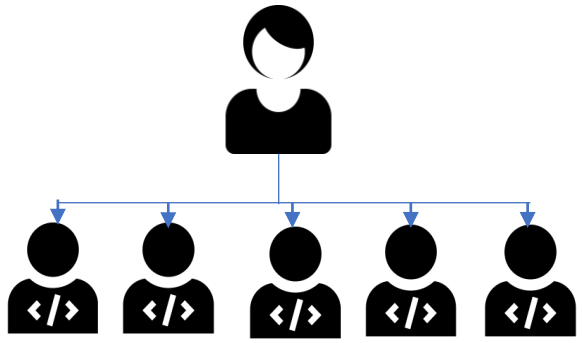
Scrum Fundamentals for Scrum Master and Agile Projects

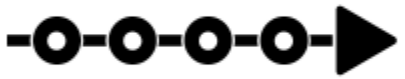
By GenMan Solutions

Scrum

Scrum is a process framework used to manage product development and other knowledge work.

- Agile Alliance

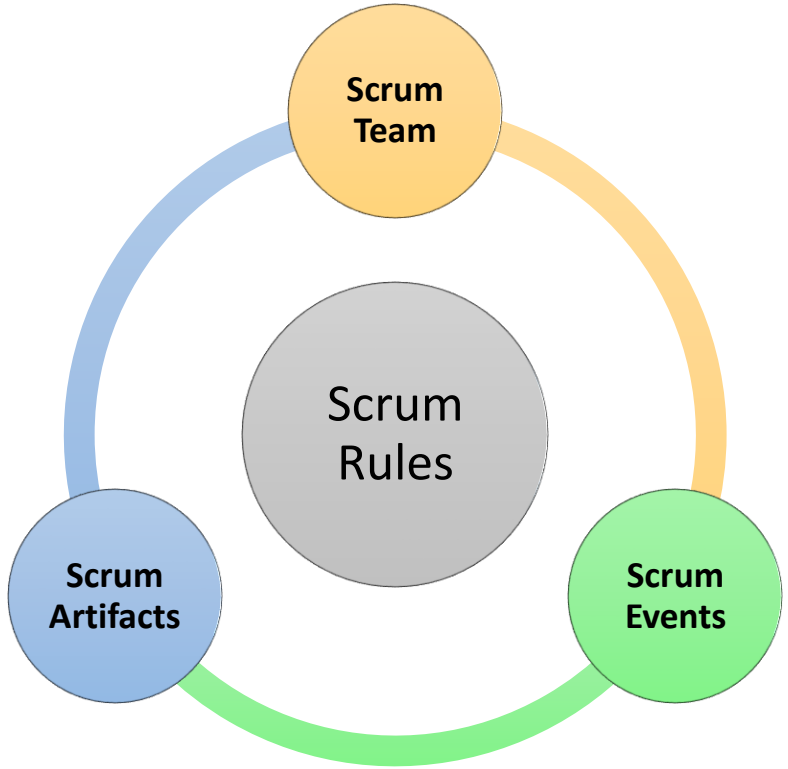




Scrum

Scrum is a set of rules for structuring the team, processes and techniques for making the development process agile..

4 components of Scrum Framework



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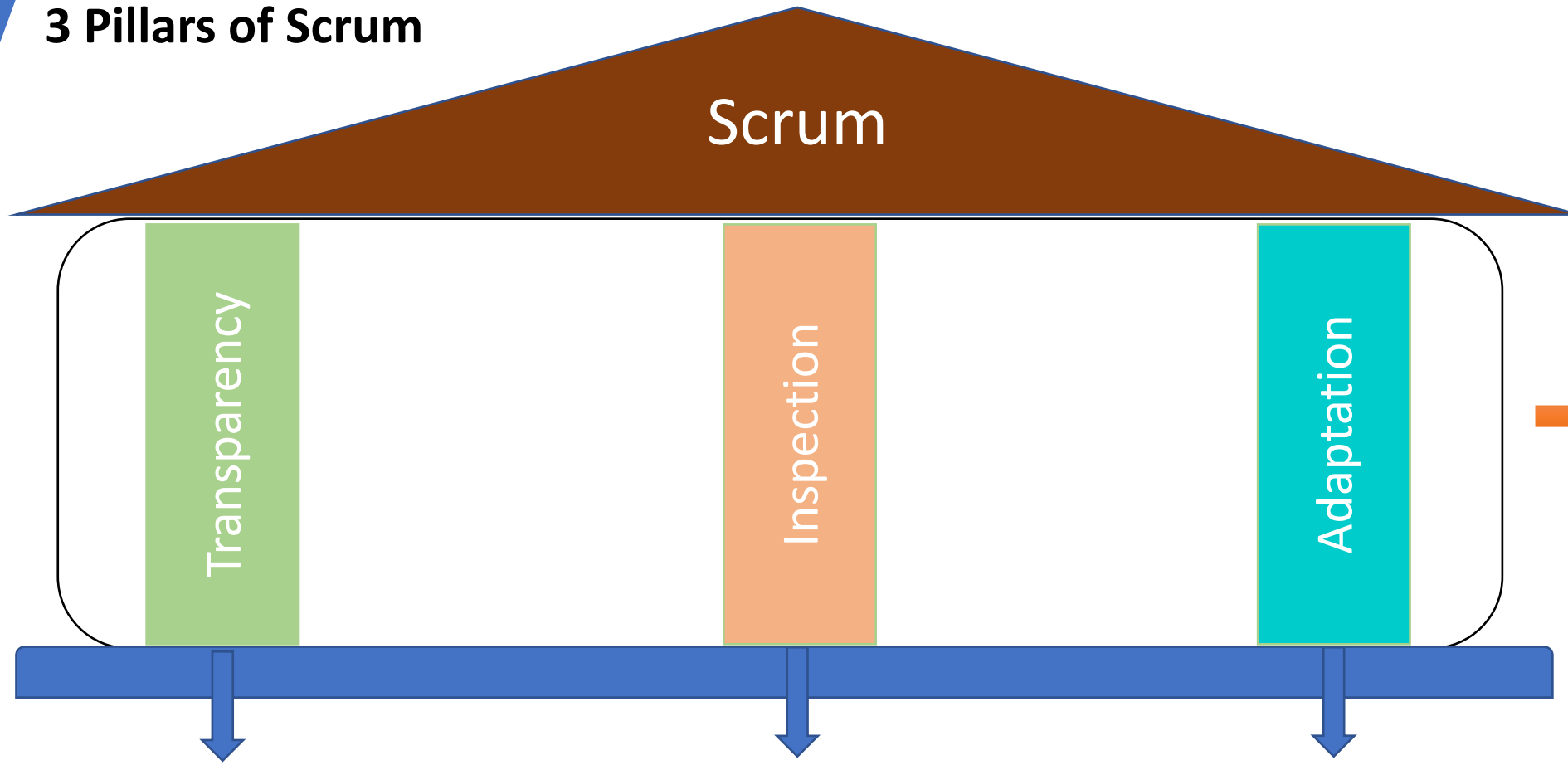
3 Pillars of Scrum



Scrum

Scrum Team

Product Owner

Development Team

Scrum Master

Scrum

Product Owner

Responsibility

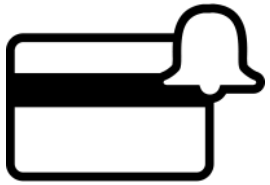
- Maximize the total value of work done by the development team
- Product backlog management

Development Team

Scrum

Product Owner

amazon



Task 1

Task 2

Task 3

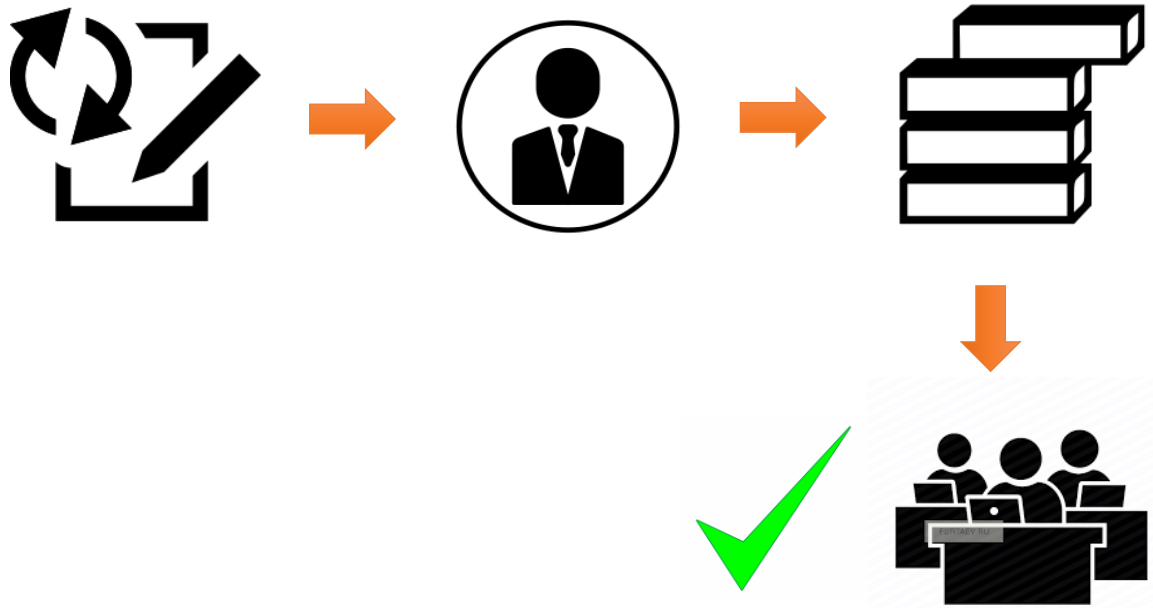
.....

Scrum

Organization also provides authority to a Product Owner..

