

LESAT Facilitator's Workshop

Lean Aerospace Initiative



TTL Roadmap Overview
March 28, 2002

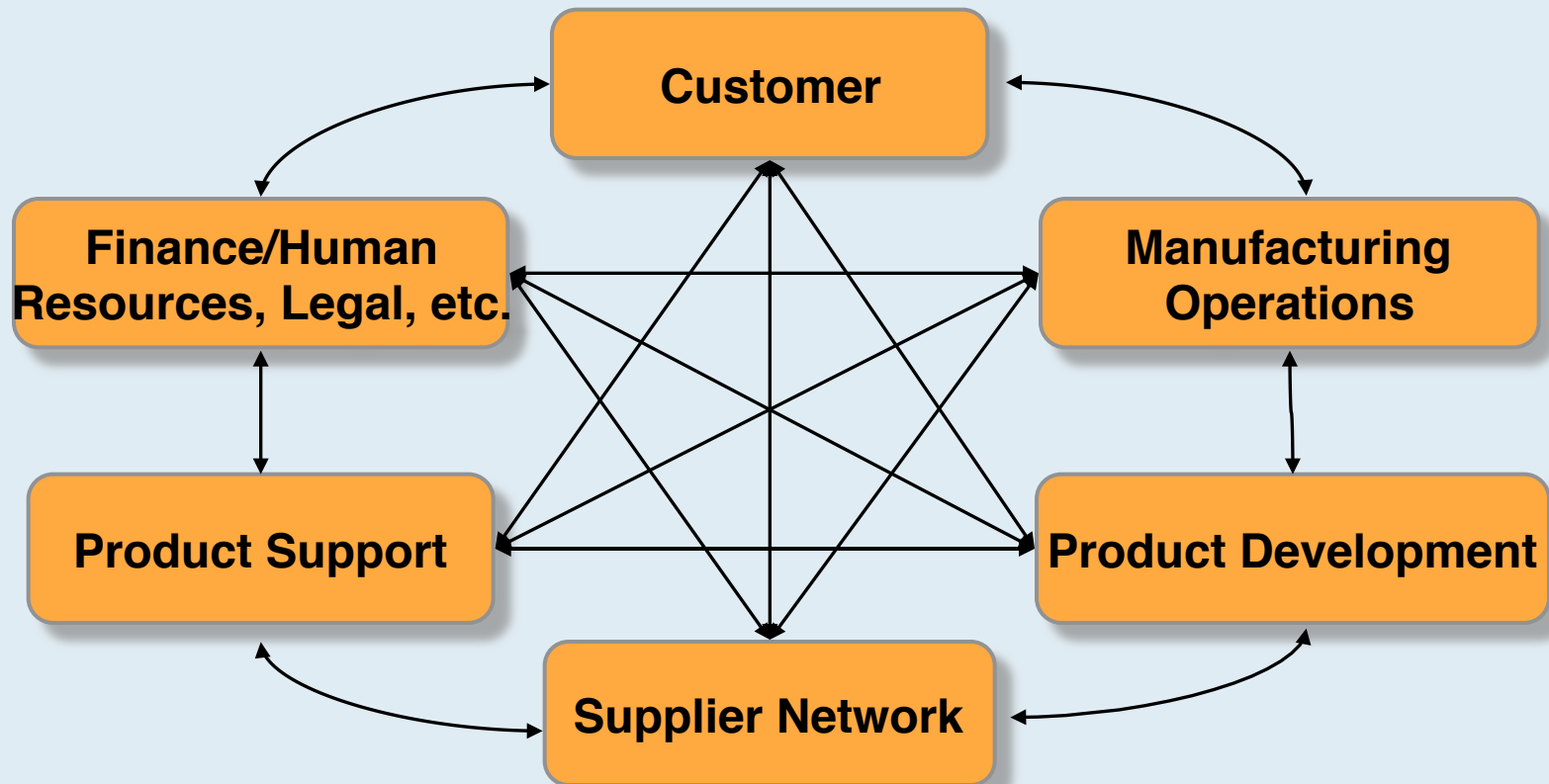
Presented By:
Joe Mize

Massachusetts Institute of Technology

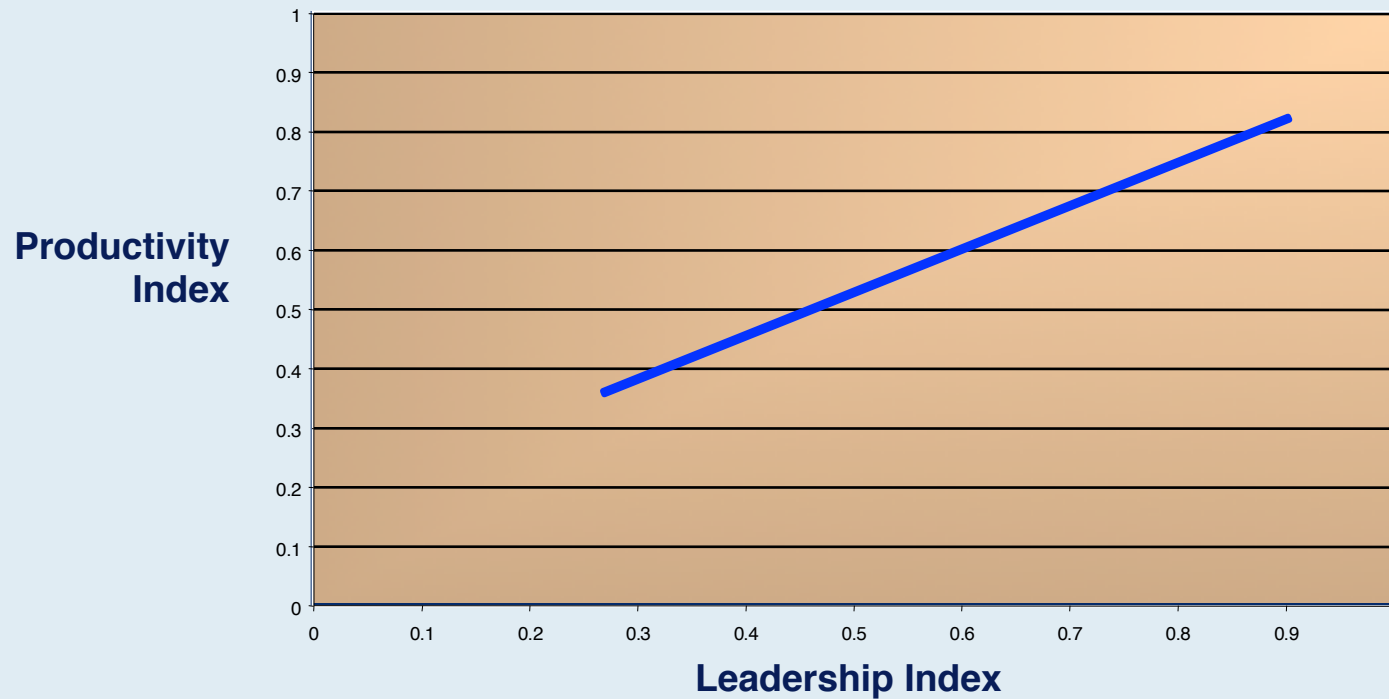
Research Sponsored By LAI

- **Why do many lean transformation activities fail?**
- **What are the key success factors in implementing lean enterprise wide?**
- **How can we better assure that lean will impact bottom line results?**
- **Are there certain activities that are ideally performed before others?**
- **What is the role of senior leadership in assuring success?**

