

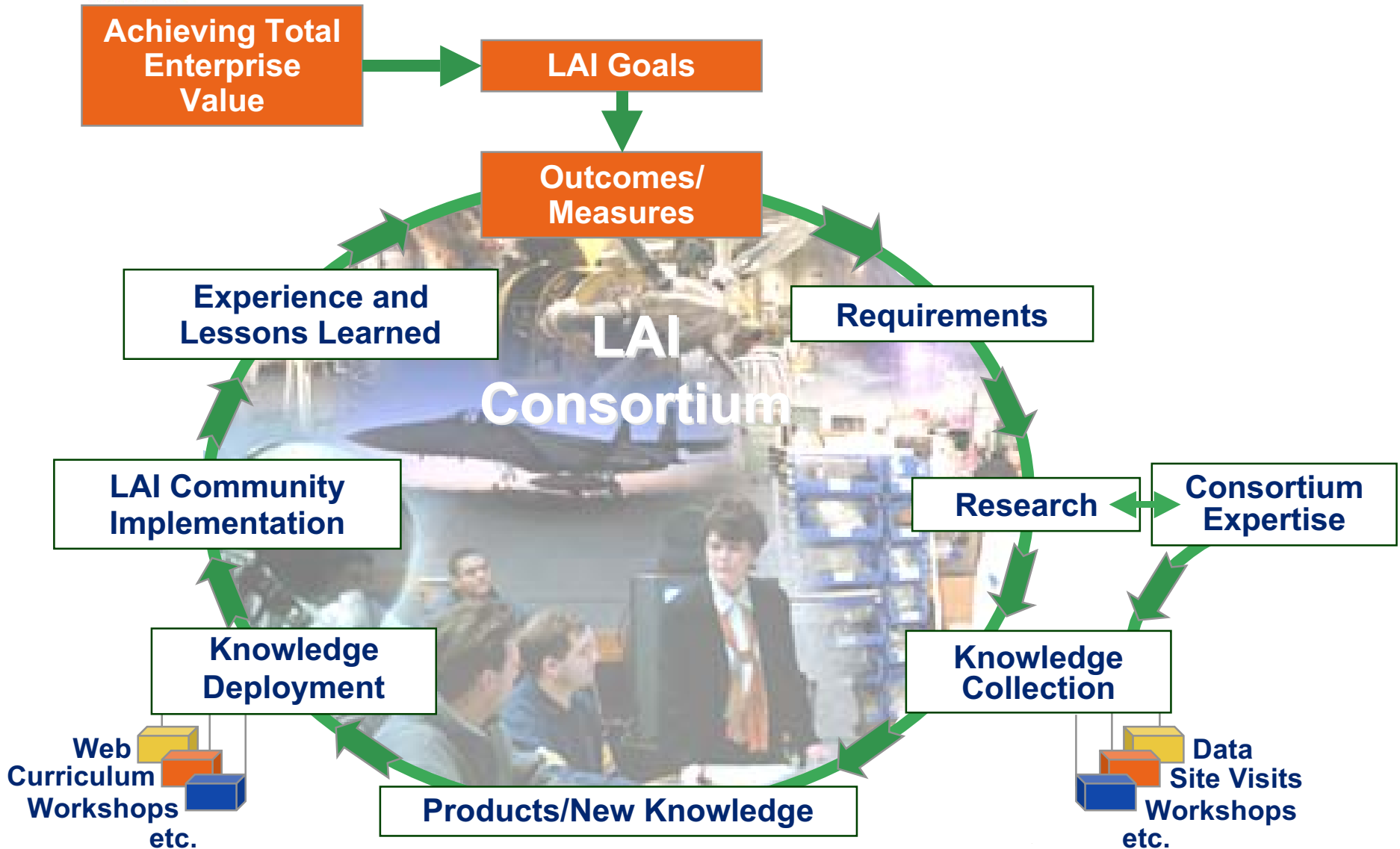


LAI Products

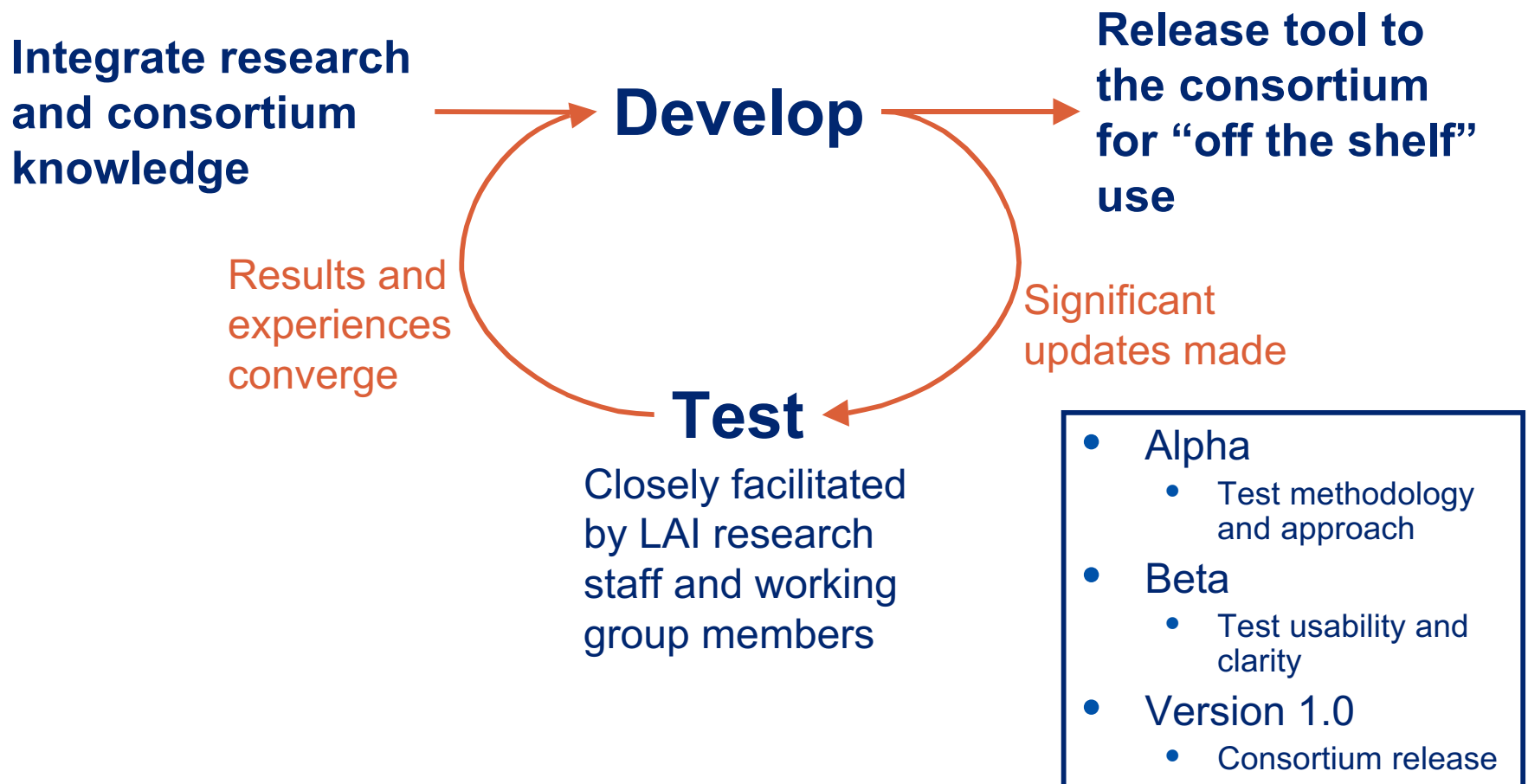
October 8, 2003



LAI Knowledge Cycle

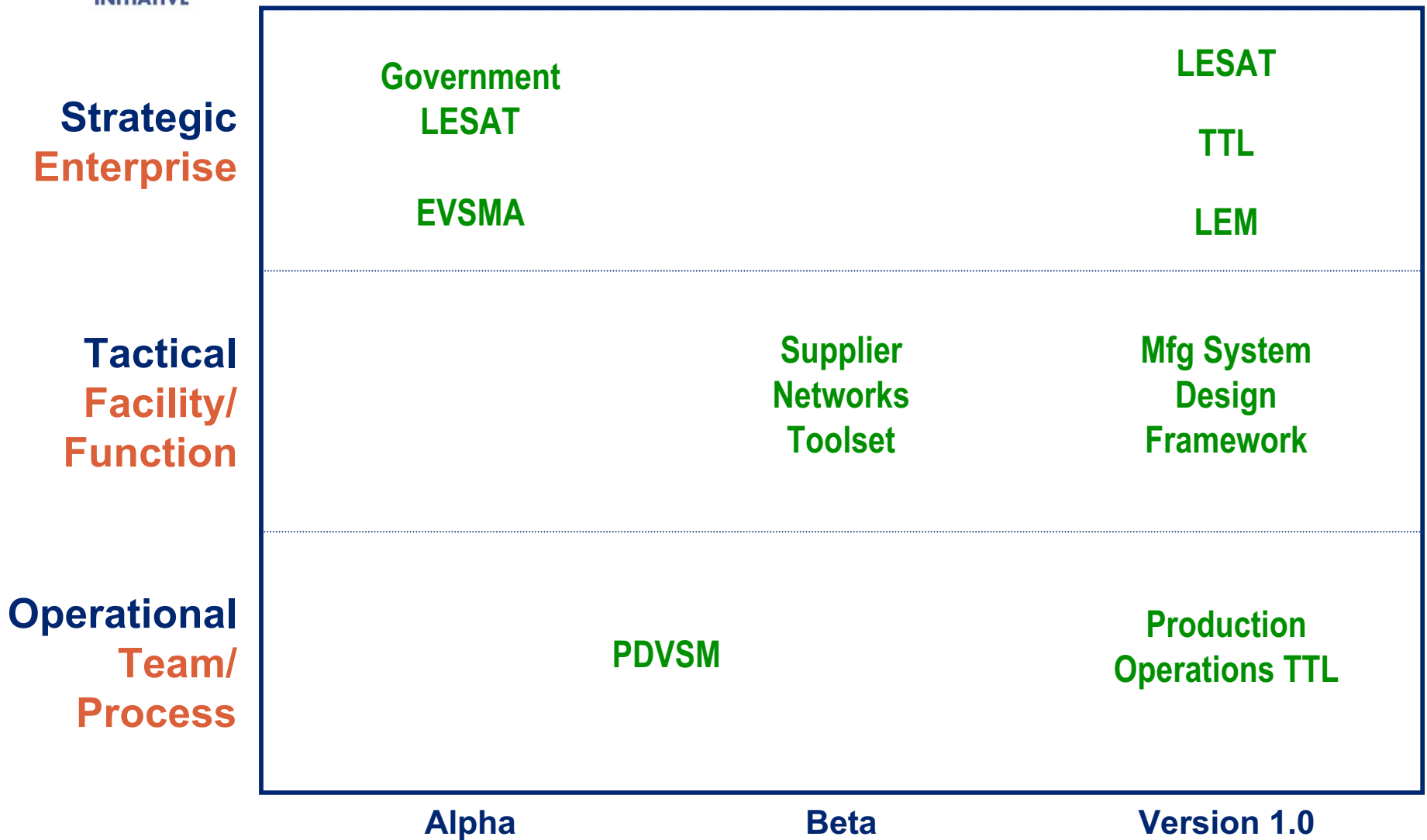


Tool Development Process





LAI Tool Context





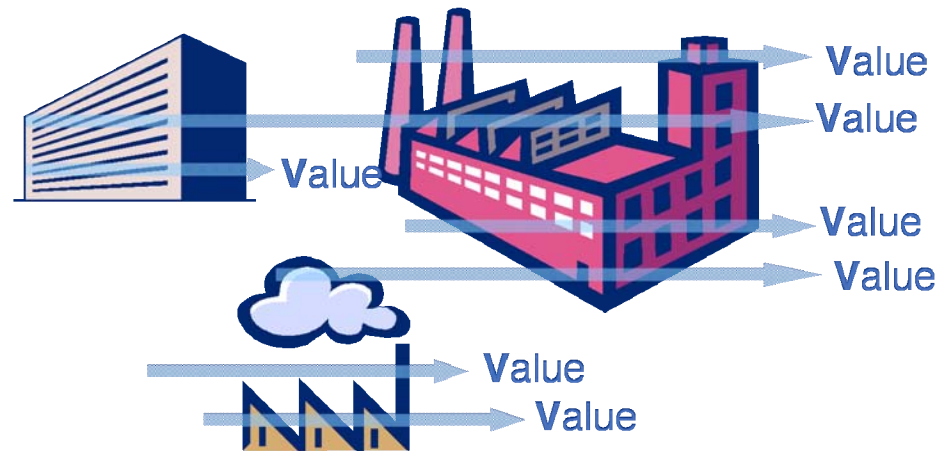
EV SMA



Motivation

- EVSMA is a tool developed by LAI to expand the successful technique of value stream analysis and mapping to enterprise application
- The tool provides a coherent method for analyzing and improving enterprise performance, integrating
 - Strategic objectives
 - Stakeholder interests
 - Process performance
- It also supports for the LAI enterprise Transition-To-Lean (TTL) Roadmap

Enterprise Value Stream Is...



