Agility and Agile Methods

Agile 102
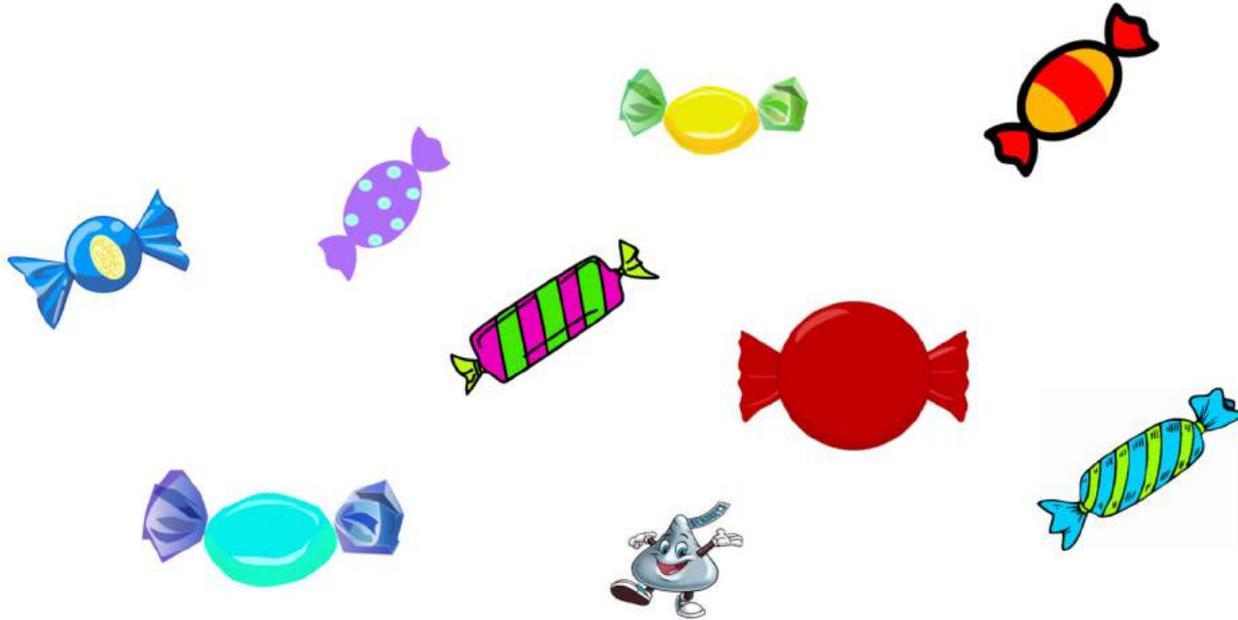
Updated: October, 2019

18F

Delivering value: plan-driven or "waterfall" development

Value
Delivered

Requirements   Design   Implementation   Test
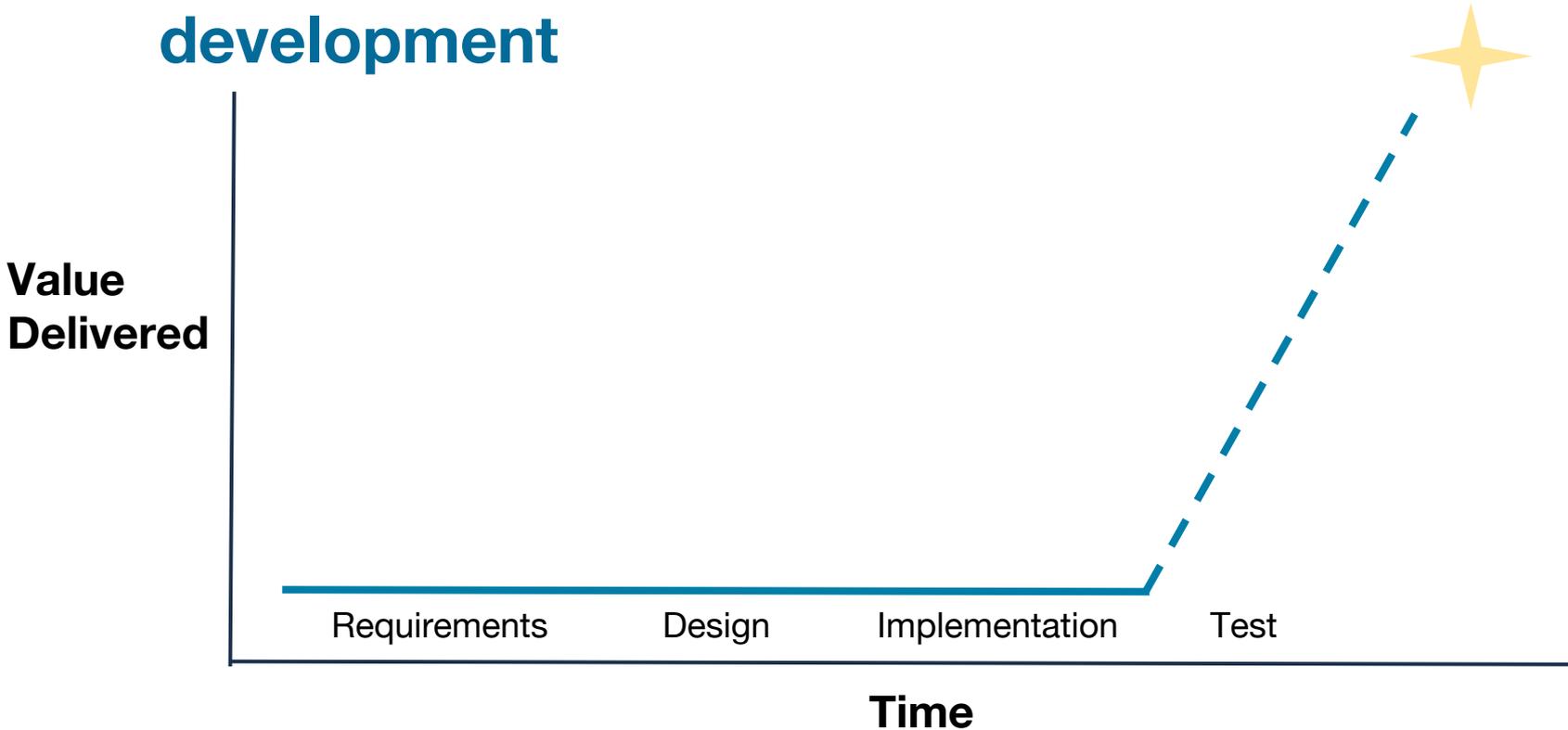
Time

Create customer value one small piece at a time and collect the pieces in one place.

