What is Kanban?

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Frank Vega
Brad Swanson

Agile Denver Presentation - June 2009

THINK

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.

Agile-Denver First Timers?

Kanban First Timers?

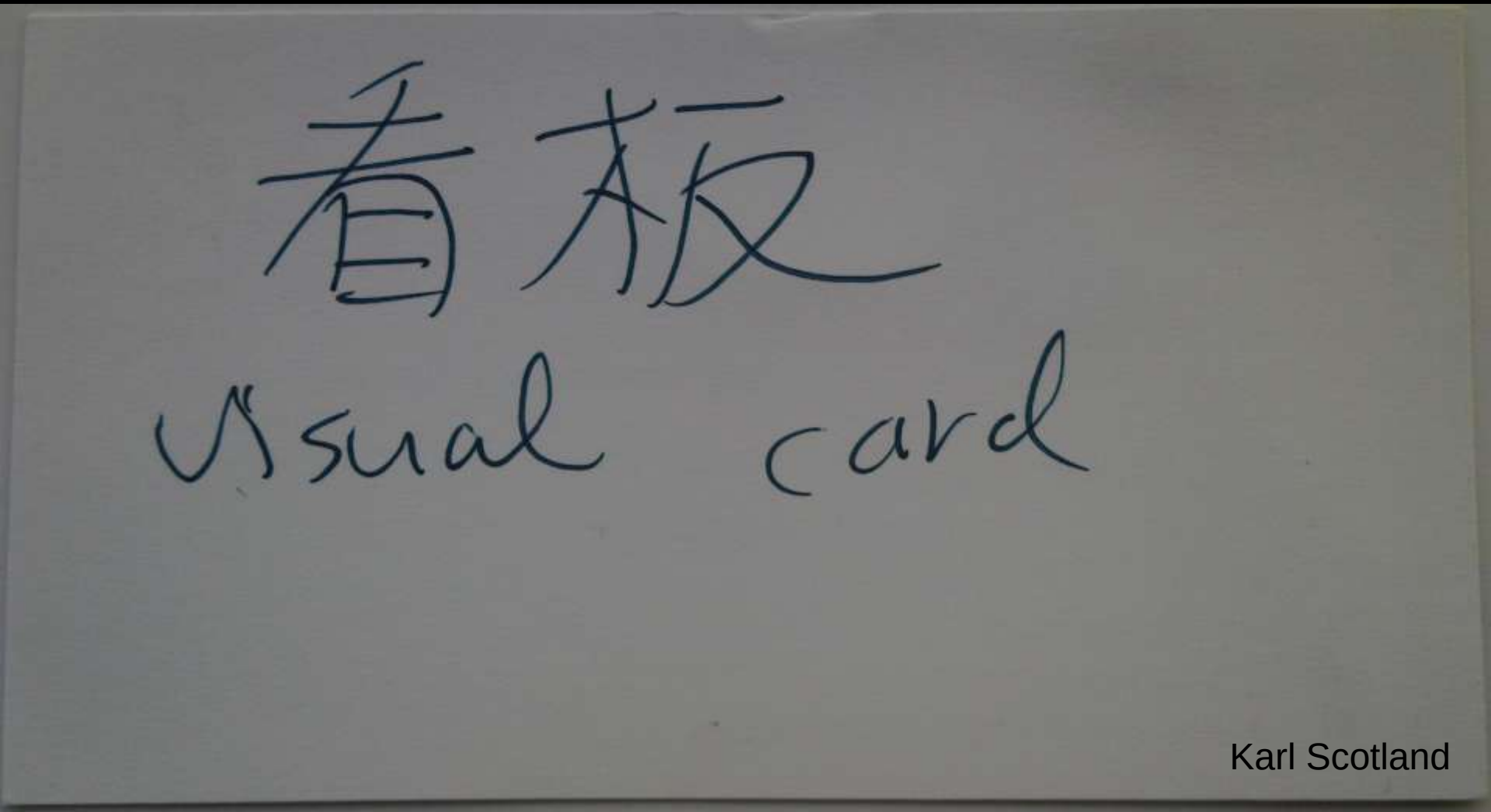
Heard/Read some about it?

Using it?

I can TEACH “it”!

