Intro to Kanban

by Craig L. Jones

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30 Years Software Development

12 Years Agile
(mostly XP, Scrum, & Kanban)

CSM & Scrum Coach

Recovering Over-engineer-er

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Your Expectations for Tonight?

As a _____(role)_____

I want Kanban in my tool box

So that _____(expectation)_____

Lean

Kaizen

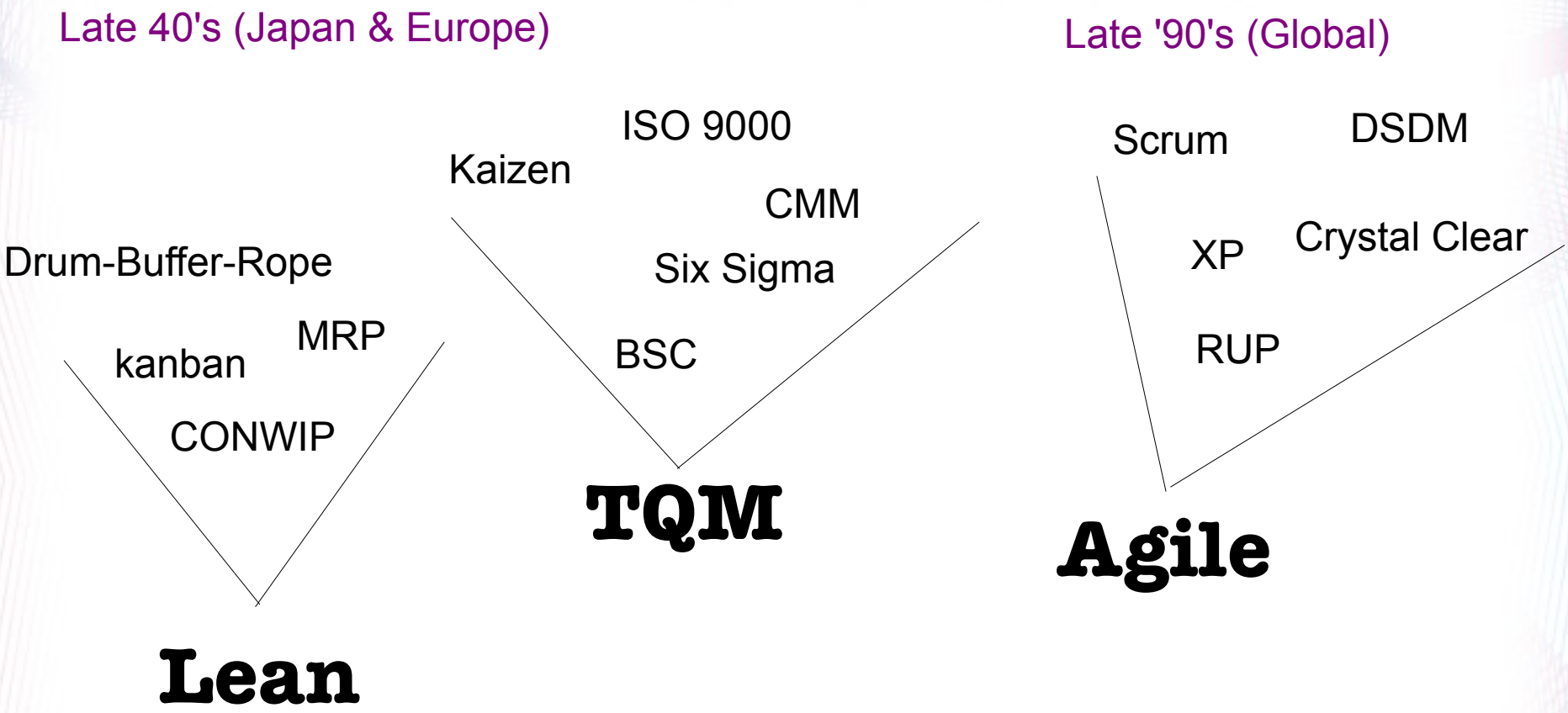
Scrum

AGILE

XP

Kanban

Scrumban


Late 40's (Japan & Europe)
Late '90's (Global)
ISO 9000
Kaizen
Scrum
DSDM
CMM
Drum-Buffer-Rope
Six Sigma
XP
Crystal Clear
MRP
kanban
BSC
RUP
CONWIP
TQM
Agile
Lean

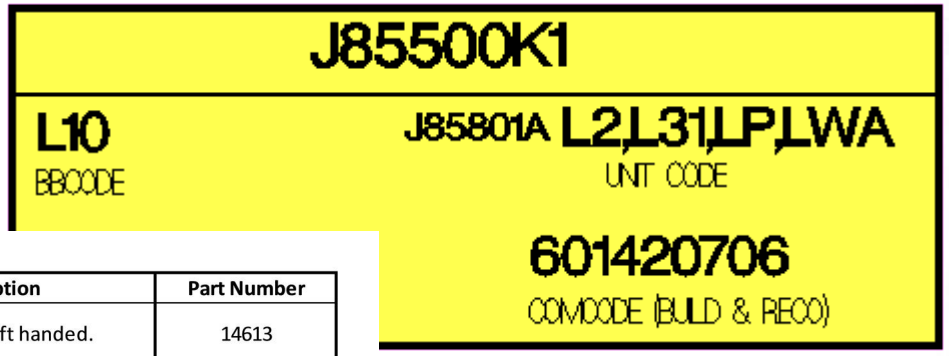
Kanban

Kanban means “Sign Board”

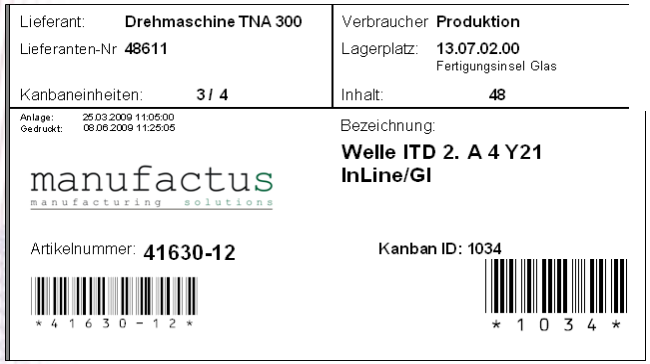
Kanban is an element of just-in-time (JIT) production, as invented by Taiichi Ohno for Toyota in the late 1940's – based on studies of inventory systems used in supermarkets at the time.

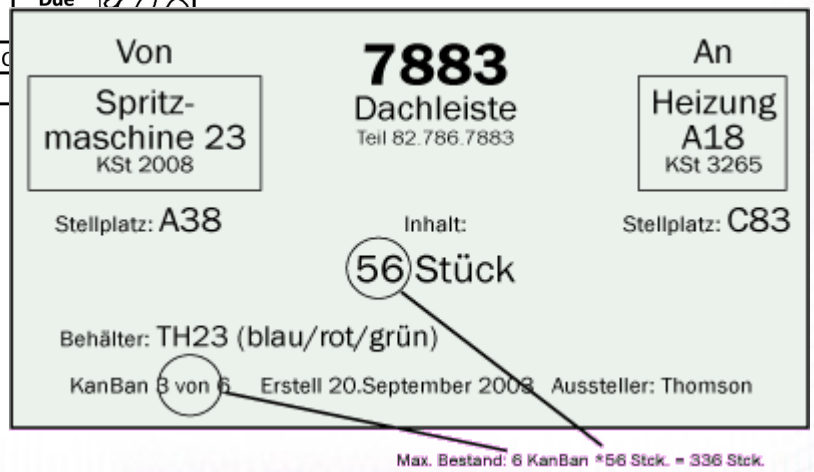
kanban card = “signal card”

“kanban” with a lower-case “K”

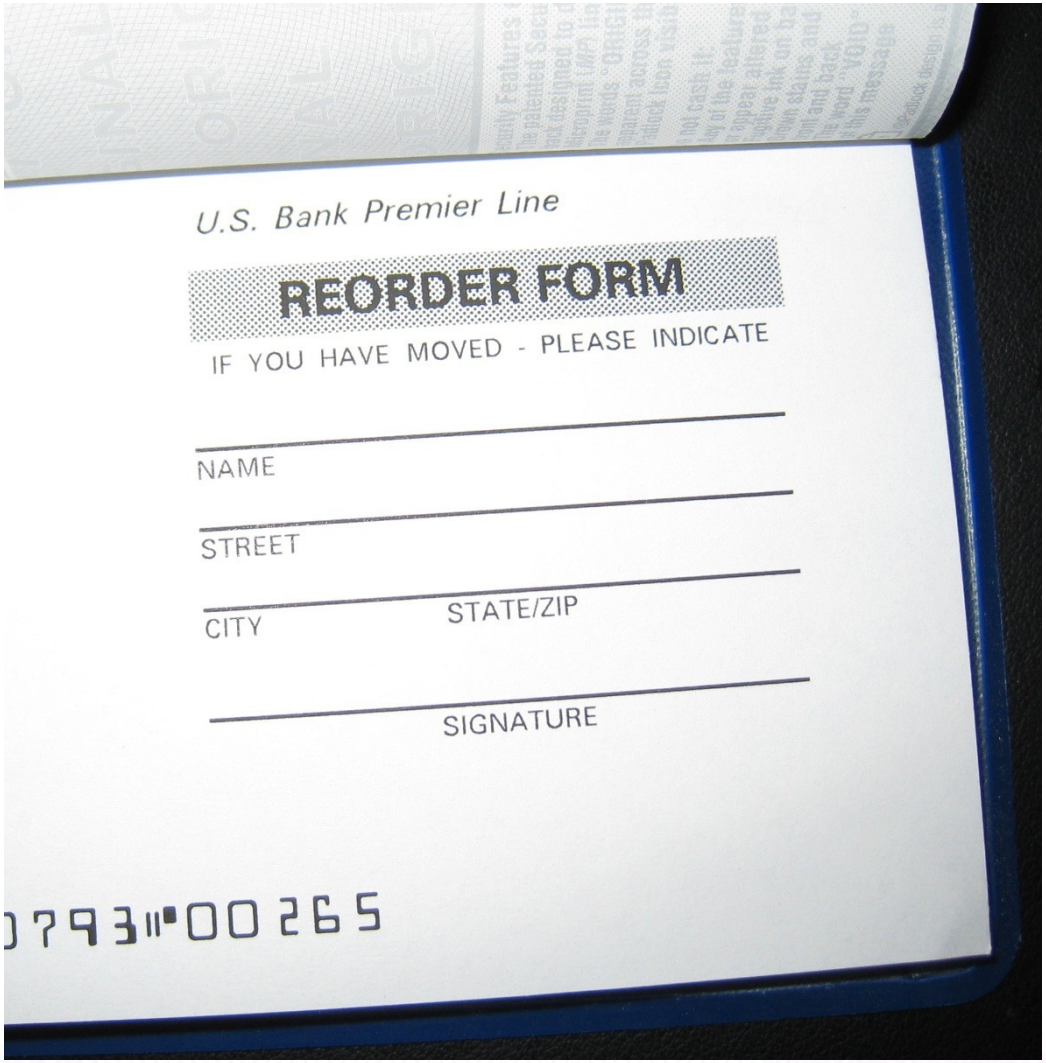


Part Description				Part Number	
Smoke-shifter, left handed.				14613	
Qty	20	Lead Time	1 week	Order Date	9/3
Supplier	Acme Smoke-Shifter, LLC			Due	
Planner	John R.			Location	



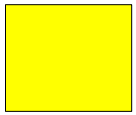


kanban card = “signal card”



“Kanban” System

“Kanban” with a Capital “K” refers to a system (framework) for tracking work in progress.



“Signal” Cards → Work Cards

Kanban & Scrum Share...

- Easy to Learn the Basics
- Big, Visible Charts
- Regular Cadence
- Retrospectives (“Inspect & Adapt”)
- Cross-Functional Collaboration
- Maximizing Value (by Eliminating Waste)
- Early Feedback
- Formal Definitions of Ready/Done

Kanban vs. Scrum

- It's all just “Work”
- Steady “Flow” by Limiting Work in Progress (“WIP”)
- Measure Cycle Time & Throughput
- “Pull” System

- Stories, Epics & Tasks
- Incremental Delivery via (2 week) Sprints
- Measure Velocity
- Sprint Planning/ Negotiating

How to Choose?

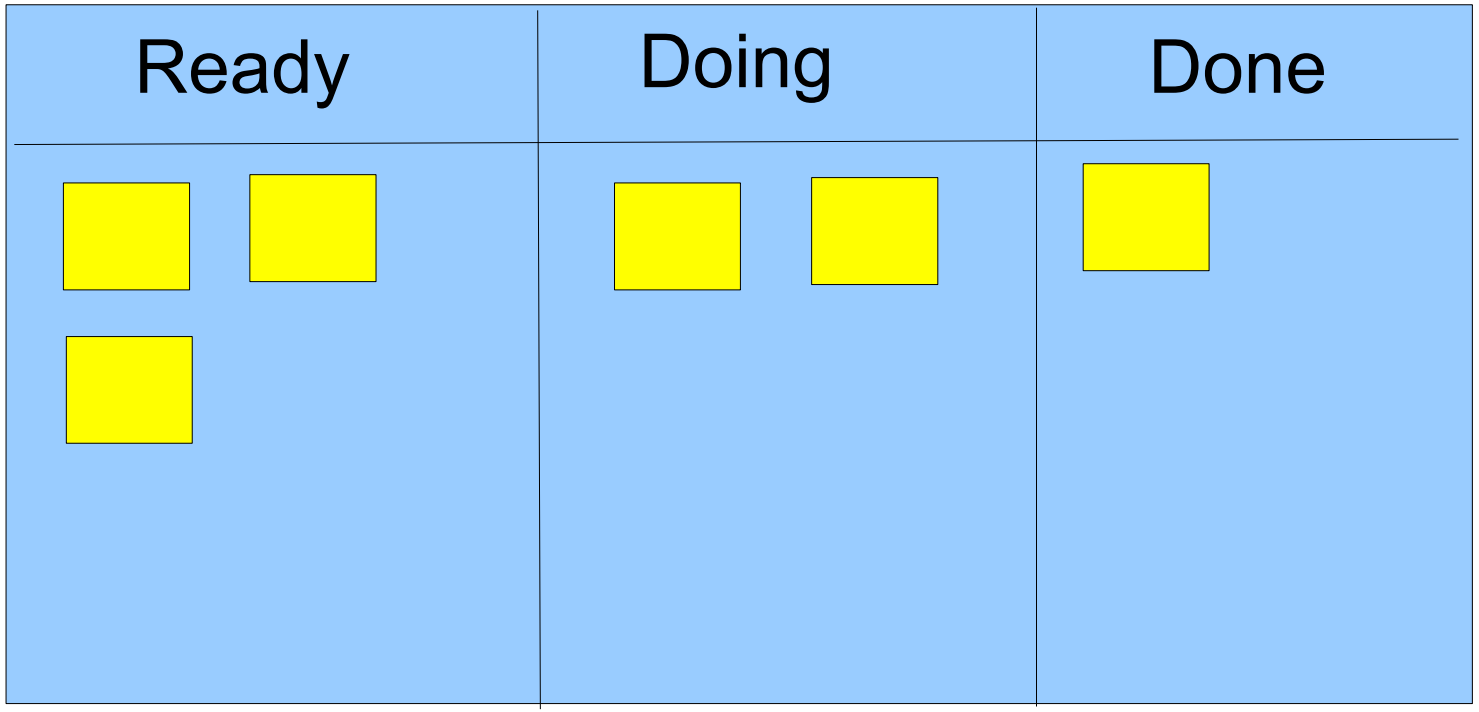
Kanban:

- Operations Work
- Software Maintenance Work
- Coming from Rigid Legacy Methods (Waterfall)
- Compartmentalized, Siloed Teams

Scrum:

