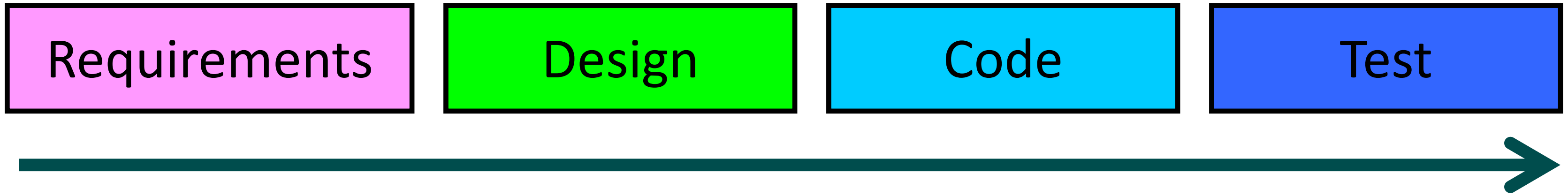
Agile Software Development Processes

Introduction to Scrum

Different SDLC Approaches

- Plan-Driven
  - Well defined problem & solution domains
  - Well defined roles, responsibilities, procedures
  - Detailed project plan, big upfront design
  - Waterfall, Incremental, Iterative
  - Example: Rational Unified Process (RUP)

Well Planned & Sequential

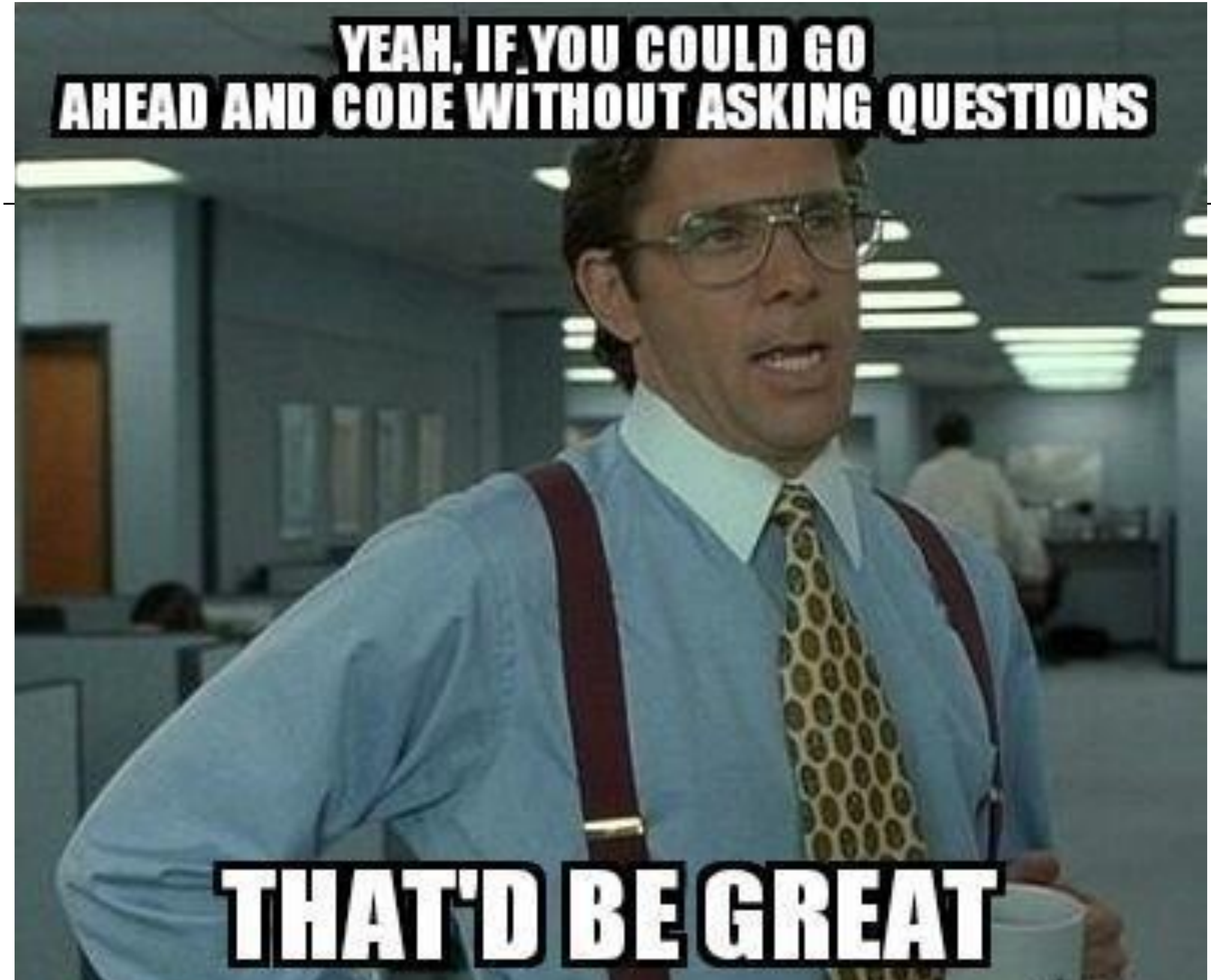


Requirements

Design

Code

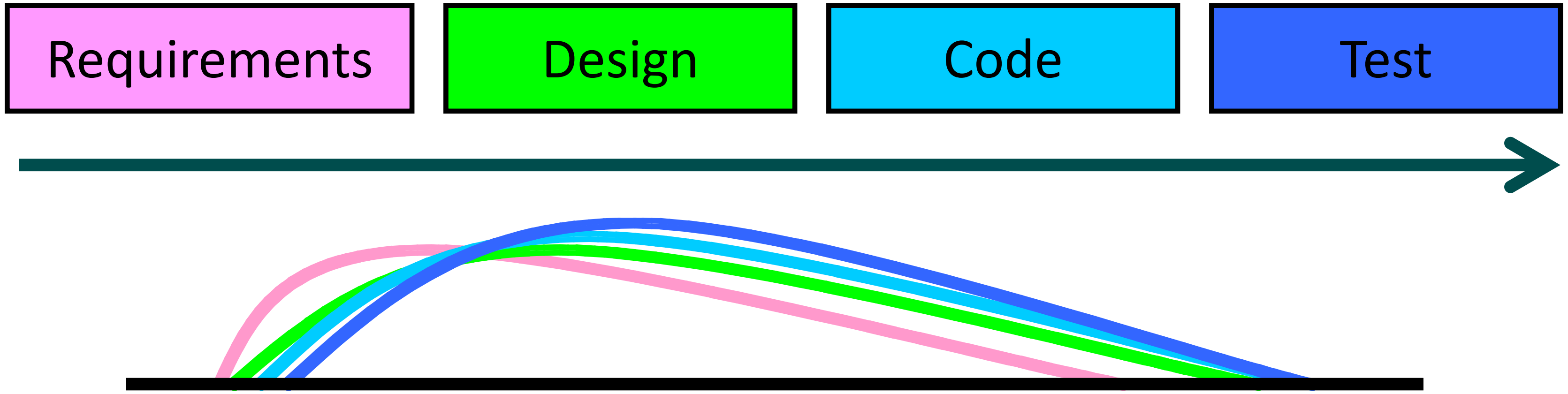
Test


YEAH, IF YOU COULD GO
AHEAD AND CODE WITHOUT ASKING QUESTIONS
THAT'D BE GREAT

Different SDLC Approaches

- Agile
  - Unknowns in problem and/or solution domain
  - Size, culture, Personnel make upfront plan impossible
  - Iterative development, value focused
  - High process discipline
  - Example: Scrum, eXtreme Programming (XP)