A portrayal of the relationships of the enterprise with its external environment and the general ordering and integration of high-level internal enterprise processes



Product VSM and EVSMA

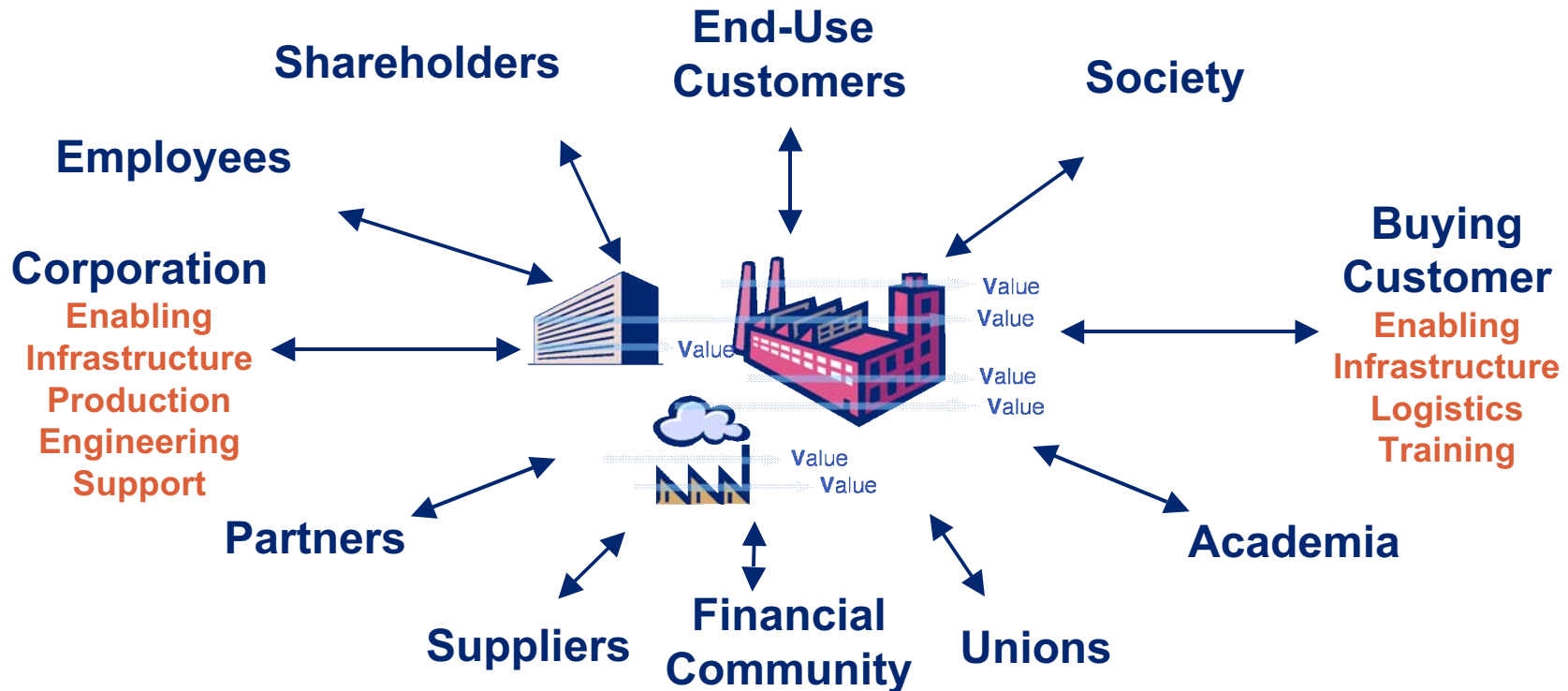
Traditional Value Stream Mapping

- Focuses on delivering value to the customer
- Addresses product lifecycle processes
- Addresses one program or line of business

Enterprise Value Stream Mapping and Analysis

- Focuses on delivering value to all stakeholders
- Addresses lifecycle, enabling, and leadership processes
- Addresses multiple organizations, multiple programs, or business units

Integrating Processes and the Enterprise Value Proposition



Processes And Value Propositions Of the Total Aerospace Enterprise Are Highly Interrelated

Enterprise Approach Is Key to Optimize Speed, Quality & Efficiency Of Delivery Of Value