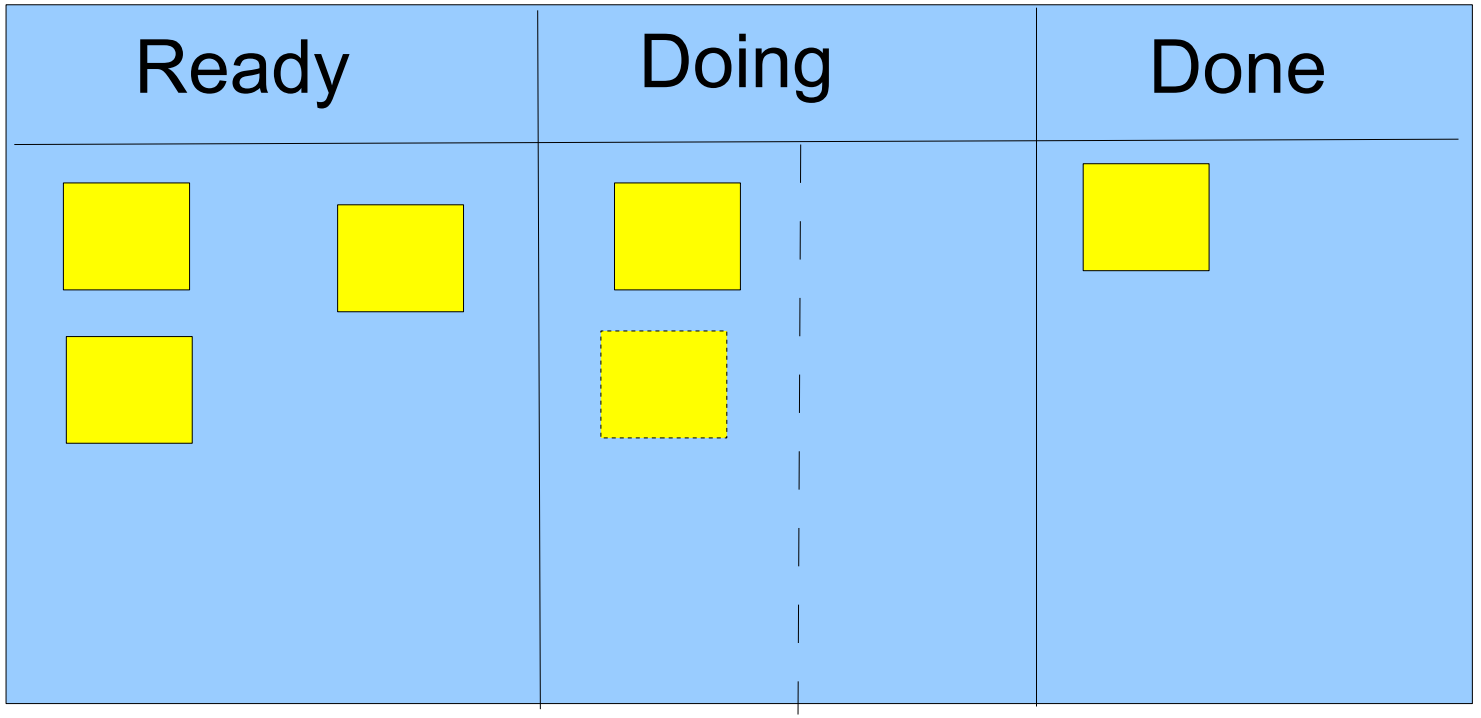
- Greenfield Project
- Many Stakeholders
- Must Coordinate Around a “Roadmap”
- Lots of Epic Stories

A Simple Kanban Board



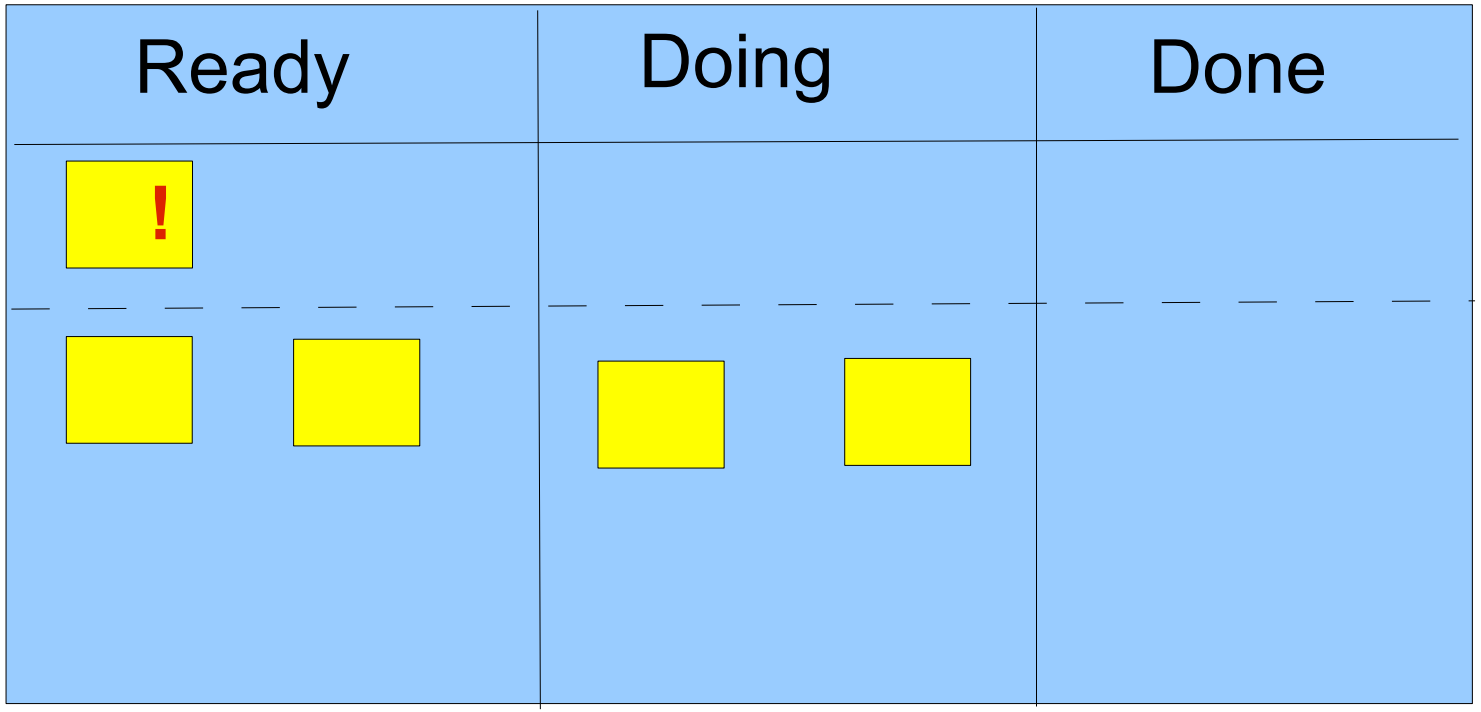
Vertical “Lanes”

A Simple Kanban Board



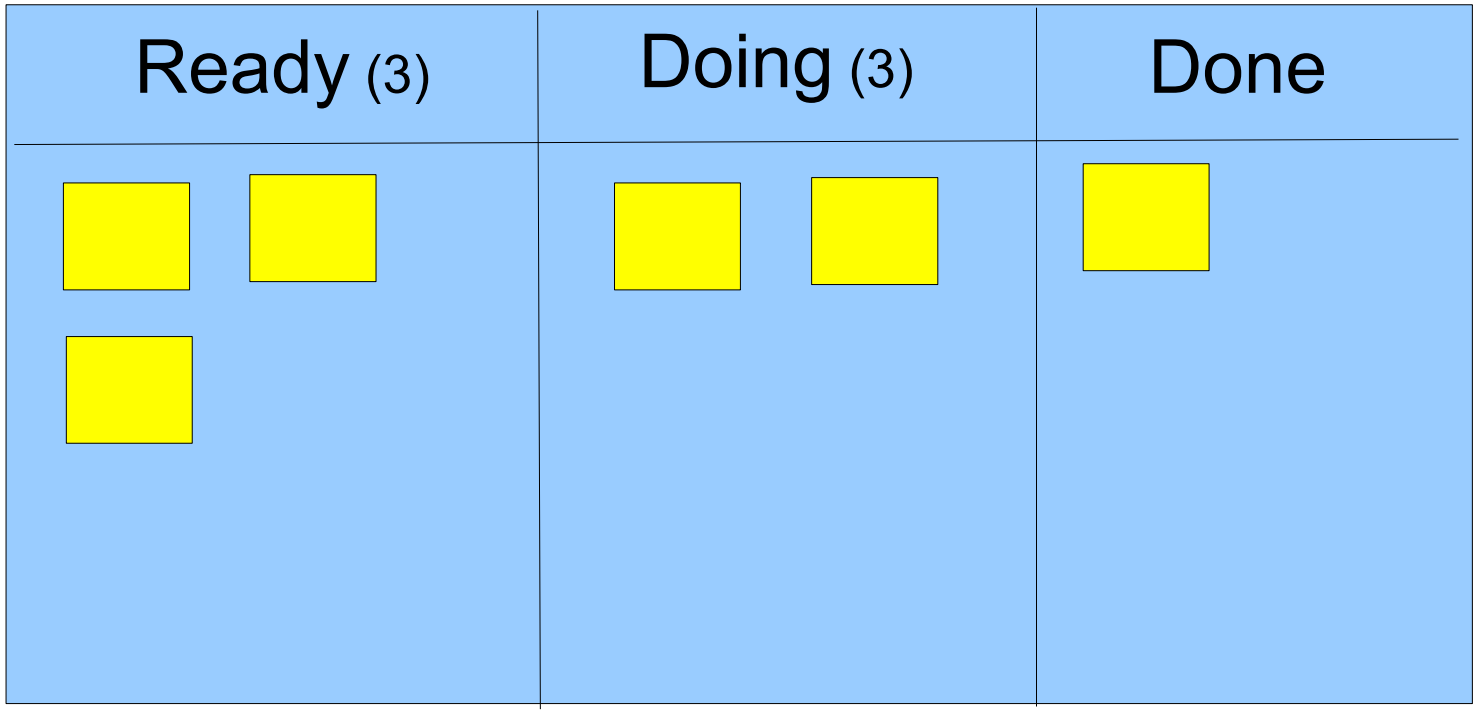
"Sub Lanes"

A Simple Kanban Board



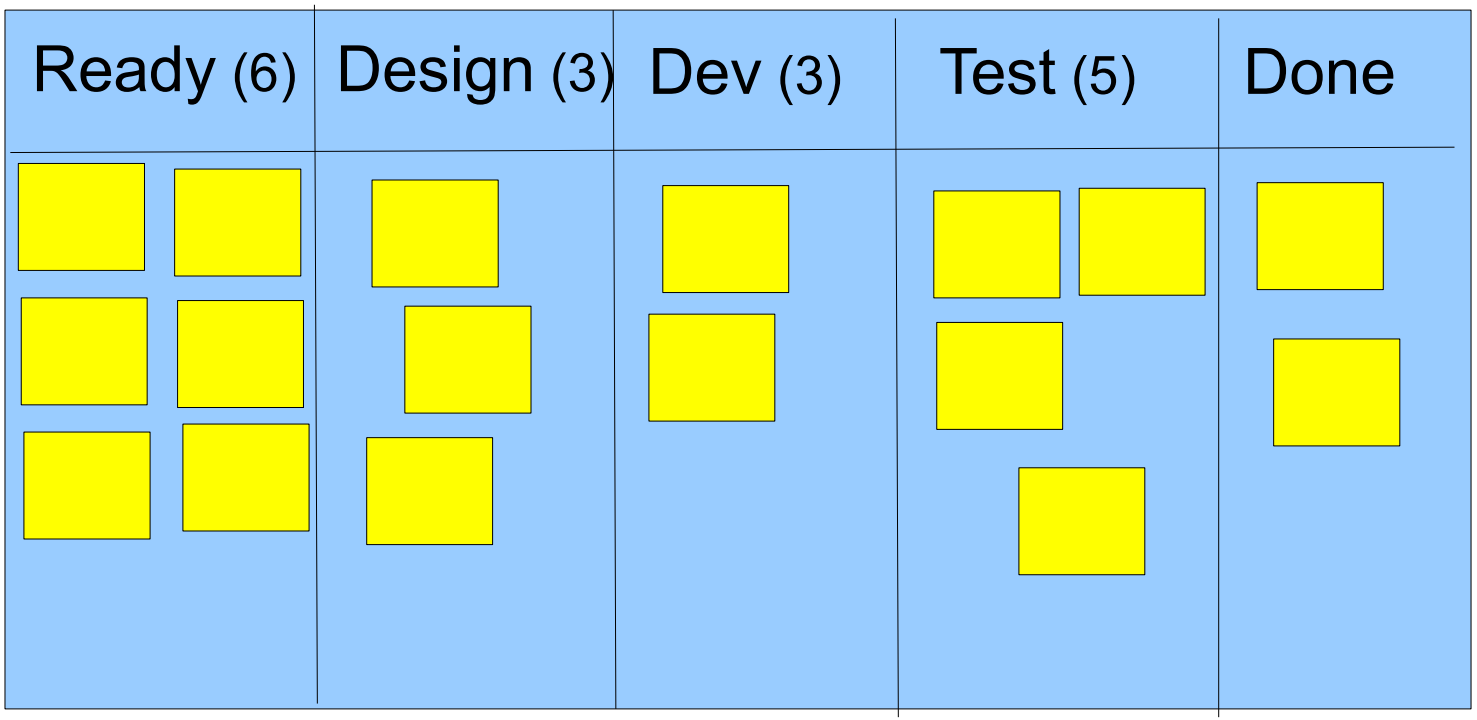
Horizontal “Swim Lanes”

A Simple Kanban Board



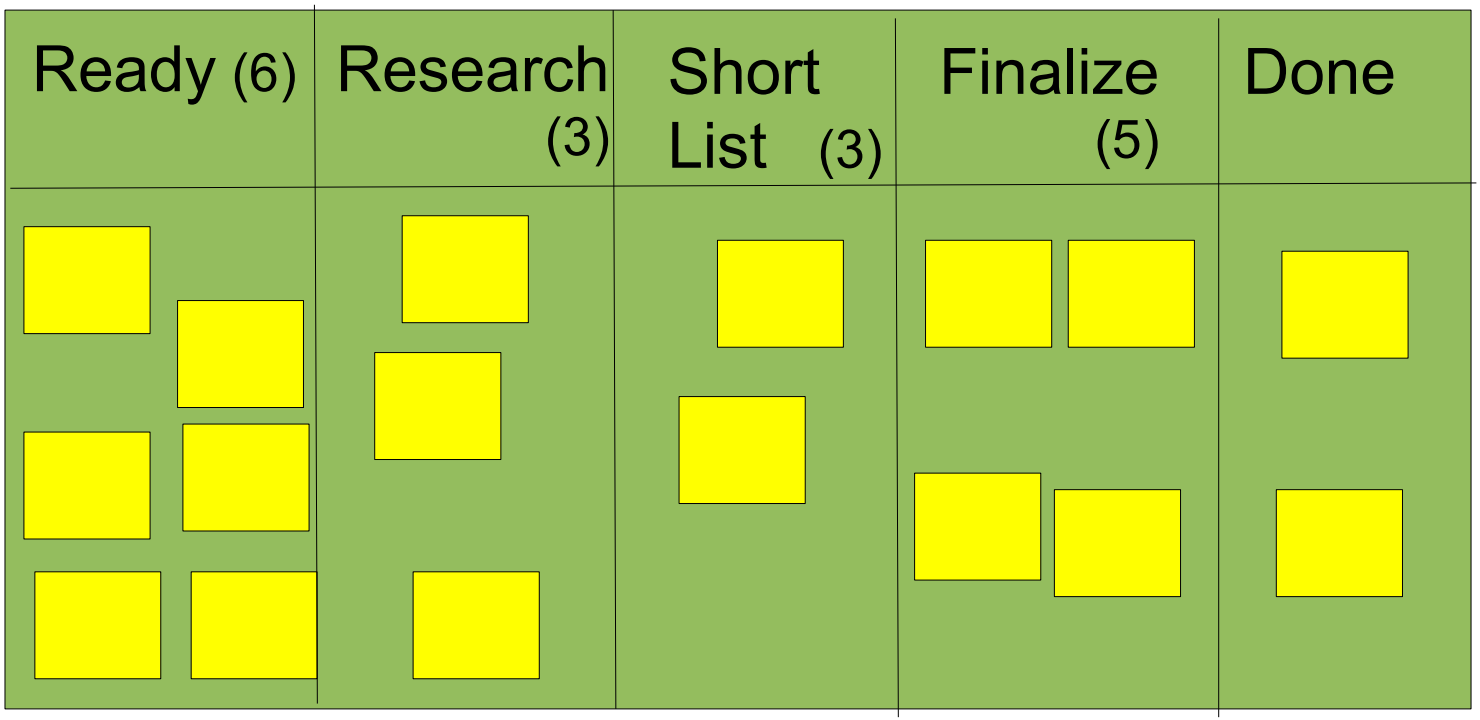
"WIP Limits"

