



What is Kanban?

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Frank Vega

Brad Swanson

Agile Denver Presentation - June 2009

DRIVE
WAY





3 Mini-Presentations:

Kanban Basics

Compare & Contrast to Scrum

Experience Report

Who are we?



Frank's Bio:



20 Yrs IT/IS

13 Yrs SW Development

7 Years "SW Architect"

6 Years Lean & Agile

BS Appl. Math/CS

Masters CIS

Brad's Bio:



15 yrs SW development
Developer, tester, mgr
XP since 1999
Cert. Scrum Coach
Masters Comp. Sci.

**Demographics:
Who are you?**



Agile-Denver First Timers?

Kanban First Timers?

Heard/Read some about it?

Using it?

I can TEACH "it"!

Definition:

Kanban - signal board or visual card

看板

visual card

Brief History: Taiichi Ohno



1940s – US Supermarkets

1950s – JIT /Autonomation

1960s - TPS

Fast Forward:



David J. Anderson

Corey Ladas

Karl Scotland

Agile 2007 Open-space

L&K 2009 - Miami

L&K 2009 - London

L&K 2010 - Atlanta

Foundational Principles:

Kanban



**Theory of
Constraints**

Little's Law



TOC – 2 Minutes

“Weakest Link” rules

**Global Performance Measures and
5 Focusing Steps**



TOC – 1 Minute

Throughput

Inventory

Operating Expense



TOC – 30 Seconds

5 Focusing Steps

1: Identify Constraint

2: Exploit It

3: Subordinate All Else

4: Elevate It

5: Repeat



Little's Law – 2 Minutes:

Avg # customers =

(Avg Arrival Rate) x (Avg Time in System)

Avg Time in System =

(Avg # customers) / (Avg Arrival rate)



Little's Law – 1 Minute:

Lead Time_{avg Q Time} =

(WIP_{avg # in queue}) / (Throughput_{acr})

Lead Time_{avg Q time} → Avg Time per Unit

Throughput_{acr} → Units per Time

Two + One Key Practices:

**Limit
Work in
Progress**

**Focus on
Lead Time
(Flow)**

?



Balance



**Lean Operational
Decisions:**

**Value (Throughput)
trumps Flow**

**Flow trumps Limiting WIP
(Waste Reduction)**

Confused? Baby Steps



Work on WIP

Work on bottleneck

Pull work from fixed queue

Work on lower priority work

**Other Interesting Work
(Build Skills)**

Two + One Key Practices:

**Limit
Work in
Progress**

**Focus on
Lead Time
(Flow)**

**Make it
Visible**



BACKLOG 6

ANALYSIS 4

WORK-IN-PROGRESS

SLA 1

STAGING

DEVELOPMENT 3

TEST 2

ACCEPTANCE 6

CODE

REVIEW

DEMO

BETA

41
42
43
44
45
46

DATE
DATE
DATE
DATE
DATE

[Task Card]

[Task Card]

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kanban (k):

Little's Law

Identifying Constraint

WIP Limits

Lead Time

Simple Guidelines

Visible

Kanban (K):

