Agile Software Development & Scrum

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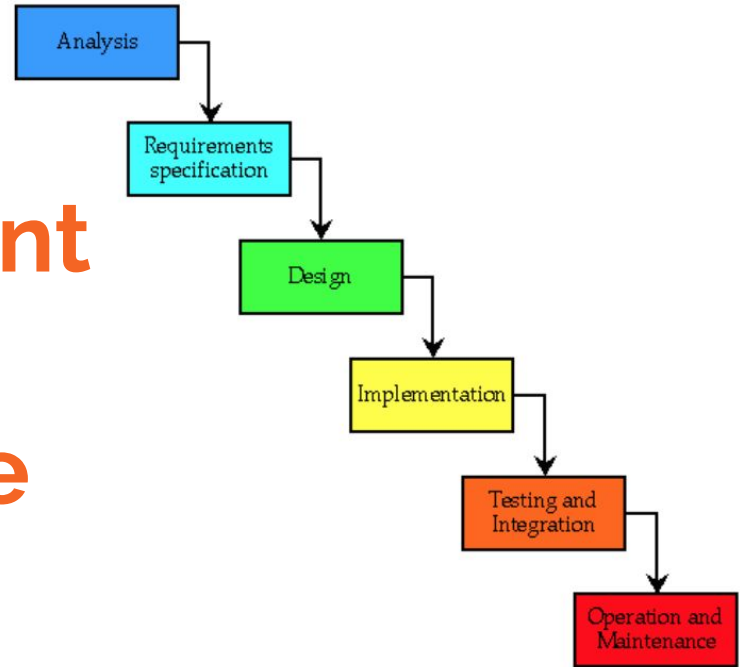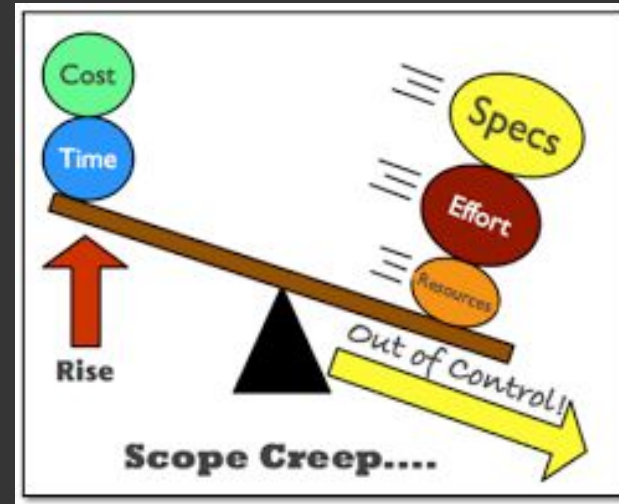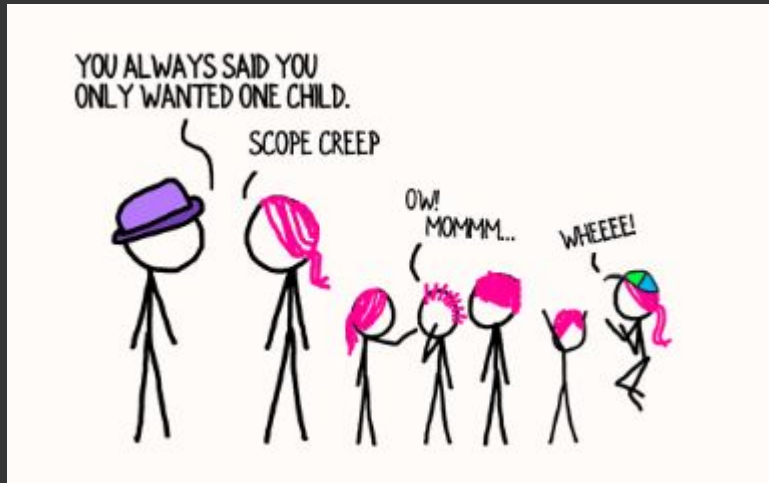# Agenda

➡ **Waterfall**
The inspiration for Agile's creation

➡ **Agile foundations**
Agile manifesto and principles

➡ **Learn rules of Scrum**
Scrum is an Agile framework with a baseline of rules that must be followed

➡ **How can we be more Agile?**

Waterfall is still a common development approach used by universities and large institutions

Analysis

Requirements specification

Design

Implementation

Testing and Integration

Operation and Maintenance

Humans are bad a predicting absolute outcomes so software estimation is difficult

Scope doesn't creep, understanding grows!

Agile believes Scope should be variable while Time and Cost are fixed.