Product Owner

Product Owner

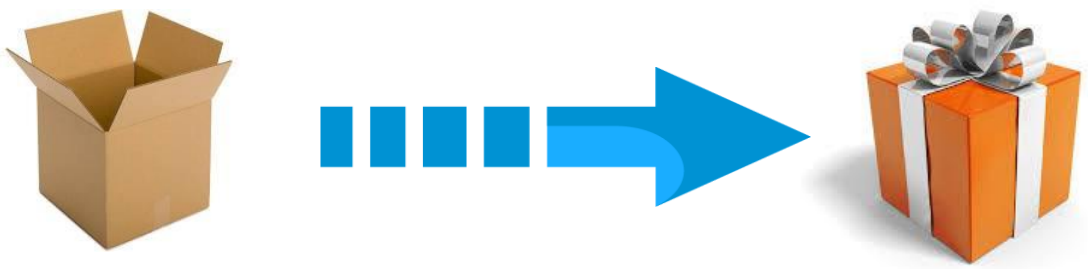


Scrum

Development Team

Responsibility

- Deliver a potentially releasable product at the end of each Sprint



Authority

- How the work would be done is left to the development team

Scrum

Development Team

Characteristics of Scrum Development Team

- It is **cross-functional,** no external dependency

- It is **self-organizing**

Scrum

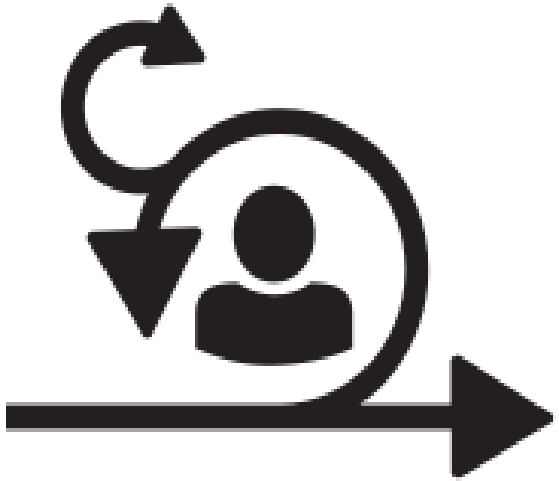
Development Team

Characteristics of Scrum Development Team

- **No titles and sub teams** within the development team

- Team size: A team of **3 to 9 team members** is good

Scrum



Scrum Master

Responsibility

- Ensure proper practical implementation of all concepts
- All Scrum related things such as maintaining the product backlog, helping the development team create high value products etc.
- Facilitating Scrum Events
- Ensure Scrum Artifacts are properly maintained
- Single point of contact to understand Scrum

Scrum

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Scrum Events

- Sprint
- Sprint Planning
- Daily Scrum
- Sprint Review
- Sprint Retrospective

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Features of Scrum Events

- **Regular:** Events can be monthly/weekly/daily

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Features of Scrum Events

- **Time boxed:** limit on the duration of these events

Daily Scrum is a 15- minutes meeting

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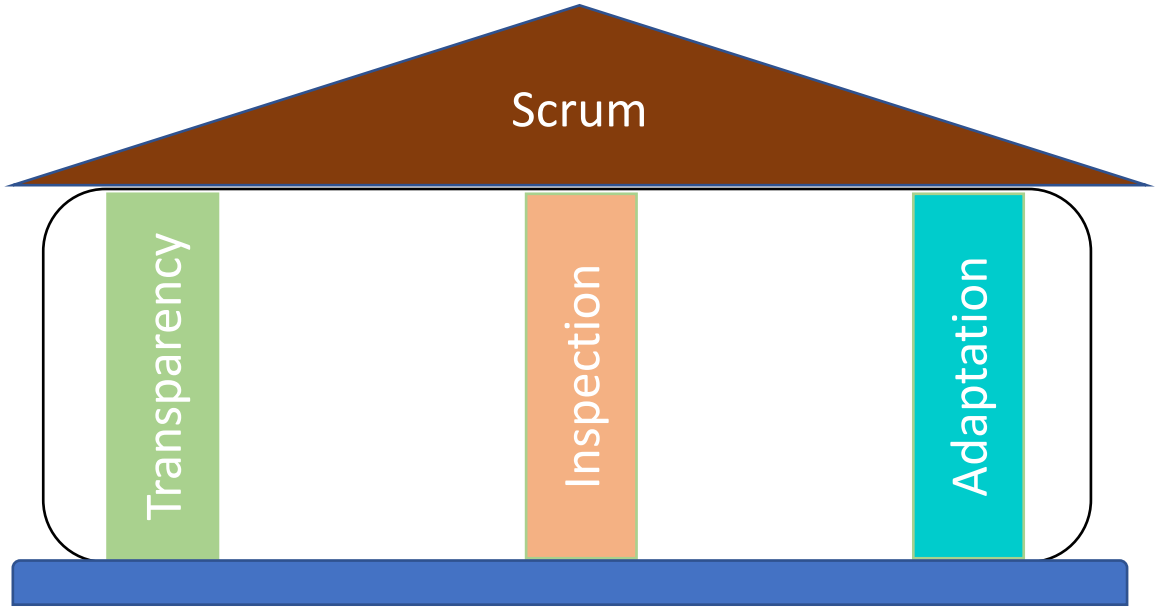
Features of Scrum Events

- Based on three pillars of transparency, inspection & adaptation



Scrum

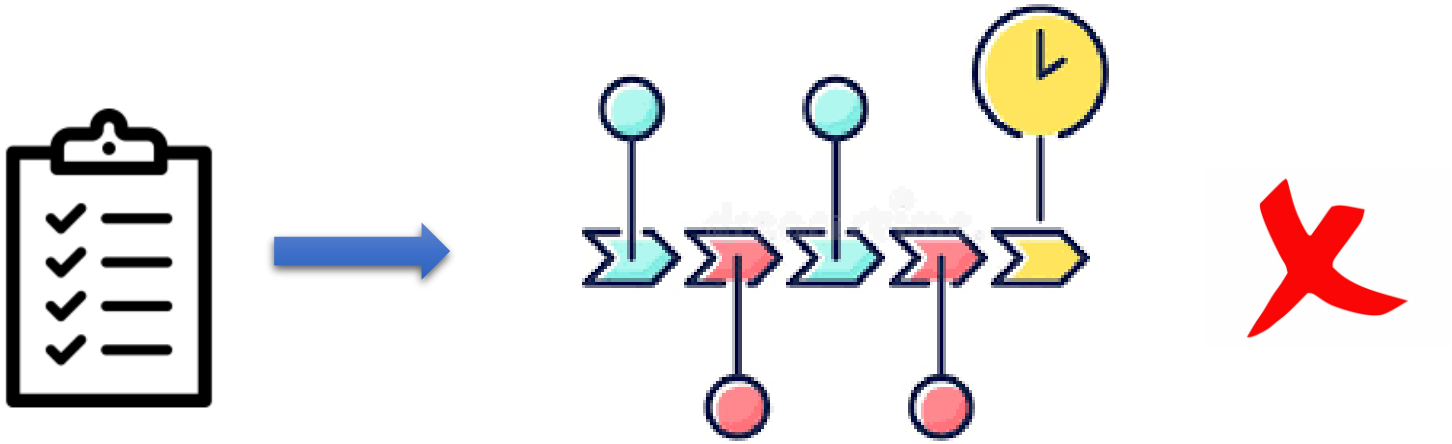
Sprint

Product Owner

amazon

Scrum

Sprint



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Sprint

----------X Days (<=30)----------

(SPRINT)

Product Increment

SPRINT 1

-X Days (<=30)-

Product Releasable

Product Increment

SPRINT 2

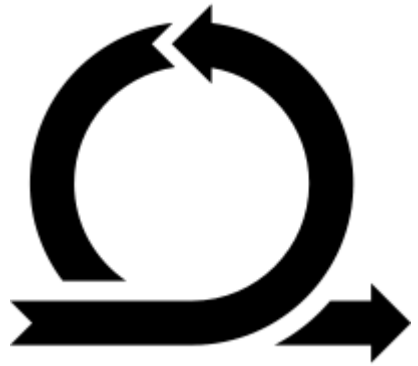
-X Days (<=30)-

Product Releasable

Scrum

Sprint Planning

- Sprint planning happens **once in each Sprint**
- Entire Scrum Team: Product Owner, Scrum Master & Development Team must be a part of the event
- Time box for the event is 8 hours (upper limit)
- Two agendas
  - **What is to be done** in this Sprint
  - Establish **how it will be done**



Scrum

Sprint Planning

Product Backlog

Product Owner

Sprint Backlog

Product Owner discusses the product backlog with the development team

What is to be done?

- **Team Velocity:** How much work development team was able to do in the previous few sprints
- **Estimation Poker**

How it will be done?

- Plan is not fixed, it evolves as more clarity increases
- Development team will come up with the plan

Scrum

Daily Scrum

Daily Scrum is a 15-minutes event done everyday

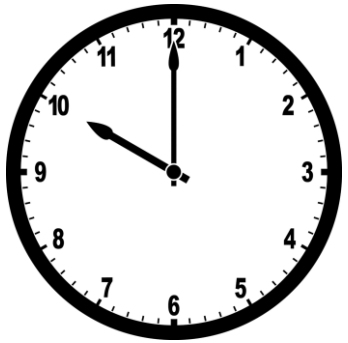
Same place, same time

- Event is primarily for the **Development Team**
- **Scrum Master** facilitates the event
- **Product Owner** can attend the event (not necessary)

- Daily Scrum is implementation of two pillars of scrum: Regular inspection & early adaptation