* While you're filling the bowl, periodically ask your customers what flavors they like...
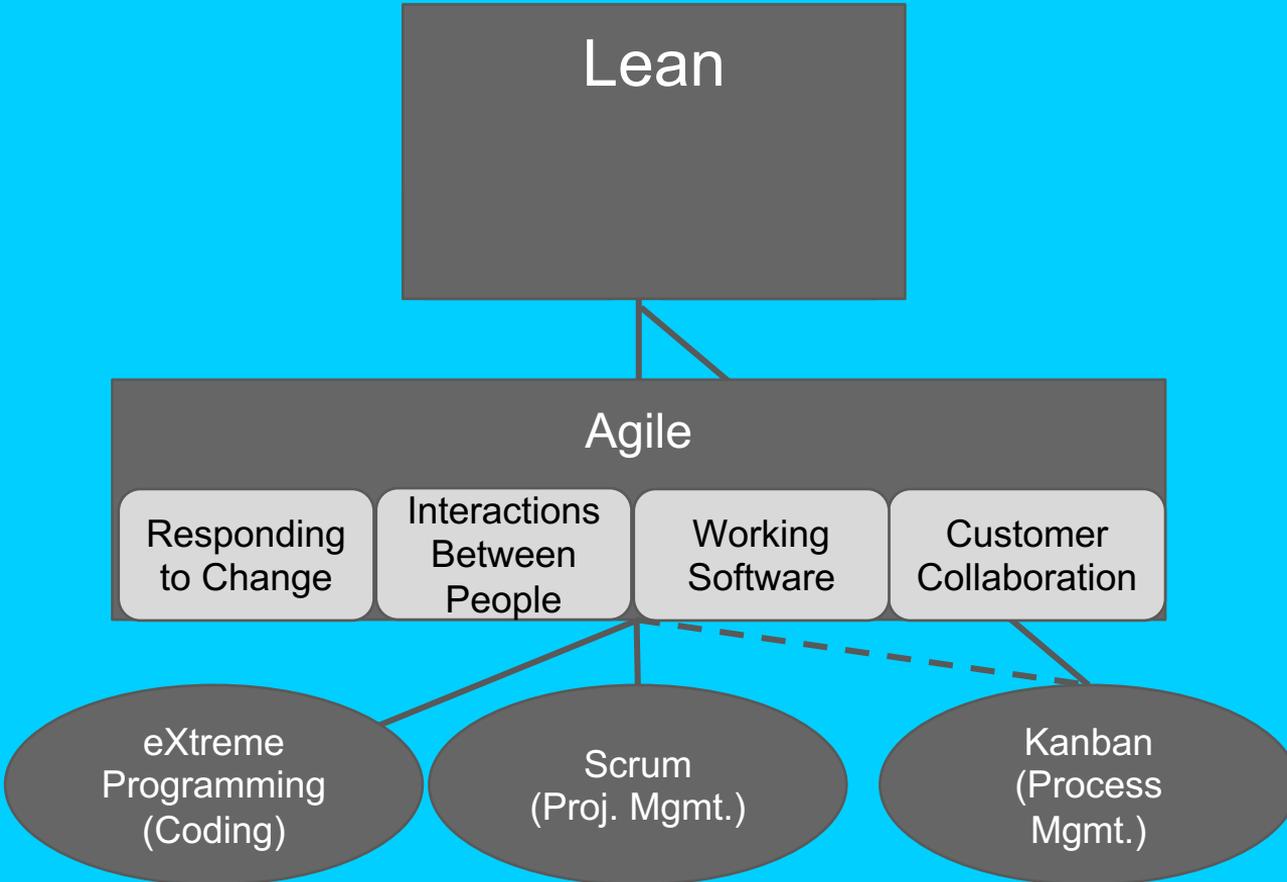
Insanity!

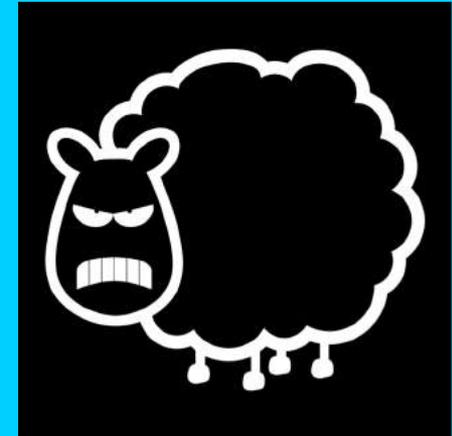If you want different results, you have to change what you are doing. Just wanting it doesn't work.

Corollary

Every time you choose to ignore something fundamental about Agile, you are giving up some of the benefits.

18F

The Agile Family Tree

Lean

Agile

| Responding to Change | Interactions Between People | Working Software | Customer Collaboration |

eXtreme Programming (Coding)

Scrum (Proj. Mgmt.)

Kanban (Process Mgmt.)