Goal and Resources Required

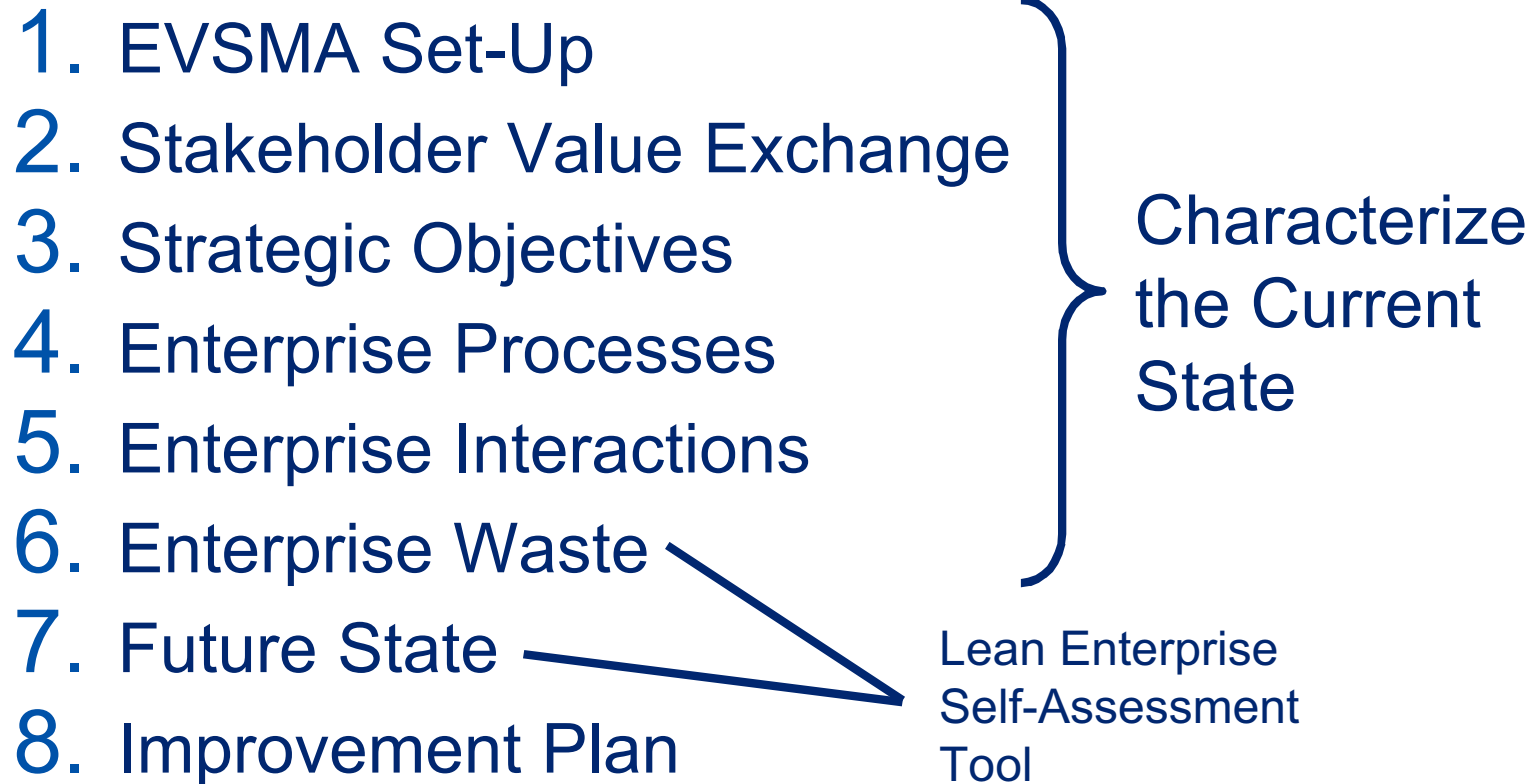
- Create a vision of a lean enterprise two to three years in the future which optimizes the enterprise value stream
- Executed by a small team including:
 - Enterprise leader as champion or sponsor
 - Team lead, one of the enterprise leader's direct reports
 - Facilitator, with background in lean and EVSMA method
 - Enterprise process owners on an ad hoc basis as needed to provide information

"EVSMA provided our management team with several insights about how our enterprise actually functions. It also provided a way to identify improvement activities that support our total enterprise strategic objectives and optimize functional integration in the value stream."

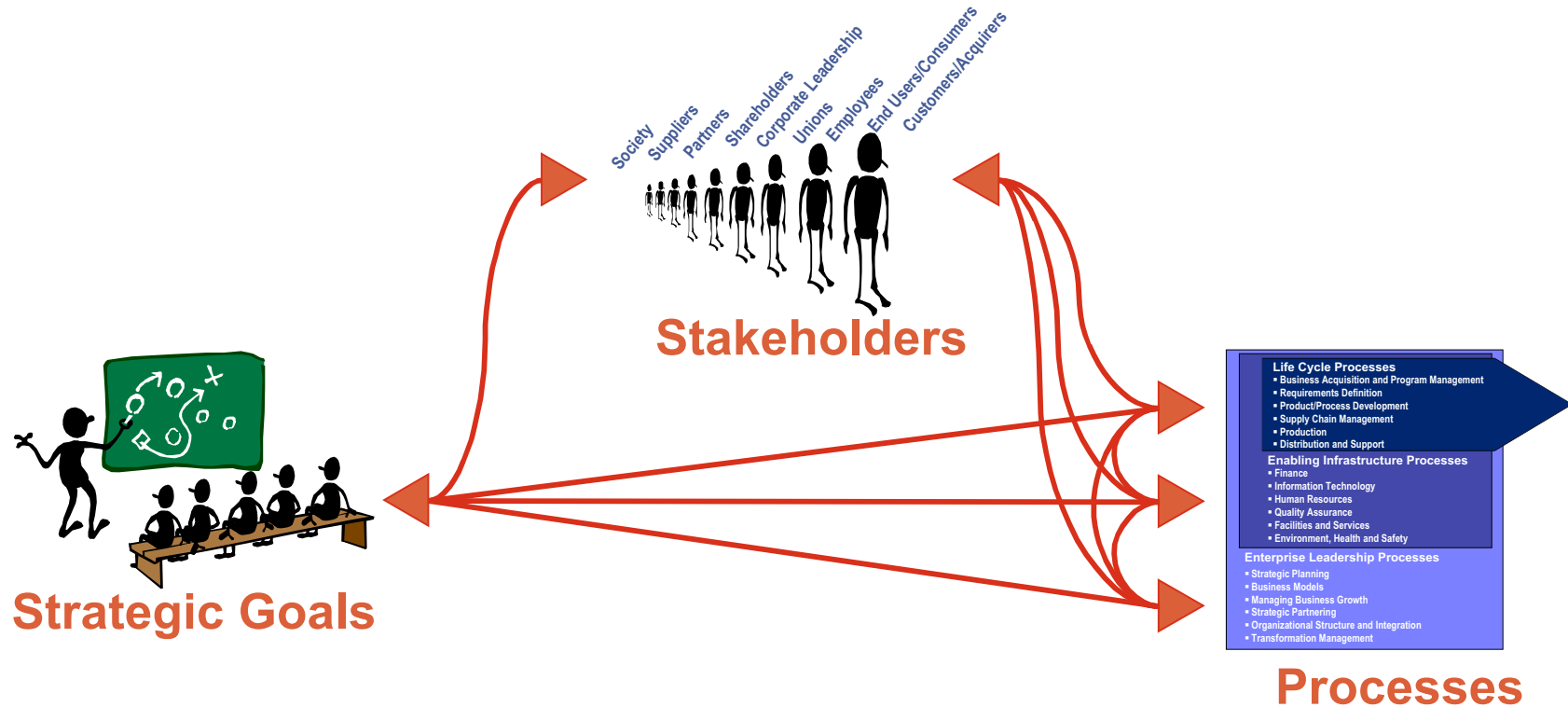
- Site Director



EV SMA Methodology



Enterprise Interactions



**Systematically and explicitly
explore the enterprise interactions**



Benefits of EVSMA

- Provides a cohesive method for diagnosing an enterprise in order to expose sources of waste and to identify barriers to value delivery
- Identifies process interfaces, disconnects and delays
- Identifies and prioritizes improvement opportunities that will benefit the entire enterprise



LESAT

Government LESAT



What Is LESAT?

