IS4301 Agile IT with DevOps – Lecture 5

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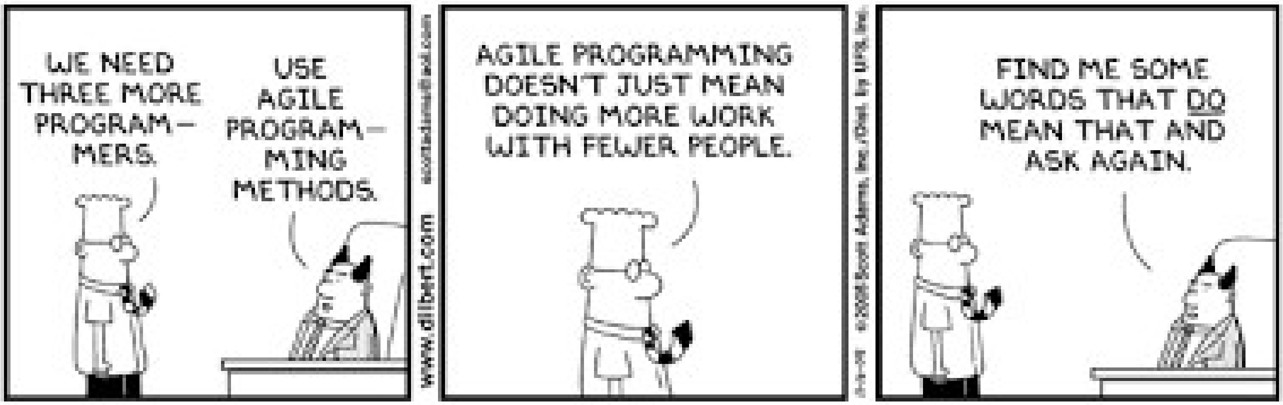
Learning Objectives

At the end of this lecture, you will understand:

- How to write a user story?
- How to estimate sizing of user stories?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USE AGILE PROGRAM-MING METHODS.
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Business Requirements – Waterfall Approach vs. Agile Approach

Traditional Business Requirements

- Requirements documents delve into great detail on how an area of software should work
- Baselined for changes
- Once business requirements are fixed, making changes are difficult
- Success criteria is not defined clearly
- Lack of stakeholder participation
- Lack of active communication

Agile User Stories

- Business value is clearly stated
- Change is embraced
- Iteratively developed
- Acceptance criteria must be clearly stated for each user story
- Requires active stakeholder participation
- Encourages active communication as user stories are discussed and evaluated

EXTREME PROGRAMMING
I CAN'T GIVE YOU ALL OF THESE FEATURES IN THE FIRST VERSION.
AND EACH FEATURE NEEDS TO HAVE WHAT WE CALL A "USER STORY."
OKAY, HERE'S A STORY: YOU GIVE ME ALL OF MY FEATURES OR I'LL RUIN YOUR LIFE.
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What is a User Story?

User Story

- User story is a short statement, made in everyday business language of an end user/customer

- A story captures what a user/customer wants to do as part of his or her job function to achieve a specific goal

- A story describes what a user/customer considers as "acceptable", for a story to have an intrinsic tangible business value

User Story and Epic

Epic – Story – Task

- **Epic** groups related user stories together or describes a block of requirements that have not yet been rationalized into stories

- **Story** is a brief statement of a product requirement or a business case. Typically, stories are expressed in plain language to help the reader understand what the software should accomplish. Anyone can write a story but **PO owns** it.

- **Task** is the discreet piece of technical work required to complete a story

YOUR USER REQUIREMENTS INCLUDE FOUR HUNDRED FEATURES.
DO YOU REALIZE THAT NO HUMAN WOULD BE ABLE TO USE A PRODUCT WITH THAT LEVEL OF COMPLEXITY?
GOOD POINT. I'D BETTER ADD "EASY TO USE" TO THE LIST.
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Example of Epic – User Story - Task

Scope	Epic	User Story	Task
E.g., global online maps	E.g., Directions	E.g., As a travel planner, I like to see 3 options of travel routes indicated on a map, so that I can have alternatives in my route planning.	Setup database instance. Code map layering.

