progress reviews assess performance and risks across enterprise elements resulting in appropriate corrective actions. Common metrics are used across enterprise elements.		Integrated risk and performance management system is used to optimize enterprise performance across the value chain.	
II.E.1	**Program Management**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• Programs and processes are regularly reviewed throughout the lifecycle, and review information is used to inform corrective actions when necessary. • Programs and processes are reviewed in the context of the larger portfolio to optimize portfolio performance. • A risk management process is fully integrated across the enterprise and transparent to decision makers.									
	Evidence										
	Opportunities										
II.E.2	**Requirements Definition**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• Requirements specify an acceptable range for clearly measureable outcomes that allow requirements to be evaluated at different stages throughout the lifecycle. • The resource requirements, in terms of cost, schedule, manpower, facilities, and other resources, are formulated during the requirements definition process allowing for trade-offs to be considered.									
	Evidence										
	Opportunities										
II.E.3	**Product Development**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• Progress monitoring uses appropriate measures throughout product development allowing proactive tracking of product requirements realization. Monitoring allows early identification of problems and need for re-work. • Progress measures are visible to downstream stakeholders allowing for plans to be adjusted according to shift in product development schedules.									
	Evidence										
	Opportunities										
II.E.4	**Supply Chain Management**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• Enterprise performance measures are visible to suppliers fostering relationship of mutual trust and allowing suppliers to set and adjust their plans and processes. • Enterprise risk and performance management system accounts for risks and performance of suppliers.									
	Evidence										
	Opportunities										

EP #	ENTERPRISE PRACTICES	Capability Levels									
		Level 1		*Level 2*		*Level 3*		*Level 4*		*Level 5*	
II.E.5	**Production**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• Production monitoring informs downstream stakeholders, including marketing, sales, and customers, about the production queue, schedule, volume, potential risks, and delays.									
	Evidence										
	Opportunities										
II.E.6	**Distribution and Sale**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**	**C**	**D**
	Indicators (Examples)	• Continuous sharing of production, sales, and distribution data allows current and future capacity and capabilities to be aligned with demand. • Delivery information is accurate and visible to customers allowing them to set realistic expectations and avoid buffer stocks. • Risks and uncertainties are identified, modeled and mitigated throughout the enterprise to ensure timely delivery.									
	Evidence										
	Opportunities										

LESAT Maturity Matrices

Section III: Enabling Infrastructure

III.A. Organizational Enablers

III.B. Process Enablers

Enabling infrastructure supports the execution of enterprise leadership and lifecycle processes. These enabling processes provide the means for managing the resources to the organizations they serve as internal customers. Because they enable, rather than directly result, in enterprise success, they can be easily overlooked as a source of waste. Waste that is inherent in these processes can, however, negatively impact the enterprise as a whole in a way that is not clearly evident. This section addresses the level of transformation support provided by the Enabling Infrastructure.

SECTION III - ENABLING INFRASTRUCTURE

Definition: To achieve a successful enterprise transformation, the organization's infrastructure must enable other enterprise processes to achieve their transformation goals and objectives.

III.A. Organizational Enablers – The support units of an enterprise must themselves become efficient in executing their assigned function. In some cases, they must also redefine what they do to support effective implementation within the life cycle processes and the transformation/leadership processes.

Diagnostic Questions	• **Do the finance and accounting measures support enterprise transformation?** • **How well have the financial and accounting systems been integrated with non-financial measures of value creation?** • **Can stakeholders retrieve performance information as required?** • **Are human resource practices reviewed to assure that intellectual capital matches needs across the enterprise?** • **Are the information technology systems compatible with stakeholder communications and analysis needs?** • **Do processes minimize environmental impact?**

