Growing the Lean Community
An LAI Plenary Conference

Production Operations Transition-to-Lean
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Develop a transition to lean roadmap for production operations utilizing models which have been shared with us by LAI members and LAI researchers
Roadmap Development Process

➢ Develop understanding of each shared model
➢ Acknowledge each model’s parameters
➢ Review pros and cons of each model
➢ Define requirements for a common model
➢ Integrate requirements and pros of each into a common TTL roadmap
➢ Review product with LAI team members
➢ Obtain feedback and suggestions on further improvements
Roadmap Requirements

- Consistency and synergy with enterprise TTL roadmap
- Show precedence order and continuous improvement loops
- Summarize scope and breadth on one page
- Provide common framework for communicating to all organizational levels
- Can be enhanced by providing a description manual to explain each phase and step within the phase
Model Integration into a Common Roadmap

Entry Vision

Top Level Flow

Detailed Activity Flow

Transition to Lean in Production Operations

Textron

Pratt & Whitney

Northrop

Grumman

Lockheed

Martin

MIT - Cochran

MIT - Reynal

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Transition to Lean in Production Operations
Production Operations Transition-To-Lean Roadmap

**Phase 0:** Adopt Lean Paradigm
- Build vision
- Establish need
- Foster learning
- Make the commitment
- Obtain Sr. Mgmt. buy-in

**Phase 1:** Prepare
- Integrate with Enterprise Level
- Establish an Operations Lean Implementation Team(s)
- Develop implementation strategy
- Develop a plan to address workforce changes
- Address Site Specific Cultural Issues
- Train key people
- Establish target objectives (metrics)

**Phase 2:** Define Value
- Select initial implementation scope
- Define customer
- Define value - Quality, Schedule, and Target Cost

**Phase 3:** Identify Value Stream
- Record current state value stream
- Chart product and information flow
- Chart operator movement
- Chart tool movement
- Collect baseline data

**Phase 4:** Design Production System
- Develop a future state value stream map
- Identify takt time requirements
- Review make/buy decisions
- Plan new layout
- Integrate suppliers
- Design visual control system
- Estimate and justify costs
- Plan TPM system

**Phase 5:** Implement Flow
- Standardize operations
- Mistake proof processes
- Achieve process control
- Implement TPM
- Implement self-inspection
- Eliminate/reduce waste
- Cross train workforce
- Reduce set-up times
- Implement cell layout
- Implement visual controls

**Phase 6:** Implement Total System Pull
- Select appropriate production system control mechanism
- Strive for single item flow
- Level and balance production flow
- Link with suppliers
- Draw down inventories
- Reassign people
- Re-deploy/dispose assets

**Phase 7:** Strive for Perfection
- Team development
- Optimize quality
- Institutionalize 5S
- Institute Kaizen events
- Remove system barriers
- Expand TPM
- Evaluate against target metrics
- Evaluate progress using lean maturity matrices

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Managing Lean Transition In Production Operations

**Phase 0**
Adopt Lean Paradigm

**Phase 1**
Prepare

**Phase 2**
Define Value

**Phase 3**
Identify Current Value Stream

**Phase 4**
Design Future Value Stream

**Phase 5**
Develop Implementation Plan

**Phase 6**
Execute The Plan

**Enterprise / Production System Interface**

Executive Commitment

- Business Management
- R&S
- Engineering
- AMMC
- Product Support
- Bargaining Units
- Program Offices
- Business Development
- Customer
- Suppliers
- Government Reqd. Systems (MMAS, EVMS, etc.)

- Build Vision
- Establish Need
- Foster Lean Learning
- Make the Commitment
- Obtain Sr. Mgmt. Buy-In

- Integrate With Enterprise Level
- Create a Climate for Change
- Establish Lean Implementation Team
- Develop and Articulate Strategy
- Resolve how to Maintain Mutual Trust While Rightsizing
- Address Site-Specific Cultural Issues
- Train Key People
- Establish Target Objectives

- Define Area to be Transitioned
- Define Customer
- Define Value - Quality, Schedule and Cost

- Document Current State Production System
- Map People, Product and Information Flows
- Collect Baseline Data
- Determine Level of Lean Conduct

- Develop a Future State Production System
- Project the Level of Desired Lean Conduct
- Integrate Suppliers
- Estimate and Justify Investment

- Perform Gap Analysis Between Current State And The Desired State
- Establish Attainment Criteria: Goals, Measures And Clearly Defined Timelines
- Develop Impact Statement And Interfaces
- Perform Resource Evaluation

- Drive To Change The Way People Do Their Work
- Understand That People Must Make The New System Work
- Continually Monitor Progress And Assess Impact Of Adverse Trends
- Take Action On Deviations To Plan And Communicate Revisions
- Guide Behavior Modification
- Realign Critical Systems And Structure

**Phase 7**
Strive For Perfection

- Continuous Improvement Culture
- Learning Transferred Throughout Organization
- Institute Kaizen Philosophy
- Evaluate Against Target Metrics and Lean Maturity Matrices

*Adapted From LAI*