- A tool for self-assessing the present state of “leanness” of an enterprise and its readiness to change
- Comprised of:
 - Capability maturity model for enterprise leadership, life cycle and enabling processes
 - Supporting materials: (Facilitator’s Guide, Glossary, etc.)





Capability Maturity Levels

Level 1

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

Level 2

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

Level 3

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

Level 4

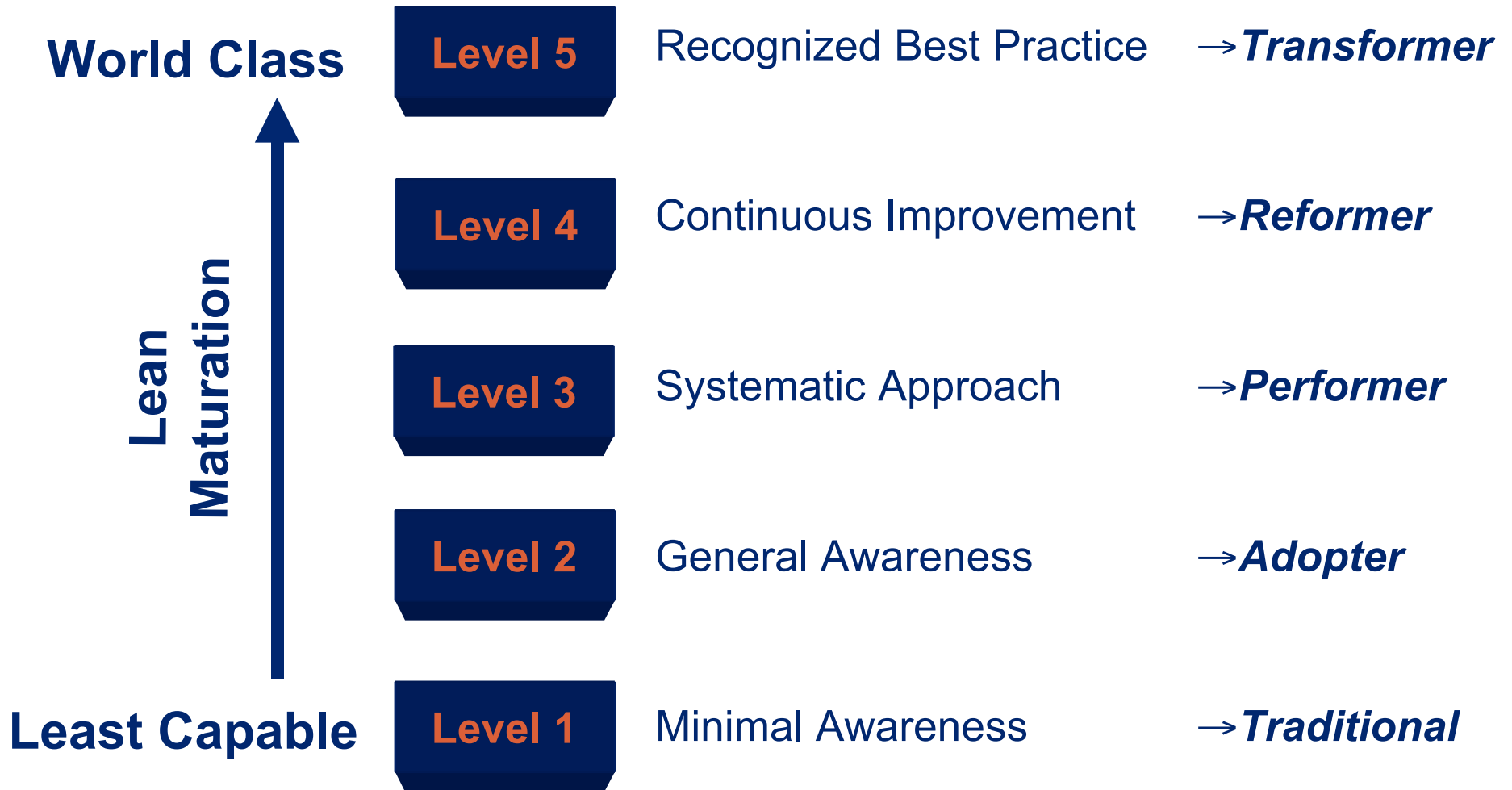
On-going refinement and continuous improvement across the enterprise; improvement gains are sustained.

Level 5

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



Maturity Level Definitions Simplified





LESAT: Where We Stand

- Majority of LAI industry members are using or are planning to use LESAT
- Government LESAT developed and currently in Alpha testing
- Exploratory work to address enterprise interfaces using LESAT and Government LESAT in a program context
- LESAT is creating a common framework for “Enterprise” thinking
- LESAT is providing a common language for Lean permeation throughout the enterprise
- Linking LESAT to business strategy prioritizes key areas for lean focus



LEM



LEM Overarching Practices Address People and Process

People Practices

- Promote lean leadership at all levels
- Relationships based on mutual trust and commitment
- Make decisions at lowest appropriate level
- Optimize capability and utilization of people
- Continuous focus on the customer
- Nurture a learning environment

Process Practices

- Assure seamless information flow
- Implement integrated product and process development (IPPD)
- Ensure process capability and maturation
- Maintain challenges of existing processes
- Identify and optimize enterprise flow
- Maintain stability in changing environment

Lean Enterprise Model



- Internet accessed database available at <http://web.mit.edu/lean> under “Products”
- Contains over 500 links to data sheets from LAI research and external sources
- Categorized by practice and metric