EP #	ENTERPRISE PRACTICES	Capability Levels				
		Level 1	***Level 2***	***Level 3***	***Level 4***	***Level 5***
III.A.1	**Enterprise Performance Measurement System Supports Enterprise Transformation** *Transformation requires appropriate measurement*	Performance (e.g., financial, productivity, deliveries, innovation, etc.) is measured at the local rather than enterprise level. Measures are subjective in nature and data integrity is low.	Initial efforts are under way to adapt or modify performance measurement systems to compensate for the inadequacies of the scope or scale of the existing system. Data are objective.	Performance measurement system provides data to support and enable transformation at the enterprise level.	Performance measurement system scope is expanded to integrate with non-traditional measures of value creation (e.g., intellectual capital, balanced scorecard, etc.).	Performance measurement systems provide seamless information exchange across the extended enterprise and emphasize value creation for all stakeholders. Frameworks exist for assessing the performance of the enterprise, and metrics are continuously refreshed.
		C **D**	**C** **D**	**C** **D**	**C** **D**	**C** **D**
	Indicators (Examples)	• Measures that conflict with enterprise transformation activity are no longer used to measure progress and performance. • Enterprise performance measurement system handles a balanced set of financial and non-financial measures to assist decision-making. • Enterprise performance measurement system has been overhauled to ensure fast and efficient processing of information as required.				
	Evidence					
	Opportunities					

EP #	ENTERPRISE PRACTICES	Capability Levels				
		Level 1	***Level 2***	***Level 3***	***Level 4***	***Level 5***
III.A.2	**Enterprise Stakeholders Pull Required Metrics** *Data on demand*	Lagging performance measures are reported through regularly scheduled standardized reports. What is shared may not be relevant or actionable. Specific requests for measures require extraordinary (often manual) effort. **C** **D**	Internal users actively provide traditional performance information to assist users in planning and programming activities. Emphasis is on metrics that indicate progress or activities (i.e., project status, number of initiatives, etc.) but ignore outcomes. **C** **D**	Internal users are able to directly access and use performance information to make trade-off decisions. There is a blend of progress and outcome measures. **C** **D**	Internal users are able to pull performance and other value creation information to support decision analysis in the format desired. External partners have access to the necessary metrics to support continuous improvement. Emphasis is on outcome metrics (productivity, cost reduction, etc.) rather than progress metrics. **C** **D**	Stakeholders across the extended enterprise generate and share timely enterprise performance data. Data reflect extended enterprise results. **C** **D**
	Indicators (Examples)	• Financial and performance measurement data can be accessed as needed in user-defined format. • Financial information can be extrapolated to forecast outcomes. • Enterprise performance measurement system provides up to date information on request and constantly refreshes information needs.				
	Evidence					
	Opportunities					
III.A.3	**Promulgate the Learning and Sharing Organization** *Learning and Sharing Organizations create a versatile workforce*	The human resources processes concentrate on recruiting, placement, and benefits. Personnel training is *ad hoc* and not responsive to organizational needs. **C** **D**	A well-defined personnel development process, aligned with organizational needs, is applied for selected employees. Training is not a high priority. **C** **D**	Personnel development process is extended to all employees and incorporates the anticipated future needs of the transforming enterprise. Resources and facilities are dedicated for learning. **C** **D**	A learning climate is promoted within the enterprise through ready access to information and input to strategy/policy making. Opportunities for extending learning experiences are provided. **C** **D**	A learning climate is promoted throughout the extended enterprise by the sharing of capabilities, knowledge, skills, and best practice. Continuous learning is a key element of employee performance appraisals. **C** **D**
	Indicators (Examples)	• Intellectual capital is regarded as a corporate asset. • Employees have individual training plans that are aligned to the current and projected skill base requirements. • Employees actively capture and incorporate lessons learned into future training and practices. • Employee performance takes continuous learning into account. • Sharing of materials, information, and resources includes tacit knowledge.				
	Evidence					
	Opportunities					

