

Software Development with Scrum

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What is Scrum?

Scrum

is an Agile methodology – i.e. a collection of practices combined with ideas, advice, experience (BoK) – to software system development

• certainly the most adopted agile methodology

Scrum embodies the following practices:

- Three main roles in Scrum: Product Owner PO, Scrum Master SM, Team Member – TM
- The product owner creates and mantains a product backlog
- The team runs timeboxed month-long sprints. The requirements for the current sprint are called the sprint backlog
- The team meets for a daily standup meeting in which everyone talks through the work they did the day before, the work they plan to do today, and any obstacles in their way
- the Scrum master keeps the project rolling by working with the team to get past "roadblocks". He/she drives the sprint review and the retrospective

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- Attendance: PO, SM, TMs
- Period: every day
- Duration: 15 minutes (timeboxed) everyone should be on time!
- Characteristics: stand-up meeting
- **Objective**:
 - What have I done since the last daily scrum?
 - What will I do between now and the next daily scrum?
 - What obstacles and roadblocks are in my way?
- Follow-up meeting among interested members to further elaborate on possible emerged issues

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Scrum basic rules – Sprints

- Duration: typically within 2 and 4 weeks, or a month.
- Characteristics: timeboxed
- How to: as soon as a TM recognizes he/she has overcommitted report to PO, that then will have to inform the users/stakeholder
- Product backlog should be visible to everyone. Generally sprints cannot be stopped (in case the PO)

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Scrum basic rules – Sprint closing

- The software is presented to the stakeholders (only the running part of the system, no diagrams are admitted)
- stakeholders are asked to provide their opinions and feedbacks. The PO possibly update the PB.

Scrum basic rules – After the sprint

- Retrospective meeting is held. Each one answers to the following questions:
 - What went well?
 - What can improve in the future?
- SM takes notes and possibly adds items to the PB for non functional items

Roles – Scrum Master

The SM is not the traditional PM in a command-and-control project. The SM:

- drives the team in the adoption and usage of scrum practices
- protects the team from "unfair" requests from the PO
- helps TMs to feel owenership for the project

Roles – Product Owner

- The PO is the one who made the commitment to the company
- The PO is generally acquainted with the business domain of the project
- should get the TMs able to understand the goals of the project, so that they can commit to the project itself
- s/he meets everyday with the TMs and takes day-to-day decisions to drive the project, possibly changing the backlog
- The PO manages the PB prioritizing the items in it
- brings the view of users and stakeholders in the project.

Commitment

Promise made by people to gets certain things done, usaully by a certain time

Commitment vs. involvment

A Pig and a Chicken are walking down the road The Chicken says: Hey Pig, I was thinking we should open a restaurant! Pig replies: Hm, maybe; what would we call it? The Chicken responds: How about 'ham-n-eggs'? The Pig thinks for a moment and says: No, thanks. I'd be committed, but you'd only be involved!

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ommitment refers to each role and should be fostered by each other

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Scrum values

Every company has a culture (e.g. separation of duties, transparency). When the culture mathches agile values and principles the adoption of agile methodologies will be much more successful. Scrum has its own values:

- Courage
- Commitment
- Respect
- Focus
- Openess

Courage

Team members have the courage to stand up for the project ... Scrum teams have the courage to live by values and principles that benefit the project. It takes courage to ward off the constant pushback from a company whose values clash with the Scrum and agile values.

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Each person is committed to the project's goals... team has the authority to make decisions in order to meet project' goals, and everyone can influence how the project is planned and executed

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Team members respect each other ... then they trust each other to do a good job with the work they've taken on. The SM should find ways to increase mutual respect in the team.

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Focused

Everyone is focused on the work ... a TM working on a sprint should not be distracted by other activities for the duration of the sprint (full time assignment). Switching people among activities lead to waste of time and money

Not attending a formative activity does not put in danger the career of the TM

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Openess

The teams value openness... when you're working on a Scrum team, everyone else on the team should always be aware of what you're working on and how it moves the project toward its current goals.