Issues Motivated Development of Enterprise
Transition to Lean Roadmap

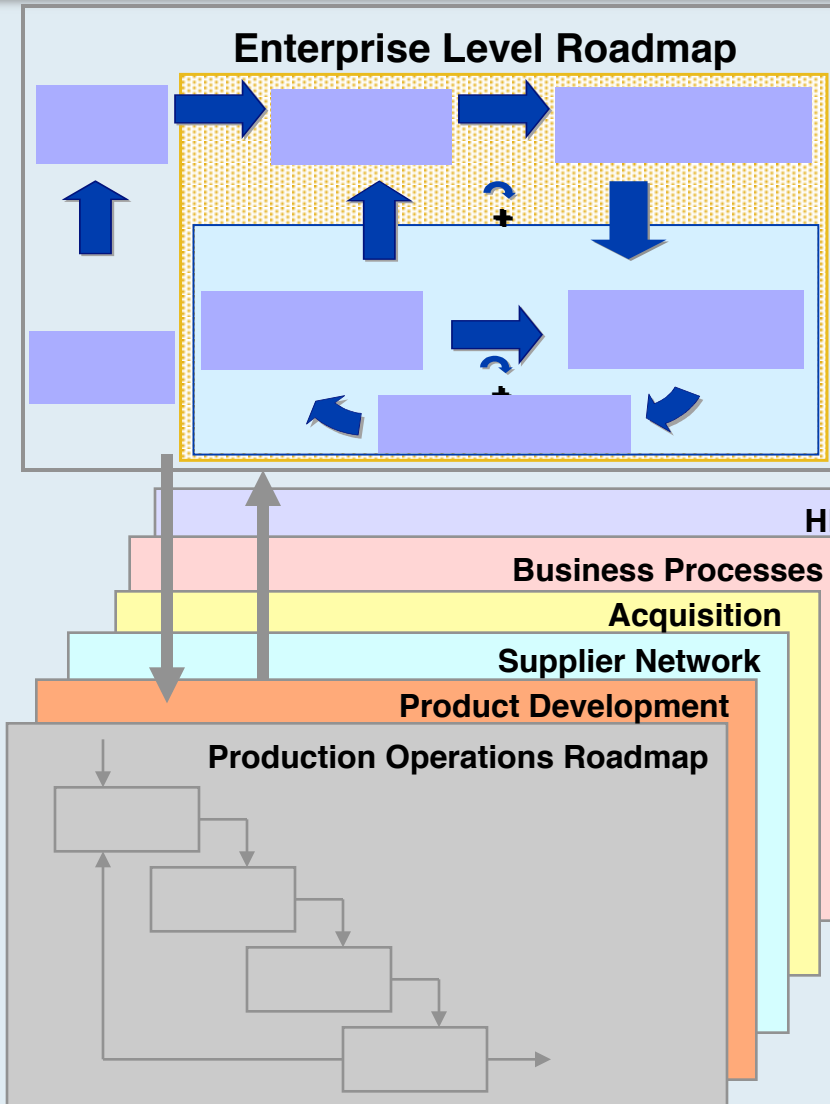


LAI Aerospace Organizations



Source: D. Tonaszuck, MIT Master's Thesis, January 2000

Transition to Lean Module Concept

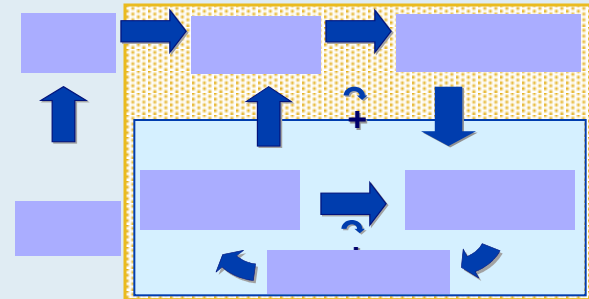


- Priorities
- Sequence
- Key Enablers
- “How -To’ s”
- Change Mgmt. Principles

Transition to Lean Plan

What is the Enterprise Level Transition-To-Lean Model ?

Begins with a description of a Top Level Flow of primary activities referred to as “The Roadmap”

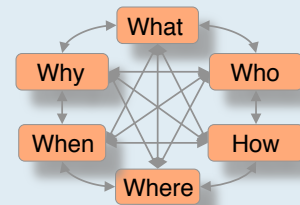


Focus on the Value Stream

- Map Value Stream
- Internalize Vision
- Set Goals & Metrics
- Identify & Involve Key Stakeholders

Then, provides descriptions of key tasks required within each primary activity

Finally, leads discussion of issues, enablers, barriers, case studies & reference material relevant to each task in a common structured framework



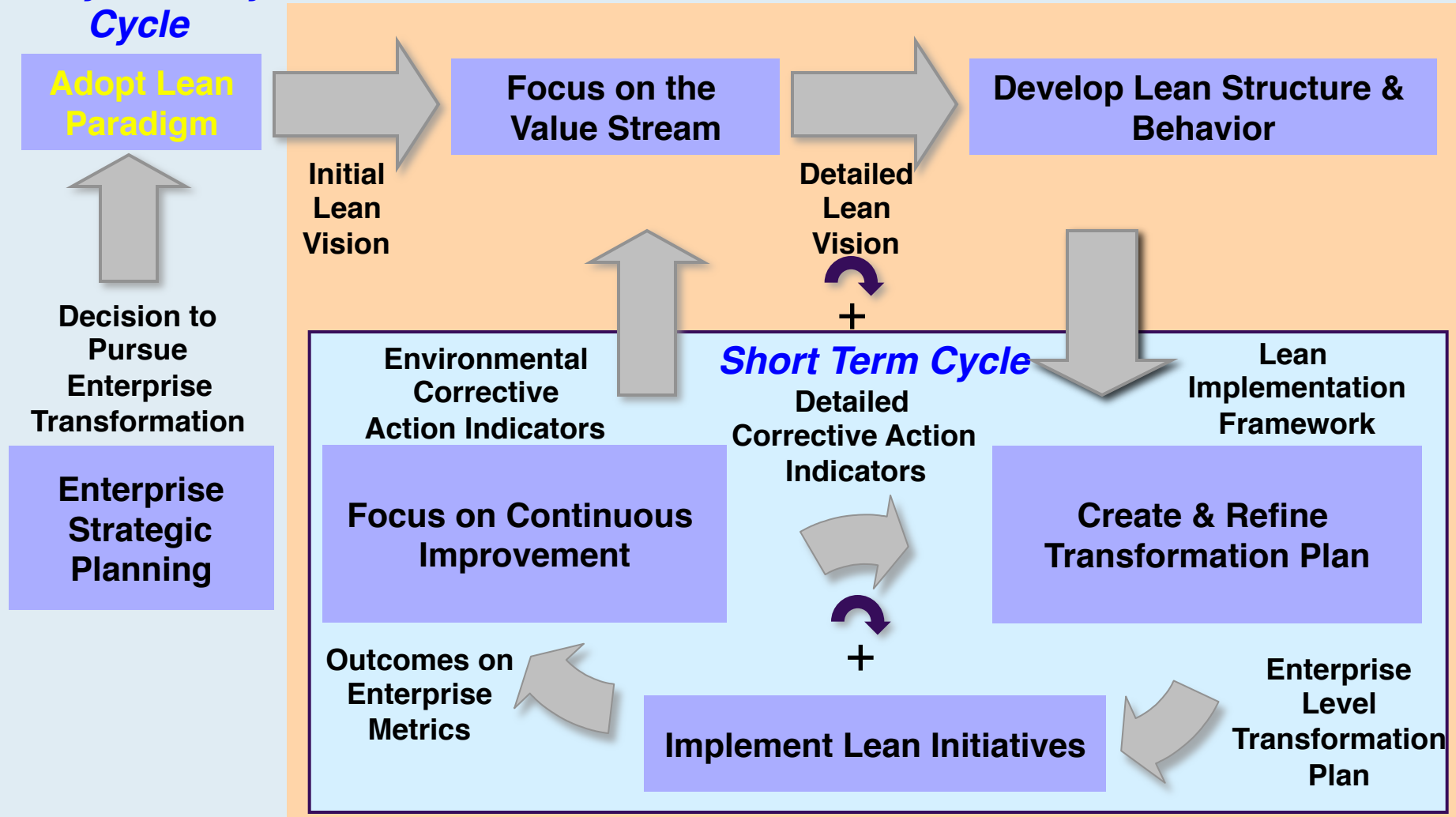
What Does the Enterprise Level TTL Model Provide?