Scrum

Daily Scrum Meeting



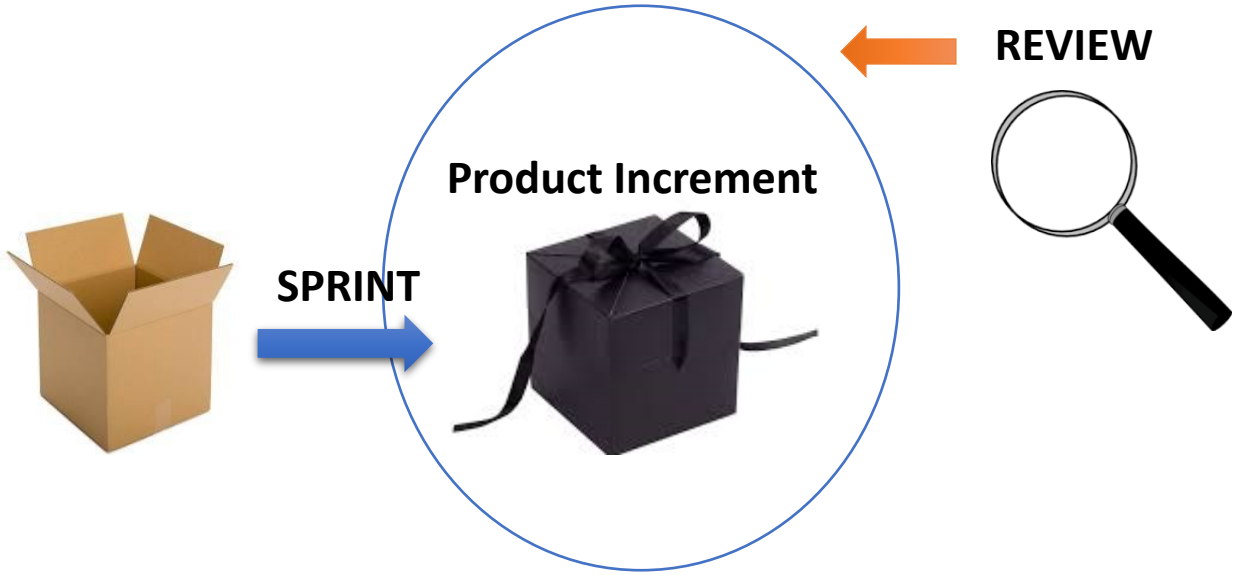
15-minutes everyday
Same place, same time

3 important questions in Daily Scrum

- What did I do yesterday?
- What will I do today?
- Any difficulties or impediments stopping me from the Sprint goal?

Scrum

Sprint Review



Attendees

- **Entire Scrum Team**: Product Owner, Scrum Master, the Development Team & other stakeholders

Objective

- Help the scrum team work more effectively
- Increase transparency within the team and between other stakeholders and Scrum team

Time box for the event is 4 hours or less

Scrum

Sprint Review

What happens in Sprint Review?

1) Product Owner invites all attendees

2) Product Owner highlights completed & not-completed items

3) Development team shares Sprint experience, highlight challenges
Development team demonstrates completed item
Stakeholders may ask questions on the demonstrated item

4) Product Owner opens the backlog & initiate discussion on what to do next.
Priorities, budgets, timelines & capabilities etc. are discussed.

5) At the end of Sprint Review**, Product Owner** should have updated backlog

Scrum

Sprint Retrospective

Scrum Team does this event

Agenda
Inspect the performance of the team

What went well?

What went wrong?

At the end of Scrum Retrospective, Scrum Team should know:

- Area of improvements
- Plan of working on them

Inspection & Adaptation of Scrum Team

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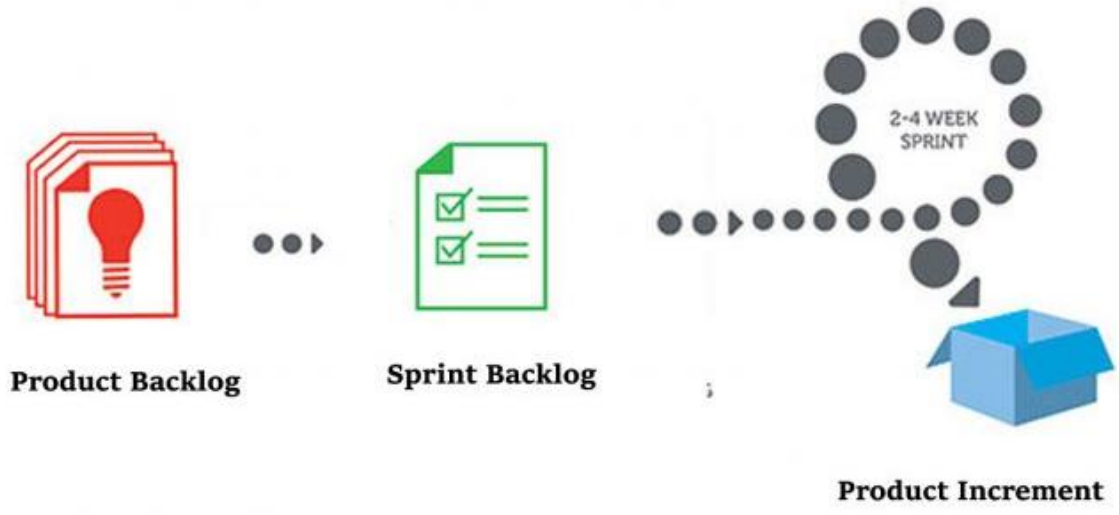
Scrum Artifacts

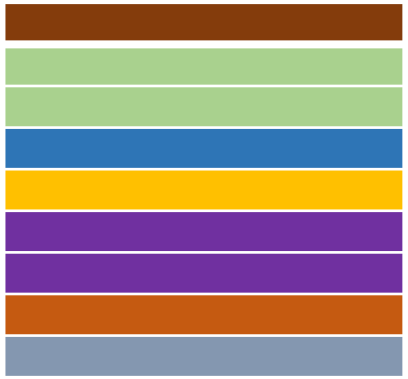
- Product Backlog
- Sprint Backlog
- Increment



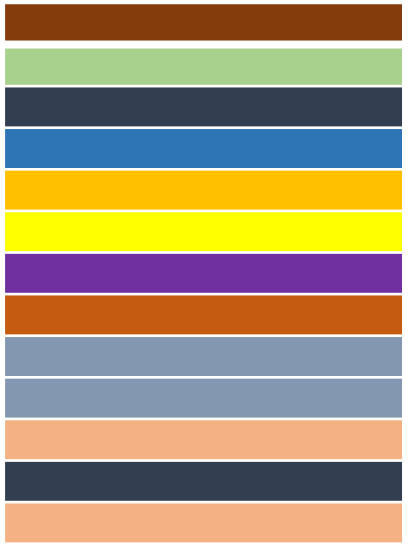
Scrum

Product Backlog

At the initial stage of starting the process



At a later stage when requirements changes



Add details to new requirements

Product Owner

Development Team

Product Backlog Refinement

Ever Evolving

Never Fixed

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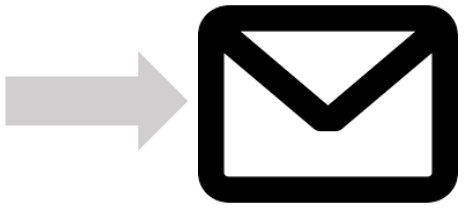
Product Backlog

Business Team



Raw requirements

Product Owner

Order No.	Requirement Name	Requirement Details	Estimated Business Value	Estimated Effort	Ready?
1					
2					
3					
4					

Development Team

Scrum Master

Backlog Refinement <= 10% of the capacity of the development team

Scrum

Sprint Backlog

Product Backlog

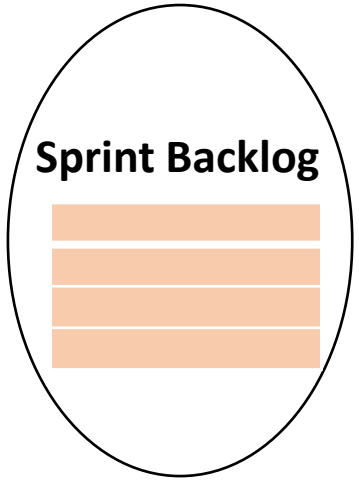
Product Owner discusses the product backlog with the development team

Sprint Backlog

Sprint Planning Event
Sprint Review Event

Scrum

Sprint Backlog



- **Daily monitoring of Sprint Backlog** is done in the Daily Scrum
- **Owned by the development team**
- Any **deviation from the goal should be highlighted** to the Product Owner & Stakeholders immediately

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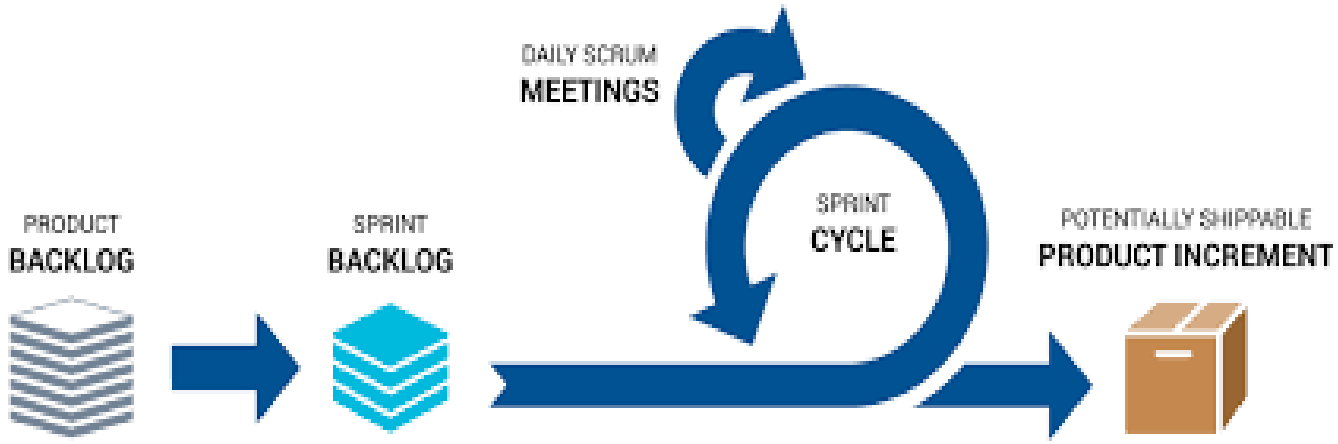
Scrum

Increment

Increment is the **final releasable product**

- It should be **usable**
- It should be **inspectable**
- It should **include increments of previous sprint**



Definition if “Done”

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Advantages & Disadvantages of Scrum

Advantages of Scrum

- More transparency and project visibility
- Increased team accountability
- Easy to accommodate changes
- Increased cost savings
- Faster Delivery
- Customers are heard