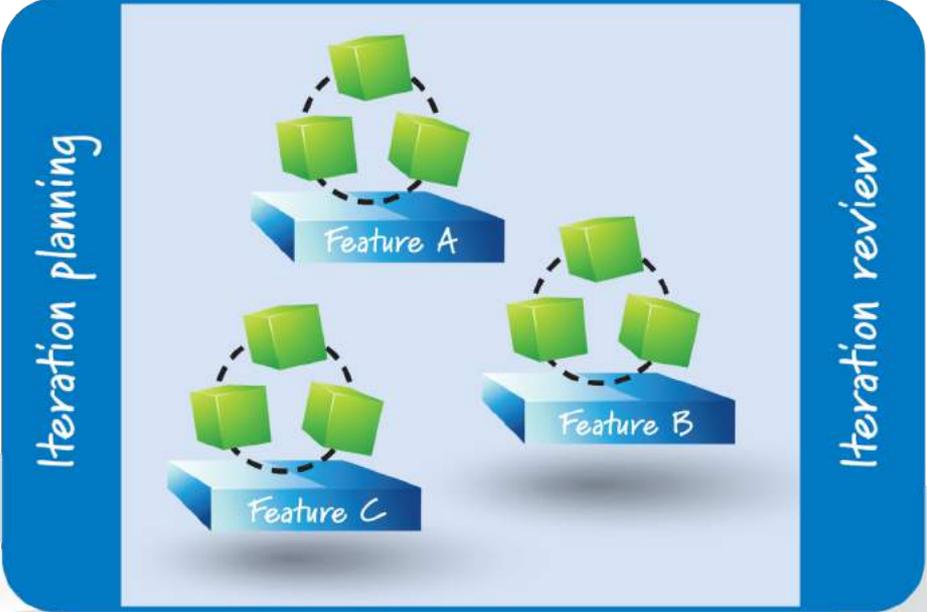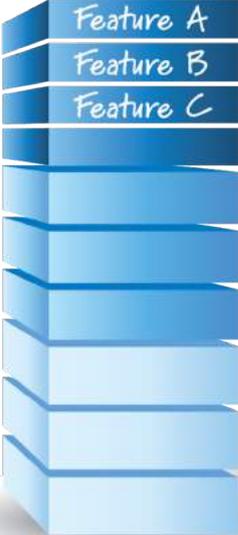Waterfall

Scrum

What is a Scrum?
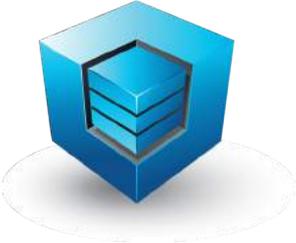
What is scrum?

- **An Agile product development methodology**
  - Follows the Agile Manifesto and Agile Principles
  - Scrum is Agile. Agile is not scrum.
- **A product development process framework**
- **When you hear people say "we're doing Agile" they usually mean "we're doing Scrum."**

18F

Scrum Process Framework

Product backlog

Feature A
Feature B
Feature C

Iteration planning

Feature A

Feature B

Feature C

Iteration review
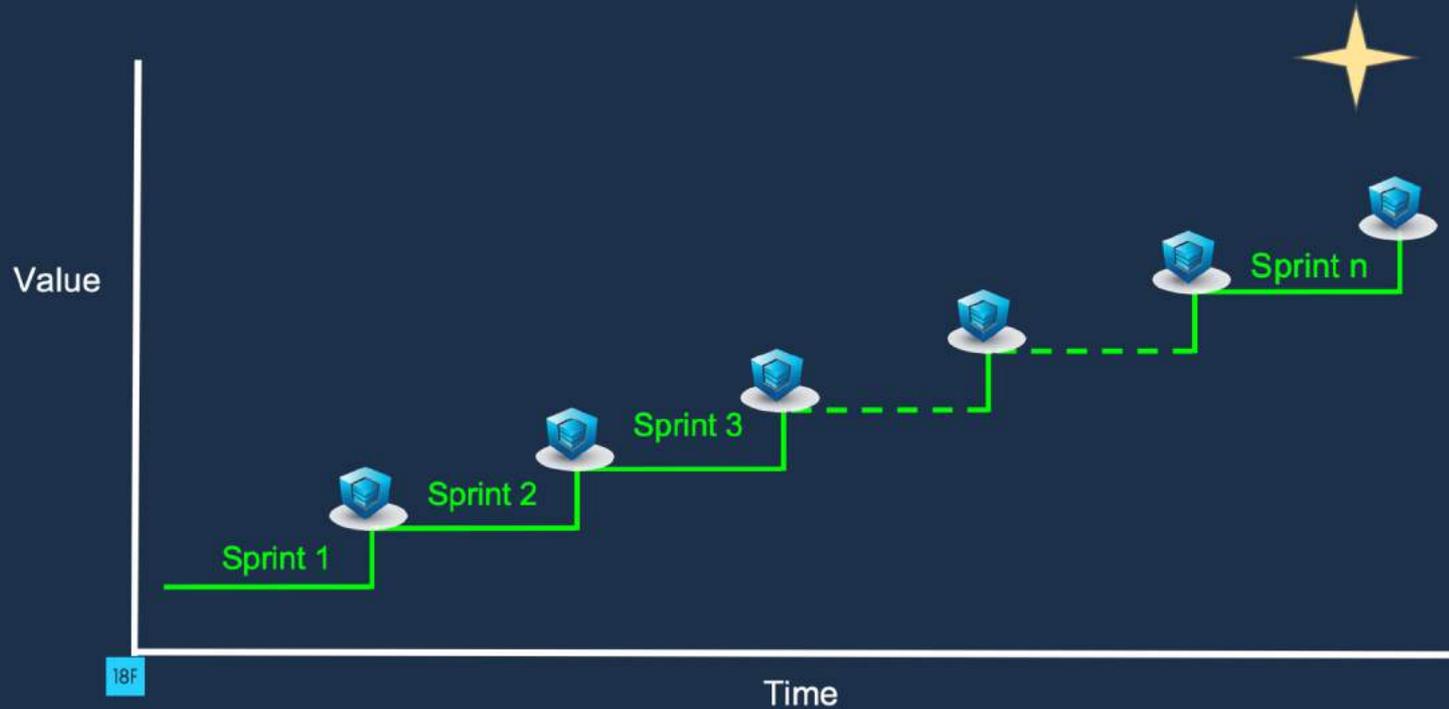
Potentially Shippable Product

Iteration (1 week to 1 calendar month)

The Optimal Scrum Team

**CROSS-FUNCTIONAL
SELF-ORGANIZING**
Long-lived and stable
Dedicated
5 - 9 People
Co-Located

Scrum Master

Product Owner

18F

Daily Scrum

(aka Daily Standup)

A time and place for the team to self-organize each day.