A Software Dev Kanban Board



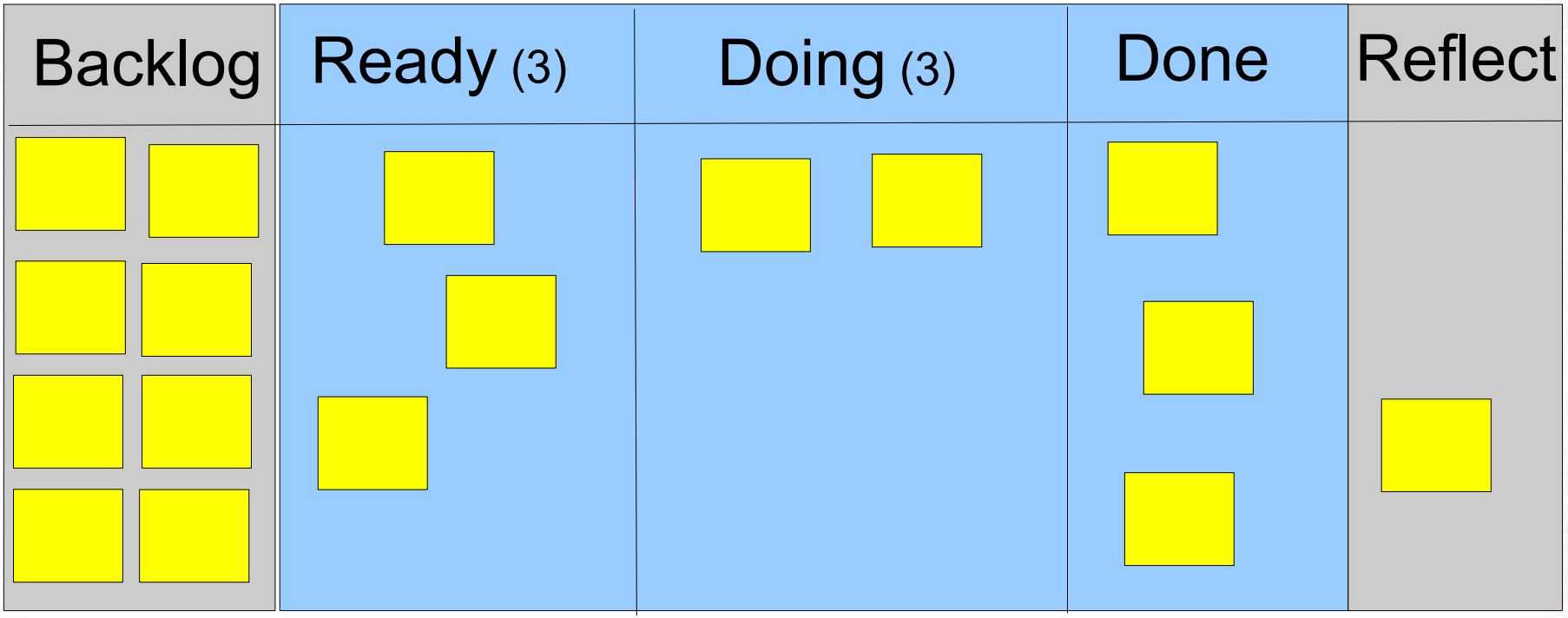
Example of a team workflow with progressive steps (by different handlers)

An Event-Planning Kanban Board

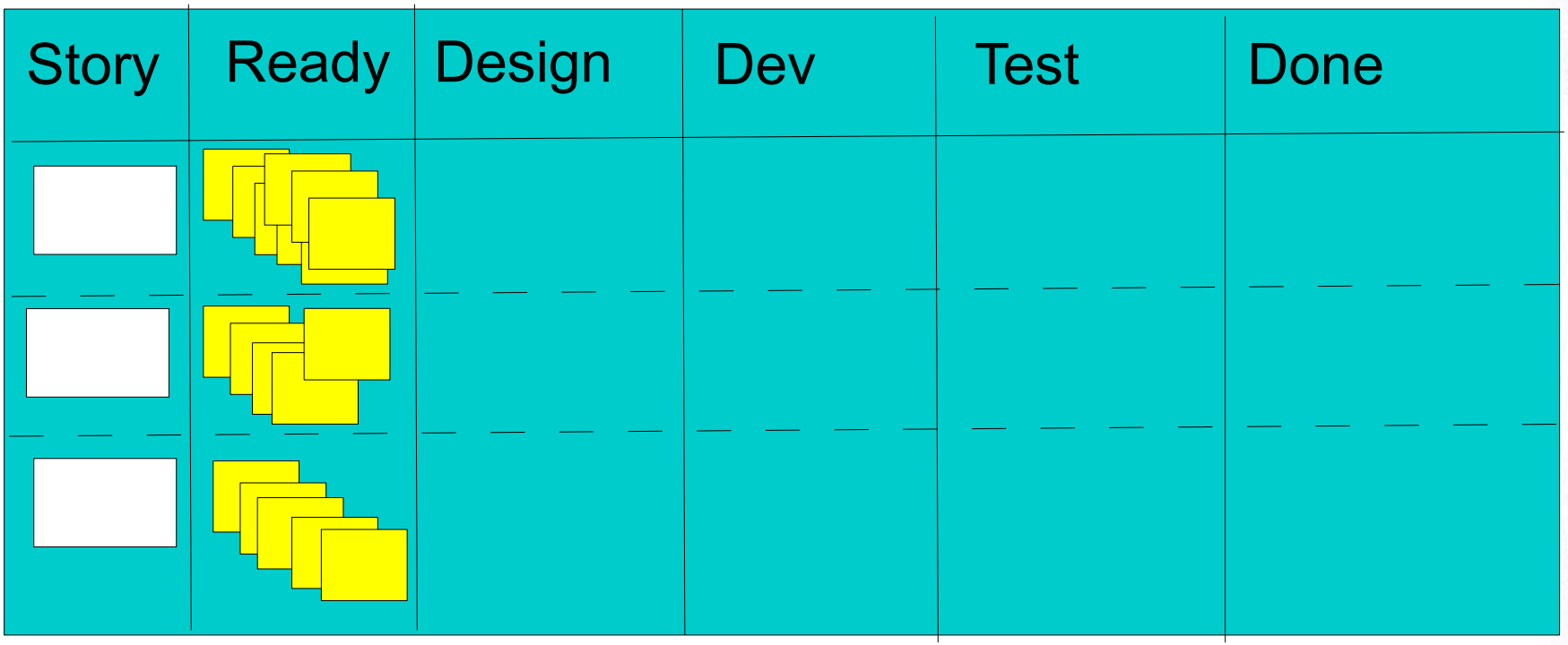


Example of a (one-person) workflow with phases

The Broader Picture

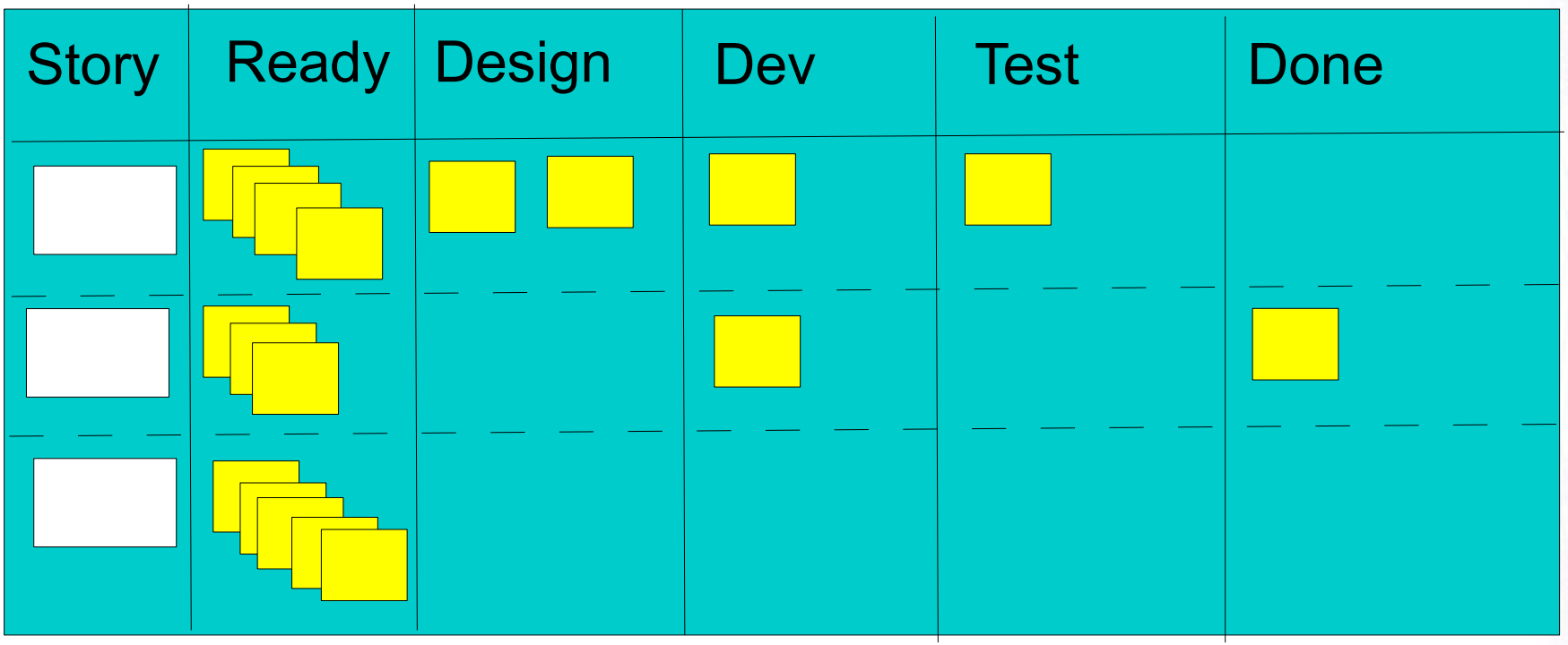


A Scrum Board



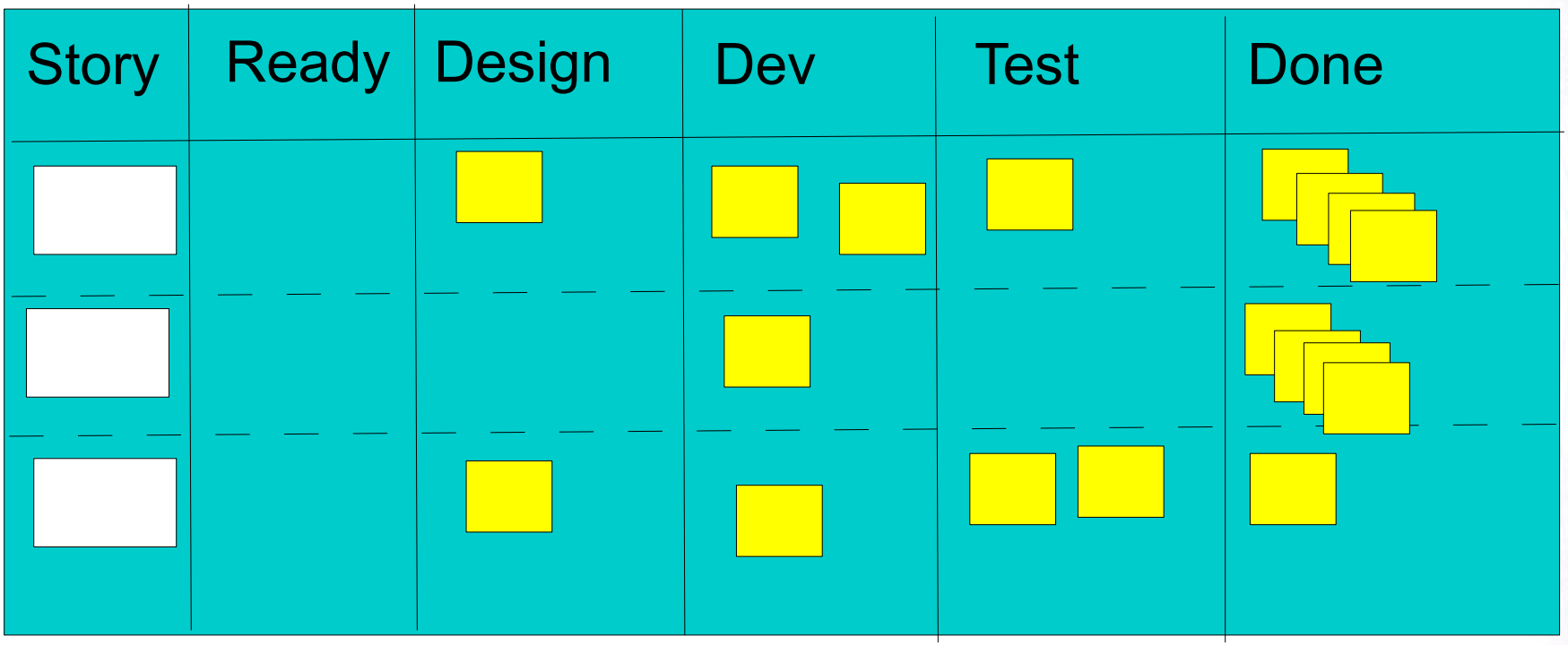
For work with progressive steps

A Scrum Board



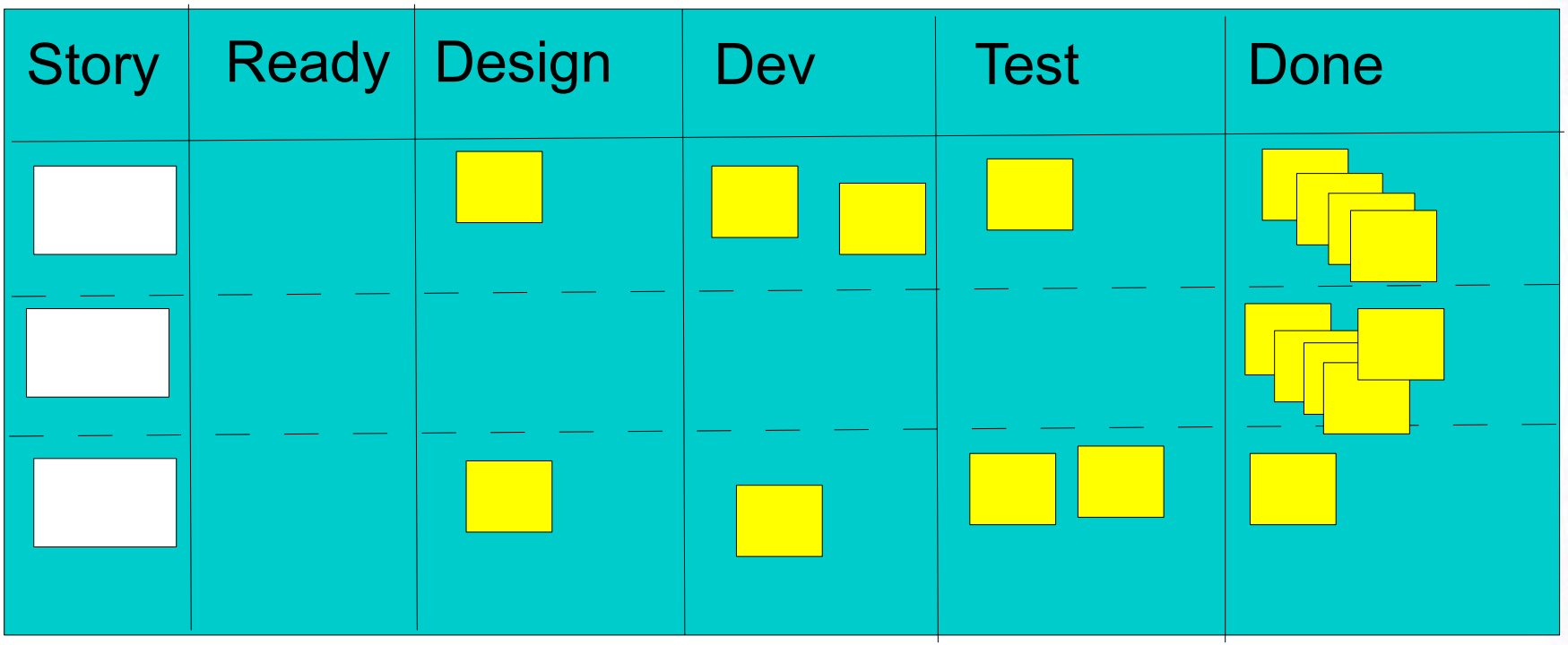
Distinguishes stories (here in white) from tasks (in yellow)

