

GDC Austin

September 15–18, 2009

Game Developers Conference® Austin
Austin Convention Center | Austin, Texas

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Lean Game Production

Clinton Keith



Clinton Keith



Agile coach Scrum trainer

- 24 years of development experience
- 15 years of game development experience
- 5 years of agile development experience in the game industry
- Introduced agile to the industry in March 2005

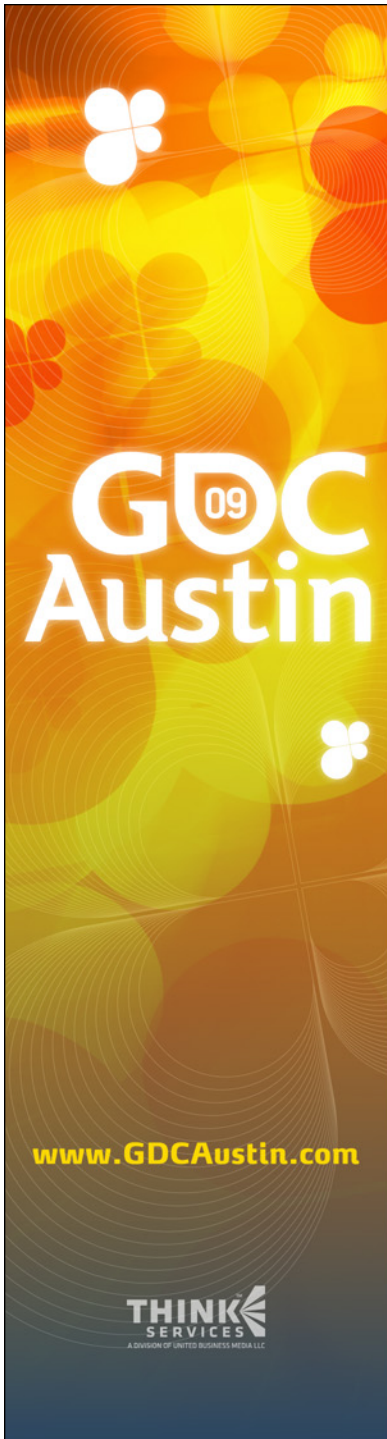
Introduction

- Production is the most expensive part of development
- Agile is beneficial, but Scrum isn't the best fit for production. We don't want to drop all agile benefits:
 - Continual improvement
 - Collaboration
 - Focus on value
- By focusing on entire production streams rather than individual discipline efforts, we can increase production flow by over 50% (YMMV)

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This talk....

Stages in game development

Pre-production

Scrum

Production

Scrum with
Lean tools &
principles

Flow

Kanban

Asset streams

Time boxes

The logo for GDC Austin 09. It features the text "GDC" in a large, bold, white sans-serif font, with "09" in a smaller font inside the "D". Below "GDC" is the word "Austin" in a similar white sans-serif font. The background of the logo is a vertical banner with a warm color gradient from yellow at the top to orange and then dark blue at the bottom. It is decorated with abstract, overlapping circular patterns and two white stylized flower-like icons.

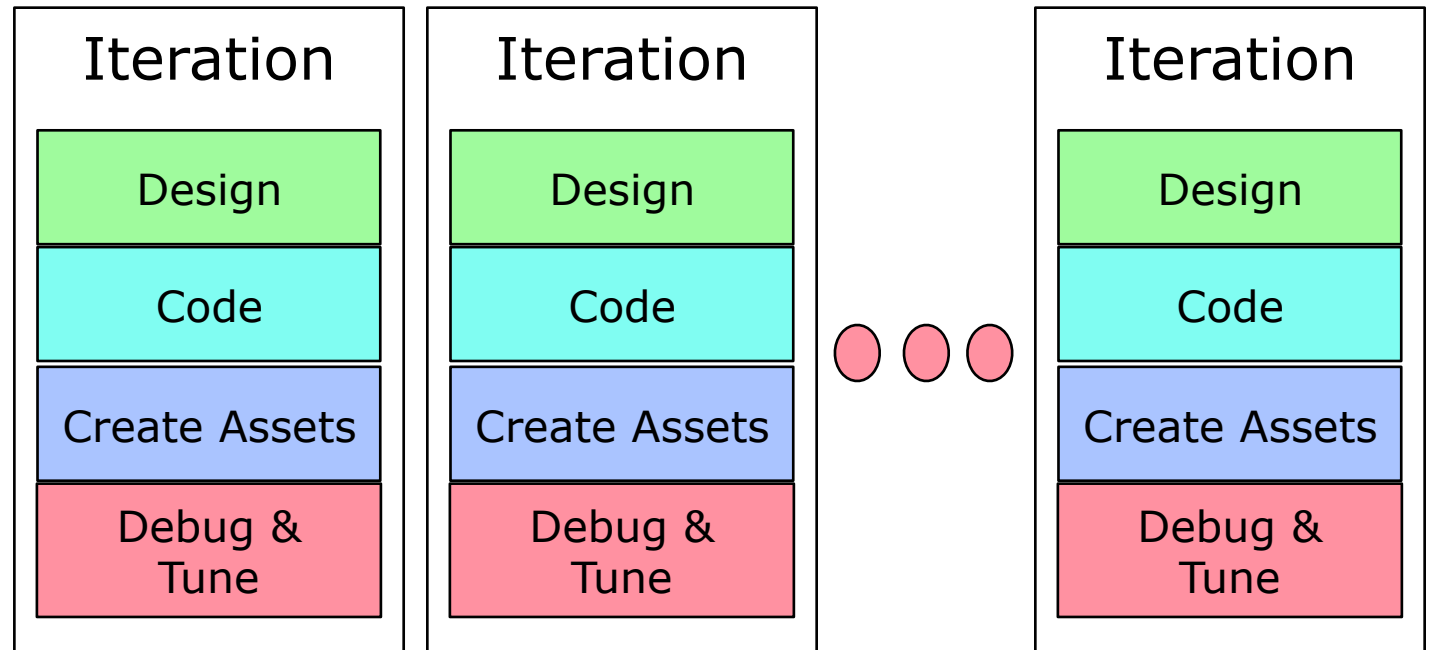
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Stages in game development

Agile is phase-less



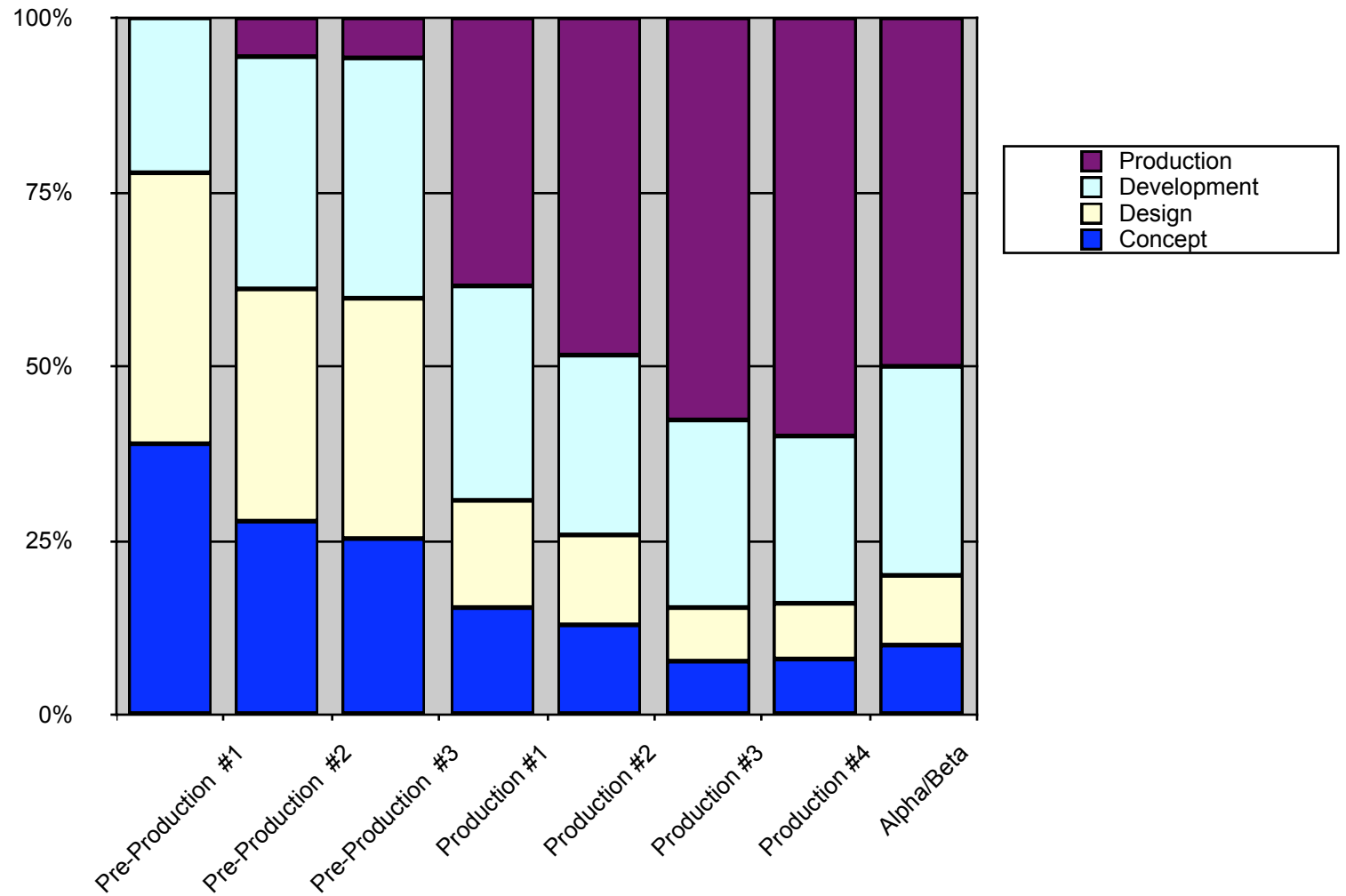
...is game development?

