Alexandre Boutin
Responsable Stratégie International Développement Logiciel chez Yahoo

Scrum Master & Practitioner Certifié – Coach Agile

Blog : [www.agilex.fr](http://www.agilex.fr)

Président du Club Agile Rhône Alpes
Agenda

- Overview
  - Lean Software Development

- The 7 Lean Principles
  - Eliminate Waste
  - Improve the system
  - Build Quality In
  - Defer Commitment
  - Deliver Fast
  - Respect People
  - Create Knowledge
Overview - LEAN

• LEAN, at its core, is a management approach for streamlining production systems by
  – Streamlining the value chain (even across companies)
  – Eliminating waste from the flow
  – Being disciplined about “when” decisions are made
  – Leveraging people as the most flexible resource in the system,

• LEAN offers a set of tools to challenge our beliefs and find better way to deliver product

• Mary and Tom Poppendieck have transferred principles and practices from the manufacturing environment to the software development

• Mary said: “There is nothing directly relating the LEAN and AGILE concepts, yet they fit together nicely in a software organization.”
Agenda

• Overview
  – Lean Software Development

• The 7 Lean Principles
  – Eliminate Waste
  – Improve the system
  – Build Quality In
  – Defer Commitment
  – Deliver Fast
  – Respect People
  – Create Knowledge
## The Seven Wastes

### The Seven Wastes of Manufacturing
- Shigeo Shingo

1. Inventory
2. Overproduction
3. Extra Processing
4. Motion
5. Transportation
6. Waiting
7. Defects

### The 7 Wastes of software Development

1. Partially Done Work
2. Extra Features
3. Extra Processes
4. Task Switching
5. Handoffs
6. Delays
7. Defects

---

**Principle 1: Eliminate Waste**
Extra Features

Features and Functions Used in a Typical System

- Often or Always Used: 20%
- Sometimes: 16%
- Rarely: 19%
- Never: 45%

Rarely or Never Used: 64%

Standish Group Study Reported at XP2002 by Jim Johnson, Chairman

Principle 1: Eliminate Waste
Value Stream Mapping

Example

<table>
<thead>
<tr>
<th></th>
<th>1 week</th>
<th>1 week</th>
<th>6 weeks working together</th>
<th>1 hour</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>value</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>waste</strong></td>
<td>1 week</td>
<td>1 day</td>
<td>1 week</td>
<td>½ week</td>
</tr>
</tbody>
</table>

**Principle 1: Eliminate Waste**
Agenda

• Overview
  – Lean Software Development

• The 7 Lean Principles
  – Eliminate Waste
  – Improve the system
  – Build Quality In
  – Defer Commitment
  – Deliver Fast
  – Respect People
  – Create Knowledge
Brilliant Products

Breaking the Customer / Supplier model

- The job that customers need done
- The right technology to do that job

Mind Meld

Understands The Business

Understands The Technology

Principle 2: Improve the system
Think Products, not Projects

Projects
- Up-front funding
- Scope fixed at onset
- Success = cost/schedule/scope
- Team disbands at completion
- Documentation tossed over-the-wall to maintenance

Products
- Incremental funding
- Scope expected to evolve
- Success = profit/market share
- Team stays with product
- Team uses its own documentation

System Thinking

Principle 2: Improve the system
Architecture

• The Role of Systems Design (Architecture):
  – Provide a foundation for growth
    • Create a common infrastructure
  – Enable incremental development
    • Minimize dependencies
    • Modularize potential change
  – Create space for teams to innovate
    • Design, code and test are different aspects of the same job and must be done concurrently
  – Leave room for the future
    • Evolve the architecture over time
• Overview
  – Lean Software Development

• The 7 Lean Principles
  – Eliminate Waste
  – Improve the system
  – **Build Quality In**
  – Defer Commitment
  – Deliver Fast
  – Respect People
  – Create Knowledge
Continuous Integration

- Every few minutes
  - Check in code, build and run unit tests
- Every day
  - Run acceptance tests
- Every week
  - Run more complete test suites
- Every iteration
  - Deployment-ready code
- Every Release
  - Deploy and run in production
Technical Debt

Anything that makes code difficult to change increases the Technical Debt

- **Complexity**
  The cost of complexity is exponential.

- **Regression Deficit**
  Every time you add new features the regression test grows longer!

- **Unsynchronized Code Branches**
  The longer two code branches remain apart, the more difficult merging will be.

You can pay full price for code when you build it or you can incur technical debt.
But interests rates are very high.
Testing contribution to quality

Two Kinds of Inspection

• Inspection to Find Defects – is WASTE
• Inspection to Prevent Defects – is Essential

The Role of Testing

• The job of Testing is not to find defects
• The job of Testing is to prevent defects.
• A quality process builds quality into the code
  If you routinely find defects during verification ➔ Your process is defective.

Principle 3: Build Quality In
• Overview
  – Lean Software Development

• The 7 Lean Principles
  – Eliminate Waste
  – Improve the system
  – Build Quality In
  – **Defer Commitment**
  – Deliver Fast
  – Respect People
  – Create Knowledge
Change Tolerant Software

- 60-80% of all software is developed after first release to production.

- A development process that anticipates change will result in software that tolerates change.

- System architecture should support the addition of any feature at any time

- Make decisions **reversible** whenever possible.

- Make **irreversible** decisions as late as possible.
  - Ex: When do you really need the user interface designed?
Set-Based Engineering

- Multiple options are prepared for the decision.
- There is always an option that will work.
- Paradox:
  
  This is not waste!
• Overview
  – Lean Software Development

• The 7 Lean Principles
  – Eliminate Waste
  – Improve the system
  – Build Quality In
  – Defer Commitment
  – Deliver Fast
  – Respect People
  – Create Knowledge
Push vs Pull

Principle 5: Deliver Fast
Iterative Development

SCRUM

KANBAN
• Overview
  – Lean Software Development

• The 7 Lean Principles
  – Eliminate Waste
  – Improve the system
  – Build Quality In
  – Defer Commitment
  – Deliver Fast
  – Respect People
  – Create Knowledge
Environment

A TEAM
Provide Effective Leadership

**Marketing Leader**
- Business Responsibility
- Customer Understanding
- Roadmap Planning
- Tradeoffs

**Technical Leader**
- System Architecture
  - At a high level
  - Work daily with those developing the details
- Technical Guidance
  - Integration
  - Tradeoffs

**Process Leader**
- Build Block Disciplines
- Iterative Development
- Visible Workspace

**Project Leader**
- Funding
- (Scheduling)
- Tracking

**Functional Leader**
- Staffing
- Teaching
- Standards
Agenda

• Overview
  – Lean Software Development

• The 7 Lean Principles
  – Eliminate Waste
  – Improve the system
  – Build Quality In
  – Defer Commitment
  – Deliver Fast
  – Respect People
  – Create Knowledge
Predictable performance is driven by feedback

• Set Up the feedback Loop
  – The job that customers need done
  – The right technology to do that job
  – Do it often and regularly

• Stop asking for
  – More documentation, more details in requirements, more plans, more commitments …

• Deliver!
  – Prototype, Minimum Features set, Draft document …

• Then ask for Feedback

Principle 7: Create Knowledge
Capturing Knowledge

The A3 Report
Two sheets of letter paper

Standards
1 A4 page
Thank You!