

Understanding Project Performance using **Cumulative Flow Diagrams**

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Brief Intro

AgileSparks is an elite team focused entirely on helping companies improve their product development operations, by leveraging Lean/Agile/Scrum thinking and techniques.

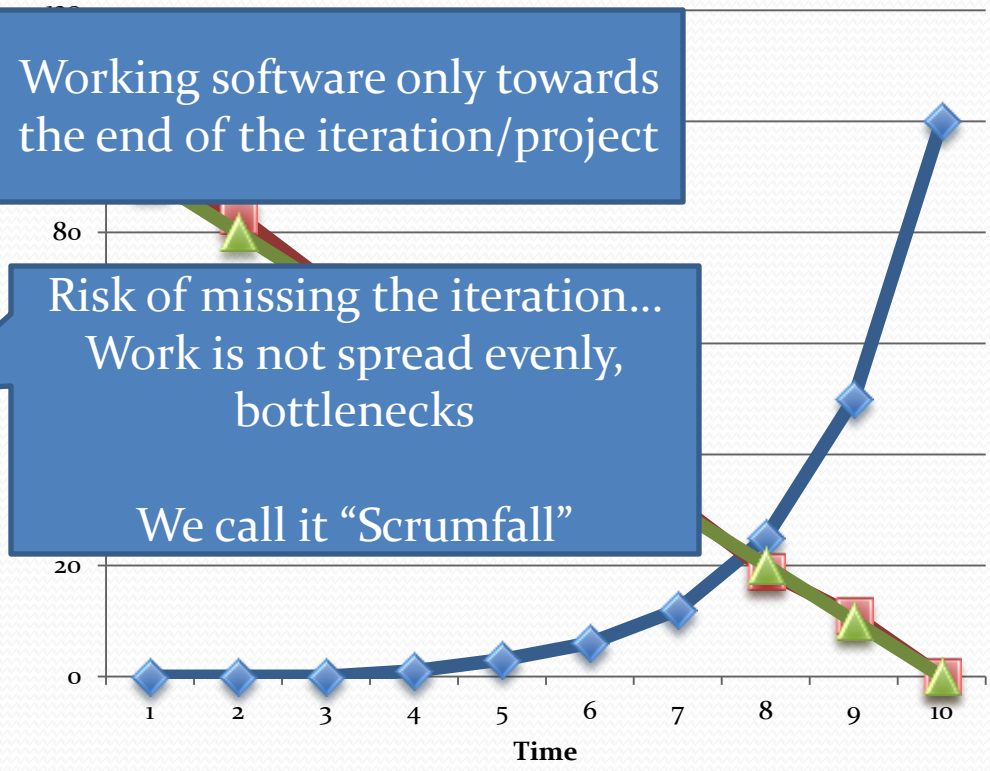
Yuval Yeret – Lean/Agile Consultant/Coach, coming from R&D leadership background, specializing in scaling agile through Lean.

Find more about me at

<http://www.linkedin.com/in/yuvalyeret>, [my google profile](#)

Lets start with a classic burndown/burnup chart

Burndown / Burnup



Working software only towards the end of the iteration/project

Risk of missing the iteration...
Work is not spread evenly, bottlenecks
We call it "Scrumfall"

What's wrong here?

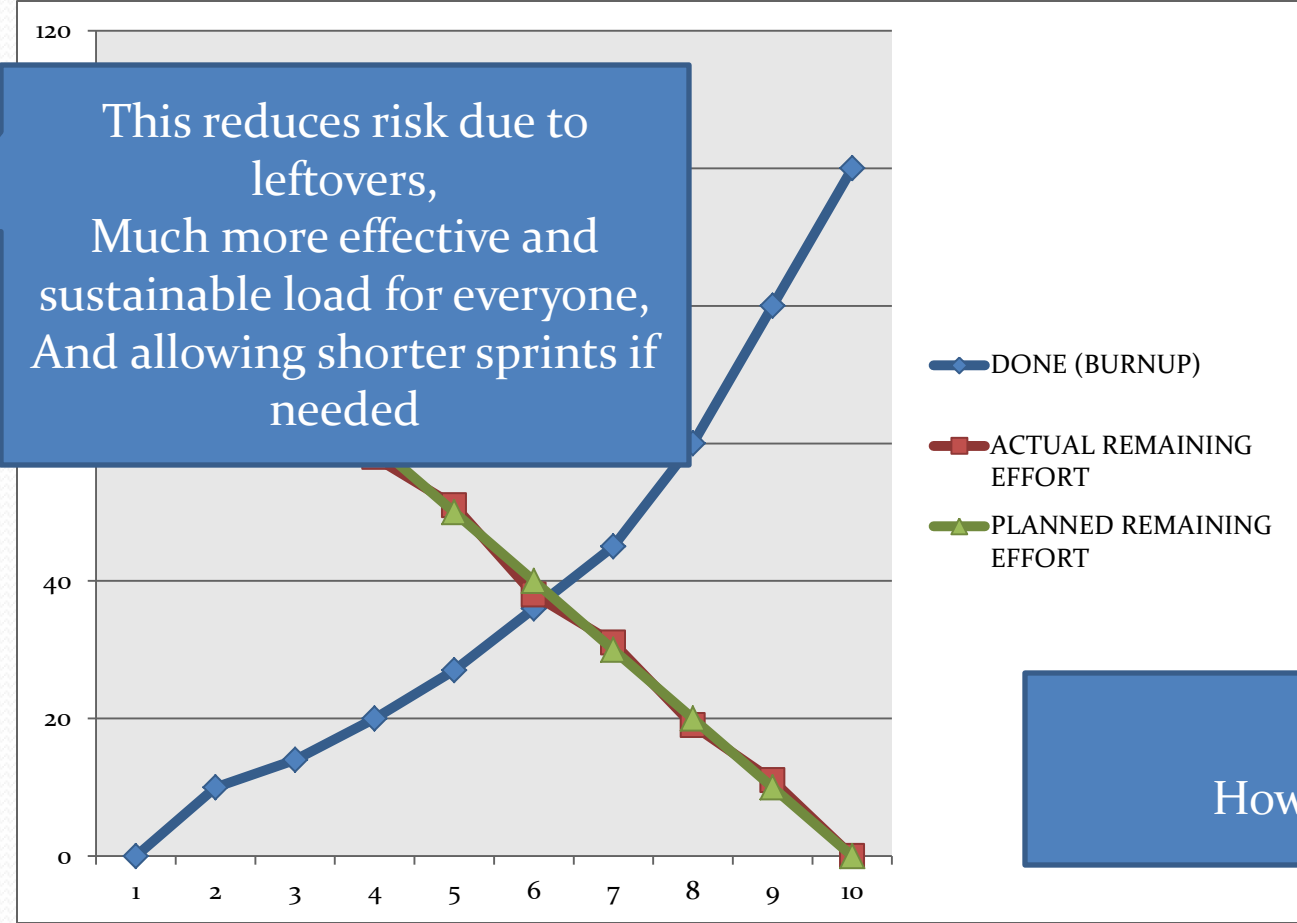
So?

- ◆ DONE (BURNUP)
- ACTUAL REMAINING EFFORT
- ▲ PLANNED REMAINING EFFORT

So what's the difference?

Notice how the done work is spread more evenly

to get to this...



This reduces risk due to leftovers,
Much more effective and sustainable load for everyone,
And allowing shorter sprints if needed

Great
How do I do it?

Keys to steady burnup

- Effectively sized and testable stories
 - Allow finishing work end to end quickly
- Focus on few stories at a time, rather than work on too much at once

How to make this happen?

- Get the Product Owner to provide INVEST stories
- Provide more visibility to WHERE work is before its DONE
- Manage the work in progress to drive focus

How do we Visualize the depth?

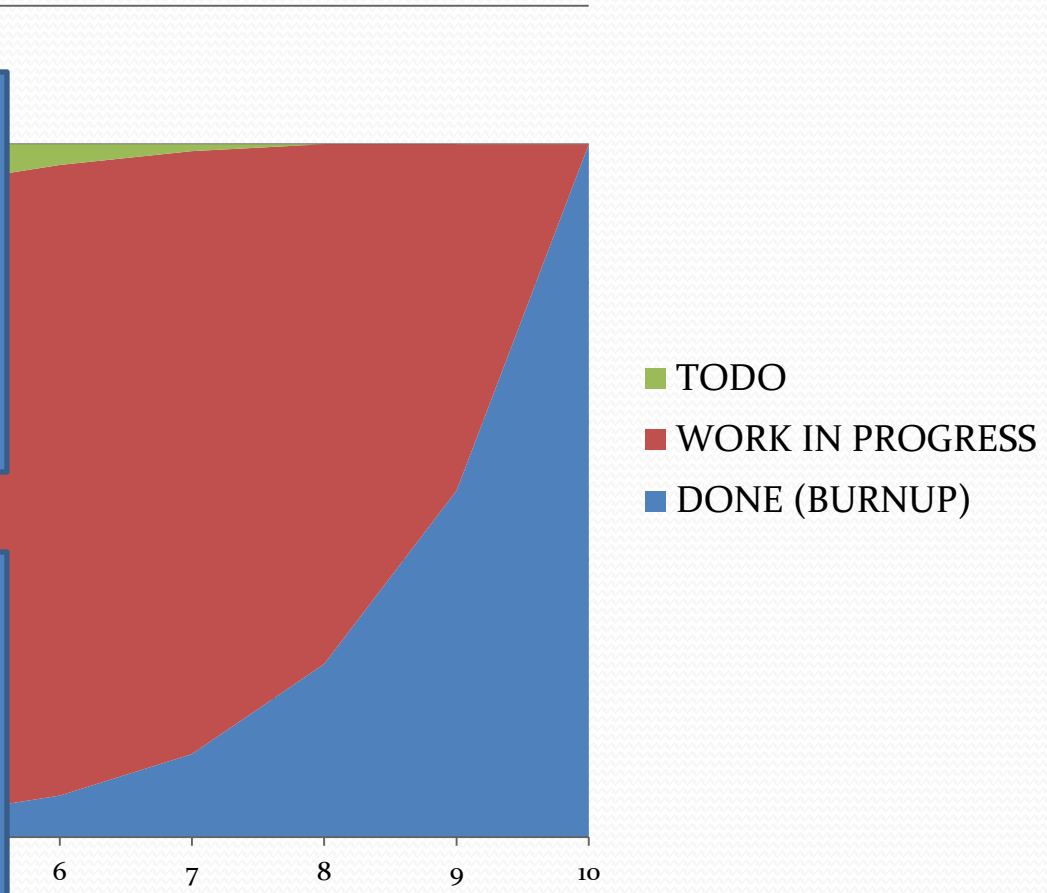
Wow!
What's that?