Manifesto for Agile Software Development

We are uncovering better ways of developing
software by doing it and helping others do it.
Through this work we have come to value:

Individuals and interactions over processes and tools
Working software over comprehensive documentation
Customer collaboration over contract negotiation
Responding to change over following a plan

That is, while there is value in the items on
the right, we value the items on the left more.

Kent Beck   James Grenning   Robert C. Martin
Mike Beedle   Jim Highsmith   Steve Mellor
Arie van Bennekum   Andrew Hunt   Ken Schwaber
Alistair Cockburn   Ron Jeffries   Jeff Sutherland
Ward Cunningham   Jon Kern   Dave Thomas
Martin Fowler   Brian Marick

https://agilemanifesto.org/

12 AGILE PRINCIPLES

01 Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.

02 Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.

03 Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.

04 Business people and developers must work together daily throughout the project.

05 Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.

06 Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.

07 Working software is the primary measure of progress.

08 The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.

09 Continuous attention to technical excellence and good design enhances agility.

10 Simplicity – the art of maximizing the amount of work not done – is essential.

11 The best architectures, requirements, and designs emerge from self-organizing teams.

12 At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.

Agile has many process frameworks such as Extreme Programming (XP), Scrum, Kanban, Crystal, FDD, etc.
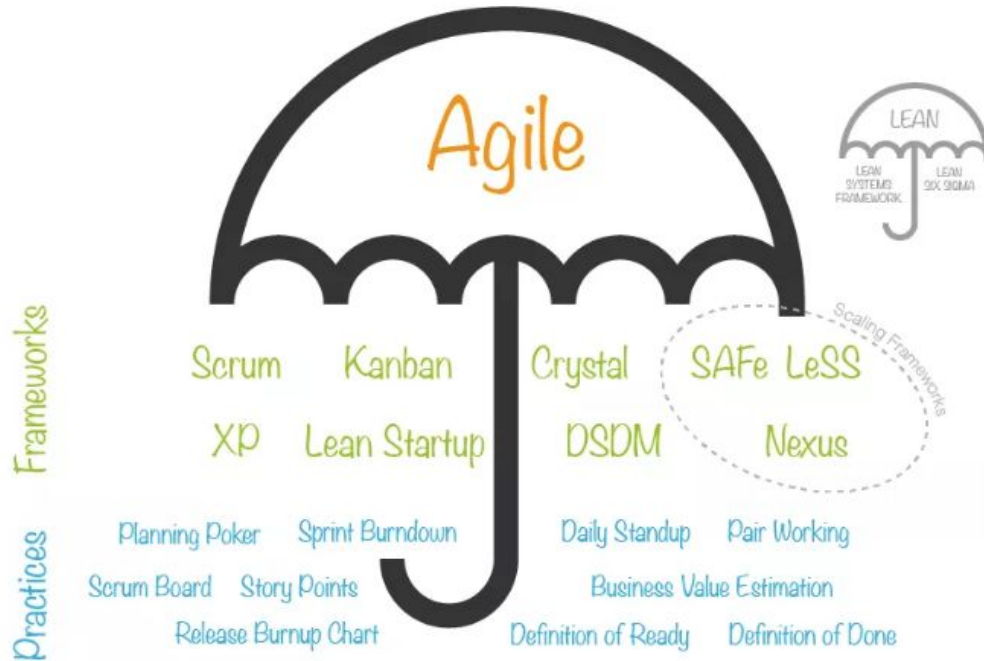
Why Scrum?

Scrum helps ensure we don't miss deadlines or lose track of budget.

➜ **Simple and lightweight**

➜ **Empowers a sense of ownership**
Everyone is involved in the management process