What is this Kanban of which you speak?

Flow

Ideas (Features, Requirements)

Value, Product
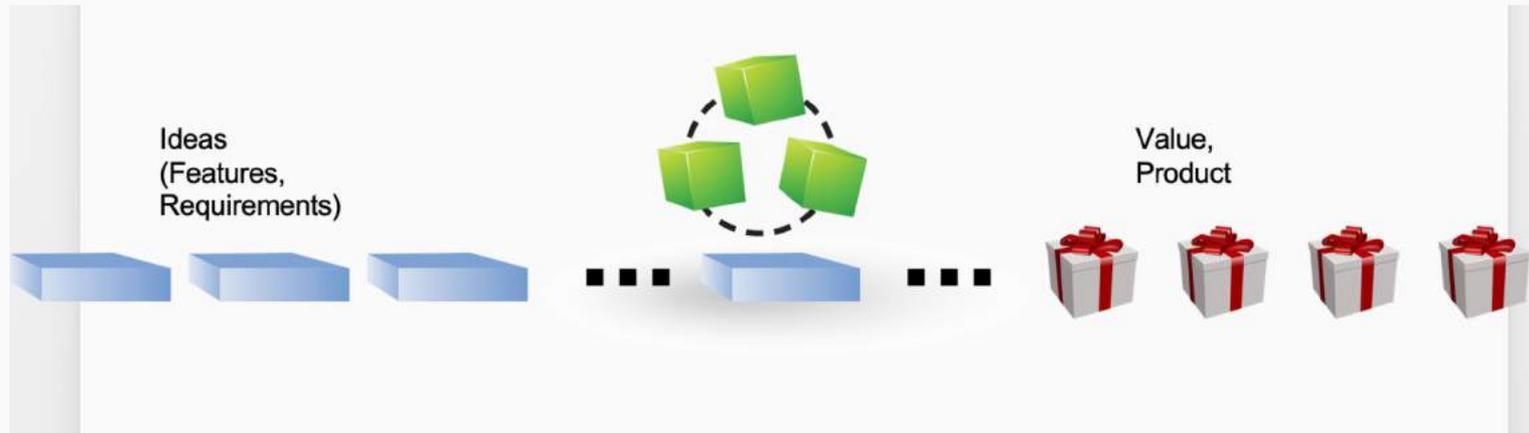
Basic, minimum kanban