This is called Cumulative Flow Diagrams

120

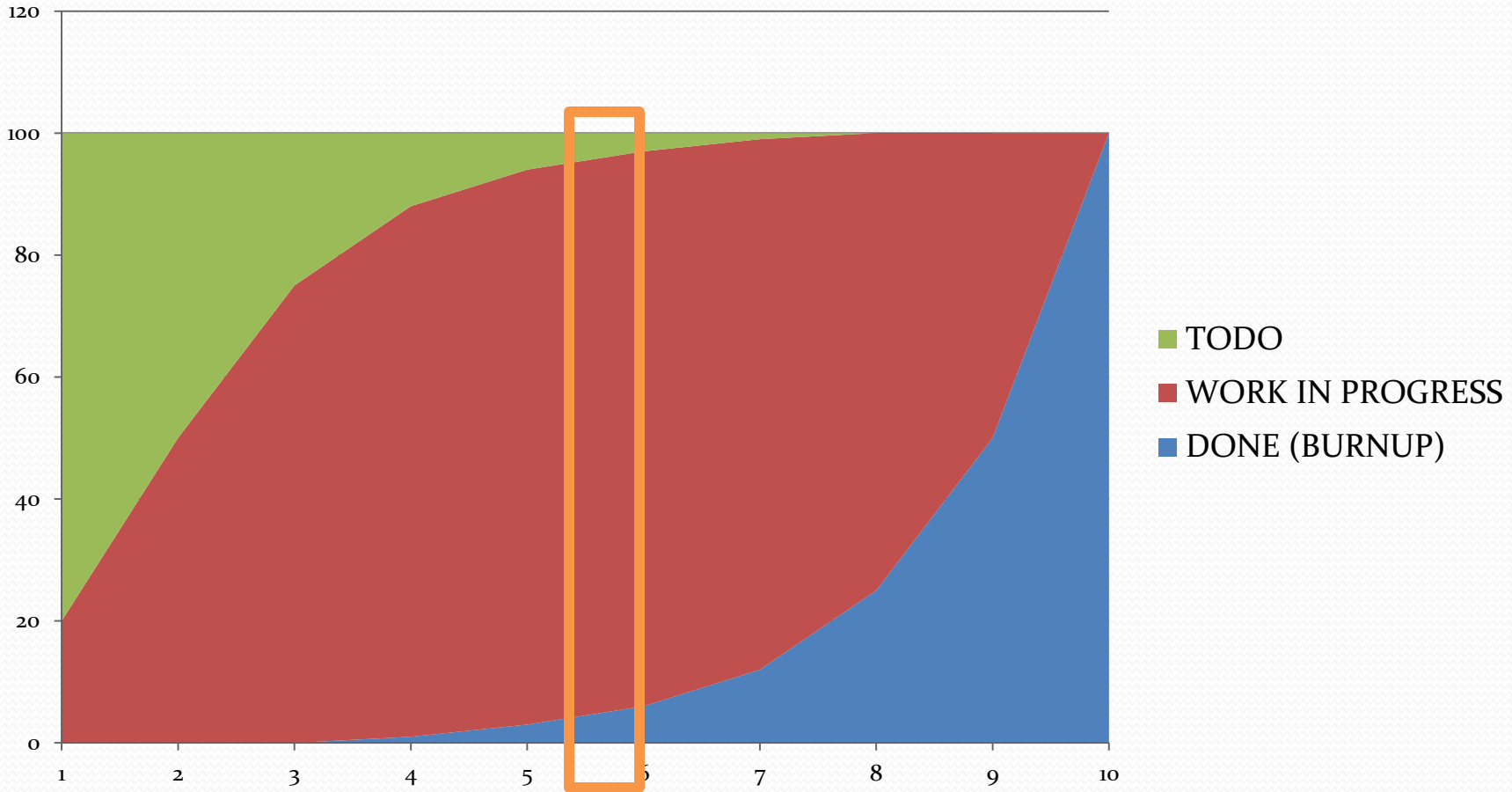
Introduced by Lean Thought Leaders Don Reinertsen and David Anderson

The idea is to visualize where the features/stories are in the workflow across time



- TODO
- WORK IN PROGRESS
- DONE (BURNUP)

How do we Visualize the work status in more depth?



TO DO	IN PROGRESS	DONE
<p>El ad</p>	<p>In bar</p> <p>In</p> <p>Mush on</p> <p>In bar</p> <p>Mush on</p> <p>El l</p> <p>Mush on</p> <p>El ad</p>	<p></p>

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TO DO	IN PROGRESS	DONE
1	8	1