- **A robust path that Enterprise Leaders can follow to transition their organizations to a new plateau of “leanness”**
- **Efficient and effective tool that will improve the quality of thinking and awareness of Enterprise Leaders on the challenge of transitioning their organization**
- **Framework for cultural, organizational & change management considerations**
- **Guidance in making the transition process, itself, a ‘lean’ process**

Enterprise Level Roadmap

Entry/Re-entry Cycle

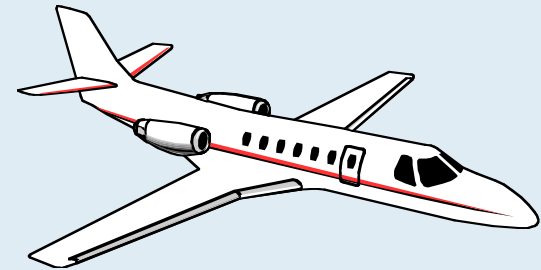
Long Term Cycle





Adopt Lean Paradigm

- **Build Vision**
- **Convey Need**
- **Foster Lean Learning**
- **Make the Commitment**
- **Obtain Senior Management Buy-in**



Build Vision

Create new mental model of how enterprise would function if it acts & behaves according to Lean principles & practices.

Convey Urgency

Identify the strategic imperative, the forcing function for transitioning to Lean.

Foster Lean Learning

All senior managers must acquire in-depth understanding of Lean paradigm.

Lean is about “behavior”, not just practices and activities.

Make the Commitment

Enterprise Leader makes irrevocable decision to transition the company to Lean.

Commit the necessary resources.

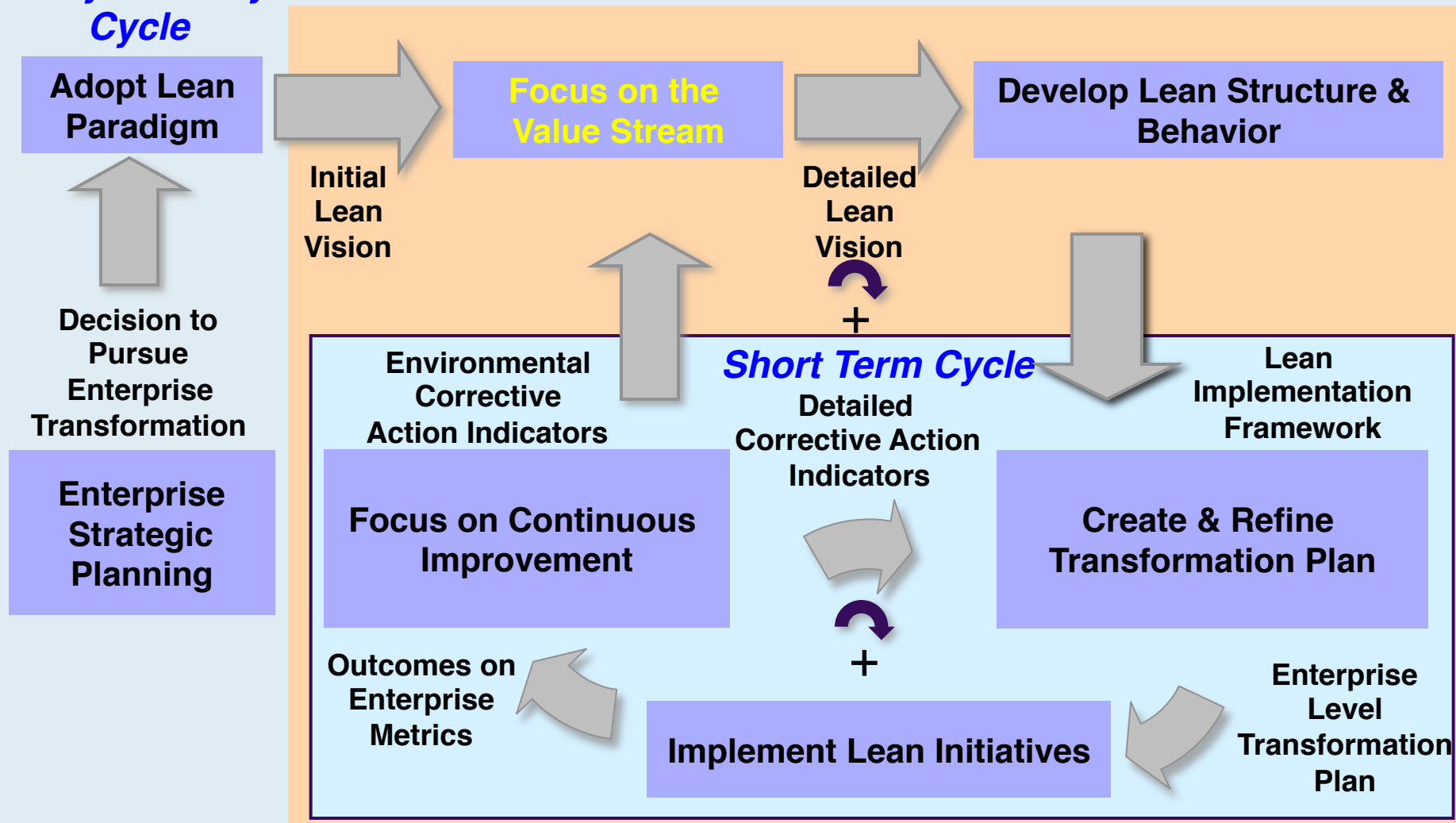
Obtain Senior Management Buy-in

Full buy-in required. Managers who are unwilling or unable to change must be replaced.