In many company you can observe a culture discouraging transparency. Rigid hierarchy that depends on opaqueness

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Daily Scrum

The Daily Scrum

It functions as an inspection of the work that the team is doing, so TMs can adapt that work to deliver the most value. And it gives the team the opportunity to make decisions at the last responsible moment, giving the flexibility to have the right person do the right work at the right time

Team mood

- interested listen to colleagues statements
- collaborative if you can help do it
- humble people generally make mistakes

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- Act like a "pig" do not ignore the "to do" column
- Take detailed conversation off-line
- Take turns going first
- Don't treat like a ritual
- Everyone participates
- Don't treat it like a status meeting
- Inspect every task
- Change the plan if it needs to be changed

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Sprints and Planning

Scrum is based on:

- Iterative and Incremental approach to software development
- Effective project planning
- Frequent delivery of running software (value to customer)
- User needs defined in User stories

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User Stories

What is it?

A simple and quick description of a specific way that the user will use the software. Generally between one and four sentences long stays in a 3×5 index card

- They permit to deliver value to the customer
- Reduce the risk of gold-plating

Can generally follow a template:

As a <type of user>, I want to <specific action I'm taking> so that <what I want to happen as a result>

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User Stories

What is it?

A simple and quick description of a specific way that the user will use the software. Generally between one and four sentences long stays in a 3×5 index card

- They permit to deliver value to the customer
- Reduce the risk of gold-plating

Can generally follow a template:

As a <type of user>, I want to <specific action I'm taking> so that <what I want to happen as a result>

User stories and satisfaction conditions

Nominate a video for an achievement

As a returning user with a large friends list, I want to nominate one friend's video

for an achievement

so that all of our mutual friends can vote

to give him a star.

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User stories and satisfaction conditions

Nominate a video for an achievement

Conditions of satisfaction

* A user can nominate a video for an achievement

* A user's friend is notified when his video gets an achievement

* A user can see all of the videos his friends have nominated

* A video with an achievement is displayed with a star next to it

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Story points

Useful tool to assess the effort needed to elaborate a user story. The objective is to assign a value to each user story using a comparative analysis

value each story between 1 and 5 (or 10)

② Or use Fibonacci numbers ($f_0 = 1, f_1 = 1, f_n = f_{n-1} + f_{n-2}$)

How?

- discussion among team members
- Planning poker

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- They are not magic
- The team is in control of them
- They get your team talking about estimates
- Developers are not scared of them
- They help the team discover exactly what a story means
- They help everyone on the team become genuinely committed

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Team velocity and sprint planning

Velocity

Measure of the ability of the team to satisfy story points within a single sprint.

Sprint planning:

• Select the most valuable stories for which the sum is smaller than the velocity (stay below)

Running sprint

- Consider the user stories in the sprint backlog and detail them on needed activities, where each activity does not require more than one day to complete (2nd planning meeting lead by the SM)
- group cards together with the user story
- proceed iteratively selecting one card per time and move them among the columns of the backlog
- if the the sprint ends and there are still cards non fully implemented, move them back to the product backlog

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Sprint execution and burndown charts

When the sprint starts:

- Draw a burndown chart
- report points acquisition for "done done" stories
- in case you add stories to the sprint report it in the chart

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Burndown chart sample



SPM – A.Y. 2016/2017

28/31

• How does a scrum team deal with dependencies between tasks?

- This all sound good in theory, but can it really work on a real project?
- The "last responsible moment" seems to be a bit risky. Isn't it a better idea to plan up front, even if that plan has to change?
- Don't programmers suck at planning especially for projects, which are inherently unpredictable?
- Isn't unrealistic to promise that you will have working software to demonstrate at the end of each sprint? What if the team is working on something that cannot really be demonstrated?

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- It does not seem realistic to have a Product Owner who has all that authority to make decisions, all of those connections with customers and the company, and also so much free time to spend with the team every day. Does not that mean that Scrum cannot possibly work?
- I can see how sprint planning works once the team comes up with estimates, but I am still not sure where those estimates come from. How do teams estimate tasks?
- How do you handle global teams?
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Chapters 4 and 5

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