A Proposal for Enterprise Value Phase of

The Lean Aerospace Initiative

Submitted by

Center for Technology, Policy and Industrial Development
Massachusetts Institute of Technology

to

AFRL/MLKT
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I - Executive Summary

The Massachusetts Institute of Technology (MIT) submits this proposal for the Enterprise Value Phase of the Lean Aerospace Initiative (LAI) in response to the October 9, 2002 Request for Proposal (RFP) F33615-02-2-5501 from the Air Force Research Laboratory (AFRL/MLKT), Wright-Patterson Air Force Base, Ohio. This proposal addresses the conduct of the LAI as set forth in the Enterprise Value Phase Concept of Operations (final draft dated 5 June 2002. The creation of this Enterprise Value Phase Concept of Operations (ConOps) was the result of extensive interaction among all stakeholders in the LAI consortium. The proposed products and research topics have been developed by the MIT LAI team based on this extended interaction with the Lean Aerospace Initiative consortium members during the concept of operations development. This proposal is in consonance with the Enterprise Value Phase vision, and mission as set forth in the concept of operations so as to meet stakeholder needs to achieve the goals and deliverables desired, prioritized to fit available funding.

The Enterprise Value Phase plans have been developed with a clear focus on expected products, each of which has been assigned deliverable dates, as shown throughout the proposal. The **major products of the Enterprise Value Phase** are:

Toolsets to support continued lean transformation in the industry and government

Enterprise Value Stream Mapping and Analysis guidebook

A **"LESAT-like" tool** to self-assess the supplier/customer interface

Course materials and modules for university education and professional development

LAI Educational Network with member affiliated universities

Channels to support a community of knowledge and tool usage

In addition, the LAI knowledge cycle process yields **emergent products** that will support the overall objective of accelerating the Lean Enterprise transformation of the US aerospace enterprise with multiple deliverables guided by the following:

- Knowledge integration across enterprise boundaries
- Integrating the silos
- Accelerating organizational transformation

Teams will be formed to support planned products in the ConOps or emergent products resulting from research efforts. Each team will have linkages within the LAI knowledge cycle to channel knowledge and receive information from a broad set of LAI participants. LAI will maintain association with other MIT programs and centers, and external organizations which will significantly leverage the LAI resources. An expanded engagement of the Executive Board through an Executive Committee will guide LAI transformation activities and recommendations. LAI will continue to channel knowledge products to the consortium through workshops, team meetings, the annual Plenary Conference. The Executive Board and the Executive Roundtable will provide greater opportunity for stakeholder participation.

The MIT LAI team will be led by senior faculty members: Professors Widnall, Allen, and Nightingale, together with an Executive Director (currently Mr. Noel Nightingale) and a Stakeholder Co-Director (currently Mr. Terry Bryan). Additional faculty will be drawn from the

I - Executive Summary

Sloan School of Management and the School of Engineering. This LAI team including six research staff, will lead research/product projects. Graduate student Research Assistants will be the primary means to accomplish research under the direction of the LAI faculty and research staff.

II - Introduction

The Massachusetts Institute of Technology (MIT) submits this proposal for the Enterprise Value Phase of the Lean Aerospace Initiative (LAI) in response to the October 9, 2002 Request for Proposal (RFP) F33615-02-2-5501 from the Air Force Research Laboratory (AFRL/MLKT), Wright-Patterson Air Force Base, Ohio. This proposal addresses the conduct of the LAI as set forth in the Enterprise Value Phase Concept of Operations. The creation of this Enterprise Value Phase Concept of Operations was the result of extensive interaction among all stakeholders in the LAI consortium. The proposed products and research topics have been developed by the MIT LAI team based on this extended interaction with the Lean Aerospace Initiative consortium members.is during the concept of operations development. This proposal is in consonance with the Enterprise Value Phase vision, and mission as set forth in the concept of operations so as to meet stakeholder needs to achieve the goals and deliverables desired, prioritized to fit available funding.

LAI Vision Statement

US aerospace enterprises reliably and efficiently creating value and rapidly adapting to change.

LAI Mission Statement

To research, develop and promulgate practices, tools and knowledge that enable and accelerate the envisioned transformation of the greater US aerospace enterprise through people and processes.

Enterprise Value Phase Goals

Outlined in the Enterprise Value Phase Concept of Operations was a set of goals for the Enterprise Value Phase. These goals are based on the understanding of the needed stakeholder value and support the overarching goal of accelerating the transformation of the greater US aerospace enterprise.

Goal 1: Support the on-going lean transformation of industry.
Goal 2: Enable lean value-creating supplier base
Goal 3: Support lean transformation of the government
Goal 4: Educate and train stakeholders in value-creating lean principles and practices
Goal 5: Improve effectiveness of organizations and all the employees across the total enterprise
Goal 6: Support member lean implementation efforts by sustaining tools and knowledge base and by sponsoring outreach events.

MIT Expectations for Sponsored Research

MIT undertakes sponsored research projects for several reasons:

- Research is integral to the educational experience of both faculty and students.
- Research findings contribute to the world's knowledge base.

- MIT desires to have an impact on issues and problems that are central to the advancement of society.

The Lean Aerospace Initiative addresses these goals of sponsored research at MIT. The Enterprise Value Phase proposal has a strong core of research involving funding for six faculty, six research staff and over a dozen student research assistants. Many other faculty and students will be involved through collaborative efforts funded by other sources. The proposed effort also focuses resources on products of the research, in order to contribute to the enduring knowledge base and to have a significant impact on implementation of lean practices in the defense aerospace industry and government agencies.

However, the LAI goes beyond the above considerations and serves as a model program for bringing academia together with industry, government and labor in a dynamic and interactive consortium. The LAI consortium is serving as an innovative model for research projects addressing important societal issues of the 21st century.

Roadmap for the Cost Proposal

The Level of Effort (LOE) for different personnel categories are listed differently by MIT. This section provides a key to understanding quoted levels of effort in the cost proposal. Personnel shown without a level of effort are collaborating faculty and staff.

Faculty - Assistant, Associate, Full Professor salaries during the Academic Year (Sept - May) are fully supported from Institute funds, except for Professor Widnall whose full 12 month salary is supported by the Institute. As such, no LOE is shown for the academic year time of faculty. Time that will be devoted during the summer (June - Aug) and charged to the LAI is given in months. Faculty other than Prof. Widnall who have no LOE designated are considered as "collaborators".

Other Academic Staff (Professors of Practice, Visiting Professors, Senior Lecturers) have appointments varying from 9-12 months. Percentage level of efforts represent the amount of time they will be supported by LAI, based upon their particular appointment period.

Staff (research, support) normally work on a full time basis for 12 months, and level of effort is a percentage of this.

Full time graduate Research Assistants (RAs) are expected to work 30 hours per week. In this proposal, we note Full Time Equivalent RAs.

Some of the work effort is support by contracted services. These services are listed separately in the cost proposal.

The Plenary Conference, Executive Board, Executive Roundtables and Executive Committee meetings will be supported by the US Air Force under contract to a meeting support contractor (currently Universal Technologies Corporation). MIT members of LAI will participate in these meetings through a registration fee process with the following guidelines:

- Any MIT member* of LAI that makes a presentation, contributes material or services to the meeting will not be charged a registration fee

* MIT member includes faculty, research staff, administrative staff, research assistants and UROPS

- LAI Research Assistants (graduate students) whose research is dependent on the interaction with the consortium membership will be charged a reduced registration fee equal to one half the determined registration fee
- Many MIT members of LAI participate on a limited basis. For those cases, a prorated registration fee will be charged equal to only the days of their participation.

This proposal does not support any "Lean Now!" workshops between the LAI Subject Matter Experts (SMEs) and government organizations other than those LAI SME coordination meetings held in Cambridge on MIT property.

There will be other meetings to support knowledge collection, collaborative product development, and knowledge deployment. These meetings will be scheduled based on the plans developed for each product. These meetings will be organized by the MIT part of LAI with appropriate registration fees as necessary to cover meeting costs.

III – Enterprise Value Phase Products and Research

The products and research for the consortium are shaped by the interaction with the consortium. The direction came from the development of member needs, product ideas, goals and possible deliverables identified during the development of the Enterprise Value Phase Concept of Operations. In this section the products and research will be related to the goals established in the Concept of Operations. In conclusion each of these products will be related to the phase goals.

LAI Products

Enterprise Value Stream Mapping and Analysis (EVSMA) Guidebook. This guidebook will portray an overall methodology for value stream mapping and analysis at the enterprise level, including: identification of information flows and primary enterprise value metrics, identification of enterprise wastes, guidelines for developing a transition plan from current state to a "lean vision" state, and tools/templates to facilitate the EVSMA process.

Product Development Value Stream Mapping Manual. This implementation manual will be used for applying value stream mapping and analysis methods to the product development process. It will consist of the current use of value stream mapping methods to date, a suggested method for using process mapping and/or Decision Support Matrices (DSM) to map and improve product development processes, heuristics for finding a future state process, and a running example to illustrate the method.

Supplier Networks Transformation Toolkit. This toolkit will be an integrated implementation toolset for transforming aerospace supplier networks consisting of three major components: a self-assessment tool, an implementation roadmap, and a reference guide.

Interface Lean Enterprise Self Assessment Tool (ILESAT). This will be a LESAT like tool that would address the lean acquisition, contract management and other enabling processes involving the interface between government and industry. This product would be developed collaboratively with our government and industry membership.

Enterprise Transformation Toolkit. This toolkit will integrate existing lean tools into a multi-program, multi-enterprise toolset. Possible existing tools to be integrated into the toolset could be: the Lean Enterprise Model (LEM), Transition-to-Lean (TTL) roadmaps (Enterprise, Production Operations, Product Development and Supplier Networks), Lean Enterprise Self-Assessment Tool (LESAT), Enterprise Value Stream Mapping and Analysis Guidebook, and Interface LESAT. In addition, tools developed by members will be solicited and incorporated into the toolkit.

Lean Aerospace Initiative Educational Network. The objective of the Lean Aerospace Initiative Educational Network (LAI EN) is to facilitate communication and collaboration among its member schools to support the transformation of the greater US aerospace enterprise. This effort is initially focused on the development and deployment of curriculum.

Short Courses. Short courses will be designed to education leaders from industry, government, and labor about the concepts of lean with the objective of developing a cadre of champions for lean. The approach is to provide an integrated active learning experience supplemented with modular lectures. Typical short courses include an a lean enterprise value short course, a one day introduction to lean, training for lean transformation teams, and lean tool training.