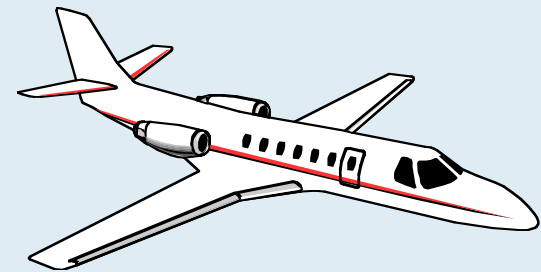
Enterprise Level Roadmap

Entry/Re-entry Cycle

Long Term Cycle



- **Map Value Stream**
- **Internalize Vision**
- **Set Goals & Metrics**
- **Identify & Involve Key Stakeholders**



Map Value Stream

Define “value” for all key stakeholders; map end-to-end chain of actions required to deliver value; eliminate enterprise level waste from enterprise processes; balance value delivered to all key stakeholders.

Internalize the Vision

Create “future state” value stream for all stakeholders, focusing on continuous improvement processes to achieve ongoing waste elimination and optimization of value creation.

Set Goals and Metrics

Consider metrics for each stakeholder and how these “roll up” for the total enterprise; specify targets of anticipated gains based upon adoption of Lean principles and practices.

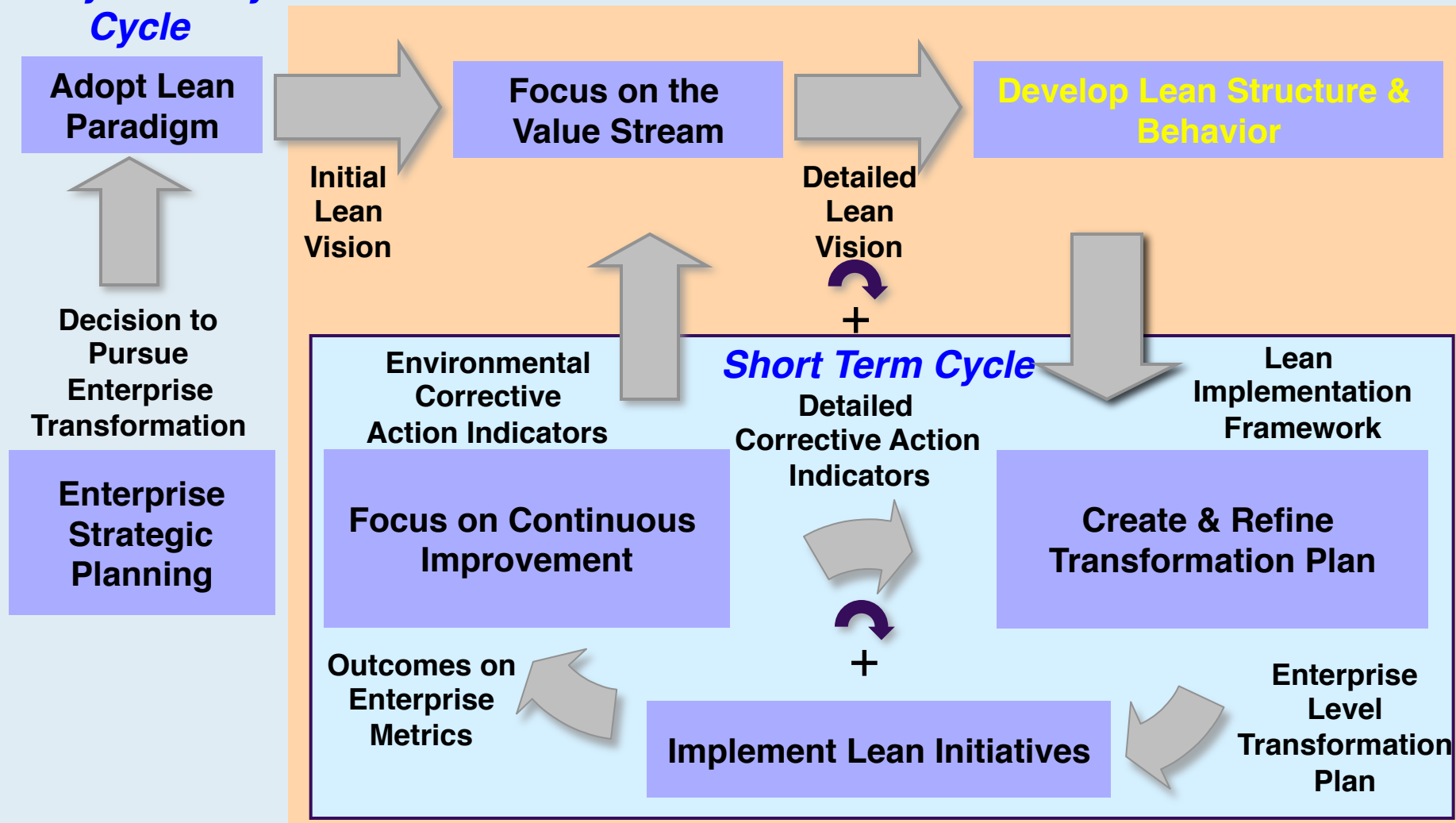
Identify and Involve Key Stakeholders

Make stakeholders who are affected by Lean initiatives aware and involved in their development.

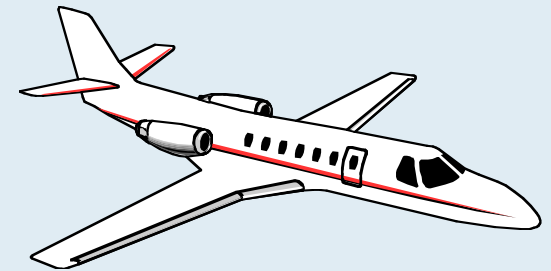
Enterprise Level Roadmap

Entry/Re-entry Cycle

Long Term Cycle



- **Organize for Lean Implementation**
- **Identify & Empower Change Agents**
- **Align Incentives**
- **Adapt Structure & Systems**



Organize for Lean Implementation

Orient organizational structure to a horizontal focus to support Lean mindset; establish IPPD teams; eliminate unnecessary layers of mgmt; decentralize decision making.

Identify and Empower Change Agents

Identify those who can effect positive transformational change; need agents at both local and enterprise levels; communicate a common Lean vision and coordinated approach.

Align Incentives

Structure incentives to reward Lean behavior; remove disincentives; tie to Lean metrics through visual scorecards; both monetary and non-monetary, group and individual incentives.