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Not Quite



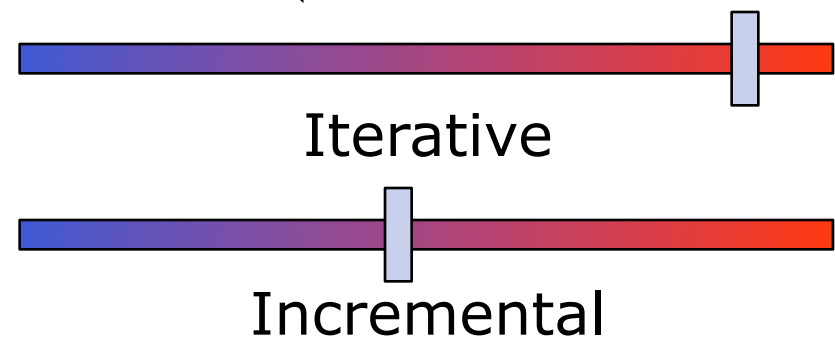
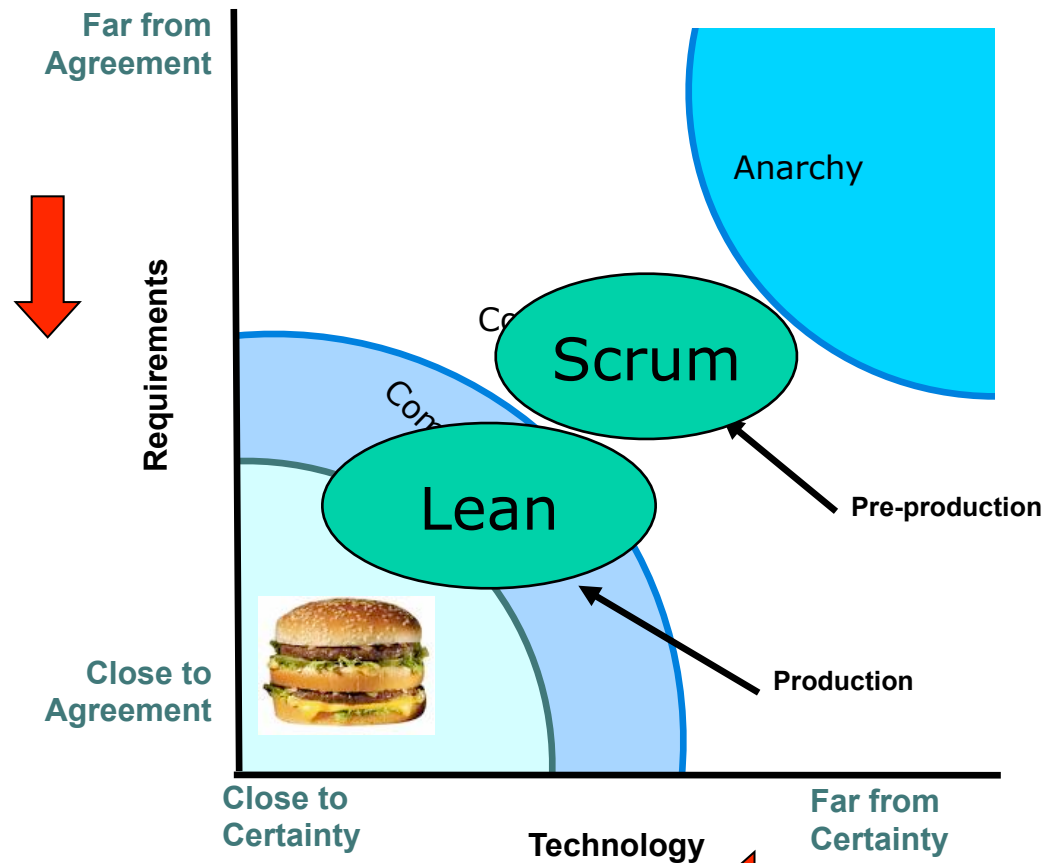
We have stages

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Process tools partly driven by certainty

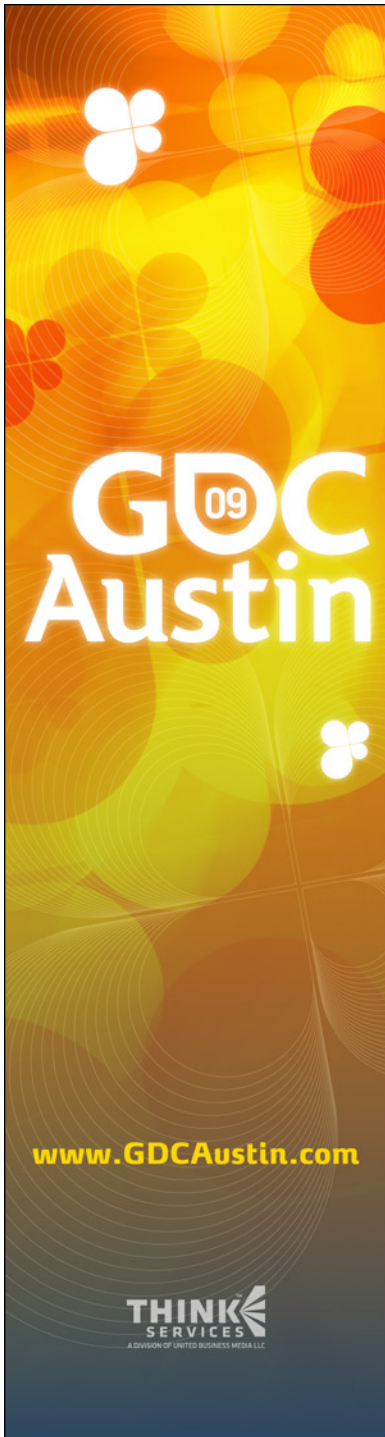


Source: *Strategic Management and Organizational* by Ralph Stacey in *Agile Software Development with Scrum* by Ken Schwaber and Mike Beedle.

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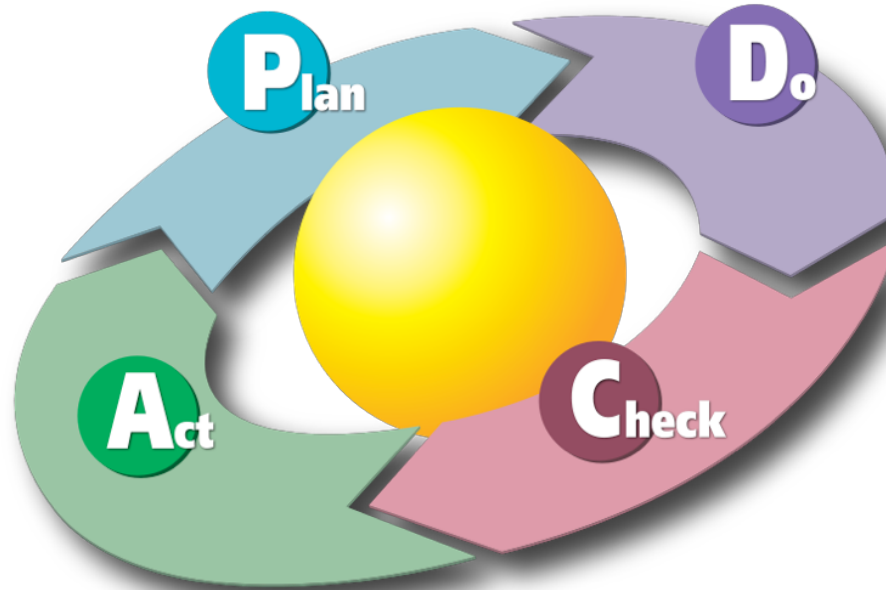
Pre-Production vs. Production

	Pre-production	Production
Questions/ Statements	What is fun? How will we build it?	Build 10 hours of it!
Goals	Correctness	Efficiency
States of mind	Collaboration	Flow
Approach	Iterate and increment	Increment

Derived from Cooper2008

Lean Game Production

Lean game production is a translation of lean manufacturing principles and practices to video game asset production.