III – Enterprise Value Phase Products and Research

Lean Enterprise Course Materials and Modules. Curriculum modules will emerge from various LAI communities throughout the phase. Each module will fit into a modular architecture that covers multiple content areas and learning audiences. The primary content areas are: lifecycle processes, enabling processes, leadership and transformation processes. The initial modules will be developed by MIT based on learning over the last 9 years (see Appendix B for module descriptions). It is anticipated that subsequent modules will be developed under the LAI Educational Network. The primary audiences are students of academic institutions, either in pursuit of a degree or professional development.

Introduction to Lean Enterprise On-Line Course. This course was developed collaboratively between LAI and the Defense Acquisition University (DAU). LAI at MIT provided lean educational materials based on previous research during LAI. DAU funded the development of the on-line course through an independent contractor that continues into this phase. By completing this course, participants should be able to apply the concepts of lean enterprises in their work environments.

Program Manager's Capstone Course Module. In the memorandum of understanding with the Defense Acquisition University (DAU) one of the items is to work collaboratively on incorporating Lean Enterprise perspectives into the DAU Program Manager's Course, PMT 401. Lean module(s) are planned to be developed for DAU PMT 401/402 to support the following learning objectives for the students:

- PMT 401: Identify and apply best business practices to achieve win-win relationships with their industry partners.
- PMT 402: Develop a plan of action to better manage their program, program offices, and professional development.

Web Portals for Knowledge Management. Activities related to this product create web-based opportunities for knowledge exchange among the LAI community and its subsets such as the LAI Educational Network and the Stewards Council. The goal is to catalyze additional knowledge capture and output thereby augmenting the LAI Knowledge Cycle.

Lean Enterprise Value Knowledge Kit. Marketing materials to promote lean enterprise value awareness. The kit generally includes a brochure, member list, and other information hand-outs as needed to further the awareness of lean and value creation concepts to aid the transformation of the US aerospace enterprise. The marketing elements may be used alone or as an integrated media kit. Supports LAI "branding."

The Workbook for Change. This workbook is an activity-based guide to lean implementation closely integrated with the Production Operations Transition To Lean (POTTL) roadmap for transitioning an existing operation to one that fully implements a lean manufacturing philosophy and lean best practices. The Workbook suggests a "how to" organizational process for bringing about change as it relates to an organization's unique situation, culture, legacy policies, and systems.

LAI Product Awareness Campaign. Awareness campaigns are tailored outreach efforts to promote awareness and subsequent use of a particular LAI product such as ILESAT. This may include new web pages; direct mail; broadcast email; news releases, print material; participation in conferences with exhibits. Each campaign will be designed to meet the needs and timeline of a specific product.

Annual Plenary Conference. Annual public forum bringing together multiple LAI, aerospace, and educational stakeholders for the purpose of knowledge exchange, experiential learning and networking where appropriate. Provides platform for keynotes from leaders and launch of new products and resources.

Executive Board Forums. Annual meetings bringing together the LAI Executive Board members to advance consortium goals and vision, share current initiatives, and to identify implementation and leadership opportunities as well as broaden understanding of stakeholder needs.

Topical Workshops. Specialized workshops coordinated with product/project teams advancing overarching consortium goals. These forums will bring together multiple LAI, aerospace, and educational stakeholders for the purpose of integrating knowledge and to support experiential learning and networking where appropriate.

Relationship of Products to Lean Enterprise Value Phase Goals

Each of the above products can be related directly to the goals for the Enterprise Value Phase. In many cases the LAI Enterprise Value Phase products support multiple goals established for this phase. The goals of the Enterprise Value Phase are:

Goal 1: Support the on-going lean transformation of industry.
Goal 2: Enable lean value-creating supplier base
Goal 3: Support lean transformation of the government
Goal 4: Educate and train stakeholders in value-creating lean principles and practices
Goal 5: Improve effectiveness of organizations and all the employees across the total enterprise
Goal 6: Support member lean implementation efforts by sustaining tools and knowledge base and by sponsoring outreach events.

Figure 1 below is a representation of how the planned products from the phase support these goals.

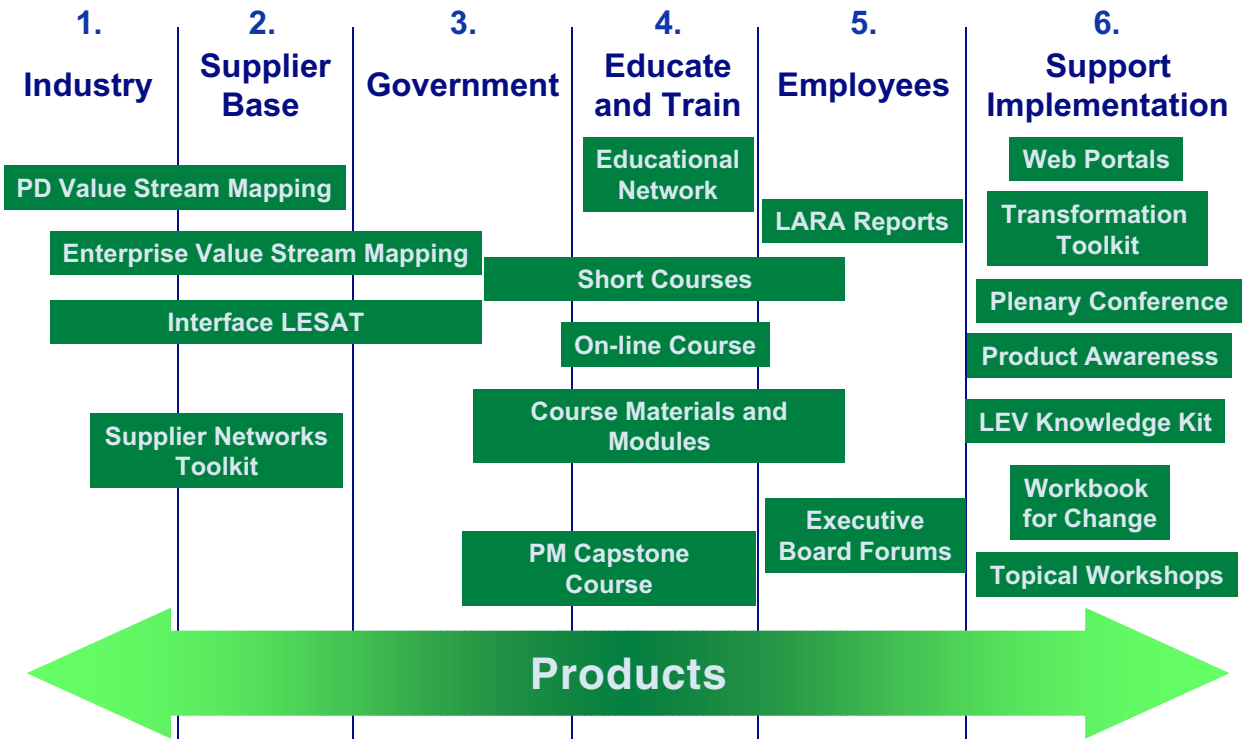

Figure 1: Lean Enterprise Value Products mapped to Phase Goals

LAI Research

There are two categories of LAI research: ongoing and future research. Ongoing research has completed a process of research topic review, assignment of a research assistant, and definition of the research with a plan. Future research will be developed collaboratively with our consortium membership. In general, the research will be about designing a lean enterprise, transforming to become a lean enterprise, and evolving and adapting the enterprise. The Executive Committee in its first meeting on research matters suggested that research also be categorized and evenly balanced between near-term, long-term and leading edge research. New research will be developed in a collaborative manner with the Executive Committee in accordance with the process listed in the Enterprise Value Phase Concept of Operations (page 13).

On-Going Research

Of the six LAI Enterprise Value Phase goals research can be used to help address issues in four of the goals. On-going research supports these four LAI Enterprise Value Phase Research goals in the following manner:

	Industry	Supplier Base	Government	Employees
Guidelines for agile acquisition strategies	X		X	
Stakeholder value in agile acquisition	X		X	
Improving analysis to aid spiral development	X		X	
Portfolio based approach to evolutionary acquisition	X		X	
Real options applied to Space Based Radar	X		X	
Multi-Attribute Tradespace Exploration with Concurrent Design (MATE-CON) as a value-centric framework for space system architecture and design	X		X	
Managing change in complex organizational and product settings	X		X	X
Principles and practices of licensing	X	X		
Measuring and managing intellectual capital	X		X	X
Lean enterprise assessment and transformation	X	X		
The acquisition intrapreneur			X	X
Improving technology transition from government labs	X		X	
Stakeholder collaboration in defense acquisition	X		X	
Robust Value Propositions in Program Enterprises	X	X	X	
LARA: Intellectual capital and institutional infrastructure	X			X

Future Research

Future research has been clustered around five cross cutting issues: enterprise transformation models, organizing principles, integration strategies, motivation for desired behavior, and learning, innovation and adaptation. Each of these areas has a number of possible research questions which are listed below:

Enterprise transformation models:

- What are the lessons from successful enterprise transformations?
- What lessons can be learned from TTL and LESAT application?

- What are useful decision support tools for enterprise transformation?

Organizing principles:

- Do the principles of systems engineering and architecting apply to enterprise design?
- What are successful enterprise value creation architectures?
- Are there new business models for lean enterprises?

Integration Strategies:

- What are successful enterprise integration strategies?
    - People, information, processes, technologies
- What roles do information technologies play in enterprise integration?
- What are the methods and tools for effective enterprise value stream analysis and integration?

Motivation for desired behavior:

- What are value metrics for managing complex enterprises?
- How are incentives used to motivate the desired enterprise behavior?
- What are essential roles of lean enterprise leaders?

Learning, innovation and adaptation:

- How does knowledge management facilitate learning, innovation, and adaptation in enterprises?
- What are effective ways to foster organizational learning, knowledge-creation, and innovation?
- What are best practices for ensuring robust and adaptive lean enterprises?

New research following from questions like the above will be developed in a collaborative manner with the Executive Committee in accordance with the process listed in the Enterprise Value Phase Concept of Operations (page 13).

IV - Program Management

The Enterprise Value Phase of LAI has the overall objective to accelerate the Lean Enterprise transformation of the US aerospace enterprise. An objective of this caliber requires interactions across all the stakeholders in the greater US aerospace enterprise. Therefore, an organizational structure that engages senior leaders in government and industry is crucial for this phase. The following organizational elements were developed by our members to allow lean to prosper in the US aerospace enterprise with the goal of creating value for all enterprise stakeholders.