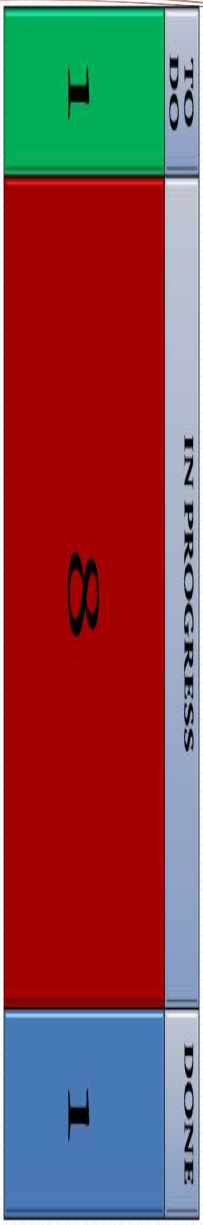


TO DO	IN PROGRESS	DONE
1	8	1

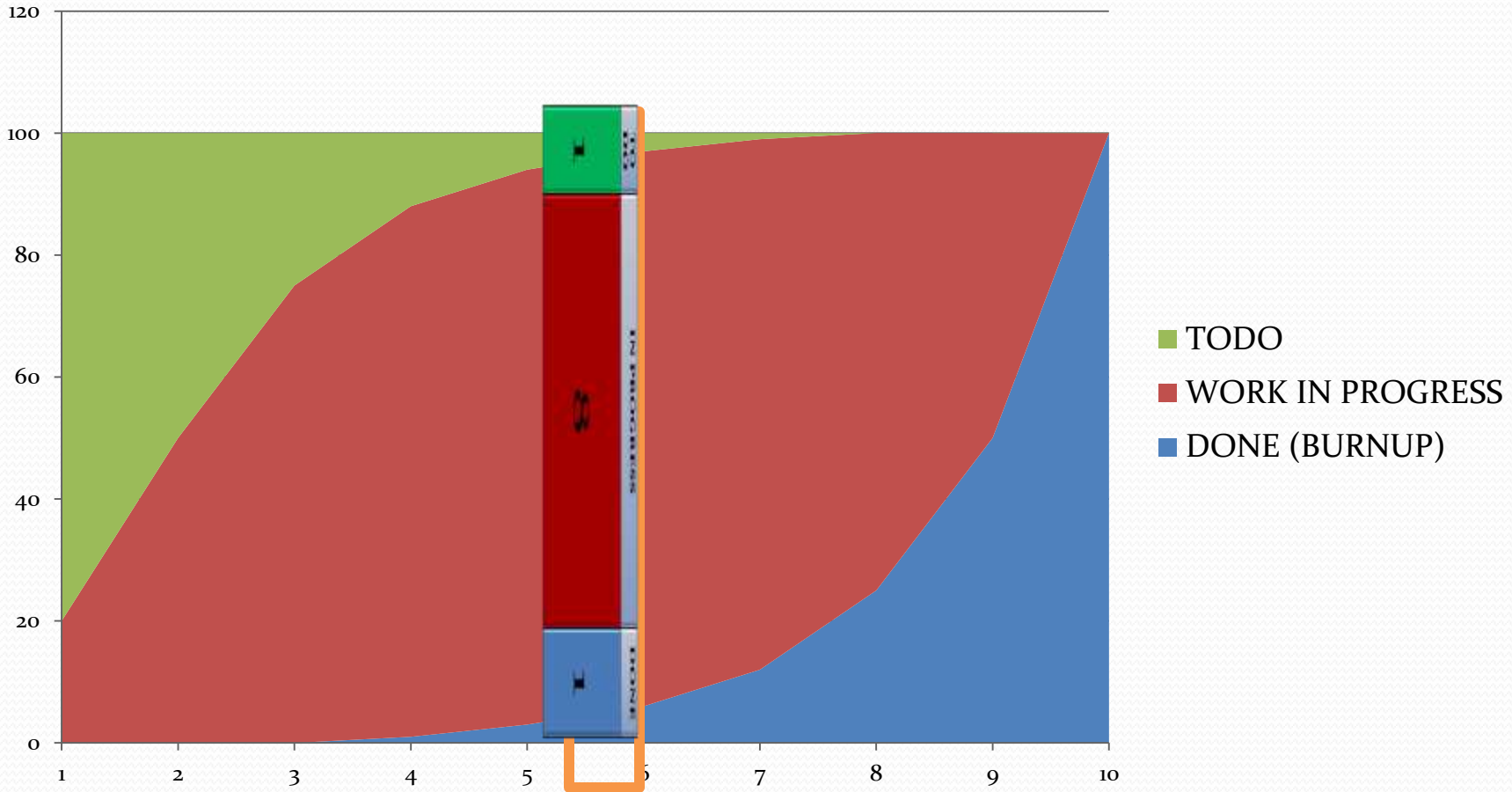


TO DO	IN PROGRESS	DONE
1	8	1

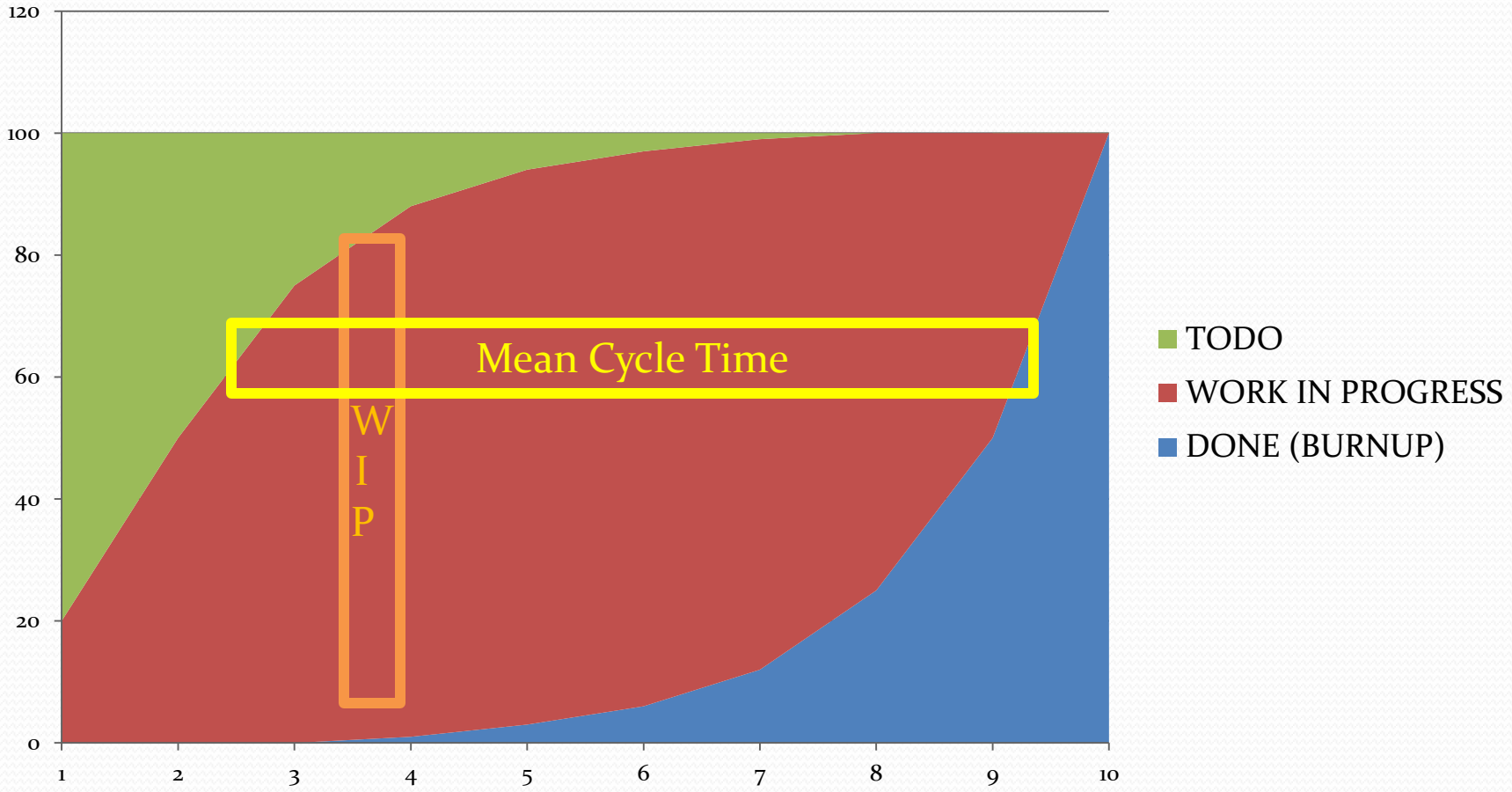
TO DO	IN PROGRESS	DONE
1	8	1



So a cumulative flow is built of snapshots of the board summary per day

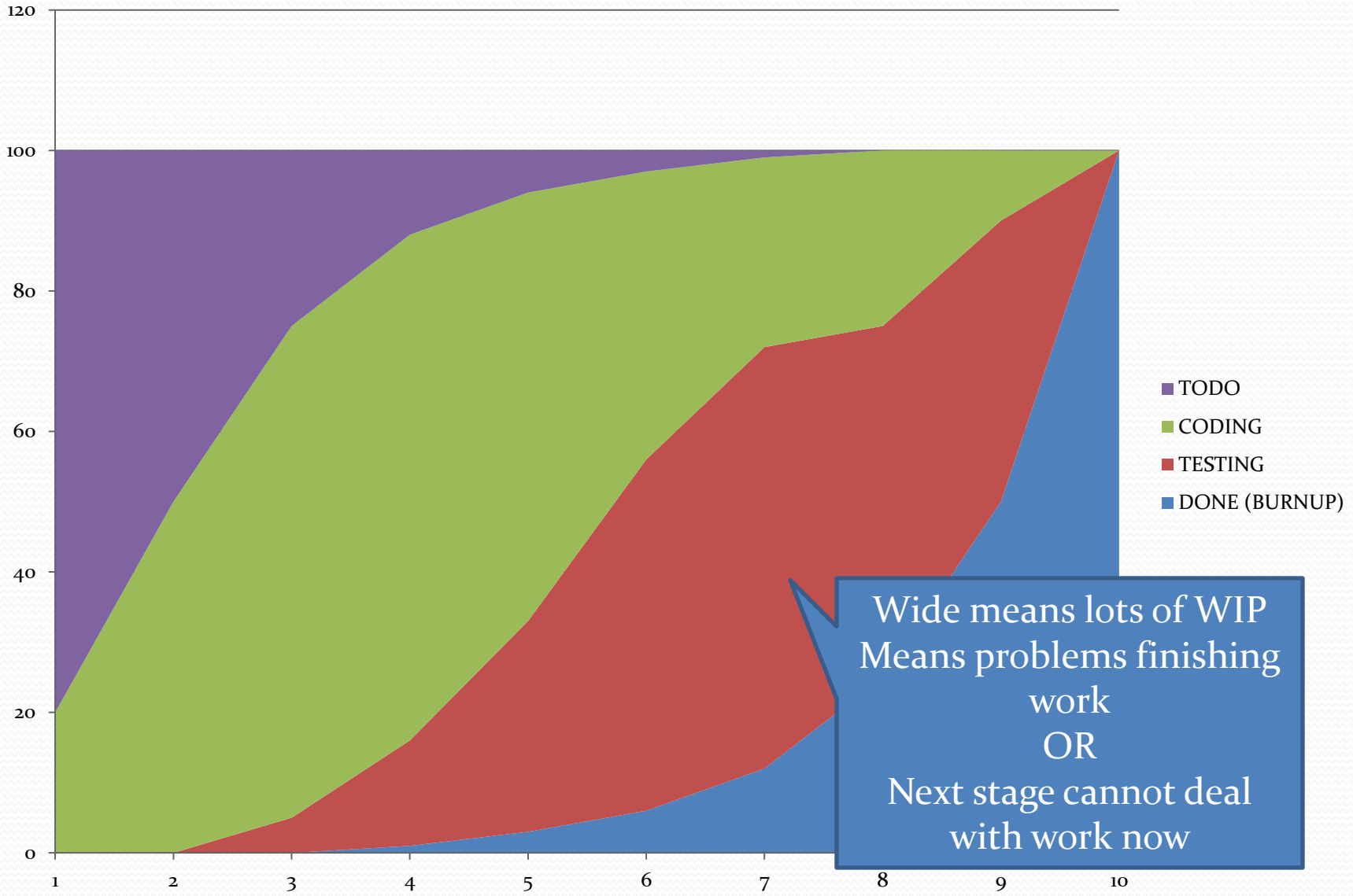


And provides a LOT of data

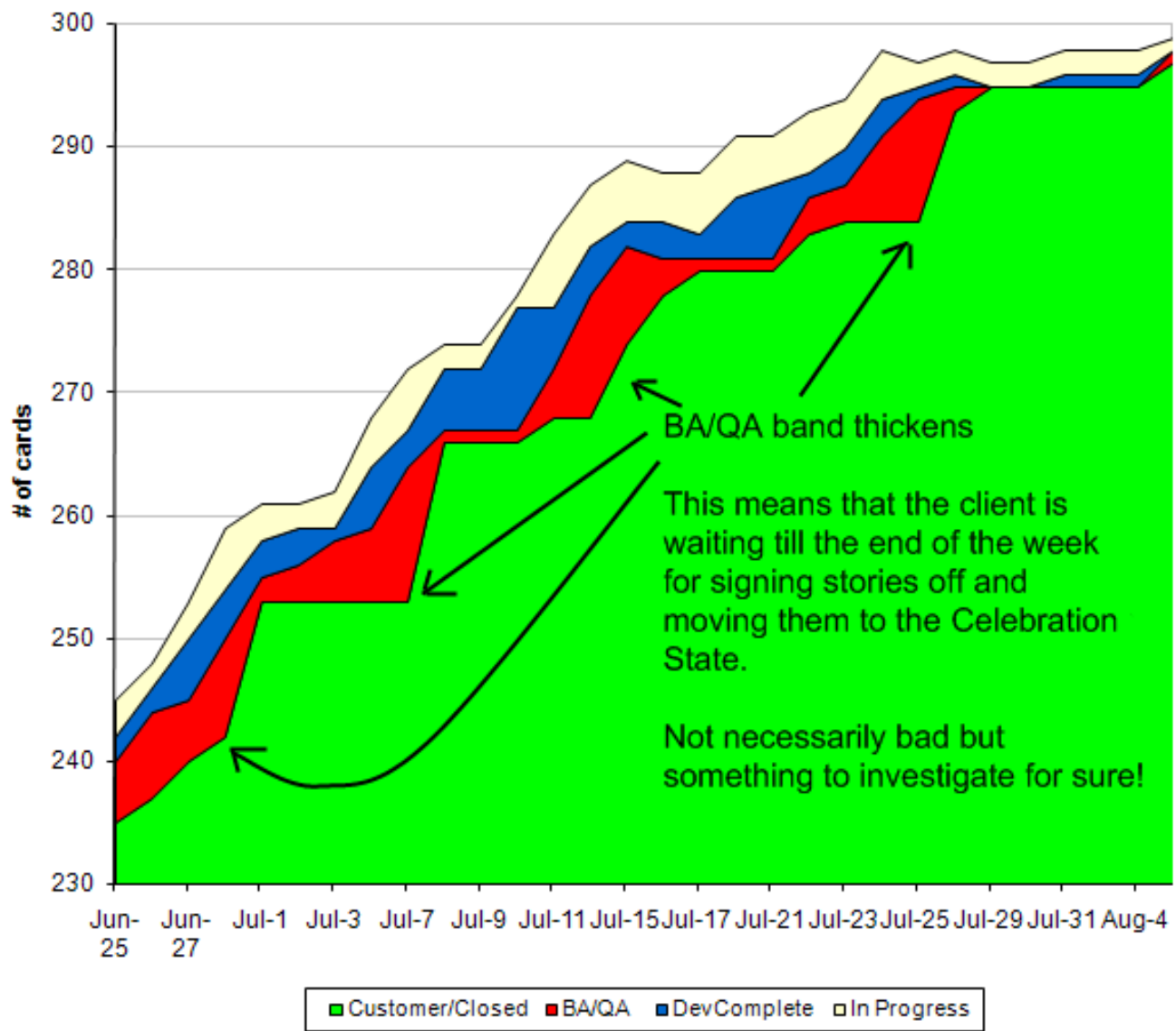


Now, how can we get more details?