Sequential vs. Overlap



Requirements

Design

Code

Test

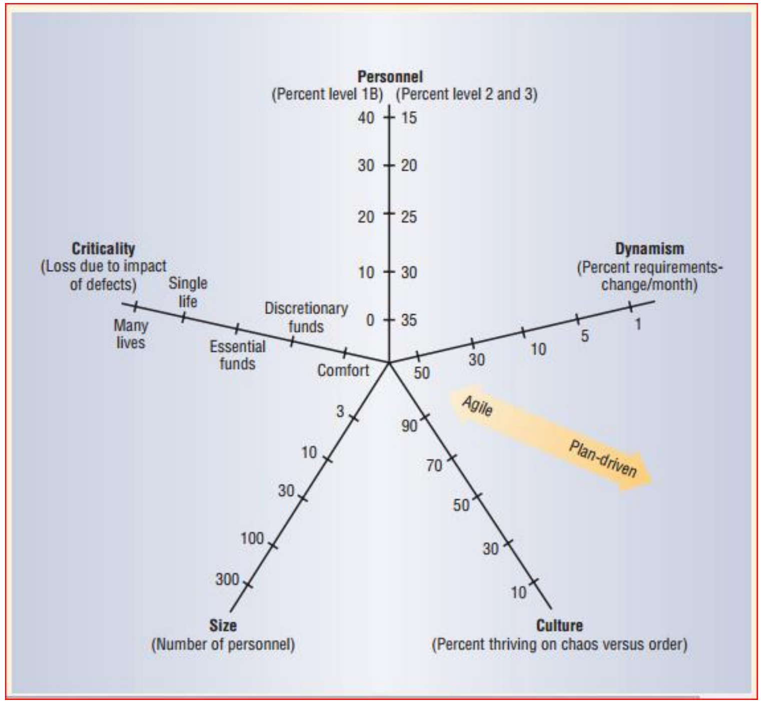
Rather than doing all of one thing at a time...

...Agile teams do a little of everything all the time

How do we choose?

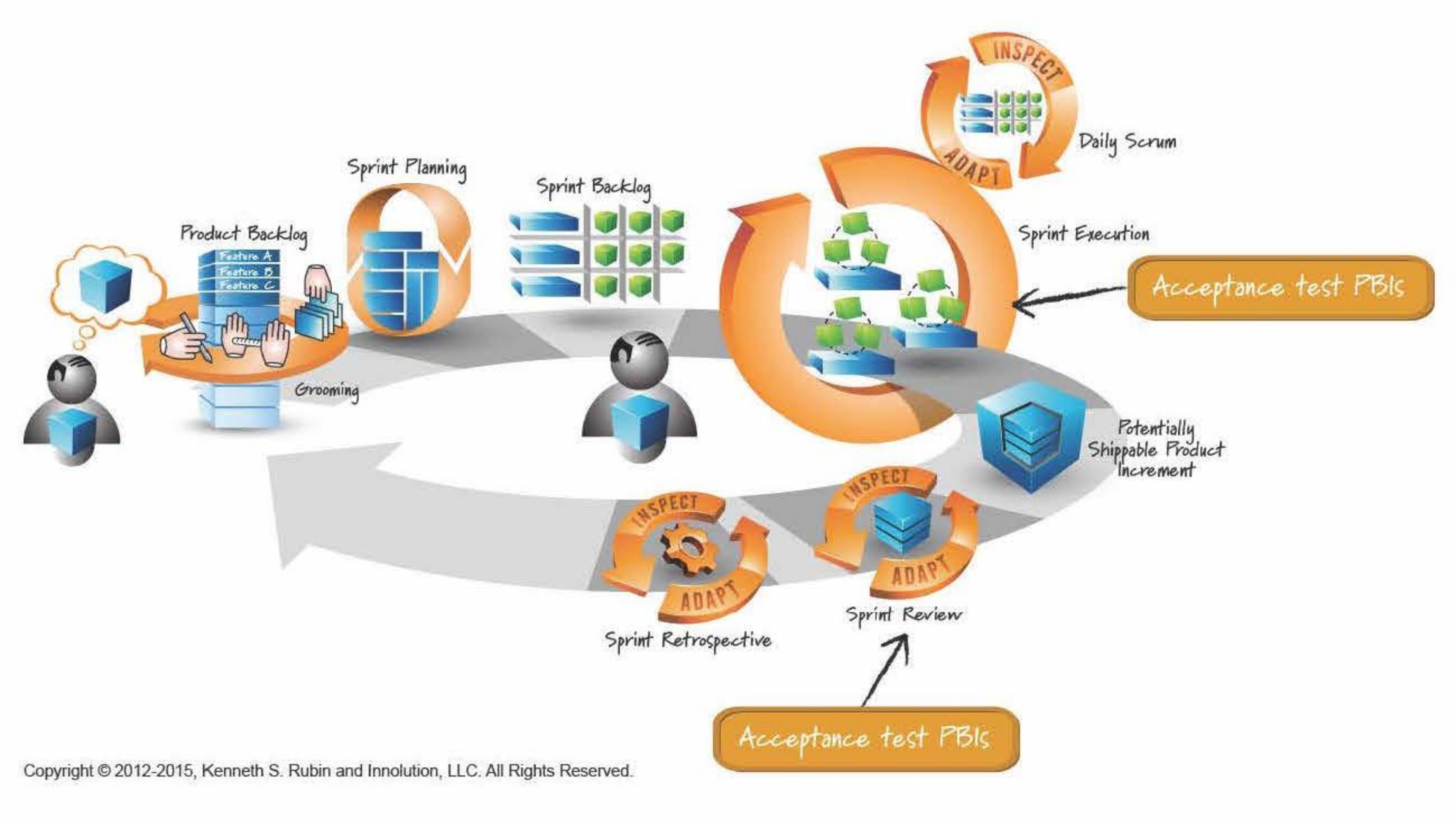
- Project & Environment characteristics determine SDLC Method choice

- Could be hybrid and/or select one method and mitigate risk caused by unfavorable dimension