Adapt Structure and Systems

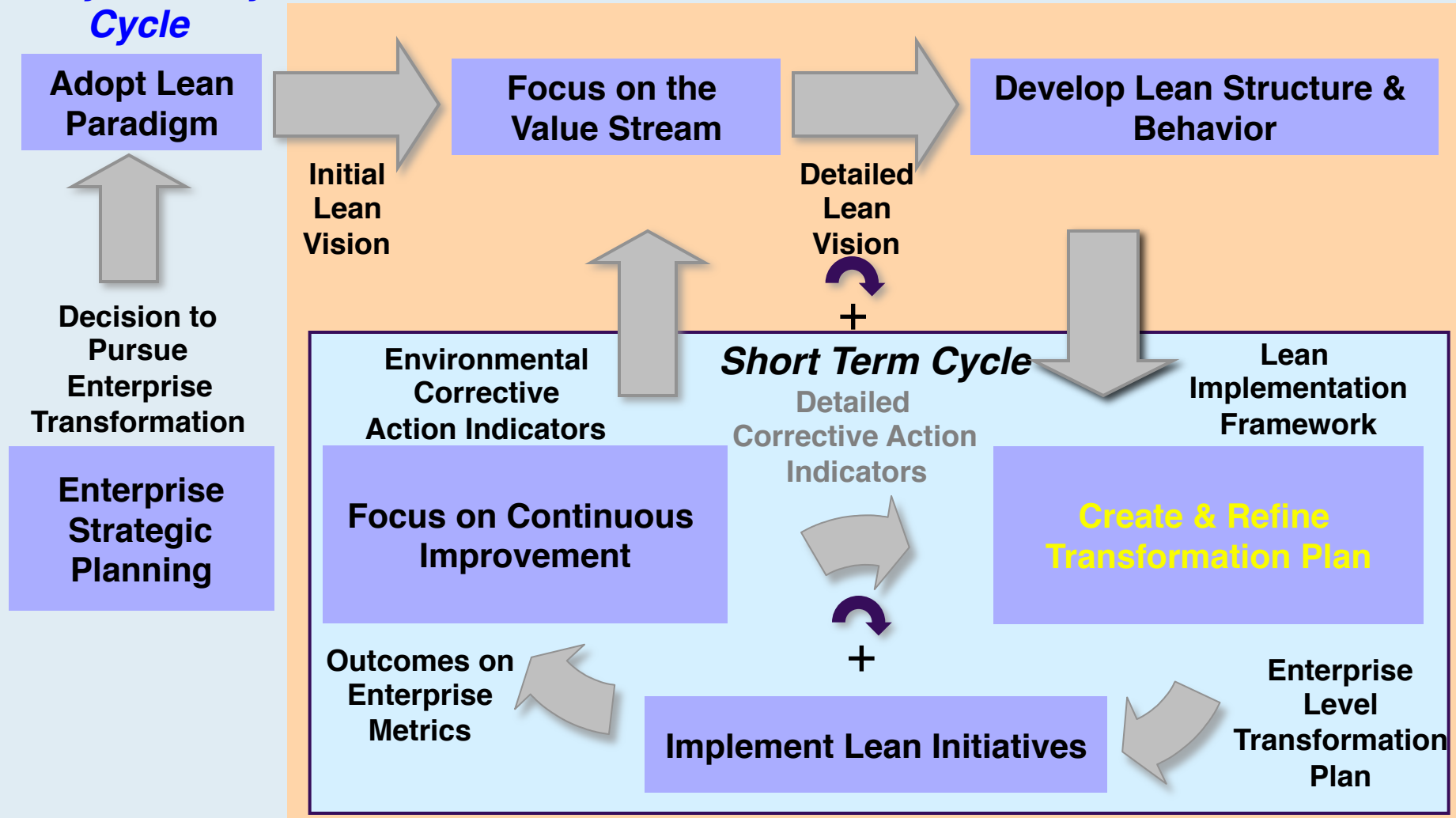
All support processes must be redesigned according to new Lean mental model; financial, information, and other systems must be redesigned; bring policies & procedures into compliance with Lean thinking.



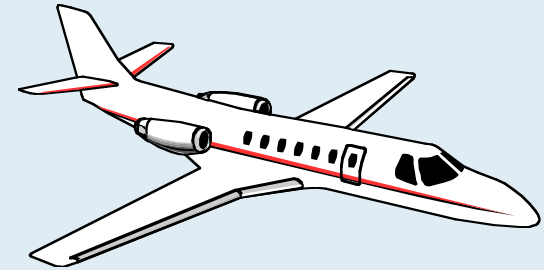
Enterprise Level Roadmap

Entry/Re-entry Cycle

Long Term Cycle



- **Identify & Prioritize Activities**
- **Commit Resources**
- **Provide Education & Training**



Identify and Prioritize Lean Initiatives

Based upon “Desired Future State”, create Enterprise-level transition path, consisting of a prioritized and sequenced set of activities; develop time-phased schedule, considering resource limitations.

Critically review all ongoing “movements” and initiatives for compatibility with Lean.

Commit Resources

Primary resource required: time of the workforce; allocate special resources as needed to accommodate increased workloads due to the Lean transformation; make a firm commitment to all resource needs.