A Scrum Board

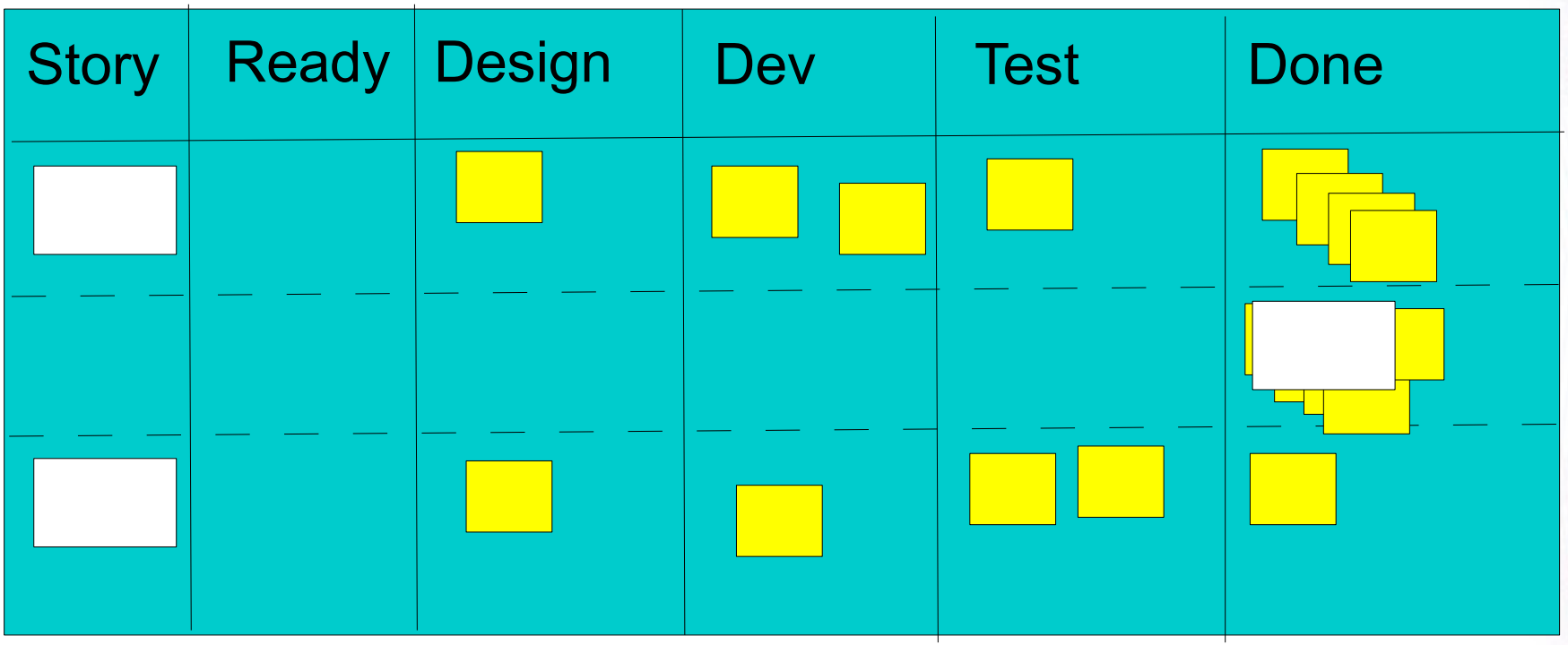


Stories stay in the left column
while tasks progress to the right

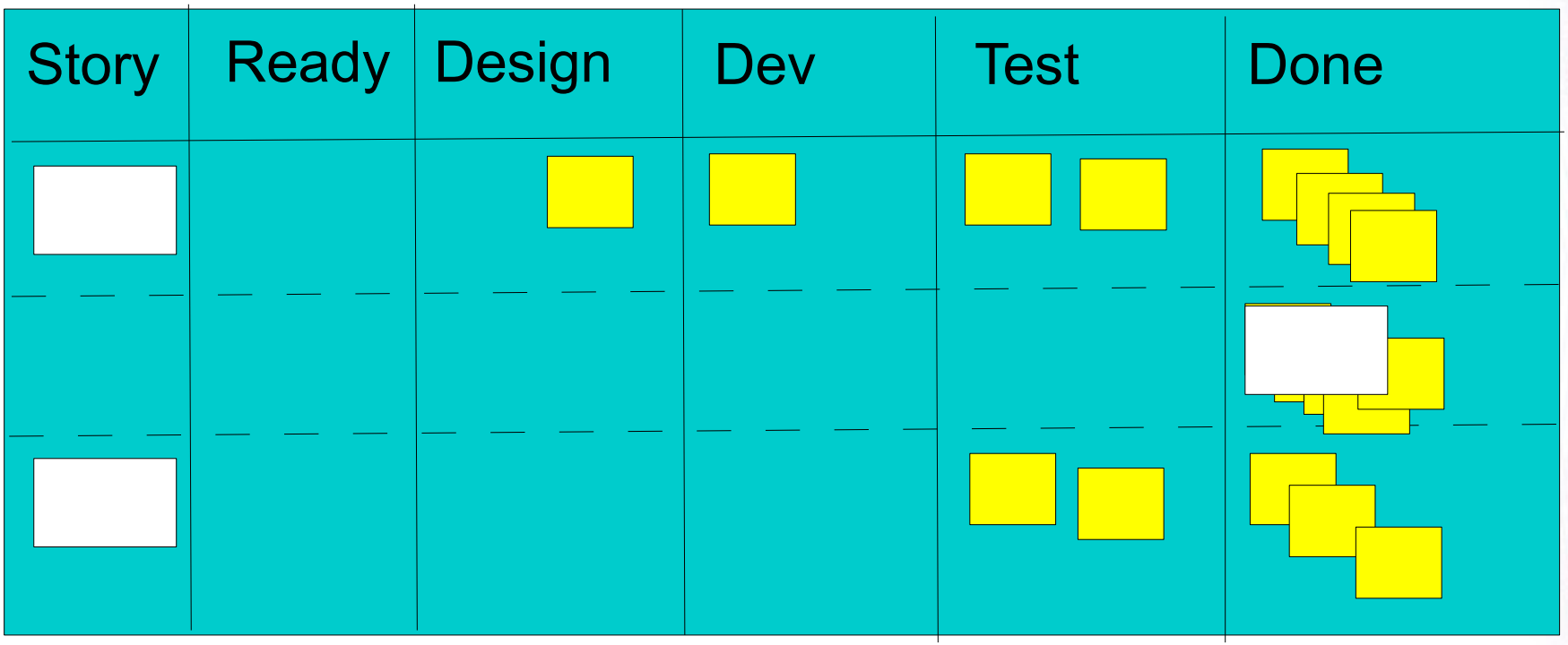
A Scrum Board



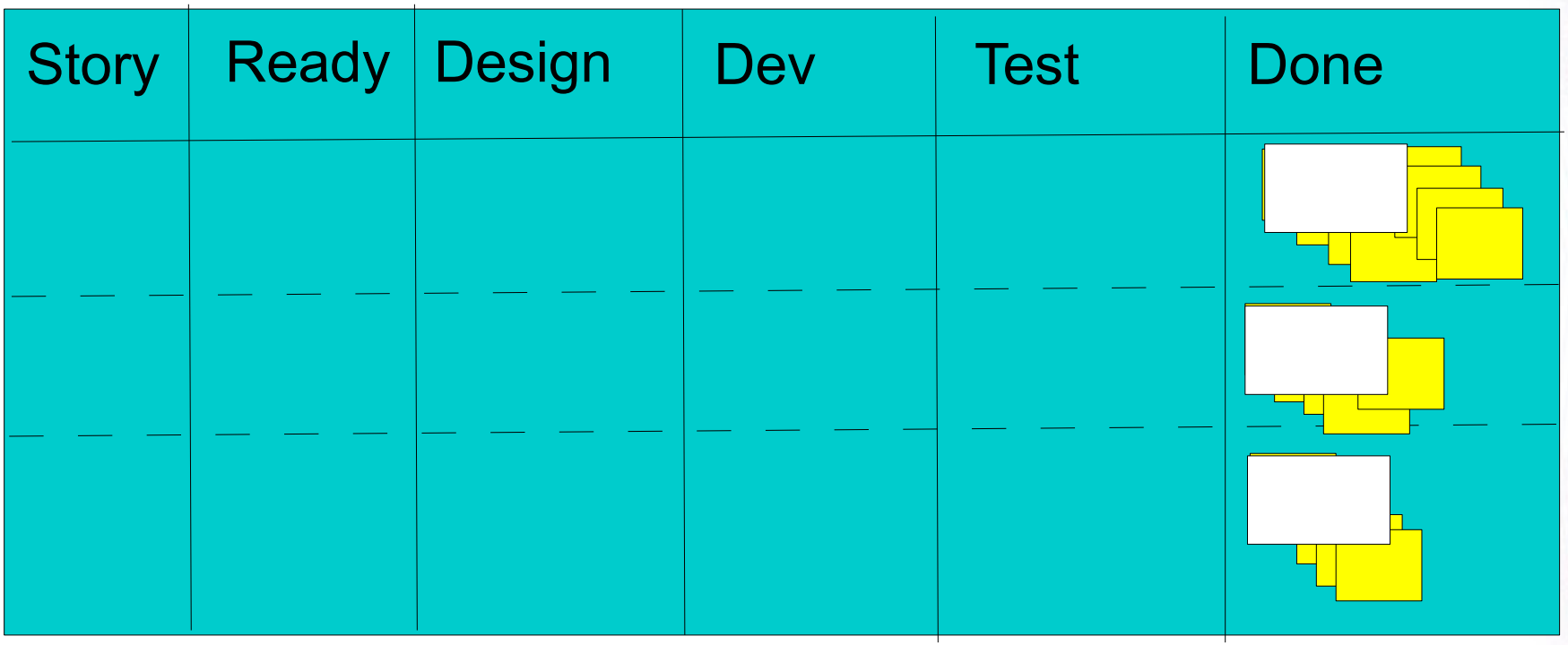
A Scrum Board



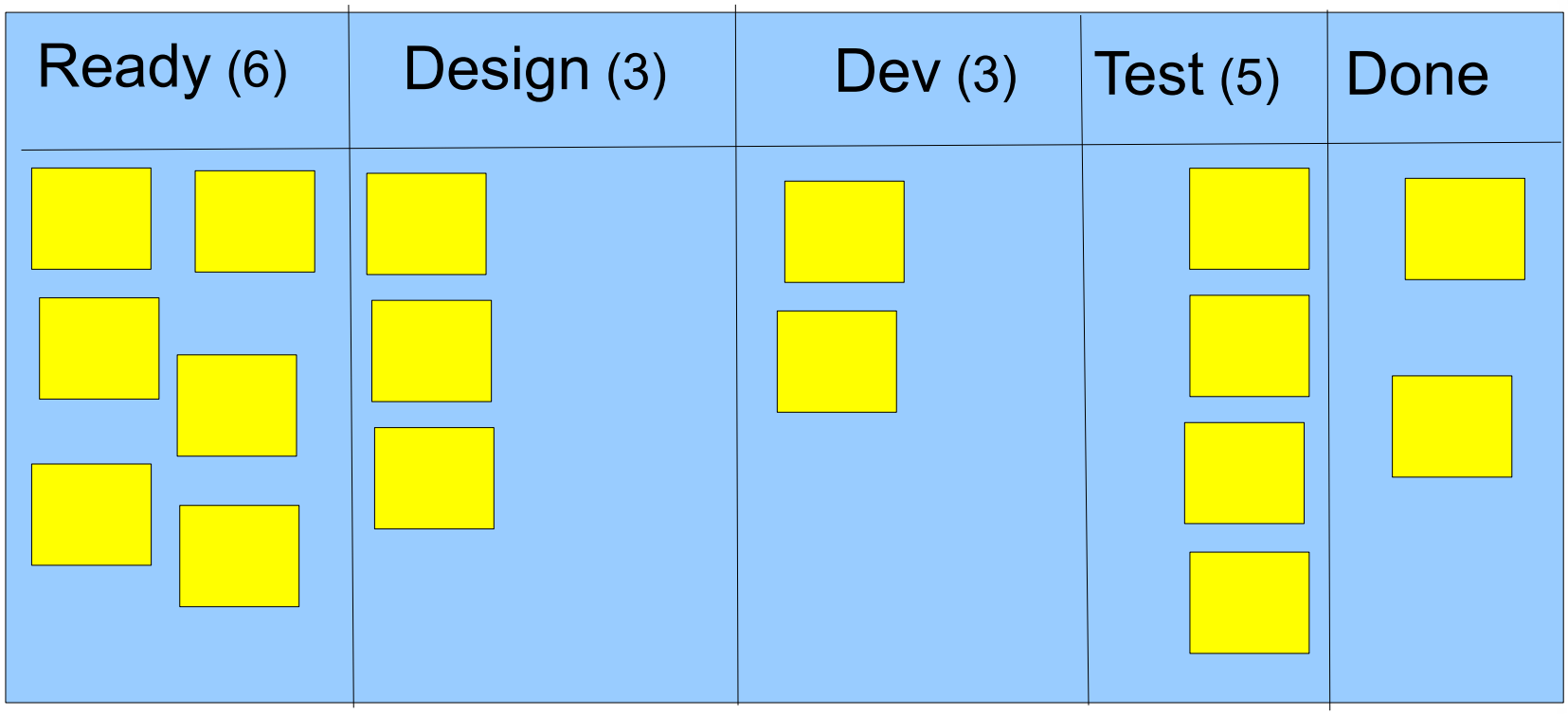
A Scrum Board



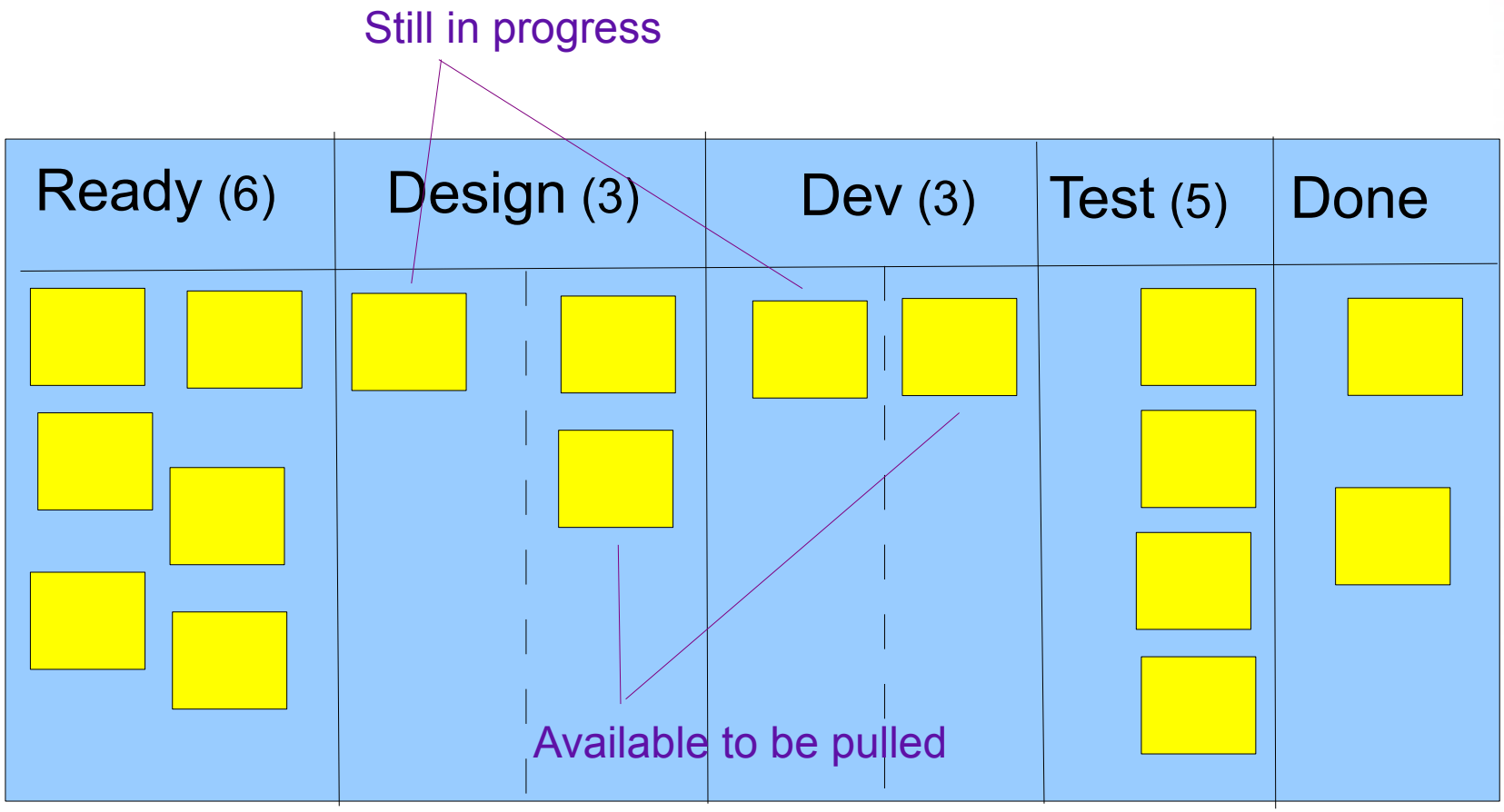
A Scrum Board



Now, Back to our Kanban Board...