Disadvantages of Scrum

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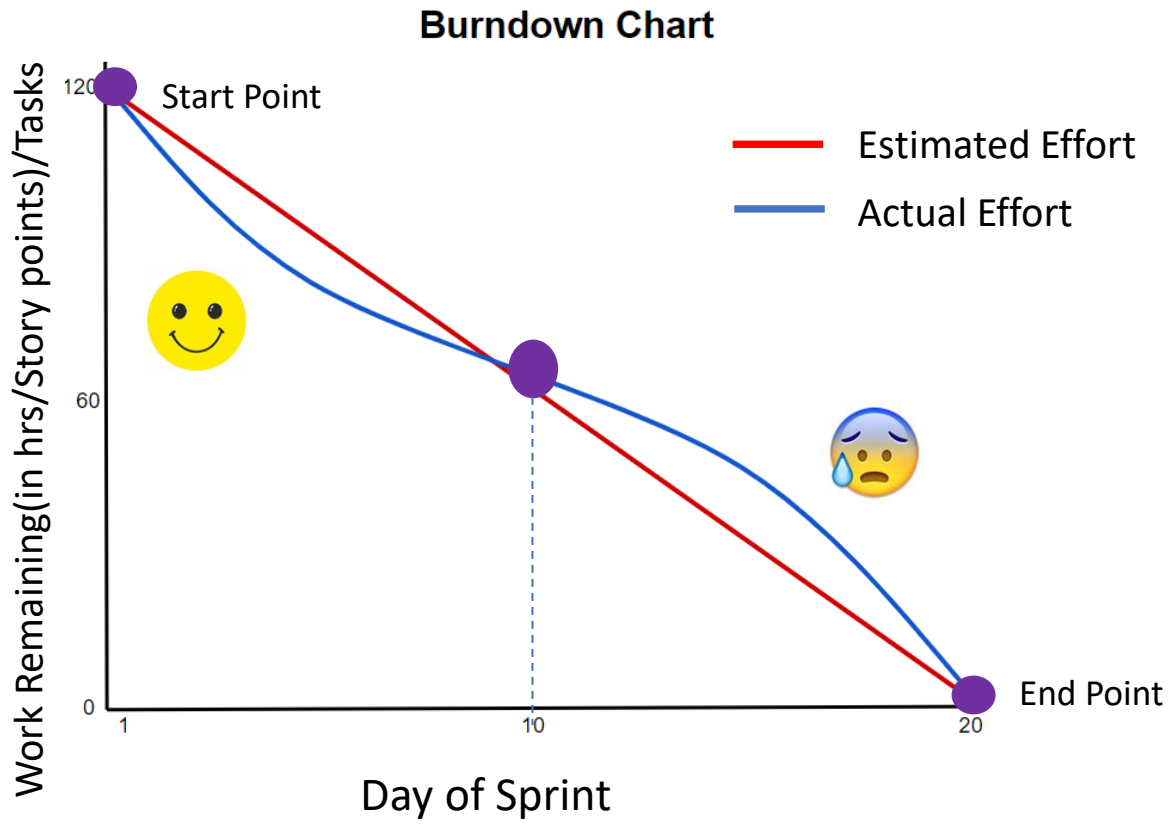
- Risk of scope creep
- Team requires experience and commitment
- The wrong Scrum Master can ruin everything
- Poorly defined tasks can lead to inaccuracies

Introduction to Key Agile Concepts

Burn down Chart

A burndown chart is a visual display of work completed and remaining in a project, sprint, or iteration



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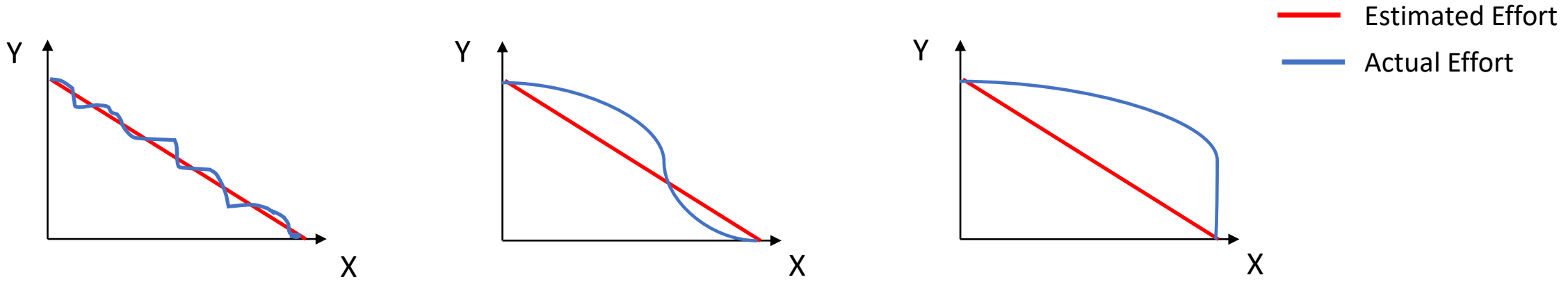
Burn down Chart



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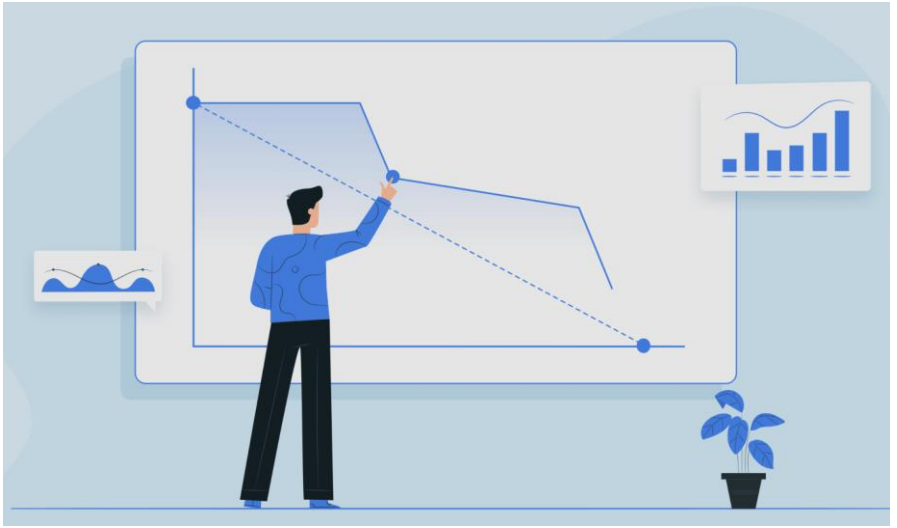
Burn down Chart

Benefits

- Simple & easy way to track team's progress
- Timely prevention of issues
- Helps keep the team motivated



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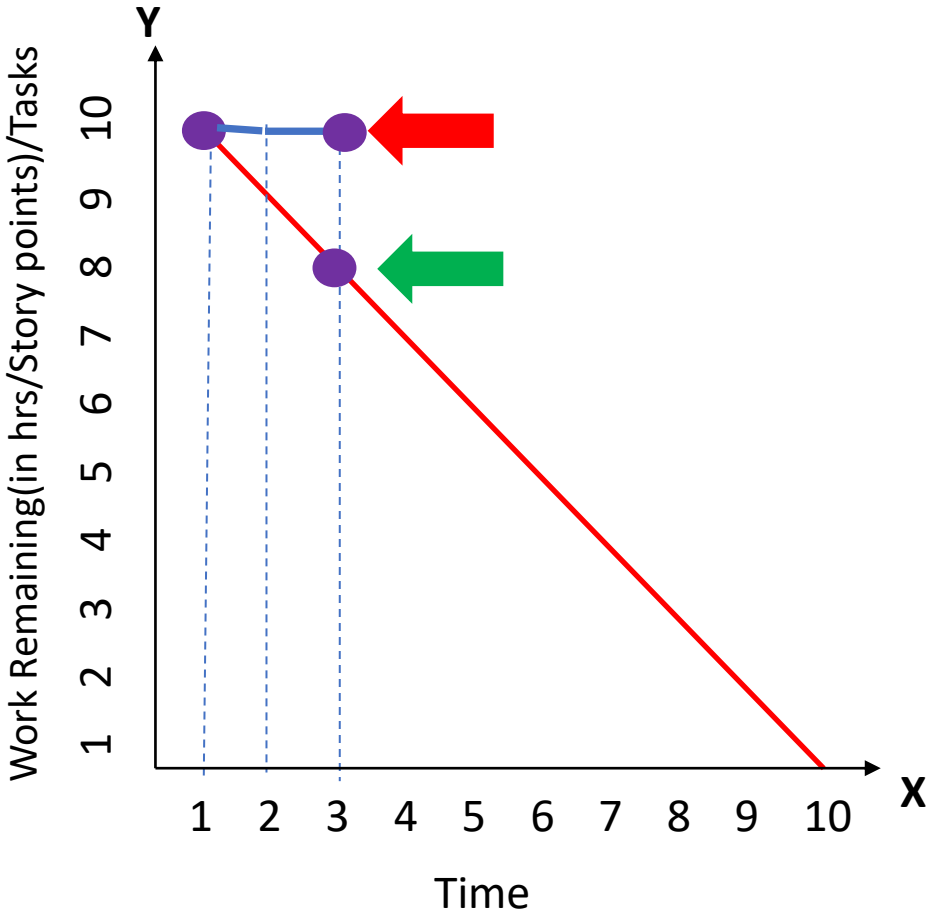
Burn down Chart

Creating Burn down Chart

Mike, a project manager is asked to create a burndown chart for a project by his leadership to know how things progressing based on what was planned.

<u>Project has 10 tasks to complete in 10 days</u>



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Minimum Viable Product (MVP)

It is the version of a new product that allows a team to collect the maximum amount of validated learning about customers with the least amount of effort.