Big K

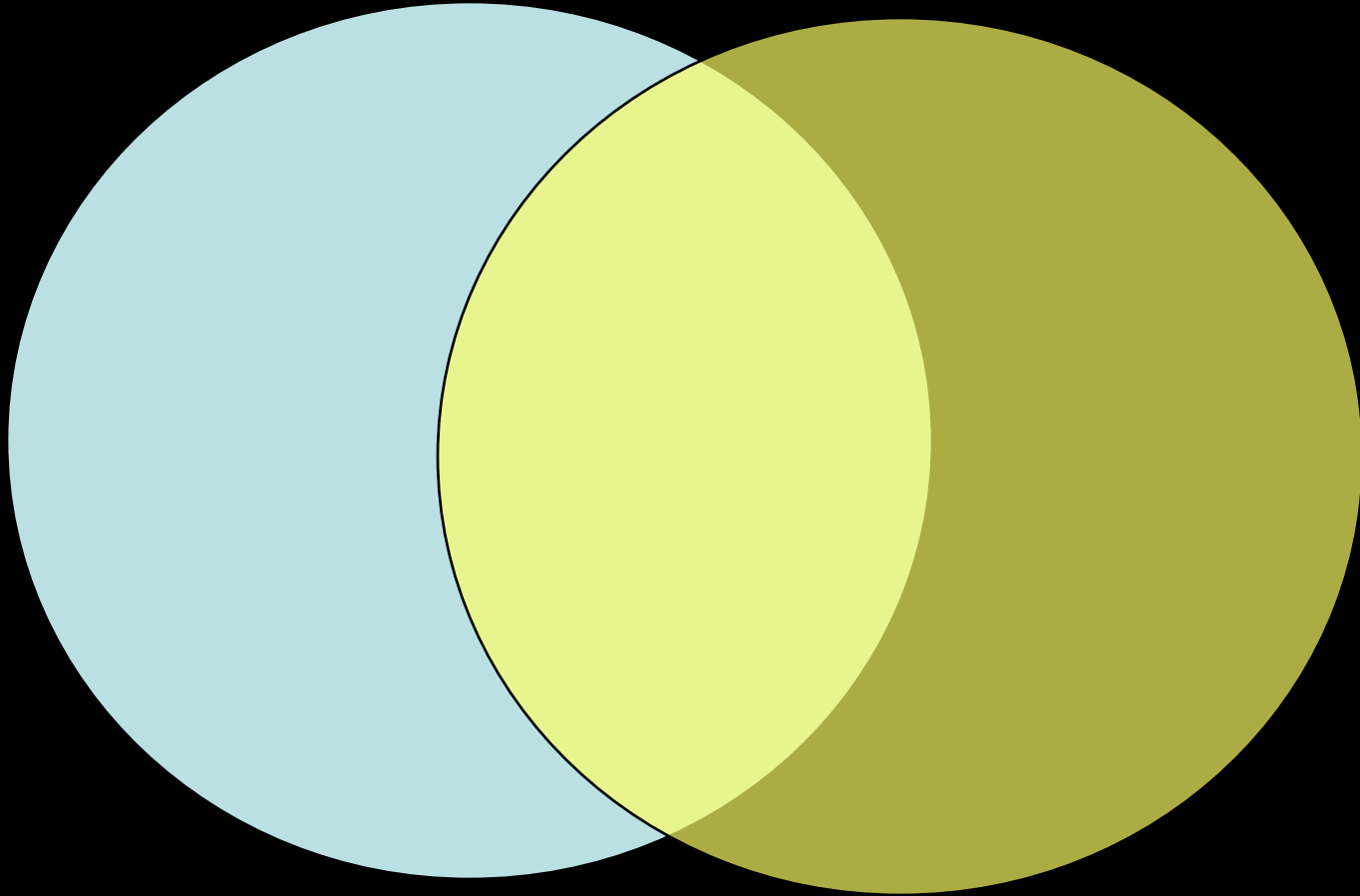
Decouple Schedule and Scope

Iterations (variable)