“Pulling” Kanban Cards

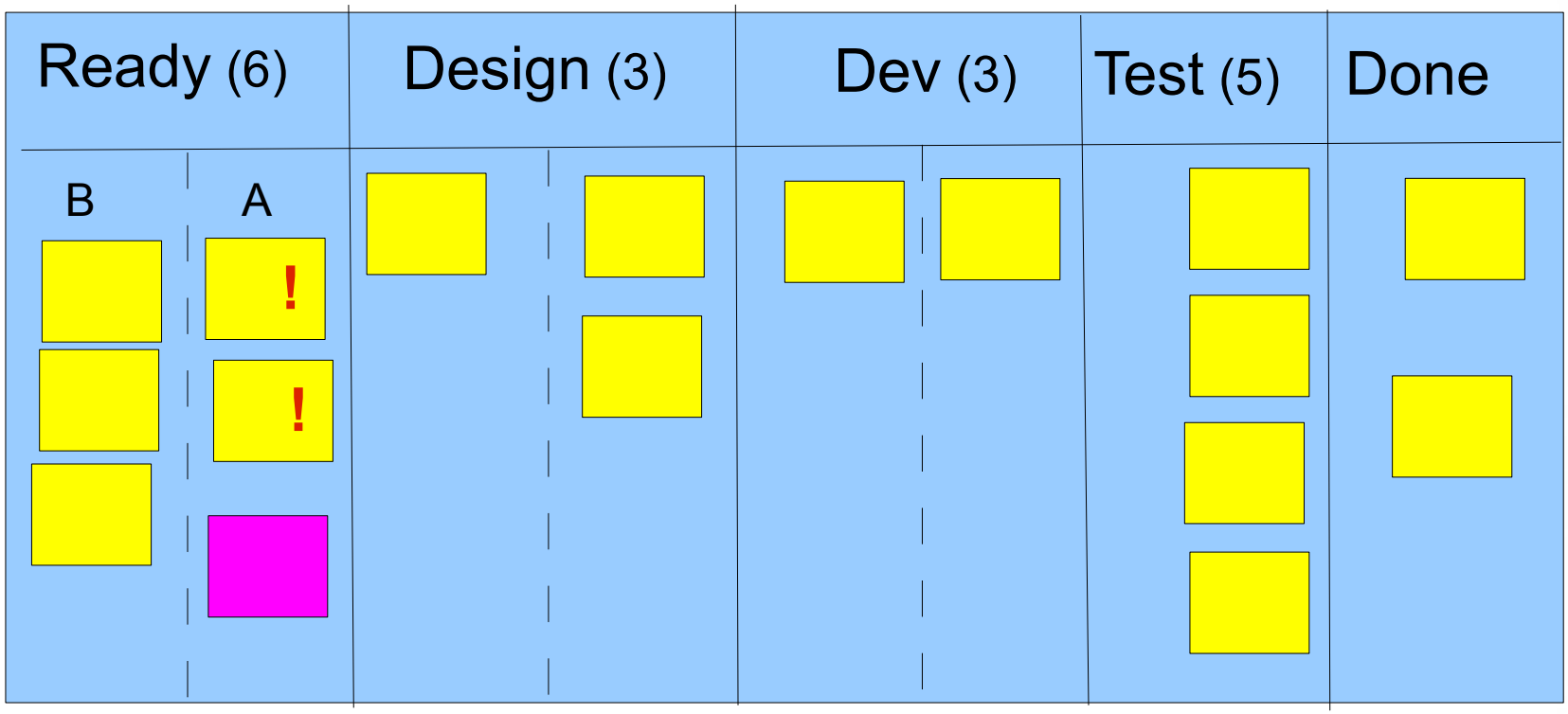


Sub-lanes show when steps are completed (ready to be pulled)

Why Limit Ready Column?

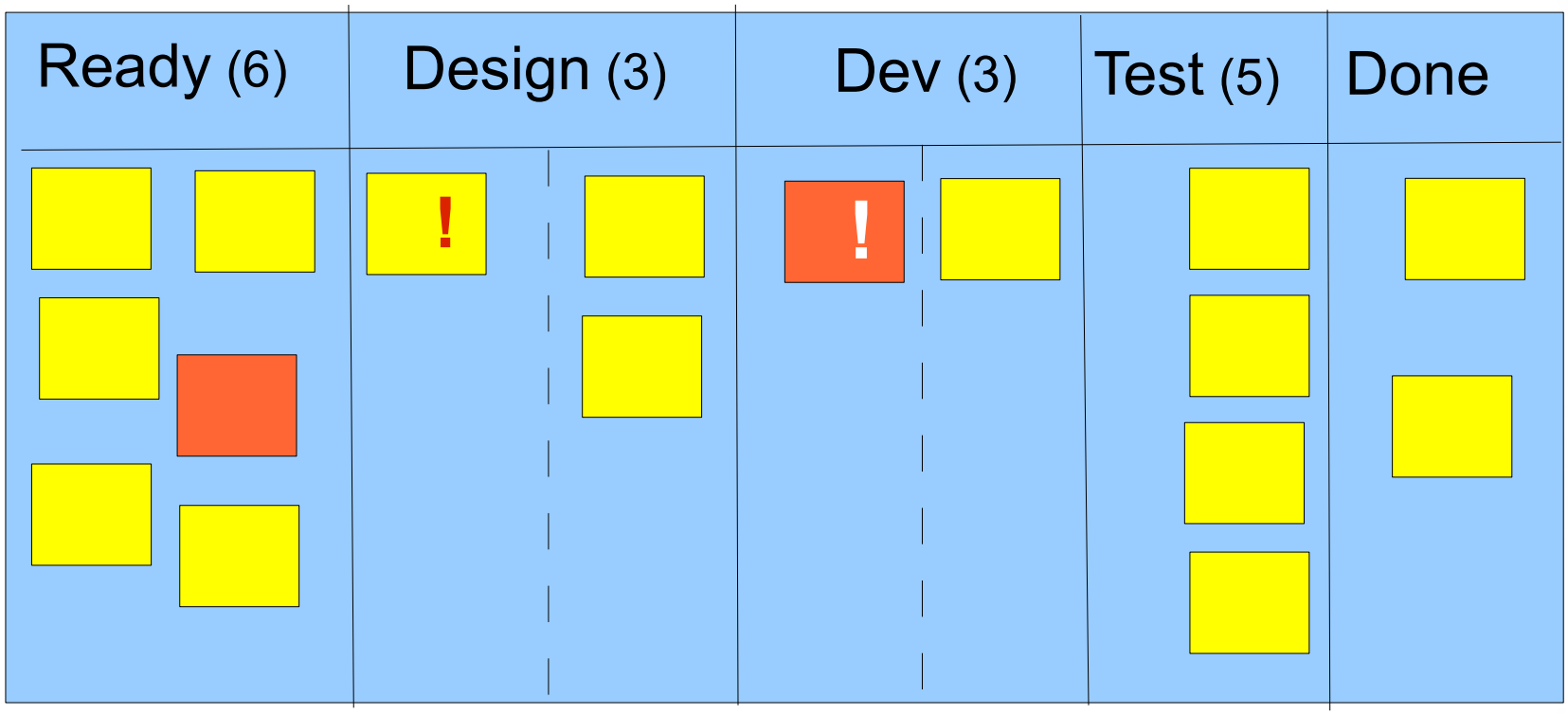
- Enforces delaying decisions until last responsible moment
- It's how the Product Owner “negotiates” with the team – PO (representing stakeholders) decides what, Team decides in what order (by pull)
- Work is tracked according to the time it enters the Ready column until it lands in the Done column (“lead time”). A ready limit makes that meaningful.

Highlighting Priorities



Some options: Notation symbols on the cards, color coding of the cards, sub-lanes, or a combination thereof.

Differentiating Work

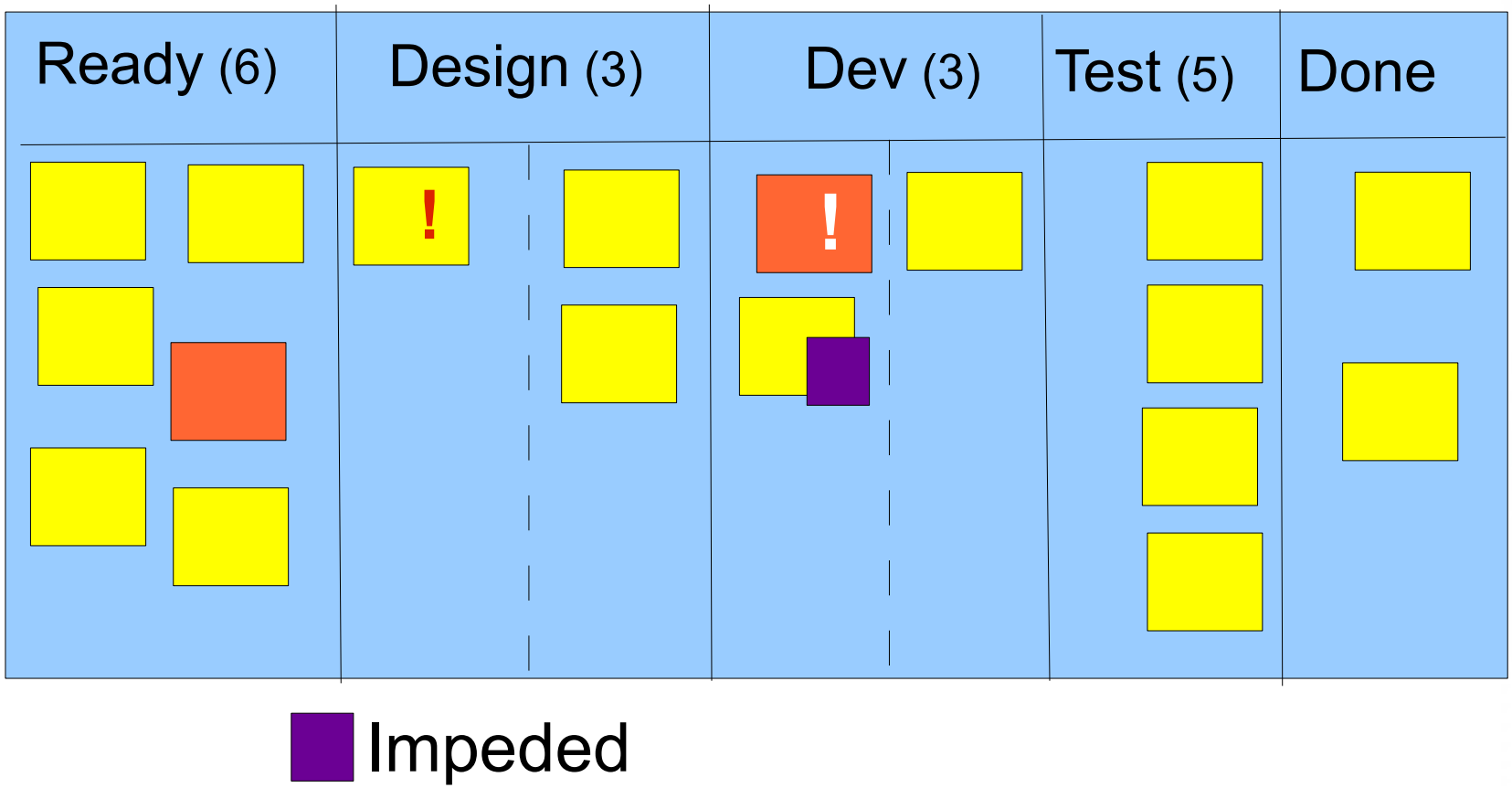


For example...

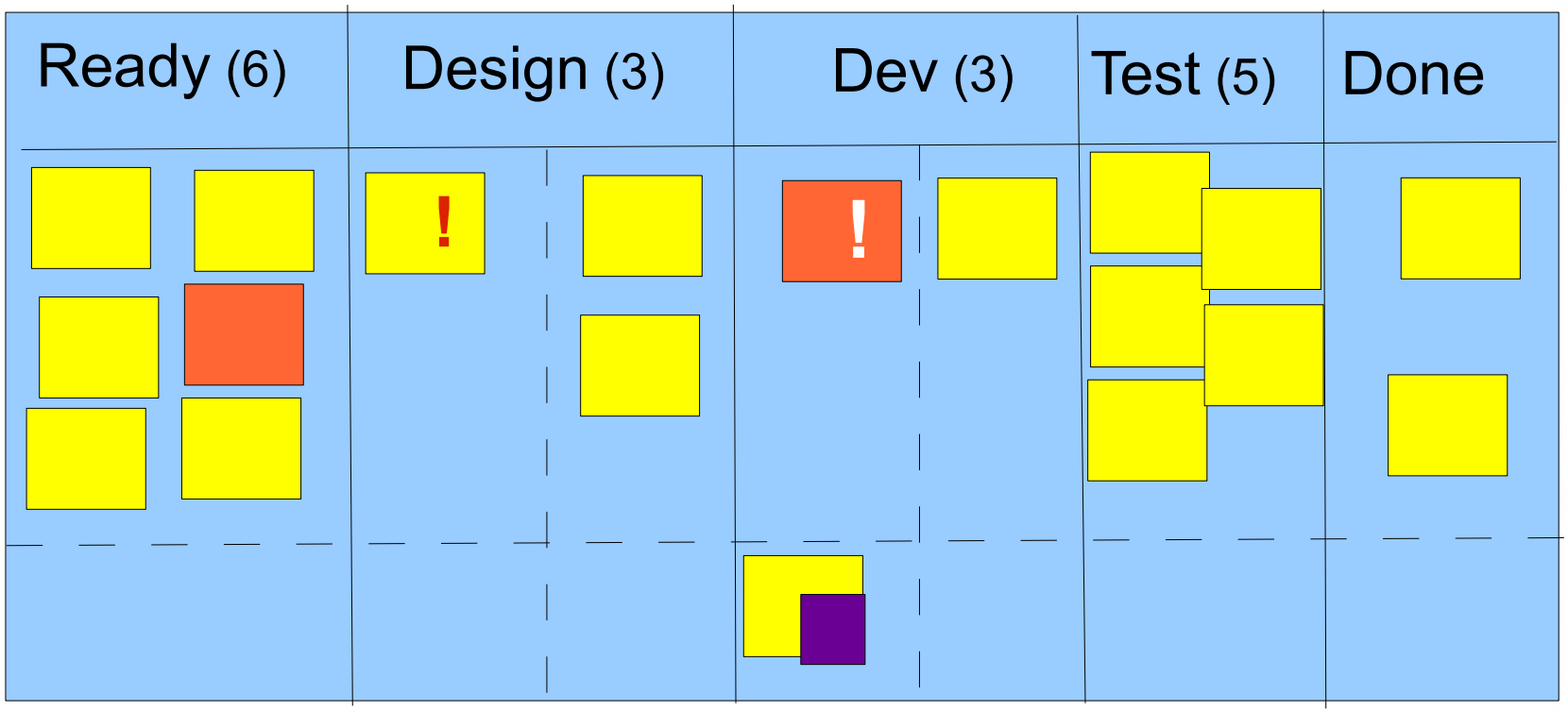
Feature (value to customer)

Infrastructure (value to team)

Flagging Impediments



Flagging Impediments

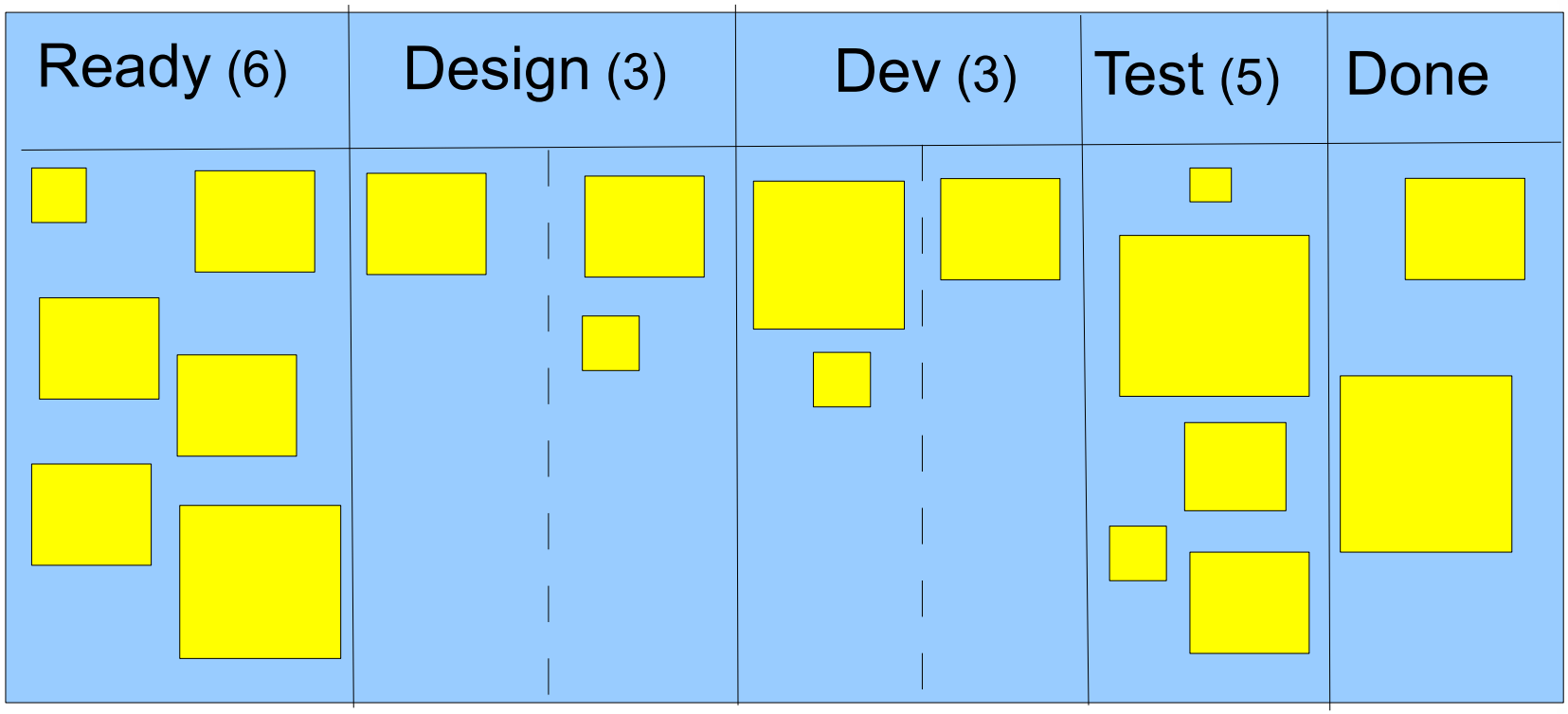


Impeded

Impeded work is still WIP-limited

What About Story Size?