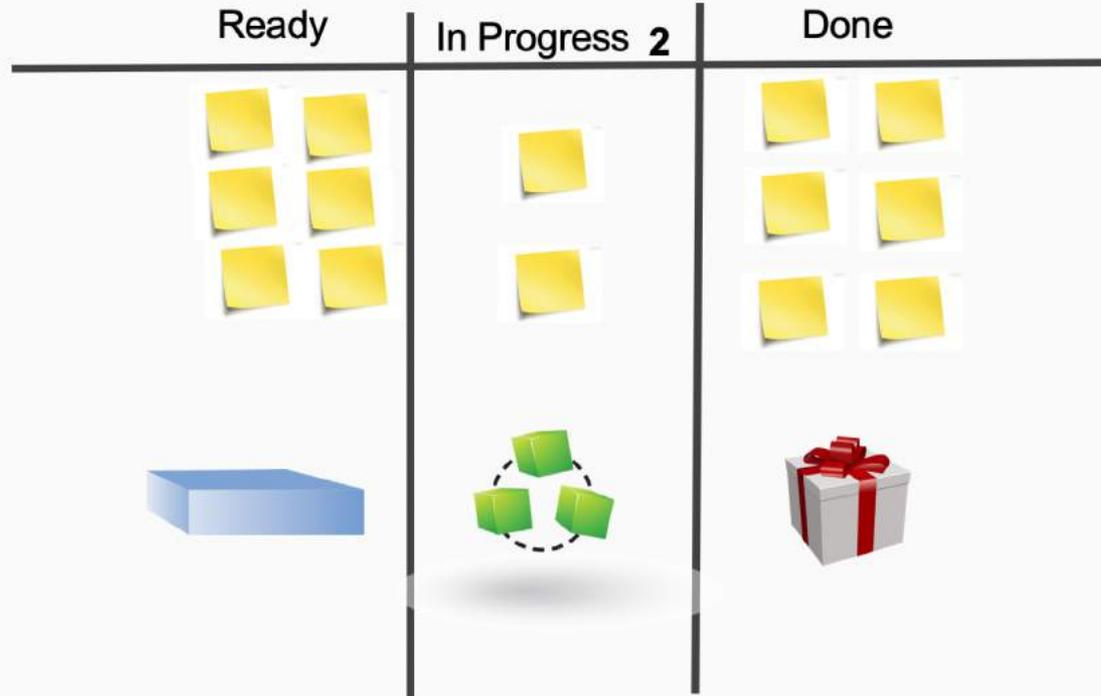
An Enterprise Kanban Board
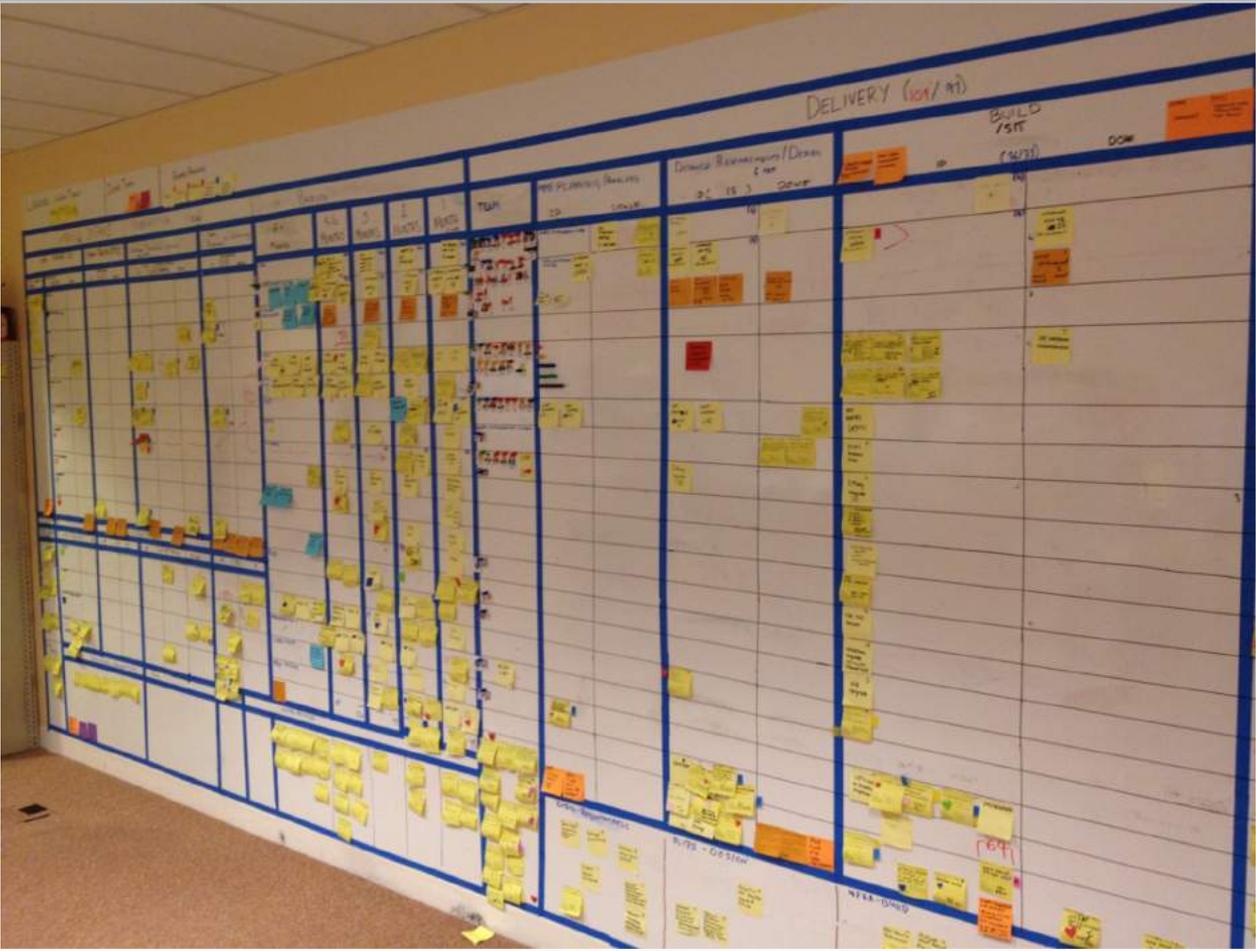
What A Kanban Implementation Must Do