Definition:

Kanban - signal board or visual card



Karl Scotland

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:

$\text{Lead Time}_{\text{avg Q Time}} =$

$(\text{WIP}_{\text{avg \# in queue}}) / (\text{Throughput}_{\text{acr}})$

$\text{Lead Time}_{\text{avg Q time}} \rightarrow$ Avg Time per Unit

$\text{Throughput}_{\text{acr}} \rightarrow$ 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

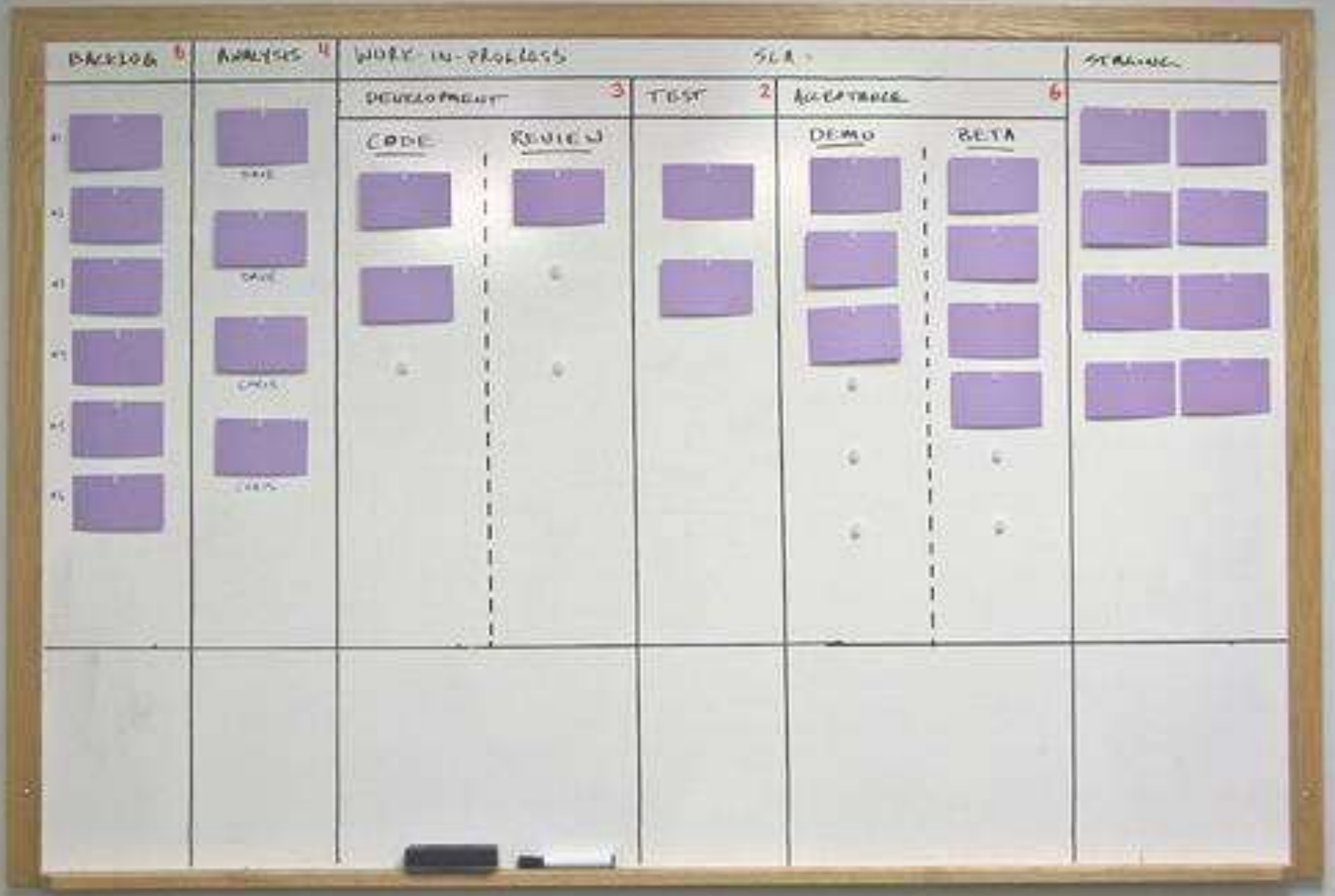
Other Interesting Work (Build Skills)

Two + One Key Practices:

Limit Work in Progress

Focus on Lead Time (Flow)

Make it Visible


BACKLOG 6
ANALYSIS 4
WORK-IN-PROGRESS
SLA
DEVELOPMENT 3
TEST 2
ACCEPTANCE 6
CODE
REVIEW
DEMO
BETA

kanban (k):

Identifying Constraint

WIP Limits

Lead Time

Simple Guidelines

Visible

Kanban (K):