Executive Board Member

The Massachusetts Institute of Technology Executive Board member and Co-Chair will be Institute Professor Sheila E. Widnall as nominated by MIT's President Charles Vest. The roles and responsibilities of this position will be:

- Assure MIT support for LAI
- Assure that the MIT LAI Co-Directors are executing the LAI program plan
- Interface with the other LAI Executive Board Co-Chairs and members
- Interface with senior DoD and USAF personnel as appropriate
- Represent LAI to external audiences as needed

Executive Committee (EXCOM)

A subset of the Executive Board will form the Executive Committee which will convene on a no substitute basis of those members available to address LAI Consortium business.

LAI is venue for discussion of issues and approaches to improve efficiency of acquisition of aerospace systems. A consortium of industry, government, labor and MIT, each playing a unique role, enables the LAI venue. MIT has a special role as a neutral broker among other stakeholders and in conducting research supporting fact-based discussions.

The LAI must function as a consortium, with all stakeholders engaged with carrying out the LAI mission and with the EXCOM playing a central role in focusing those resources. To support these objectives the EXCOM will meet nominally every two months in Washington, D.C. and establish small sub-groups aligned with LAI objectives. MIT LAI participants will be the LAI Directors.

IV - Program Management

LAI Stewards Council

The Membership Steward is essential to LAI operations, both research and administrative. Broadly, the Steward acts as the representative of the views of his or her respective organization, actively arranges for support to LAI research and product development activities, and facilitates the exchange and dissemination of both lean and consortium information between his or her organization and the LAI. He or she also manages administrative matters between the consortium and their member organization. Role and responsibilities are:

- Support the LAI Research and Product Development Process
- Support LAI Business Strategy
- Facilitate Information Flow
- Support Stewards Network
- Support Executive Board Member

The Stewards Council is led by the LAI Stakeholder Co-Director.

LAI Directors

There are three LAI Co-Directors: Sloan School of Management – Howard W. Johnson Professor Thomas J. Allen, School of Engineering – Professor of Practice Deborah J. Nightingale, and a Stakeholder Co-Director currently filled by Mr. Terry Bryan from the Raytheon Company. There is one LAI Executive Director – Mr. Noel Nightingale. The roles and responsibilities of the LAI Directors are:

Executive Director

- Support the Executive Board Co-Chairs and the EXCOM in translating strategy to plan
  - Organize Executive Board Meeting and Roundtable
  - Organize and facilitate EXCOM meetings and communications
  - Facilitate EXCOM and EXCOM subgroups with their actions and activities
  - Support translating "sense of urgency initiatives" (e.g. "Lean Now!") into stakeholder and research actions.
- LAI principal interface with government and industry senior leadership on Executive Board matters and LAI advocacy and branding
- Lead the cultivation and development of new members/associate members
- Position is funded by the LAI consortium and the position represents and is accountable to the LAI co-chairs
- Ex Officio member of the LAI EXCOM and facilitates the EXCOM in absence of the Co-Chairs.

IV - Program Management

Stakeholder Co-Director

- Be the primary working point of contact with LAI stakeholder members from industry, government, labor and associations.
- Lead/coordinate stakeholder teams working on LAI "sense of urgency" initiatives (e.g. "Lean Now!")
- Be the primary point of contact with LAI Stewards
  - Lead the Stewards Council: plan and conduct Stewards meetings and telecons
  - Assure stakeholder input is solicited and received on all aspects of LAI program
  - Assure stakeholder participation is well balanced across the program groups and research
- Support Executive Director to cultivate and develop new members/associate members
- Position is a stakeholder (industry or government) career development position and, as such, is funded by the stakeholder (except for the LAI related travel and expenses).
- Member of the LAI EXCOM.

Sloan and Engineering Co-Directors

- Be the primary point of contact with the MIT community:
  - Serve as Principal Investigators or key point of contact for MIT administration
    - Assure that program meets schedule and budget
    - Assure adequate staffing
  - Engage MIT faculty resources in LAI
  - Recruit graduate students
  - Leverage other MIT research and educational programs
- Provide Intellectual Leadership for LAI
  - Chair the LAI Research Council and oversee research program
  - Assure LAI research is aligned with Executive Board expectations
  - Lead the "Educational Network" to leverage national intellectual leadership for LAI
- Manage and administer the LAI consortium contract and all of its requirements
- Member of the LAI EXCOM

Joint among LAI Co-Directors

- Turning strategy into action within the guidance provided by the Executive Committee
- Coordination and communication across the program and with external organizations
- Assure all LAI stakeholders' viewpoints and interests are represented in external briefings/interactions that focus on the LAI consortium, its results, and future actions.
- Plan major events such as the Executive Board, Executive Round Table and Plenary Conference within guidelines provided by the Executive Committee
- Coordinate with LAI Program Manager and LAI staff as appropriate

IV - Program Management

LAI Program Manager

The LAI Program Manager's responsibility is to run the LAI on a day-to-day basis to ensure all action items, planning, major event coordination, products and milestones are accomplished. Mr. J. Tom Shields will serve as the LAI Program Manager. Some specific roles and responsibilities are:

- Prepare LAI internal plans and schedule with inputs from all LAI members
- Coordinate the compilation and release of contractually required reports
- Conduct the consortium business (annual fees and consortium agreements)
- Coordinate the distribution of items to members
- Coordinate student RA appointments
- Manage equipment and resources
- Plan and administer the LAI budget
- Interface with USAF contract administrative managers

Principal Investigators

All MIT sponsored research projects have designated Principal Investigators who are responsible for assuring that projects are executed on schedule and within budget to meet the agreed upon statement of work. Professors Deborah Nightingale and Thomas Allen will be the Enterprise Value Phase LAI Principal Investigators.

V – LAI Knowledge Cycle and Focus Areas

Today, LAI's community extends forward to the customer and reaches back through the supply chain. The consortium now consists of leaders and implementers from major U.S. defense and commercial aerospace companies, suppliers, government agencies, organized labor, MIT, and other partner academic institutions.

Objective and systematic research yielding a common language as well as strategic tools and resources unites this community by creating implementation opportunities. We call this the LAI Knowledge Cycle – a real world laboratory enabling the application of knowledge, assessment of progress, and continuous improvement. To focus this knowledge cycle in the Enterprise Value Phase, five focus areas have been defined to group the collective LAI effort.

The LAI Knowledge Cycle

In the development of the Concept of Operations, our consortium stakeholders gave planning directions that identified needs and products desired. In the planning for the Enterprise Value Phase, these stakeholders developed a set of LAI goals and deliverables (noted in Figure 2 below) to guide the development of LAI plans. The figure below also describes the process by which LAI at MIT fulfills the stakeholder guidance.

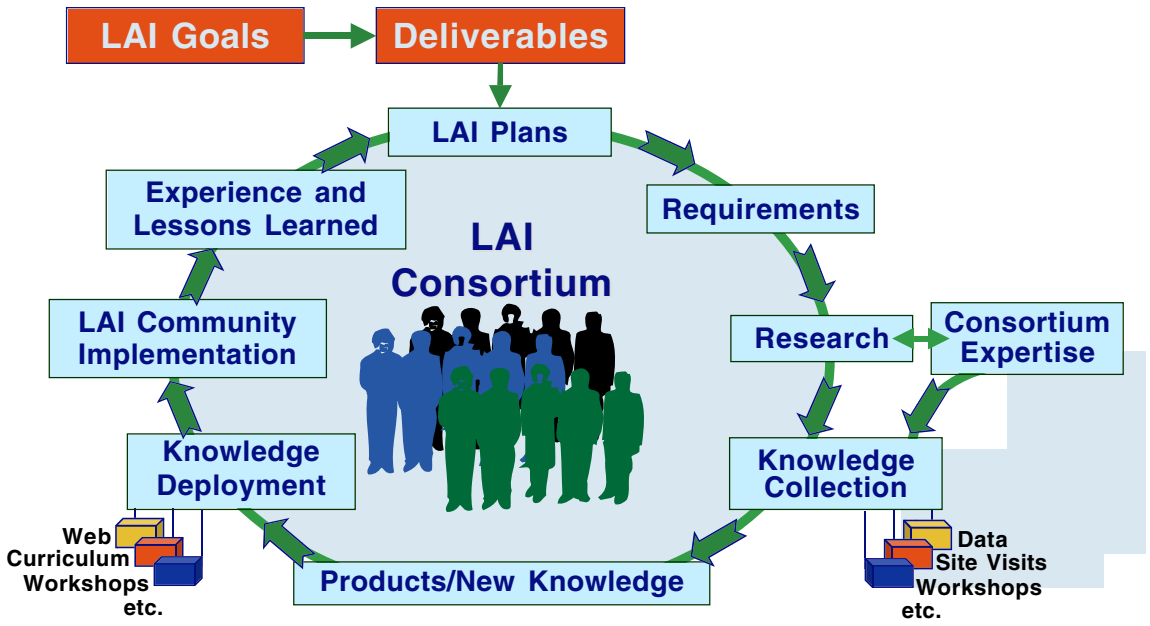

Figure 2: Lean Aerospace Initiative Knowledge Cycle

LAI plans are developed along five focus areas: enterprise transformation, lifecycle processes, enabling infrastructure, curriculum development and knowledge deployment. These plans are developed based on the requirements established by our membership often derived in an iterative, emergent and interactive process involving many stakeholders in the consortium. Once plans are developed the products and research rely heavily on interactions with practitioners in the consortium. Knowledge is collected using surveys, site visits, working workshops, meetings, telephone conferences, etc. to support either the product or research. In this manner, products

and the research that supports these products emerge from the collective contributions of the entire LAI consortium. LAI at MIT then seeks to deploy this knowledge through all means available such as our LAI web site, topical workshops, the Plenary Conference, Executive Board meetings and curriculum modules. The consortium members internalize these products and knowledge and may use LAI produced products or employ the new knowledge gained in their organizations. Learning from these implementation efforts is then captured and fed back into the consortium perhaps resulting in new or revised LAI plans. This process is dynamic and responsive to the needs of the consortium membership.

LAI Focus Areas

In the Enterprise Value Phase the main objective is to extend lean practices to the total enterprise. In order to do this our intellectual orientation needs to shift from functional areas to broader enterprise areas. Accordingly in this phase, we have chosen five focus areas to group LAI activities. There are three focus areas that perform research and develop products: enterprise transformation, lifecycle processes and enabling infrastructure. There are two focus areas that develop their own products or gather information from the other focus areas to develop products: curriculum development and knowledge deployment. The enterprise transformation, lifecycle processes and enabling infrastructure focus areas perform research and make contributions to curriculum and knowledge deployment products. This concept is shown graphically below in Figure 3.