EP #	ENTERPRISE PRACTICES	Capability Levels				
		Level 1	***Level 2***	***Level 3***	***Level 4***	***Level 5***
III.A.4	**Enable the Enterprise with Information Systems and Tools** *Facilitate the flow of information and knowledge*	The information infrastructure consists mainly of stand-alone systems. The need for systems integration is recognized but no improvement plan exists.	Elements of a common information infrastructure have been determined, and an implementation plan is under development. Maintenance of legacy systems consume most IT resources.	The information infrastructure has been formalized and is in use in selected locations. Legacy systems are rationalized and aligned across the value stream.	An information infrastructure is deployed that supports seamless information exchange across the enterprise. IT organization integrates the needs of the extended enterprise.	Information systems are fully interoperable and the pertinent information is easily accessible and usable across the extended enterprise. IT organization is an enabler for knowledge management across the enterprise.
		C **D**	**C** **D**	**C** **D**	**C** **D**	**C** **D**
	Indicators (Examples)	• Compatible information systems and tools exist across the extended enterprise. • Information systems facilitate fast and effective transfer and retrieval of information required. • Information systems and tools complement enterprise processes and practices and are easily adapted to accommodate change. • Knowledge management is a core competency of the enterprise.				
	Evidence					
	Opportunities					
III.A.5	**Integration of Environmental Protection, Health and Safety into the Enterprise Culture** *"Cleaner, healthier, safer"*	The enterprise complies with all known legal and regulatory requirements and reacts if issues are identified.	Means of mitigating conditions that cause environmental, health and safety issues are considered and addressed.	A process is in place to proactively identify environmental, health, and safety (EHS) risks and manage them appropriately, with a preference for source prevention.	Forward thinking solutions to potential lifecycle EHS risks are implemented early in product (service) design and throughout the value stream. Training is provided to relevant stakeholders, and employees are rewarded for making efforts to improve safety.	EHS risk prevention and mitigation is part of the natural way business is conducted across the extended enterprise, creating a sustainable environment and a competitive advantage. This is reflected in an enterprise-wide culture of safety.
		C **D**	**C** **D**	**C** **D**	**C** **D**	**C** **D**
	Indicators (Examples)	• Health and safety issues are routinely addressed in employee-driven improvement activities. • Processes and designs are proactively adapted to minimize environmental, health and safety issues at source. • Designs meet current environmental regulations and are capable of easy adaptation to meet projected changes over the lifecycle of the product.				
	Evidence					
	Opportunities					

III.B. Process Enablers – A number of enablers can facilitate enterprise transformation implementation via consistent application throughout the enterprise.						
Diagnostic Questions	• **Have the full benefits from process standardization been realized across the enterprise?** • **Has process standardization and reuse been embedded in enterprise policies and procedures?** • **Are common tools and systems used throughout the enterprise?** • **Is process variation continually reviewed and reduced in all processes throughout the enterprise?**					
EP #	**ENTERPRISE PRACTICES**	**Capability Levels**				
		Level 1	***Level 2***	***Level 3***	***Level 4***	***Level 5***
III.B.1	**Standardize Processes** *Strive for consistency and re-use*	Processes vary by program or product line. **C** **D**	Processes in the organization have been identified that could benefit from standardization, and initial efforts are under way to increase process consistency. **C** **D**	Selected processes are standardized across the enterprise. **C** **D**	Process standardization and reuse is consistently employed across the enterprise. Process standards are continually reviewed to ensure highest performance. **C** **D**	Extended enterprise interface processes have been standardized while allowing for flexibility in innovation in support of local needs. **C** **D**
	Indicators (Examples)	• The workforce plays a significant role in devising standard processes and practices that are adhered to and periodically updated. • Process improvements are documented in a concise and easy to use standard format and transferred. • Processes are standardized where applicable throughout the extended enterprise. • Process standardization does not over-constrain process innovation; new ideas from local initiatives are continuously incorporated into enterprise processes.					
	Evidence					
	Opportunities					
III.B.2	**Common Tools and Systems** *Assuring compatibility, reducing costs*	Enterprise elements use different and/or incompatible tools and systems. **C** **D**	Enterprise elements have identified high leverage opportunities for implementation of common tools and systems; initial deployment in a few areas. **C** **D**	Plans are in place for achieving common tools and systems and have been implemented to varying degrees across the enterprise. **C** **D**	Common tools and systems have been implemented and are utilized throughout the enterprise. **C** **D**	Compatibility of tools and systems with those of enterprise partners in the extended enterprise. **C** **D**
	Indicators (Examples)	• Policies have been established and deployed that require the use of common tools and systems throughout the enterprise. • Common tools and systems provide easy access and reuse of knowledge across the product lifecycle. • Enterprise-wide use of common tools and systems provides enhanced compatibility between processes and aids employee transfer.				
	Evidence					
	Opportunities					