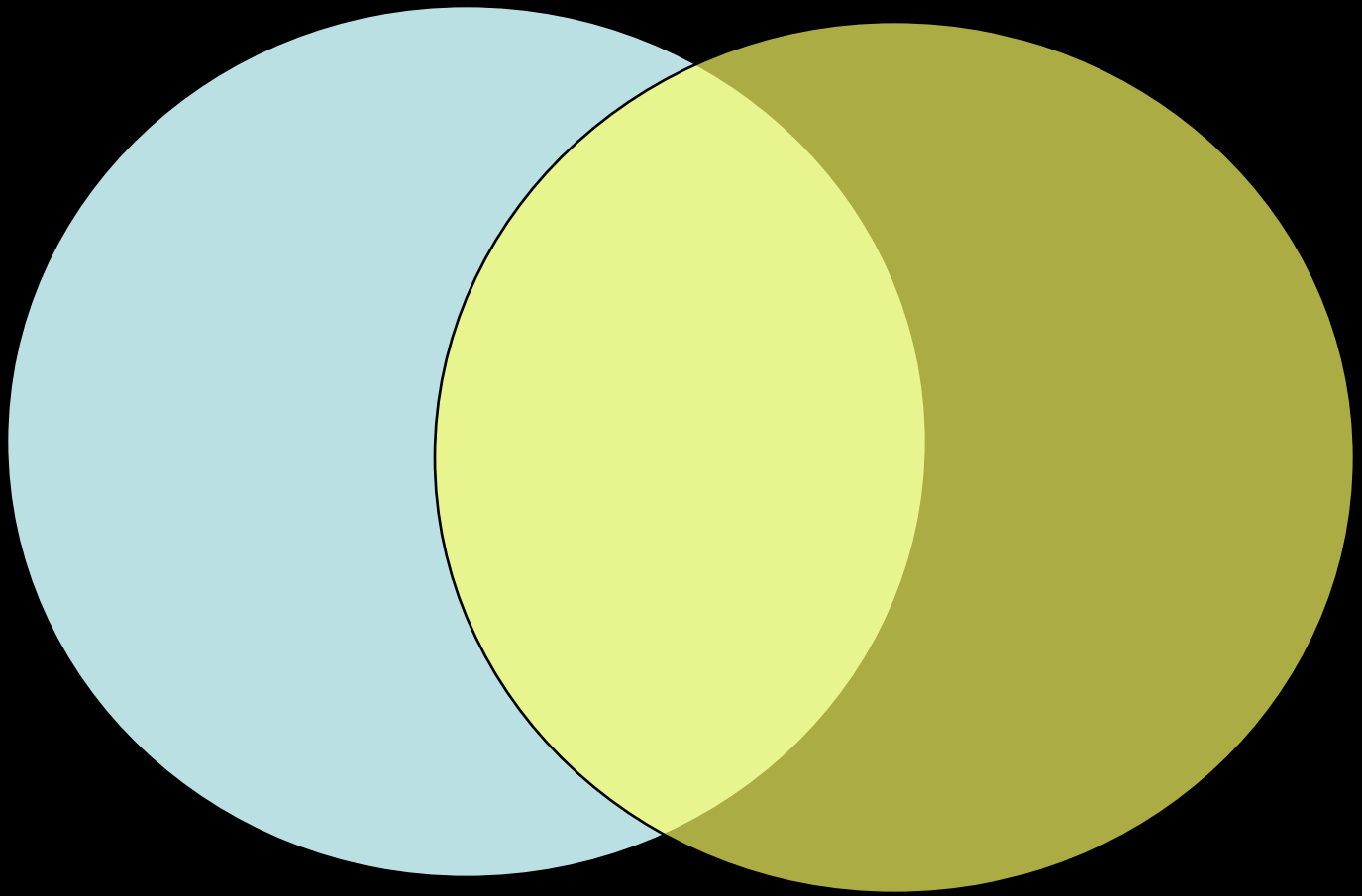
Decouple Schedule and Scope

Iterations (variable)