Specifying a User Story

- Starts with “As a <<role>>”
- Describes action with “I want to …>>
- Describes expected outcome of the action with “So that …>>

Example of a User Story (?)

As a Travel Planner,

I would like to see 3 options of travel routes indicated on a map

So that I could have alternatives in my travel route planning.

INVEST Principle for User Stories

- Independent - as small as possible, without making it dependent on other Stories
- Negotiable – allows further discussions and refinement of scope with inputs from team
- Valuable - delivers value to the user
- Estimatable – development team can estimate relative complexity
- Small - small enough to be developed & tested in one sprint
- Testable – testable by itself and has clear acceptance criteria defined

Does this User Story Meets the INVEST Principle?

As a Travel Planner,

I would like to see 3 options of travel routes indicated on a map

So that I could have alternatives in my travel route planning.

If yes, why?

If no, modify this story to provide an example of a good user story.

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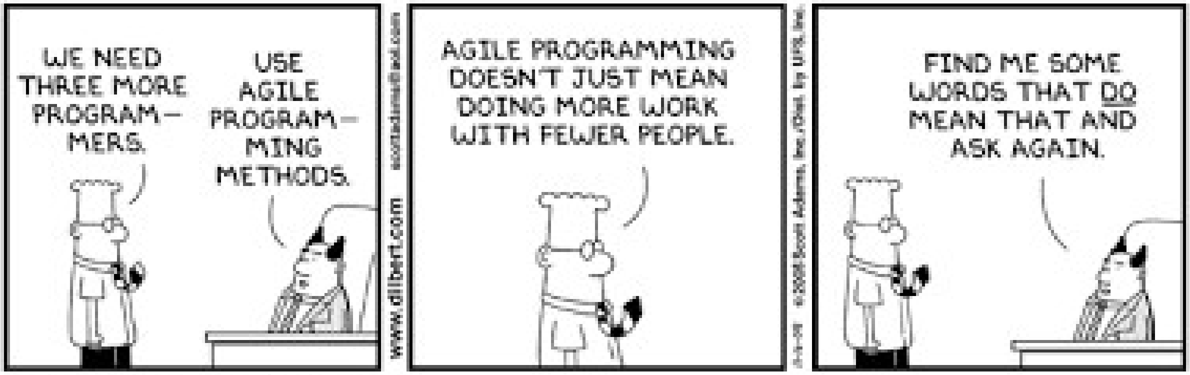
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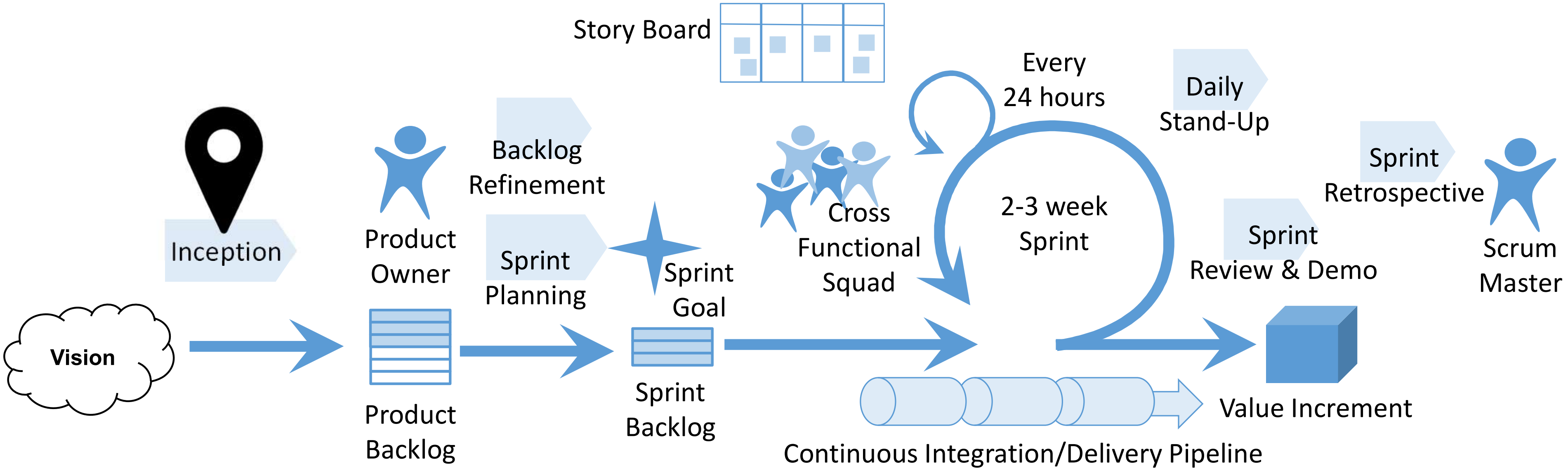
Where Does Estimation Occur in Agile Life Cycle?



