

How to apply SCRUM in PBL teams

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Abstract

Scrum is a project management methodology very popular in the software industry with very good results in terms of team work effectiveness. Scrum is based on important team work values such as commitment, courage, focus, openness and respect and can be described in three different dimensions: Scrum team; Scrum Events; and Scrum artefacts.

This workshop aims to provide the participants with the opportunity to practice the scrum methodology. This goal will be attained by using a short project which includes similar characteristics to the typical PBL projects.

The first moment of the workshop will focus on presenting the basic concepts about the Scrum methodology, its use and main features. In the second moment the participants will be actively involved in a training activity which allows them to practice Scrum in a small project. This includes the generation of a backlog, a sprint planning meeting, and at least on sprint (one iteration of the methodology). The third and last moment will be based on the discussion and reflection about the effectiveness of this methodology when applied in PBL teams.

Some guidelines and tips for an effective use of Scrum in PBL teams will be available for all participants on the workshop.

Keywords: Scrum, Project management in engineering education, Teamwork in PBL.

1 Introduction

Scrum is the most known Agile Project Management approach adequate for managing software development (Sutherland, 2014) and it is designed for teams to breakdown their work into tasks that can be completed within a sprint (fixed duration cycles). This approach is inspired in the Toyota Production System and teamwork is one of its crucial elements. The teams should be of five to nine developers with help of a Scrum Master to maintain the methodology in action during the project. Figure 1 presents an overview of the Scrum framework with its main dimensions: team roles, ceremonies and artifacts (Schwaber & Sutherland, 2013).

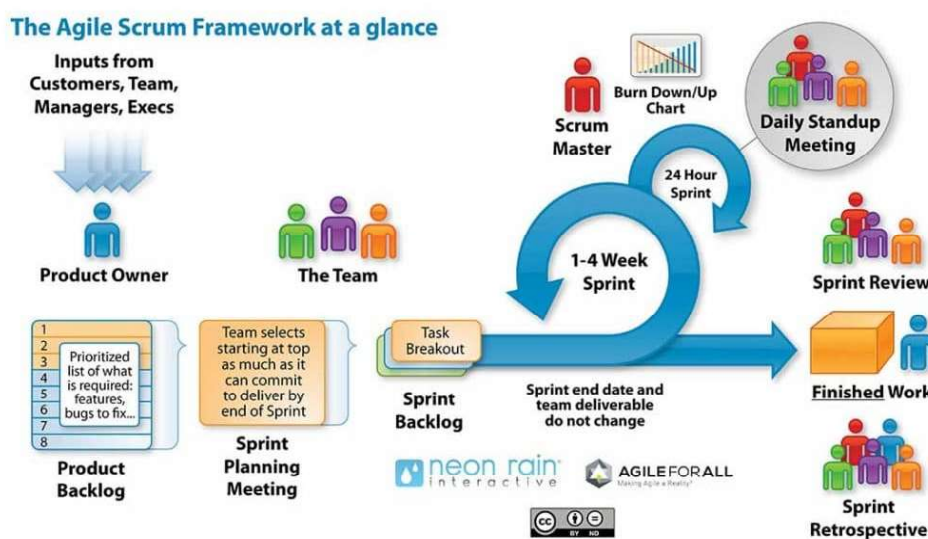


Figure 1. Scrum framework (Neorain 2017).

The team is composed by the Scrum Master (a kind of project and team manager), Product Owner (representing the client) and team members. There three main ceremonies are: sprint planning, daily scrum and sprint review. The sprint planning takes place in the beginning of the sprint that can vary from one to 4 weeks of duration. In this sprint planning the team selects from the product backlog all the required tasks that can be performed in the next sprint. Every day the team meets (daily scrum) to evaluate how the work is flowing comparing to the plan and update the burndown chart (visual representation of the work done in comparison to the work planned). Possible decisions may be taken to solve existing lags. The spring reviews take place at the end of each sprint in order to overcome some problems. The team discuss what went well during the sprint, the problems that occurred and how they were overcome.

Finally, the Scrum approach includes three main artifacts, product backlog, sprint backlog and burndown chart. The product backlog, defined by the Product Owner, is an ordered sequence of everything that is necessary to the product. The product backlog evolves as the development evolves. The sprint backlog is the set of items from the product backlog selected to be developed during the sprint. The burndown chart is a graph showing how the work is evolving according to the plan.

2 Activities

This workshop will include a brief presentation about scrum and then the attendees will be challenged to experience a simulation of scrum environment including a single sprint. The workshop will last 3 hours in the following way:

Introduction (15 min) – Brief presentation about scrum with focus on its framework with focus on its framework, the basic concepts, its route, its use and main features.

Team formation (15 min) - The attendees will make groups of 3 to 5 elements and a project will be given to every group together with the following material:

- Project description; A scrum board template; A burndown chart template; A review sheet; Post-its; Pens

The teams are then guided to download a scrum poker app to install in their smartphones.

Planning phase (30 min) - The teams with the help of the Product Owner (the workshop organizer) will create the backlog as well as the priorities. The team will then plan the first 60 minutes sprint (in reality should be of at least one week) using scrum poker to assign time to tasks and assign each task to team members. The burndown chart is prepared with the amount of time planned in the selected tasks.

Sprint (60 min) - Then the team members perform the required tasks and then at the end of sprint the team meet to review the sprint. During the sprint the post-its must be moved to “done” area. The burndown chart will be divided in 6 periods of 10 minutes each so it will be updated every 10 minutes.

Sprint review (30 min) - At the review meeting the team looks at the scrum board and reflects on how things that did not went as expected and take measures to avoid same mistakes in future. The next step is to plan the next sprint.

Open discussion (30 min) - Once everyone is familiar with the simulation an open discussion about the methodology will take place in order to clarify the use of this method in student projects.

3 References

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