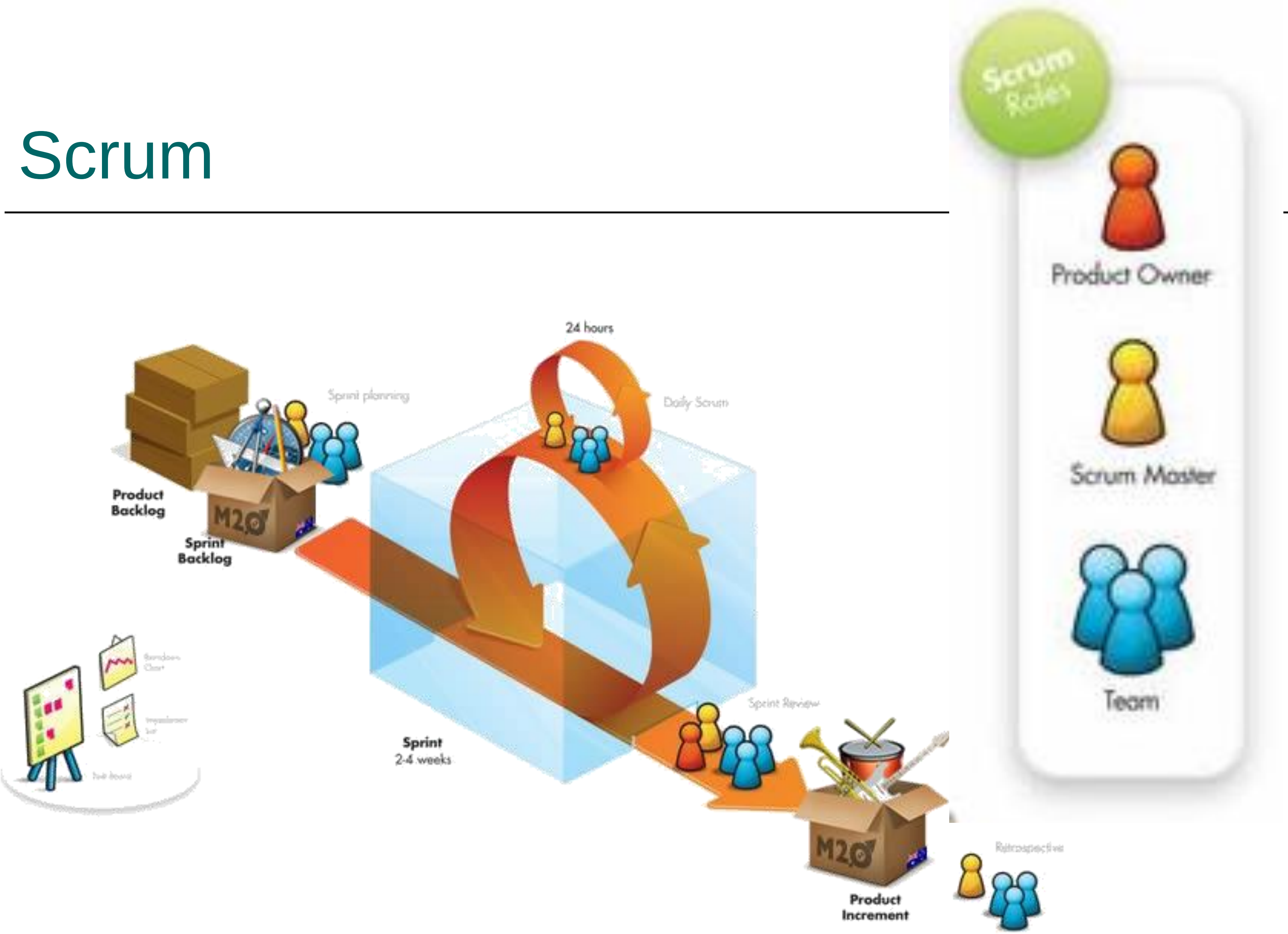


Boehm, B et. al., 2003, Balancing Agility and Discipline : A Guide for the Perplexed

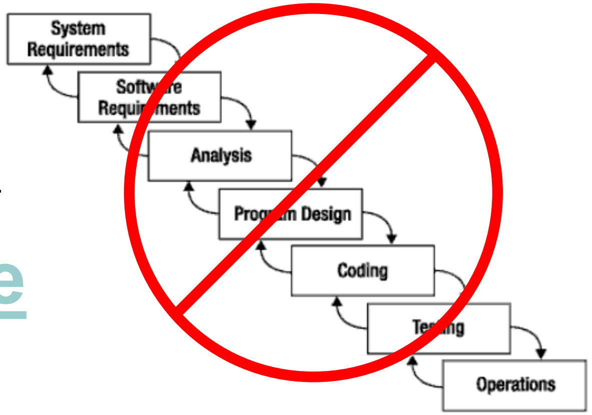
Scrum


INSPECT
ADAPT
Daily Scrum
Sprint Planning
Sprint Backlog
Product Backlog
Feature A
Feature B
Feature C
Sprint Execution
Acceptance test PBIs
Grooming
Potentially Shippable Product Increment
INSPECT
ADAPT
INSPECT
ADAPT
Sprint Retrospective
Sprint Review
Acceptance test PBIs

Scrum


Scrum Roles
Product Owner
Scrum Master
Team
24 hours
Sprint planning
Daily Scrum
Product Backlog
Sprint Backlog
M2O
Burndown Chart
Impediment list
Task board
Sprint
2-4 weeks
Sprint Review
Product Increment
Retrospective

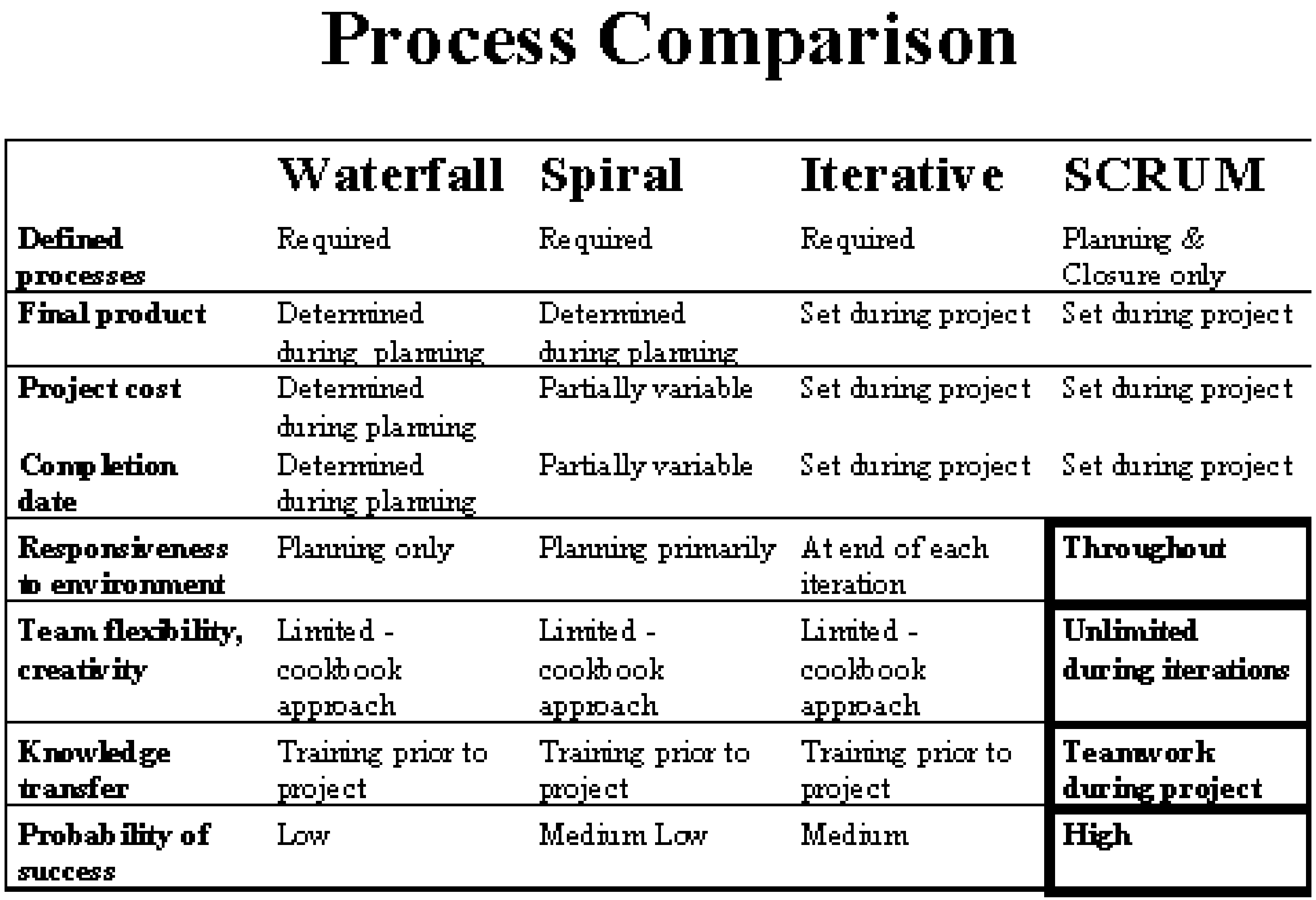
What is Scrum?