- Agile Alliance

Why MVP

- Release a product to the market as quickly as possible
- Test an idea with real users before committing a large budget to the product's full development
- Learn what resonates with the company's target market and what doesn't

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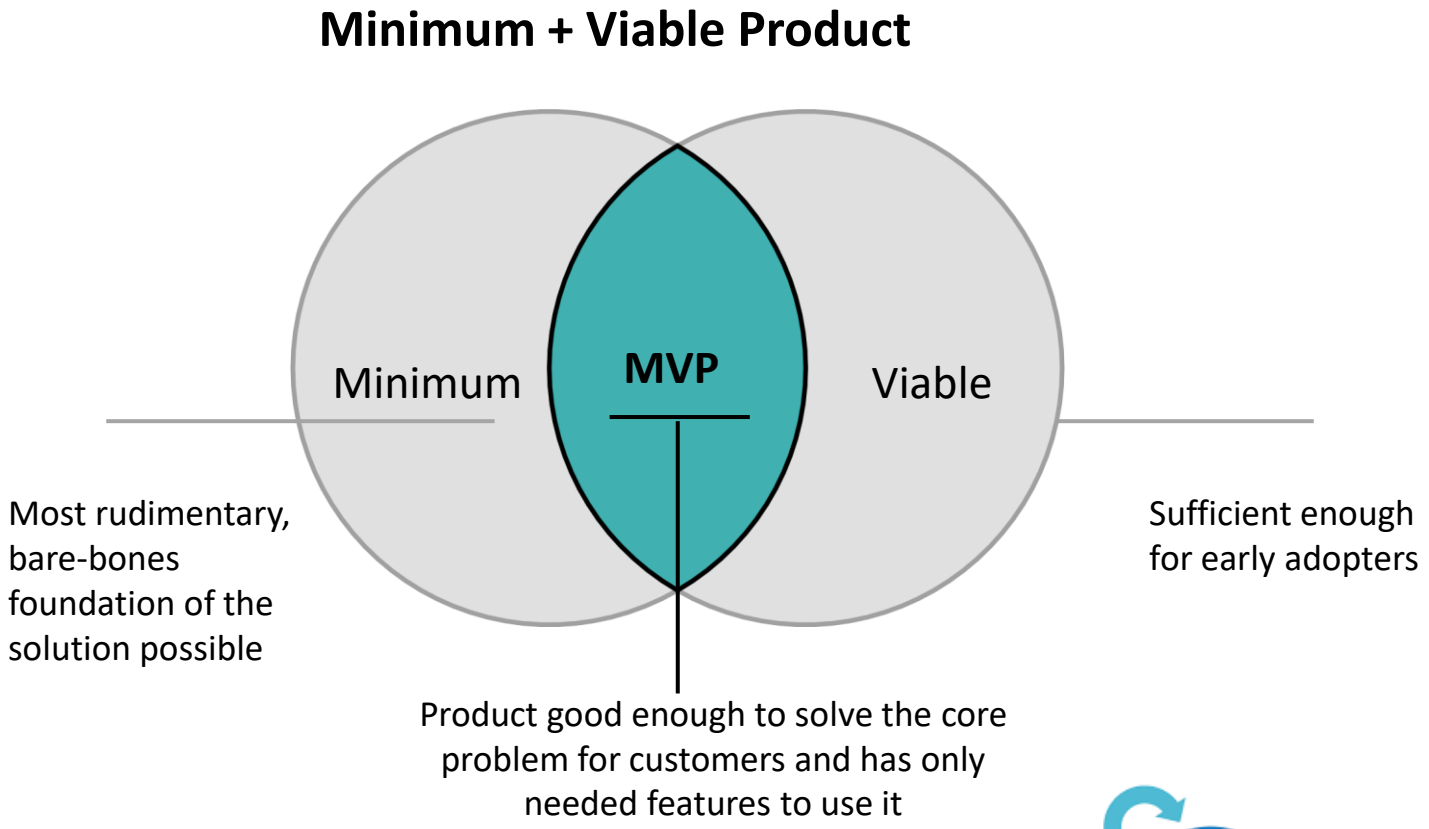

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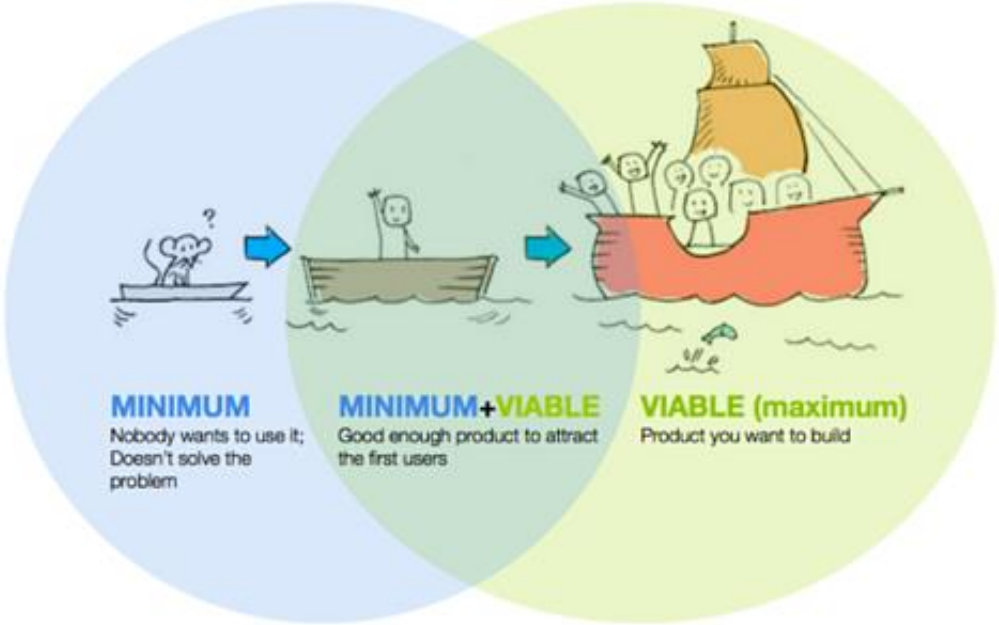

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Minimum Viable Product (MVP)

Use case:

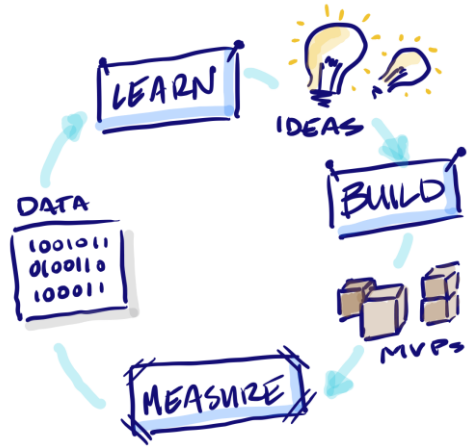
Your target audience needs a specific means of transport, but they are not sure if they want to buy a premium product right away.

What do you do then?

Create the most basic version of the Product

↓

Gather feedback on your product



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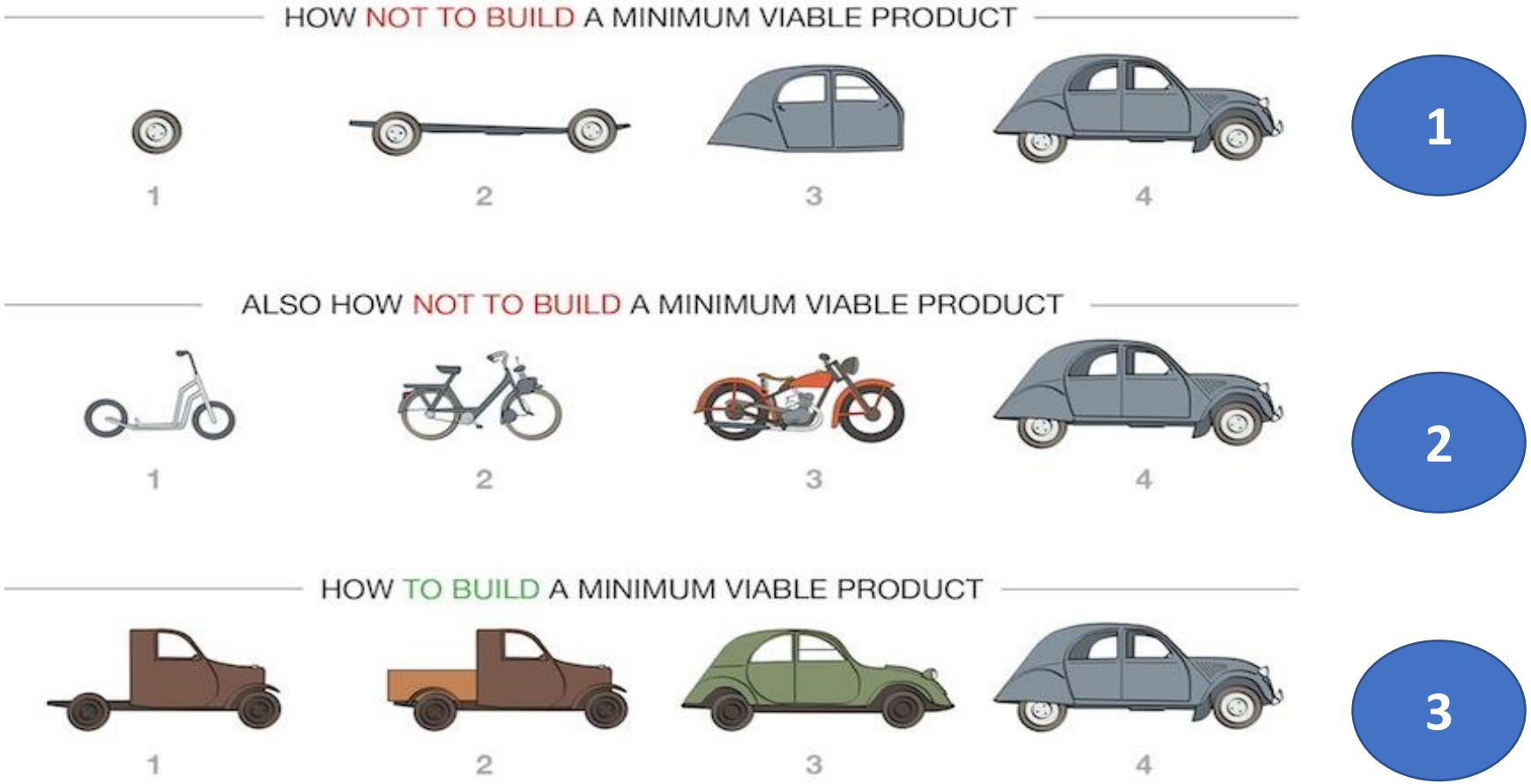