SLAs

JIT Story Backlogs

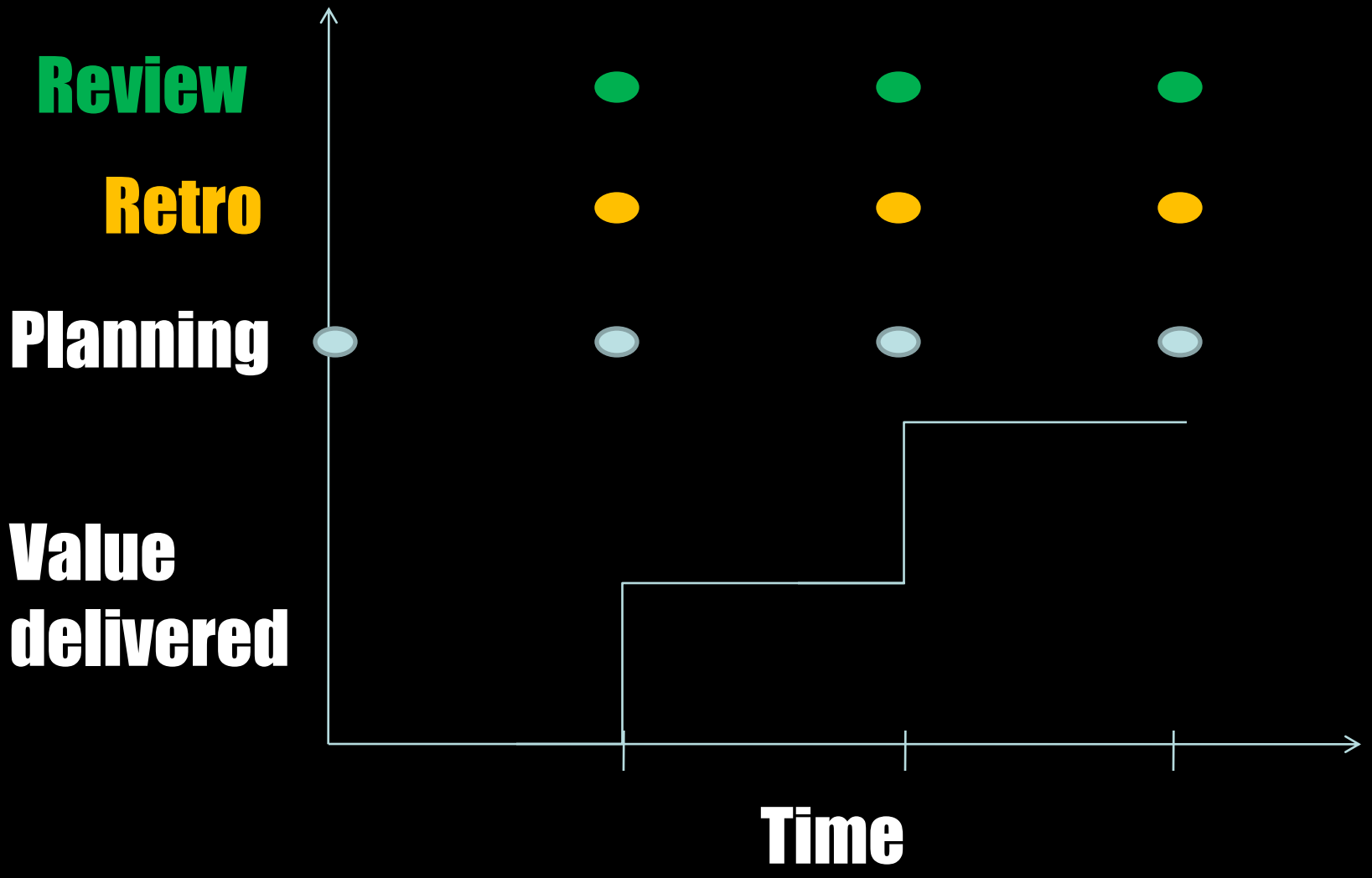
Comparing Scrum & Kanban



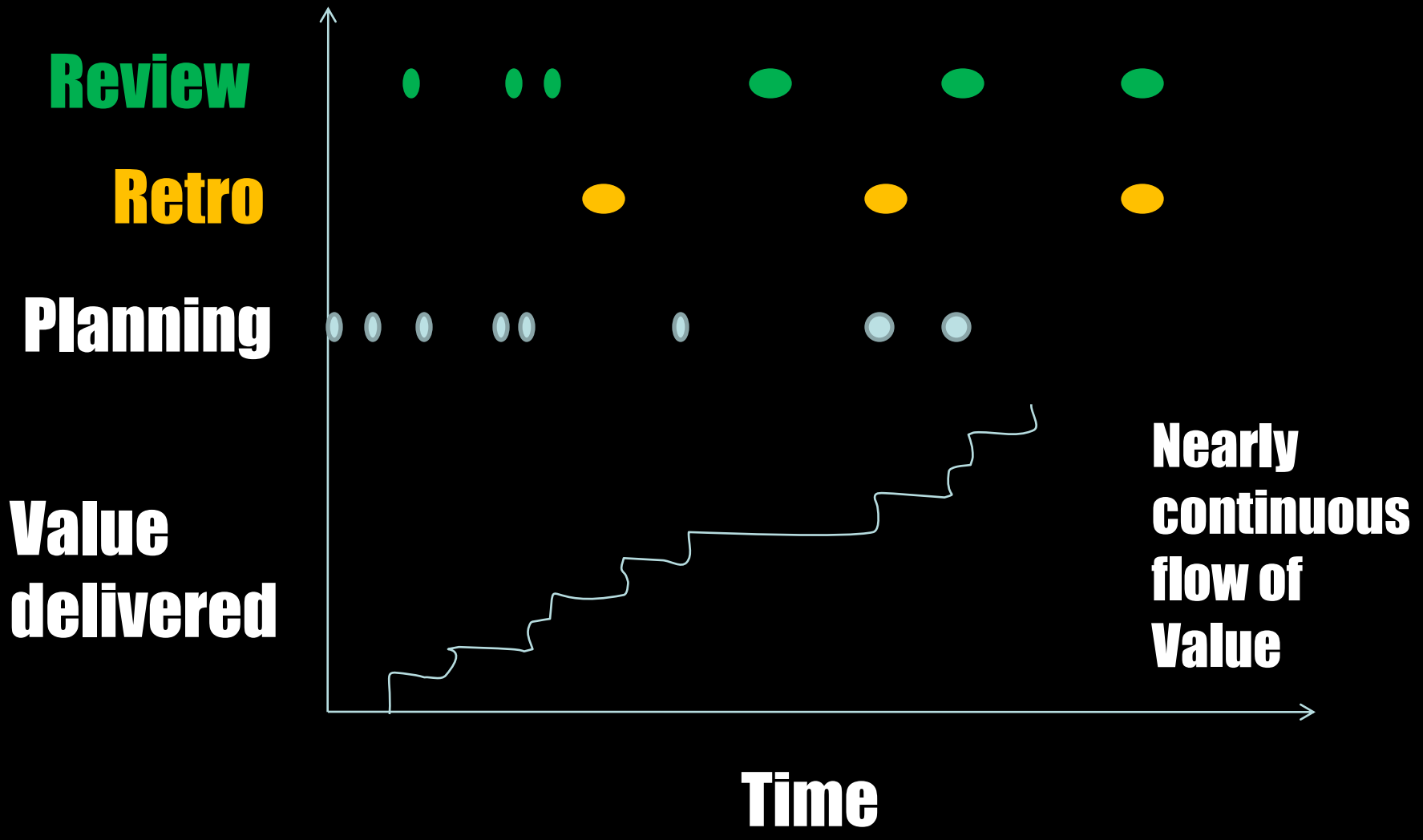
Scrum Time Box

Planning
Development
Review / Demo
Retrospective