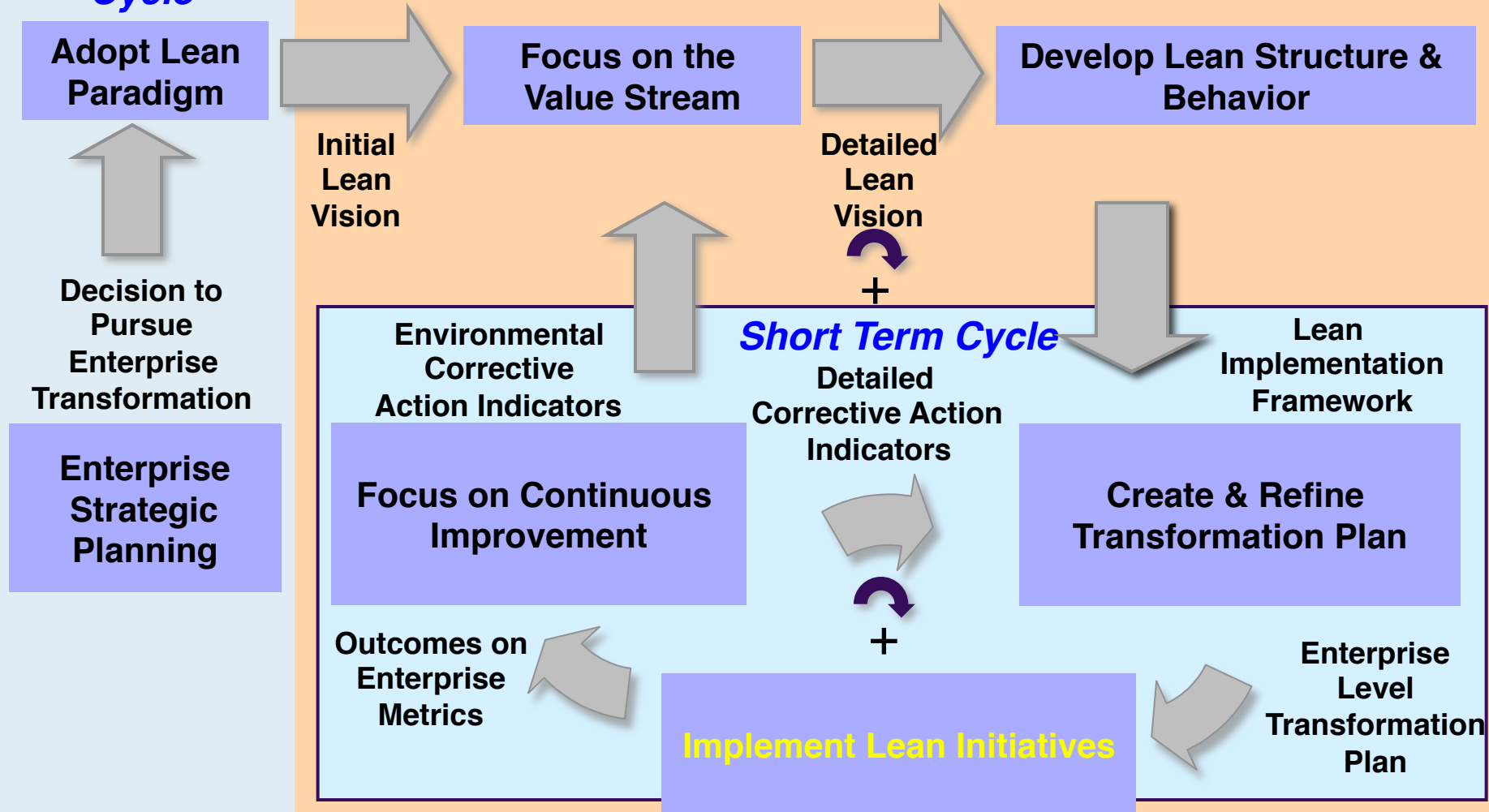
Provide Education and Training

Establish comprehensive program of education/training for entire enterprise; pay careful attention to phasing; follow “just-in-time” principles in scheduling events; modify program as necessary, remembering that Lean concepts will need to be reinforced repeatedly.

Enterprise Level Roadmap

Entry/Re-entry Cycle

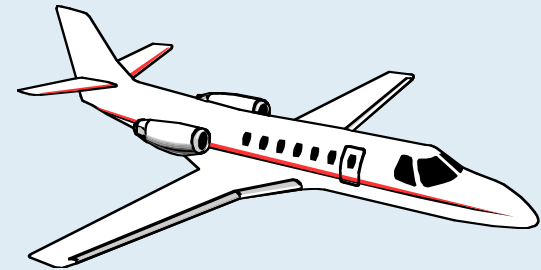
Long Term Cycle





Implement Lean Initiatives

- **Develop Detail Plans**
- **Implement Lean Activities**



Develop Detailed Plans

Map elements of Enterprise-Level Transformation Plan to core processes; structure short term action plans/projects that are detailed and specific.

Estimate time-phased requirements for each detailed plan; integrate the several plans, generate overall prioritized schedule; provide resources; assign responsibility and accountability; incorporate needed education and training into plans.

Implement Lean Activities

Launch detailed action plans; coordinate and facilitate by Lean Focus Office.

Challenge senior managers and change agents to identify and remove barriers to implementation.

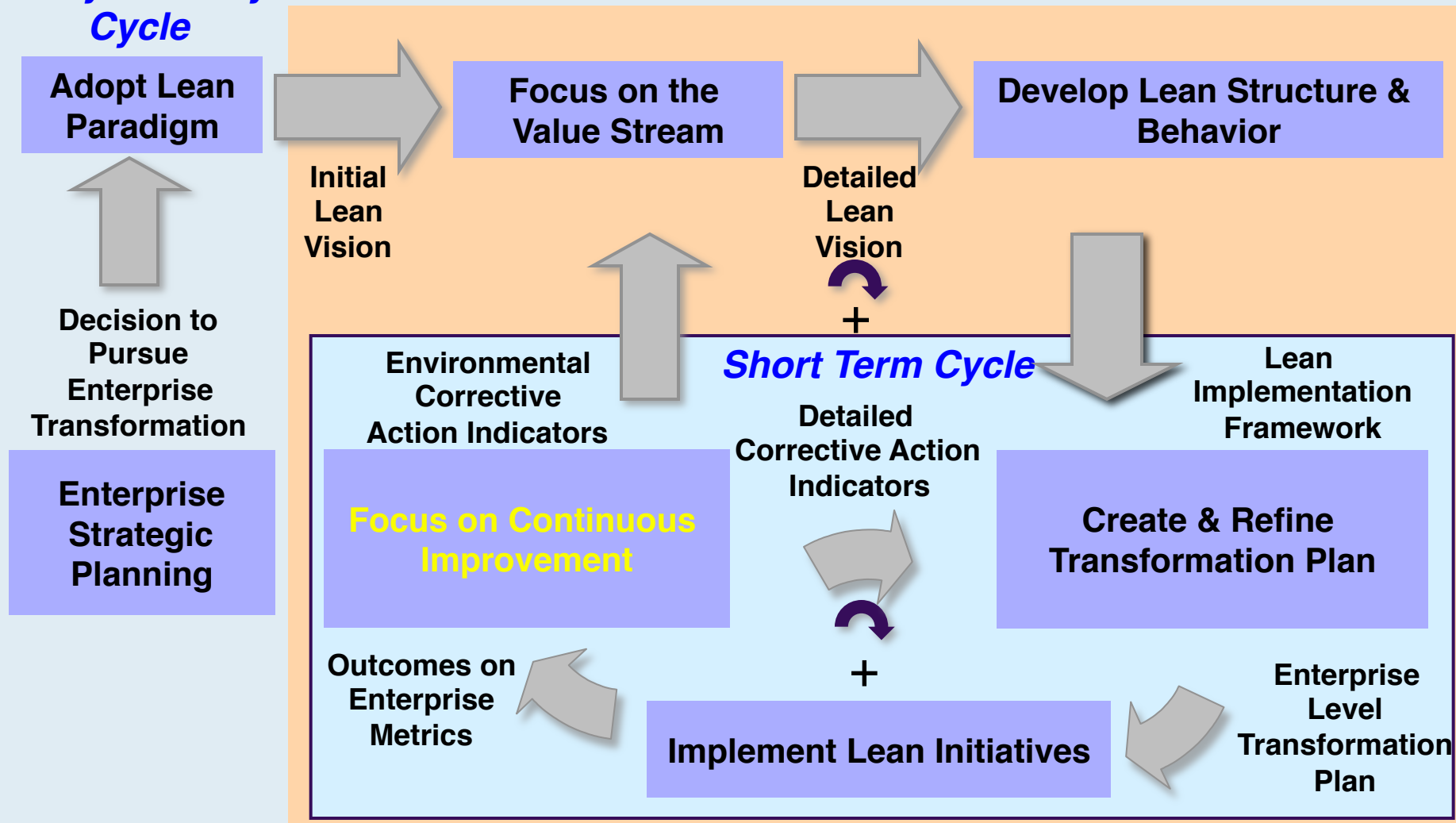
Track progress against milestones, display outcomes visibly, broadcast successes.

Determine and implement short-term corrective actions as required; modify overall plan as appropriate; resolve conflicts; provide “just-in-time” training.