image source: http://www.expressiveproductdesign.com/

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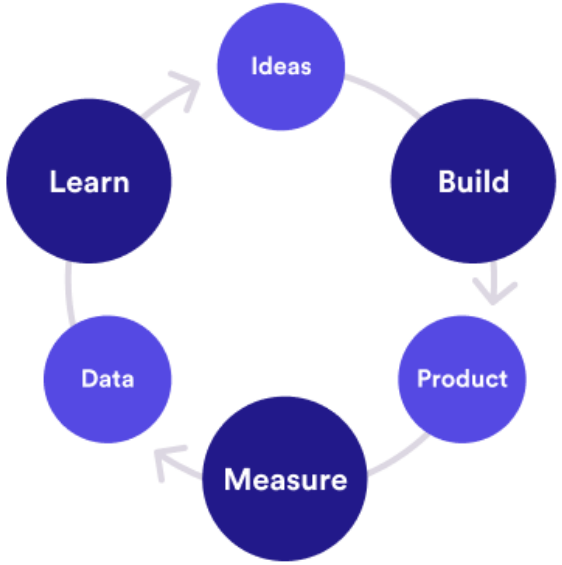
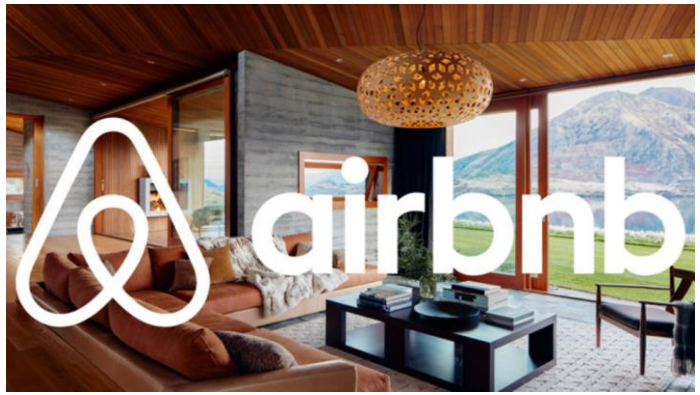
Minimum Viable Product (MVP)

Important points to be noted:

- Make sure your planned MVP aligns with your business objectives
- Identify specific problems you want to solve for your users
- Product must be viable
- MVP is based on iterative process of building





facebook

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Velocity

At the end of each iteration, the team adds up effort estimates associated with user stories that were completed during that iteration. This total is called velocity.

- Agile Alliance

Velocity = Units of work completed in a given timeframe

Unit of work can be hours or user stories or story points

Typically measured in iterations or sprints, or weeks

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Velocity

Sprint 1

User Stories	Story Points	Status
A	3	Complete
B	5	Incomplete
C	8	Complete

Velocity = 3 + 8 = **11** Story Points/ Sprint

Sprint 2

Velocity = **13** Story Points/ Sprint

Sprint 3

Velocity = **6** Story Points/ Sprint

Average velocity: (11+13+6)/3= 10 Story Points/Sprint

For the next sprint, the product manager should
pick up User Stories equivalent or not more than 10 story points

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Velocity

Total Story points against remaining User Story (A) : 60

Average Velocity (B) : 10 Story Points/ Sprint

Forecast for the remaining effort for the Project: A/B = 60/10
= 6 Sprints with each sprint of 10 story points

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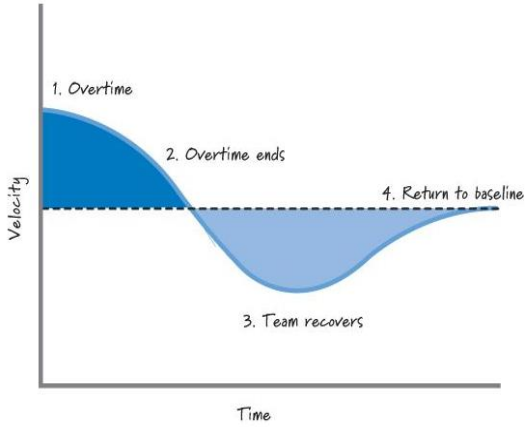
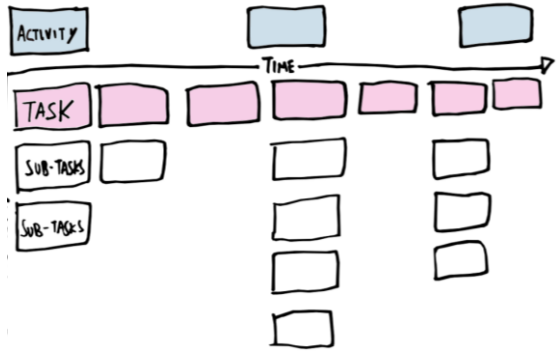
Velocity

Failing to bring a story to completion



Velocity see-sawing



Decomposition of User Stories

Accurate Estimation

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Estimation

38+19 is about 60

For reasonable guess, you estimate basis what you know or see

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Agile Estimation

Traditional Estimation	Agile Estimation
Efforts were estimated	Business values or Complexity is estimated
Unit: Hours	Unit: Story Points or bucket
Estimation is done in task level	Estimation is done in user story level
Provides absolute estimate	Provides relative estimate
Estimates once done are not revised	Estimates are revisited in every iteration

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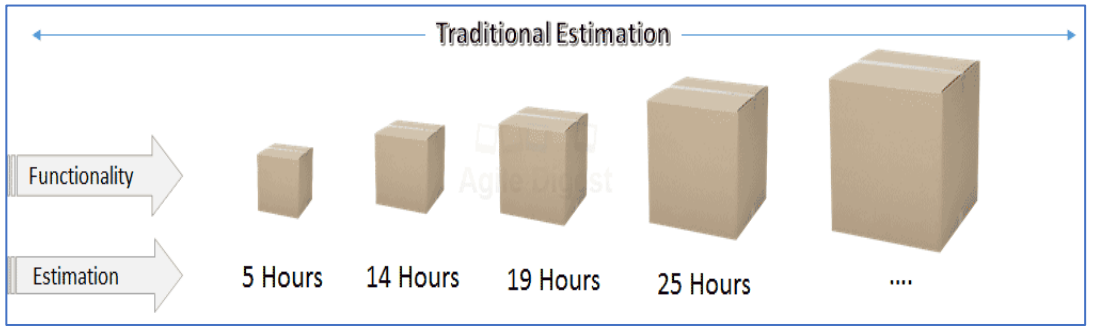

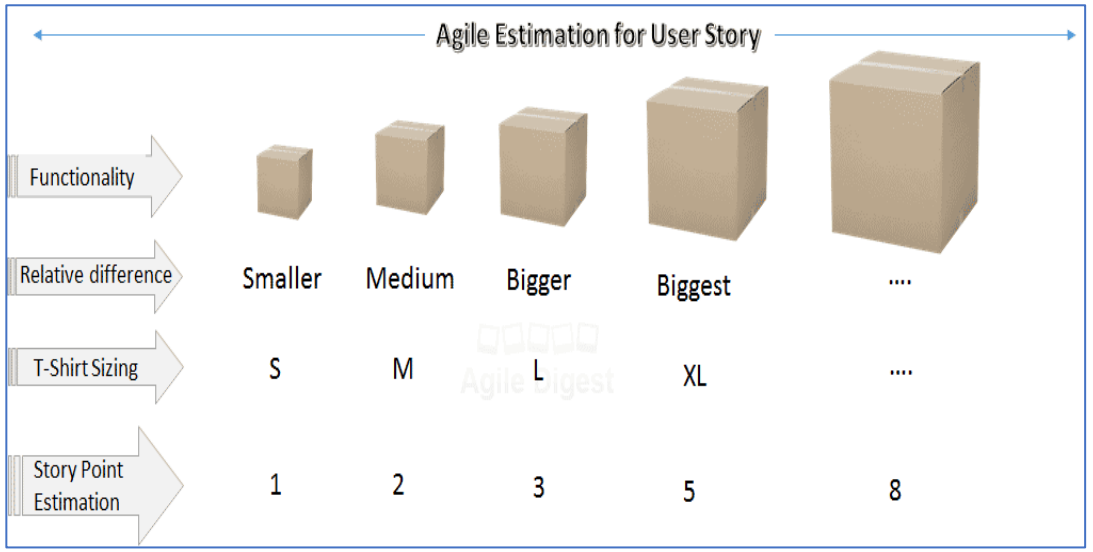

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Agile Estimation

Story Points

3 Story Points: Study Room
5 Story Points: Bedroom 1 and Bedroom 2
8 Story Points: Kitchen

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Agile Estimation

Influencing Factors of Story Point :

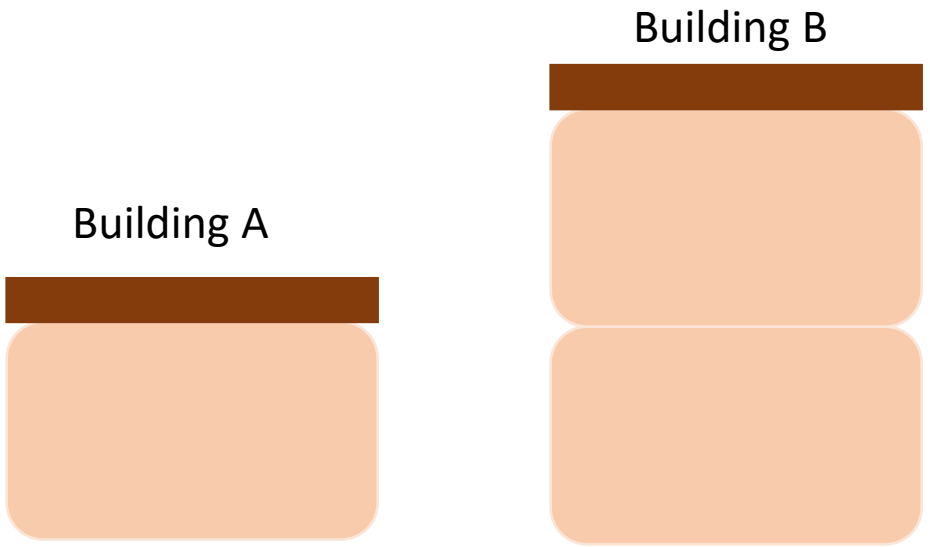
- Business Value
- Complexity
- Risks
- Dependencies
- Amount of work

Image Source: Dilbert.com

Introduction to Key Agile Concepts

Agile Estimation: But why relative estimation?