SLAs

JIT Story Backlogs

Comparing Scrum & Kanban

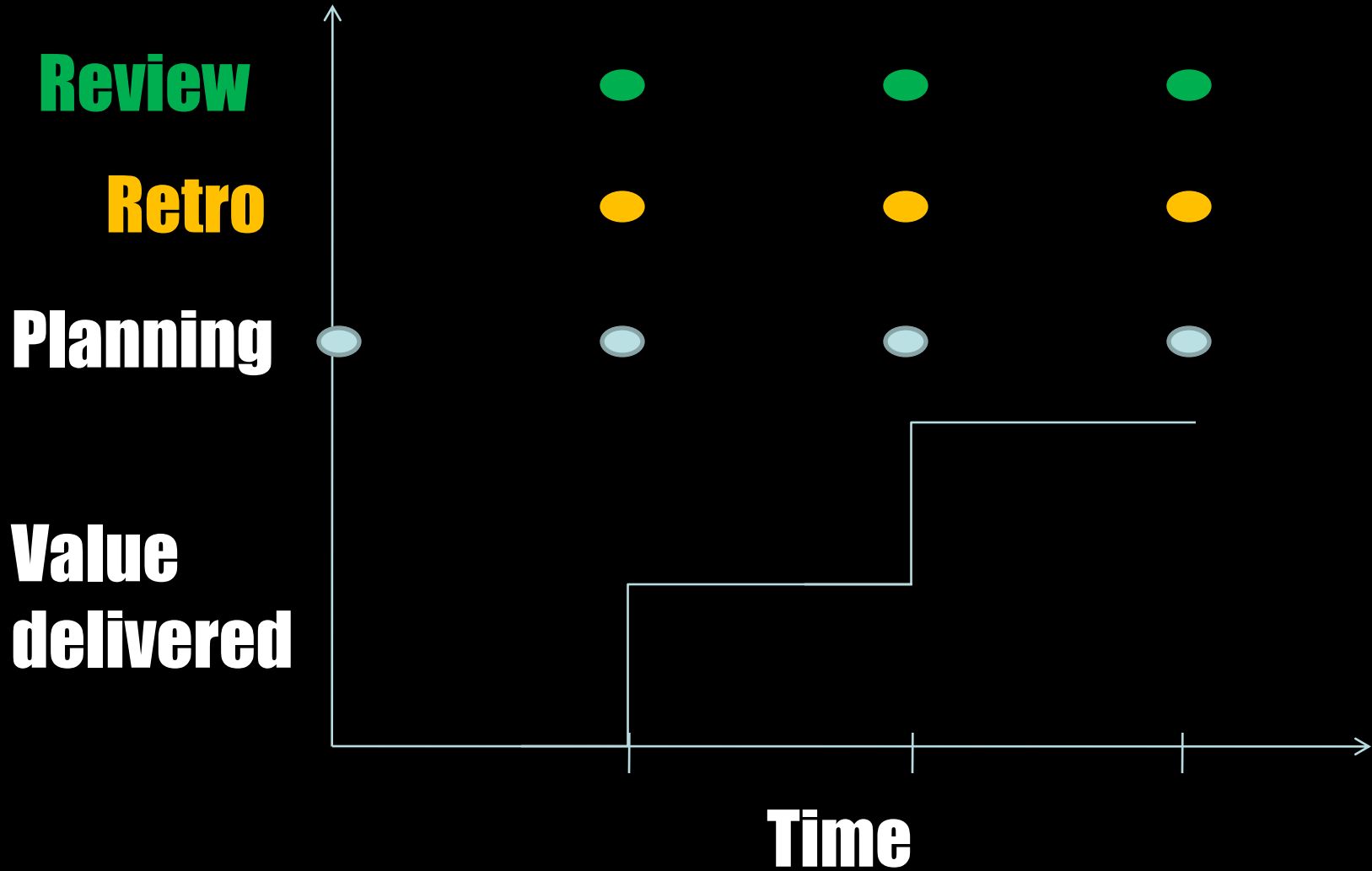


Scrum Time Box

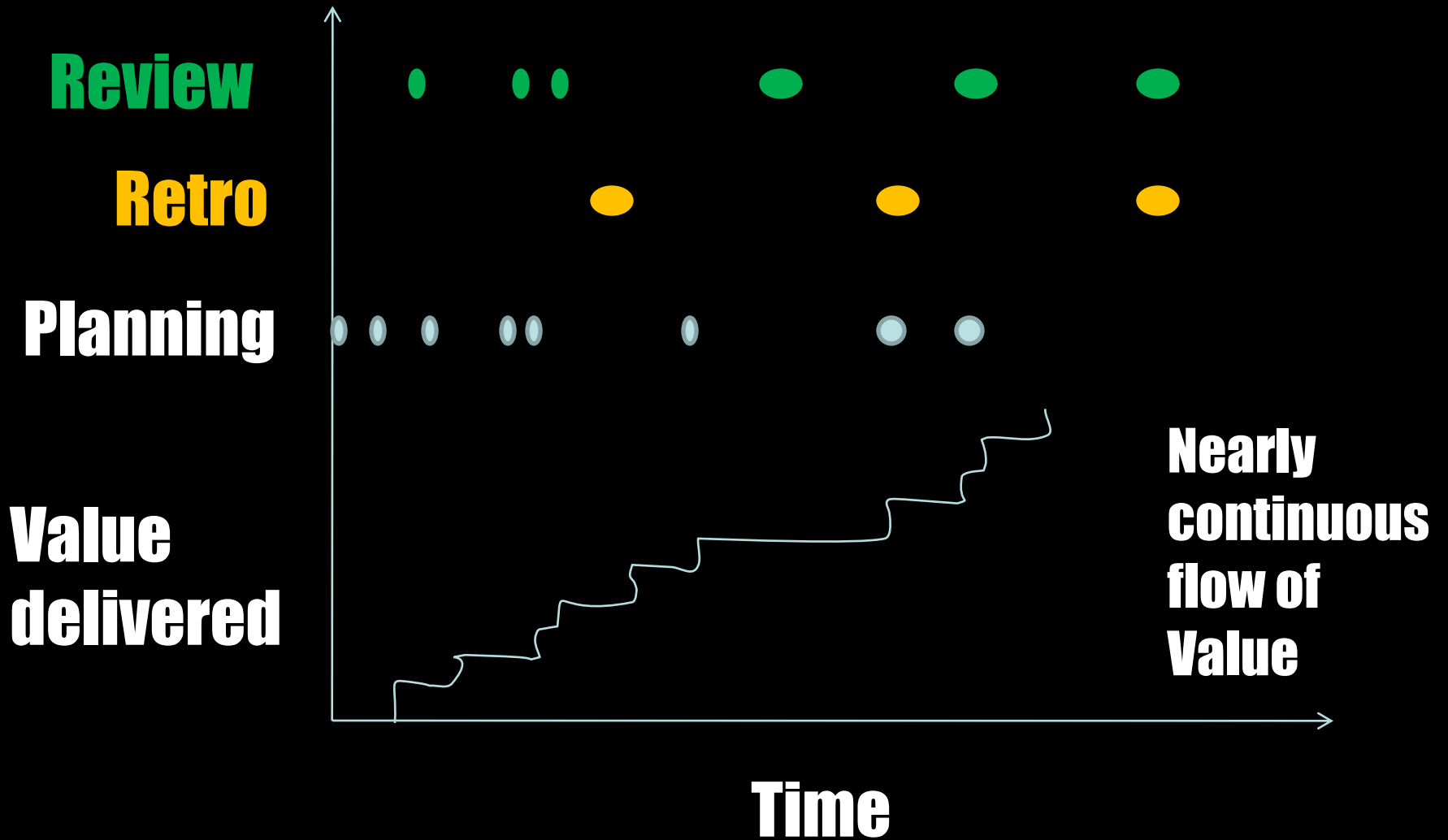


Planning
Development
Review / Demo
Retrospective

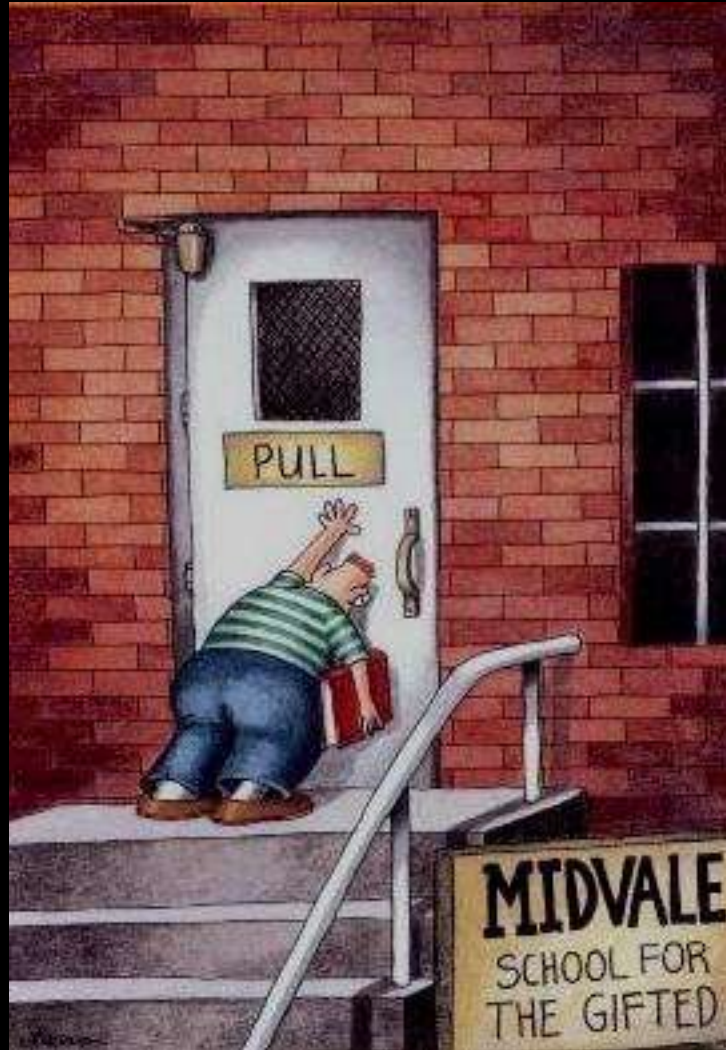
Scrum Cadence



Kanban Cadences



Push vs. Pull

