

# **Implementing Lean Software Development**

*Practical approaches  
for applying lean principles  
to software development*

*A two-day course  
by  
Mary Poppendieck*

# Implementing Lean Software Development

## *Practical approaches for applying lean principles to software development*

### Learn how to:

- ✦ identify and eliminate hidden waste in software development
- ✦ ensure that your software development process delivers real customer value
- ✦ increase quality and decrease cost through efficient learning
- ✦ reduce unnecessary complexity and avoid creating a legacy
- ✦ leverage your company's Lean or Lean Six Sigma initiative

### Why Lean Software Development?

Toyota, the company that invented lean production, has a product development process which is much faster and far more productive than those employed at most companies, yet it delivers higher quality results. Paradoxically, Toyota's product development process uses practices that seem surprisingly wasteful:

- ✦ explore multiple design solutions at the same time
- ✦ delay final design decisions to as late as possible in the process
- ✦ eliminate task based planning; schedule periodic review dates and hold each designer responsible for meeting performance levels expected at each review

The proven effectiveness of Toyota's unorthodox development process reflects a deep understanding of how to effectively translate good ideas into great products. Using Toyota's idea-to-product process as a benchmark, this seminar presents practical ways to achieve dramatic improvements in software development speed, productivity and quality.

This program will help participants discover the 20% of software development effort that delivers 80% of the value. It will show them how to identify and eliminate the real waste of software development. They will learn practical tips and strategies for applying the key lean techniques of *customer focus, process flow, local responsibility, and data-based decisions*. Finally, assessment and implementation tools will help participants apply lean principles to their own software development environments.

### Who Should Attend

This program is designed for software development managers and team leaders. It will be particularly useful to those looking beyond conventional approaches to software development for dramatic improvement in their processes.

### Format

This two day program is presented with an even mixture of lecture and case study format. The material can be presented in one day if the case studies are eliminated. Alternately, a one day course with case studies is possible, covering the first six sections of the course outline. The case study format is most effective with a maximum class size of about 20.

## **Course Outline**

### *INTRODUCTION*

- Understanding software development productivity
- A framework for improving IT productivity
- Measurements that align software development efforts with business results

### *THE 80-20 RULE*

- How to identify the core 20% of effort that will drive most of the value
- Moving from Projects to Products
- The four cornerstones of highly productive development

### *CUSTOMER FOCUS*

- The seven wastes of software development
- The myth of requirements and the critical role of efficient learning
- How to converge on customer understanding, one layer at a time

### *PROCESS FLOW*

- Software in-process inventory and queues
- How to delaying decisions and get better results faster
- The role of testing and continuous integration in rapid flow

### *LOCAL RESPONSIBILITY*

- How to move responsibility and decisions to the right people
- How to make sure that local decisions are the correct decisions
- Moving from task-based schedules to feature-based time-boxes

### *DATA-BASED DECISIONS*

- How to create economic models that captures the underlying drivers of value
- How to use the economic models for making tradeoff decisions
- How to win competitive contracts by demonstrating superior economic benefits

### *VARIABILITY AND COMPLEXITY*

- Common misconceptions about variability in software development
- Finding the appropriate level for standardization
- The huge cost of adding complexity

### *LEGACY*

- The problem with projects
- The myth of fungible resources
- How to capture and leverage domain knowledge

### *IMPLEMENTATION: CONTEXT*

- The reactive approach: Saving a failing project
- The proactive approach: Current State Assessment and Future State Plan

- Leveraging Lean and Lean Six Sigma initiatives

### **IMPLEMENTATION: ASSESSMENT**

- Current State Diagram:
  - Map the flow of value
  - Chart the decision-making process
- Discipline Audit:
  - Development Standards
  - Project Practices
- Communication Review:
  - Domain Expert<->Developer
  - Upstream<->Downstream

### **IMPLEMENTATION: MAKING IT HAPPEN**

- Envisioning the future
- Making it happen
- Measuring results

### **About the Instructor**

**MARY POPPENDIECK**, a Cutter Consortium Consultant, is a seasoned leader in both operations and new product development with more than 25 years' of IT experience. She has led teams implementing lean solutions ranging from enterprise supply chain management to product development, and help build one of 3M's first Just-in-Time lean production systems. Mary is currently the President of Poppendieck LLC and located in Minnesota. Her book *Lean Software Development: An Agile Toolkit*, winner of the 2004 Software Development Productivity Award, brings lean production techniques to software development.