Illustration 1



1 Story vs 2 Story

Which one is taller?
Which one is more complex?
Which would take more time to build?
Which would cost more?
How much money?
How much time?

Introduction to Key Agile Concepts

Agile Estimation: But why relative estimation?

Illustration 2

100 Story vs 101 Story

What about these
Which building is taller?
Which one is more complex?
Which would take more time to build?
Which would cost more?
How much money?
How much time?

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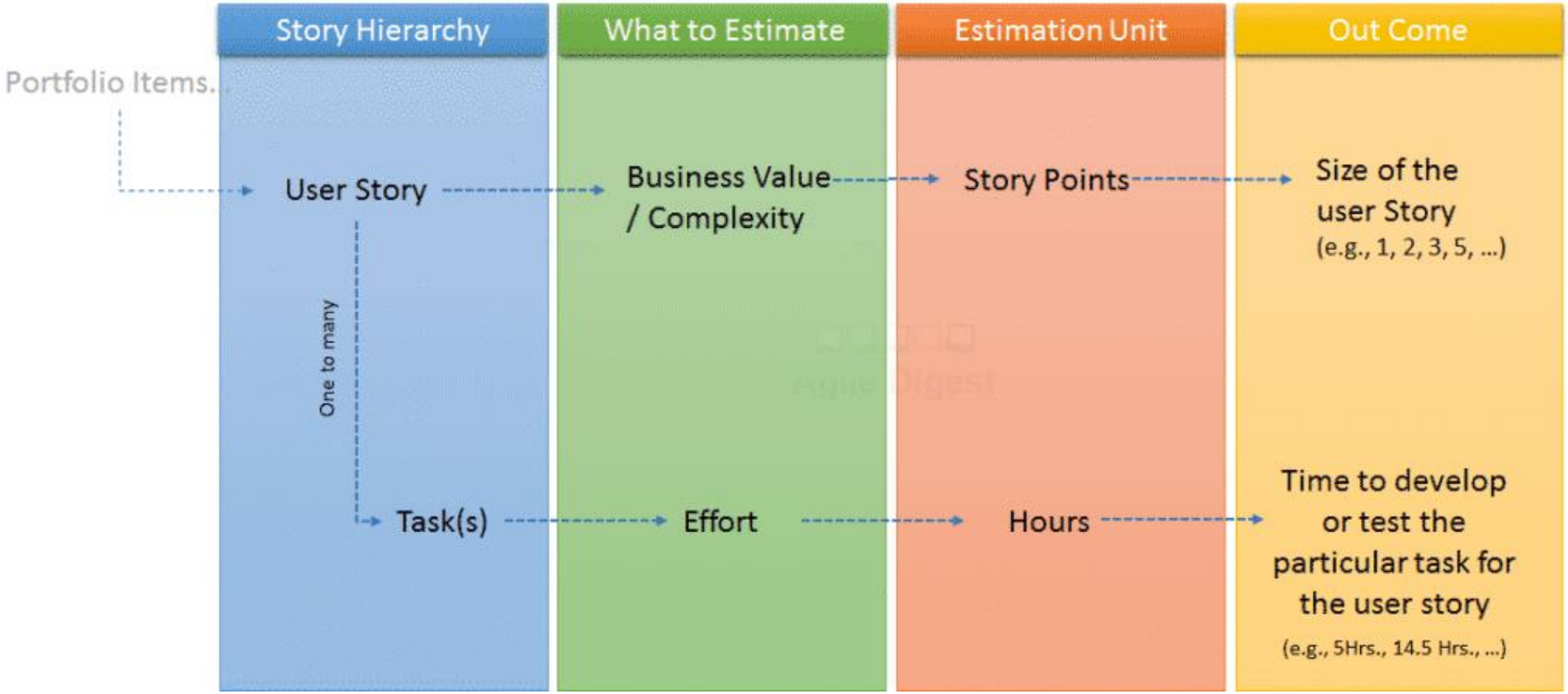
Estimation



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Agile Estimation

Agile Estimation is a team sport

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Agile Estimation

Agile Estimation is a team sport

Estimation methods include:

- T-shirt sizes (XS, S, M, L, XL) or the
- Fibonacci sequence (1, 2, 3, 5, 8, 13, 21, 34, etc.)

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Agile Estimation

T-shirt sizes (XS, S, M, L, XL)

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Agile Estimation

Fibonacci sequence

1,2,3 is equivalent to 10,20,30

0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89… and so on.

0+1=1
1+1=2
1+2=3

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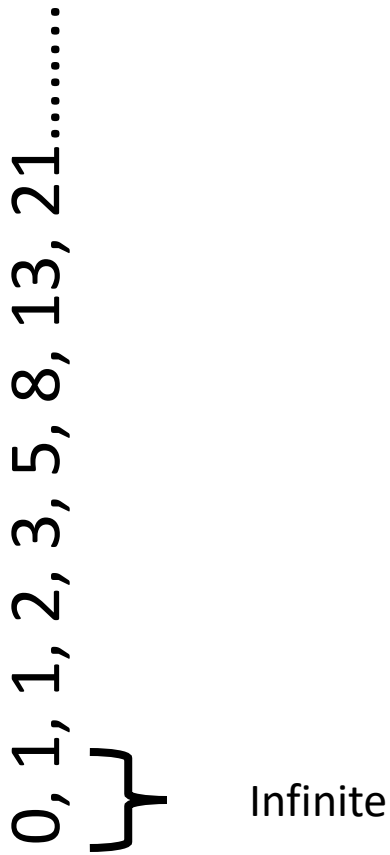
Agile Estimation

Fibonacci sequence



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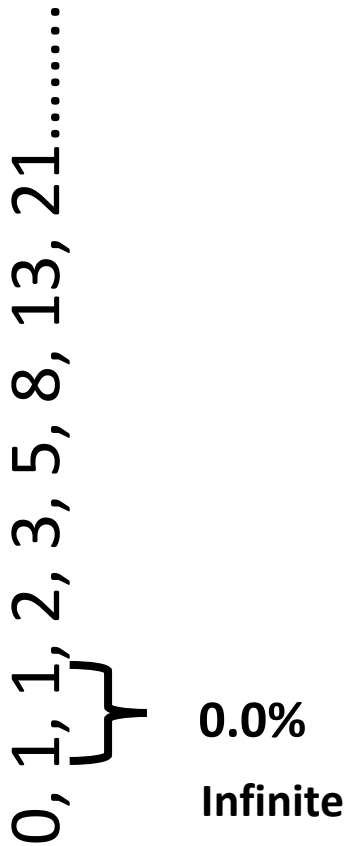
Agile Estimation

Fibonacci sequence



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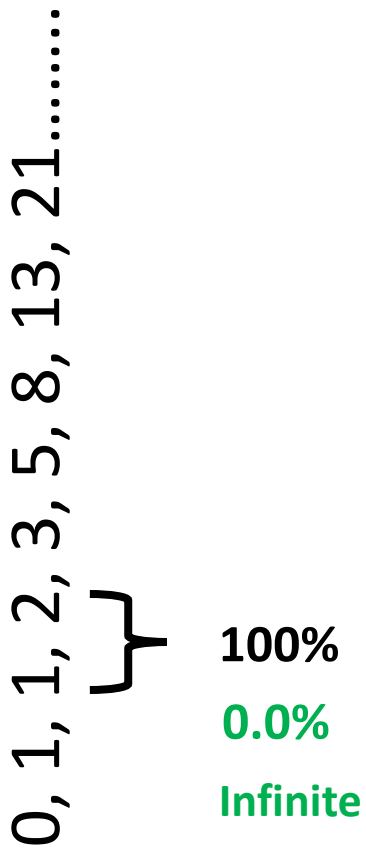
Agile Estimation

Fibonacci sequence



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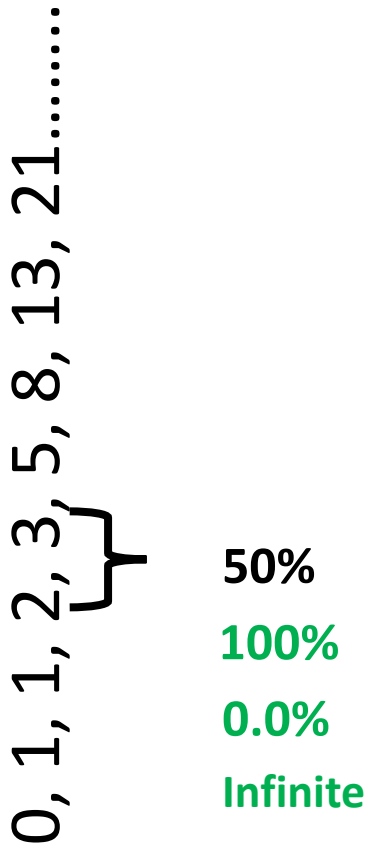
Agile Estimation

Fibonacci sequence



50%

100%

0.0%

Infinite

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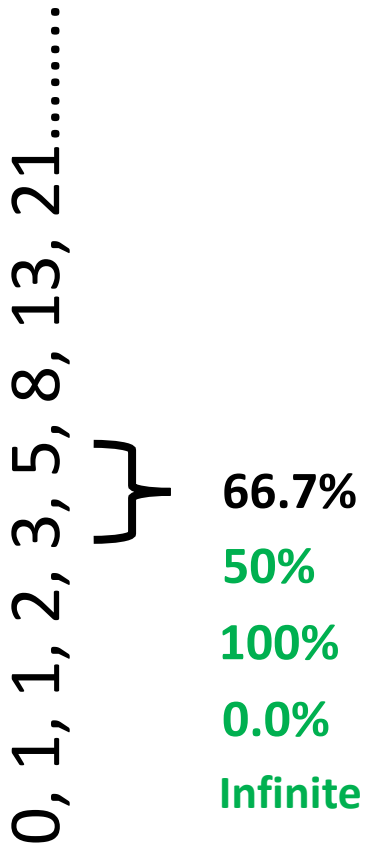
Agile Estimation