The "Deming Cycle"

Seven Lean Principles

- Eliminate waste
- Amplify learning
- Decide as late as possible
- Deliver as fast as possible
- Empower the team
- Build integrity in (balance discipline)
- See the whole

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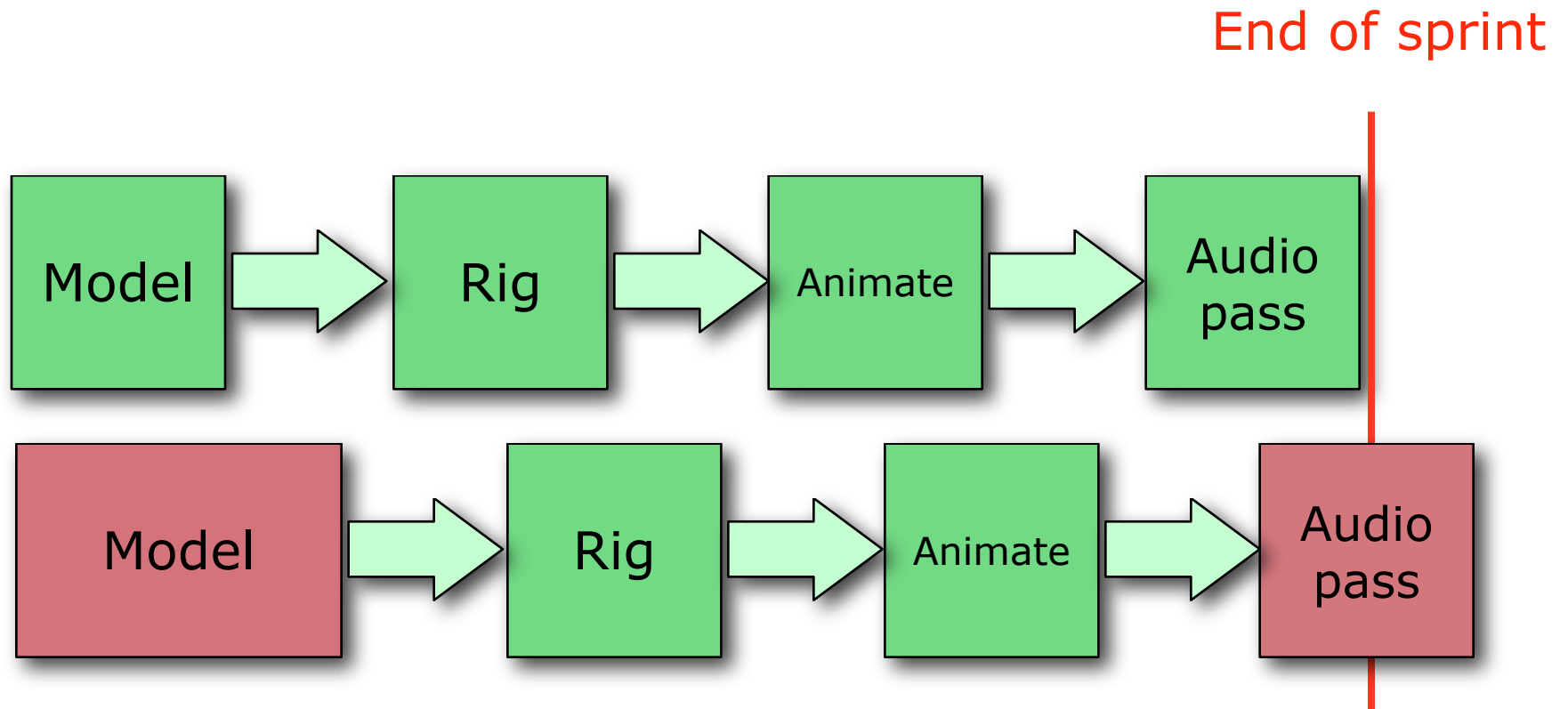
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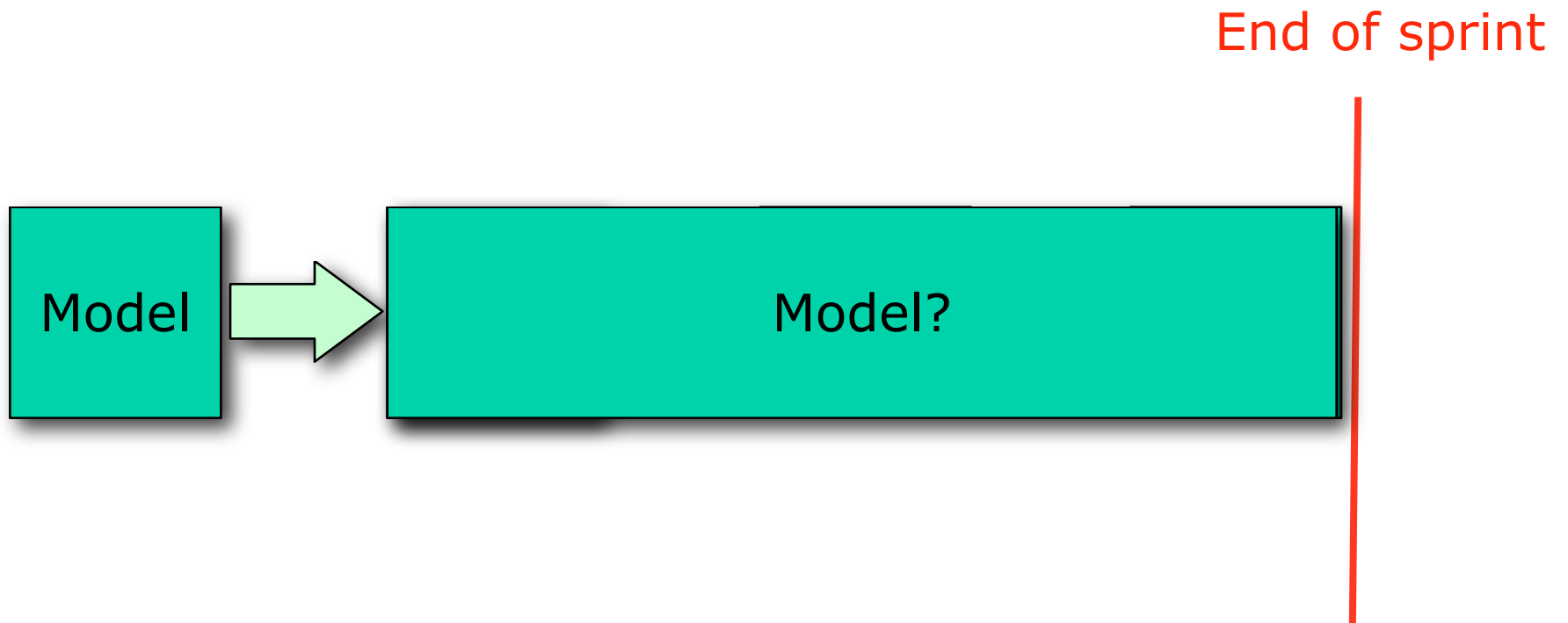
Why Scrum teams use Lean for production