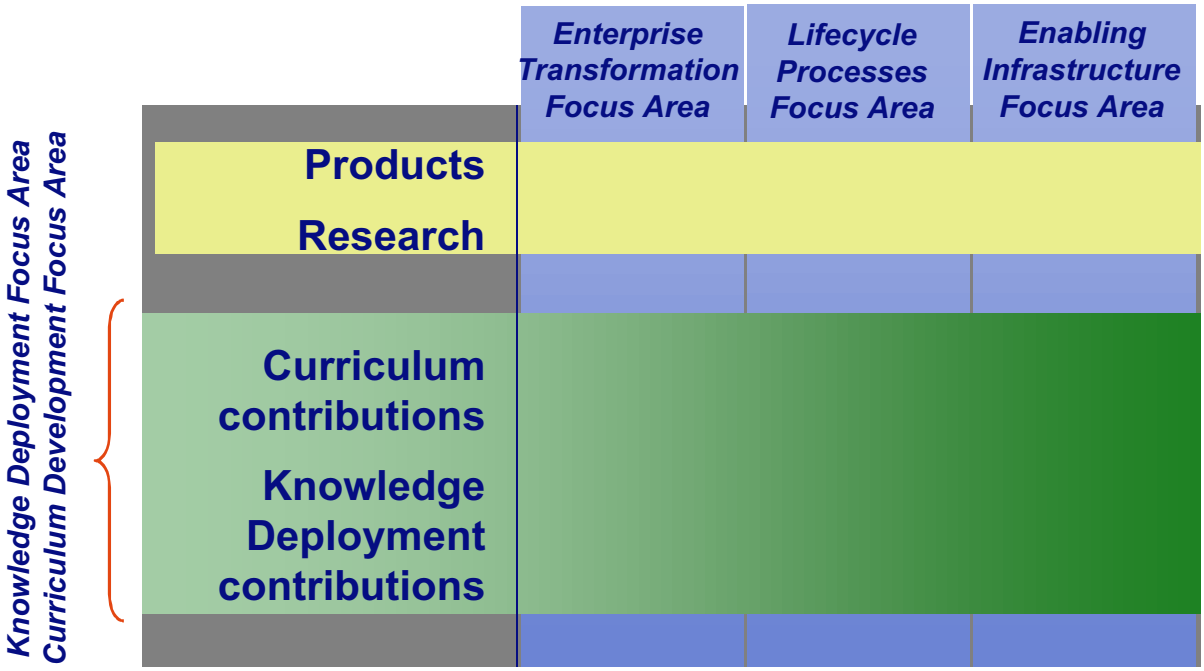

Figure 3: Relationships among Enterprise Value Phase Focus Areas

V – LAI Knowledge Cycle and Focus Areas

Each focus area develops plans to support the goals established by the Enterprise Value Phase Concept of Operations. As part of the internal MIT planning process supporting the LAI Knowledge Cycle each of the focus areas will develop plans consisting of: product plans, research plans (for enterprise transformation, lifecycle processes and enabling infrastructure focus areas only), curriculum contributions and knowledge deployment contributions. These plans are dynamic and will be monitored by the LAI Directors to ensure the LAI consortium needs and requirements are being met. The plans for each of these focus areas is provided in the following sections. Additional details for each of the products are provided in Appendix B.

Enterprise Transformation Focus Area

Introduction: The LAI membership identified a need to "Do for the rest of the industrial enterprise what we did for manufacturing." This focus area will conduct research and develop tools that will help extend lean practices to the total enterprise. As such, this effort will support on-going lean transformation of the industry. The class of deliverables will deliver cutting edge lean principles and practices for reduced program cycle time and improved quality and cost focusing on inter-dependencies with the multi-program enterprise.

Products: The following products are envisioned in this focus area:

1. Enterprise Value Stream Analysis Manual (lead: Alexis Stanke)
2. Enterprise Transformation Toolkit (lead: Tom Shields)

Research: The following on-going research projects have been identified to support this focus area:

1. Managing change in complex organizational product settings (Kassin-Deardorff)
2. Lean Enterprise assessment and transformation (Hallam)
3. Structuring robust value propositions in complex program enterprises (Hitchings)

Curriculum Contributions: Tools and research from this area will be merged with other LAI tools to develop a comprehensive lean enterprise perspective with appropriate educational material to facilitate curriculum module develop.

Knowledge Deployment Contributions: Anticipated activities that will support this focus area are:

- Major workshop to focus on developments with EVSMA Guidebook
- Publishing of the EVSMA Guidebook
- Presentation of EVSMA Guidebook concepts at conferences
- Major workshop to define elements of Enterprise Transformation
- Publishing of the Enterprise Transformation Toolkit
- Special workshop for the users of the Enterprise Transformation Toolkit

Timetable:

Element	Date (approx)	Responsibility
EVSMA Guidebook, Alpha version	Feb 03	Nightingale, Stanke
EVSMA Guidebook, Beta version	Jun 03	Nightingale, Stanke
Start Transformation Toolkit effort	Sep 03	Tom Shields
Transformation Toolkit workshop	Jan 04	Tom Shields
EVSMA Guidebook, Version 1.0	Mar 04	Nightingale, Stanke
Transformation Toolkit, Alpha version	Dec 04	Tom Shields
Transformation Toolkit, Beta version	Apr 05	Tom Shields
Transformation Toolkit, version 1.0	Aug 05	Tom Shields

Lifecycle Processes Focus Area

Introduction: The LAI membership indicated in the ConOps that it desired research and tools that help extend lean practices to the total enterprise. One strongly expressed desire from the USAF is to significantly reduce the cycle time and increase the adaptability of the acquisition process. Lifecycle processes include all those processes that directly contribute to an enterprise's products/services and are the primary means by which value is delivered to enterprise stakeholders. Research and tool development in this area will enable lifecycle processes to contribute to enterprise transformations that yield significant reductions in cycle time and other lean benefits.

Products: The following products are envisioned in this focus area:

1. Product Development Value Stream Analysis Manual (lead: Hugh McManus)
2. Supplier Network Transformation Toolkit (lead: Kirk Bozdogan)

Research: The following research projects have been identified to support this focus area:

1. Stakeholder collaboration in defense acquisition (Dare)
2. Guidelines for agile acquisition strategies (Ferdowsi)
3. Stakeholder value in agile acquisition (Derleth)
4. Improving analysis to aid spiral development (Spaulding)
5. A portfolio based approach to evolutionary acquisition (Shah)
6. Real options applied to space based radar (Roberts)
7. Multi-Attribute Tradespace Exploration with Concurrent Design (MATE-CON) as a value-centric framework for space system architecture and design (Ross)

Curriculum Contributions: The tools developed in this focus area will directly lead into curriculum products. These tools will also be added to the existing transition and assessment toolsets, expanding them to other lifecycle processes. The research in this area coincides with new developments in acquisition management and will likely be quickly infused into application through new or existing curriculum products.

Knowledge Deployment Contributions: Anticipated activities that will support this focus area are:

- Product Development Value Stream Mapping Work Team meetings
- Supplier Networks Transformation Toolkit Working Team meetings
- Publishing of Supplier Networks Transformation Toolkit and reference guide
- Publishing of the Product Development Value Stream Mapping Manual

Timetable:

Element	Date (approx)	Responsibility
Supplier Networks Transformation Toolkit Beta Version	Nov 02	Kirk Bozdogan
Product Development Value Stream Mapping Manual first draft	Nov 02	Hugh McManus
Supplier Networks Transformation Toolkit Version 1.0	Feb 03	Kirk Bozdogan
Product Development Value Stream Mapping Manual	Mar 03	Hugh McManus

Enabling Infrastructure Focus Area

Introduction: The LAI membership identified the desire to remove contracting, accounting, finance, information technology, human relations and acquisition policy barriers to becoming lean whether in an industrial or government setting. This effort will support research and products that enable the diffusion of lean practices more easily within, across and among enterprises. For those areas were there are interactions across the interface of government and industry, we have developed a memorandum of understanding with the Defense Acquisition University and headquarters US Air Force to employ military officer fellows to help address these interface areas.

Products: The following significant product is envisioned in this focus area:

1. Interface Lean Enterprise Self Assessment Tool (lead: Tom Shields)

Research: The following research projects have been identified to support this focus area:

1. Principles and practices of licensing (Bresman)
2. Measuring and managing intellectual capital (Siegel)
3. Improving technology transition from government labs (Davidz)
4. Information Systems for Enterprise Integration and Transformation (Ferre)

Curriculum Contributions: The ILESAT will complement the LESAT and become a curriculum module once it is developed and tested. Other research will be integrated into curriculum materials as it is completed.

Knowledge Deployment Contributions: Anticipated activities that will support this focus area are:

- Engagement with the "Lean Now!" effort
- Topical workshop on ILESAT
- Publication of the ILESAT

Timetable:

Element	Date (approx)	Responsibility
Requirements Meeting	Nov 02	Tom Shields
ILESAT Blitz workshop	Jan 03	Tom Shields
ILESAT Alpha version	Apr 03	Tom Shields
ILESAT Beta version	Aug 03	Tom Shields
ILESAT version 1.0	Mar 04	Tom Shields

V – LAI Knowledge Cycle and Focus Areas

Curriculum Development Focus Area

Introduction: The need comes from LAI Stakeholder guidance to help educate industry and government in lean concepts and practices. This led to the goal statement: Educate and train stakeholders in value-creating lean principles and practices. This goal has the product focus of developing curricula on lean topics. The general deliverable related to this goal is: course materials and modules for university education and professional development for industry and government, targeting executives, middle management, and professionals.

Products:

- Educational Network
- Short courses
  - Lean Enterprise Value Executive Short Course
  - SPO One-day Training
  - Lean Now! Workshop
  - LESAT Facilitator's Workshop
  - Enterprise Simulation Game
- Lean Enterprise Course Materials and Modules
  - Integrating the Lean Enterprise modules
  - Manufacturing Systems module
  - Product Development module
  - Supplier Networks module
  -
- Courses and modules for strategic partnership with DAU (Defense Acquisition University)
  - Introduction to Lean Enterprise On-line course
  - DAU Program Manager's course module

Knowledge Deployment Contributions: Each of these products can be used in multiple ways for our members. Some of the products will be in a form that is easily transportable to multiple member users for direct application at their member sites.