EP #	ENTERPRISE PRACTICES	Capability Levels				
		Level 1	*Level 2*	*Level 3*	*Level 4*	*Level 5*
III.B.3	**Process Variation Reduction** *Reduce uncertainty by reducing variation*	There is limited use of variation reduction tools and methods. There is some evidence of variation understanding in parts of the enterprise. **C** **D**	Sources of variation have been identified and analyzed. Initial efforts are under way to reduce variability. **C** **D**	A formal approach that balances customer value and variation reduction is implemented in many parts of the enterprise. **C** **D**	Considerable benefits are realized from reduced variation in processes and practices across the enterprise. **C** **D**	Benefits of reduced variation are realized across the extended enterprise. **C** **D**
	Indicators (Examples)	• Process ownership and visual displays of process variation enable quick and easy identification of adverse trends. • High levels of process stability are maintained by using mistake proofing and root cause identification techniques to the fullest. • Variation reductions achieved enable short predicable lead times for information, material, and people flow.				
	Evidence					
	Opportunities					

LESAT Glossary

Balanced scorecard: An analysis technique and management instrument that translates an enterprise's mission and strategy into a comprehensive set of performance measures to provide a framework for strategic action. The scorecard may gauge organizational performance across several perspectives including financial, customers, internal business processes, and learning and growth. (*Techniques for Enterprise Management*, 1999)

Best practice: A method of accomplishing a business function or process that is considered superior to other known methods. (*Techniques for Enterprise Management*, 1999)

Business case: Justification for a change. Serves as a decision package for enterprise executives. Typically includes an analysis of current problems or future needs, a proposed solution, assumptions and constraints, alternative solutions, lifecycle investment costs, quantified benefits, an analysis of costs versus benefits, and an analysis of risks involved. (*Techniques for Enterprise Management*, 1999)

Change agent: An individual who provides the catalytic force driving transformation/change by planning, managing, and championing the implementation process. The role can be either voluntary or selected by enterprise leadership, but the individual must have enterprise knowledge as well as a clear vision of the future vision, in order to motivate and educate individuals within the enterprise. (Womack and Jones, 1996)

Consensus: A state where group members support an action or decision, even if some do not fully agree with it. A consensus decision is made after aspects of an issue, both positive and negative, have been reviewed or discussed to the extent that everyone openly understands, supports, and participates in the decision. (*Techniques for Enterprise Management*, 1999)

Continuous flow: Items and/or information move through from one step in the process to the next one unit at a time. Each stage of the process acts on only the one piece that the next stage needs, and the transfer a single unit of material and/or information moves between processes. Also called "single-piece flow" or "one-piece flow." (Rother and Shook, 2000)

Continuous improvement: A culture of ongoing improvement of any and all elements within the enterprise, including processes, products, and services. Improvements seek to increase efficiency, effectiveness, and value-creation; and can be incremental (implemented over time) or can be breakthrough (implemented all at once). (ASQ, 2011)

Core competency: The particular capabilities (knowledge, demonstrated proficiency, and experience) of an enterprise that satisfy existing strategy and serves as the basis for growth or diversification into new lines of business. (*Techniques for Enterprise Management*, 1999)

Cross-functional management: a process designed to encourage and support interdepartmental communication and cooperation throughout an enterprise, as opposed to command and control through narrow departments or divisions. The purpose is to achieve enterprise targets such as quality, cost, and delivery of products and services by optimizing the sharing of work. (Dimancescu, Hines and Rich, 1997)

Culture: Shared characteristics such as values, behaviors, and beliefs that distinguish the members of one group from those of another. Organizational culture includes the common set of beliefs, sentiments, priorities, attitudes, perceptions, operating principles, and accepted norms shared by individuals within an organization.

