Agile Project Management for Lean Process Improvement

Implementing Lean for Operational Excellence
March 1-2, 2017
Roanoke, VA
David Williamson
Agile, Project Management, and Lean

You’ve heard of lean project management and agile project management and maybe even lean agile project management?

In this session, we’ll look at how agile project management methods can be applied to enhance the effectiveness of lean process improvement projects.

...or lean implementation

Virginia Tech
Invent the Future

Advance Auto Parts
Service is our best part.
More Specifically

• How can we apply lean and agile methods to project management, and then use those PM methods to help manage lean projects or lean implementation?
Disclaimers

My areas of expertise are

- IT, PM, Agile
- Complexity
- Process Improvement
- Some Lean & Six Sigma

I am not a “Lean” guy.

Sometimes helpful ideas come from outside the mainstream.

The content of this presentation does not represent the views or opinions of Advance Auto Parts.

Viewer discretion is advised.
Bottom Line Up Front

• Lean is inspiring, but implementing lean can be overwhelming.
• There is a tendency to try to do it all at once.
• Lean and agile PM methods can help you focus on value-added work, break work into smaller pieces, iterate fast, and deliver value early and often.

Traditional PM
• Big, slow, expensive
• Overhead, WIP
• Delivers value at the end

Lean PM
• Reduces waste, overhead, WIP
• Focuses on value-added work
• Uses pull, not push

Agile PM
• Breaks work into small pieces
• Iterates fast
• Delivers value early and often
Traditional PM

- Based on systems engineering
- Linear, structured
- Prescriptive, controlled
- Scope is defined up front
- Change is "managed"

The Systems Engineering Process

(Bahill & Gissig, 1998; PMI, 2013)
Traditional PM

- Customer Needs
  - Documentation
- Initiate
  - Documentation
- Define
  - Documentation
- Design
  - Documentation
- Build
  - Documentation
- Test
  - Documentation
- Implement
  - Documentation
- Support
  - Documentation

(PMI, 2013)
Lean PM

- Build value
- Eliminate waste
- Amplify learning
- Decide late
- Deliver fast
- Empower the team
- Build in integrity
- See the whole

(Jacob, Bergland, & Cox, 2010; Lloyd, 2016; Womack & Jones, 2003)
## Agile PM

<table>
<thead>
<tr>
<th>Value</th>
<th>Over</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals and interactions</td>
<td>Processes and tools</td>
</tr>
<tr>
<td>Working software</td>
<td>Comprehensive documentation</td>
</tr>
<tr>
<td>Customer collaboration</td>
<td>Contract negotiation</td>
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<tr>
<td>Responding to change</td>
<td>Following a plan</td>
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(Agile Manifesto, 2001)
Agile Principles

1. Satisfy the customer through early and continuous delivery
2. Welcome changing requirements, even late in the project
3. Deliver working product frequently
4. Project team and customers work together daily
5. Empower motivated people
6. Face-to-face conversation
7. Working product is the primary measure of progress
8. The process must be sustainable
9. Continuous attention to good design and technical excellence
10. Keep it simple—maximize the work *not* done
11. The best products come from self-organizing teams
12. Regular reflection and action to become more effective

(Agile Manifesto, 2001; Denning, 2016)
Agile PM

Customer Needs ➔ Initiate ➔ Define ➔ Design ➔ Build ➔ Test ➔ Implement ➔ Support

Vs.

Customer Needs ➔ Iteration 1 ➔ Iteration 2 ➔ Iteration 3 ➔ Iteration 4 ➔ Iteration n ➔ Support

- Initiate
- Define
- Design
- Build
- Test
- Implement
- Deploy

- Initiate
- Define
- Design
- Build
- Test
- Implement

- Initiate
- Define
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- Define
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- Initiate
- Define
- Design
- Build
- Test
- Deploy
Agile Tools: Epics, Stories, Tasks

Requirements

1. __________________
   1.1 __________________
   1.2 __________________
     1.2.1 __________________
     1.2.2 __________________
   1.3 __________________
     1.3.1 __________________
       1.3.1.1 __________________
       1.3.1.2 __________________
   1.4 __________________
   1.4 __________________

2. __________________
   2.1 __________________

Diagram:
- Epic
  - Story
    - Task
  - Story
    - Task
  - Story
    - Task
  - Story
    - Task

Virginia Tech: Invent the Future

Service is our best part. Advance Auto Parts
Agile Tools: Backlog
## Agile Tools: Backlog Sizing and Prioritization

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### Priority
- **High**
  - Small stories, ready for inclusion in the next iteration.
- **Medium**
  - Medium and large stories, to be refined into more detail.
- **Low**
  - Epics, large requirements, new ideas, to be refined.

*(Scrum Academy, 2017)*
Agile Tools: Sprints (Iterations)

High

Small stories, ready for inclusion in the next iteration.

Medium and large stories, to be refined into more detail.

Epics, large requirements, new ideas, to be refined.

Priority

(Sprint Backlog)

Low

(Scrum Academy, 2017)
Agile Tools: Kanban

Not Started
- Story
- Story
- Task
- Task

In Progress
- Task
- Story

Completed
- Story
- Task
- Task
- Task
Agile Tools: Scrum Meetings

Daily

15 Minutes

Stand Up

Three Questions

• What did you get done yesterday?
• What are your priorities for today?
• What obstacles are blocking your progress?
Agile PM for Lean

Concepts
• Lean concepts stay the same
• Lean agile PM breaks the work into smaller, prioritized pieces
• The pieces are scheduled into short sprints or increments

Results
• Easier to manage
• Less overhead, less waste
• Less WIP
• Faster delivery of value
• Frequent feedback
• Frequent reprioritization
• Change-friendly

Questions
• When could it work, when might it not work?
• Examples?
• Where to find more info?
Contact Info

David J. Williamson, MBA, PhD, PMP, ITIL-F
Program Manager, Advance Auto Parts

david.williamson@advance-auto.com
www.linkedin.com/in/davidjwilliamson
Some Examples

• Colorado Department of Transportation: Everyday Lean Improvement
  https://www.codot.gov/business/process-improvement

• The ITSM Review - Agile CSI: continual service improvement done right
  http://www.theitsmreview.com/2014/04/agile-csi-continuous-improvement-dave/
Agile Tools: Kanban

http://kanbantool.com/kanban-board-online
DMAIC

Define
- Review Charter
- Validate Problem statement
- Validate VOC
- Validate $s
- Validate high-level VSM
- Comm Plan
- Select team
- Dev Schedule
- Complete Define Gate
- Complete Define Measure Gate

Measure
- Dev Ops definitions
- Doc “AS IS” Map – SIPOC
- Dev Data collection plan
- Validate measurement system
- Est. Baseline
- Determine Process Capability
- Complete Analyze Gate

Analyze
- Determine Critical inputs
- Identify Root Causes (RC)
- Narrow list of RCs
- Determine impact of RCs
- Prioritize RC to be worked
- Analyze “AS IS” for VA vs. NVA Complete Analyze Gate

Improve
- Dev Potential solutions
- Evaluate, select and optimize best options
- Dev VSM “TO BE” Map Pilot
- Confirm attainment of Goals
- Dev Implementation plan
- Complete Improve Gate

Control
- Mistake Proof – Poka Yoke
- Dev SOP training plan
- Implement solution
- Est. Process Measurements
- Identify Lessons learned
- Complete Analyze Gate
- Transition to Process Owner

Kaizen – quick hits
References