User Story Estimation

Each user story comes with:

- Number of Story Points (associated with complexity of implementing this user story by developers)
- Number of Value Points (associated with degree of business value to product owner)

I NEED A COST ESTIMATE ON YOUR PROJECT.
I HAVE NO IDEA. I HAVEN'T EVEN GATHERED THE USER REQUIREMENTS.
DON'T WORRY. I WON'T HOLD YOU TO THE ESTIMATE.
YES YOU WILL. YOU WILL PUT IT IN THE PLAN, FORGET WE HAD THIS CONVERSATION, AND FIRE ME WHEN I GO OVER BUDGET.
GIVE ME A NUMBER OR I'LL FIRE YOU RIGHT NOW.
OKAY, IT WILL COST TEN MILLION DOLLARS.
THAT'S TOO HIGH.
IF YOU ALREADY KNOW THE COST, WHY ARE YOU ASKING ME?
SO YOU'LL FEEL LIKE YOU HAD INPUT.
IS INPUT SUPPOSED TO FEEL THIS BAD?
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Traditional Software Effort Estimation

- Function Point, COCOMO, Delphi, object counting
- For example: Function Point
  - Determine function category count
  - Determine complexity
  - Compute gross function point (GFP)
  - Determine processing complexity (PC)
  - Compute processing complexity adjustment (PCA)
  - Compute Function Point (FP)
- Output of estimated efforts in number of man-days/months

Estimation in Agile

- Using absolute estimates:
  - 2 months?
  - 3 months?
  - 4 months?

- How about using relative estimates?