- Lets dive into the workflow



Wide means lots of WIP
Means problems finishing
work
OR
Next stage cannot deal
with work now

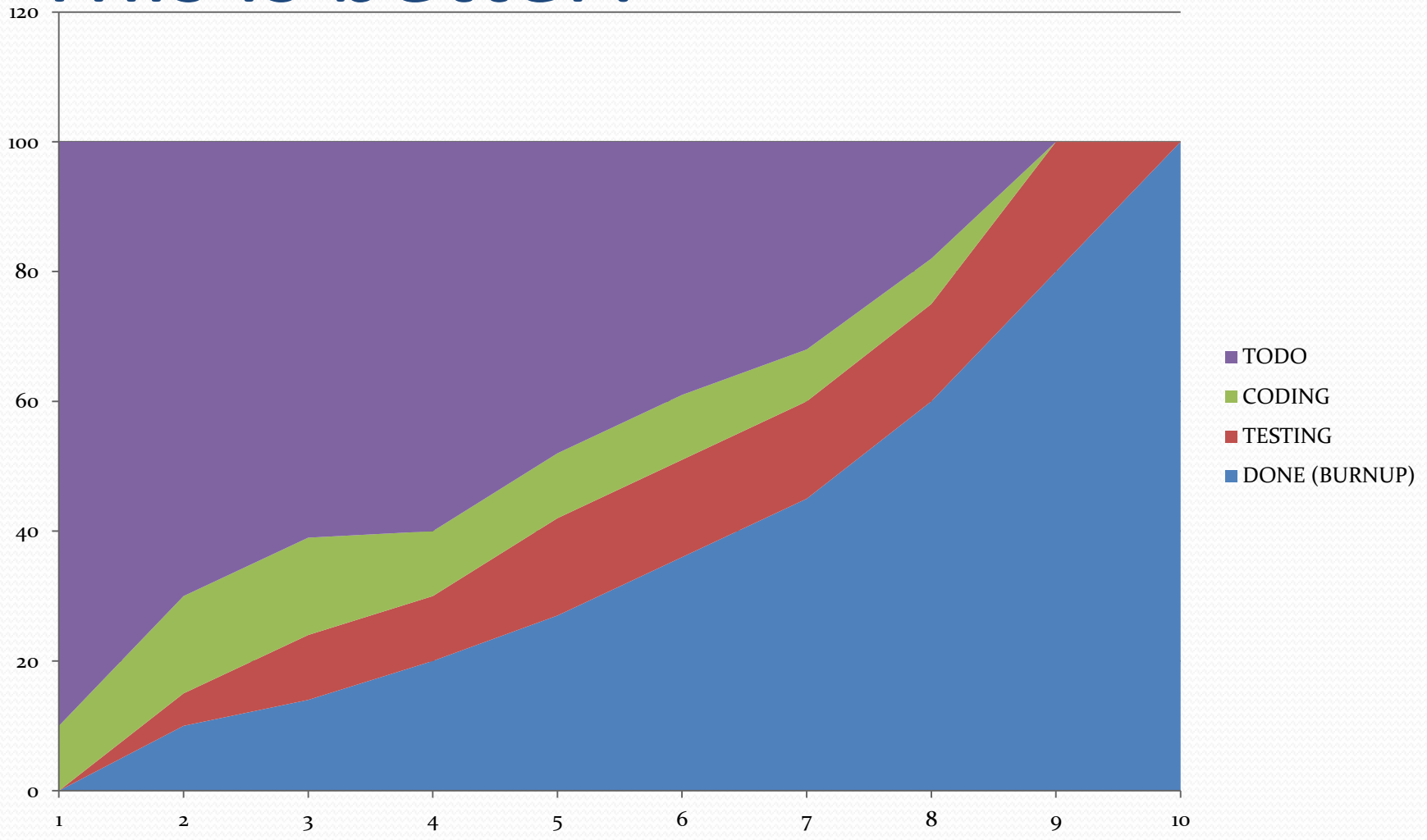


BA/QA band thickens

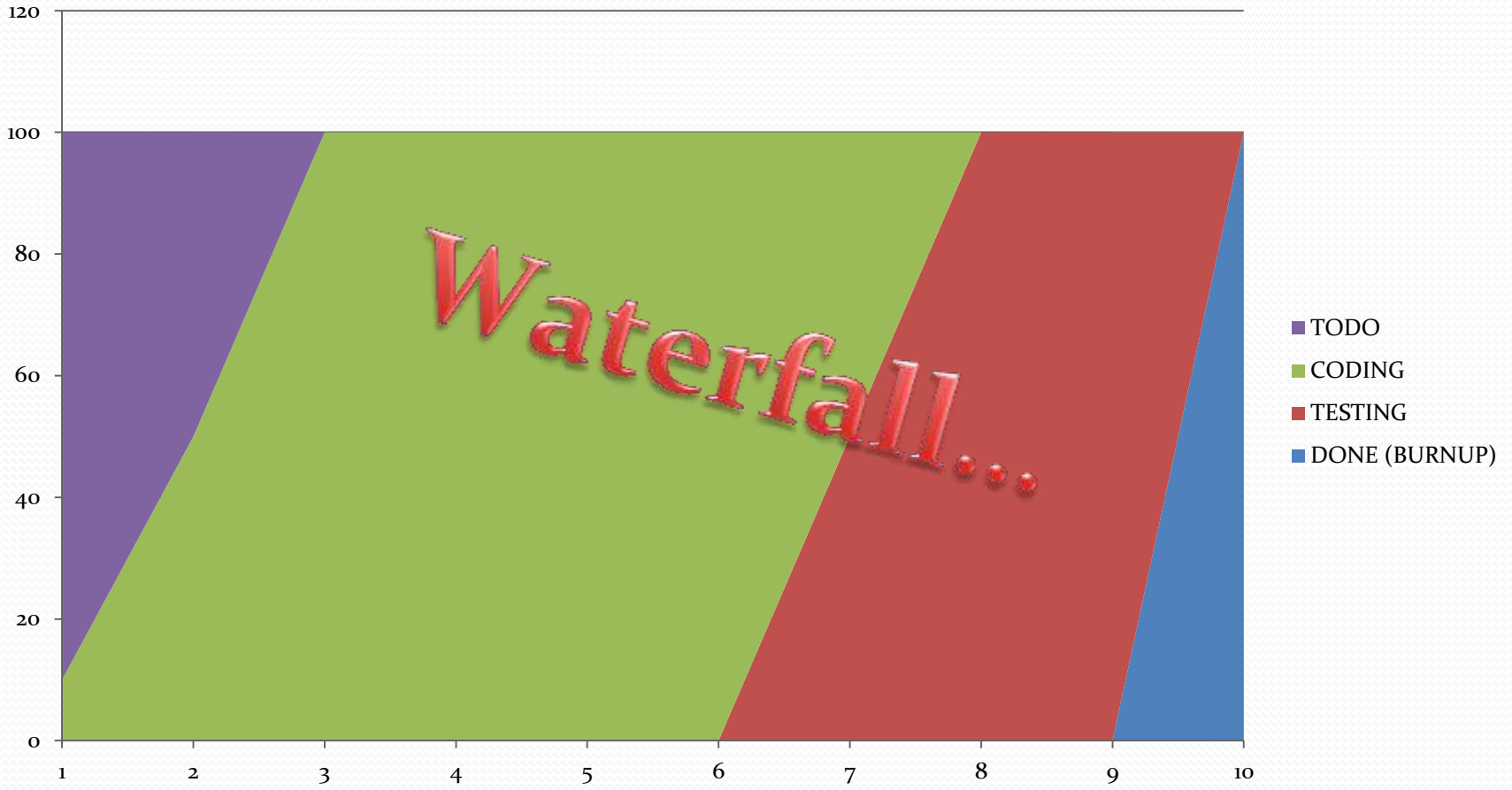
This means that the client is waiting till the end of the week for signing stories off and moving them to the Celebration State.

Not necessarily bad but something to investigate for sure!

This is better!



What is this?



So what do we need for a CFD?

- Have a defined workflow, even a simple one (TODO, IN PROGRESS, DONE)
- Track state of Features/Stories/Requirements , including historical data
- Cumulative Flow can be easily generated based on this
- Can be improved to be based on Size of items e.g. Story/Feature Points.
 - When using this, can mix different entities on same CFD
 - With # of items, items need to be of same kind (e.g. stories/epics but not a mix)

Why use CFD?

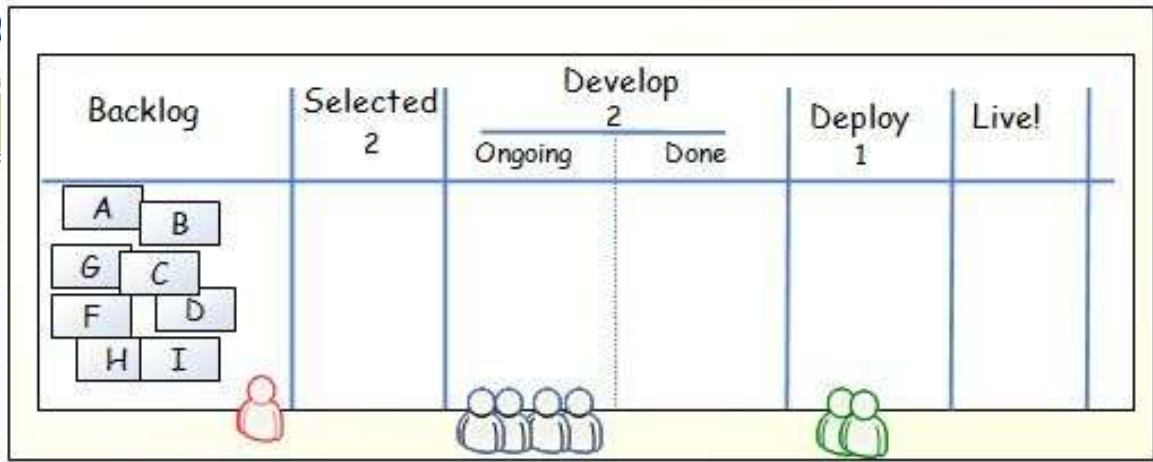
- One visibility report provides insight to Burnup, Cycle Time, WIP, Bottlenecks
- Drives Continuous Improvement, great companion to discussions about limiting/managing work in progress (WIP).
- Can be applied for
 - Scrum Teams
 - End to end product development project/group
 - Any kind of team chewing customer-valued work items