The problem using Scrum for production



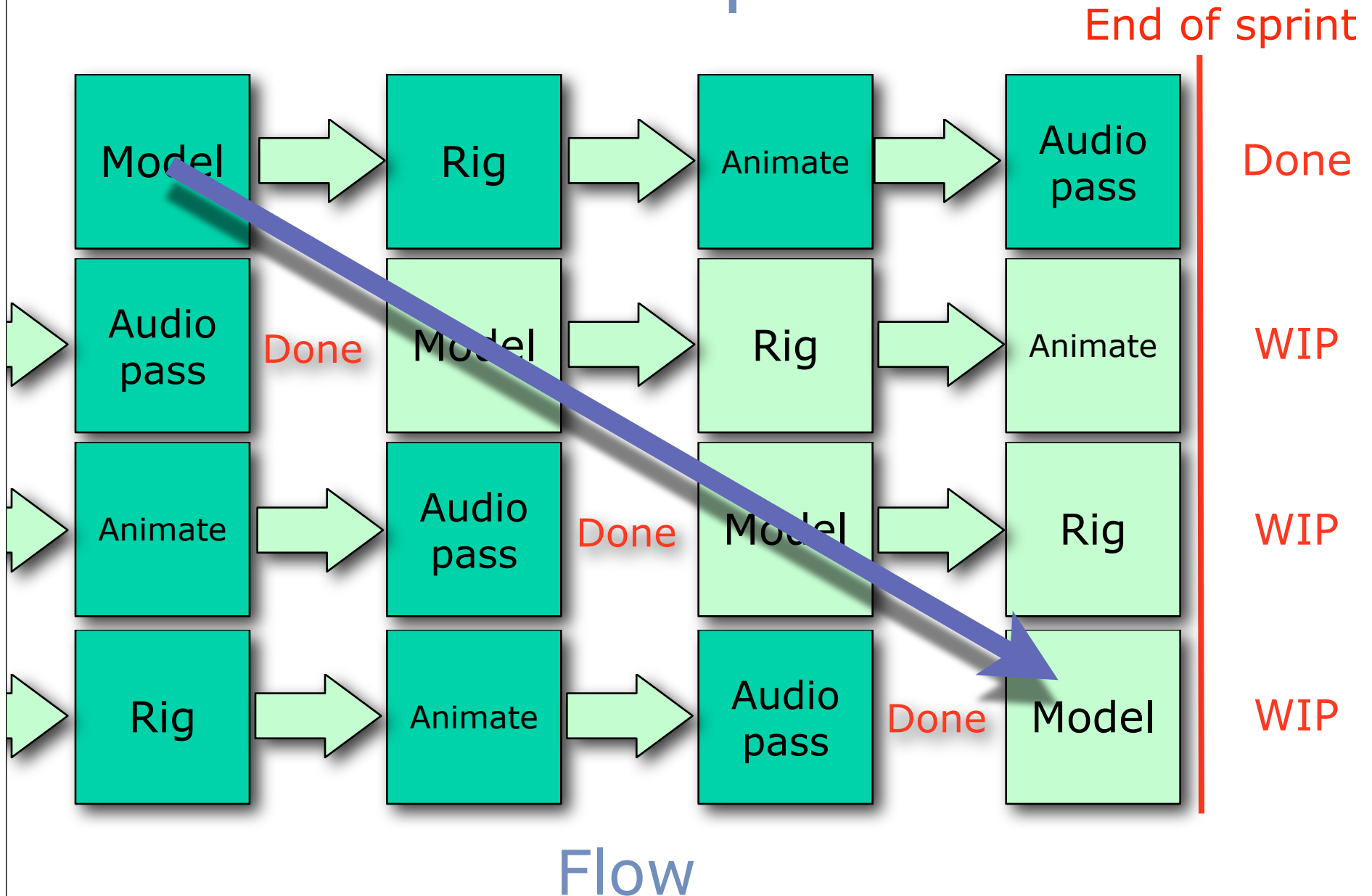
Team fails to achieve goal....
There is work-in-progress (WIP)

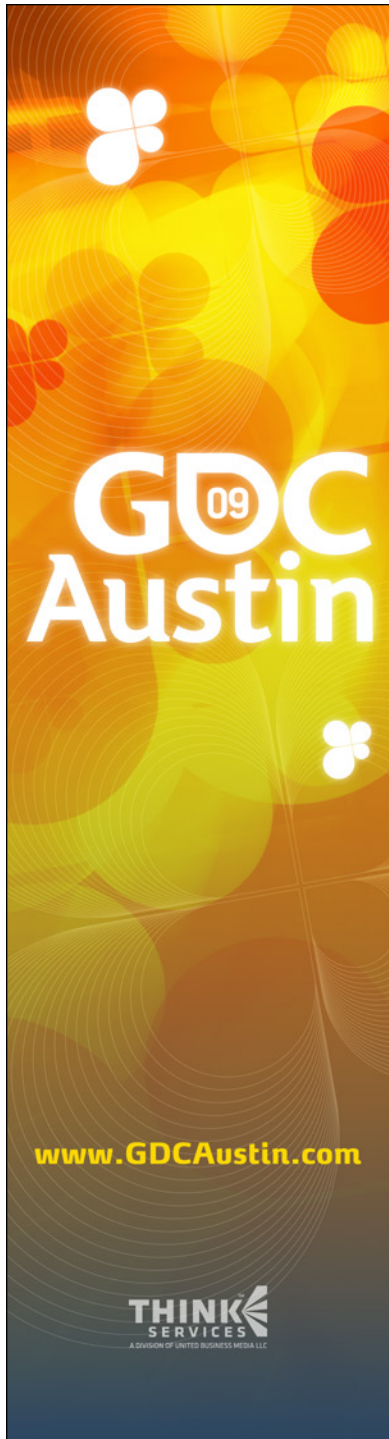
The problem using Scrum for production



Discipline pools can help, but they promote local optimization, which works against flow

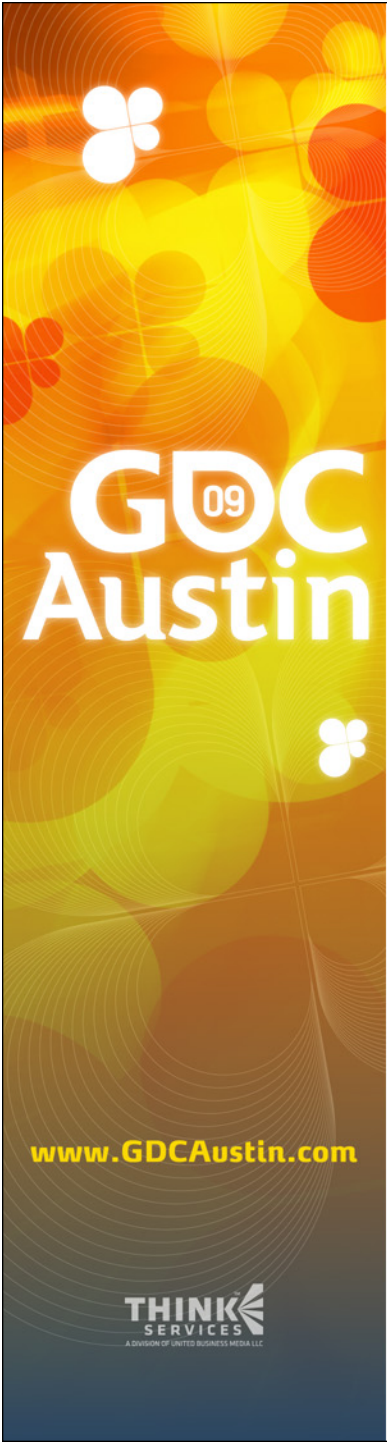
If the work is repeatable....





Flow is a state where...

- Work is repeatable and predictable
- Interruptions are minimized
- There is no waiting
- Improvements enter quickly

The logo for GDC Austin 09 is positioned on the left side of the slide. It features the text "GDC" in a large, bold, white sans-serif font, with "09" in a smaller font inside the "D". Below "GDC" is the word "Austin" in a similar white sans-serif font. The background of the slide is a vibrant orange and yellow gradient with abstract, overlapping circular patterns. Two white, stylized four-leaf clover-like icons are placed above and below the "GDC Austin" text.

