

A Framework for Supporting the Transition to Lean Systems Engineering

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Presentation Overview

- Introduction and motivation
- Framework overview
- Application case notes
- Summary and insights

Introduction and Motivation

Why Lean Systems Engineering?

- Lean offers an integrated, flexible, and long-term sustainable approach to improving processes, products and working culture
- Like many other enterprises, Siemens has been engaged in sustainably implementing Lean in production and administration
- Extending the Lean paradigm into the systems engineering domain is the next logical step

Introduction and Motivation

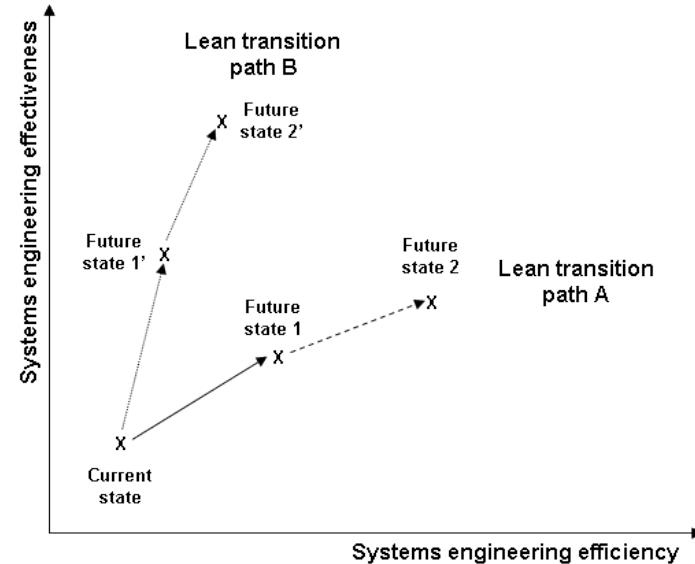
Why Write this Paper?

- Opportunity to step back and review our progress to date and synthesize key insights
- Present our current best approach (framework) and our insights (strengths and limitations of the Lean approach to systems engineering)
- Get feedback from the community, compare experiences and lessons learned

Framework Overview

Foundations of our Thinking about Lean

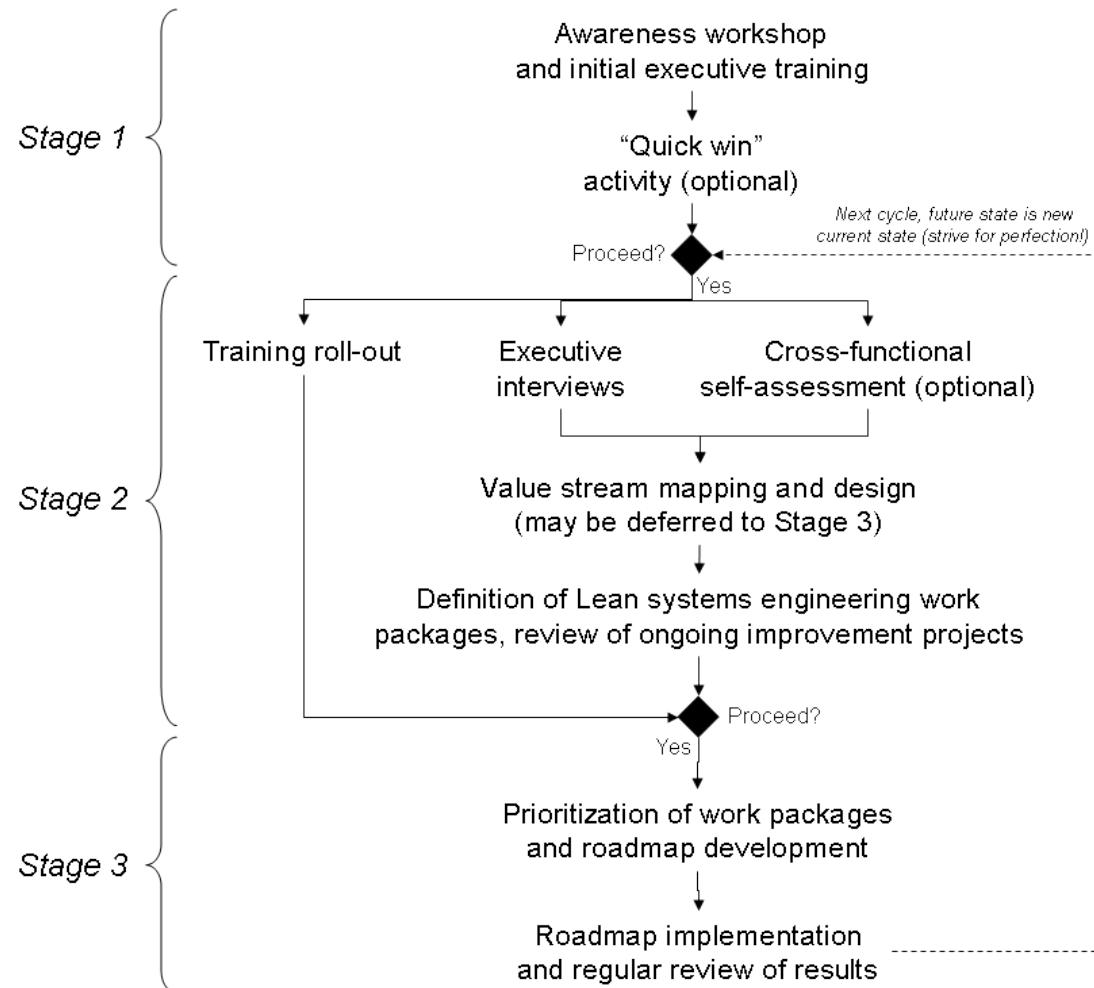
- Lean at its core is about enhancing customer value and eliminating waste
- Lean transition according to Womack and Jones: define value => identify the value stream => introduce flow and pull => strive for perfection
- Classic Lean wastes adapted for information processing
- Lean Systems Engineering can be characterized in terms of principles, methods, and tools (in order of decreasing “half-life”)



