Using Kanban Boards in Agile Project Management

By
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Agenda

- A Brief History of Kanban
- A summary of Academic Theory behind using Kanban boards to visualize and control Work in Progress (WIP)
- Using Kanban board to replace your personal “to-do” list
- Using a Kanban board to manage and control Scrum software development
- How mature organizations utilize Scrumban for continuous workflows
- Questions & Discussions
Kanban – The Early Years

• In the late 1940’s Taiichi Onho, developed a “kanban” or “signboard” system to implement “just-in-time” (JIT) processes at Toyota
• When you get to Kanban card it is time to ask for more parts
• 1988 - Taiichi Ohno’s book was translated into English
Taiichi Onho’s Kanban Book

Toyota's Six Rules for Kanban

• Do not send defective products to the subsequent process.
• The subsequent process comes to withdraw only what is needed
• Produce only the exact quantity that was withdrawn by the subsequent process
• Level the production
• Kanban is a means of fine tuning
• Stabilize and rationalize the process
Kanban – 2 Basic Principles

• Work is assigned through a “pull” process where work is pulled from backlog as bandwidth allows – the “DO” part of a Deming PDCA cycle

• Work in Progress (WIP) is monitored to identify choke points in the process; mitigate these choke points; and then replan workflows – the “CHECK”, “ACT”, and “PLAN parts of a Deming PDCA cycle
Pulling Work with Kanban

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**Pull Model**

- **Backlog**
  - Item 3
  - Item 5
  - Item 9
  - ...

- **Ready for Work**
  - Item 1
  - Item 2
  - Item 7

  Prioritization & Ranking By TL

- **In Progress Backlog**
  - Pulled By Team Members
  - Team Member 1
  - Team Member 2
  - Team Member 3

- **Done**
  - Item 4
  - Item 6
  - Item 11
  - ...

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Jaibeer Malik  Kanban for Services Team  http://jaibeernalik.wordpress.com
Kanban Choke Points

A system can produce only to the bottleneck’s capacity – Max throughput is 40 units/day

Bottleneck

60 units Per day → 70 units Per day → 40 units Per day → 60 units Per day

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Simple Choke Point Monitor

Arrival Rate

Departure Rate/Velocity

Burnup

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Kanban as an Agile Method

- Development not timeboxed … whatever’s ready deploy
- Coarse grained estimates … e.g. H, M, or L
- Prioritized Input queue … set by Management and Developers
- Simple processes … e.g. design, code, test, release
- Work In Progress (WIP) limits set for each process
- Cross functional team helps create a smooth flow
- Kanban Agile Method used in:
  - Steady State O&M
    - Data Base administration
    - Help Desk response
- Kanban Boards/Visualization used in:
  - Extreme Programing (XP)
  - Lean Agile Methods
  - Scrum and Scrumban

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• Taiichi Ono’s JIT Kanban manufacturing system morphed into 3M sticky notes on a white board

Primary objectives were:
– Prioritize Input Que/Backlog
– Visually show and control work in progress (WIP)
– Identify chokepoints in process flows
More Middle Years (1 of 2)

• Kanban is an approach for starting to implement Agile in an organization OR for mature organizations moving beyond Scrum
• Define the development steps needed, set up a Kanban board for the processes
• Run the Kanban board
• Do gap analyses … i.e. find the WIP limits, find throughput required, find resources needed for the throughput

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More Middle Years (2 of 2)

• Report on Kanban WIP times and roadblocks - start to foster Agile in the organization

• Implement improved Agile Methods (if needed) - for example if you can support monthly deliveries then you may want to step up to Scrum

• If you have less than 7 people in your team then Kanban possesses the rigor you need and don’t need extra overhead of Scrum or XP methods
Kanban – More Advanced

Kanban+Scrum Board for Services Team

Goals
- Incident/Urgent: NOW!
- High Business Value: Item 2, 3 Days to Done
- Regular Support Ticket: Item 3, Item 10, 2 Days to Done
- Improvements: Item 11, 5 Days to Done

Queue
- Item 4
- Item 38
- Item 21
- Item 4

In Progress
- Analyze: Item 1
- TM1: Item 12
- TM2: Item 19
- TM3: Item 17

Done
- Verify: Item 14
- Item 54
- Item 45
- Item 63
- Item 5
- Item 6

Jaibear Malik  Kanban for Services Team  http://jaibearmalik.wordpress.com

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Kanban – State of Market

SAAS Kanban for Distributed Teams

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Kanban as “To-Do” List
Kanban “To-Do” Details

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Kanban for Scrum

Sprint: 25 (07/09/2012 - 07/16/2012) - Goal: Get To Done is launched by Thursday evening, Larry’s IE 8 bugs are fixed, Glassen is launched, and Dr. Cernak’s mockups are developed on the QA site 40%.

Front Burner (5) - Sprint Backlog -

<table>
<thead>
<tr>
<th>Description</th>
<th>Items: 0/5</th>
</tr>
</thead>
<tbody>
<tr>
<td>What does DONE look like?</td>
<td></td>
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</tbody>
</table>

To Do
Tasks Only

<table>
<thead>
<tr>
<th>Description</th>
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Doing
Tasks Only

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<th>Description</th>
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</table>

Done (9)
Stories & Tasks

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<tr>
<th>Description</th>
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## Scrumban for Mature Orgs

### PROJECT/TEAM: Awesome Scrum Team

<table>
<thead>
<tr>
<th>Backlog</th>
<th>To-do</th>
<th>In Progress</th>
<th>In Review/QA</th>
<th>Done</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Story 1</td>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
<td><img src="image3.png" alt="Image" /></td>
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<tr>
<td>User Story 2</td>
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**Summary – Kanban is Visual Project Management**

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<tr>
<th>Backlog</th>
<th>WIP</th>
<th>Hold</th>
<th>Finished</th>
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Questions & Discussions

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