- Make process visible
- Implement a *pull* system
  - Limit WIP
  - Match demand to capacity
- Identify bottlenecks and waste
  - make flow visible
- Stimulate change

Lean

Toyota Production System (TPS)

"All we are doing is looking at the timeline from the moment the customer gives us an order to the point when we collect the cash. And we are reducing that timeline by removing the non-value-added waste" -- Taiichi Ohno

Lean is the application of TPS to the entire organization.

The Lean House

The Goal: Value

Sustainable shortest lead time. Best quality and value (to people and society). Most customer delight, lowest cost, high morale, safety.

Pillar 1: Respect for People
- don't trouble your customer
- develop people-then build products
- no wasteful work
- teams and individuals evolve their own practices and improvements
- build partners with stable relationships, trust and coaching lean thinking
- develop teams

Development Practices
- long-term great engineers
- mentoring mgr-eng-teacher
- cadence
- cross-functional
- team room + visual mgmt
- entrepreneurial chief/ product manager
- set based concurrent dev.
- create more knowledge

14 Lean Principles

Long-term philosophy, flow, pull, level workload, stop and fix, master norms, visual controls, tested tech, leaders-teachers from within, develop exceptional people, help partners be lean, go see, consensus and action, learning/ reflection/kaizen
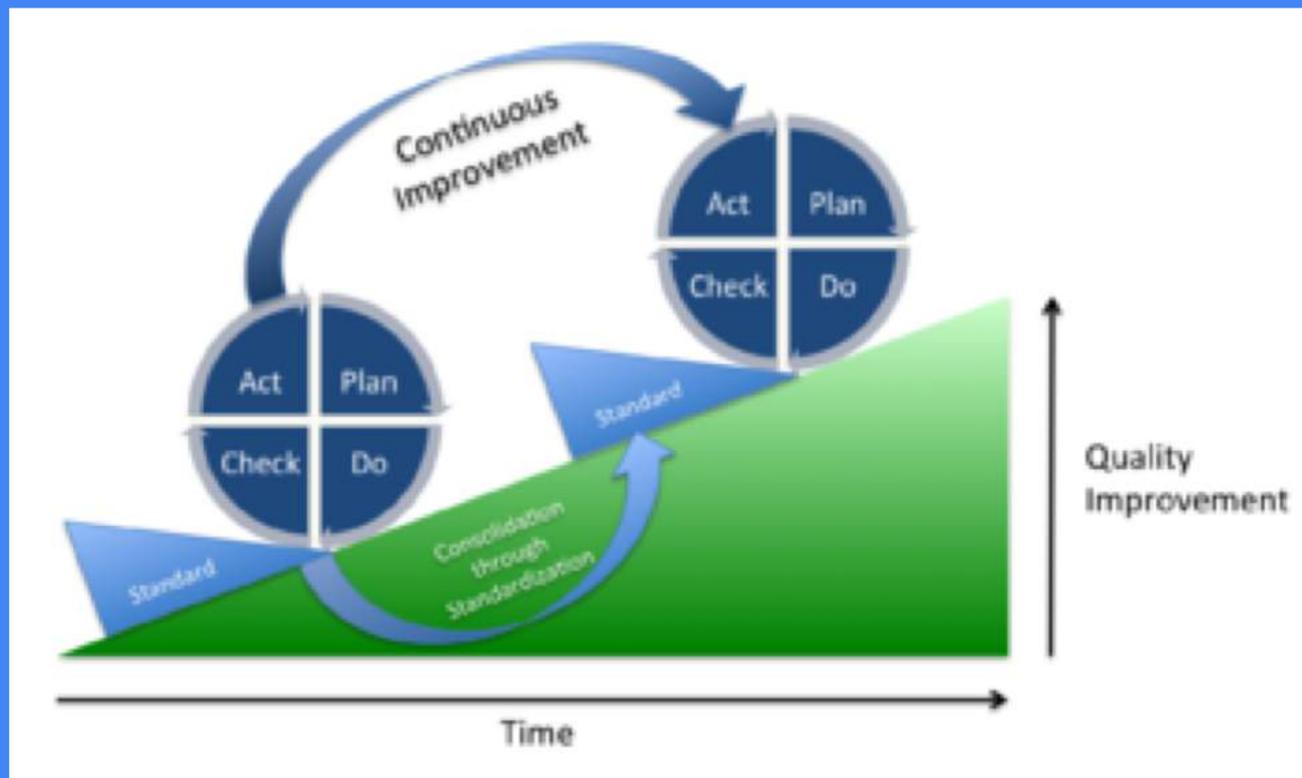
Pillar 2: Continuous Improvement
- Go See
- kaizen
- spread knowledge
- small, relentless,
- retrospectives
- 5 whys
- eyes for waste variability, overburden, NVA, (handoff, WIP, info scatter delay, multitasking, defects, wishful thinking…)
- perfection challenge
- Work to flow (smaller batch sizes, low cycle time)

Foundation: Management Support

Management applies and teaches lean thinking, and bases decisions on this long-term philosophy

Derived from: Toyota Production System (2004) Larman and Vodde (2009)

Adapted by Leffingwell, LLC. (2009)

PDCA

Parting Thoughts

18F

Synergy of the Big Three

BETTER TOGETHER

CONCEPT
DIRECTION

Brainstorm Concepts
Hypothesis
Prioritize Insight
Research Observe
Clear Need

EXPERIMENT
Revise Hypothesis

NEW IDEAS
BUILD IT
EXPLORE
FEEDBACK

PAIN POINT
RESOLVE

CUSTOMER EXPERIENCE

DESIGN THINK
LEAN UX
AGILE

18F

Use Scrum when..

- Product Development
  - Particularly software
- Plannable Work
- You can support required culture and organizational change

Use Kanban when…

- Flow
- Lots of unplannable work or interruptions
  - Ops or maintenance work
- Lots of widely varying work

Use Lean when…

- Manufacturing
  - Not product development
- You are attempting to improve an entire business organization
- You are in a process-heavy environment
- Neither Kanban nor Scrum seem to apply well

Thanks!