DILBERT
BY SCOTT ADAMS
HOW MANY DAYS WILL IT TAKE TO FINISH THE TESTS?
THREE.
DilbertCartoonist@gmail.com
YOU HAVE TWO.
I CAN'T DO IT IN TWO DAYS. THAT'S WHY I SAID THREE.
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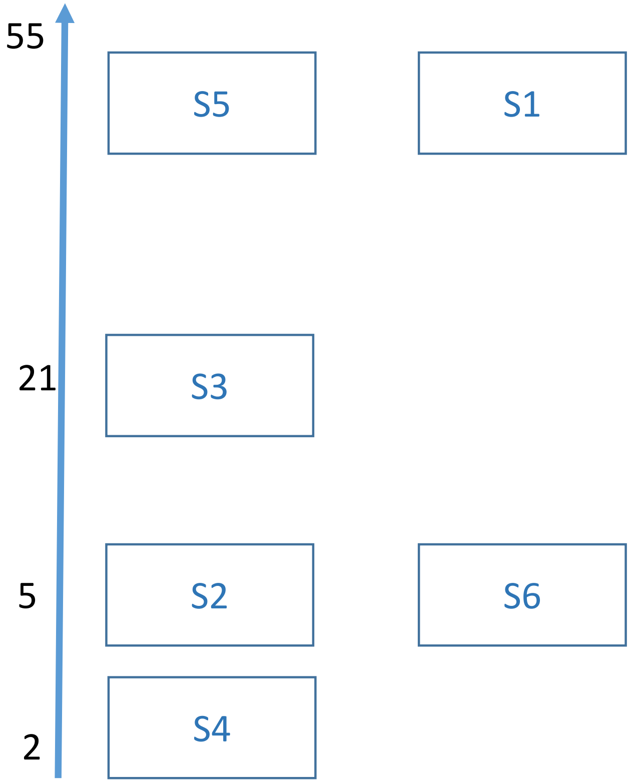
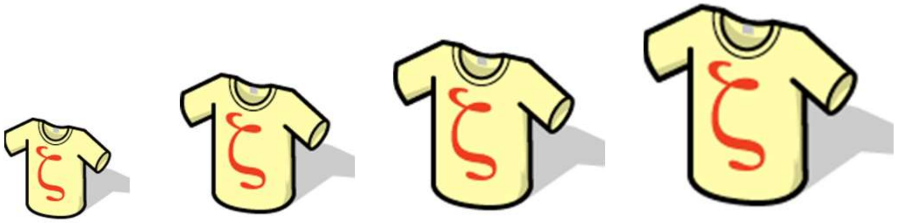
THAT WAS BEFORE I USED MY LEADERSHIP SKILLS TO TELL YOU TO DO IT IN TWO DAYS.
LEADERSHIP DOESN'T CHANGE THE LAWS OF PHYSICS. THE TEST TAKES THREE DAYS.
YOU HAVE TWO.
LEADERSHIP!
www.dilbert.com
2-22-15
THESE TEST RESULTS LOOK INCOMPLETE.
JUST LIKE MY SOUL.