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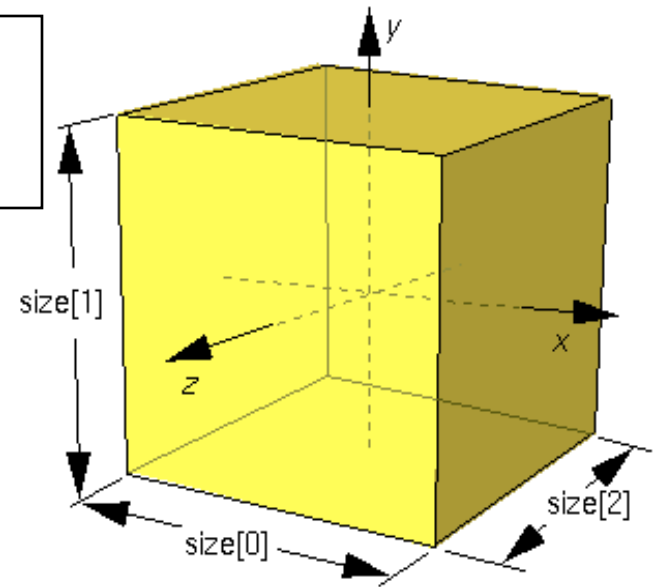
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Two tools to help flow

- Time boxes
- Asset streams

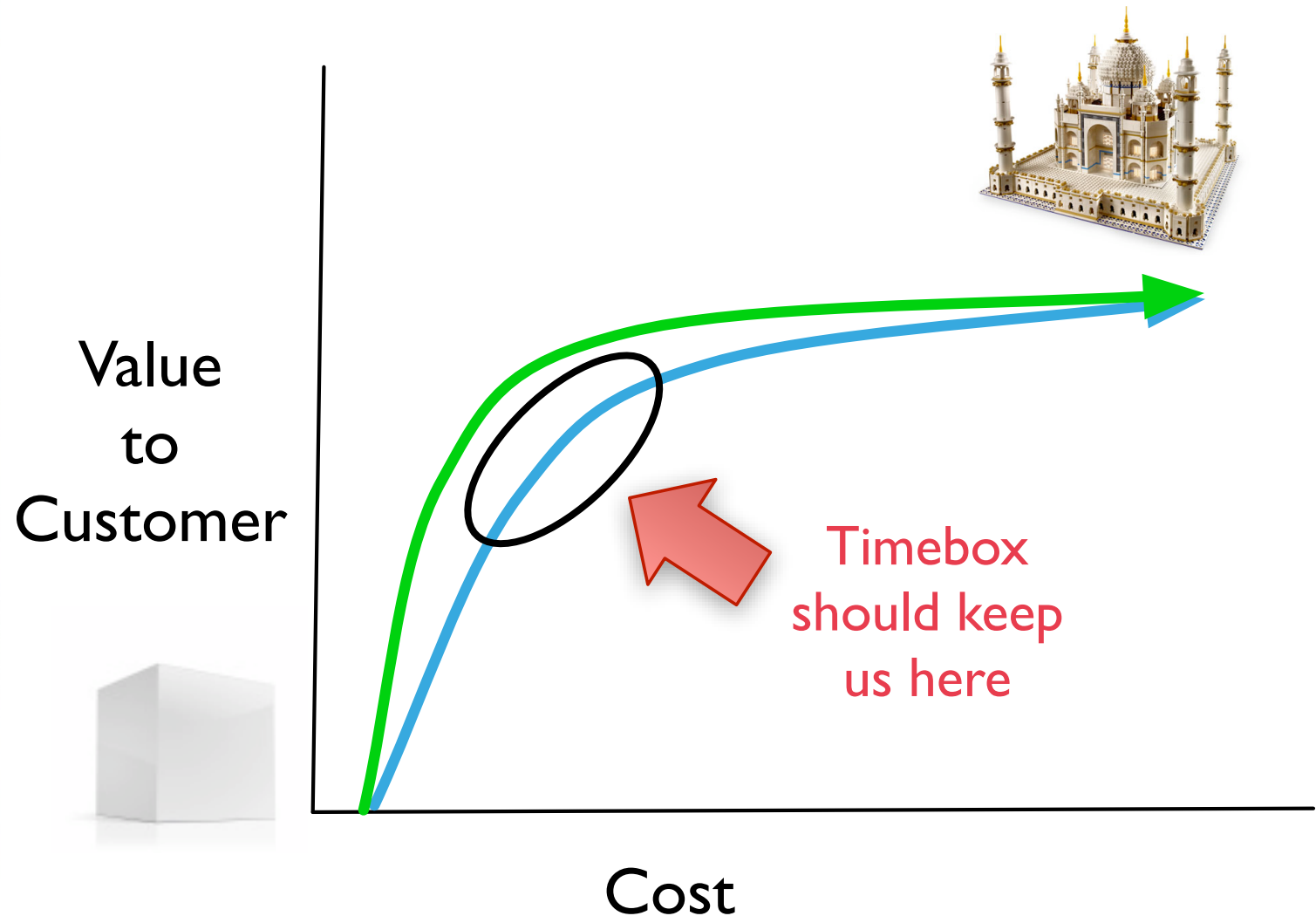
Time-boxing Assets

A time-box is a fixed length of time given to produce results. The results are variable.



"When forced to work within a strict framework the imagination is taxed to its utmost-and will produce richest ideas. Given total freedom the work is likely to sprawl."
-TS Eliot

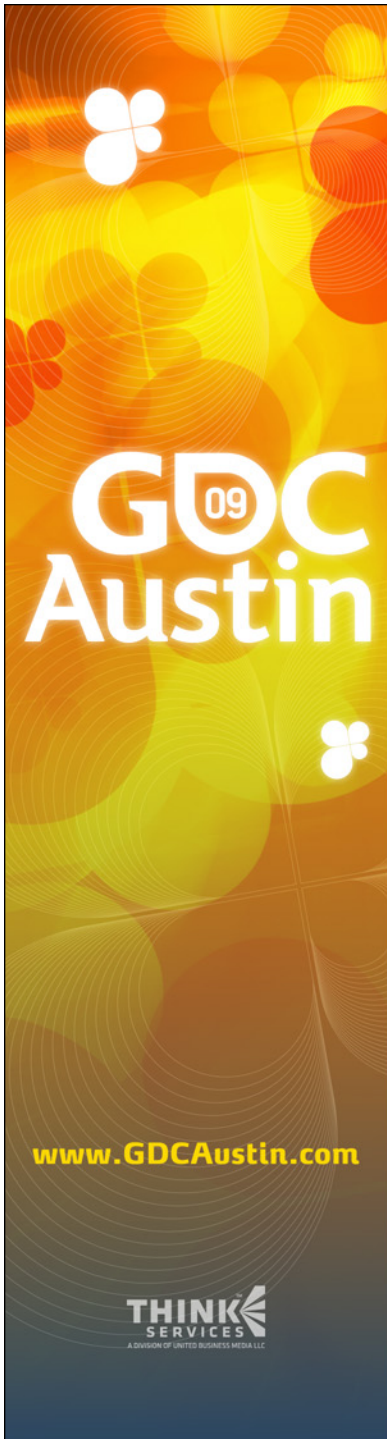
Finding the right time-box



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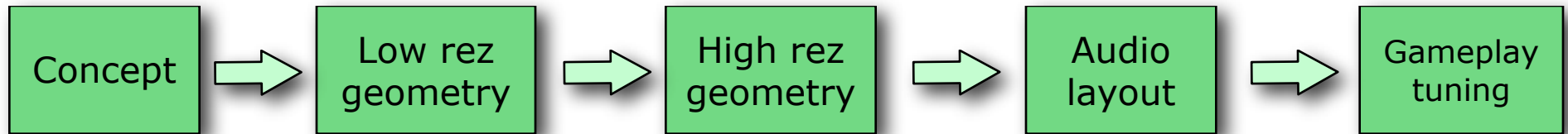


Asset streams

Used to demonstrate flow & areas of waste (simplified value stream maps)

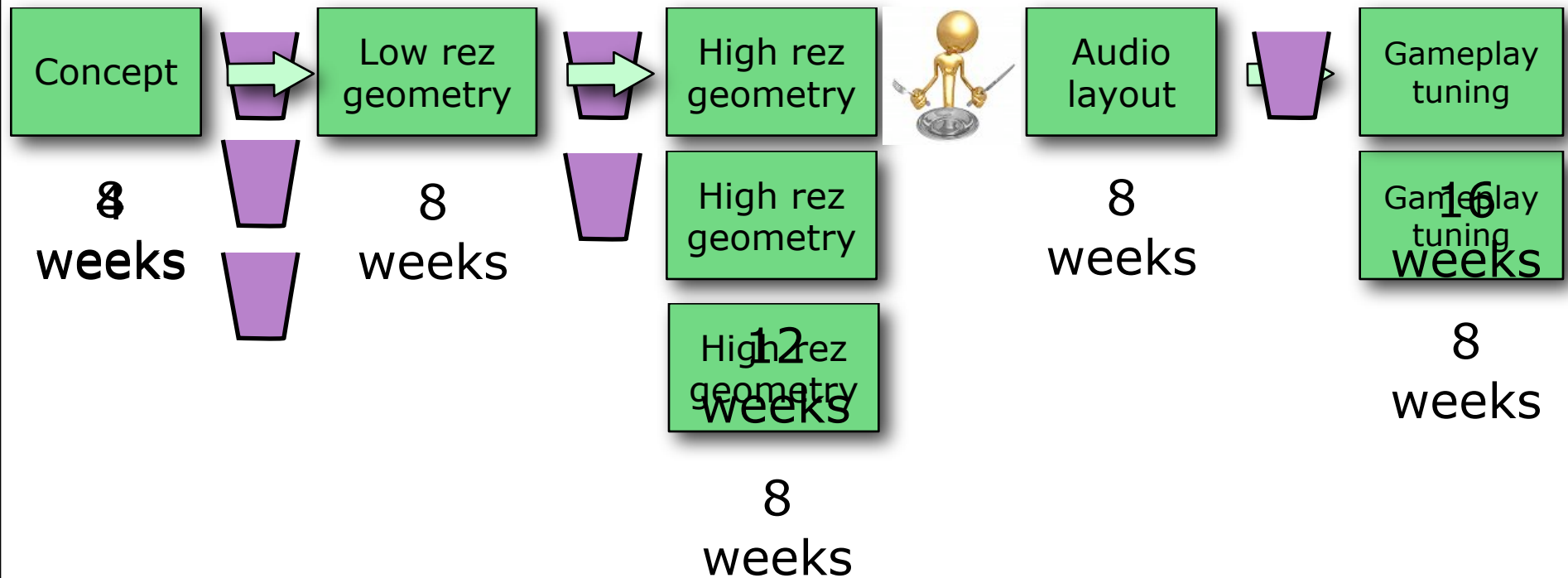
Using the relay-race metaphor:
Watch the baton, not the runners.
- Craig Larman & Bas Vodde