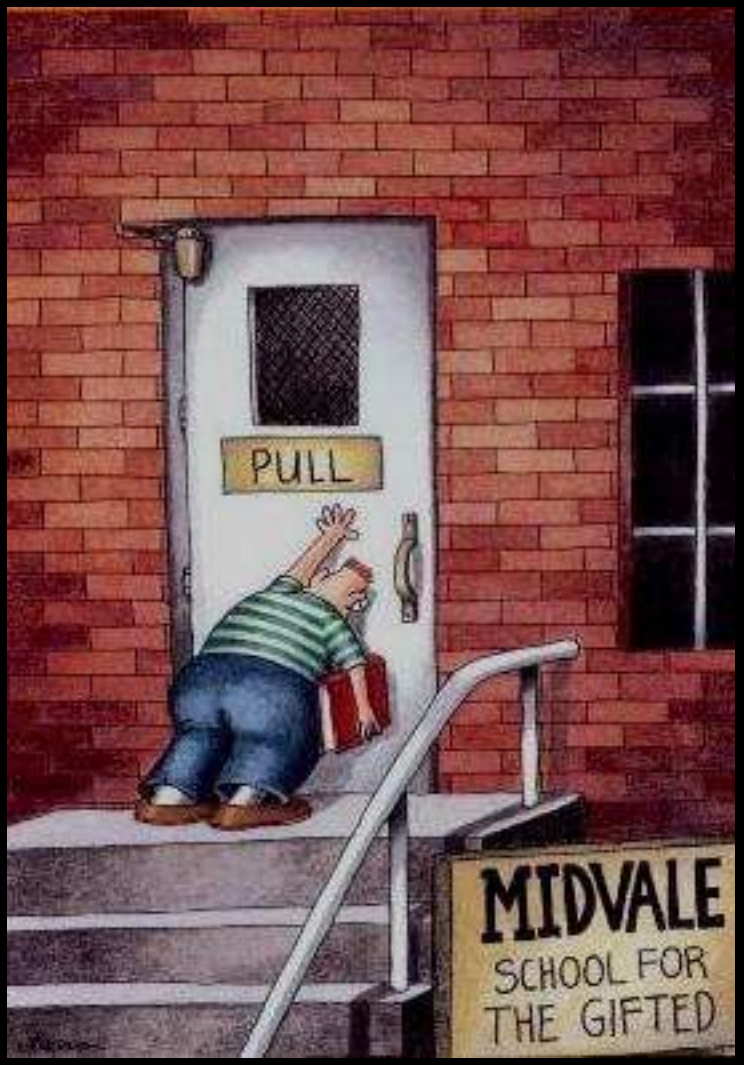
Scrum Cadence



Kanban Cadences



Push vs. Pull

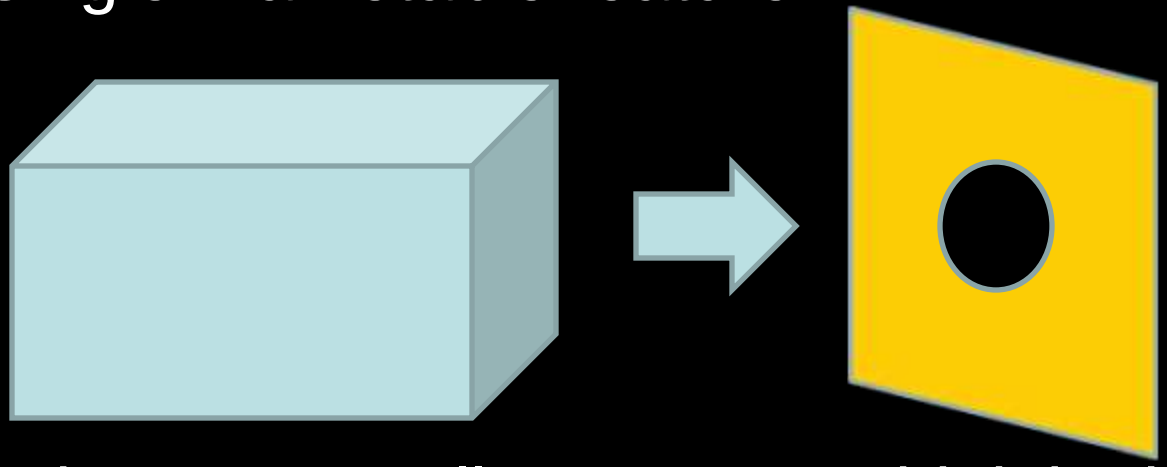


Minimal Marketable Feature

- 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