Relative Estimates: Big house vs. small house

Estimating with Story Points and T-Shirt Sizing



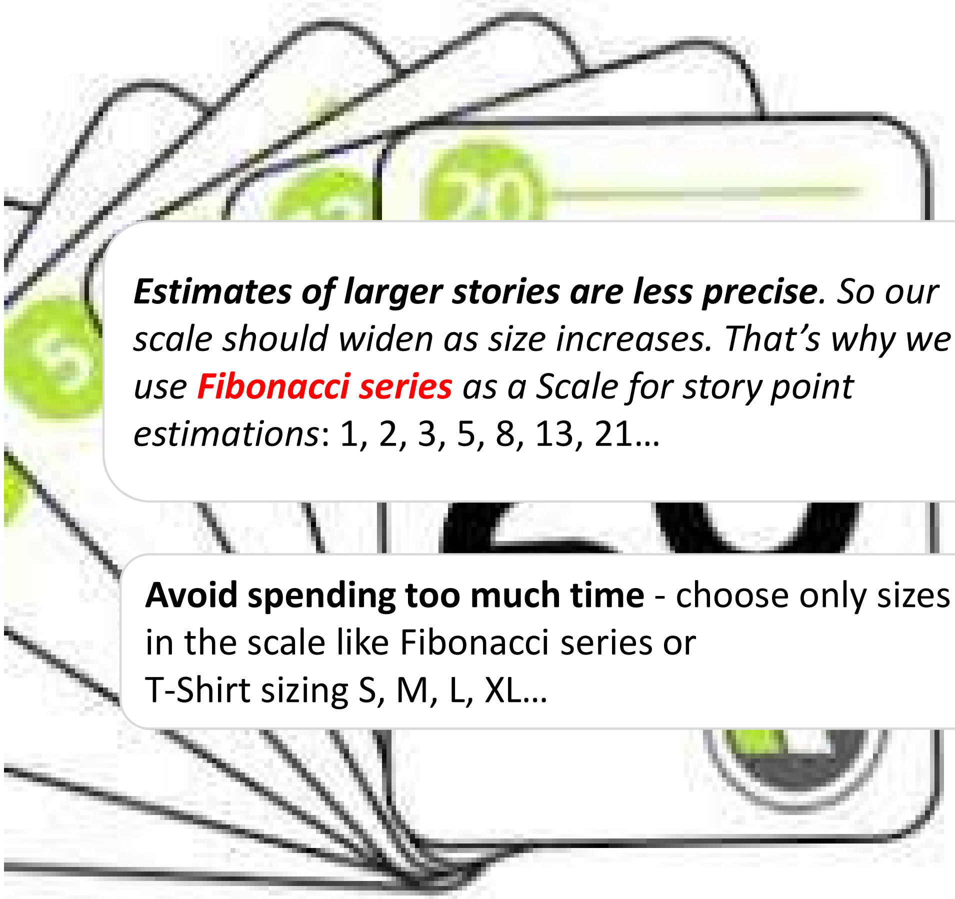


Small	Medium	Large	XL
1-2	5-8	13-21	34-55

Story Point Estimation Using Fibonacci Sequence

- 1, 1, 2, 3, 5, 8, 13, 21, 55, 89, 144 …

- F(n + 1) = 1.618 … about 60% increment
- ----------
- F(n)



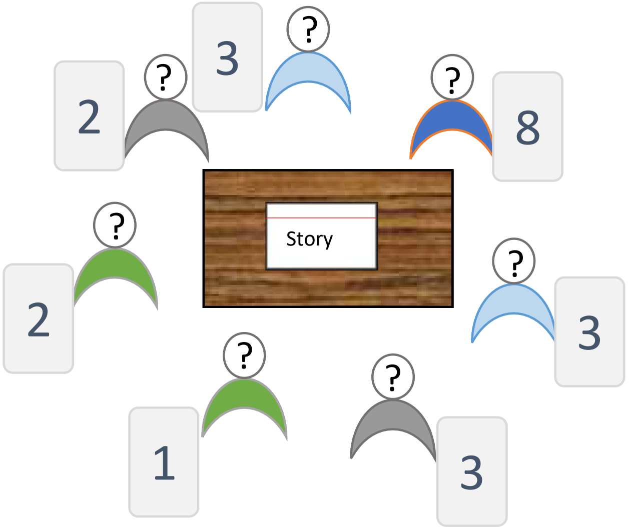
Estimates of larger stories are less precise*. So our scale should widen as size increases. That's why we use* ***Fibonacci series*** *as a Scale for story point estimations*: 1, 2, 3, 5, 8, 13, 21…

Avoid spending too much time - choose only sizes in the scale like Fibonacci series or T-Shirt sizing S, M, L, XL…

User Story Estimation – Poker Style

Instructions:

1. Start with a story that is known or is familiar to the whole team. This will be a ‘**Keystone**’ story that we can compare other stories with.
2. Without discussion, everyone chooses a card representing their estimate
3. Everyone reveals their card at the same time
4. Results are discussed (particularly the outliers) to achieve consensus of the estimate
5. Estimate is recorded for the story
6. Repeat the above steps, to get relative estimates for each new story and compare with the earlier Keystone stories that everyone is familiar with. The process becomes easier and faster as more stories are estimated because we can simply compare the new un-estimated stories against past estimates.



If the entire team has the same estimates, then we accept that.
Otherwise several methods exist to arrive at the estimate:

- Accept the majority
- Accept the average
- Accept the experts’ estimate

Velocity

- **Velocity** of an agile squad is the average number of story points the squad can complete in a sprint.
- A squad can **predict** the estimated completion of stories based on their **average velocity** in the past sprints.
- An **experienced** squad can have **a better velocity** as they could in theory deliver faster i.e. complete more number of story points.
- Sometimes multiple squads, who are working on common backlogs of large scale products, might want to **normalize** story points. It is challenging to normalize for different levels of maturity of squads.

