



Kanban: A Process Tool

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Gist Labs is essential innovation

- Essential Process: Agile/Lean/Kanban
- Essential Technology: Java/Scala, REST

Customers include:

- MMO Game Studio, 100+ people
- Online precious metals broker

What is Kanban?

Kanban is a tool for organizing work.

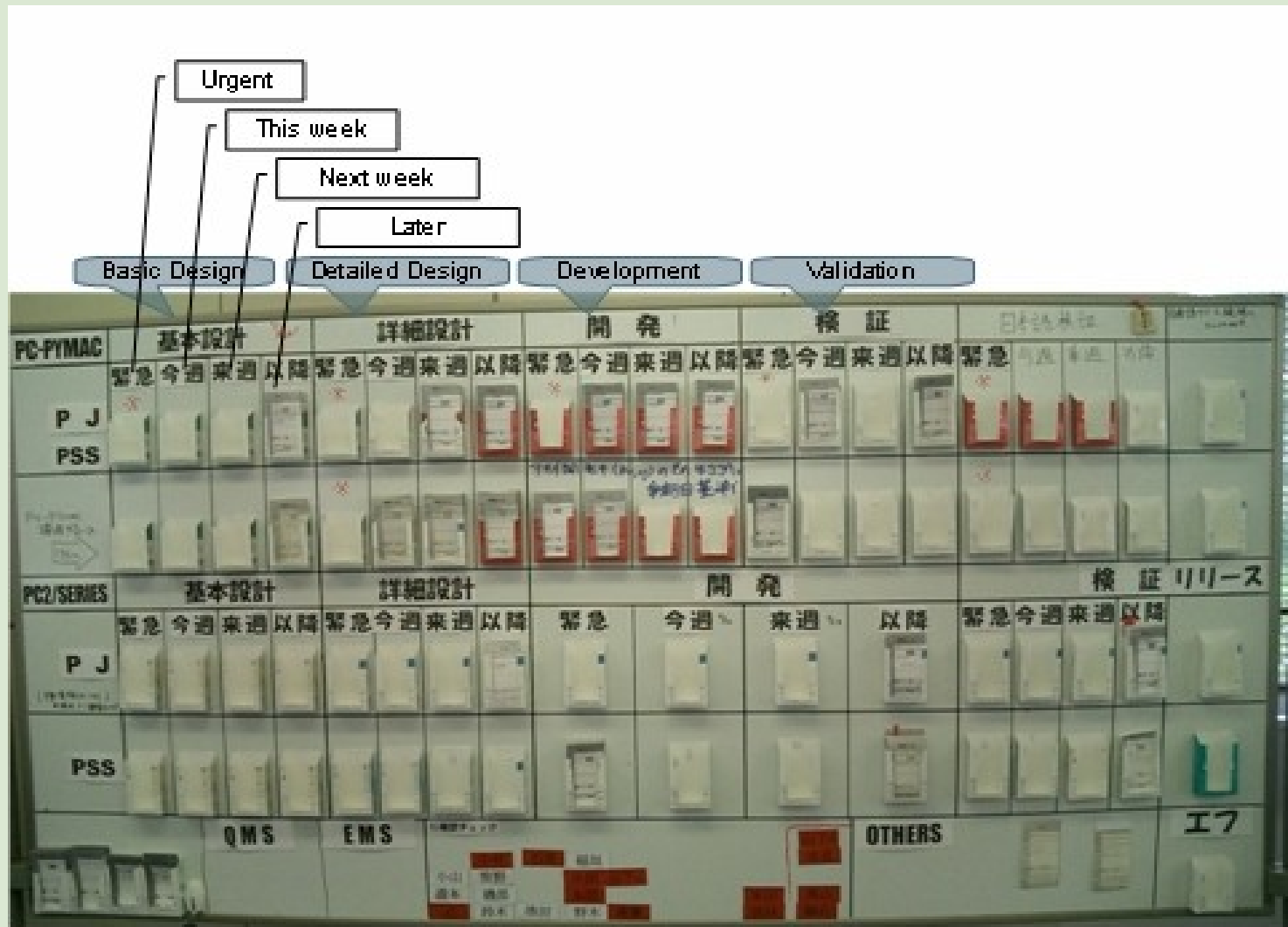
The name “Kanban” is Japanese for visual token

“Kanban promotes flow and reduced cycle-time by limiting WIP and pulling value through in a visible manner.”