Enterprise Level Roadmap

Entry/Re-entry Cycle

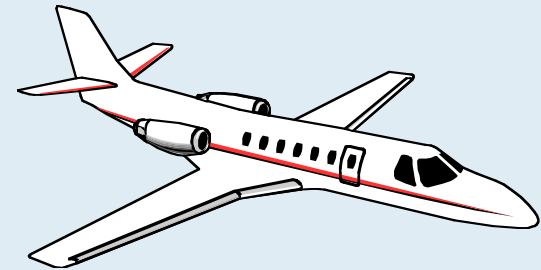
Long Term Cycle





Focus on Continuous Improvement

- **Monitor Lean Progress**
- **Nurture the Process**
- **Refine the Plan**
- **Capture & Adopt New Knowledge**



Major Tasks within “Focus on Continuous Improvement”

Monitor Lean Progress

Compare aggregate results from detailed plan implementation to Enterprise-Level Transformation Plan; measure implementation progress against schedule & budget; detect significant deviations and determine their causes; institute corrective actions.

Direct senior managers to participate visibly in monitoring the metric performance and in heralding successes.

Nurture the Process

Gain support and encouragement of Enterprise Leaders & Senior Managers; do incentives and rewards need modification? Emphasize positive reinforcement.

Encourage workforce to offer suggestions for improvement; specific issues/problems are dealt with by Lean Focus Office.

Refine the Plan

Incorporate prescribed corrective actions with Enterprise-Level Transformation Plan; re-level resources; revise, eliminate, or add elements to plan as appropriate

Determine if a significant change is required, consider revisiting Long Term Cycle.

Capture & Adopt New Knowledge

Capture lessons learned; translate and generalize for insertion into Knowledge Base.

Provide input to Enterprise Strategic Planning.

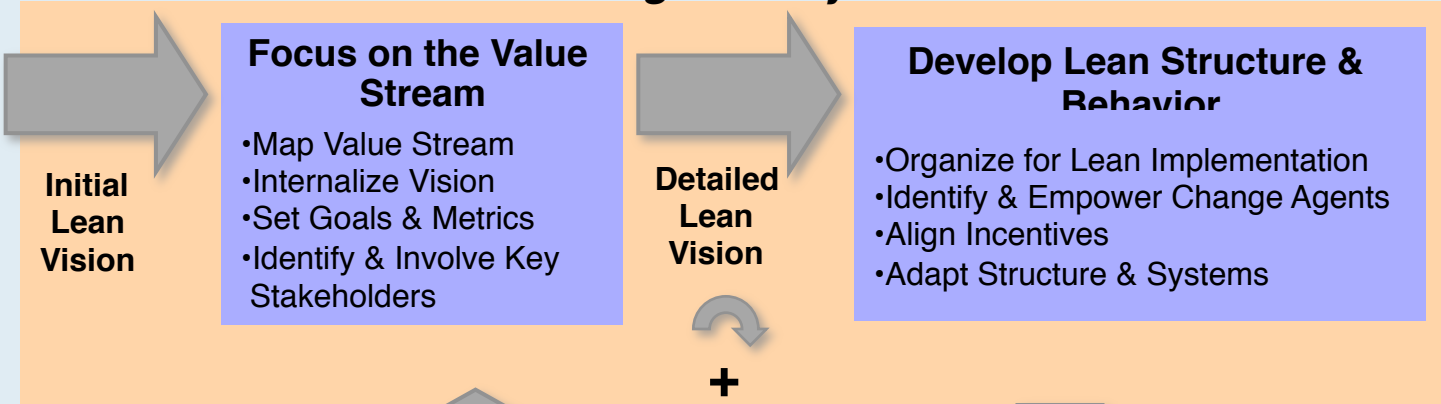
Enterprise Level Roadmap

Entry/Re-entry Cycle

Long Term Cycle

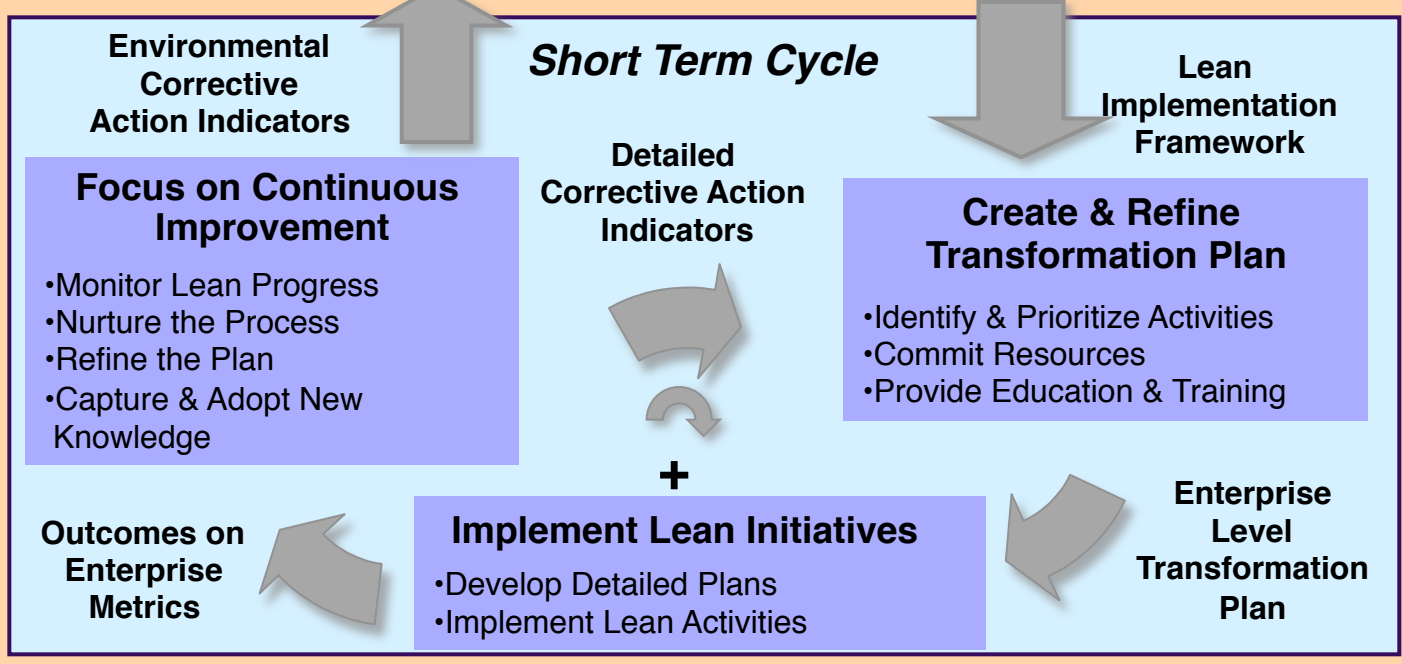
Adopt Lean Paradigm

- Build Vision
- Convey Urgency
- Foster Lean Learning
- Make the Commitment
- Obtain Senior Mgmt. Buy-in