The visibility partner of Kanban

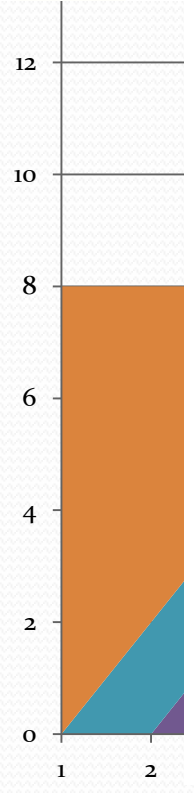
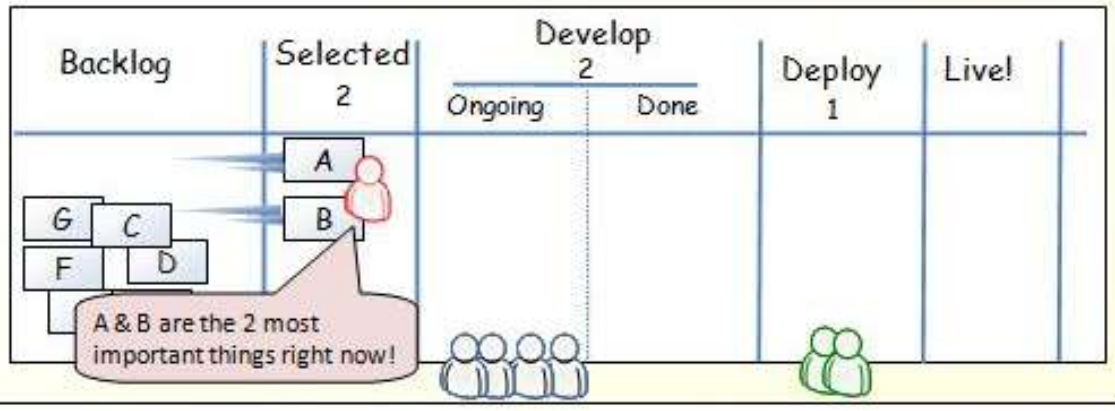
- Replaces Burnup/Burndown for Kanban teams/groups.

Lets revisit KanbanLand...

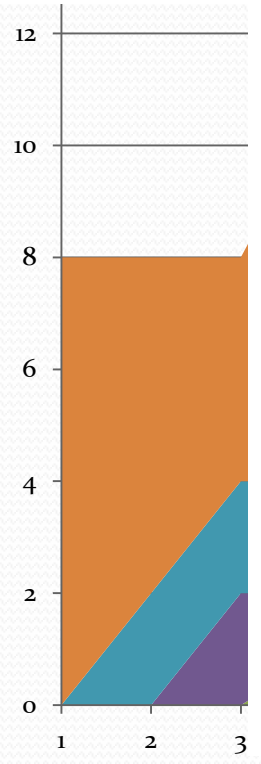
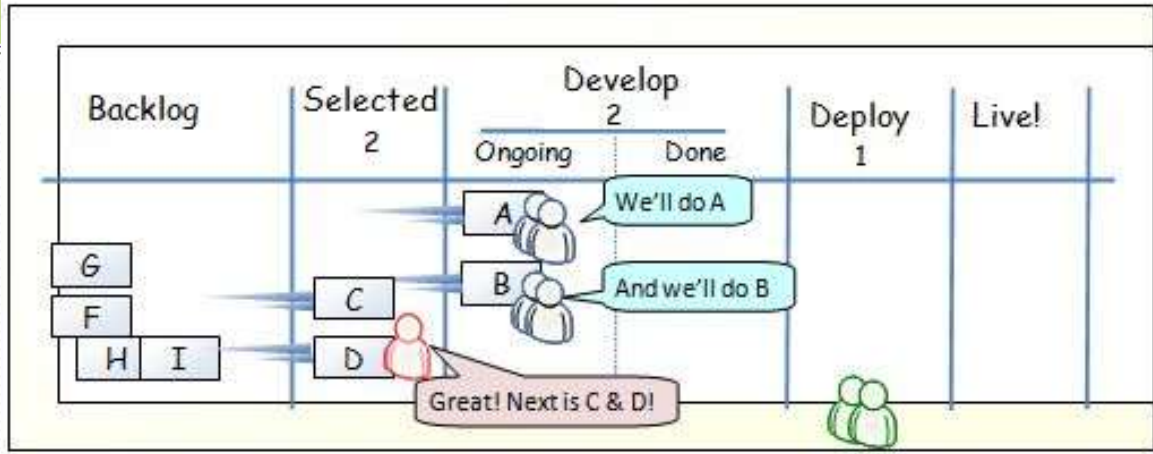
- Henrik Kniberg came up with [“One day in Kanban Land”](#) – a comic explaining the key Kanban concepts.
- Lets try to see how a Cumulative Flow Diagram looks for each of the hours in Kanban Land...
- Comic courtesy and copyright Henrik Kniberg, Crisp SE



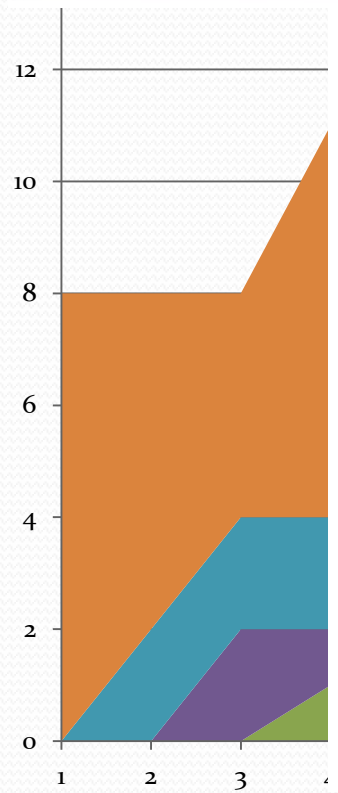
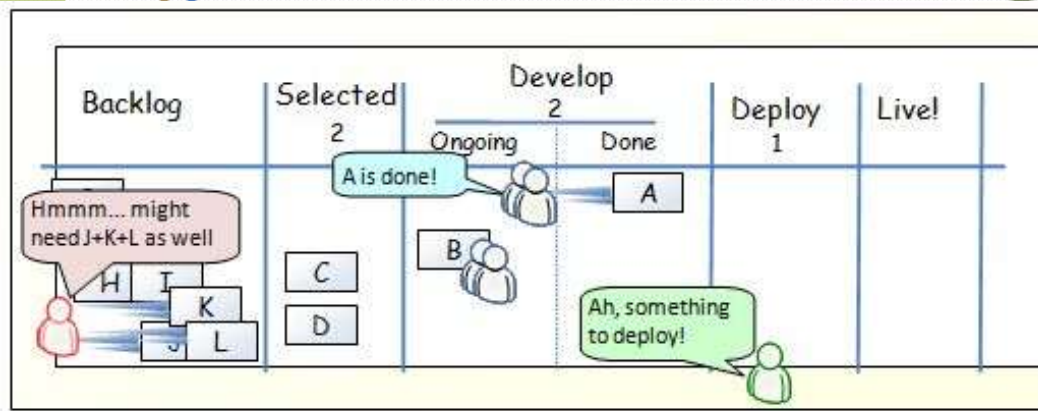
- Backlog
- Selected
- Develop Ongoing
- Develop Done
- Deploy
- Live