Asset streams



- Help visualize and manipulate flow
 - We want flow leveled throughout the stream, ideally balancing downstream consumption with upstream production
 - We want to shorten the amount of time from start to end
 - We want incremental improvements to affect everything in production quickly
 - Identify waste (everything not adding value)

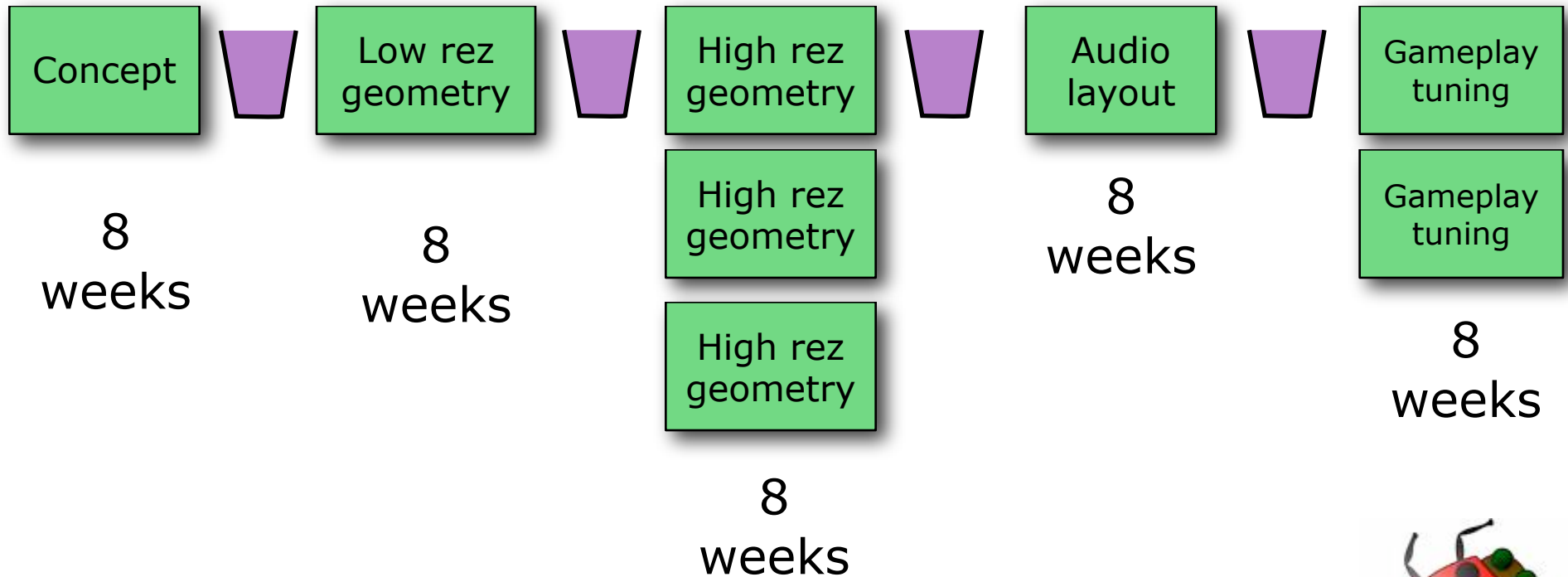
Leveling flow



Match cycle time for every step to takt time (schedule demand)

Eliminate buffers as much as possible

Takt & cycle time

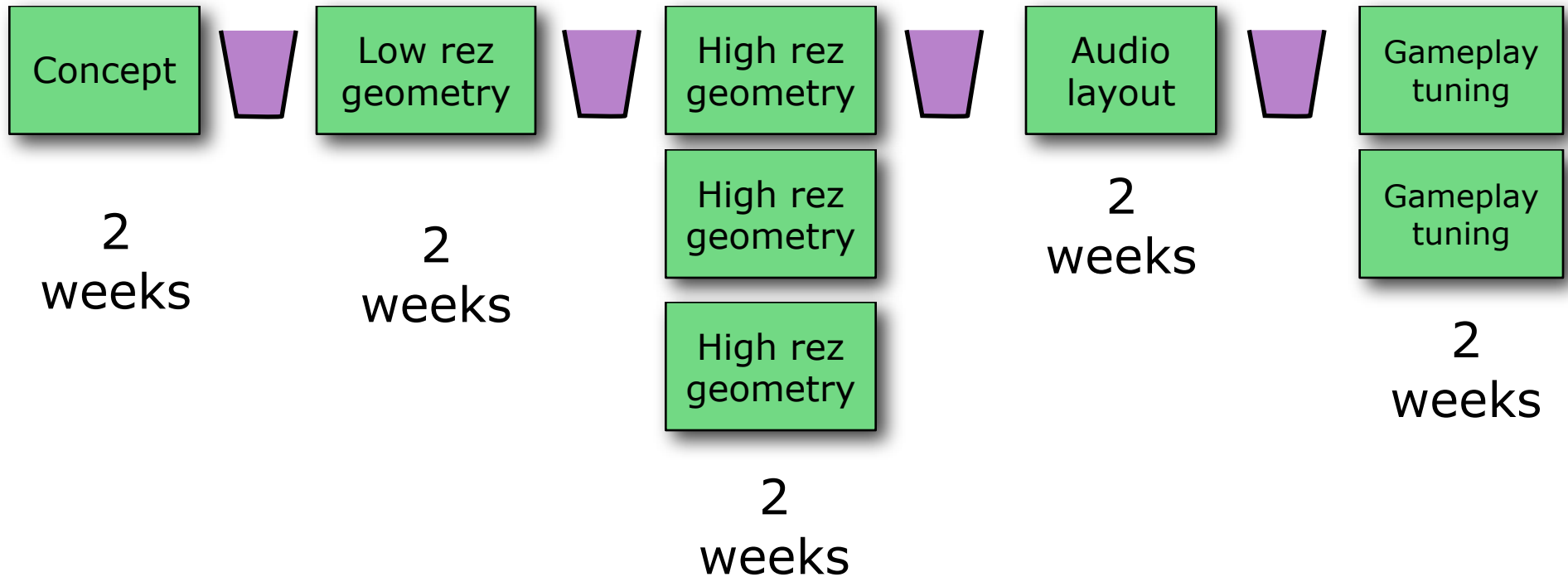


A team of 8 would
release a level
every 2 months
(Takt Time)

Concept to delivery
was 10 months!
(Cycle time)



Reduce batch size



Divide levels into
1/4th "zones"