It’s about common sense

- **Scrum**:
  - Is an agile, lightweight process
  - Can manage and control software and product development
  - Uses iterative, incremental practices
  - Has a simple implementation
  - Increases productivity
  - Reduces time to benefits
  - Embraces adaptive, empirical systems development
  - Is not restricted to software development projects
  - Embraces the opposite of the waterfall approach…

Scrum vs. Other Models



Process Comparison

	Waterfall	Spiral	Iterative	SCRUM
Defined processes	Required	Required	Required	Planning & Closure only
Final product	Determined during planning	Determined during planning	Set during project	Set during project
Project cost	Determined during planning	Partially variable	Set during project	Set during project
Completion date	Determined during planning	Partially variable	Set during project	Set during project
Responsiveness to environment	Planning only	Planning primarily	At end of each iteration	**Throughout**
Team flexibility, creativity	Limited - cookbook approach	Limited - cookbook approach	Limited - cookbook approach	**Unlimited during iterations**
Knowledge transfer	Training prior to project	Training prior to project	Training prior to project	**Teamwork during project**
Probability of success	Low	Medium Low	Medium	**High**

Scalability

- Typical individual team is 7 ± 2 people
  - Scalability comes from teams of teams
- Factors in scaling
  - Type of application
  - Team size
  - Team dispersion
  - Project duration
- Scrum has been used on multiple 500+ person projects

Scrum Framework

Roles

- Product owner
- Scrum Master
- Team

Ceremonies

- Sprint planning
- Sprint review
- Sprint retrospective
- Daily scrum meeting

Artifacts

- Product backlog
- Sprint backlog
- Burndown charts

http://scrumreferencecard.com/scrum-reference-card/

Scrum Roles

- **Product Owner**
  - Responsible for maximizing the return on investment (ROI) of the development effort
  - Responsible for product vision
  - Constantly **re-prioritizes the Product Backlog**, adjusting any long term expectations such as release plans
  - Final arbiter of requirements questions
  - Accepts or rejects each product increment
  - Considers stakeholder interests
  - May contribute as a team member

Our client will act as the Product Owner for each Sprint

http://scrumreferencecard.com/scrum-reference-card/

Scrum Roles

- **Scrum Master**
  - Facilitates the Scrum process
  - Helps resolve impediments
  - Creates an environment conducive to team self-organization
  - adjust forecasts
  - Shields the team from external interference and distractions
  - Has no management authority over the team*

***Your instructor is your Scrum Master for weekly scrums**

http://scrumreferencecard.com/scrum-reference-card/

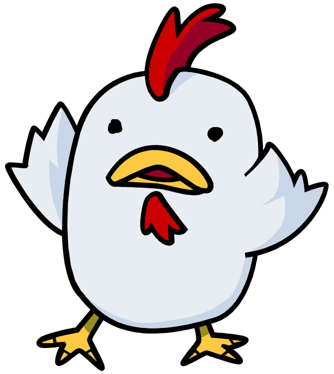
Scrum Roles

- ## Scrum Development Team
  - Cross-functional, Self-organizing / self-managing, without externally assigned roles
  - Negotiates commitments with the Product Owner, one Sprint at a time
  - Has autonomy regarding how to reach commitments
  - Intensely collaborative
  - Most successful when located in one team room, particularly for the first few Sprints
  - Most successful with long-term, full-time membership. Scrum moves work to a flexible learning team and avoids moving people or splitting them between teams.
  - 7 ± 2 members

"Pigs" and "Chickens"

A pig and a chicken are walking down a road. The chicken looks at the pig and says, "Hey, why don't we open a restaurant?" The pig looks back at the chicken and says, "Good idea, what do you want to call it?" The chicken thinks about it and says, "Why don't we call it 'Ham and Eggs'?" "I don't think so," says the pig, "I'd be committed but you'd only be involved."

Pig: Team member committed to success of project



Chicken: Not a pig; interested but not committed

User Stories

- Short, simple description of a feature from a user’s perspective:
  - *As a <type of user>, I want <some goal> so that <some reason>.*

- Often written on cards & displayed on walls to facilitate discussion
- Shift the focus from writing about features to discussing them

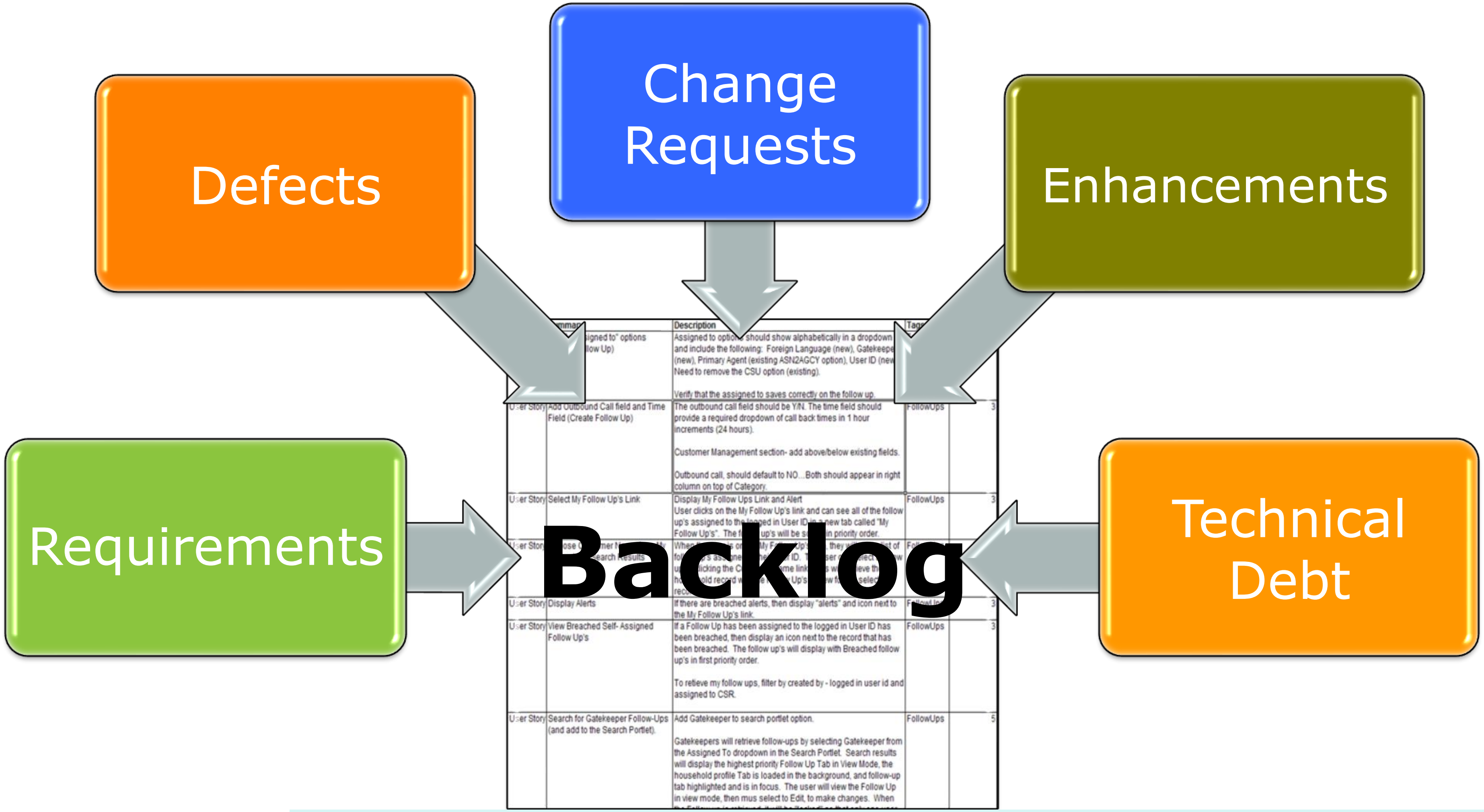
http://www.mountaingoatsoftware.com/agile/user-stories