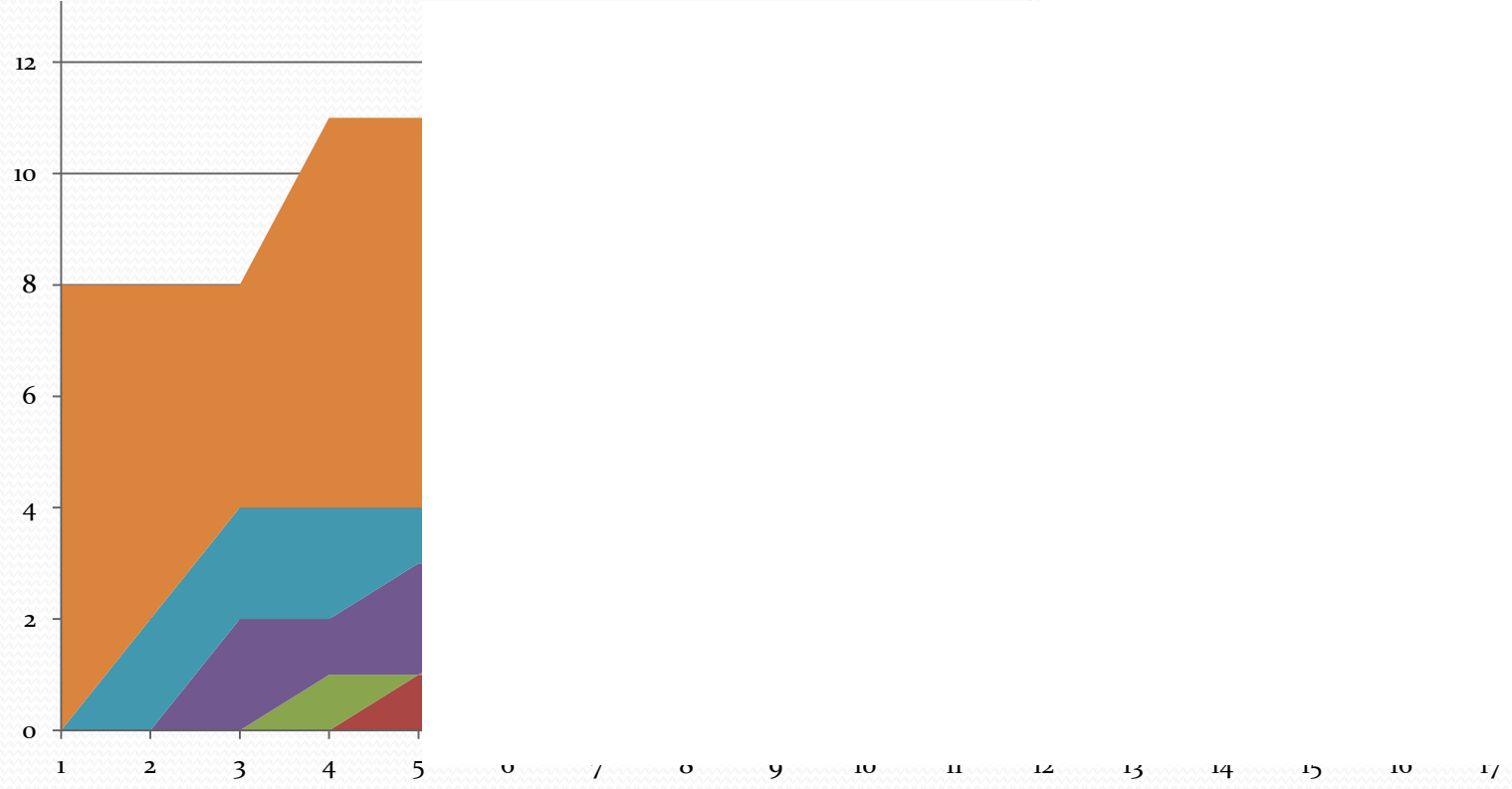
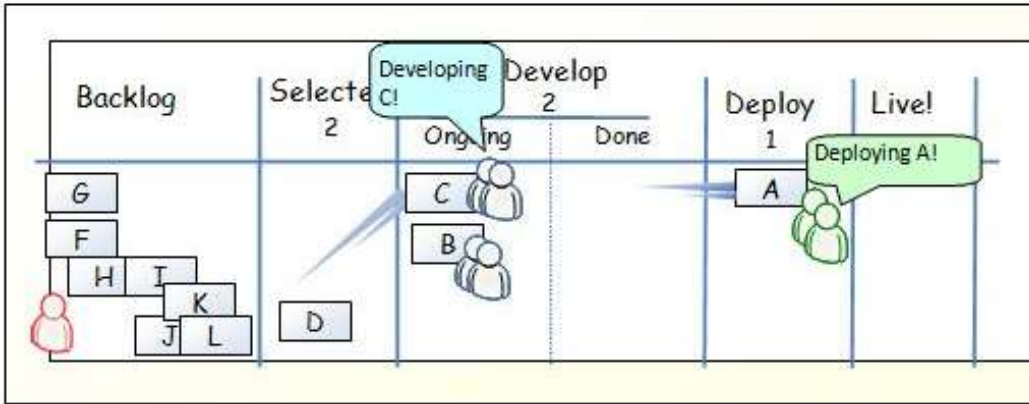
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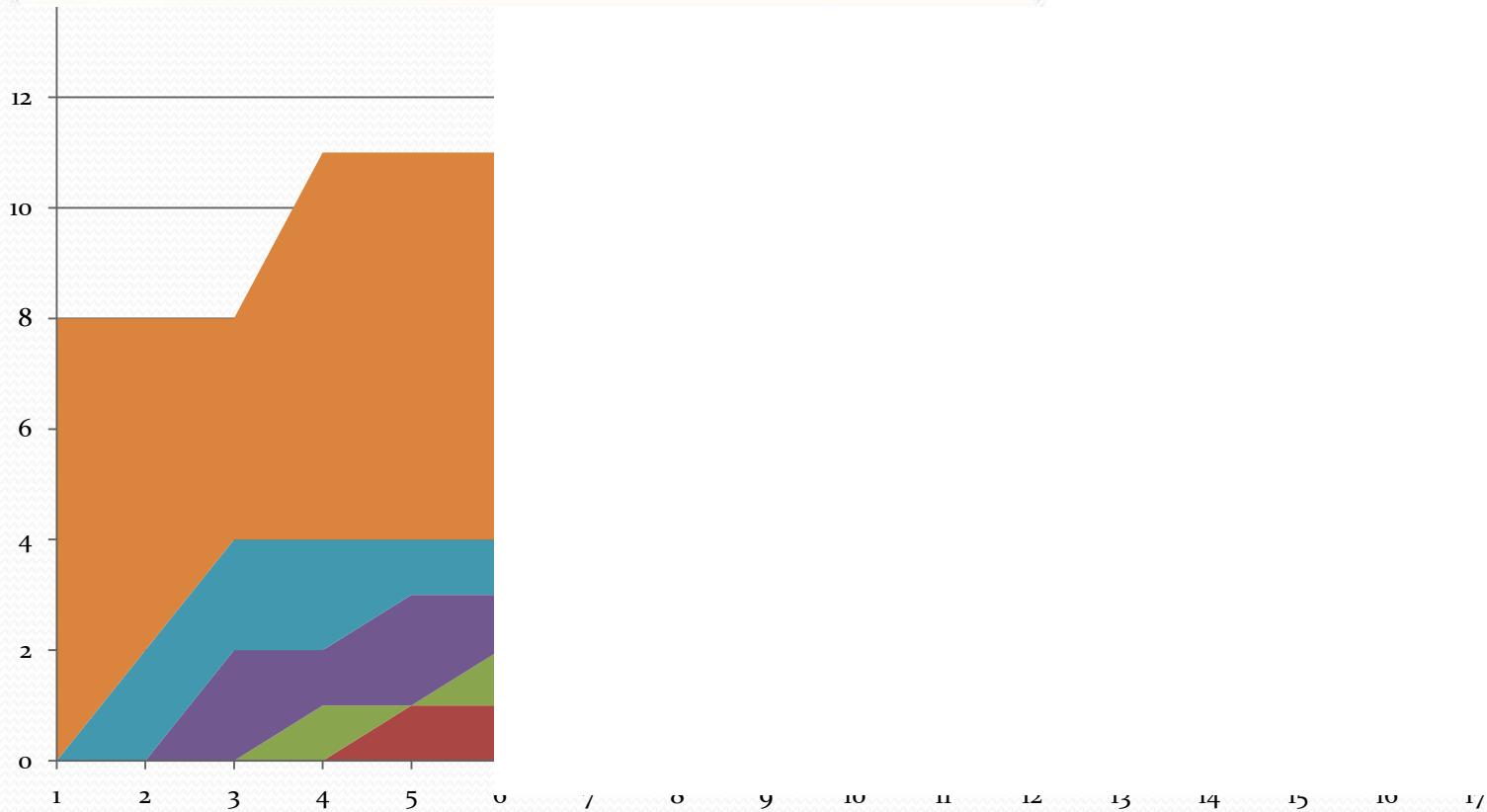
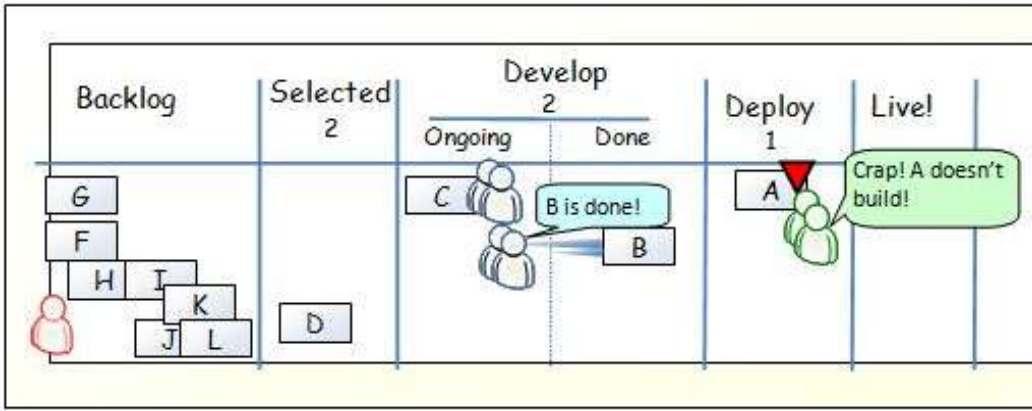
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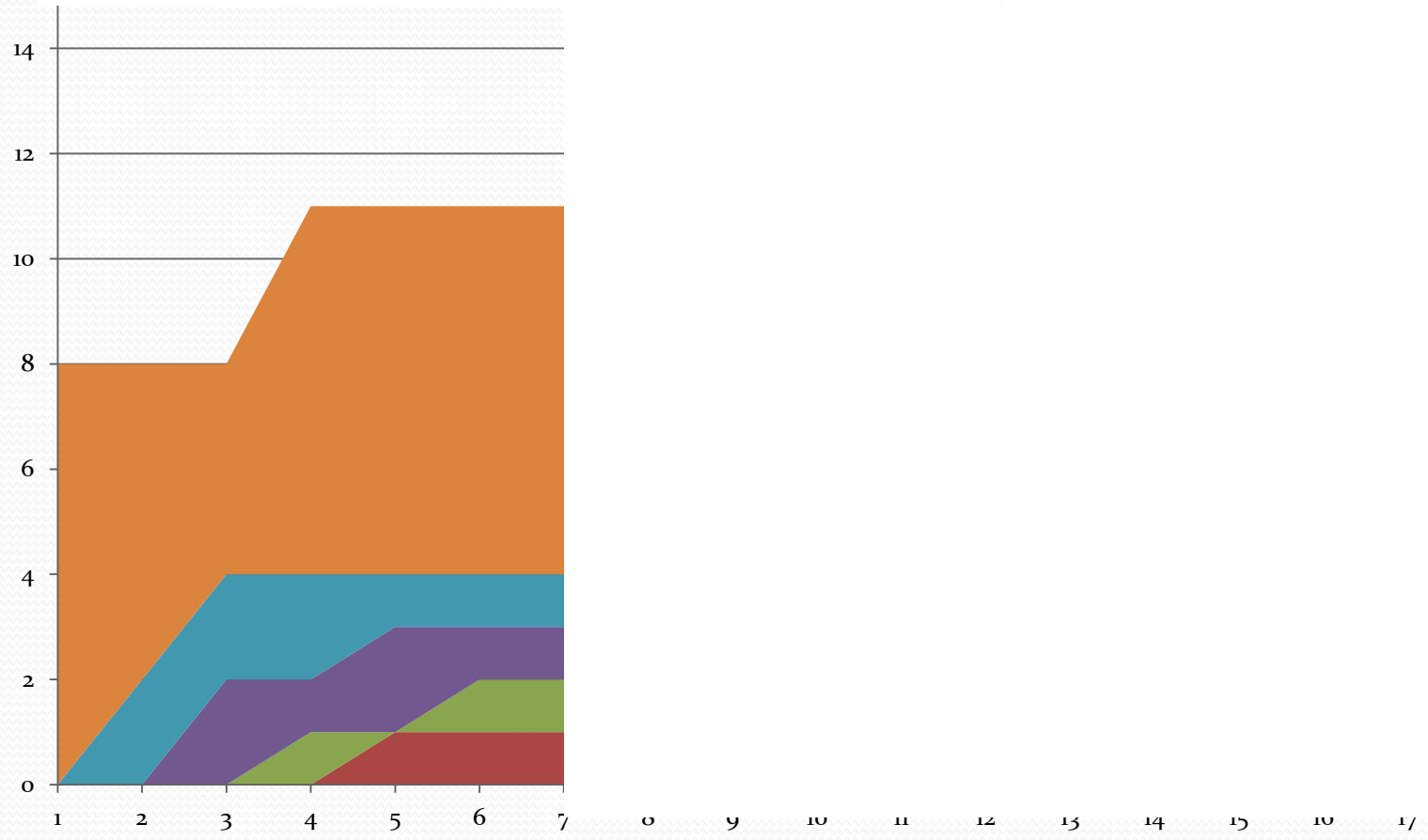