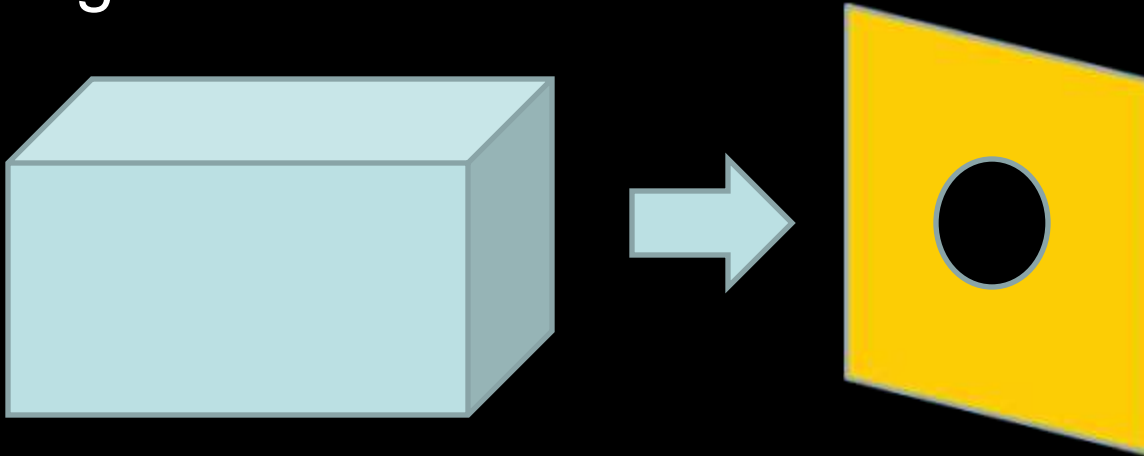


Minimal Marketable Feature

- MMF = unit of work for prioritization
- Would you post the feature release in your product blog or list it in the product brochure?
- Smaller is preferable, but sometimes may be larger than would fit in a short iteration
- Different features require different levels of richness to be marketable & competitive
 - Bronze, silver, gold, or platinum?

Stories vs. MMFs

- Short sprints often force Product Owners to artificially break features into stories too small to release, then track multiple stories that constitute a single marketable feature