Epics

- Large user stories are generally known as epics.
  - As a user, I can backup my entire hard drive.
  - could be decomposed, such as:
    - As a power user, I can specify files or folders to backup based on file size, date created and date modified.
    - As a user, I can indicate folders not to backup so that my backup drive isn't filled up with things I don't need saved.

http://www.mountaingoatsoftware.com/agile/user-stories

Backlog



	[illegible]mmary	Description	Tag[illegible]		
[illegible]	[illegible]signed to" options [illegible]llow Up)	Assigned to options should show alphabetically in a dropdown and include the following: Foreign Language (new), Gatekeepe (new), Primary Agent (existing ASN2AGCY option), User ID (new Need to remove the CSU option (existing). Verify that the assigned to saves correctly on the follow up.	[illegible]		[illegible]
User Story	Add Outbound Call field and Time Field (Create Follow Up)	The outbound call field should be Y/N. The time field should provide a required dropdown of call back times in 1 hour increments (24 hours). Customer Management section- add above/below existing fields. Outbound call, should default to NO…Both should appear in right column on top of Category.	FollowUps		3
User Story	Select My Follow Up's Link	Display My Follow Ups Link and Alert User clicks on the My Follow Up's link and can see all of the follow up's assigned to the logged in User ID in a new tab called "My Follow Up's". The f[illegible] up's will be s[illegible] in priority order.	FollowUps		3
User Story	[illegible]ose C[illegible]mer N[illegible] My [illegible]earch Results	When [illegible] is on [illegible] My F[illegible] Up's [illegible], they will [illegible] list of fol[illegible]'s assigne[illegible] ID. T[illegible]ser c[illegible] select [illegible] follow up [illegible]licking the C[illegible]ame link[illegible]s w[illegible]eve the h[illegible]old record w[illegible] Up's [illegible]ew f[illegible] selec[illegible] reco[illegible]	Fol[illegible]		[illegible]
User Story	Display Alerts	If there are breached alerts, then display "alerts" and icon next to the My Follow Up's link.	F[illegible]		3
User Story	View Breached Self- Assigned Follow Up's	If a Follow Up has been assigned to the logged in User ID has been breached, then display an icon next to the record that has been breached. The follow up's will display with Breached follow up's in first priority order. To retieve my follow ups, filter by created by - logged in user id and assigned to CSR.	FollowUps		3
User Story	Search for Gatekeeper Follow-Ups (and add to the Search Portlet).	Add Gatekeeper to search portlet option. Gatekeepers will retrieve follow-ups by selecting Gatekeeper from the Assigned To dropdown in the Search Portlet. Search results will display the highest priority Follow Up Tab in View Mode, the household profile Tab is loaded in the background, and follow-up tab highlighted and is in focus. The user will view the Follow Up in view mode, then mus select to Edit, to make changes. When	FollowUps		5

ohcolnas0270.nwie.net\Development_center\ATDD\Story Writing Workshop

Prioritized backlog

- Product Backlog ➔ Sprint Backlog
- Functional Objectives (Features) ➔ Epics ➔ User Stories ➔ Tasks

(Requirement Analyst is a key team member in this effort!)

Stories should be worth the ***INVEST***ment

Well written stories exhibit similar characteristics.

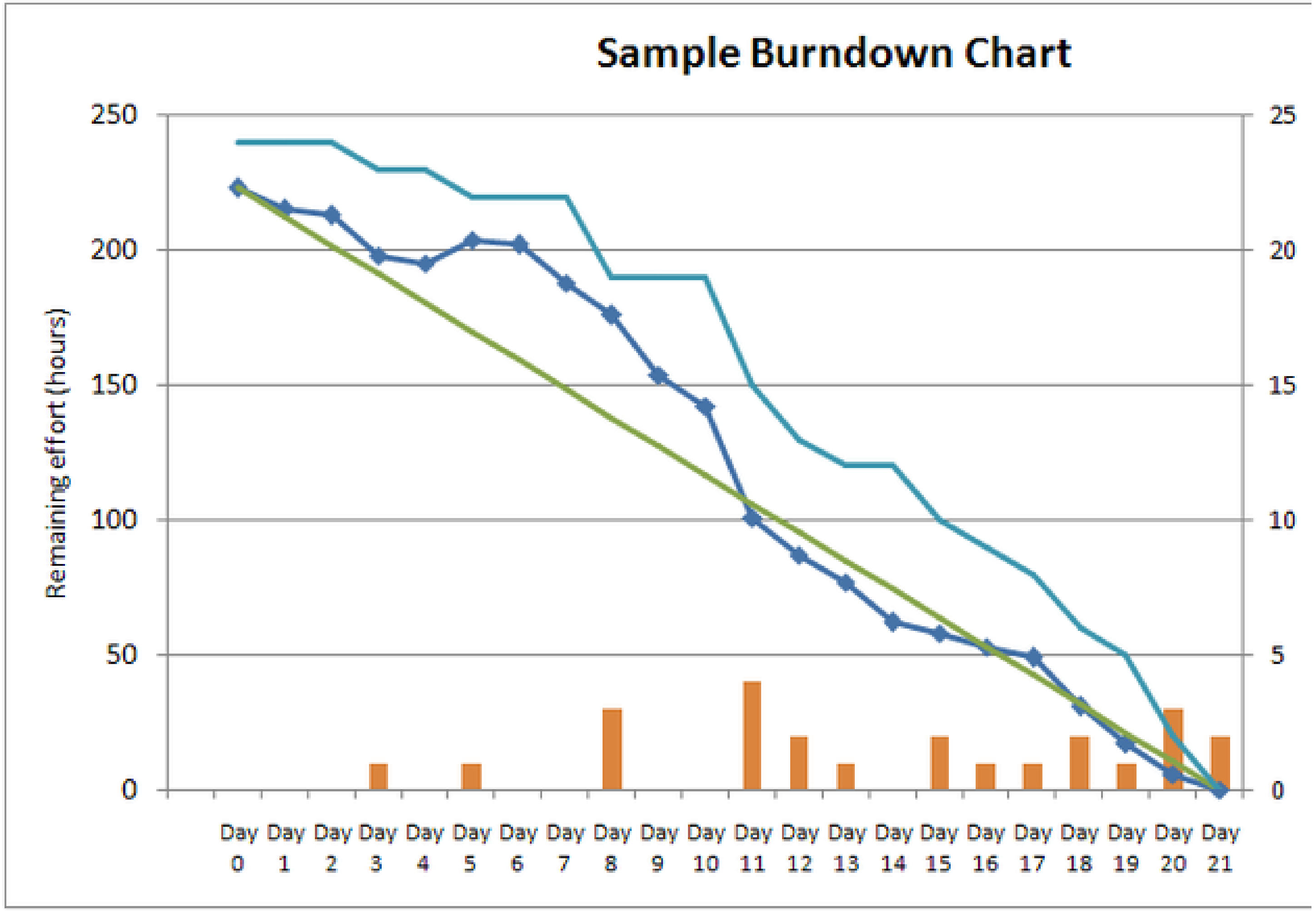
- Independent
  - stand alone, could be prioritized next for work.
- Negotiable
  - details can be refined with the customer
- Valuable
  - Work has value to the business
- Estimable
  - boundaries are clearly defined and is not vague.
- Small
  - No more than an iteration worth of work
- Testable
  - clear acceptance criteria