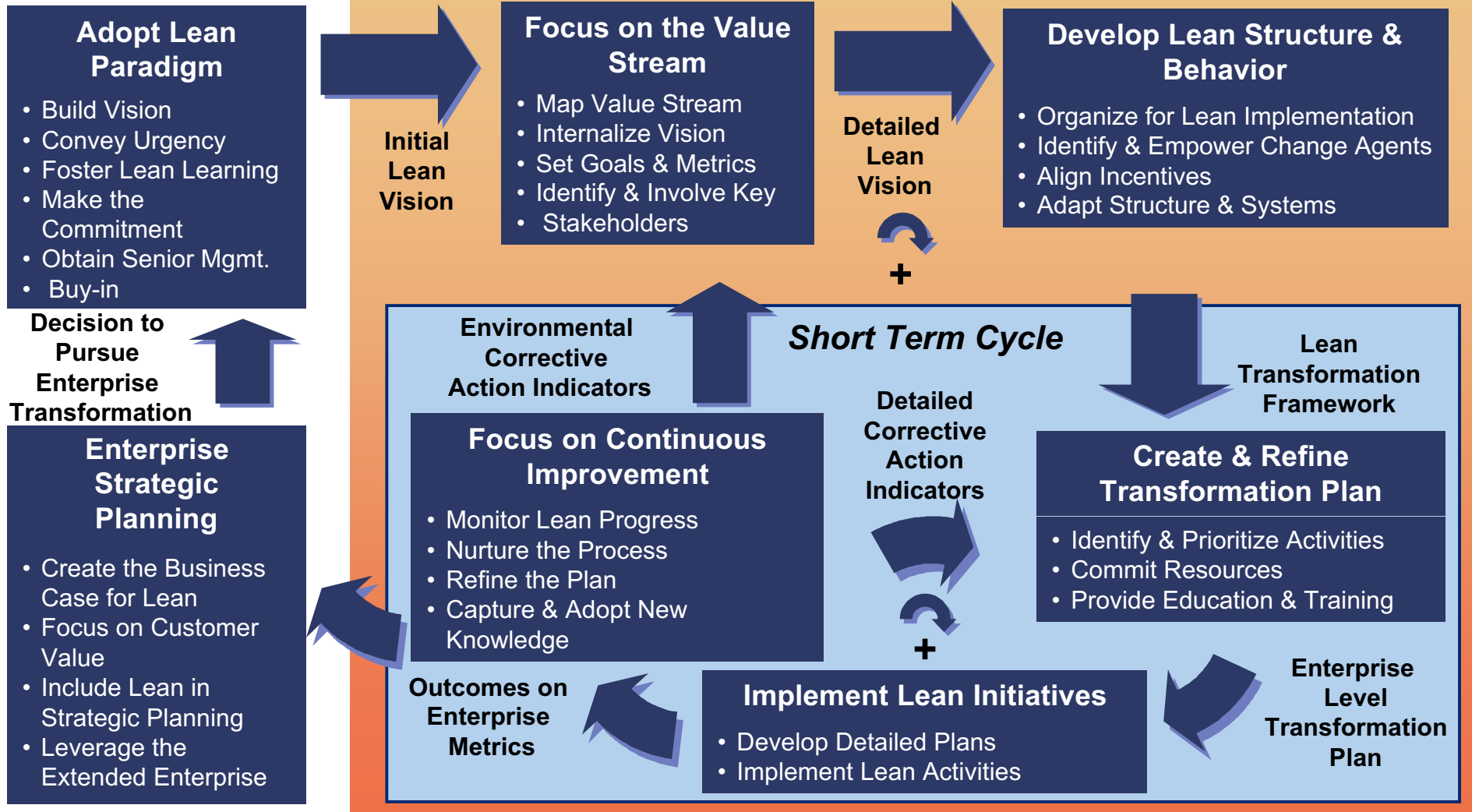
Transition-To-Lean



Transition-To-Lean Roadmap

Entry/Re-entry Cycle

Long Term Cycle





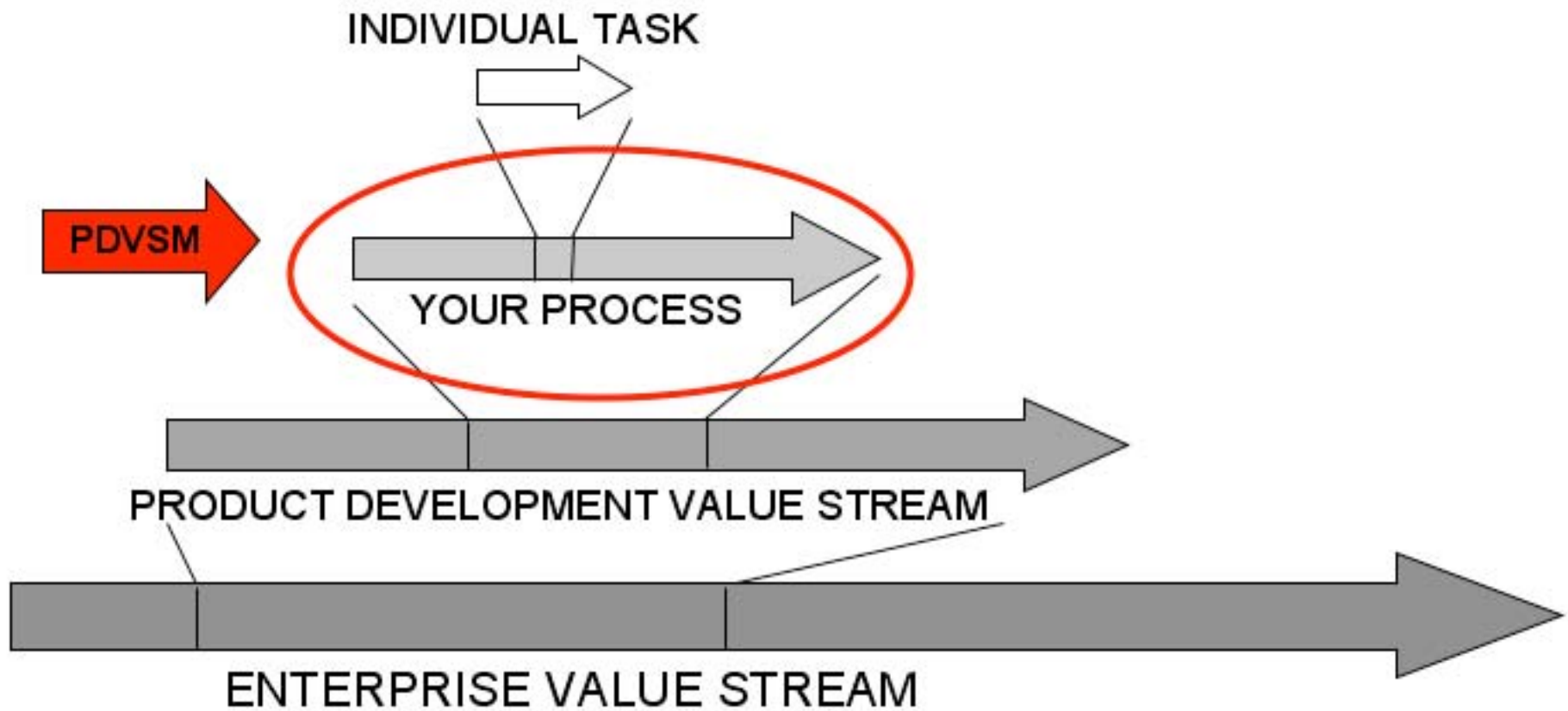
Product Development



Practical Guide to PD Value Stream Mapping

- A “Rother and Shook” for Product Development
 - More details necessary for the complexities of PD
 - Details and background for lean experts
 - Practical advice for in-the-field use
- Repository of LAI knowledge
 - Four+ years of PD team experience
 - References and attributions
 - Not an academic product
- Member Best Practices
 - Suggested “cookbook”
 - Options and resources
 - Running examples and other aids

Focus: Door to Door PD Process





PDVSM Manual Outline

1. Introduction: Lean Engineering Process Improvement
2. Getting Started
3. Mapping the Current State Value Stream
4. Identifying and Eliminating Waste
5. Improving the Process
6. Striving for Perfection

Also Includes:

- On-going example
- Metrics and other aids
- Appendices
 - A. Methods and Effectiveness