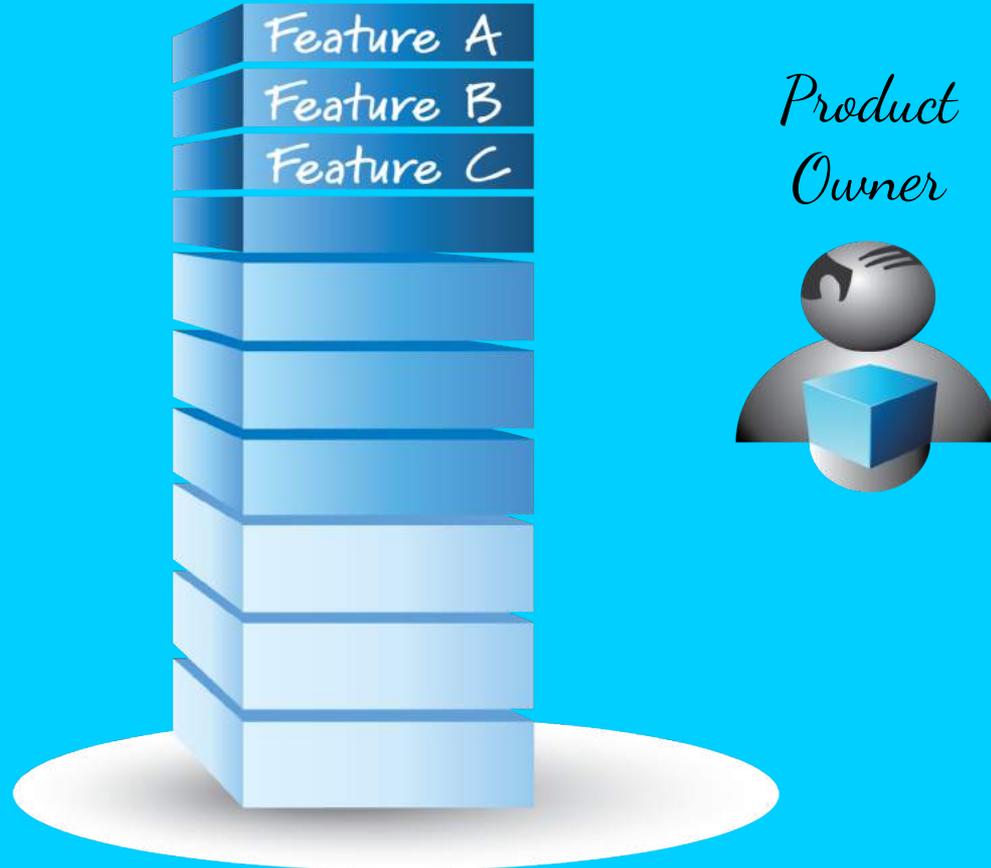Contact 18F@gsa.gov
Follow @18F
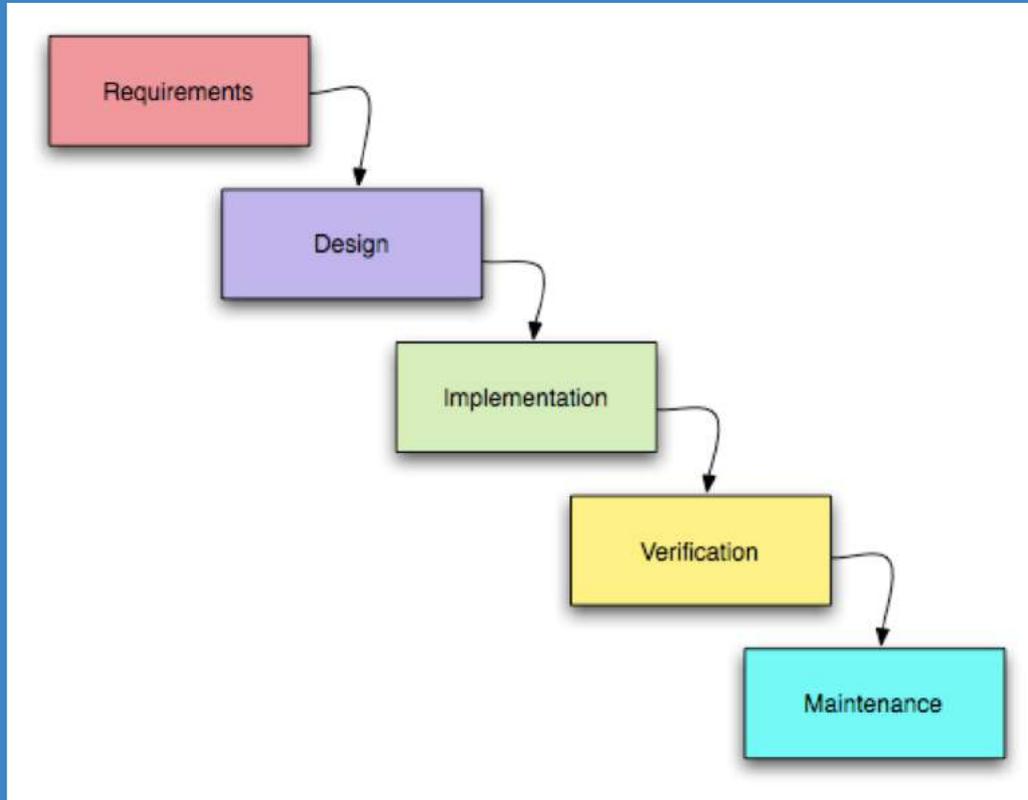Work Together github.com/18F