- Kanban MMFs allows POs to think in their own terms

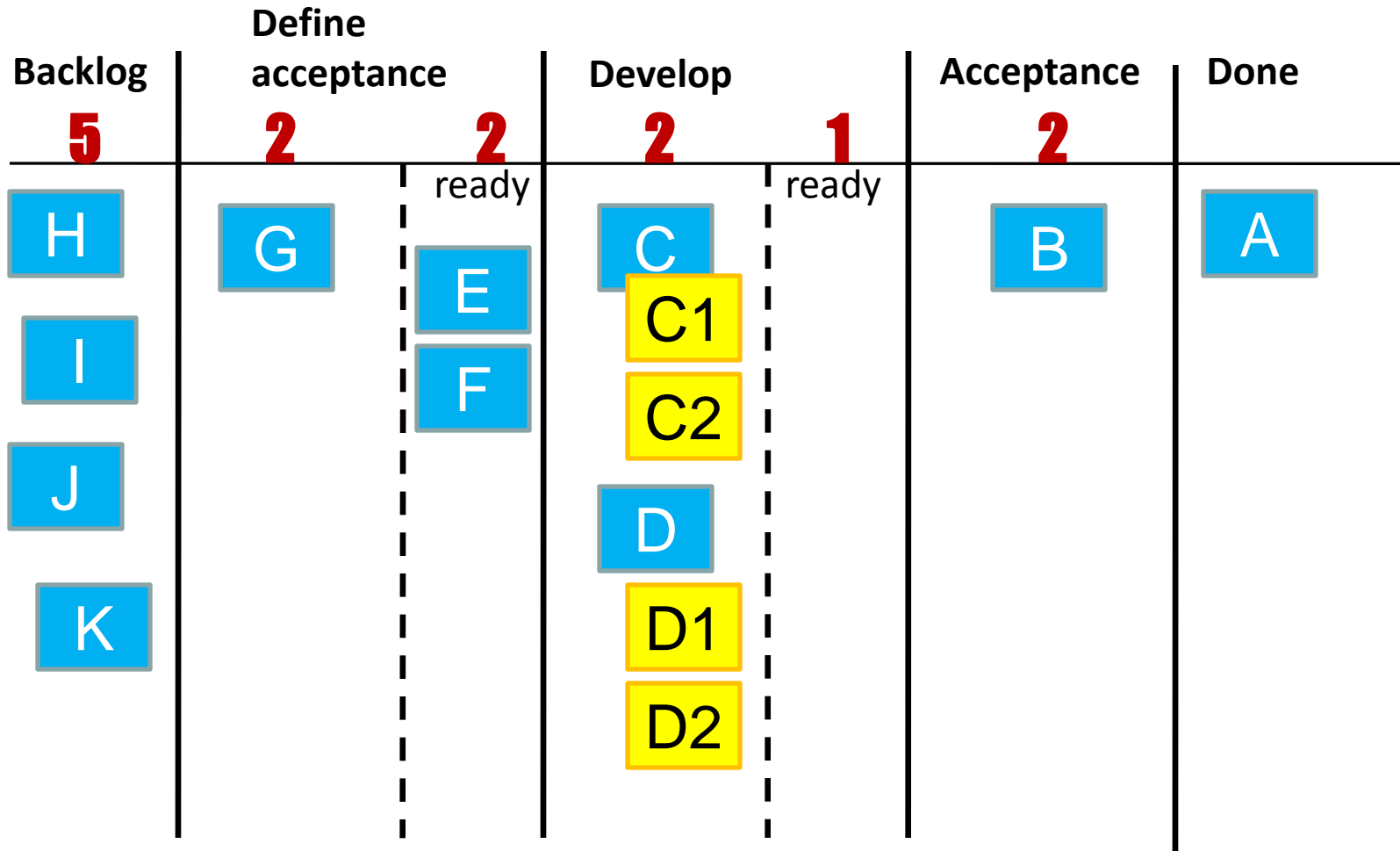
Limiting WIP in Scrum



Planning
Development
Review / Demo
Retrospective



Limiting WIP in kanban



Estimation

Scrum:

- Story estimates in points for release planning
- Task estimates in hours for iteration planning

Kanban:

- Estimate based on avg cycle time & MMFs per unit time
- If MMF sizes vary significantly, track cycle time vs. estimated size
 - E.g. S, M, L, XL
- No need for iteration estimates

Commonalities

- Daily meeting
- Scrum roles
- Cross functional, self-organizing team
- Definition of Done
- Technical practices
 - TDD, refactoring, continuous integration, pairing, simple design...

Experience Report



user experience

The logo features a stylized human figure in dark blue, with a teal circle above its head. The figure's arms and legs are represented by curved, overlapping shapes. The word "user" is in a dark blue, lowercase, sans-serif font. The word "experience" is in the same font, but the letter "x" is replaced by the stylized human figure.

Organization



Cross-Functional Dev Teams

Daily Scrum / Scrum Board

Story Backlogs

2-Week Time-box Iteration

XP Practices

Projects

Team



Long-tooth Stories
Planning “Daaays”
Over-committed
De-scoping & Re-pulling
Inconsistent Sizing
Story Splitting
Technical Debt

Upstream



Portfolio Process

Single Backlog

“Soft” Limit Queue

Small Batch

Similar Size

Prioritized

Team Level



“Free-up”

Pull Epic / MMF

Get Acceptance Criteria

Go!