 - B. Sample Data Collection Form
 - C. Second Example
 - D. PDVSM Checklist
- Notes and References



Supplier Networks

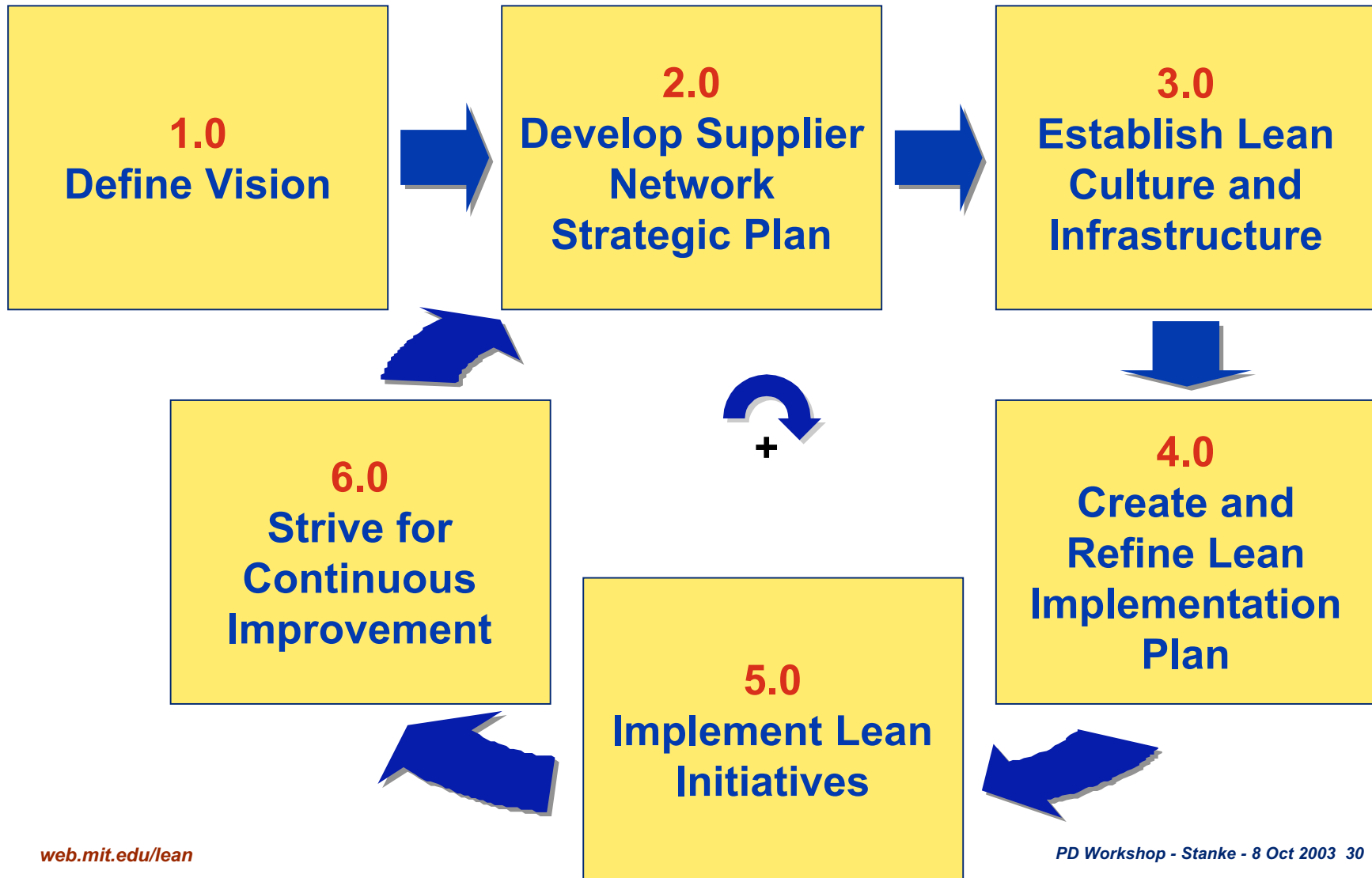


Supplier Networks Toolset

- Transformation Roadmap
 - “How-to” implementation guide defining major building blocks & specific action steps -- sequences & relationships
 - Maps out process template -- inputs, outputs, barriers, enablers, metrics, tools & methods, “how-to” discussions, and references
- Supplier Management Self-Assessment Tool
 - EXCEL-based self-scoring tool for gauging enterprise’s progress in evolving lean supply chain management practices
 - Links up with Lean Enterprise Self-Assessment Tool (LESAT)
 - Based on capability maturity model (5 capability levels)
 - Defines (8) overarching and (30) enabling practices
 - Provides diagnostic questions, lean indicators, and metrics
- Reference Guide
 - Basics of Lean and Six Sigma
 - Key concepts and principles for building lean supplier networks
 - Glossary