➜ **Focuses on positive and constructive feedback**

➜ **Maintains appropriate, continuous sense of urgency**

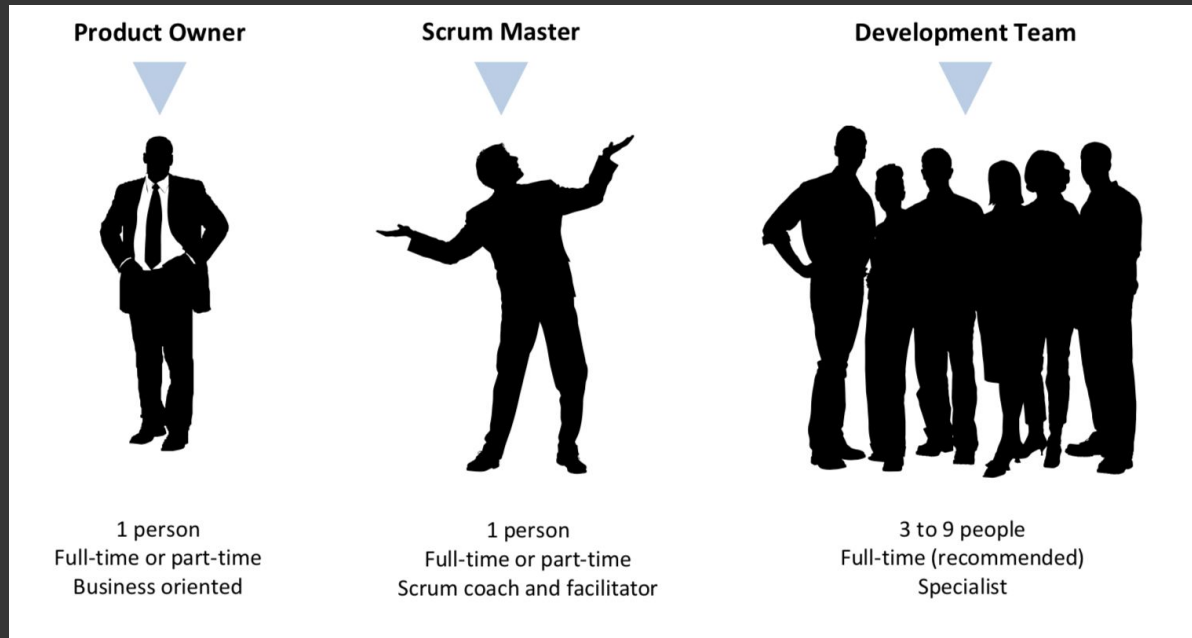➜ **Fosters transparency, honest, and open communication**

Game Time!

Let's treat Scrum like a collaborative game, where we work to win together

Here are the game rules...

Scrum Team has three roles: Product Owner, Scrum Master, Development Team

The Scrum Team has two essential characteristics, which are designed to optimize flexibility, creativity, and productivity: **Self-Organization** and **Cross Functionality**

➜ **Self Organized**
The Scrum Team manages its own efforts rather than being managed or directed by others like in traditional management methods, which are separated into specialist activities and centralized.

➜ **Cross-functional**
The Scrum Team has all the expertise and competencies needed to get the job done without any help from outside the team.

Meet the Product Owner.

Focused on maximizing the **value of the product**

Concerned with the **business aspect** so they need to know a lot about how the business operates

Responsible for the **Project Backlog**

- Project Backlog is a prioritized list of items (usually user stories) that the customer expects from the project
- Product Backlog item is easy to understand for the Scrum Team, and other stakeholders

Communicates effectively with the **customer**

Measure the performance of the project, **forecast the completion date**, and make this information transparent to all stakeholders

Has the final say in items to be delivered

Meet the Scrum Master.

They fully understand Scrum so they can coach and manage the process rather than the team.

She or he is the servant-leader for the Team.

Removes impediments to the Development Team, facilitates events, and trains and coaches them.

The Scrum Master helps the Product Owner and outside stakeholders through finding techniques to implement, communicating information, creating backlog tickets, etc.

It is possible for a single person to be both Scrum Master and Development Team member.

Meet the Development Team.

No smaller than 3 and no larger than 9 people

Responsible for delivering the sprint items and managing their own efforts

They operate as a unit and as a unit are cross functional and capable of creating the ticket item

A task might be assigned to a single member throughout the Sprint but the whole Development Team will be responsible and accountable for that task; no individual owns any task

Delivers the final product of the project in step by step increments

All members should have the same role and same title: Development Team Member

Scrum is completely dependent on **collaboration and team-work**. Development Team members should be **united** and **completely aligned** with the goal of the project.

If you give them different titles or roles, they will focus on their own specific role in the project instead, and they might not pay enough attention to the final product.

There are 4 Scrum events

Sprint: Each Scrum project is a set of Sprints. Each sprint holds the following four events:

1. **Sprint Planning**: Sprint Planning is the first event of a Sprint. The Scrum Team will play planning poker to assign points to the items they are going to deliver in the sprint and discusses how they'll them. Once the meeting commences, the Sprint begins!

2. **Daily Scrum:** During the Sprint, the Development Team holds a daily meeting (normally 15 minutes) to coordinate the work for the next 24 hours.

3. **Sprint Review:** Before the end of the Sprint, the Development Team reviews the outcome of the Sprint with the customer to receive feedback. The feedback is used to adjust the Project Backlog.

4. **Sprint Retrospective:** After the Sprint Review and just before the Sprint is over, the Scrum Team holds an internal meeting to review the Sprint. Creating action items for discussed lessons learned are used to improve the process in the next Sprint.

How can we improve our process to be more Agile?

Build trust through demonstrating successful examples of Agile implementations at other universities and institutions.