Timetable:

Element	Date (approx)	Responsibility
Introduction to Lean Enterprise On-Line course	Oct 02	A. Stanke, DAU
One Day Introduction to Lean Course (first presentation)	Oct 02	A. Stanke, T. Shields
Lean Now! Workshop (offered as requested after first offering)	Nov 02 – Mar 03	T. Bryan, A. Stanke, T. Shields
One Day Introduction to Lean Course complete	Jan 03	A. Stanke, T. Shields
LAI Educational Network established (members, web page, agreements, etc.)	Mar 03	T. Allen, A. Stanke
LAI Educational Network meetings (with Plenary conference)	Mar 03, 04, 05	T. Allen, A. Stanke
LESAT Facilitator's Workshop (offered annually as requested with Plenary conference)	Mar 03, 04, 05	J. Mize, C. Hallam
Lean Enterprise Value Short Course	June 03, 04, 05	J. Warmkessel
DAU Program Manager's course module	Jun 03	A. Stanke, DAU
Enterprise Simulation Game offering	Jul 03	E. Rebentisch, H. McManus

Supplier Networks module	Jul 03	K. Bozdogan (lead)
Manufacturing Systems module	Feb 04	T. Shields (lead)
Product Development module	Mar 04	J. Warmkessel (lead)
Integrating the Lean Enterprise modules complete	Aug 04	D. Nightingale
Emergent curriculum modules (developed as needed throughout phase)	TBD	A. Stanke and others

V – LAI Knowledge Cycle and Focus Areas

Knowledge Deployment Focus Area

Introduction: Knowledge Deployment threads through all elements as well as other focus areas of LAI's Enterprise Value Phase by creating channels, tactics, tools, and mechanisms for integrating knowledge, people, and functional areas. It is an enabler to organizational transformation and learning and it is a proven cornerstone of any change management effort. At its most basic precept, knowledge deployment is open, honest communication that allows for better understanding of the current state and a shared vision of what the future state should be.

Within the context of LAI, Knowledge Deployment operates with a "Push and Pull" effect. That is to say, there are products identified and developed expressly within the Knowledge Deployment Focus Area (push) and there are other products identified with the other LAI Focus Areas (pull). In the latter, there is a hand-off or expansion of ownership whereby Knowledge Deployment takes the lead to package, execute, distribute, and promote. It supports the plan and process. For instance, in the Enterprise Transformation Focus Area, under Knowledge Deployment Contributions it cites: Publishing of the EVSMA Guidebook. The Knowledge Deployment Focus Area will manage the physical production and subsequent distribution, including marketing of said item.

Products: The following products will support and enhance all Enterprise Value focus areas.

1. Web Portals for Knowledge Deployment
2. Lean Enterprise Value Knowledge Kit
3. The Workbook for Change
4. LAI Product Awareness Campaigns
5. Annual Plenary Conference
6. Executive Board Forums (Annual Roundtable and Business Meetings)
7. Topical Workshops

Curriculum Contributions: Products and projects related to this area provide a fundamental mechanism to *deliver* curriculum products and enable learning by providing opportunities for inquiry, peer interaction, and problem-solving.

Timetable:

Element	Date (approx)	Responsibility
LAI Stewards web site established	Oct 02	Deneen Silviano
Executive Roundtable	Dec 02. 03, 04	Executive Director
Workbook for Change Version 1.0	Jan 03	Deneen Silviano
LAI EN site established	Feb 03	Deneen Silviano
Networking features added to web site	Feb 03	Deneen Silviano and Help Desk
Plenary Conference	Mar 03, 04, 05	Deneen Silviano and team
Executive Board meeting	May 03, 04, 05	Executive Director
Lean Enterprise Value Knowledge Kit	Jun 03, 04, 05	Deneen Silviano

VI - Linkages to Other Activities

LAI leverages a large number of other activities, programs, and centers. Explicit interactions have been identified in focus area sections, however there are others. A summary is given below.

Focus Areas	Enterprise Transformation	Lifecycle Processes	Enabling Infrastructure	Curriculum Development	Knowledge Deployment
LAI-related activities					
Defense Acquisition University (via Memorandum of Understanding)	√		√	√	
Lean Sustainment Initiative (LSI)	√	√	√		√
Labor Aerospace Research Agenda (LARA)	√		√	√	
MIT Centers and Programs					
Center for Innovation in Product Development (CIPD)		√		√	
International Motor Vehicle Program (IMVP)		√		√	
Integrated Supply Chain Management Program(ICSM)		√			
Laboratory for Manufacturing and Productivity (LMP)		√		√	
Production System Design Laboratory (PSDL)		√		√	√
Space Systems Laboratory (SSL)		√			
System Design and Management (SDM) Program	√	√	√	√	√
Leaders for Manufacturing (LFM) Program	√	√		√	√
Engineering Systems Division (ESD)	√	√	√	√	√
Technology, Management, and Policy (TMP) / Technology Policy Program (TPP)	√	√	√	√	√
Learning Center				√	√
International Collaborations					
UK Lean Aerospace Initiative (UKLAI)	√	√	√	√	
Swedish Lean Aircraft Research Program (LARP)	√	√		√	
External Organizations					
National Institute of Standards (NIST) through the Manufacturing Extension Program (MEP)		√		√	
Business Executives for National Security (BENS)	√		√		

VII - Integrated Yearly Schedule

In an effort to balance the workload of the LAI staff and researchers and to assure that major deliverables are delivered, an integrated schedule has been developed. This schedule, applied repetitively over the three years, will also allow member organizations to better plan their resource needs. We understand that flexibility will be required about these dates; nonetheless, for planning purposes, the activities charted in the table below will constitute the planned interaction between the LAI participants.

Meetings	Sep-Nov			Dec-Feb			Mar-May			Jun-Aug		
Executive Board									✓			
Executive Committee		✓				✓		✓		✓		✓
Executive Roundtable				✓								
Plenary Conference							✓					
Stewards Council							✓					
Educational Network							✓					
Short Courses										✓		

More detailed schedules are located with each product plan located in appendix B and summarized in the focus areas.

Appendix A – LAI Glossary

Team Meeting
Product specific or focus area specific focused meeting on planning, research and progress reports. Not an "open-enrollment" session. Managed by the product team or focus area itself.

Plenary Conference
Large popular venue with mass appeal; fee-based open enrollment for the LAI community; more top-level coverage of a theme; involves guest presenters from within and outside LAI; in general, more focused on "delivery" of information.

Workshop
Smaller (50-75 attendees) learning venue with a more specific focus and with either an implementation or topical appeal spanning a short length of time (1-3 days); fee-based open-enrollment within the LAI community; generally designed to maximize two way flow of information; data collected may contribute to future research and products. Organized by an LAI product or research team; enabled by Knowledge Deployment.

Short Course
Broadly, a one to week-long fee-based instructional activity with curriculum modules originated by LAI research or related MIT programs. Initially open to the LAI community (not to an MIT student audience), but subsequent courses will be offered to a wider audience, perhaps at an increased fee.

Appendix B – LAI Product Plans

Contents:

Appendix B – LAI Product Plans

Title: Enterprise Value Stream Mapping and Analysis (EVSMA) Guidebook

Lead Person: Debbie Nightingale

Other MIT Personnel: Cory Hallam, Joe Mize, and Alexis Stanke

LAI Team Members: Members: Jan Martinson, Bob Dausch, Andrew Parris, Julie Goswick, and Doug Jaspering

Description: The objective of this initiative is to develop a methodology for value stream mapping and analysis at the enterprise level. The methodology will delineate how an enterprise delivers value to its stakeholders (especially the end customer), from concept generation of the product/service to final product/service delivery and support. All major process flows will be analyzed in terms of resource requirements, people, budget allocation, and time involved in each step/activity of each process flow. The methodology will also facilitate the identification of information flows and primary enterprise value metrics. Sources of enterprise waste are to be identified and measured. This in-depth understanding of the current enterprise state provides a basis for developing a Lean Vision for the enterprise which will deliver greater value to stakeholders in a more streamlined, waste-free manner. To be included in the methodology are guidelines for developing a transition plan which outlines the steps required to migrate from the current state to the Lean Vision state. The final product of this initiative will be a Guidebook for Enterprise Value Stream Mapping and Analysis. The Guidebook will portray the overall methodology, categorized examples of waste at the enterprise level, examples of enterprise value metrics, and tools/methodologies for performing the various analyses included in the EVSMA Methodology. The product will be field-tested at several LAI member sites and modified as appropriate before final release as an LAI product.

Sources: January and March 2002 EVSMA Workshops, Rich Millard's MS Thesis, MIT graduate course (Integrating the Lean Enterprise) team project

Schedule:

Task	Date (approx)	Who
Initial Development	Oct 02 – Feb 03	J. Mize, D. Nightingale, A. Stanke, C. Hallam, industry team
Alpha version	Feb 03	See above
Alpha testing	Feb – May 03	
Beta version	June 03	See above
Beta testing	June 03 – Jan 04	
Version 1.0	Mar 04	See above

Relation to LAI Research and Products: This provides a tool for key steps in the Enterprise TTL (Focus on/Map the Value Stream).

Relation to LAI Member Efforts: Several LAI members have ongoing enterprise level VSA efforts as a means to improve operational effectiveness beyond the shop floor.

Future Potential/Synergies: This material is aligned with the semester project used in "Integrating the Lean Enterprise" graduate course at MIT.

Appendix B – LAI Product Plans

Title: Enterprise Transformation Toolkit

Lead Person: Tom Shields

Other MIT Personnel: Kirk Bozdogan

LAI Team Members: An IPT will be formed with LAI members

Description: This project will involve the development and integration of existing Lean tools into a multi-program, multi-enterprise toolset. An IPT will be formed with LAI members to determine the form of the product, its architecture, and details of the development process.

Sources: Possible existing tools to be integrated into the toolset could be: the Lean Enterprise Model (LEM), Transition-to-Lean (TTL) roadmaps (Enterprise, Production Operations, Product Development and Supplier Networks), Lean Enterprise Self-Assessment Tool (LESAT), Enterprise Value Stream Mapping and Analysis Guidebook, and Interface LESAT. In addition, tools developed by members will be solicited and incorporated into the toolset.

Schedule:

Task	Date (approx)	Who
IPT leadership identified	Sep 03	MIT Team Members
IPT membership identified	Oct 03	Ent. Toolkit Team Mbrs
Architecture defined	Dec 03	Ent. Toolkit Team Mbrs
Transformation Toolkit Workshop	Jan 04	Ent. Toolkit Team Mbrs
Architecture finalized	Mar 04	Ent. Toolkit Team Mbrs
Alpha version complete	Dec 04	Ent. Toolkit Team Mbrs
Alpha testing complete	Feb 05	Ent. Toolkit Team Mbrs
Beta version complete	Apr 05	Ent. Toolkit Team Mbrs
Beta testing complete	Jul 05	Ent. Toolkit Team Mbrs
Version 1.0 release	Aug 05	Ent. Toolkit Team Mbrs

Relation to LAI Research and Products: This tool will encapsulate accumulated knowledge on enterprise interdependencies into a integrated toolset architecture. As such any LAI developed tool and membership knowledge will be used in its development.