18F

Appendix

18F

Product Backlog

Waterfall Challenges

- **Cost of change**

- **Cost of release**

- **Large decisions with least knowledge**

- **Predicting the future**

- **Illusion of progress**

- **Responding to change**

- **Ambiguous accountability**

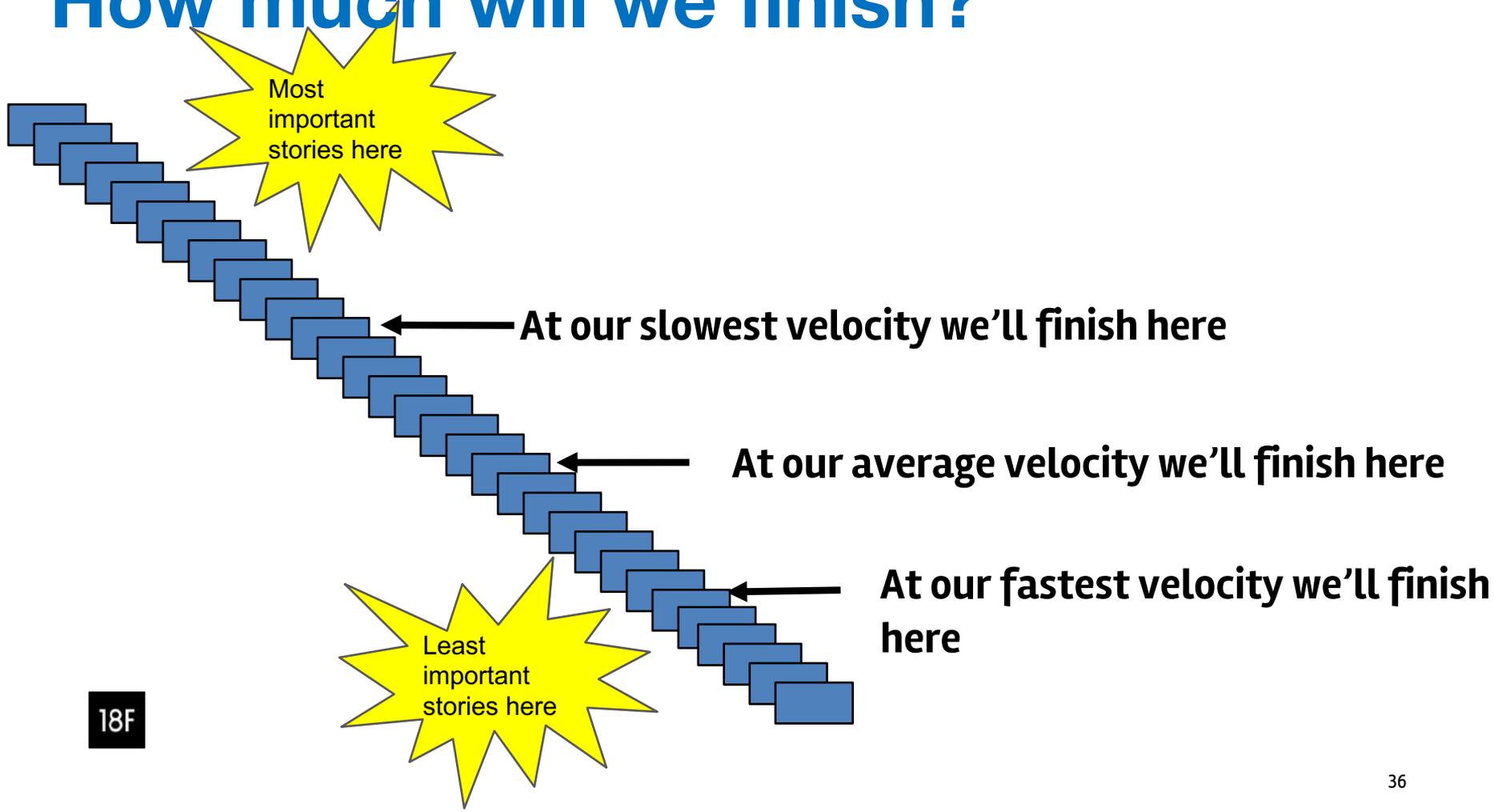- **Quality**

18F

"Waterfall" Methodology

Winston Royce, 1970

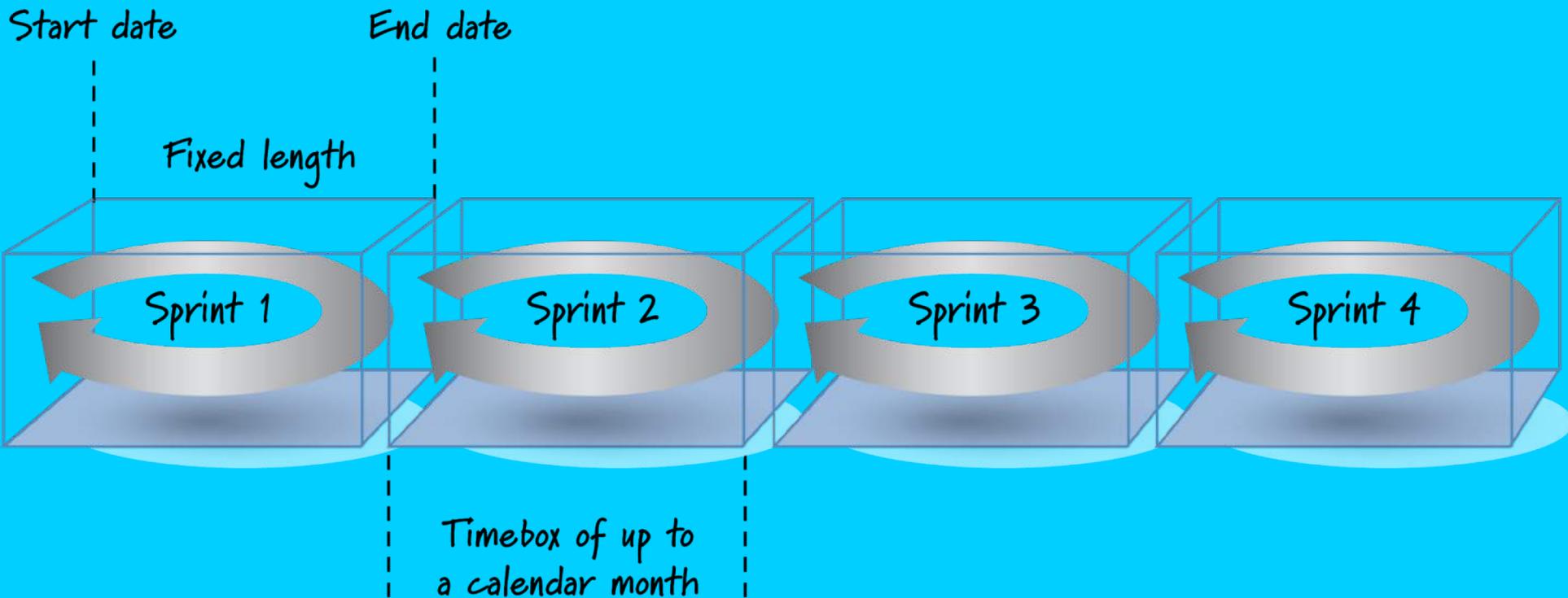# The Toolbox is Full

	Software Dev	Other Tech	General Business Process Improvement	General Business Product or Service Development
Scrum	X			
Lean		X	X	X
Kanban	X	X	X	
Kaizen		X	X	
Human Centered Design	X			
Lean Startup	X			X
Lean UX	X			
LeSS/SAFe	X			

How much will we finish?

Most important stories here

At our slowest velocity we'll finish here

At our average velocity we'll finish here

At our fastest velocity we'll finish here

Least important stories here

18F

High-Level View

Start date   End date

Fixed length

Sprint 1   Sprint 2   Sprint 3   Sprint 4

Timebox of up to
a calendar month

Information About these slides

- Slides in this presentation contain items from the Visual AGILExiocn®, which is a trademark of Innolution, LLC and Kenneth S. Rubin.
- The Visual AGILExicon is used and described in the book: **Essential Scrum: A Practical Guide to the Most Popular Agile Process**.
- You can learn more about the Visual AGILExiocn and permitted uses at: http://innolution.com/resources/val-home-page