- Torbjörn Gyllebring

WIP is “Work In Progress”

A Kanban Board



One of my team's Kanban Board



Explaining Kanban: Theory or Practice?

- Open Discussion: which to teach first
- I'm going to present the practices first

Practices: Rules of the Game

- Organize work into different types
 - S-M-L, high-low priority, maintenance/new...
- Map out the steps for each type (workflow)
 - compress steps the same people do
- **Agree to WIP limits for each step**
- Only pull work from upstream when slot opens

The Simplest Kanban Rule

Limit the number of things in work
to a fixed number

This one rule will lead to most everything else
in this presentation.

Deciding on WIP Limits

- Start every limit at 1.
 - Add tokens 1 at a time until one person is always busy, then apply Theory of Constraints.
- Start every limit at arbitrarily large value, 10.
 - Subtract tokens 1 at a time until flow is observed. Then start looking for a way to remove 1 more.
- Create a Value Stream Map and measure the time-on-task distribution of each activity.
 - Use Little's Law to calculate the corresponding queue sizes.

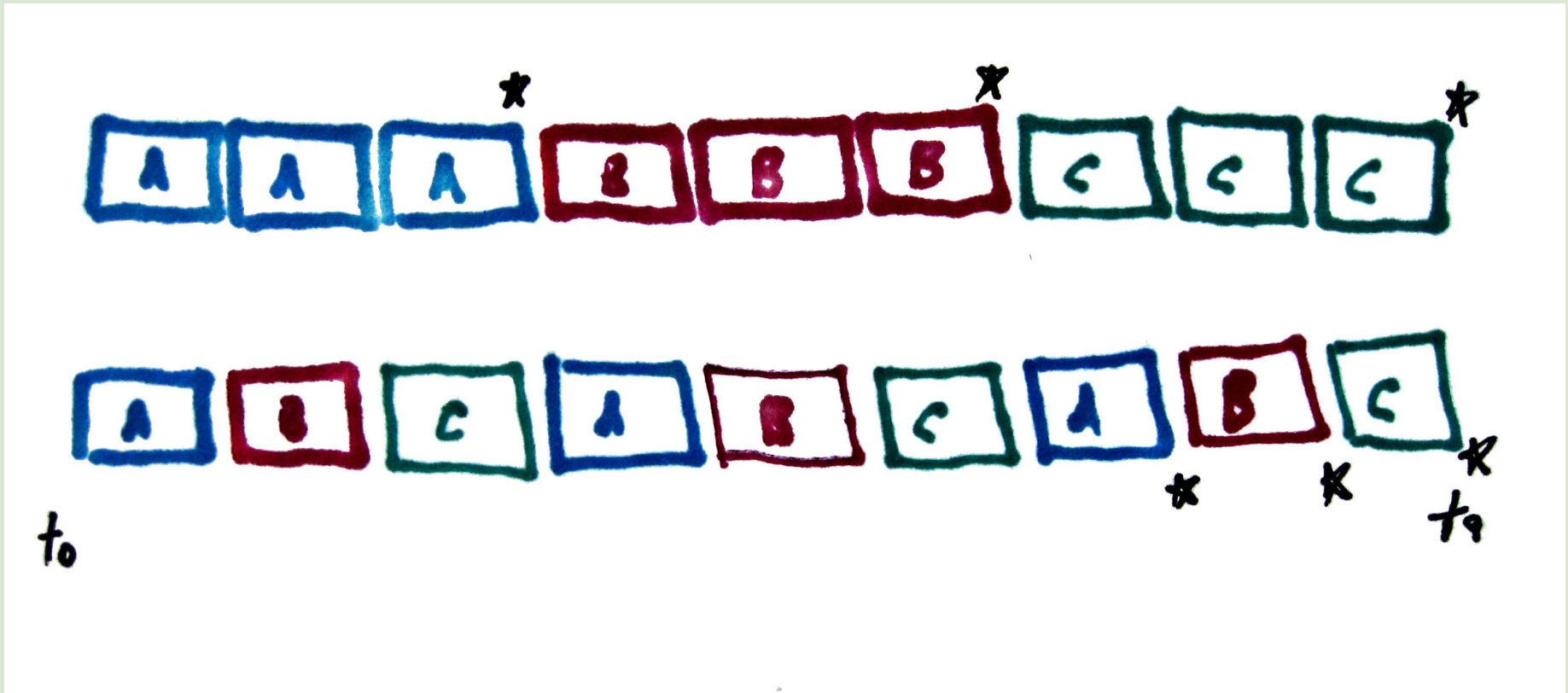
Corey Ladas, <http://leansoftwareengineering.com/>