Takt time = 2
weeks

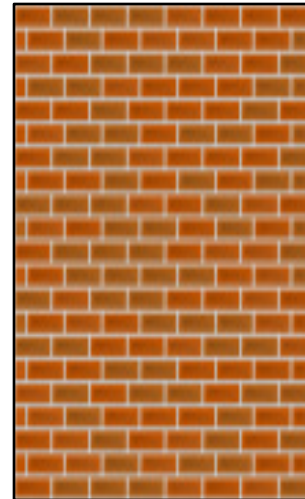
Cycle time = 10
weeks

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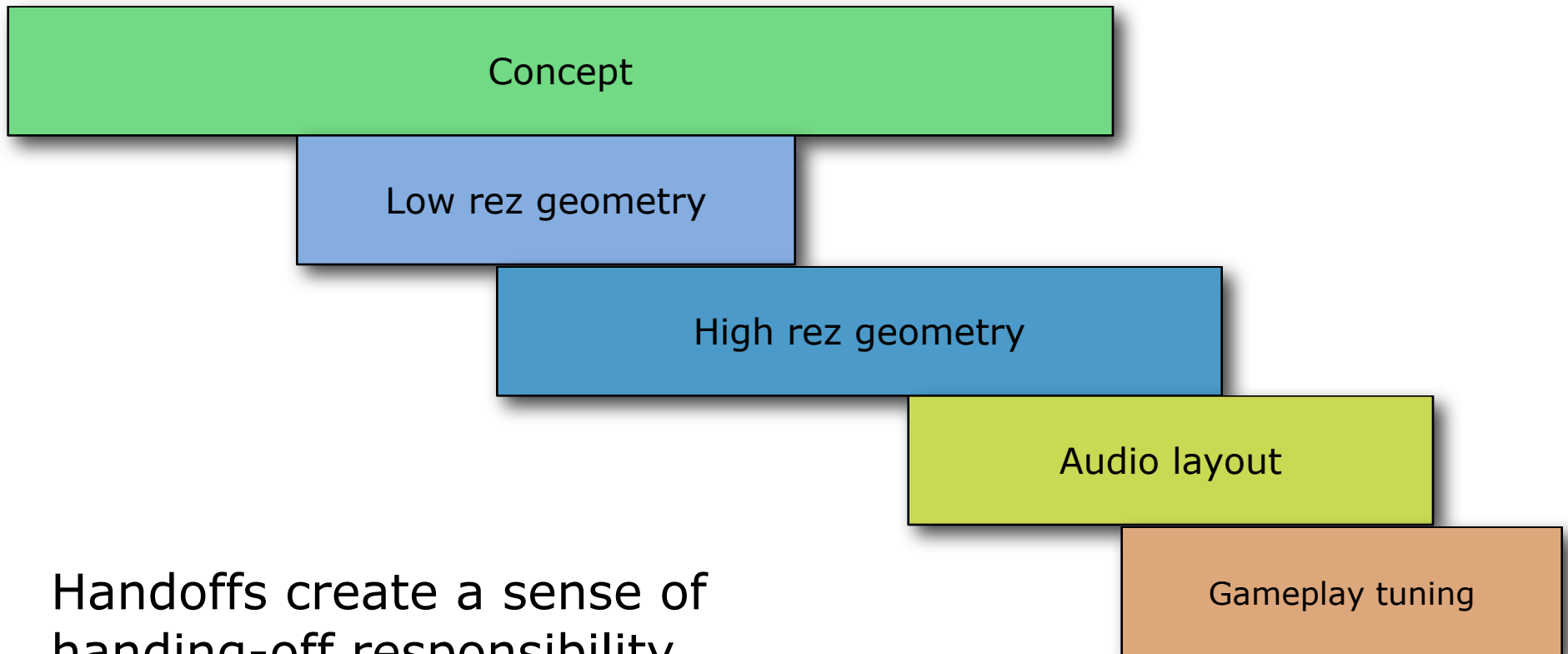
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Handoffs



Reduce handoffs



Handoffs create a sense of handing-off responsibility

Responsibility needs to be carried forward

Kanban

A continuous-flow work management system, that supports production

If there's one distinguishing philosophical difference between Scrum and kanban development systems, it is that Scrum organizes around teams, and kanban organizes around workflows. That would be the major decision point between choosing one over the other. Off-the-shelf Scrum works better for tasks that have poorly defined or highly mixed workflows. Kanban/pull systems work better for tasks that have consistent and definable workflows.

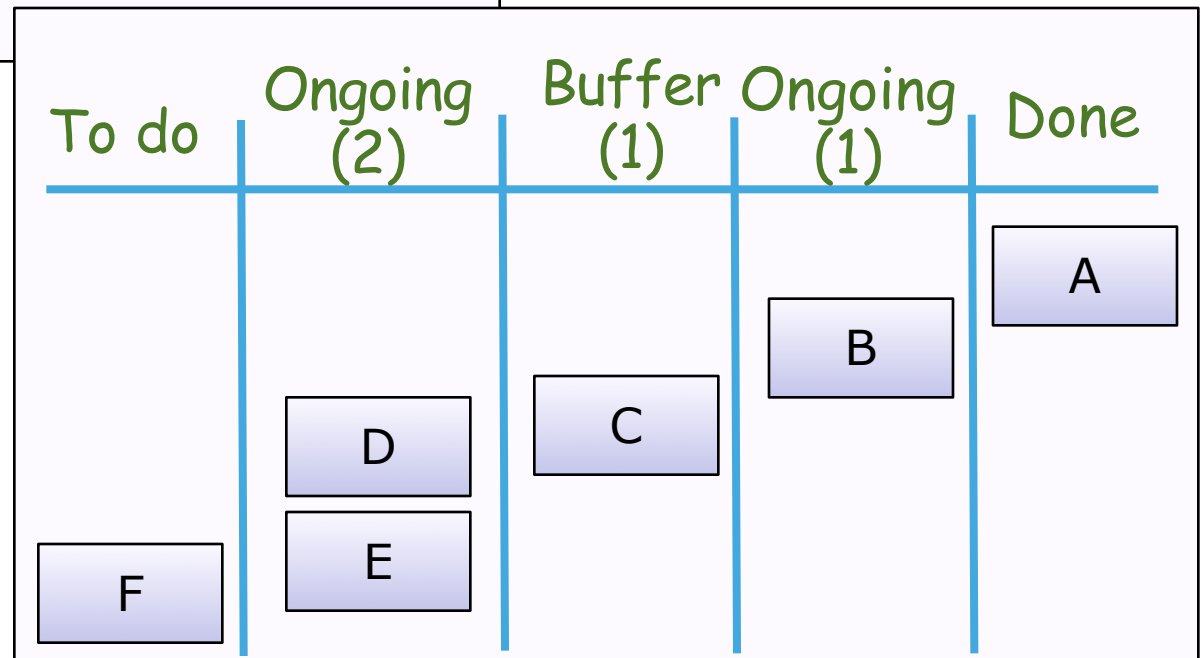
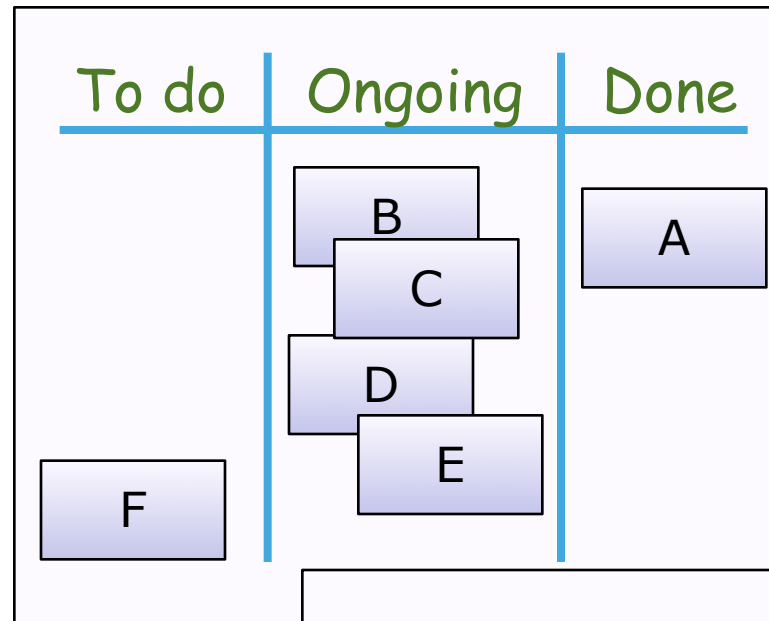
Corey Ladas