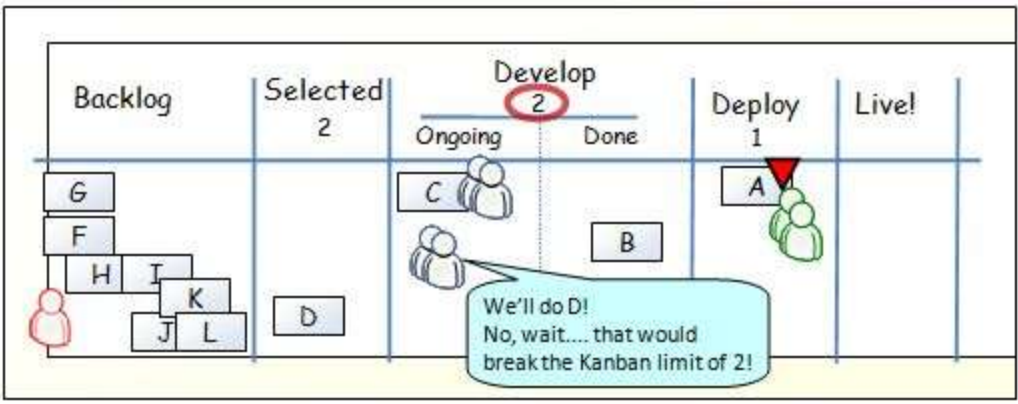
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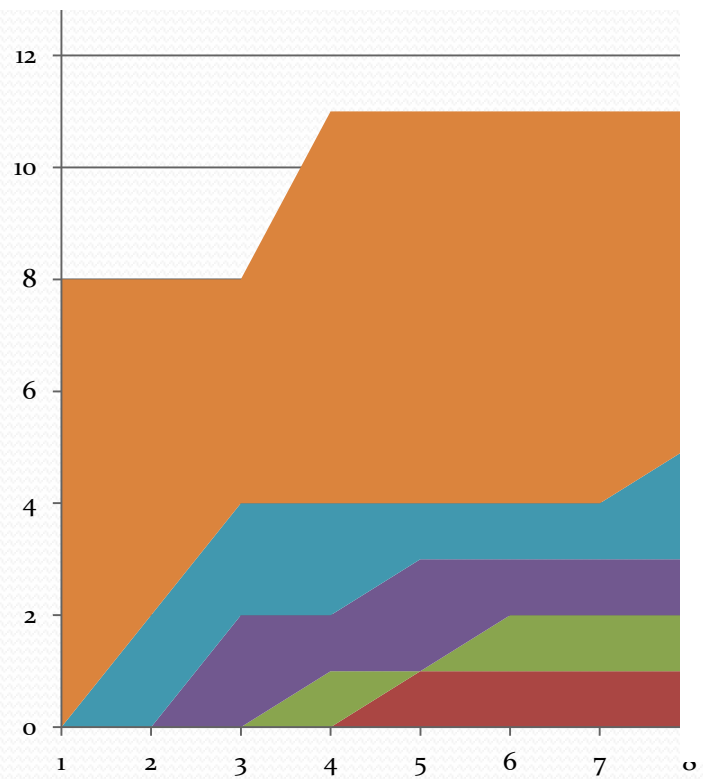
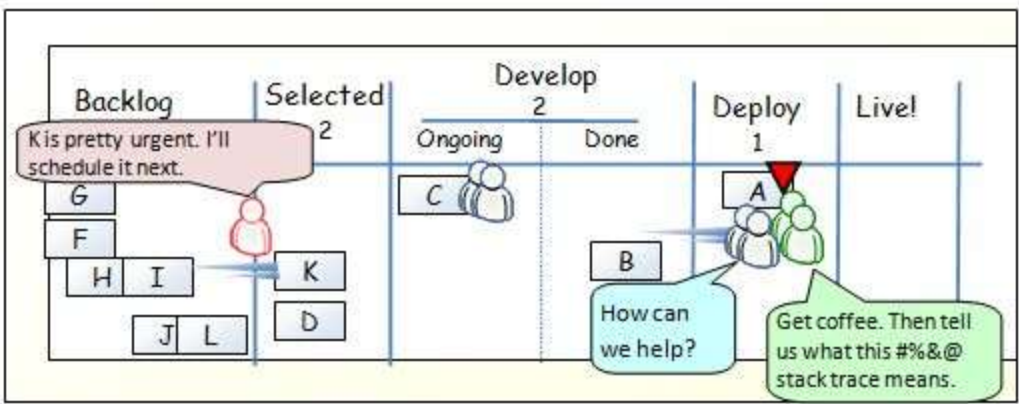
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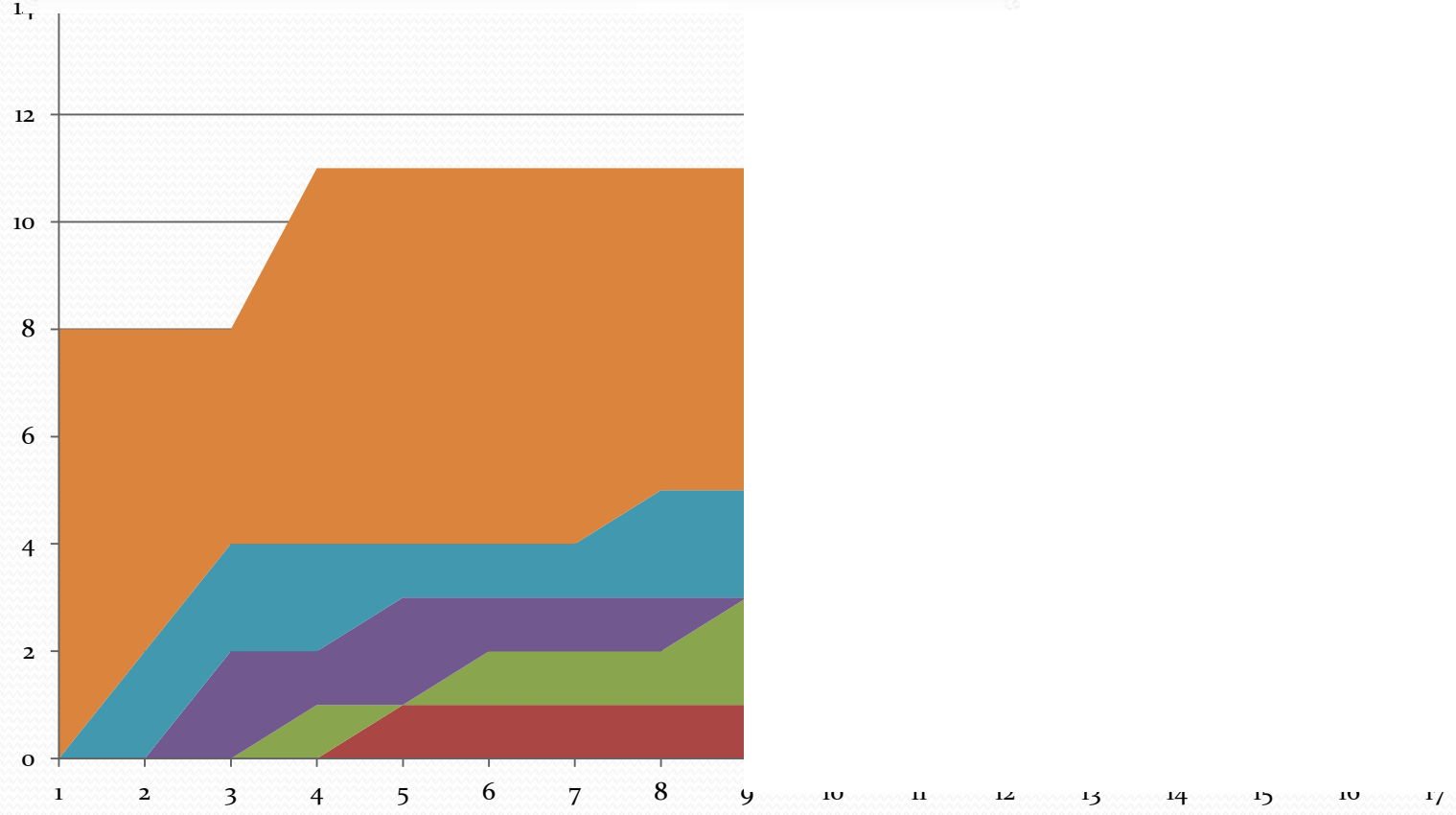
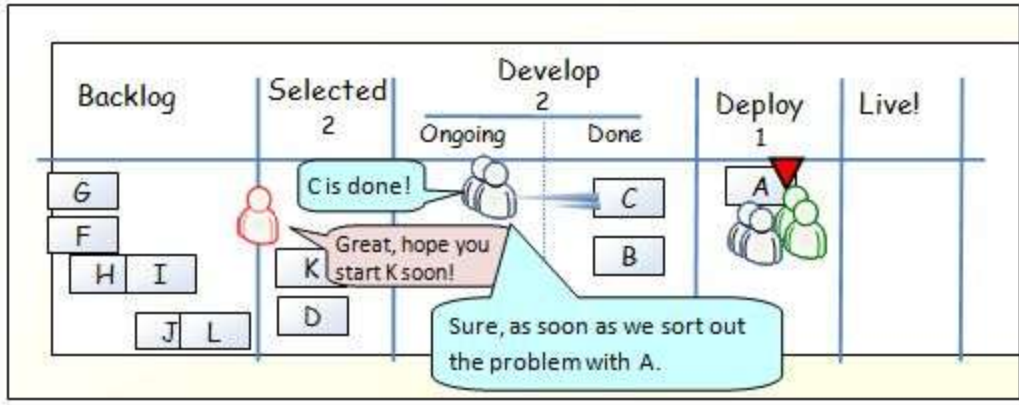