Adjust them? Denote them? Track them?

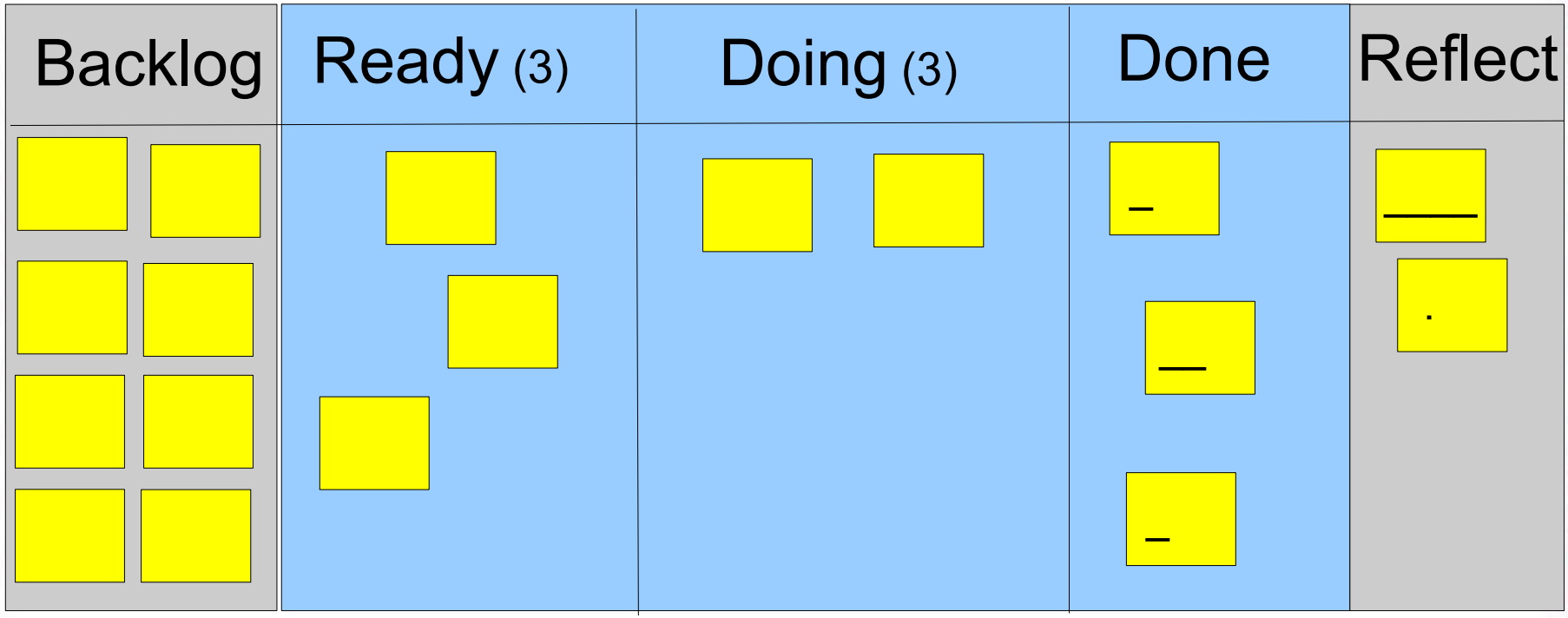


It doesn't seem to matter. Kanban case studies, so far, indicate that it's much more lucrative to be concerned with idle time between activity than the activity time itself.

Kanban Analysis Types

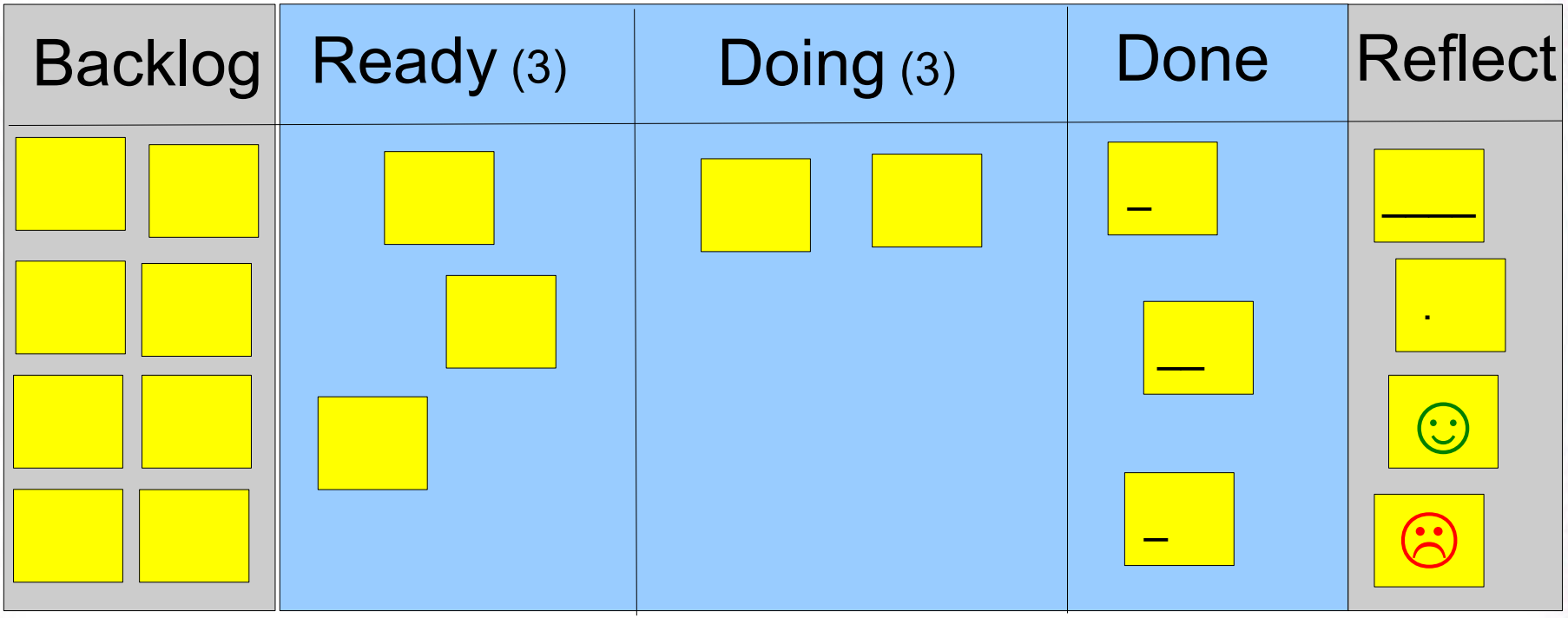
- By reflecting on outlier stories
- By looking for patterns on the Kanban Board
- By tracking cycle time
- By tracking flow

Reflecting on Outlier Stories



Outlier: Work with Extra-Long, or Extra-Short Cycle Time

Reflecting on Outlier Stories

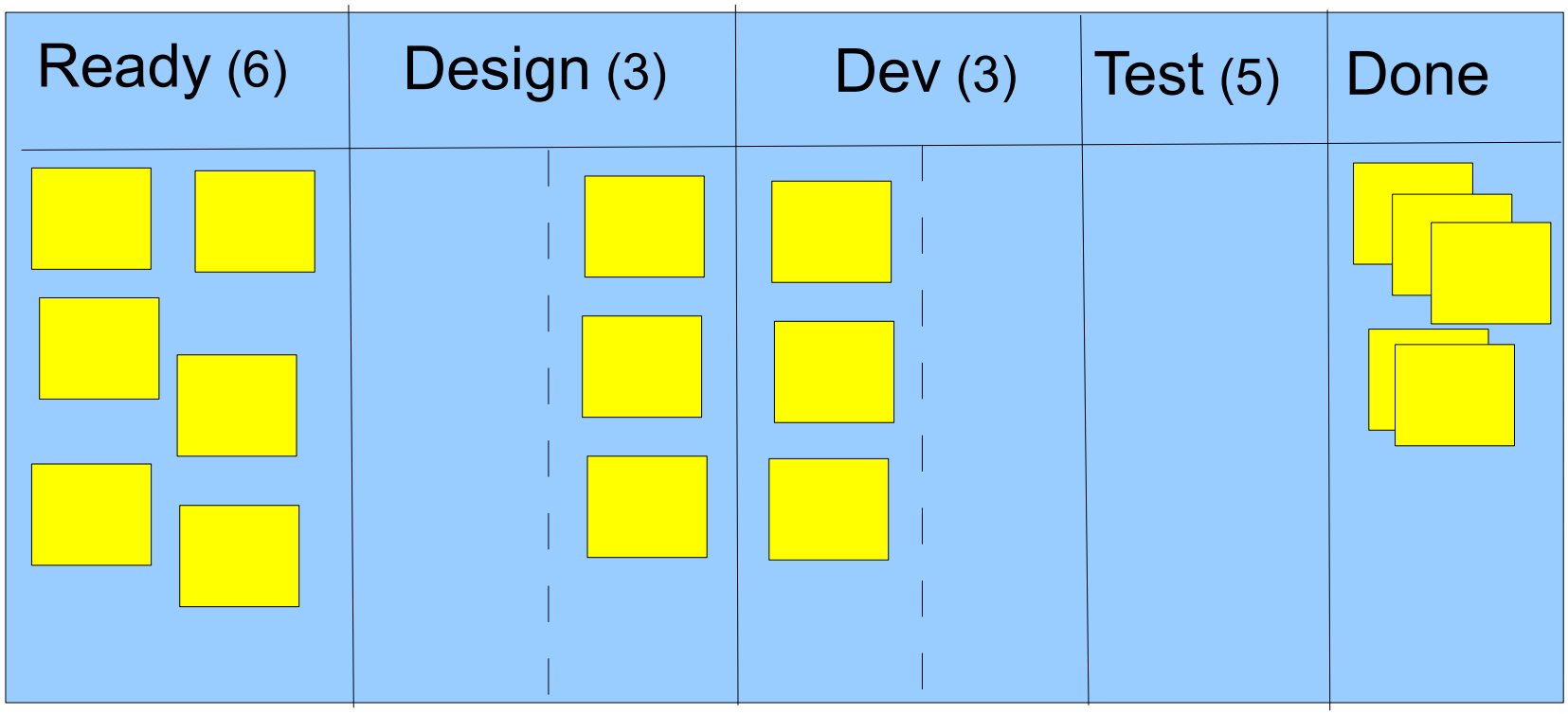


Outlier: Work that was Particularly Pleasant or Unpleasant

Possible Actions: Outliers

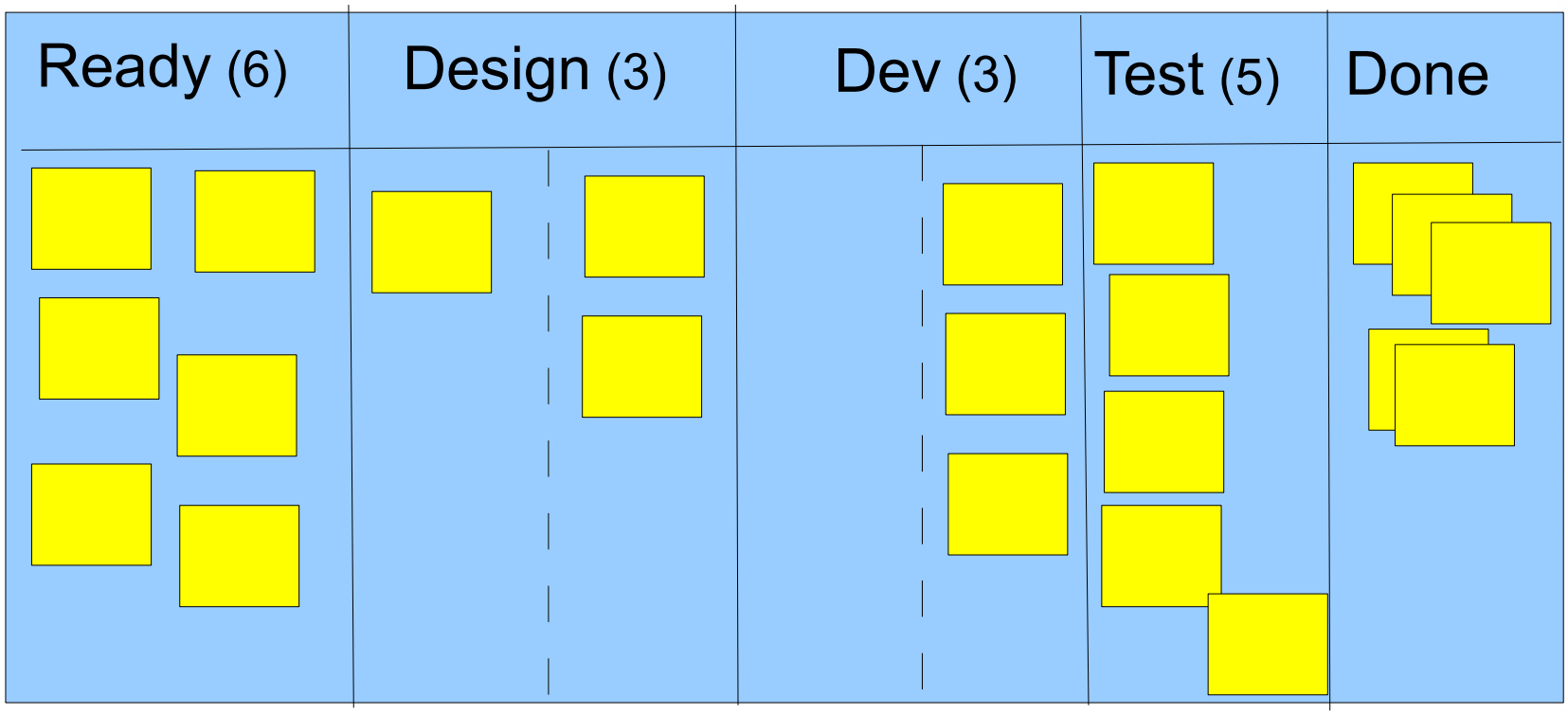
- Is it a problem/opportunity?
- Dig deep (“5 Whys?”) to get from the proximate cause to the root cause
- How might the delay have been mitigated?
- Retool &/or Retrain
- Definition of Ready issue?
  Definition of Done issue?