Transformation Roadmap: Major Building Blocks





Assessment Tool: Defines a Set of Major Lean Supply Chain Management Practices

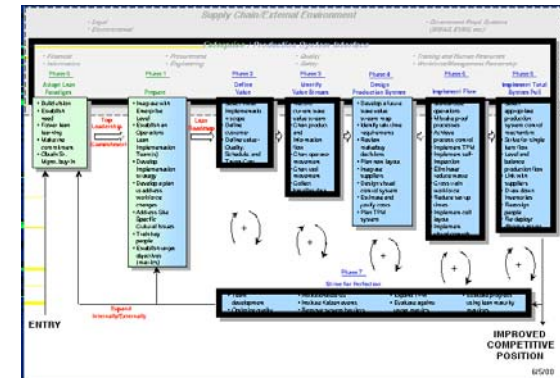
1. Design supplier network architecture
2. Develop complementary supplier capabilities
3. Create flow and pull throughout supplier network
4. Establish cooperative relationships and effective coordination mechanisms
5. Maximize flexibility and responsiveness
6. Pursue supplier-integrated product and process development
7. Integrate knowledge and foster innovation
8. Demonstrate continuous improvement



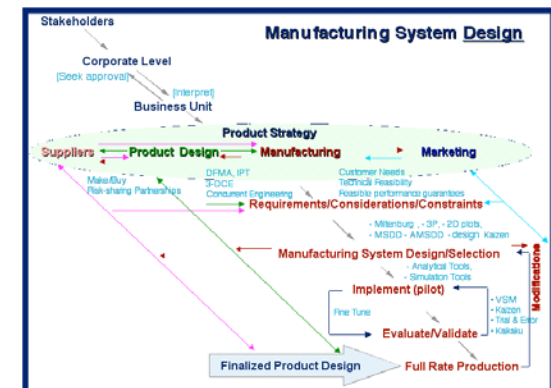
Manufacturing Systems

Manufacturing Systems Tools

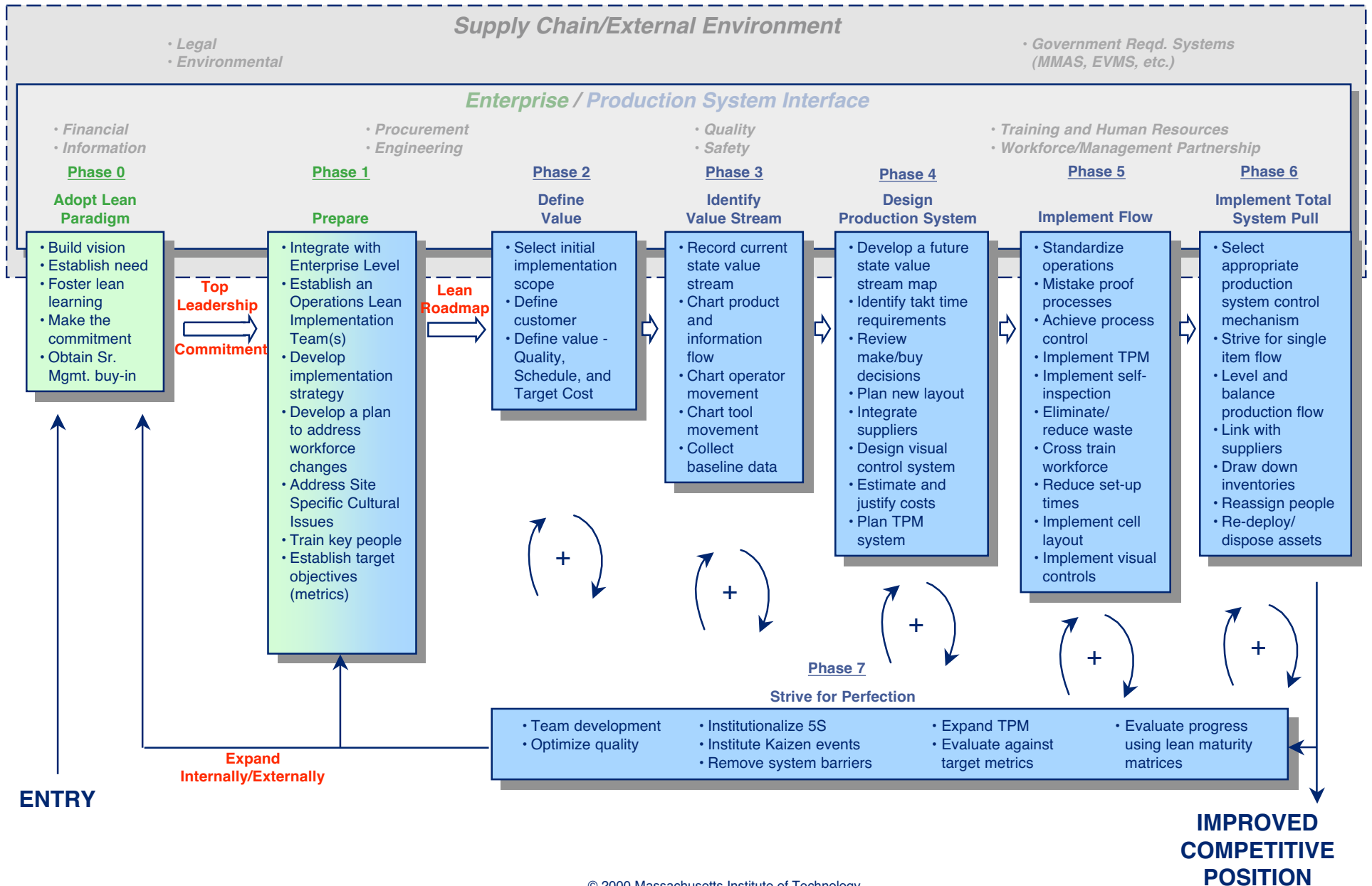
- Production Operations Transition-To-Lean Roadmap
 - Supports both a grass root and top-down transformation
 - Links with the Enterprise Transition-to-Lean
 - Manual explaining each phase part of tool



- Manufacturing System Design Framework
 - Addresses the holistic integration between strategy and functions
 - Addresses both the infrastructure and structure of manufacturing system design
 - Provides framework for manufacturing system design
 - Manual explaining framework and design tools part of tool



Production Operations Transition-To-Lean Roadmap



Manufacturing System Design