Why Are WIP Limits So Central?

- Multitasking is bad, but not just because of the cost of changing context.
- Little's Law: Total Cycle Time =
(# in process) / (average completion rate)
- Generalized delays are the waste caused by multitasking.

Visualizing the Delay

- Notice that multitasking slows delivery
- That translates to lost revenue



Why are we sitting here? Not my job...

- The state of the art in development and deployment is advancing.
- Flickr releases production code every 30 min
- IMVU releases production code every 9 min

What about Agile?

- Kanban and Agile don't compete, but aren't the same
- Corey Ladas wrote Scrumban merging them
- Teams can start with Agile adding WIP Limits, or just start with Kanban.

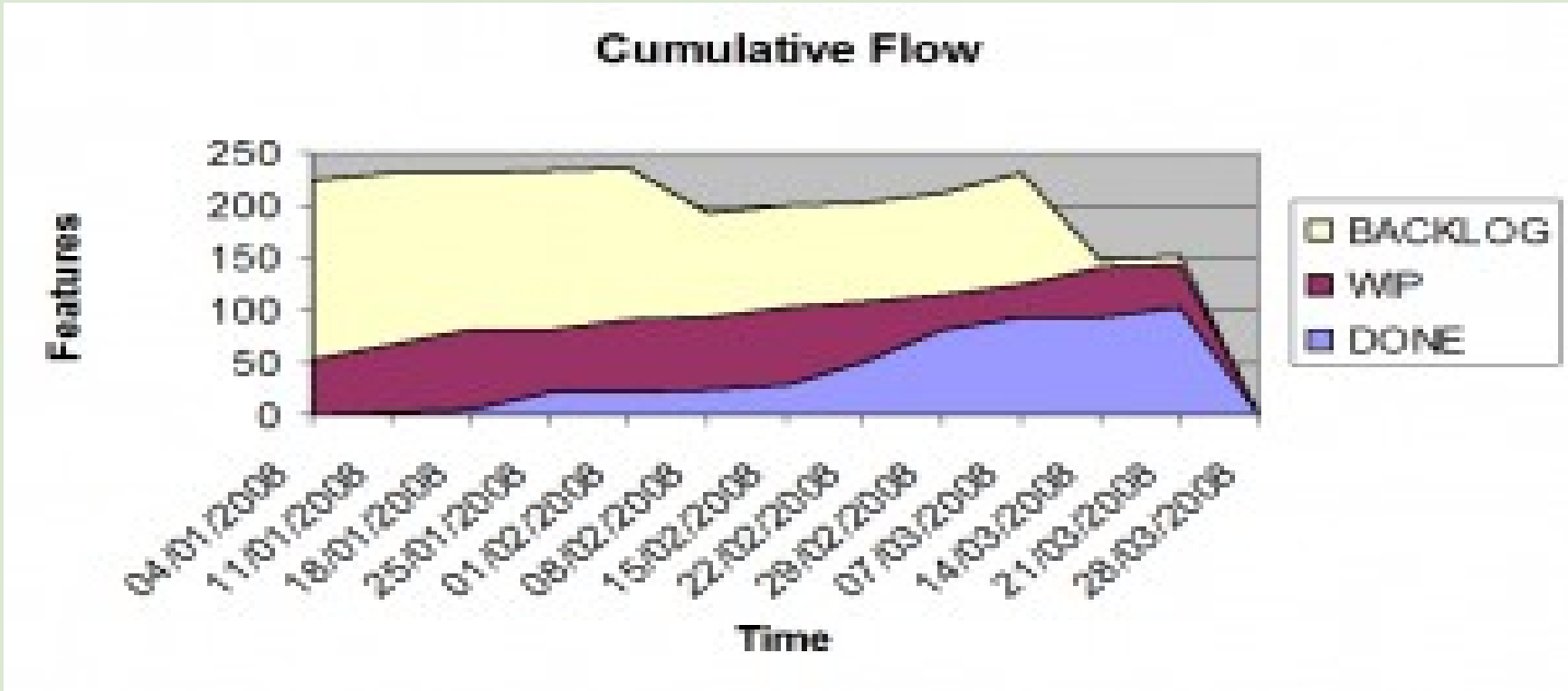
Some differences Agile/Kanban

- Iterations vs continuous Flow
- Velocity
- Story commitment vs average cycle time
- Estimation focus
- Homogenous stories