Relation to LAI Member Efforts: If there are member efforts in this area they may be adapted or at least used to help formulate this tool.

Future Potential/Synergies: Data gathered during the toolset testing may provide additional research information in the enterprise transformation research area.

Appendix B – LAI Product Plans

Title: Product Development Value Stream Mapping Manual

Lead Person: Hugh McManus

Other MIT Personnel: Joyce Warmkessel

LAI Team Members: Members to be drawn from the product development area of lifecycle processes.

Description: An implementation manual for applying Value Stream Mapping and Analysis methods to product development processes. Target audience is lean implementers and process owners. The manual will consist of background material on the use of value stream mapping methods to date, followed by a suggested method for using process mapping and/or Dependency Structure Matrices (DSM) techniques to map and improve product development processes. The mapping method will be described, and then a set of heuristics given for finding a future state process. A running example will be given to illustrate the method. The material will be fairly detailed and application oriented; sample forms, and maps, heuristics for choosing the right method to do the maps and for process improvements will all be included.

Sources: Rich Millard's MS Thesis and the member case studies documented in it, member case studies as presented at Product Development, Plenary and Executive workshops, Tyson Browning's PhD thesis, and other published DSM material.

Schedule:

Task	Date (approx)	Who
First Draft	Nov 15, 2002	Hugh McManus
Review	Dec 15, 2002	Team Members
Revisions	Jan 15, 2003	Hugh McManus, Joyce Warmkessel
Final Review	Feb 1, 2003	Research Council
Production and Release	March 1, 2003	LAI Staff

Relation to LAI Research and Products: This product provides information to support other LAI tools such as the Enterprise Transition to Lean Roadmap and the Enterprise Transition Toolkit. It will also be incorporated into the Lean Engineering course module, and related products (seminars). The heuristics in the manual are derived in part from the Lean Enterprise Model.

Relation to LAI Member Efforts: Most LAI members have ongoing product development value stream mapping efforts. The original research was based on these efforts, and the manual is intended as an enabler for them.

Future Potential/Synergies: A workshop based around the Lean Engineering course module, the Lean Engineering Game, and the Product Development Value Stream Mapping Manual.

Appendix B – LAI Product Plans

Title: Supplier Networks Transformation Toolkit

Lead Person: Kirk Bozdogan

Other MIT Personnel: UROP Assistance

LAI Team Members: Members of the LAI Phase III Supplier Networks Team

Description: The integrated implementation toolset for transforming aerospace supplier networks consists of three major components: (a) a self-assessment tool; (b) an implementation roadmap; and (c) a reference guide. The self-assessment tool, linked to the Lean Enterprise Self-Assessment Tool (LESAT), allows enterprises to gauge the degree of progress they have made in developing lean supplier networks. The implementation roadmap, linked to the Transition-to-Lean Roadmap at the enterprise level, provides a structured process for building lean supplier networks. The reference guide provides an exposition of lean supply chain management principles and practices, as well as a glossary of lean terms and instructions for using the integrated toolset.

Sources: The development of the toolset draws upon previous LAI research in the area of supplier networks, as well as other research findings, documented in many theses, publications and unpublished material. This work also incorporates the implementation experience of many aerospace companies over the past decade, documented in presentations in previous Supplier Networks Workshops and team meetings, LAI Plenary Conferences and Executive Board meetings.

Schedule:

Task	Date (Approx.)	Who
Alpha Test*	Oct 30, 2002	Team Members
Beta Version	Nov 15, 2002	Team Members
Beta Test*	Dec 31, 2002	Team Members
Version 1.0	Feb 28, 2003	Team Members
*Applies to the self-assessment tool and the roadmap. The draft reference guide will be issued in Dec 2002 for review and comment only.		

Relation to LAI Research and Products: This toolset is directly linked to the Lean Enterprise Self-Assessment Tool (LESAT) and to the Transition-to-Lean Roadmap at the enterprise level. It provides supporting material for academic programs, short courses, and educational module development initiatives. The toolset also supports LAI research in such areas as lifecycle processes and enterprise transformation.

Relation to LAI Member Efforts: All LAI member enterprises have on-going lean supplier development initiatives, for which this integrated toolset is a resource.

Future Potential/Synergies: Integrated enterprise transformation toolset; future educational module development efforts; publications.

Appendix B – LAI Product Plans

Title: Interface Lean Enterprise Self Assessment Tool (ILESAT)

Lead Person: Tom Shields

Other MIT Personnel: Eric Rebentisch

LAI Team Members: A leadership IPT and a core development team will be formed

Description: A LESAT-like tool addressing the lean acquisition, contract management and other enabling processes involving the interface between government and industry would be developed. This product would be developed collaboratively with our government and industry membership. The LESAT will be used as the starting point. The requirements and customers of the ILESAT will be explored first. A prototype ILESAT will help focus a blitz workshop to develop a pre-alpha version. A core development team derived from the blitz workshop attendees will refine the inputs into an alpha version of the ILESAT. The alpha version will be tested as spiral 1 with the "Lean Now!" projects. As with the development of the LESAT, use of the tool in actual assessment activities will be crucial during beta testing. In spiral 2, testing may be used by the "Lean Now!" projects to evaluate progress. The final product will be released after incorporating lessons learned in real activity assessments during the beta testing.

Sources: DAU Research Fellows are potential sources to study lessons learned from acquisition reform efforts, DAU acquisition experts may help identify the key leverage areas for the tool, practitioners from the LAI consortium provide practical knowledge of processes and assessment areas, and acquisition leaders may identify critical enterprise processes for assessment. Industry experience with LAI tools (such as the LESAT) and their own assessment experiences will be valuable contributions as well.

Schedule:

Task	Date (approx)	Who
List interface processes	Oct 3, 2002	MIT Team Members & DAU
IPT leadership identified	Oct, 2002	EXCOM
Requirements Meeting	Nov, 2002	Senior government & Industry
Develop prototype	Dec 2002	MIT Team Members
Conduct ILESAT blitz meeting	Jan 2003	Government, Industry and MIT
Alpha version complete	Apr 2003	ILESAT Core Team
Alpha testing (Spiral 1) finished	Jun, 2003	ILESAT Core Team
Beta version complete	Aug 2003	ILESAT Core Team
Beta testing (Spiral 2) finished	Dec 2003	ILESAT Core Team
Version 1.0 release	Mar 2004	ILESAT Core Team
Topical workshop on ILESAT	Mar 2004	ILESAT Core Team

Note: All dates reflect completion in order to brief progress/status at LAI Executive Board events

Relation to LAI Research and Products: This tool will be complementary to the LESAT and other LAI enterprise tools. Features of the Supplier Network Self Assessment will also be incorporated. It will also pull in ongoing research on acquisition topics from both DAU fellows and LAI Research Assistants.

Relation to LAI Member Efforts: This tool will support the "Lean Now!" Initiative.

Future Potential/Synergies: Data gathered during the ILESAT testing may provide additional research information in the continuing enterprise research area.

Appendix B – LAI Product Plans

Title: Lean Aerospace Initiative Educational Network

Lead Person: Tom Allen, MIT Co-Chair

Other MIT Personnel: Earll Murman, Alexis Stanke

LAI Team Members: Members of the Educational Network represent colleges and universities who work with LAI member organizations. Dick Lewis is the Executive Board Liaison and George Reynolds is the Stewards Council Liaison.

Description: The objective of the Lean Aerospace Initiative Educational Network (LAI EN) is to facilitate communication and collaboration among its member schools to support the transformation of the greater US aerospace enterprise. This effort is initially focused on the development and deployment of curriculum.

Sources: N/A

Schedule: The EN is established for the duration of the LAI Enterprise Value phase, Sept 2002 – Aug 2005. This period maybe extended.

Task	Date (approx)	Who
LAI EN agreement development	June-Oct 2002	MIT
2002 Fall meeting	Nov. 1-2 2002	All
Establish LAI EN web site	Nov 2002	LAI KD effort, see KD plan
Develop LAI EN web content structure	Nov 02 – Feb 03	A. Stanke and D. Silviano
Agreement approval process	Nov 02 -Mar 03	MIT, all other schools
Meeting preparation	Feb-Mar 03, 04, 05	MIT and other EN schools
Spring meeting (at Plenary Conf.)	Mar 03, 04, 05	All
LAI EN web site population	Mar 03 – ongoing	LAI KD effort, see KD plan

Relation to LAI Research and Products: The LAI EN will provide a channel through which curriculum on various topics can be shared. Curriculum shared through the LAI EN may come from or relate to any number of LAI research projects or products.

Relation to LAI Member Efforts: The LAI EN is in place to assist LAI members in their professional development via continuous education at a university level as well as their new employee hiring.

Future Potential/Synergies: The LAI EN has the potential to become a single source repository for curricula on lean topics.

Appendix B – LAI Product Plans

Title: Short Courses

Lead Person: TBD – depending on course

Other MIT Personnel: Alexis Stanke, and others depending on course

LAI Team Members: TBD – depending on course

Courses: [*]

1. Lean Enterprise Value Short Course

Description and Learning Objectives: Short course designed to education leaders from industry, government, and labor about the concepts of lean with the objective of developing a cadre of champions for lean. The approach is to provide an integrated active learning experience supplemented with modular lectures. This course has been developed. It may need refinement depending on the audience for the short course.

Sources: *Lean Enterprise Value* (Murman, et al)

Schedule:

Task	Date (approx)	Who
Further Development	Apr-May, 2003	LAI staff
Future Offerings	Jun, 03, 04, 05	LAI staff

2. One Day Introduction to Lean Course

Description and Learning Objectives: Understand the concept and impetus of an industry in transition, exposure to the fundamentals of lean, recognize some of the issues with trying to integrate an enterprise, including avoiding "islands of success" and addressing stakeholder values.

Sources: *Lean Enterprise Value* (Murman, et al); LAI short course material

Schedule:

Task	Date (approx)	Who
Training	Oct 8, 2002	T. Shields, M. Vaughn
Refinement based on feedback	Dec 2002	A. Stanke
Training module available	Jan 2003	A. Stanke

3. Lean Now! Subject Matter Expert (SME) Training

Description and Learning Objectives: Provide baseline for Lean Now! SMEs and teams. Illustrate application of lean enterprise concepts in a government process environment. Train Lean Now! SMEs as trainers to perpetuate lean transformations.