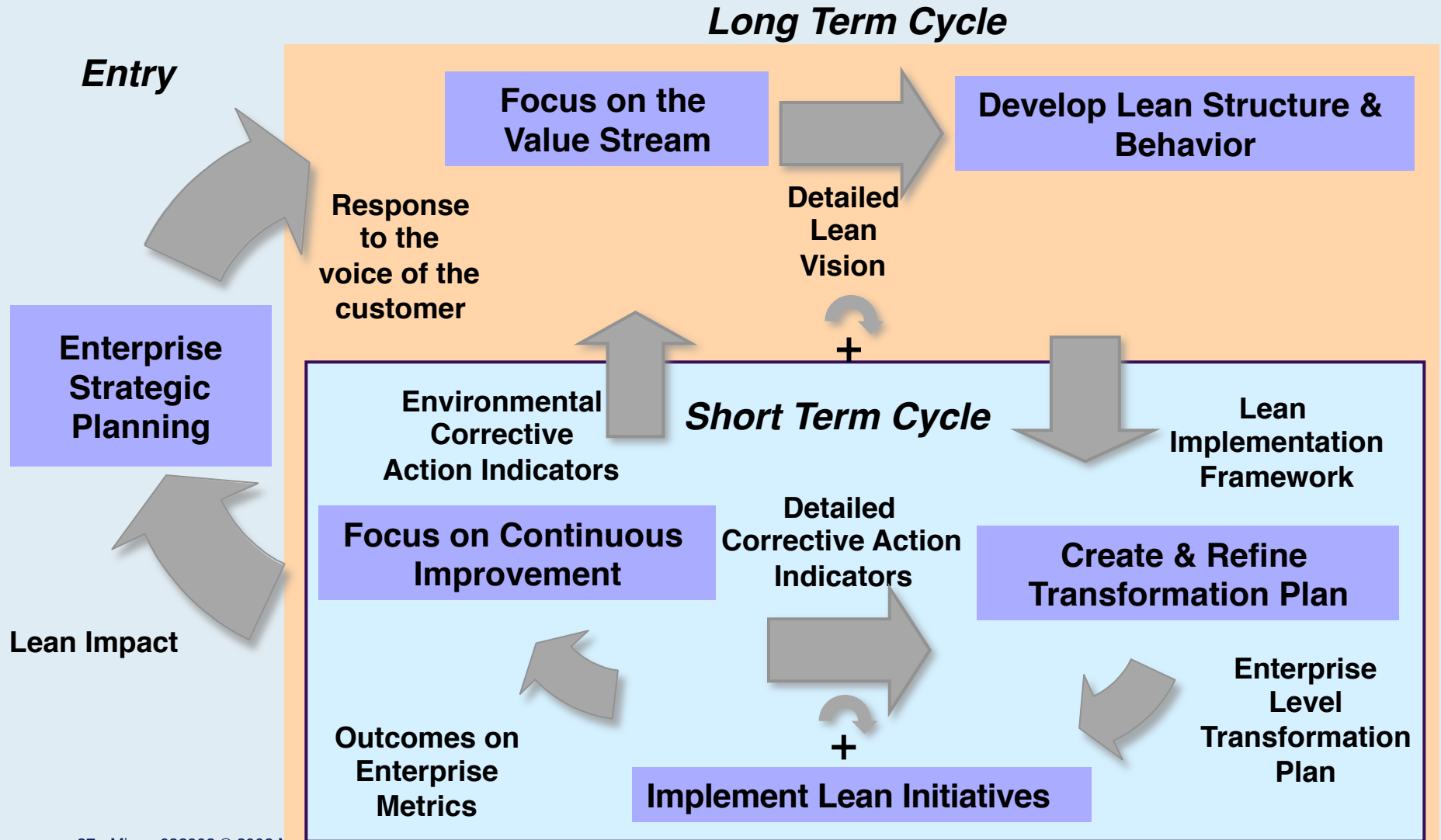
Decision to Pursue Enterprise Transformation

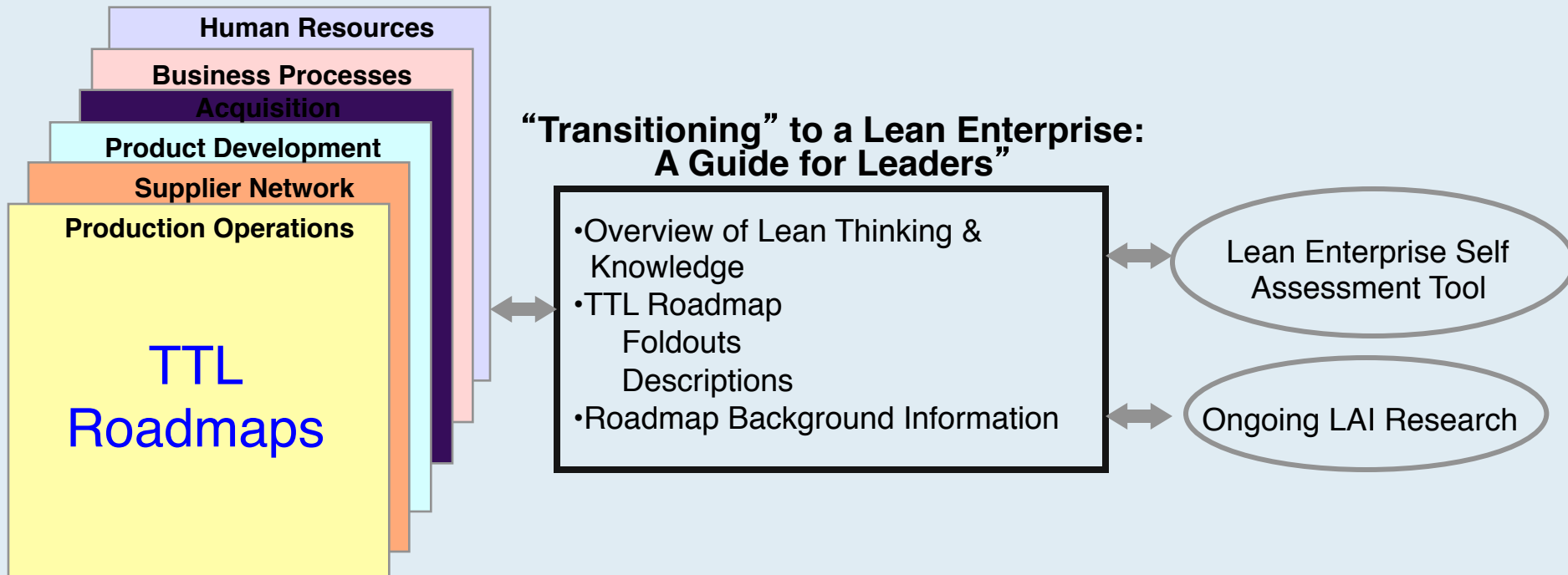
Enterprise Strategic Planning



Enterprise Level Roadmap

The On-going Lean Enterprise





- **Great tool for facilitating enterprise focus**
- **Consistent with enterprise experience**
- **Increased understanding of “what went wrong”**
- **Liked focus on people/leadership issues**
- **Being used as enterprise-wide transition framework**