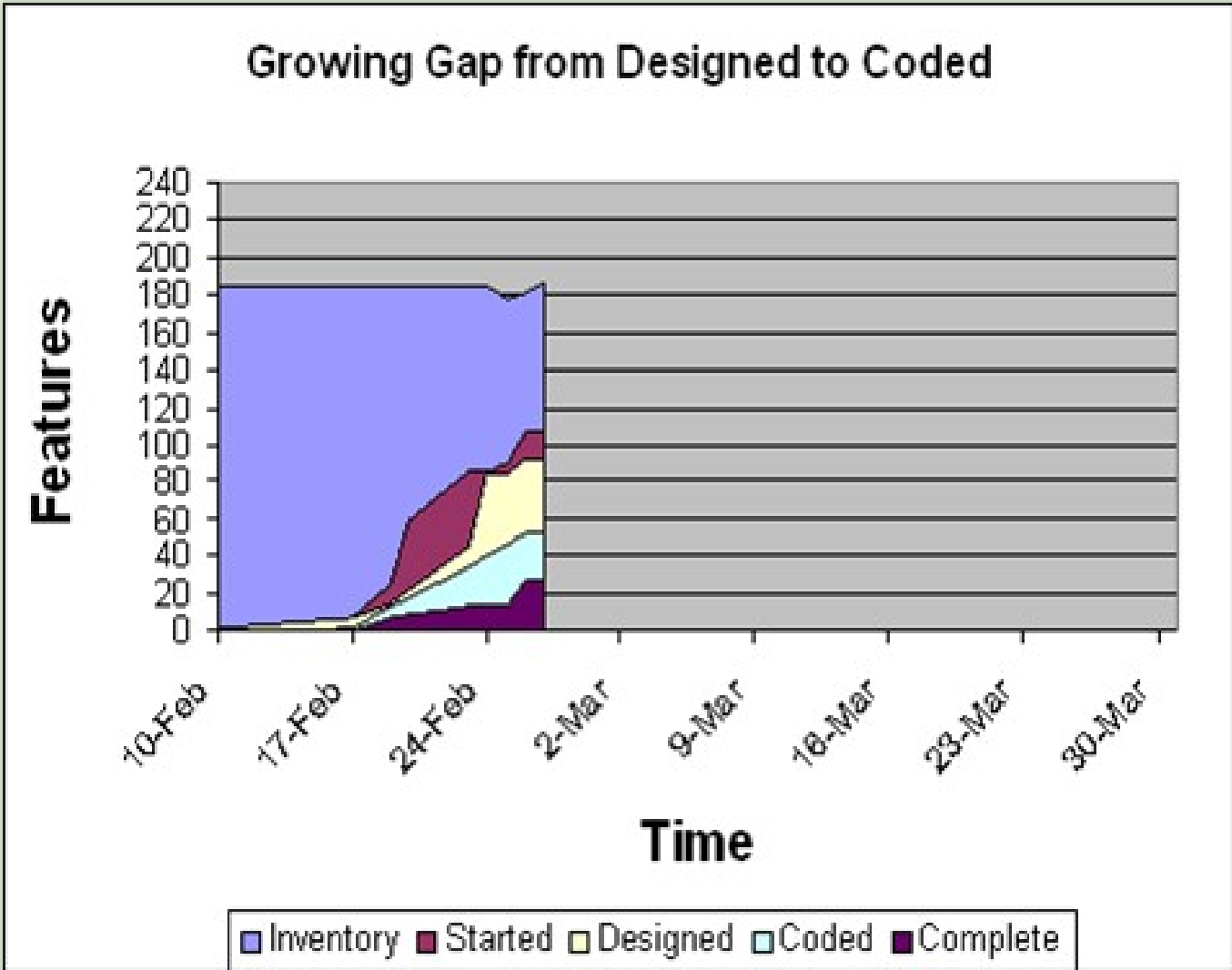
Visualizing - Cumulative Flow Diagrams

- CFDs show a sliding time view of workflow
- The vertical axis is WIP
- The horizontal axis is time
- “Bulges” in a CFD indicate a problem

Sample Cumulative Flow Diagram



Sample Cumulative Flow Diagrams



Boards and Diagrams

- The Kanban Board is “now”
- The CFD is the cumulative history
- A “log jam” on the board or a vertical growth in a lane of the CFD indicate a problem.
- These are leading indicator of slow delivery

The Theory: Lean Behind the Scenes

- Lean is the American name for the Toyota Production System
- Lean Software Development is a large collection of ideas, principles, and techniques
- Kanban is a powerful tool from Toyota

The Principles of Lean

- Jim Womach, author of “The Toyota Way”
 - Value (from the perspective of the customer)
 - The Value Stream
 - Flow
 - Pull
 - Kaizan (continuous improvement)

David Anderson's Recipe for Success

- David Anderson started all of this, and launched the conference earlier this month
- Recipe for Success (with projects):
 - Focus on Quality
 - Reduce WIP, Deliver Often
 - Balance Demand Against Throughput
 - Prioritize

<http://www.agilemanagement.net>

Rob Hathaway's Principles for Kanban

- Rob presented these at the conference
- Principles:
 - Value
 - Prioritization
 - WIP Limits
 - Quality

Chris Shinkle, Drefus Model

- Chris presented a “practices first” experience report. He described his experience as matching the Drefus Model of Skills Acquisition.

Dreyfus Model of Skill Acquisition

- Novice
 - rigid adherence to rules
- Advanced beginner
 - situational perception still limited
- Competent
 - now partially sees action as part of larger picture
- Proficient
 - uses maxims for guidance
- Expert
 - no longer reliance on rules, guidelines, maxims

Surprise! Cultural Change

- I didn't expect this, but many teams seem to more successfully adopt Kanban than Agile
- My hypothesis: Concrete Reflective Tools
- Other reasons, from Alan Shalloway:
 - Focus on the work
 - Reduced Fear with story/velocity commitments

Abstraction and Reflection

- Many people prefer concrete examples over abstract ideas
- Reflective is about examining the past to reason about the future
 - but... it's often a vague abstract process
- I classify Agile Retrospectives as abstract reflective tools

Concrete Reflective Tools

- A concrete reflective tool is both specific and forward/backward looking
- “What WIP Limit should we set for Features?”
- “What caused this spike in WIP?”
- “Why are X features so unpredictable?”
- Kanban provides concrete focal points for teams to reflectively problem solve