Cultural change: A major shift in cultural characteristics (see previous) within the organization or enterprise. (*Techniques for Enterprise Management*, 1999)

Current enterprise state: A description of the present enterprise architecture, including the strategy, organization, policies, processes, products, services, knowledge, and information of the enterprise. This comprehensive description of the enterprise enables analysis of the enterprise as a whole.

Customer: A stakeholder who is a recipient of a product or service produced by an enterprise. Customers may be internal or external to the organization. External customers, those in the marketplace, are the reason an enterprise exists. Internal customers are the reason a functional area or department exists – an interdependent department, or a downstream user in the value chain. When services rather than products are provided, customers are often called clients. (*Techniques for Enterprise Management*, 1999)

Distribution and sales (a lifecycle activity): The final activity in the enterprise lifecycle process that addresses the distribution of products to customers and the provision of related services. This stage includes the following activities: sales, product distribution, post-sales services, post-delivery support and, any warranty/replacement services.

Downstream stakeholder: See "Stakeholder, Downstream."

Employees: All of the individuals employed by the organization including full time, part time, temporary and contract employees. Employees constitute an internal stakeholder. (The Excellence Model Glossary of Terms, 2009)

Enterprise: A complex, integrated, and interdependent system of people, processes, and technology with a distinct mission that creates value as determined by its key stakeholders based on that mission. An enterprise typically consists of multiple organizations (e.g., departments, suppliers, partners, regulators) rather than a single corporation, division, or government unit. In addition to core value chain activities, the enterprise includes all supporting activities (e.g., profit and loss responsibility, information technology, human resources). (Nightingale and Srinivasan, 2011)

Enterprise element: An internal component of the enterprise, defined either by artificial or abstract boundaries, often with local management, roles, responsibilities, and a specific goal or objective. Enterprise elements can include projects, programs, departments, divisions, or organizations (if the enterprise refers to a full supply chain).

Enterprise perspective: A holistic vantage of the enterprise and full value chain that enables holistic analysis of performance. An enterprise perspective allows individuals to understand their role and responsibilities in the larger enterprise context, and to make decisions that seek to optimize performance of the enterprise as whole rather than just its elements. See "Enterprise thinking."

Enterprise principles: Seven principles have been identified that are core to achieving enterprise excellent:

1. Adopt a holistic approach to enterprise transformation.
2. Secure leadership commitment to drive and institutionalize enterprise behaviors.
3. Identify relevant stakeholders and determine their value propositions.
4. Focus on enterprise effectiveness before efficiency.

5. Address internal and external enterprise interdependencies.
6. Ensure stability and flow within and across the enterprise.
7. Emphasize organizational learning. (Nightingale and Srinivasan, 2011)

Enterprise stakeholder: All stakeholders relevant to a specific enterprise (see "Stakeholders").

Enterprise thinking: The application of systems thinking to the enterprise. By taking a holistic and comprehensive view of the value chain (spanning organizational structural boundaries), enterprise thinking enables identification of opportunities for greater efficiency and greater value delivery. See "Systems thinking".

Enterprise transformation: Enterprise transformation concerns change, not just routine change but fundamental change that substantially alters an organization's relationships with one or more key constituencies. It can involve new value propositions in terms of products and services, how these offerings are delivered and supported, and/or how the enterprise is organized to provide these offerings. It can also involve old value propositions provided in fundamentally new ways. (Rouse, 2005)

Extended enterprise: All organizations along the multiple value streams that contribute to providing value to the enterprise stakeholders. The extended enterprise may include customers, suppliers, government, and other entities that might have indirect influence over enterprise activities. (Valerdi, Nightingale, and Blackburn, 2008)

External stakeholder: See "Stakeholder, external."

Flow: The progressive achievement of tasks along a value stream so that a product proceeds from design to launch, order to delivery, and raw materials into the hands of the customer with no stoppages, scrap, or backflows. (Womack and Jones, 1996)

Future vision: See "Vision."

Gap analysis: Analysis of the difference between a current state or position and a desired state or position. (*Techniques for Enterprise Management*, 1999)

Innovation: The practical transition of ideas into new products, services, processes, systems, and social interactions. (The Excellence Model Glossary of Terms, 2009)

Internal stakeholder: See "Stakeholder, internal."