Development Bottleneck



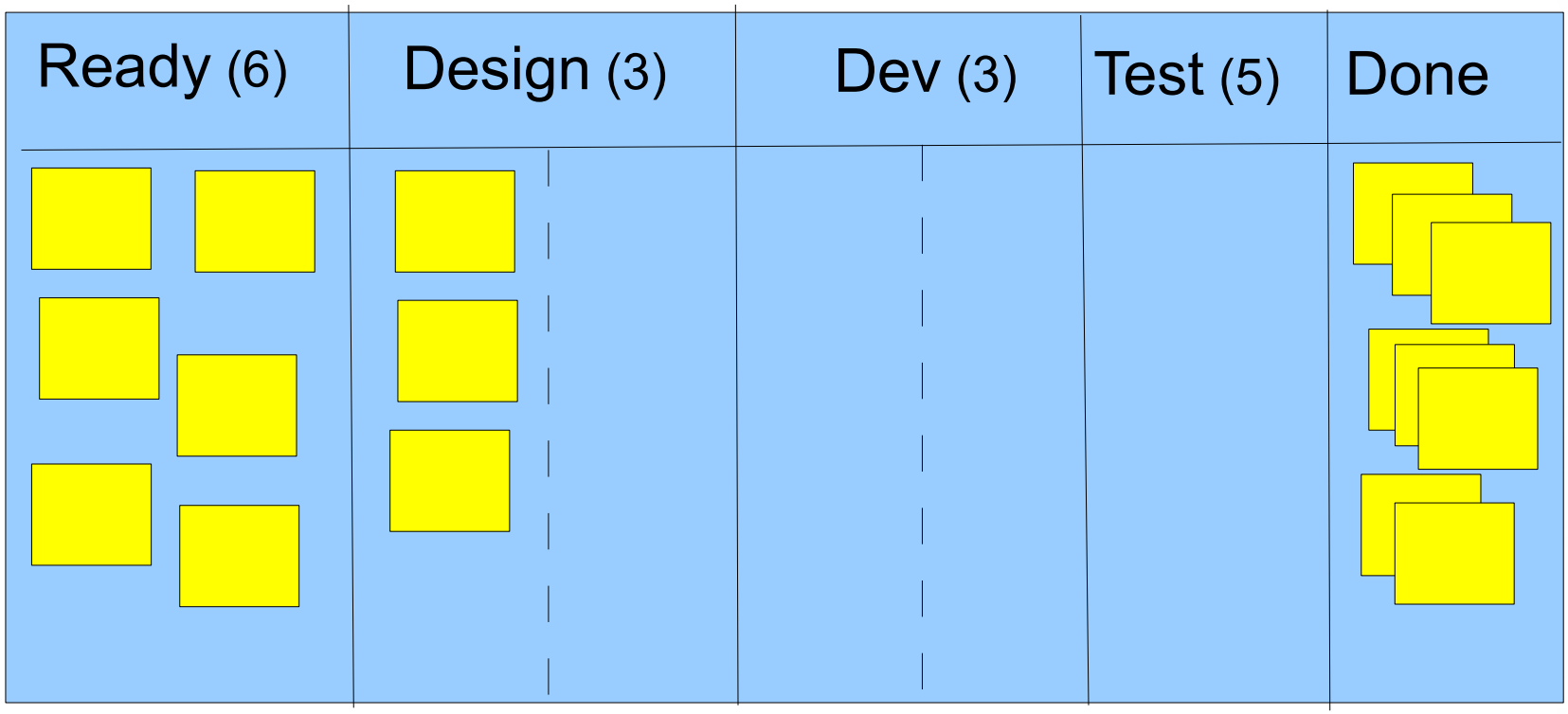
Step-completed still counts in WIP Limit

Testing Bottleneck



Step-completed still counts in WIP Limit

Design Bottleneck

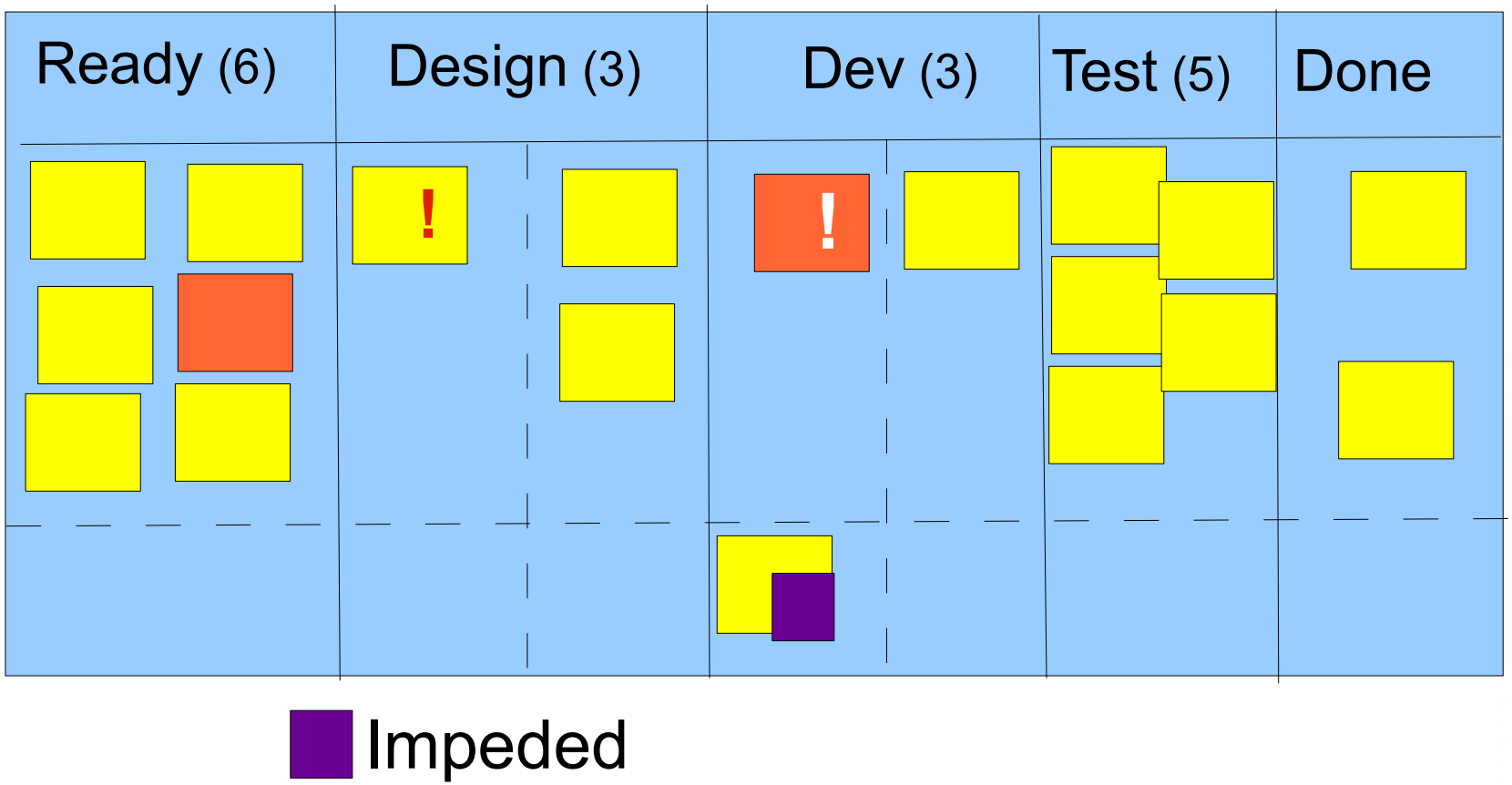


Possible Actions: Bottlenecks

Note: Occasional bottlenecks are good. They interject welcomed slack time. What you want is a roughly even distribution of slack time across the functions. If not, then ...

- Cross-functional “swarming”
- Add manpower
- Retool &/or Retrain
- (DO NOT just increase WIP Limits)

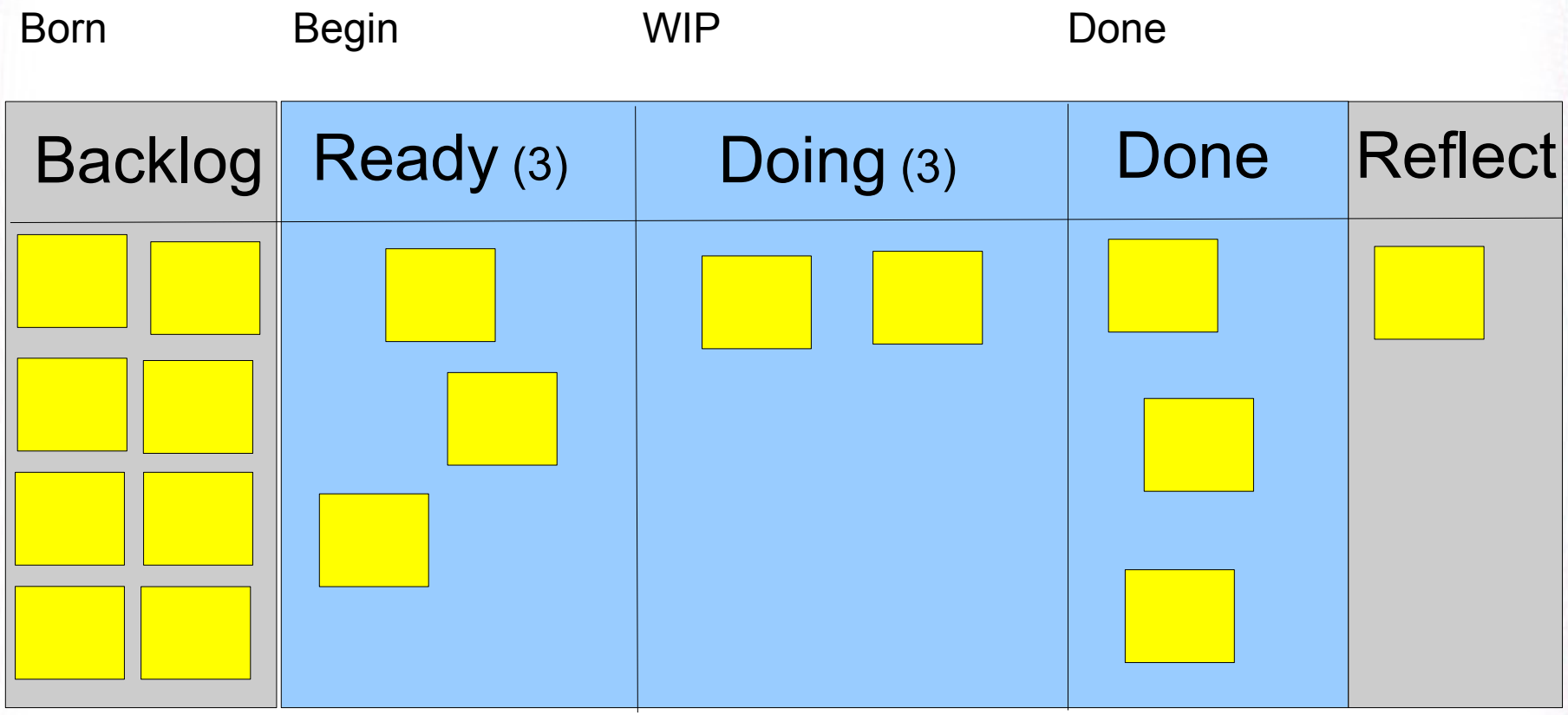
Recurring Impediments



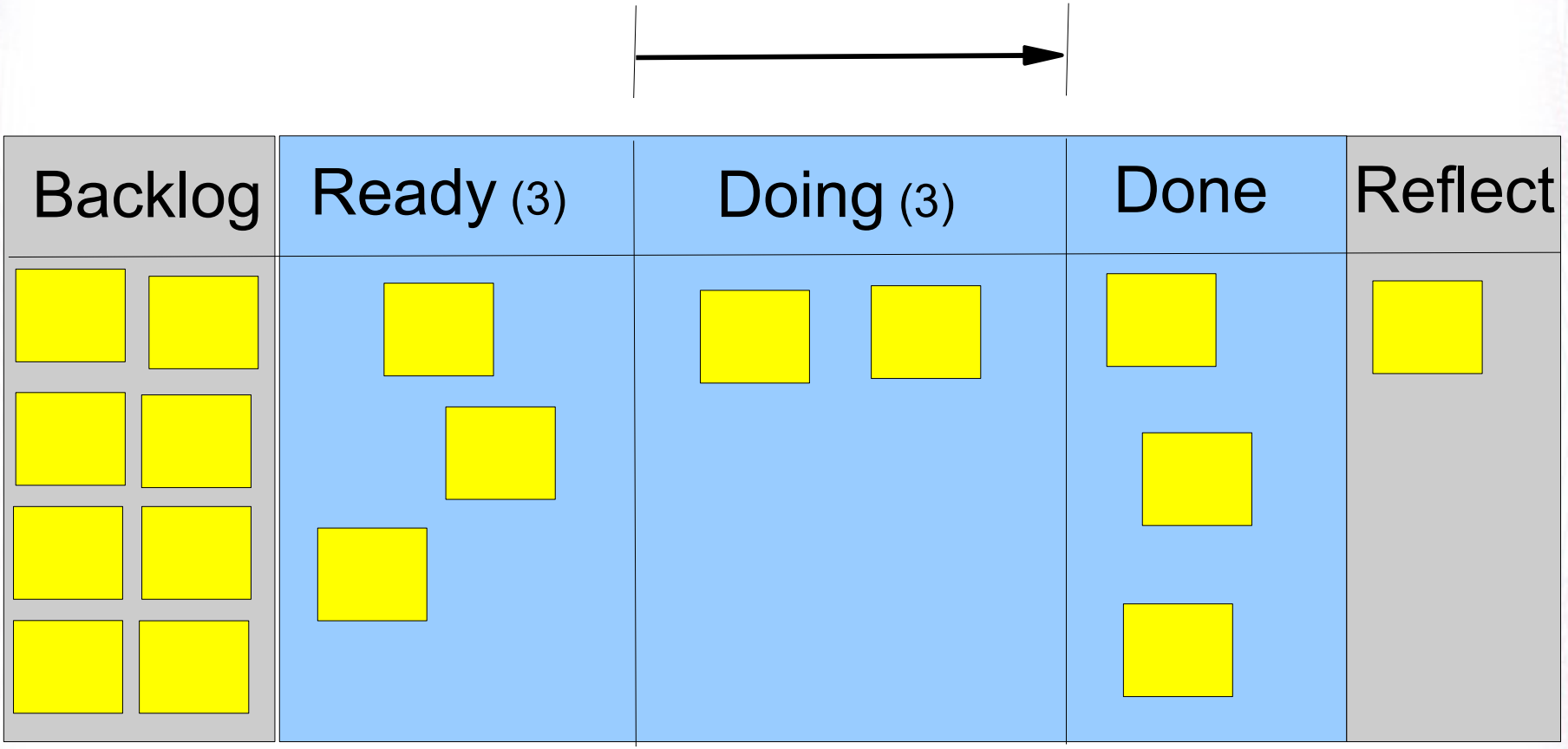
Possible Actions: Impediments

- Revise the Definition of Ready – Don't start the work until you know it won't be impeded that way
- Reassign responsibility for impediment-causing work to the Team (i.e. make the external resource join the team)
- (Rarely) revise the Definition of Done to exclude the impeded work (i.e. pushing responsibility for that part off the Team)