Another Concrete Reflective Tool - A3

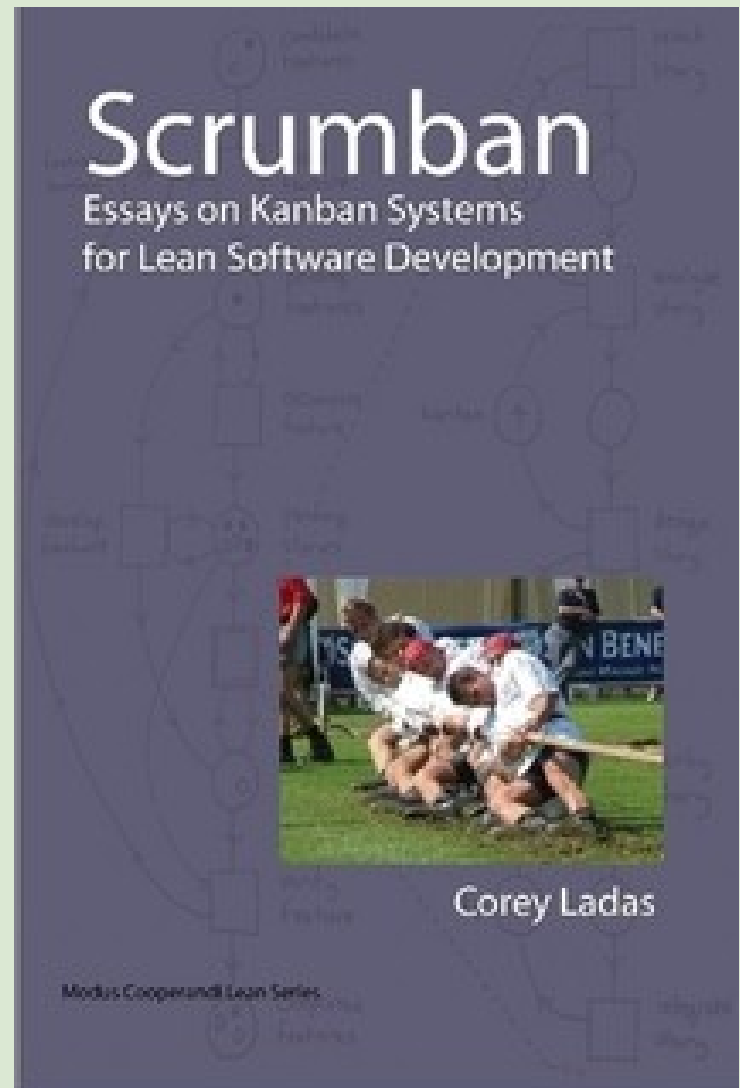
- An A3 is another tool from Toyota
 - A3 is the size of European paper used
 - A knowledge capture/sharing tool
 - Plan/Do/Check/Act (aka scientific method)
 - A management and authority gathering tool
- Being able to concretely point to a fragment of an A3 enables team reflective problem solving.

References – Blogs, Lists

- David Anderson's Blog
<http://www.agilemanagement.net>
- Corey Ladas' Blog
<http://leansoftwareengineering.com>
- Kanban Mailing List
<http://finance.groups.yahoo.com/group/kanbandev/>
- Lean Kanban Conference
<http://www.leankanbanconference.com/>

References – Scrumban Book

- Excellent reference
- Corey and David worked at Microsoft and Corbis together on Kanban



References – Sticky Tabs

- Reusable sticky tabs
- We love them



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Questions?

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More From the Conference

- Materials for Executives
 - Dean Leffingwell's Model for Agile Enterprises
- Lean Software and Systems Consortium
- Great quotes

Lean Software and Systems Consortium

<http://leanssc.org>

- “The consortium is committed to community, communication and education”
- Will develop a “Body of Knowledge”
- Will define a distributed certification process

Great Quotes from the Conference

- “Stop starting, Start finishing”
 - Sterling Mortensen
- “I have found my tribe.”
 - Jim Sutton
- “If you don’t know to get the story out of the iteration – don’t let it in”
 - Dean Leffingwell