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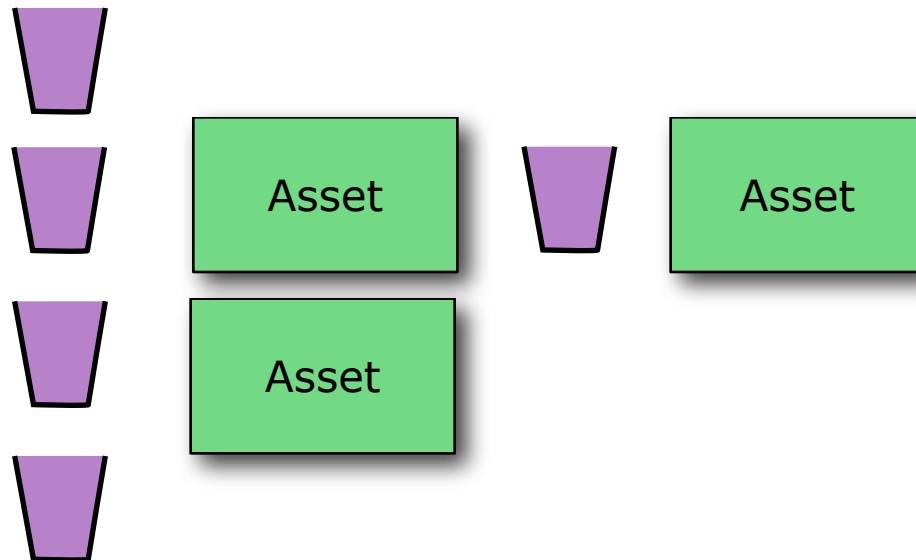
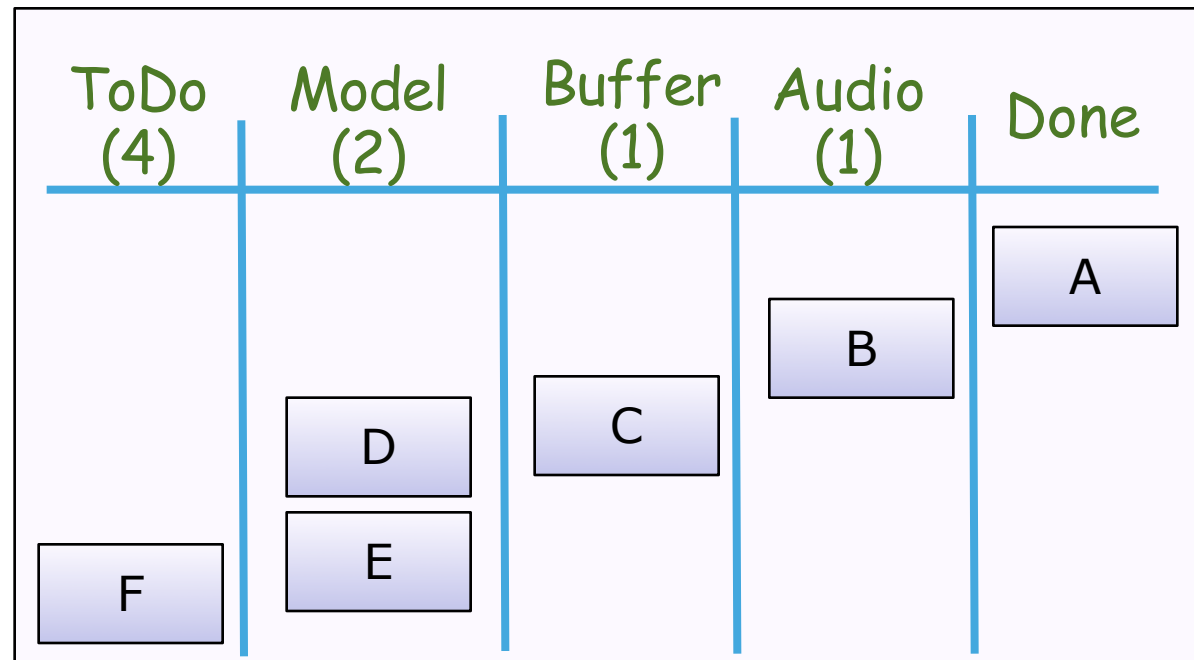
Scrum vs. Kanban



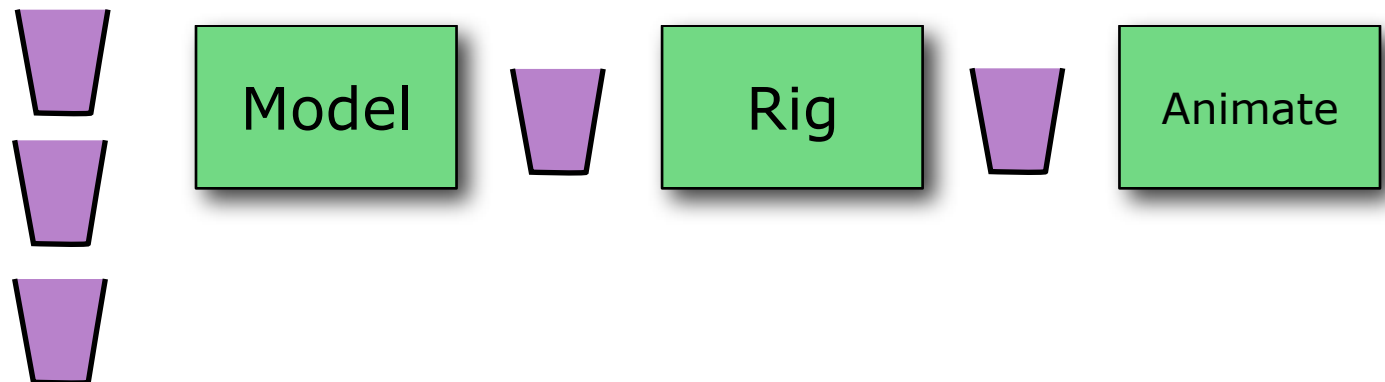
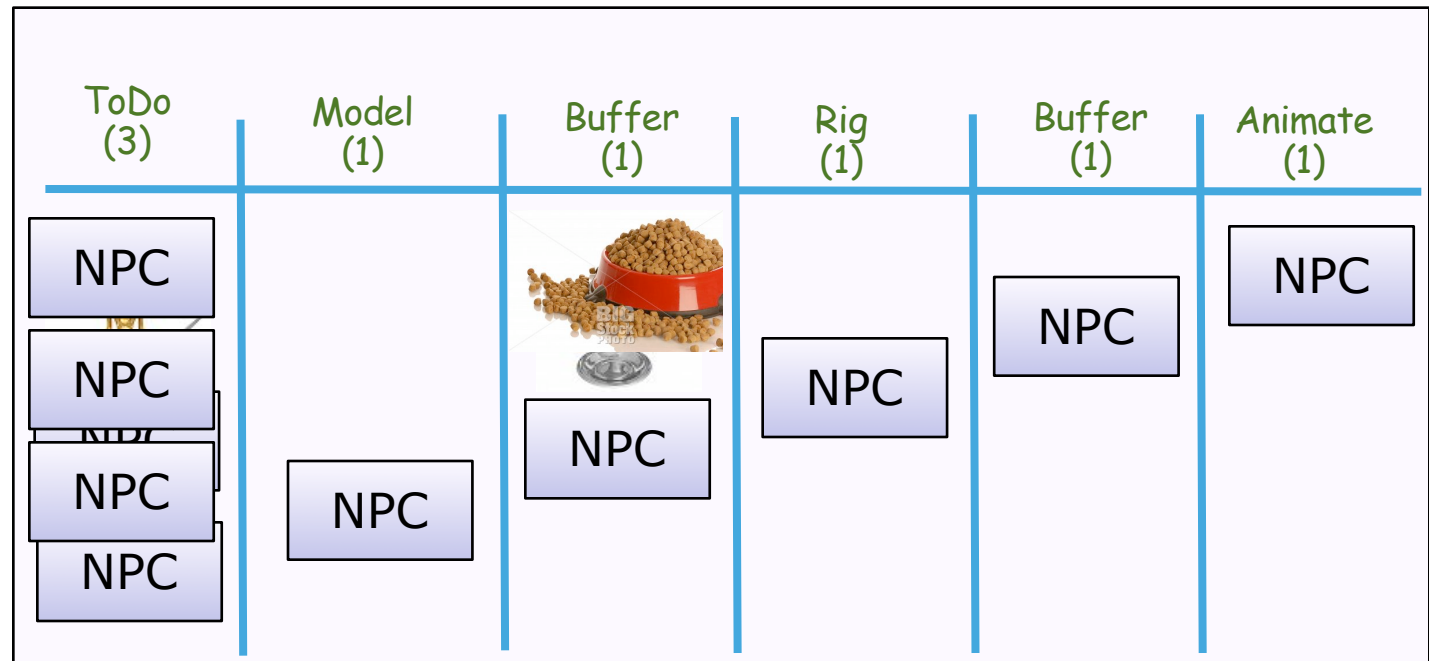
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Kanban in action



Summary

- Scrum and Lean have similar values
- They can be mixed depending on the needs of the project
- Level production example saw 56% improvement

Finally...

- For more information
 - www.ClintonKeith.com
- Book out in Q1 2010
- Questions?

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