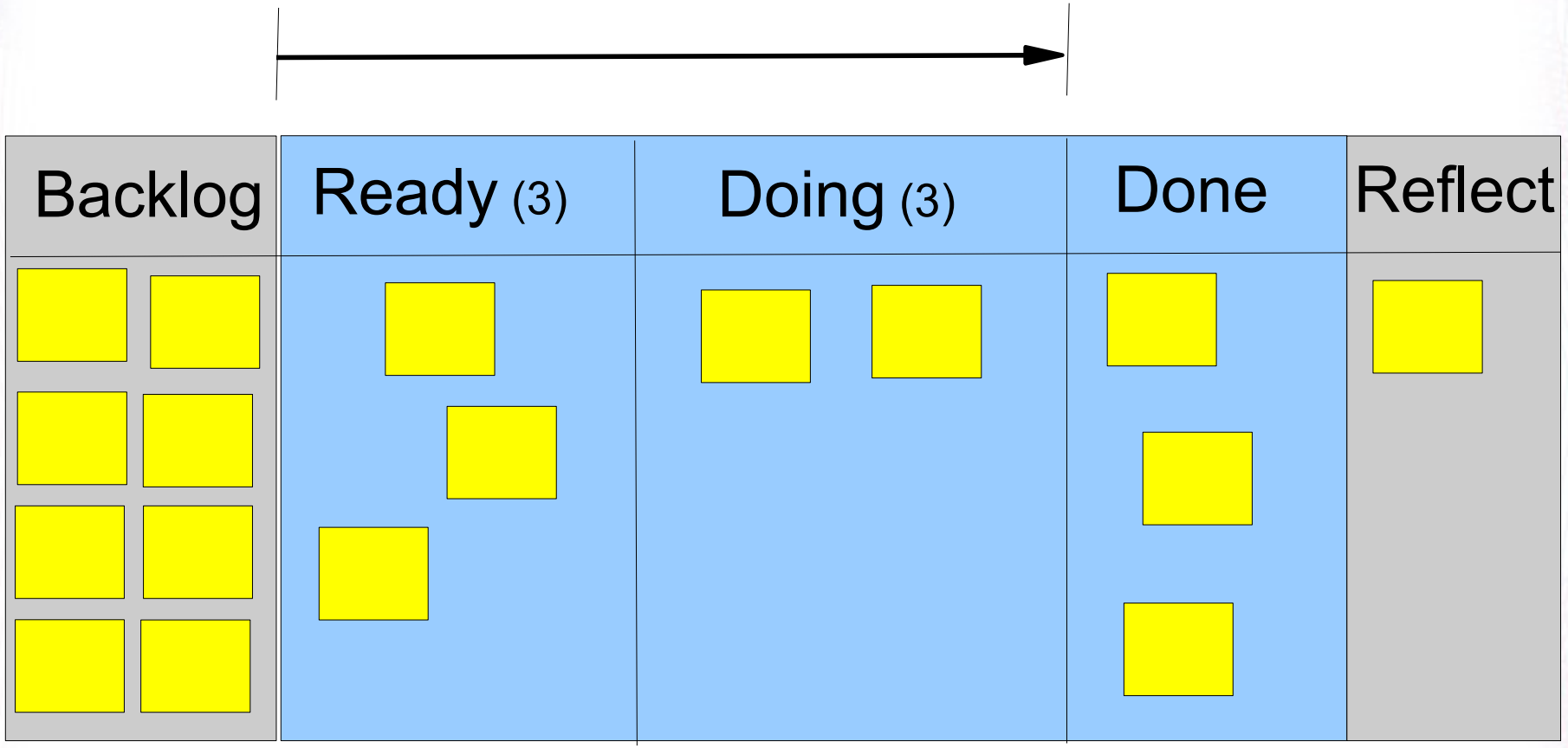
Tracking Cycle Times



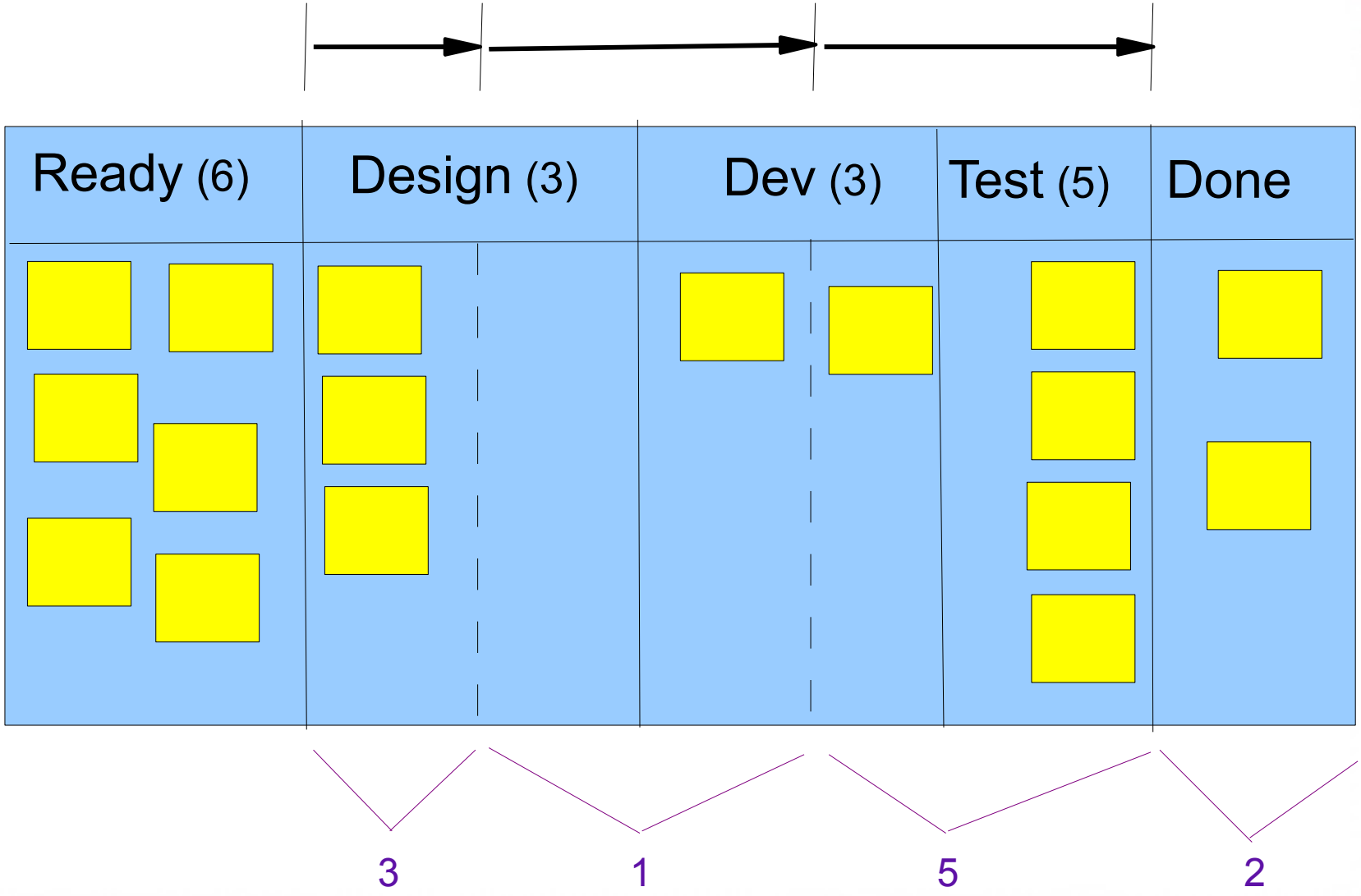
Cycle Time



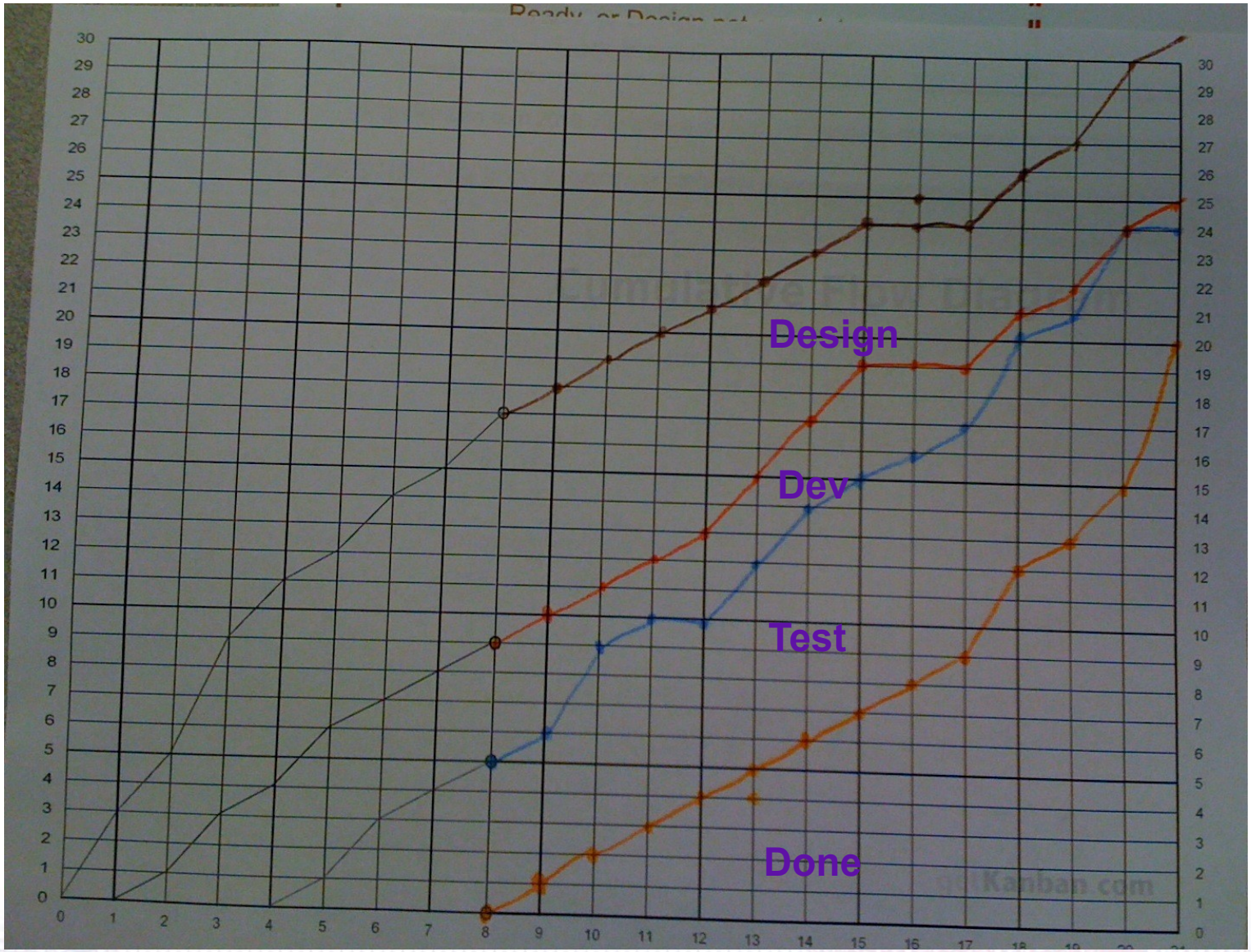
Lead Time



Counting Flow



Cumulative Flow Diagram

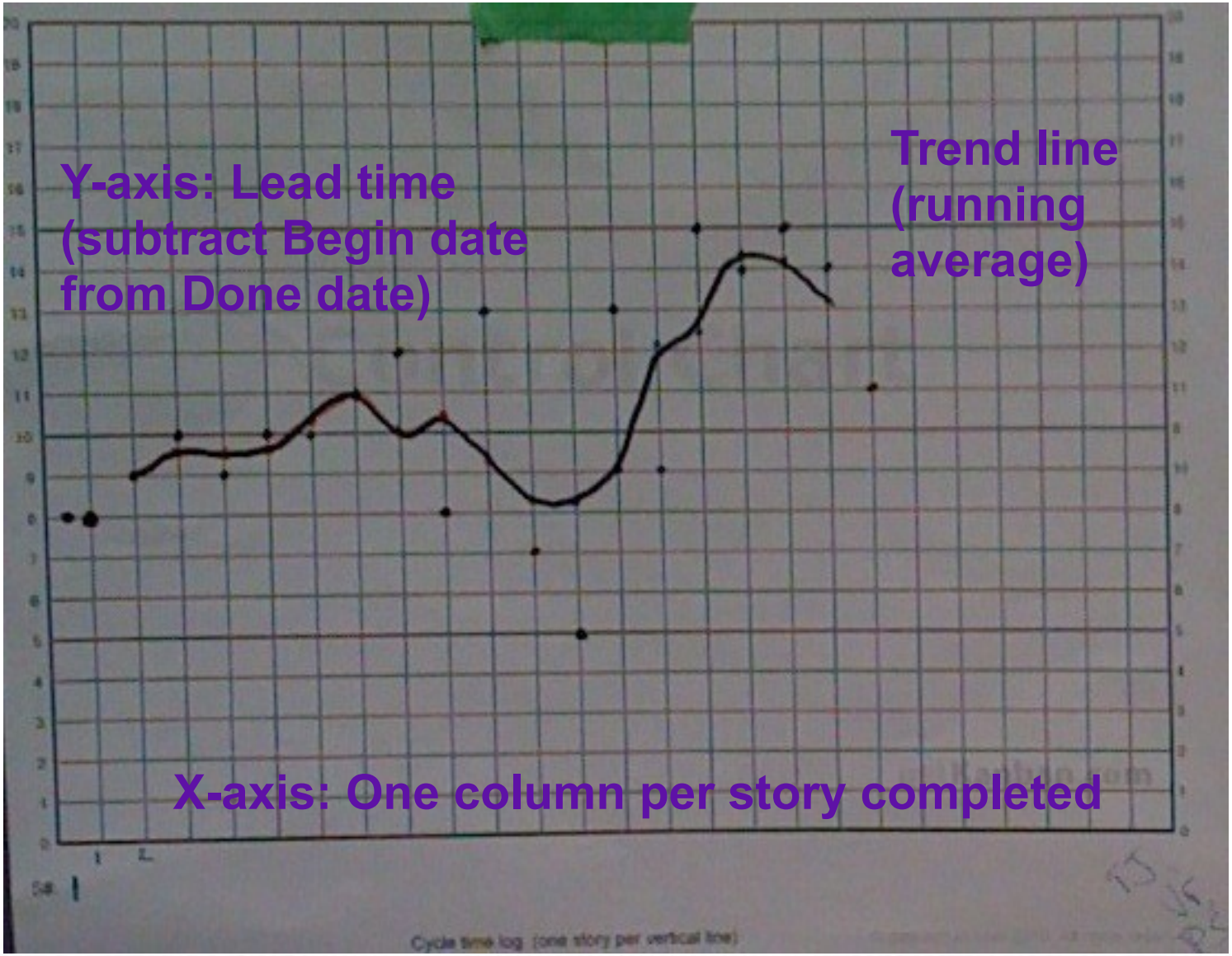


Actions: Encroaching Channels

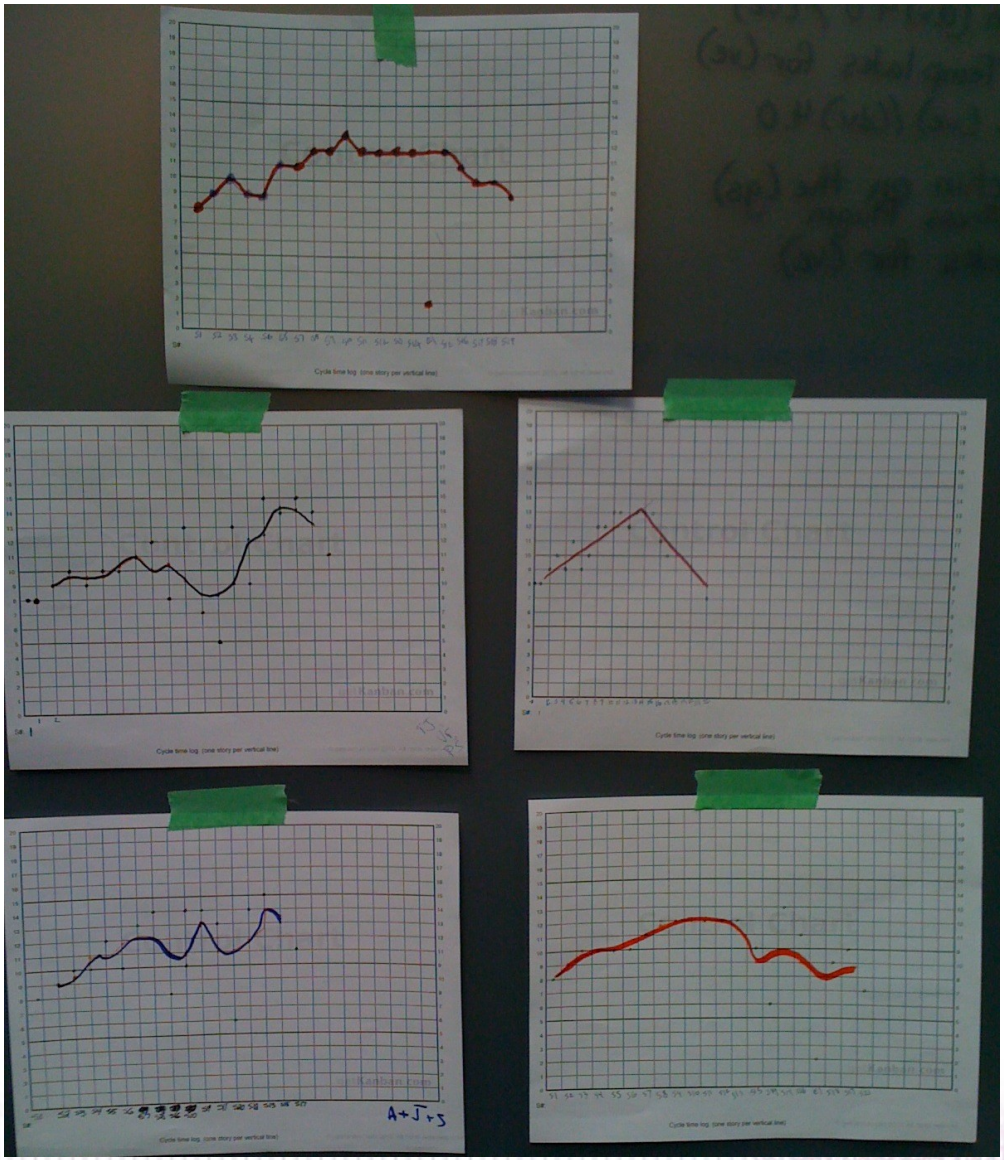
This is basically early detection for bottlenecks, so...

- (Same actions as Bottlenecks)

Control Chart



Control Charts Compared



Possible Actions: Wavy Trendline

Can the hiccups be explained? If not, then...

- Smaller stories
- Reduce the WIP limits (yes, reduce)
- Attend to impediments
- Remove distractions

INVEST = Well-Written Stories

- **I**ndependent
- **N**egotiable
- **V**aluable
- **E**stimable
- **S**mall
- **T**estable

INVEST = Well-Written Stories

Small vs. Independent

As small as possible, yet still has intrinsic value

How'd I do?

As a _____(role)_____

I want Kanban in my tool box

So that _____(expectation)_____

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