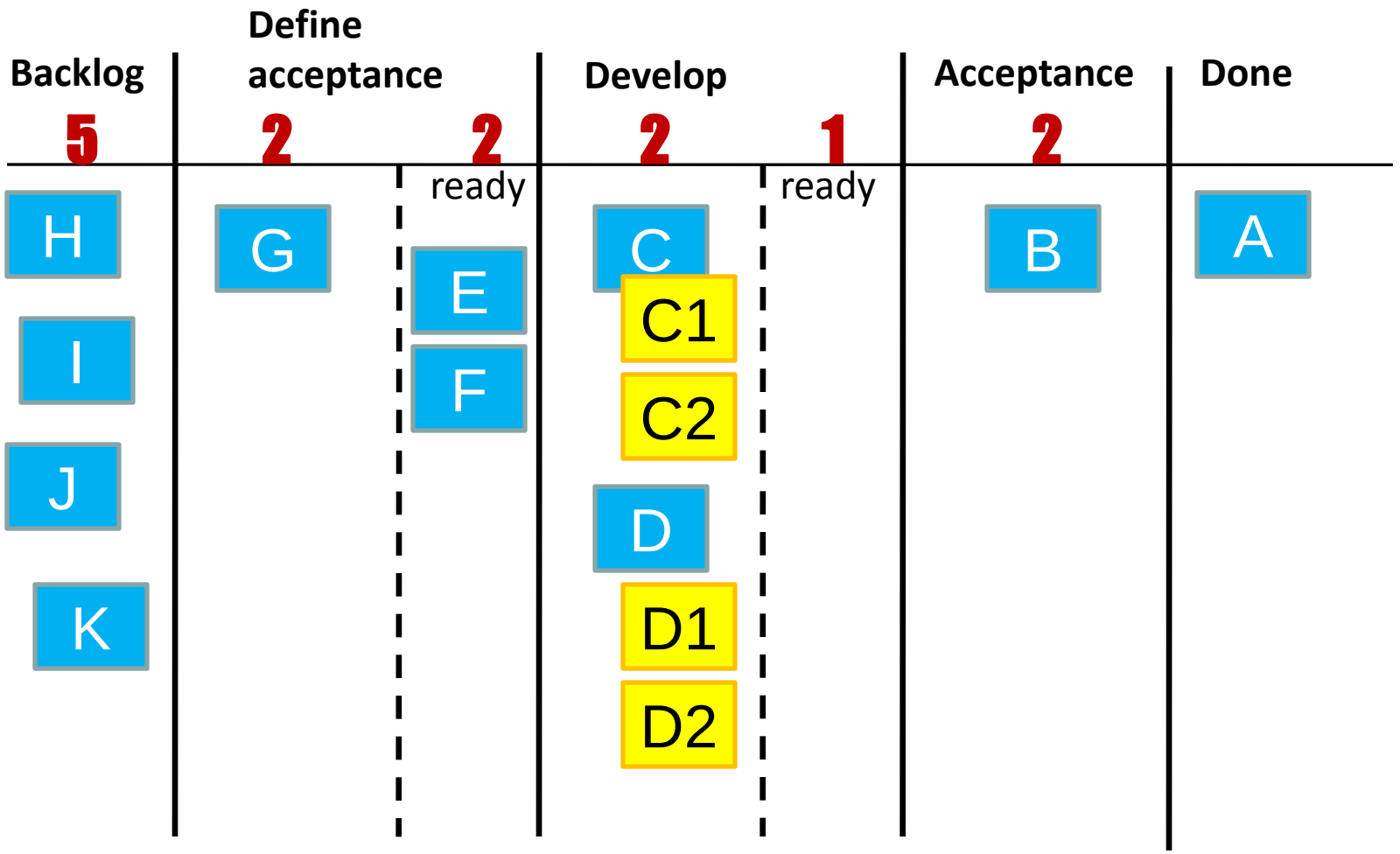


- Kanban MMFs allows POs to think in their own terms

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

Organization

Cross-Functional Dev Teams

Daily Scrum / Scrum Board

Story Backlogs