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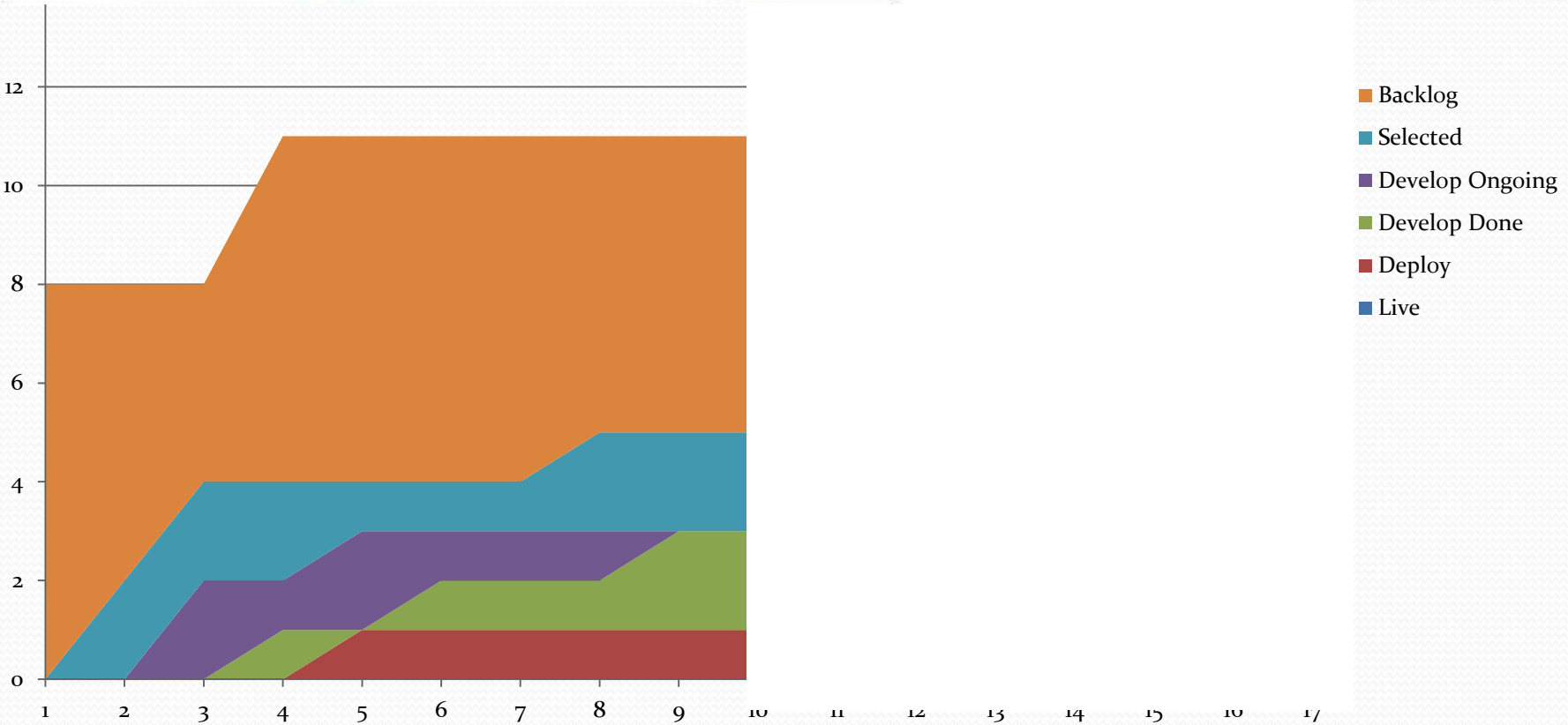
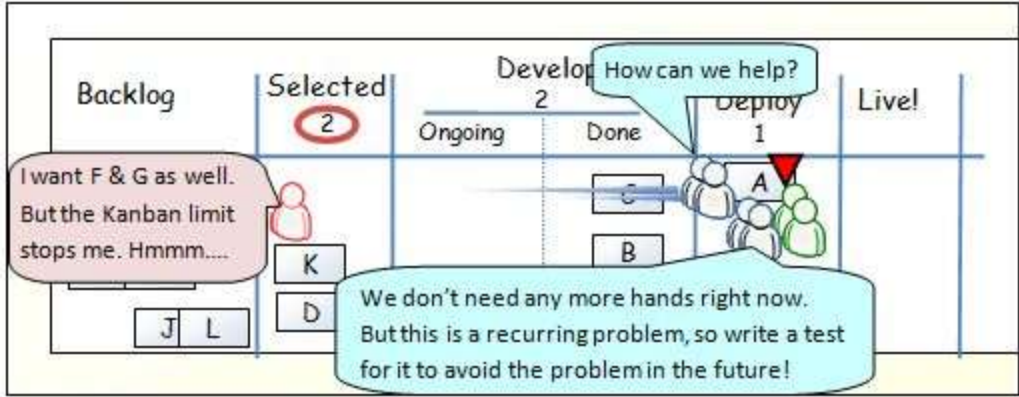
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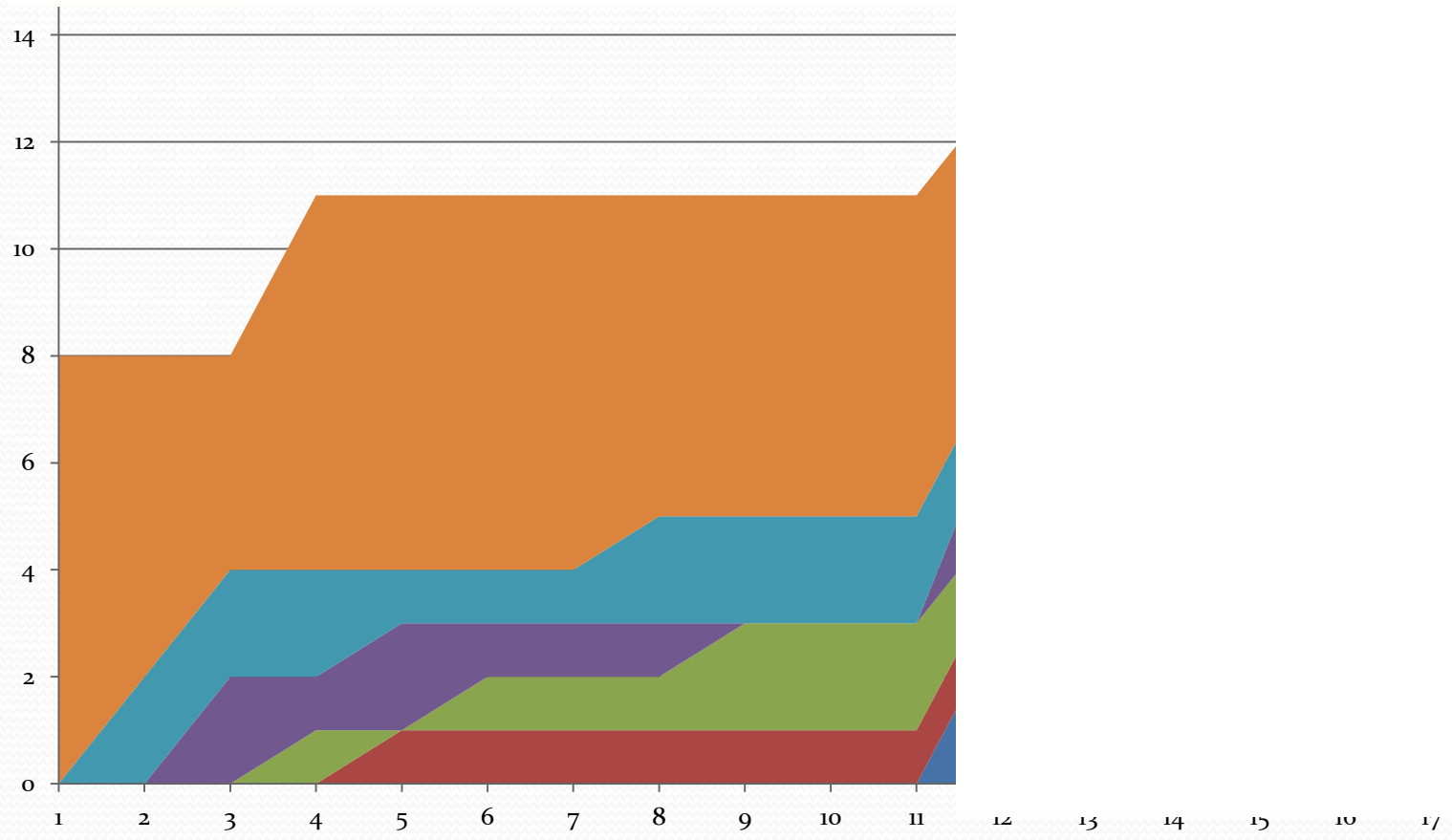
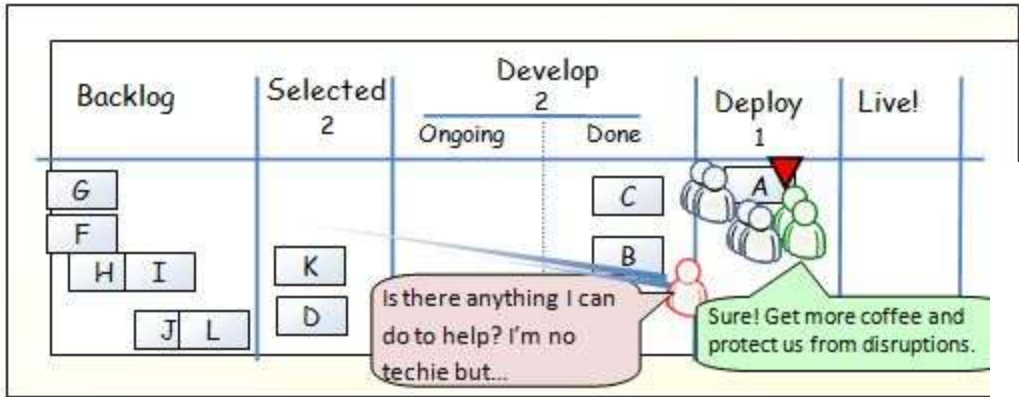


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