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SCRUM

MDA402 Project Management

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December 12, 2024

Lecture Overview

Agile Project Methodology

Definition 5.1

Agile (adaptive) approach refers to the requirement of **agility / adaptability** of the project:

- high level of **uncertainty** and **volatility**
- vision is established at the **start**, but initial requirements are **refined**, **changed** or **replaced** during project lifecycle [6]
- based on **quick feedback** to and from all stakeholders
- assume **simplicity**, embrace **change**, maximize **value** [5]

One of the most used agile approach is: **SCRUM**

SCRUM
Definition

> ### Definition 5.2
> **SCRUM** is an **incremental** and **iterative** agile software development approach. [7]

FUN FACT: Scrum isn't acronym, it is rugby term → team comes together in the scrum and works the ball forward [1]

SCRUM pillars:
- transparency → **visibility** towards those performing the work as well as those receiving the work
- inspection → progress must be inspected **frequently** and **diligently**
- adaptation → bandwidth to make **adjustments** and minimize deviation

SCRUM

Structure

SCRUM Team
Product Owner
SCRUM Master
Team of Developers

SCRUM Artifacts
Product Backlog
Sprint Backlog
Product Increment

SCRUM events
Sprint
Sprint Planning
Daily SCRUM
Sprint Review
Retrospective

SCRUM

Team

- is usually **small** group of people
- within the team there are no hierarchies or sub-teams
- is **cross-functional** & **self-managing**

Team of Developers

- people committed and responsible to **create** and **deliver** usable increment of the product each Sprint
- team of **analysts**, **developers**, testers, **designers** …
- they are creating a plan for the Sprint = **Sprint Backlog**

SCRUM

Team

Product Owner

- represents needs of the **stakeholders**
- **maximize the value** of the product
- is responsible for management of **Product Backlog** → key in transparent communication of **Product Goal**

SCRUM Master

- establishment of **SCRUM** and thus managing team's **effectiveness**
- taking care of all **SCRUM events**
- focusing on the processes and removing potential blockers withing team

SCRUM

Events

- events are specifically designed to enable **transparency**
- they are defined to create **regularity** and to minimize **need** of meetings in SCRUM (outside of SCRUM events)
- are used to **inspect** and **adapt** SCRUM artifacts

Sprint Planning

- **initiates** Sprint by **planning** work that needs to be done
- the team discuss:
    - Why is the Sprint valuable? → **Sprint Goal**
    - What can be done in the Sprint? → **items** selected from Product Backlog
    - How it will be done? → **plan**
- all of the above then creates **Sprint Backlog**

SCRUM

Events

Sprint

- main **unit** in SCRUM = heartbeat of SCRUM
- **fixed** length event to create **consistency**
- all work is done within Sprint $\rightarrow$
    - team of developers work on a **product increment**
    - product owner manages **Product Backlog** and communicates towards stakeholders and SCRUM team
    - SCRUM master manages whole process, mainly SCRUM events
- whole SCRUM team is working towards **Sprint Goal** $\rightarrow$ when becomes obsolete, then Sprint can be cancelled
- must end in a usable and functional **product increment**

SCRUM
Events

Daily SCRUM

- **inspect** progress toward Sprint Goal within Sprint
- its held **everyday** of the Sprint and should not be longer than **15 minutes**
- topics discussed:
  - result of yesterday's work
  - plan for today's work
  - any possible blockers on the way

SCRUM

Events

Sprint Review

- **inspect** outcome of the work done in Sprint
- **key results** presented to the stakeholders
- based on the **review** of product increment delivered, **Product Backlog** is refined and updated

Sprint Retrospective

- assess the execution of last Sprint
- purpose of this is to increase **quality** and **effectiveness**
- SCRUM Team discuss:
    - what went well
    - what problems were encountered on the way
    - how those problems were or were not resolved

SCRUM

Artifacts

- represent **work** and **value**
- each artifact contains **commitment** → provides assurance for transparency

Product Backlog

- **single source** of work that needs to be done by SCRUM Team to deliver product
- commitment = **Product Goal** → long-term objective for SCRUM team
- divided into smaller pieces/issues → **User Stories**
- User Story represents **measurable** part of Product Backlog delivered in Sprint
- User Stories are sized with **Story Points**