Just-in-time: Producing or conveying only the items that are needed by the next process when they are needed and in the quantity needed. (Rother and Shook, 2000)

Lead time: The total time a customer must wait to receive a product after placing an order. When a production system is running at or below capacity, lead time and throughput time are the same. When demand exceeds the capacity of a system, there is additional waiting time before the start of production and lead time exceeds throughput time. (Womack and Jones, 1996)

Non-value added: Any product, process, or service that does not add value to the ultimate customer. (It is important to note that non-value added is not the same as "not necessary" because some activities are required by law or necessary for process control, such as inspection. These may not add value but are used to assess processes for control and improvement.) (Internal Glossary of Rockwell Collins Corp, 1999)

Performance measure: A dimension of an activity or process (quality, cost, or other characteristic) that can be used to judge the effectiveness or efficiency of the process against a target or standard value. (*Techniques for Enterprise Management*, 1999)

Performance measurement system: A system of metrics used to gather the performance data and information from throughout the enterprise that are needed to assess overall enterprise performance. (Nightingale and Srinivasan, 2011)

Process: A sequence of activities that adds value by producing required outputs from a variety of inputs. (The Excellence Model Glossary of Terms, 2009)

Process flow: The movement of materials and/or information through the steps in a process, during which activities are performed in a specific order.

Program management (a lifecycle activity): The management of groups of projects. Aspects of program management are concerned with risk diversification and with consolidation of the component projects for direction, planning, and control. Program management includes the coordination of resources to ensure the achievement of all projects in a specific group, as well as the planning and allocation of financial, material, and human resources and the organization of work needed to complete each of the projects. (Levene, 1999; *The Ultimate Business Dictionary*, 2003)

Product development (a lifecycle activity): A part of the lifecycle process during which the product and accompanying processes are designed, based on the requirements established in the requirements definition stage. This includes product engineering, testing, and manufacturing process design.

Product flow: The movement of products through the value chain from creation to final customer delivery.

Production (a lifecycle activity): A part of the lifecycle process when the product is created or assembled. This part of the lifecycle includes the production inventory management and the manufacturing or production process, which is based on the product and process design resulting from the product development activity.

Production system: The system used to coordinate internal and external supplier logistics, manufacturer parts, and assemblies into whole products and apply process knowledge to create and deliver products to the ultimate customer.

Productivity: An overall measure of the ability to produce a good or service. It is the actual output of production compared to the actual input of resources. Productivity is a relative measure across time or against common entities. In economics, the ratio of output in terms of dollars of sales to an input such as direct labor in terms of total wages. (Internal Glossary of Rockwell Collins Corp, 1999)

Pull system: A planning system based on communication of actual real-time needs from downstream operations, ultimately from the customer or the end user or the equivalent, as opposed to a push system. (Internal Glossary of Rockwell Collins Corp, 1999)

Push system: A planning system that schedules upstream operations according to some forecasted plan of downstream needs.

Requirements definition (a lifecycle activity): An activity that occurs continuously during the product lifecycle that assesses customer needs and values and translates them into requirement statements that form the basis for product and process design. Strange character embedded here.

Risk management: The process by which an enterprise methodically address the risks attached to each of their activities with the goal of achieving sustained benefit within each activity and across the portfolio of all activities. The focus of risk management is the identification and treatment of these risks, with the objective of adding to the maximum sustainable value of all activities within the enterprise. (The Risk Management Standard, 2002)

Single-piece flow: See "Continuous flow."

Stakeholder: Every person who has an interest in an enterprise, its activities, and its achievements. These may include customers, partners, employees, shareholders, owners, the government, and regulators. (The Excellence Model Glossary of Terms, 2009)

Stakeholder, downstream: Stakeholder who has a role later in the lifecycle and/or production process. Specific stakeholders vary based on one's perspective (e.g., from the perspective of manufacturing, downstream stakeholders include customers and post-delivery/support services, among others). To help differentiate upstream and downstream, think of products as flowing from upstream suppliers to downstream end-user.