Sources: LAI research and curriculum materials, industry training materials

[*] Each course will have a LAI Curriculum Description following the standard format.

Schedule:

Task	Date (approx)	Who
One-day workshop development	Sept-Nov 2002	LAI SMEs
Finalize material	Oct 30-Nov 1 2002	LAI SMEs
Conduct first workshop	Nov 2002	LAI SMEs
Revise workshop materials	Dec 02-Jan 03	LAI SMEs
Conduct further One-day workshops	Jan-Mar 03	LAI SMEs

4. LESAT Facilitators Training

Description and Learning Objectives: Train-the-trainer style workshop for LESAT facilitators. This course will provide familiarity with facilitating a LESAT evaluation and results assessment.

Sources: LESAT

Schedule:

Task	Date (approx)	Who
Material refinement	Jan – Mar 03, 04, 05	J. Mize, C. Hallam
Course offering	Mar 03, 04, 05	J. Mize, C. Hallam, D. Nightingale

5. Enterprise Simulation Game

Description and Learning Objectives: Provide an active learning experience to simulate enterprise integration issues. Understand some fundamental issues of lean implementation in manufacturing, supplier, and product development contexts. The game is supplemented by modular lecture.

Sources: Enterprise Value Short Course experience

Schedule:

Task	Date (approx)	Who
Game development	Sept 02 – June 03	E. Rebentisch, H. McManus
Offering	June 03	E. Rebentisch, H. McManus

Relation to LAI Research and Products: Curriculum developed may come from or relate to any number of LAI research projects or products.

Relation to LAI Member Efforts: The curriculum developed may assist LAI members in their professional development either through special courses or via continuous education at participating LAI EN universities. Materials will be suitable for new employee training.

Appendix B – LAI Product Plans

Title: Lean Enterprise Course Materials and Modules

Lead Person: Depends on the module (see below)

Other MIT Personnel: Alexis Stanke, others depending on module

LAI Team Members: TBD – depending on module

Description: Curriculum modules will emerge from various LAI communities throughout the EV phase. Each module will fit into a modular architecture that covers multiple content areas and learning audiences. The primary content areas are: lifecycle processes, enabling processes, leadership and transformation processes. The initial modules will be developed by MIT based on learning over the last 9 years. It is anticipated that subsequent modules will be developed under the LAI Educational Network. The primary audiences are students of academic institutions, either in pursuit of a degree or professional development.

Modules: [*]

- Integrating the Lean Enterprise Modules (lead: Alexis Stanke)
- Manufacturing Systems Module (lead: Tom Shields)
- Product Development Module (lead: Joyce Warmkessel)
- Supplier Networks Module (lead: Kirk Bozdogan)
- Emergent modules (as yet undefined)

Sources: Research and products developed over the last 9 years of LAI.

Schedule: The modules will be developed on an as needed basis, and the schedule for development will vary with each module depending on the contributors, the source material, the length and format of the module. The schedule for module development will depend not only on need, but also on resource availability and priority. See each module for more details.

Relation to LAI Research and Products: Curriculum developed may come from or relate to any number of LAI research projects or products.

Relation to LAI Member Efforts: The curriculum developed may assist LAI members in their professional development either through special courses or via continuous education at participating LAI EN universities. Materials will be suitable for new employee training.

[*] Each module or set of modules will have a LAI Curriculum Description following the standard format.

Appendix B – LAI Product Plans

Module Title: Integrating the Lean Enterprise Modules

Author(s): D. Nightingale and A. Stanke

Description and Learning Objectives: Modules will be developed which examine key issues involved with the planning, development, and implementation of a lean enterprises. It addresses organizational, technology, process, and information dimensions, and emphasis is placed on the *integration* of these dimensions across the enterprise.

- Explores analysis and implementation tools
- Team project involving enterprise value stream analysis
- Modular lecture style

Modules:

- Lean Fundamentals
- Introduction to Lean Enterprises
- Value and Enterprise Stakeholders
- Lean Manufacturing
- Lean Engineering
- Lean Supply Chain Management
- Enterprise Information Flow and Systems
- Enterprise Tools and Technologies
- People/Organizational Issues in the Lean Enterprise
- Knowledge Management Principles and Practices
- Strategy and Measurement in the Lean Enterprise
- Transition to Lean and Lean Enterprise Self Assessment
- Integrated Lean Enterprise Tool Set
- Enterprise Value Stream Mapping and Analysis
- Transformational Leadership
- Enterprise Integration

Sources: *Lean Enterprise Value* (Murman, et al); LAI research, TTL, LESAT, Enterprise Value Stream Mapping and Analysis Guidebook

Schedule:

Task	Date (approx)	Who
Module Development	Jun – Aug 2003	D. Nightingale and A. Stanke
Offering of modules (not all complete)	Sep-Dec 2003	D. Nightingale
Revisions and completion of modules	Jun-Aug 2004	D. Nightingale and A. Stanke
Integrated offering of modules	Sep-Dec 2004	D. Nightingale
Revisions and updates	Jun-Aug 2005	D. Nightingale and A. Stanke
Offered	Sept-Dec 2005	D. Nightingale

Relation to LAI Research and Products: Some modules draw from LAI research and products.

Identified Application(s): Will be suitable for a graduate level course

Related Material (readings, assignments, etc.): See module syllabus – depends on module.

Appendix B – LAI Product Plans

Module Title: Manufacturing Systems Module

Author(s): T. Shields, S. Gershwin, T. Gutowski

Description and Learning Objectives: Introduction to lean manufacturing and lean concepts applied to manufacturing system design. Specific learning objectives will be refined on course development but will entail lean factory floor understanding and lean manufacturing system design principles and practices.

Modules:
- 1 hour introduction
- 1/2 day exploration

Sources: LAI Manufacturing Systems team research, others literature sources as appropriate.

Schedule:

Task	Date (approx)	Who
Pool sources and storyboard development	Sep-Oct 03	T. Shields
Literature review	Nov 03	T. Shields
Module development	Dec 03 -Jan 04	T. Shields
Available	Feb 04	--

Relation to LAI Research and Products: This module would codify existing knowledge from previous research. It also supports short course development.

Identified Application(s): University courses, short course audiences

Related Material (readings, assignments, etc.): Selected LAI research findings, other published books and excerpts TBD.

Appendix B – LAI Product Plans

Module Title: Product Development Module(s)

Author(s): J. Warmkessel

Description and Learning Objectives: Introduction to lean engineering and lean concepts applied to product development. Specific learning objectives TBD per schedule.

Modules:
- 1 hour introduction
- 1/2 day exploration

Sources: LAI Product Development team research, others sources TBD

Schedule:

Task	Date (approx)	Who
Development	Sept 03 – Feb 04	J. Warmkessel
Available	Mar 04	--

Relation to LAI Research and Products: This module would codify existing knowledge from previous research. It also supports short course development.

Identified Application(s): University courses, short course audiences

Related Material (readings, assignments, etc.): TBD

Appendix B – LAI Product Plans

Module Title: Supplier Network Module(s)

Author(s): K. Bozdogan

Description and Learning Objectives: Introduction to lean supply chain management and lean concepts applied to supplier networks. Specific learning objectives TBD per schedule.

Modules:
- 1 hour introduction
- 1/2 day exploration

Sources: LAI Supplier Networks team research, Supplier Networks Transformation Toolkit and other sources TBD.

Schedule:

Task	Date (approx)	Who
Development	Dec 02 – June 03	K. Bozdogan
Available	July 03	--

Relation to LAI Research and Products: This module would codify existing knowledge from previous research. It also supports short course development.

Identified Application(s): University courses, short course audiences

Related Material (readings, assignments, etc.): TBD

Appendix B – LAI Product Plans

Title: Introduction to Lean Enterprise On-line Course

Author(s): DAU, OSD, MIT, contact at LAI – Alexis Stanke

Description and Learning Objectives: This course was developed collaboratively between LAI and the Defense Acquisition University (DAU). MIT member provided lean educational materials based on previous research during LAI. DAU funded the development of the on-line course through an independent contractor. By completing this course, participants should be prepared to apply the concepts of lean enterprises in their work environments.

Sources: *Lean Enterprise Value* (Murman, et al); *Lean Thinking* (Womack); LAI collective expertise; LAI research (Millard, Ippolito, Salzman, Nuffort, Bernstien, Browning), Product Development Team information waste material, LEM, DAU course material

Schedule:

Task	Date (approx)	Who
Initial Development	May-Sept 2002	MIT, DAU, OSD, Meridian KSI
Beta Testing	Sept-Oct 2002	MIT, DAU, OSD
Public Release	Oct. 24 2002	Meridian KSI

Relation to LAI Research and Products: Much of the material used for this course is directly taken from LAI research, also presents the Lean Enterprise Model (LEM).

Identified Application(s): Pre-requisite for DAU and MIT courses on lean. Appropriate for anyone interested in an introduction to lean at an enterprise level.

Related Material (readings, assignments, etc.): N/A

Appendix B – LAI Product Plans

Title: DAU Program Manager's Capstone Course Module

Author(s): DAU, MIT, contact at LAI – Alexis Stanke

Description and Learning Objectives: In the memorandum of understanding with the Defense Acquisition University (DAU) one of the items was to work collaboratively on incorporating Lean Enterprise perspectives into the DAU Program Manager's Course, PMT 401. Lean module(s) are planned to be developed for DAU PMT 401/402 to support the following learning objectives for the students:

- PMT 401: Identify and apply best business practices to achieve win-win relationships with their industry partners.
- PMT 402: Develop a plan of action to better manage their program, program offices, and professional development.

Sources: *Lean Enterprise Value* (Murman, et al); LAI collective expertise and research

Schedule:

Task	Date (approx)*	Who
Development	Nov 2002 - Jan 2003	MIT, DAU
Pilot Offering	Jun 2003	DAU
Refinement	Jul 2003	MIT, DAU
Offering	TBD, integrated into DAU curriculum refreshment cycle	DAU

Relation to LAI Research and Products: Much of the material used for this course will be taken directly taken from LAI research.

Identified Application(s): DAU PMT 401/402 course sequence, upper level introduction of lean enterprise concepts targeted towards a government audience.

Related Material (readings, assignments, etc.): Unknown

* Plan has not been coordinated with DAU

Appendix B – LAI Product Plans

Title: Web Portals for Knowledge Deployment

Lead Person: Deneen Silviano

Other MIT Personnel: Alexandra Lopez, Alexis Stanke

LAI Team Members: LAI Steward TBD; Internal Communicators from LAI member organizations

Description: : Activities related to this product create web-based opportunities for knowledge exchange among the LAI community and its subsets such as the LAI Educational Network and the Stewards Council. The goal is to catalyze additional knowledge capture and output thereby augmenting the LAI Knowledge Cycle.