Key Scrum Artifacts/Concepts

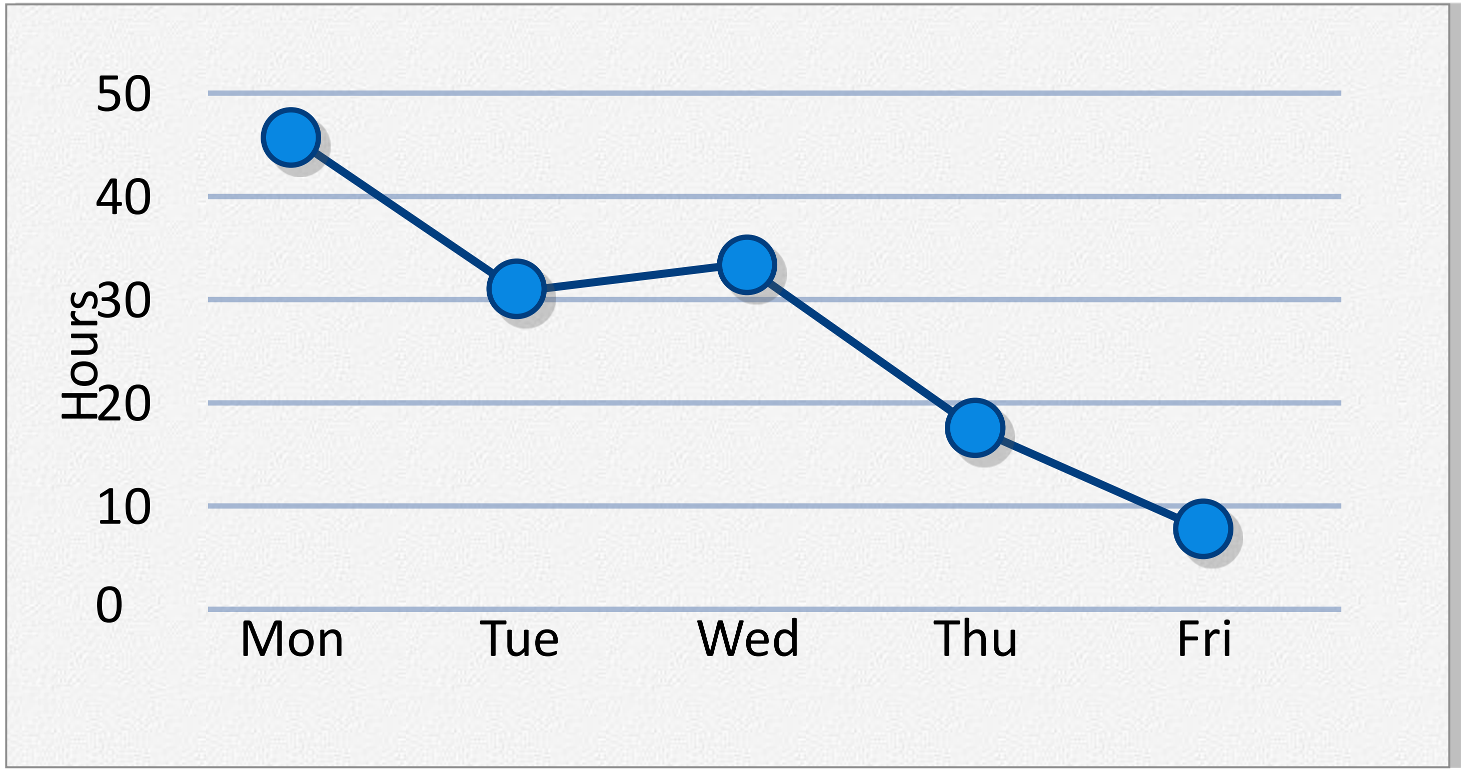
Sprint Burndown Chart

- A display of what work has been completed and what is left to complete
  - one for each developer or work item
  - updated every day

Sample Burndown Chart

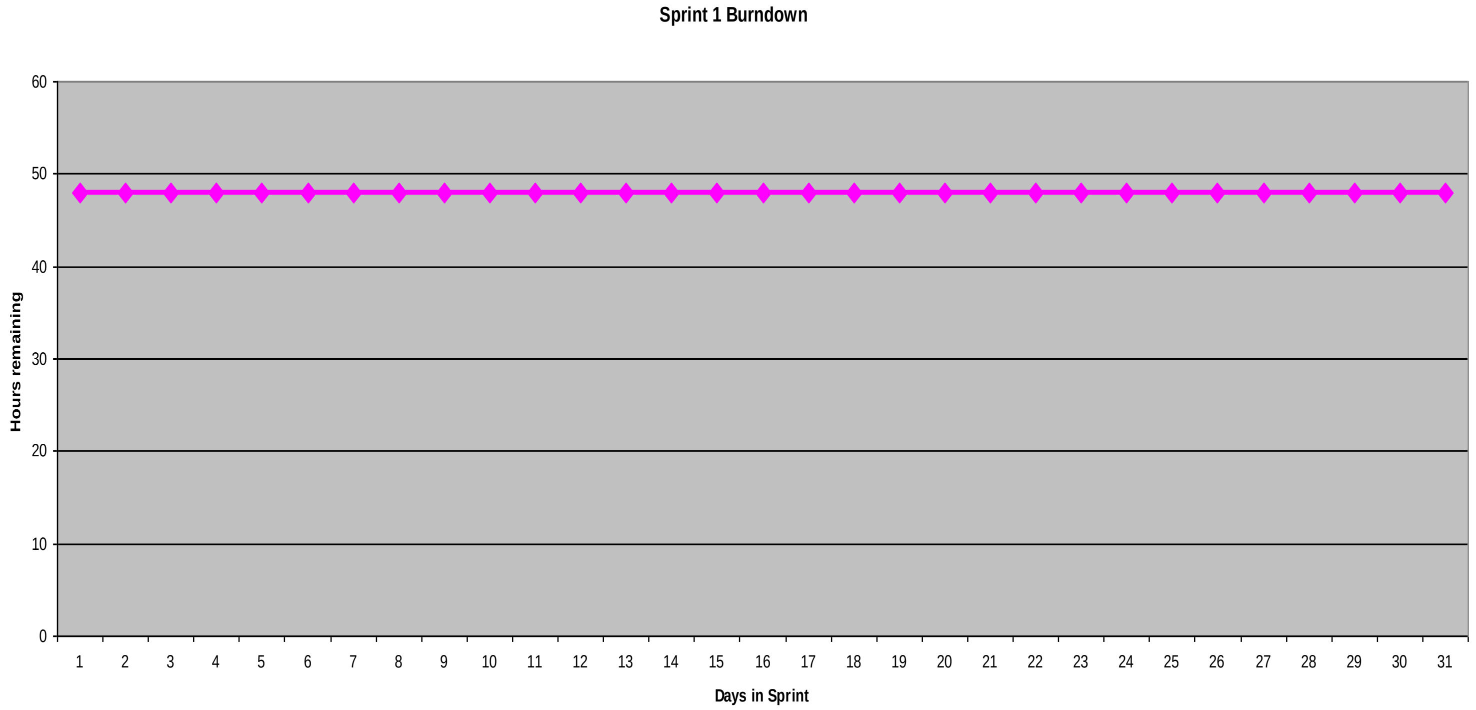


Tasks	Mon	Tue	Wed	Thu	Fri
Code the user interface	8	4	8		
Code the middle tier	16	12	10	7	
Test the middle tier	8	16	16	11	8
Write online help	12				