Planning Now



2 to 4 Hours

JIT Stories

Head-bob Sizing

Fuzzy Spikes

Disappearing Backlogs

Team Kanban Board

Working Process
Last Week in Progress: 0/0
Add to the Backlog: 0/0
In Progress: 0/0
Done: 0/0

看板

Backlog | **To Do** | **Doing** (Doing (Verify)) | **Done** | **改善**

A Story is Done-Done When:
1. The user can use the feature.
2. The user can understand the feature.
3. The user can test the feature.
4. The user can deploy the feature.
5. The user can monitor the feature.
6. The user can update the feature.
7. The user can delete the feature.
8. The user can restore the feature.
9. The user can backup the feature.
10. The user can recover the feature.

Backlog: RGSA, [Sticky notes]

To Do: [Sticky notes]

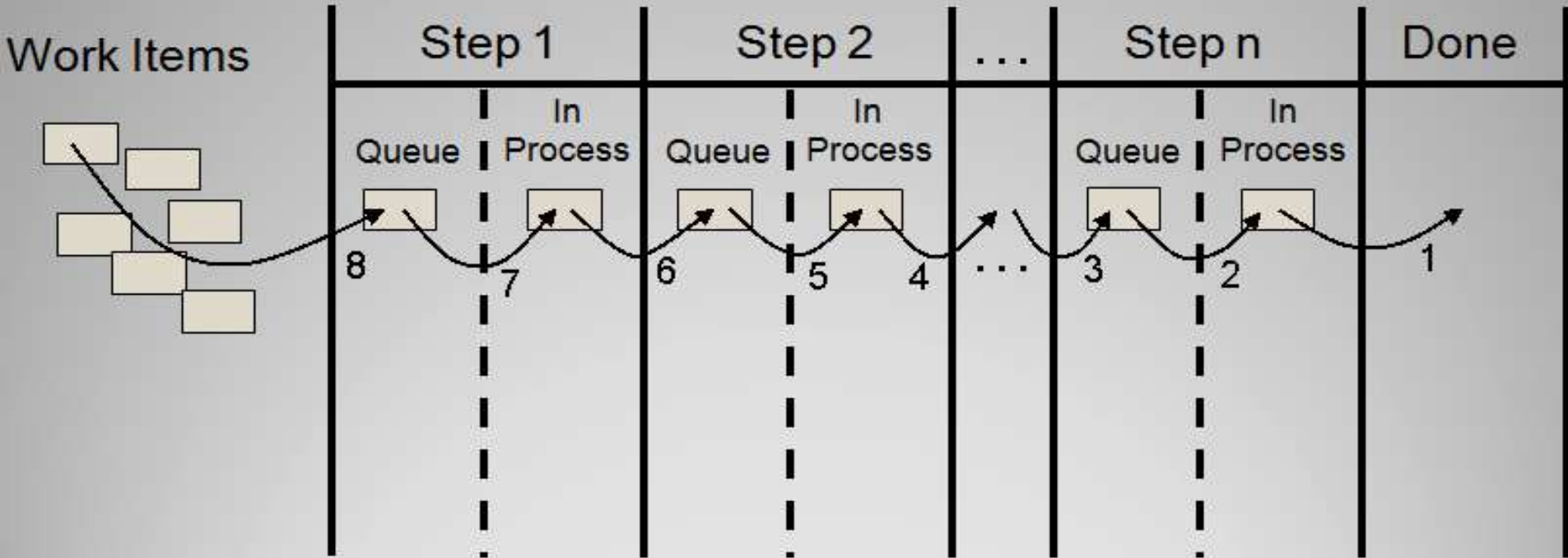
Doing: [Sticky notes]

Done: [Sticky notes]

改善: EPC/SMC DATA, [Sticky notes]

Other: [Sticky notes, documents]

Team Level Kanban



Karl Scotland

Confused? Remember These!



Work on WIP

Work on bottleneck

Pull work from fixed queue

Work on lower priority work

**Other Interesting Work
(Build Skills)**

Team Level Outcomes



Smoother Planning

Manageable Backlogs

Fresh Stories

No Bug Backlog

Technical Debt Decreasing

Decoupled Activities

Predictable **Throughput**

N.B.T.
THE NEXT BIG THING

Context Switches
Variance

Q - Time

Lean & Kanban 2009
Miami Sound *“bites”*