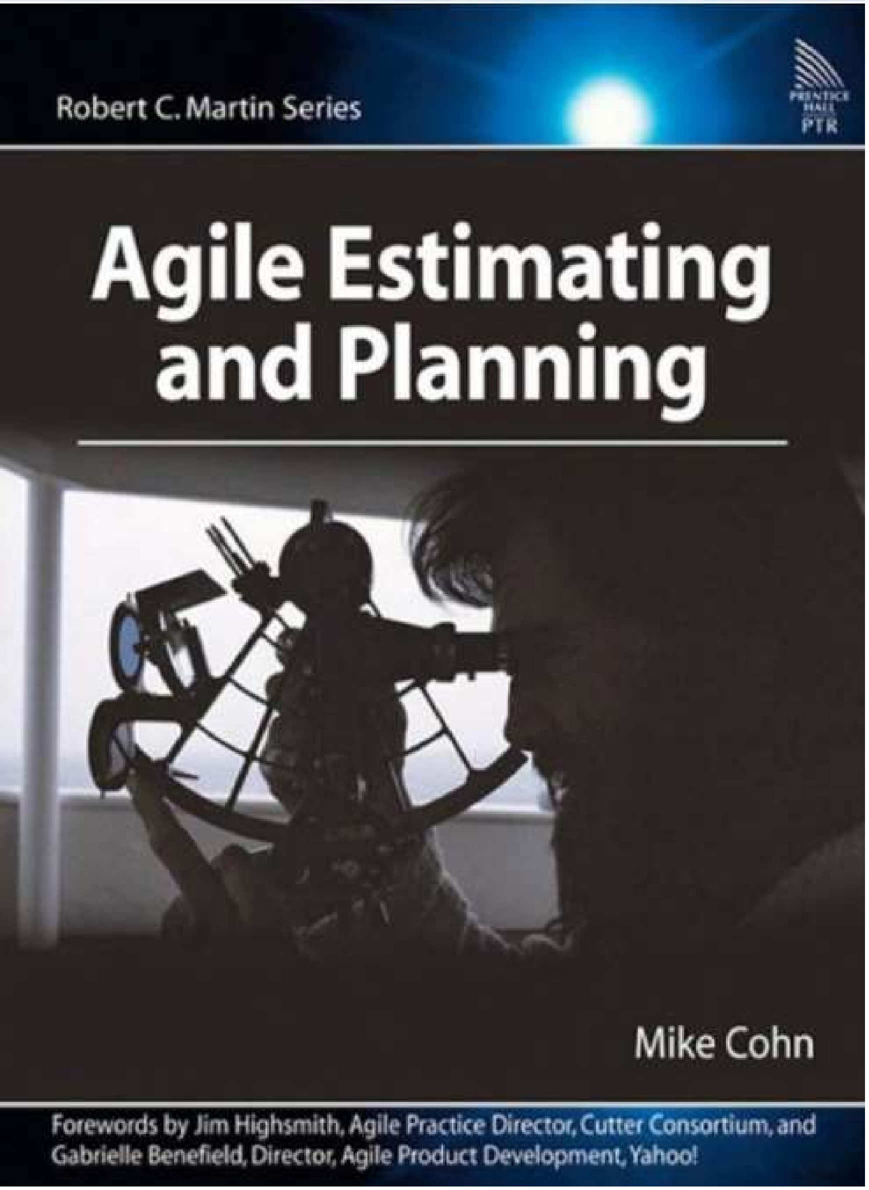
Estimation of Value Points

- For Product Owners, value points are useful for prioritization of business value using Fibonacci numbers.
- Value Points estimate business value of user story
- Agile is about deliver value early
- Estimates of User Stories are done by developer team, while estimates of Value Points are done by Product Owner or Customers.

Bang For the Buck (BFTB)

User Story 1

Story Points : 21
Value Points : 55
BFTB: 55 / 21 = 2.6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