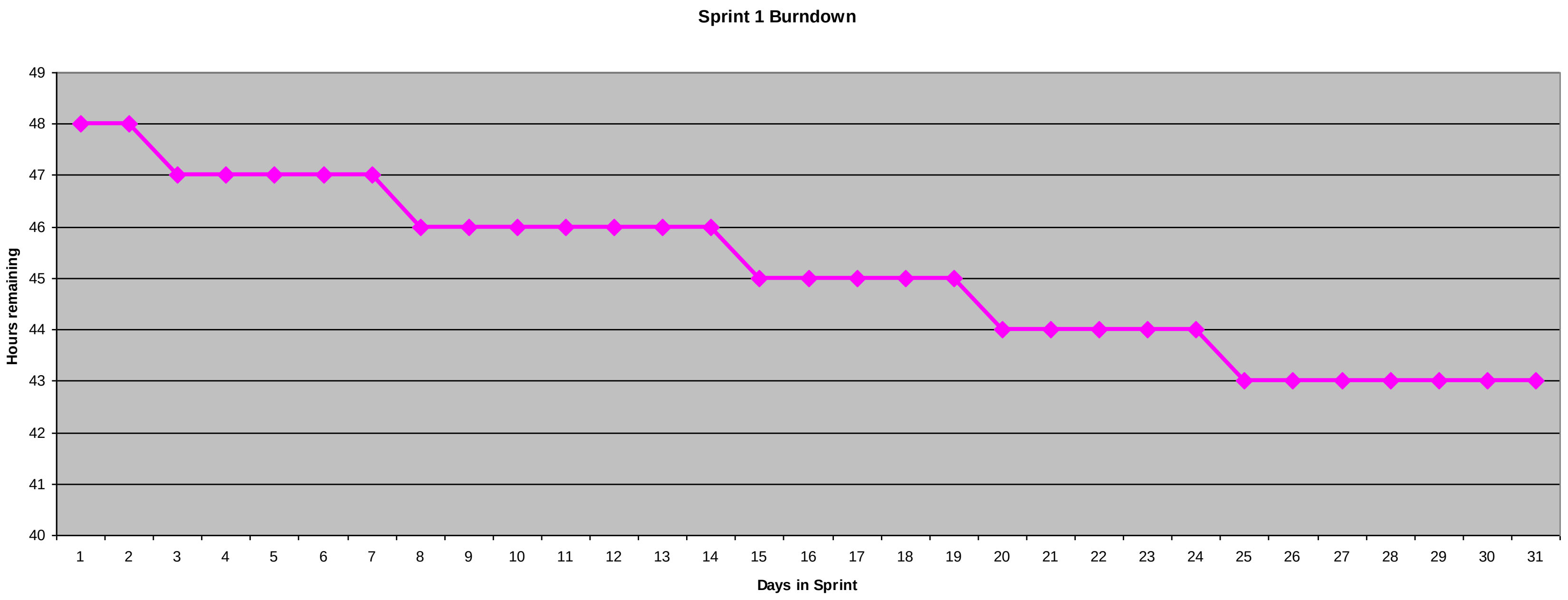
Burndown Example 1

No work being performed



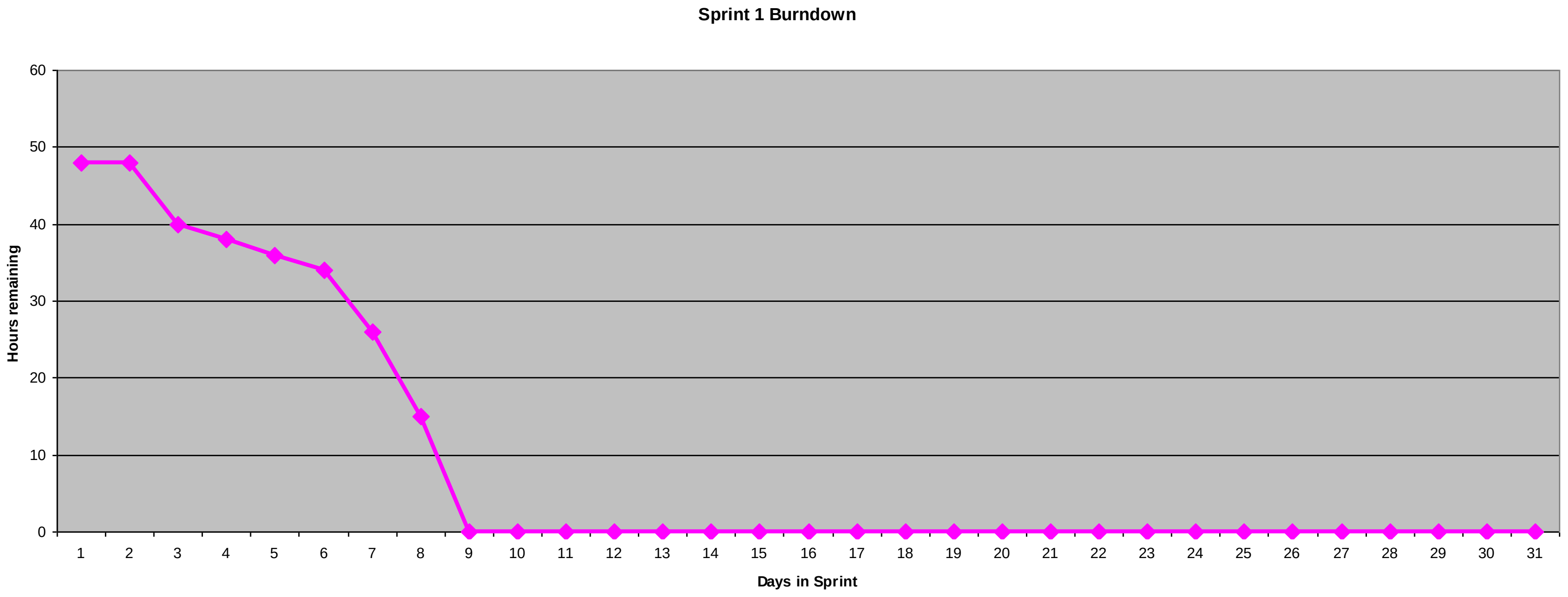
Burndown Example 2

Work being performed, but not fast enough



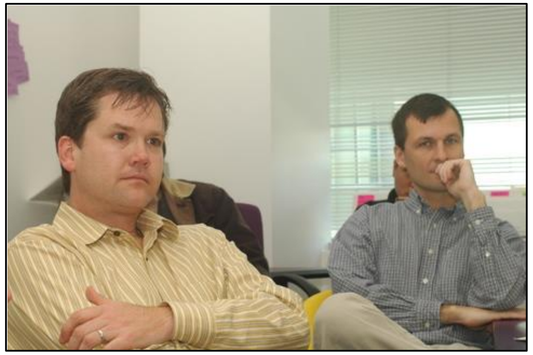
Burndown Example 3

Work being performed, but too fast!