Sources: Existing sources of knowledge include the three dynamic databases: LEM; Publications; and Events/Workshops Archives. Other content will be pulled from consortium members, LAI staff and leaders, curriculum products, LAI events, other partners.

Schedule:

Task	Date (approx)	Who
Update LAI Main web to reflect EV Phase	Oct. – Dec 02	D. Silviano; A. Lopez
Introduce Stewards Community Site	Oct. 02	Team Members
Introduce LAI Educational Network Site	Nov. 02	Team Members
Update database (LEM, Publications, Workshops) features and search functionality	Oct. – Dec. 02	D. Silviano; HelpDesk contractors
Develop LAI EN web content structure	Nov 02 – Feb 03	A. Stanke and D. Silviano
Add networking features to enable on-line communities and product development: Document Sharing Discussion Threads Auto Surveys	Dec 02 – Feb 03	D. Silviano; HelpDesk contractors
Continually update web content and add communities (i.e. Lean Now) as required	Jan 03 and ongoing	Team Members

Relation to LAI Research and Products: Web portals provide delivery mechanism for research and other LAI tools and resources.

Relation to LAI Member Efforts: LAI members can pull key knowledge for use in local implementation AND share results back with entire community; enables peer communication

Future Potential/Synergies: Expands LAI community; allows for follow-up networking related to workshops and other learning forums; enables learning.

Appendix B – LAI Product Plans

Title: Lean Enterprise Value Knowledge Kit

Lead Person: Deneen Silviano

Other MIT Personnel: Alexandra Lopez

LAI Team Members: LAI Staff as required for content input

Description: Marketing material to promote lean enterprise value awareness. The kit generally includes a brochure, member list, and other information hand-outs as needed to further the awareness of lean and value creation concepts to aid the transformation of the US aerospace enterprise. The marketing elements may be used alone or as an integrated media kit. Supports LAI "branding." Will also support the "Lean Now!" effort.

Sources: Content pulled from LAI program documentation including Concept of Operations as well as from LAI members.

Schedule: (Annual)

Each Year	Date (approx)	Who
Update brochure and members lists	Oct. 02, 03, 04	Deneen Silviano
Distribute Kits to LAI Members	Oct – Dec 02, 03, 04	Team Members
Update and distribute brochure and members lists	Feb 03, 04, 05	Deneen Silviano
Distribute Kits to LAI Members	March – June 03, 04, 05	Team Members

Relation to LAI Research and Products: Provides overview of research and products to Lai members as well as to media and general public.

Relation to LAI Member Efforts: LAI members use information kits for local awareness and education purposes.

Future Potential/Synergies: Opportunity to promote transformation successes; acknowledge results of LAI.

Appendix B – LAI Product Plans

Title: The Workbook for Change

Lead Person: Deneen Silviano

Other MIT Personnel: Alexandra Lopez, Tom Shields

LAI Team Members: Previous KD Team members from Industry and Government

Description: The Lean Aerospace Initiative (LAI) Workbook for Change is an activity-based guide to lean implementation closely integrated with the Production Operations Transition To Lean (POTTL) roadmap for transitioning an existing operation to one that fully implements a lean manufacturing philosophy and lean best practices. Where as the POTTL roadmap defines a systematic implementation process, the Workbook suggests a "how to" organizational process for bringing about change as it relates to an organization's unique situation, culture, legacy policies, and systems. The Workbook is a resource for change agents, leaders from all levels of the workplace who are empowered to bring about meaningful change in a systematic and sustainable fashion. The Workbook is also an enabler of team-based learning, uniting various people from different backgrounds and functions around a common vision and goal.

Sources: Themes and content pulled from Phase III Knowledge Deployment Team Efforts including the Lean Learning Workshop series; the POTTL roadmap.

Schedule:

Task	Date (approx)	Who
Release Workbook Version 1.0	Jan 03	Deneen Silviano
Promote Awareness and use of Workbook	Jan – Mar 03	Deneen Silviano; Alexandra Lopez
Conduct Workbook User Group at Plenary	Mar 03	Team Members
On Site Workbook User Group at Associate Member Sites	April – June 03	Team Members

Relation to LAI Research and Products: Provides process by which to access and apply LAI research and products.

Relation to LAI Member Efforts: Enables lean transformation planning and implementation.

Future Potential/Synergies: Expands understanding of lean principles and practices and allows for users to take next steps in enterprise transformation

Appendix B – LAI Product Plans

Title: LAI Product Awareness Campaigns

Lead Person: Deneen Silviano

Other MIT Personnel: Alexandra Lopez

LAI Team Members: LAI Staff from product(s) being promoted.

Description: Awareness campaigns are tailored outreach efforts to promote awareness and subsequent use of a particular LAI product such as ILESAT. This may include new web pages; direct mail; broadcast email; news releases, print material; participation in conferences with exhibits. Each campaign will be designed to meet the needs and timeline a specific product.

Sources: Content and activities pulled from LAI product teams.

Schedule: (Annual)

Each Year	Date (approx)	Who
Identify target audiences and opportunities to reach them	To coincide with product timelines previously identified	Team Members
Prepare news releases, web and email announcements	To coincide with product timelines previously identified	Team Members
Prepare and distribute additional support literature	To coincide with product timelines previously identified	Team Members
Participate in conferences and/or exhibits	TBD – depends on conference schedules	Team Members

Relation to LAI Research and Products: Provides means to further market LAI research and products to larger community – enables the Knowledge Cycle

Relation to LAI Member Efforts: Opportunity to educate LAI members and provide them with access to key tools and resources for local efforts.

Future Potential/Synergies: Increases awareness and product usage.

Appendix B – LAI Product Plans

Title: Annual Plenary Conference (Approx March 03 04 05)

Lead Person: Deneen Silviano

Other MIT Personnel: Alexandra Lopez

LAI Team Members: LAI Staff as required for program content; Liaison from EXCOM

Description: Annual public forum bringing together multiple LAI, aerospace, and educational stakeholders for the purpose of knowledge exchange, experiential learning and networking where appropriate. Provides platform for keynotes from leaders and launch of new products and resources.

Sources: Key themes and topical threads guided by LAI executive leadership and designed to complement current goals. Program sources partially identified through "Call for Papers and Presentations" circulated throughout LAI community and beyond to larger aerospace and educational communities. The program is also populated with cases, application of knowledge, and new knowledge generated by LAI members.

Schedule:

Task each conf year	Date (approx)	Who
Plenary location/date/fees announced	Sept. – Oct (02, 03, 04)	Deneen Silviano; UTC
Develop, populate, and promote agenda	Oct.– Nov. (02, 03, 04)	Team Members
Conference Marketing and Registration	Jan – March (03, 04, 05)	Team Members; UTC
Conference Held	March (03, 04, 05)	Team Members; UTC

Relation to LAI Research and Products: Provides delivery mechanism for research, tools, and resources.

Relation to LAI Member Efforts: LAI members can pull key knowledge out of this conference for use in local implementation as well as use forum as means of sharing lean transformation results back with entire community.

Future Potential/Synergies: Expands LAI community; enhances learning; deepens understanding of relationships, resources, tools, and products.

Appendix B – LAI Product Plans

Title: Executive Board Forums (Annual Roundtable and Business Meetings)

Lead Person: Deneen Silviano

Other MIT Personnel: Alexandra Lopez

LAI Team Members: Terry Bryan; EB Co-Chairs

Description: Annual meetings bringing together the LAI Executive Board members to advance consortium goals and vision, share current initiatives, and to identify implementation and leadership opportunities as well as broaden understanding of stakeholder needs.

Sources: Key themes and topical threads guided by LAI Executive Board Co-Chairs. Meeting content derived from suggestions through Executive Board and through current work of LAI staff, students, and other collaborators.

Schedule: (Annual)

Task each conf year	Date (approx)	Who
Develop, populate, and promote EB Roundtable Agenda	Sept. – Oct 02, 03, 04	Team Members
Registration for EB Roundtable	Oct.– Nov. 02, 03, 04	UTC, Deneen Silviano
Host EB Roundtable	Dec 02, 03, 04	Team Members; UTC
Announce Spring EB Business Meeting location, date, venue	Dec 02, 03, 04	Deneen Silviano; Alexandra Lopez; UTC
Develop, populate, and promote EB Business Meeting Agenda	March-April 03, 04, 05	Team Members
Registration for EB Business Meeting	April 03, 04, 05	UTC, Deneen Silviano
Host EB Business Meeting	May 03, 04, 05	Team Member; UTC
Announce late Fall EB Roundtable location, date, venue	May 03, 04, 05	Deneen Silviano; Alexandra Lopez; UTC

Relation to LAI Research and Products: Provides delivery mechanism and feedback channel for research, tools, and resources.

Relation to LAI Member Efforts: Opportunity to share and better understand challenges and successes with lean transformation efforts; supports leadership role.

Future Potential/Synergies: Helps advance key actions; promotes understanding of resources, tools, and products.

Appendix B – LAI Product Plans

Title: Topical Workshops

Lead Person: Deneen Silviano

Other MIT Personnel: Alexandra Lopez

LAI Team Members: LAI Staff as required for program content; Steward Representative

Description: Specialized workshops coordinated with product/project teams advancing overarching consortium goals. These forums will bring together multiple LAI, aerospace, and educational stakeholders for the purpose of integrating knowledge and to support experiential learning and networking where appropriate.

Sources: Themes and content pulled from project description plans and related research and products previously identified in LAI program documentation for the Enterprise Value Phase.

Schedule: (Annual)

Task each conf year	Date (approx)	Who
Announce event, location, venue, date, fees	Dec 02, 03, 04 June 02, 03, 04	Team Members
Develop, populate, and promote agenda	Jan - May 03, 04, 05 June- Sept. 03, 04, 05	Team Members
Workshop Marketing and Registration	May 03, 04, 05 Oct 03, 04, 05	Deneen Silviano; Alexandra Lopez
Workshop Held	June 03, 04, 05 Nov. 03, 04, 05	Team Members

Relation to LAI Research and Products: Provides delivery mechanism for research, tools, and resources.

Relation to LAI Member Efforts: LAI members can pull key knowledge from these forums and sharing lean transformation results back with entire community.

Future Potential/Synergies: Expands LAI community; enhances learning; deepens understanding of relationships, resources, tools, and products.