SCRUM
Story Points

> ### Definition 5.3
> **Story Point** is a **relative** unit of measure, decided upon and used by individual Scrum teams, to provide **relative** estimates of effort for completing requirements. [2]

- intended to make estimation **easier** for the team
- are strongly **subjective** because they are relative to items in product backlog
- based on **difficulty**, not time spent

SCRUM
Story Points

Definition 5.4

Planning poker is a way of **estimating** (deciding on delivery effort) items in Product Backlog using Story Points. [3]

Planning Poker steps:

1. Pick **item** from Product Backlog and discuss.
2. Each team member will write down on a card **number** of Story Points estimating effort of the item. (e.g. 1 Story Point)
3. All members reveal the **cards** at the same time
   3.1 IF all cards are the **same** → item is **estimated**
   3.2 IF not all cards are the same → discussion until agreement is reached

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SCRUM
Artifacts

Sprint Backlog

- consist of:
    - **Sprint Goal** = WHY?
    - **set** of Product Backlog items = WHAT?
    - **plan** for delivery = HOW?
- is updated regularly throughout the Sprint
- commitment = **Sprint Goal** $\rightarrow$ short-term objective fro SCRUM Team

SCRUM
Artifacts

Increment

- is concrete **step** toward Product Goal
- subsequent Increments must **add up** to all prior Increments
- Increment must be **usable** to create value
- commitment = **Definition of Done** → formal description of state to meet quality required for product
- work cannot be considered as an Increment unless it meets Definition of Done
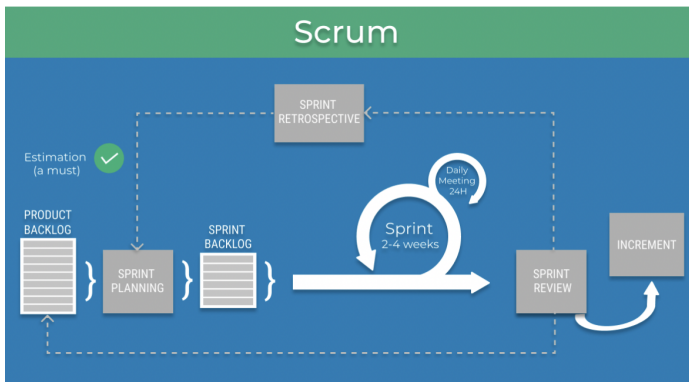
SCRUM
Lifecycle

Figure: SCRUM Lifecycle [4]

SCRUM
Application

SCRUM is best to apply and use on your project when:

- only **limited** or **high-level** requirements are provided upfront
- client would like to receive **some part** of the final product **along the way**
- **changes** are expecting during the process if delivery
- active client **involvement** is expected
- need for **transparency** in the process of delivery

Bibliography I

[1]   "What is Scrum?", 2024. [Online]. Available:
      https://www.scrum.org/resources/what-scrum-module.
      [Accessed: 28-Sep-2024].

[2]   "Why do we use Story Points for Estimating?", 2014. [Online]
      Available: https://www.scrum.org/resources/blog/why-do-we-
      use-story-points-estimating. [Accessed: 28-Oct-2024].

[3]   "Story points and estimation", 2024. [Online]. Available:
      https://www.atlassian.com/agile/project-
      management/estimation. [Accessed: 28-Oct-2024].

[4]   "SCRUM", 2017. [Online]. Available:
      https://billlewistraining.com/wp-
      content/uploads/2017/02/PMP-Agile-Study-Materials.pdf.
      [Accessed: 28-Sep-2024].

Bibliography II

[5]   Daniel J. Fernandez and John D. Fernandez. "Agile Project Management - Agilism versus traditional approaches". In: *The Journal of Computer Information Systems* 49.2 (2008), pp. 10–17.

[6]   Project Management Institute. *A Guide to the Project Management Body of Knowledge PMBOK Guide*. 7th ed. Project Management Institute, 2021.

[7]   Ken Schwaber and Jeff Sutherland. *The Scrum Guide*. 2020.

Thank You for Your Attention!