The Sprint Review (Show & Tell)

- Review product under development
- Team presents what it accomplished during the sprint
- Informal*
  - 2-hour prep time rule
  - No slides
- Whole team participates

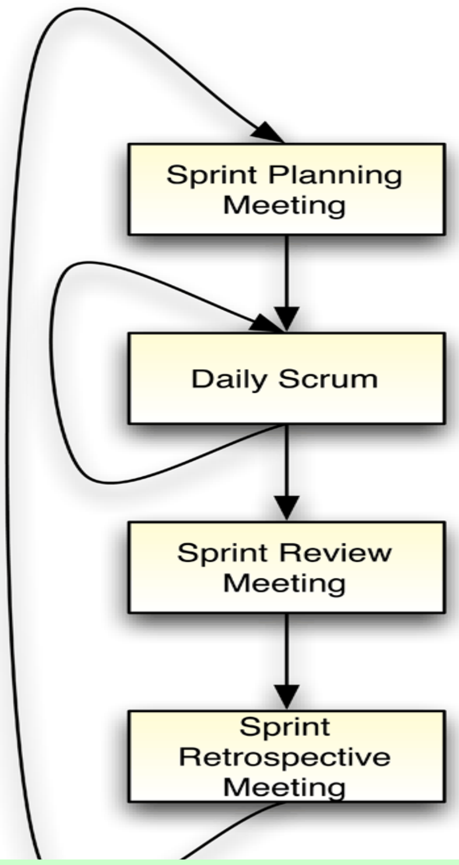


***Our reviews will be more formal.**

http://scrumreferencecard.com/scrum-reference-card/

Sprint Review Meeting

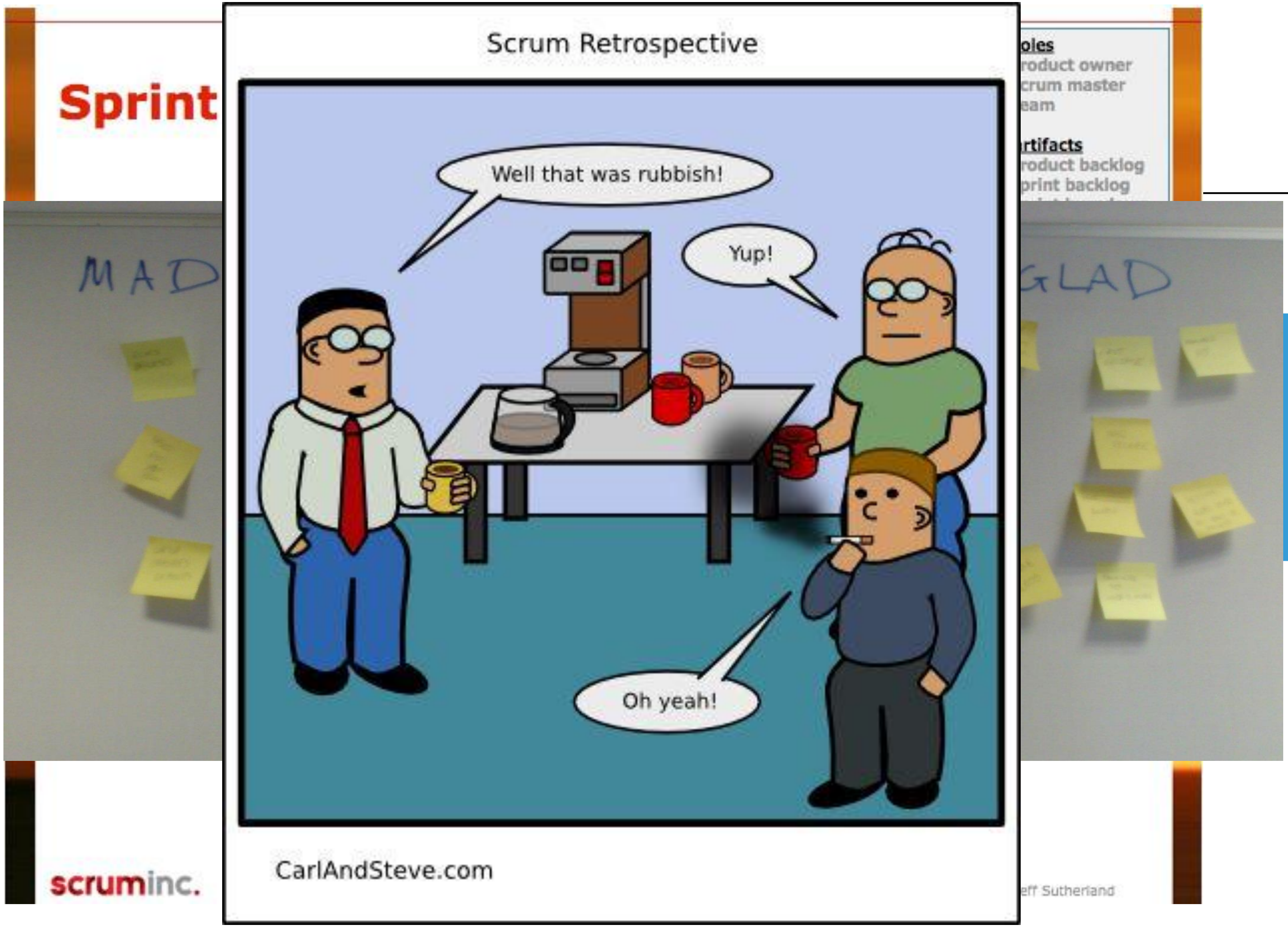
- Demonstration, not a report
- Product owner marks done items
- Incomplete items returned to backlog



For us, these items might be user stories or functional objectives

Sprint Retrospective

- Process review
- Meant only for the team (pigs)
- What worked, what did not work
- Generate top 3 – 5 action items, goal is to continuously improve processes



Sprint

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print backlog

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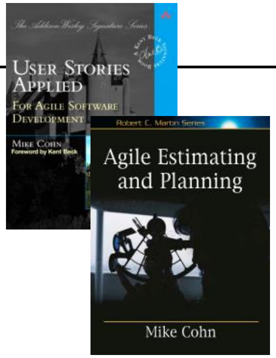
eff Sutherland

Recap (discussion)

- Plan-Driven vs. Agile
- Scrum
  - What is product backlog?
  - What is Sprint? What is Iteration?
  - How is the work divided?
  - Roles?
- Pigs vs. Chickens
  - Product owner & scrum master

Credits, References



- Mike Cohn, Mountain Goat Software
  www.mountaingoatsoftware.com
- *Scrum and The Enterprise* by Ken Schwaber
- *Succeeding with Agile* by Mike Cohn
- *Agile Software Development Ecosystems* by Jim Highsmith
- *Agile Software Development with Scrum* by K. Schwaber and M. Beedle
- *User Stories Applied for Agile Software Development* by Mike Cohn

- www.agilescrum.com/
- www.objectmentor.com
- jeffsutherland.com/
- www.controlchaos.com/scrumwp.htm
- agilealliance.com/articles/articles/InventingScrum.pdf

SAY AGILE
ONE MORE TIME