2-Week Time-box Iteration

XP Practices

Projects

Team

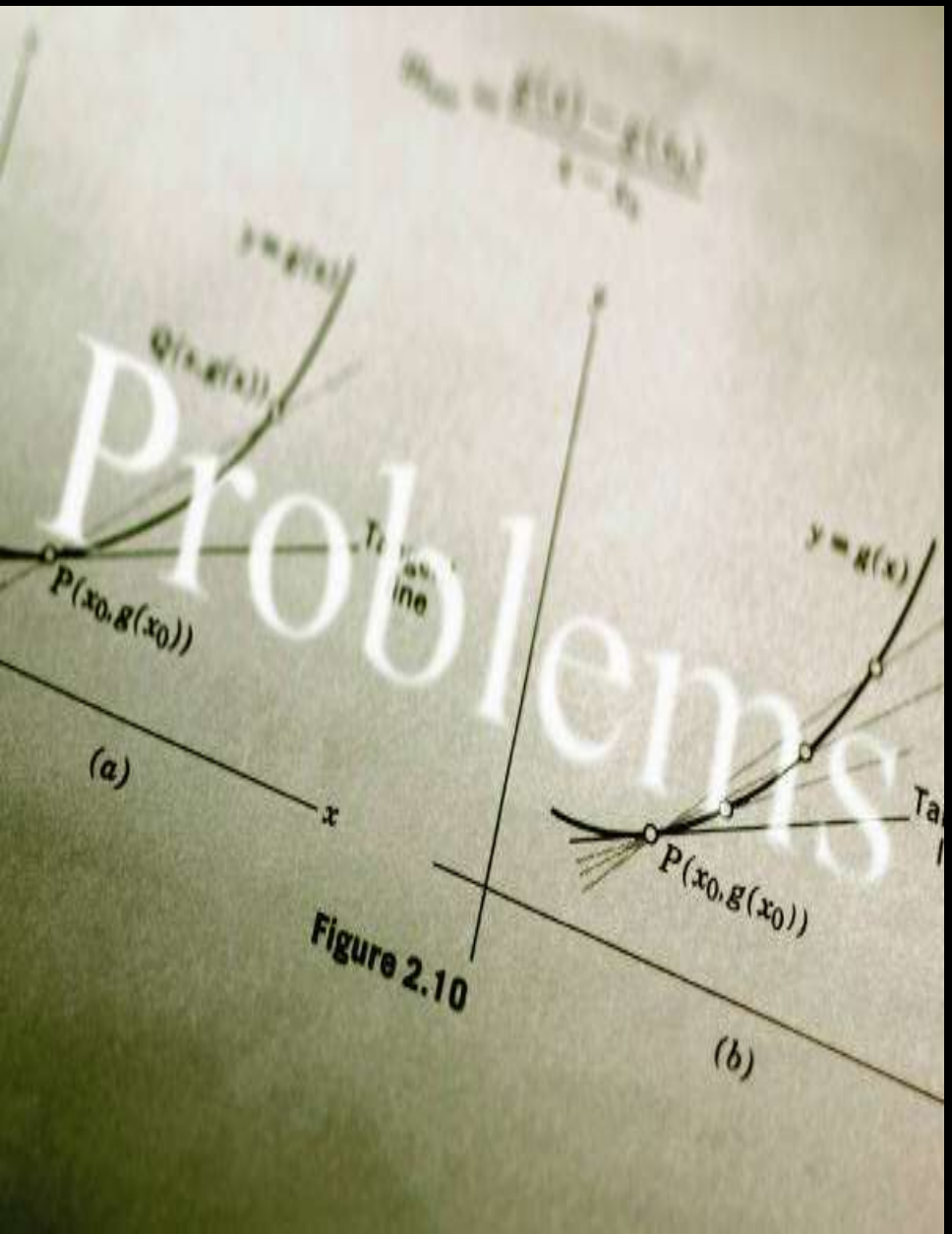


Figure 2.10

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

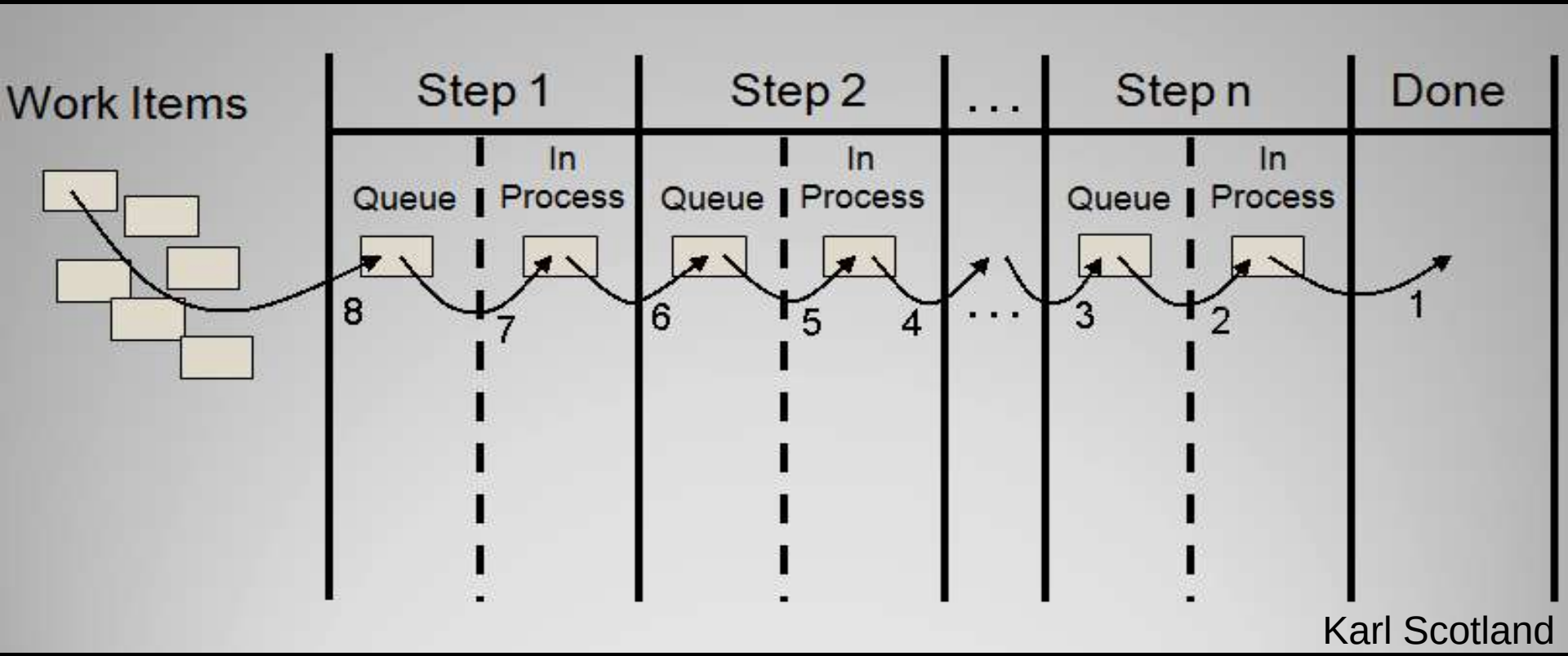
Head-bob Sizing

Fuzzy Spikes

Disappearing Backlogs

Team Kanban Board

Team Level Kanban



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

Context Switches

Variance

Q - Time

Lean & Kanban 2009
Miami Sound *"bites"*