Fibonacci sequence



66.7%

50%

100%

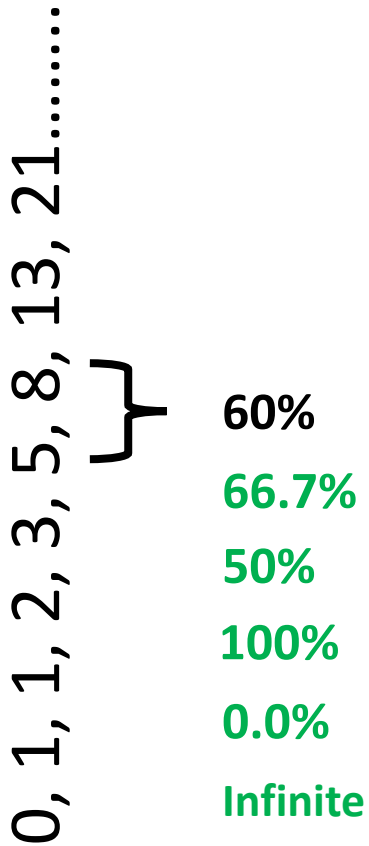
0.0%

Infinite

Introduction to Key Agile Concepts

Agile Estimation

Fibonacci sequence



60%

66.7%

50%

100%

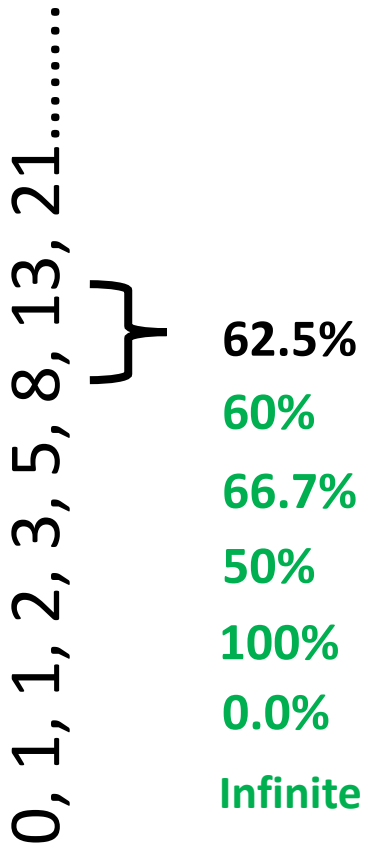
0.0%

Infinite

Introduction to Key Agile Concepts

Agile Estimation

Fibonacci sequence



62.5%

60%

66.7%

50%

100%

0.0%

Infinite

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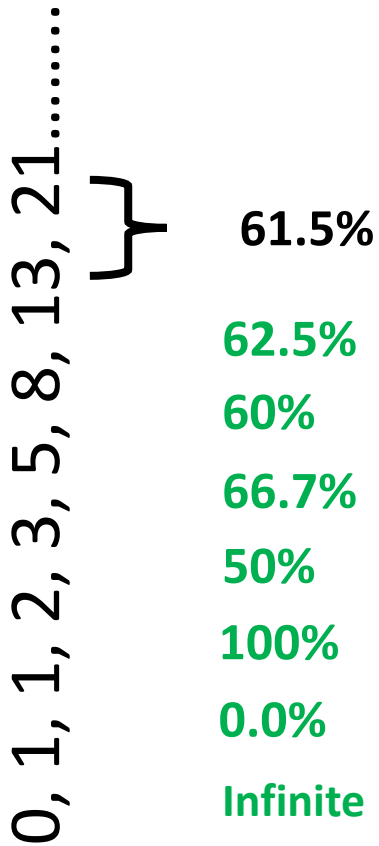
Agile Estimation

Fibonacci sequence



61.5%

62.5%

60%

66.7%

50%

100%

0.0%

Infinite

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Agile Estimation

Fibonacci sequence

In Agile Estimation, slightly modified version of Fibonacci estimation is used

1, 2, 3, 5, 8, 13, 21, 34, 55, 89… and so on.

Why Use the Fibonacci Sequence for Agile Estimation?

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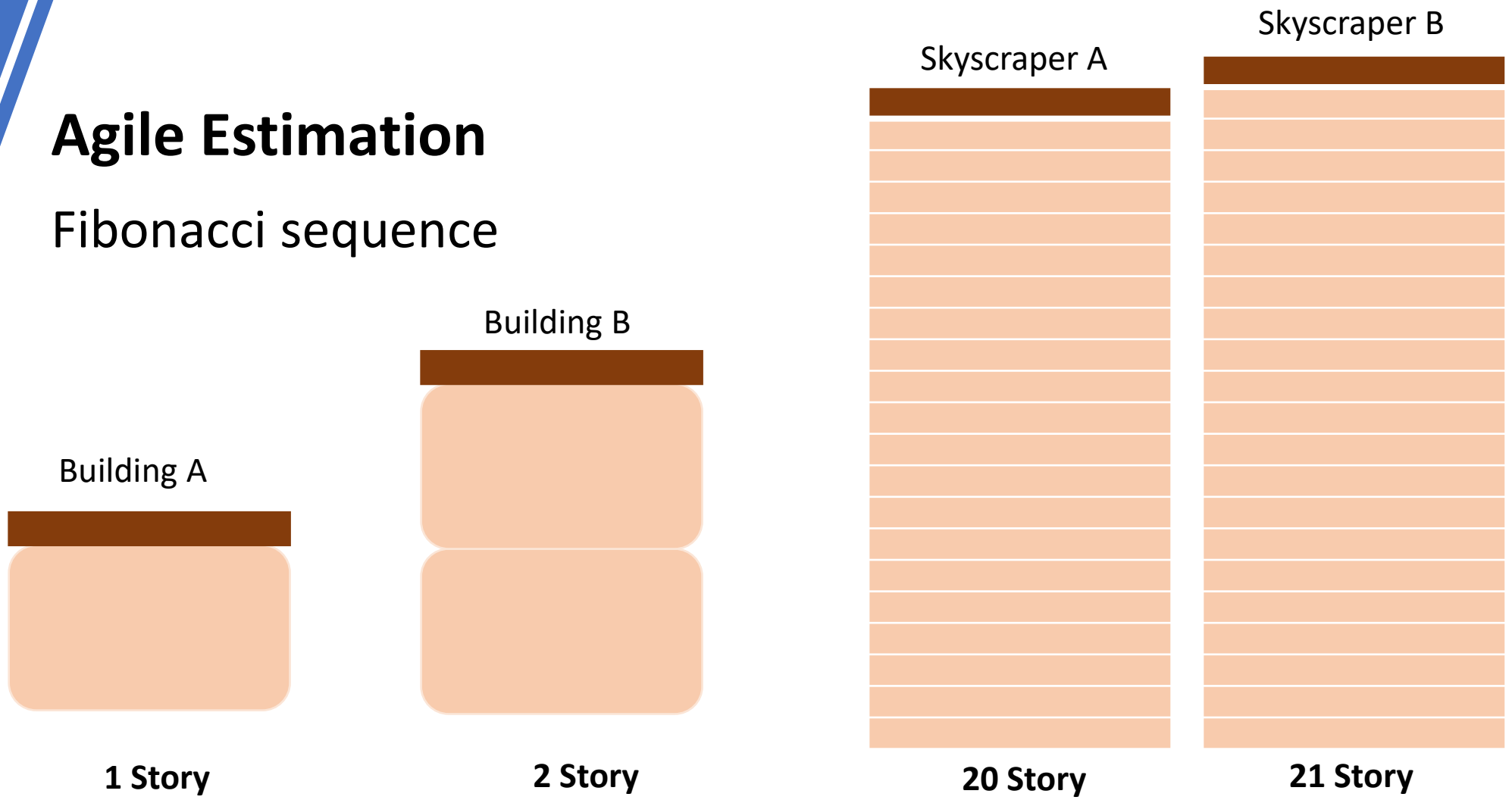
Agile Estimation

Fibonacci sequence



Story Points are Relative

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1 – QUICK TO DELIVER AND MINIMAL COMPLEXITY. AN HOUR
Example: add field to a form

2 – QUICK TO DELIVER AND SOME COMPLEXITY. MULTIPLE HOURS
Example: Add parameter to form, validation, storage

3 – MODERATE TIME TO DELIVER, MODERATE COMPLEXITY, POSSIBLE UNKNOWNS
Example: Migrate somewhat complex static CSS into a CSS pre-processor

5 – LONGER TIME TO DELIVER, HIGH COMPLEXITY, LIKELY UNKNOWNS
Example: Integrate with third-party API for pushing/pulling data, and link to user profiles in platform

8 – LONG TIME TO DELIVER, HIGH COMPLEXITY, CRITICAL UNKNOWNS
Example: Overhaul the layout/HTML/CSS/JS of a web application

13 – LONG TIME TO DELIVERY, HIGH COMPLEXITY, MANY CRITICAL UNKNOWNS
Example: Migrate application from an outdated data store to new DB technology and ORM

21 – YOU'RE DOING THIS WRONG. 😉

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Agile Estimation Techniques for user story

- Delphi
- Wide Band Delphi
- Complexity Bucket
- Estimation Poker

Introduction to Key Agile Concepts

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Agile Estimation Techniques for user story

- Delphi
- Wide Band Delphi
- Complexity Bucket
- **Estimation Poker**

Estimation/Planning Poker

Scrum Master can help coordinate the estimation

Product Owner explaining all the aspects of the story requirement, dependencies, acceptance criteria and business value

Developers, testers, mutually discussing

- Amount of work
- Associated Risks
- Technical Changes
- Dependencies
- Complexities
- And the value

Estimation/Planning Poker

1, 2, 3, 5, 8, 13, 21, ...