- Lean Systems Engineering is about “doing the right things right”:
 - Effectiveness and
 - Efficiency

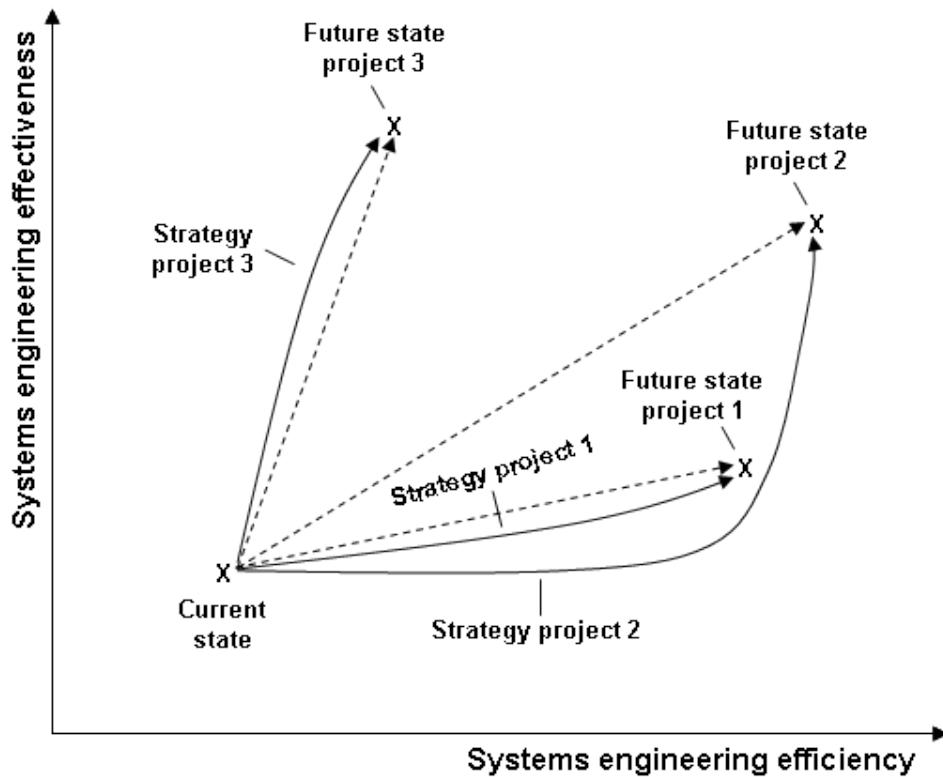
Framework Overview

Major Stages and Steps of the Framework



Application Case Notes

Three Ongoing Transitions at Siemens



- **Case 1:** engineering of medium-complexity subsystems for OEM customers, focus mostly on efficiency
- **Case 2:** development of high-complexity systems, focus on efficiency first as a means of “financing” effectiveness improvements through frontloading
- **Case 3:** development of high-complexity subsystems for OEM customers, focus mostly on effectiveness

Summary and Key Insights

- Framework such as the one presented here needed for guiding the top-down and bottom-up aspects of a transition to Lean Systems Engineering
- Clear vision explaining the business case for Lean needed early in the transition, communication is key
- Quick win ideas for Lean Systems Engineering: visualization, value stream mapping, cross-functional work
- Need to define classes of projects / products and select representatives from each for analysis in order to ensure generalizable waste identification and improv. measures
- Interactive trainings (1-2 days) and active participation in the transition enable effective Lean capability build-up

Thank you for your attention!

Backup