Stakeholder, external: Stakeholder located outside the enterprise boundaries. Examples of external stakeholders include customers, end users, shareholders, suppliers, etc.

Stakeholder, internal: Stakeholder located within the enterprise boundary. This includes both individual stakeholders (employees, etc.) and enterprise elements (product development, manufacturing, etc.).

Stakeholder, upstream: Stakeholder who has a role earlier in the lifecycle and/or production process. The specific stakeholders vary based on one's perspective (e.g., from the perspective of manufacturing, upstream stakeholders include engineers/product development and suppliers, among others). To help differentiate upstream and downstream, think of products as flowing from upstream suppliers to downstream end-user.

Stakeholder value – The value derived by a specific stakeholder from the enterprise. See both "stakeholder" and "value."

Strategic plan: A comprehensive statement of an organization's overall mission, objectives, and strategy. A detailed roadmap of the direction the organization intends to follow in conducting its activities. Provides direction, concentration of effort, consistency of purpose, and flexibility as a business moves to maintain and improve its competitive position. (*Techniques for Enterprise Management*, 1999)

Strategic planning: The top-level management decision process that focuses on the overarching, long-range direction of the enterprise and establishes the means by which that goal is achieved. Includes defining top-level and subordinate missions, goals, and supporting objectives, i.e., how the enterprise sees its purpose and where it wants to go. Provides the "big picture" along with a description of how goals and objectives are to be achieved and the indicators that will be used to measure performance and outcomes. (*Techniques for Enterprise Management*, 1999)

Systems thinking: A perspective of systems that acknowledges and integrates the following elements into the understanding and decision making process: holism, an ability to think about the system as a whole; focus, an ability to address the important system level issues; emergence, recognition that there are latent properties in the systems; and trade-offs, judgment and balance, which enable one to juggle all the various considerations and make a proper choice. (Allen et al., 2001)

Supply chain management (a lifecycle activity): A process that integrates of key business processes across the supply chain for the purpose of creating value for customers and stakeholders. During the lifecycle process, supply chain management involves a range of activities including sourcing, procurement, and logistics. (Lambert, 2008)

Upstream stakeholder: See "Stakeholder, upstream."

Value: A product or service's capability provided to a customer at the right time, at an appropriate price, as defined in each case by the customer. (Rother and Shook, 2000)

Value-added activity: Value-added is the difference between dollar sales and the cost of raw materials and purchased parts. Value-added activity is an activity or step in a process that adds value to an output product or service. Such an activity merits the cost of the resources it consumes in production. These are the activities that customers would view as important and necessary. A value-added activity contributes directly to the performance of a mission and could not be eliminated without impairing the mission. (*Techniques for Enterprise Management*, 1999)

Value chain: The sequence of activities a company performs in order to design, product, market, deliver, and support its product or service. (*The Ultimate Business Dictionary*, 2003).

Value delivery: The provision of value to one or more enterprise stakeholders. See "Value."

Value stream: The specific activities required to design, order, and provide a specific product, from concept to launch, order to delivery, and raw materials into the hands of the customer. (Womack and Jones, 1996)

Value stream mapping/analysis: Involves defining a product families'/business processes' material and information flows from beginning to end utilizing a visual representation of every process. This facilitates understanding of current state and the development of the proposed future state. The difference between the two states becomes the basis for the transformation plan.

Vision: A guiding theme that articulates the nature of the business and the enterprise's intent for its future. A description of what senior management wants to achieve. Usually refers to the medium to long term and is often expressed in terms of a series of objectives. (*Techniques for Enterprise Management*, 1999)

Waste: Any product, process, or service that does not add value to the ultimate customer. Waste in business processes/production can be broken down into seven types: waiting, unnecessary motion, processing, inventory, moving items, making too much, fixing defects. (Internal Glossary of Rockwell Collins Corp, 1999)

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Feedback: Please use this section to capture your thoughts and suggestions on improvements to LESAT 2.0. Please also indicate questions or sections that were tailored for your organization or industry. Your feedback will help LAI continue to improve this tool. Please send your comments to lai-lesat@mit.edu.