

Preparation and Facilitation of Retrospective Meeting in Scrum Process

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Abstract – Agile methods have become very popular in software development. They emphasise importance of collaboration and communication in successful product development. Scrum is one of the most popular agile methods and it involves a number of artefacts and practices. The retrospective is one of the practices. It is an activity that serves a purpose as a team meeting to improve development processes. It is a time-boxed event, which should be planned and facilitated in order to obtain the best outcome. The paper aims at identifying appropriate practices for organising and running successful retrospectives. The practices are identified in the paper along with their attributes and usage suggestions.

Keywords – Agile, retrospective, Scrum, sprint retrospective.

I. INTRODUCTION

Lately, agile methods, methodologies and their kind have become extremely popular in the software development industry. Scrum is the most widely adopted and used method of the Agile framework among others, e.g., XP, Lean, Kanban, etc. [1].

Many companies nowadays tend to announce their adoption to Scrum and its values. However, it is not always the case. Following only part of Scrum Guide explained values and principles or also changing those to company needs is quite a different methodology called ScrumBot [2]–[4].

The Scrum guide consists of multiple elements, which should be respected in order to claim that a company has adopted Scrum. There are different events and artefacts, e.g., product backlog, sprint planning, sprint review, etc. [5]–[7].

The present paper focuses on one of crucial team elements of the Scrum process – sprint retrospective meeting. This meeting is a time-boxed gathering where the team analyses, inspects the past iteration or release and plans for improvements in the future. Usually it is held between sprints, e.g., after a previous sprint has finished and before next planning meeting in order to adapt improvements already for next sprint.

Although this is a common meeting in the Scrum process, preparation is required for a successful outcome. Therefore, Scrum Master or other team members who are preparing for this meeting should choose tools and techniques wisely in order to achieve the desired results. It is hard to choose right practices to maintain team attention and interest in such an event. Therefore, the present paper aims at identifying appropriate practices for organising and running successful retrospectives [8].

There are many books, papers and blogs, which describe how to conduct a sprint retrospective meeting in a correct way. In most of the cases, authors are industry experts in coaching agile teams. However, it is hard for common Scrum team member to find the right practice to run at a given situation. Therefore, in this paper

the author will try to combine and compare practices to suggest their usage [8], [9].

The rest of the paper is organised as follows. Section II defines the retrospective meeting. The structure of retrospective meeting is reviewed in Section III. Section IV emphasises importance of teamwork in agile development. Specific practices of the retrospective meeting are identified and compared in Section V. Cases of retrospective meetings are analysed in Section VI, and section VII concludes the paper.

II. RETROSPECTIVE

The manifesto for Agile Software Development includes statement: “At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behaviour accordingly” [10]. This explains why in any of Agile methodologies the team is an important aspect of success of software development itself. Furthermore, for instance, in Scrum method there is a separate meeting for the team to freely and openly discuss obstacles, problems and achievements in order to improve future collaboration. Team members themselves inspect problems and create a plan for future improvements. This meeting is called sprint retrospective [5].

This meeting is usually held right after previous sprint has come to the end and prior to next sprint planning meeting. Sprint retrospective is a time-boxed event, which is facilitated by a Scrum Master or a member of Scrum team [5], [8].

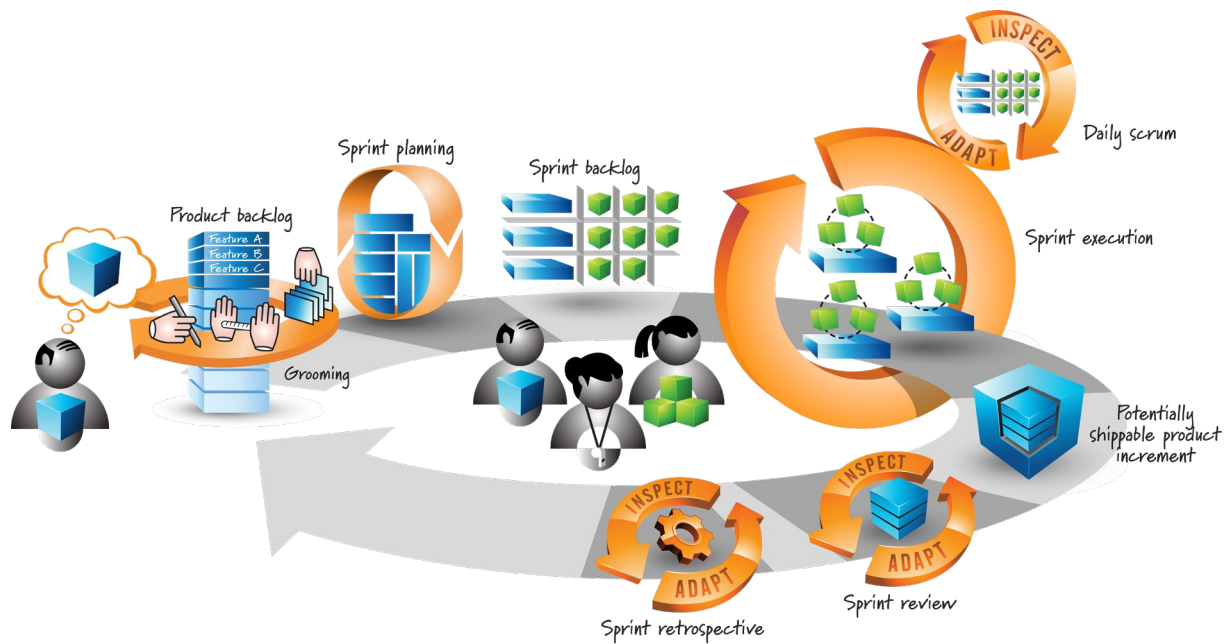
The main goal of the sprint retrospective is to inspect previous period, e.g., iteration, release or even project by looking at people, relationships, team & development processes and used tools. Outcomes are improvements for the team and the way how they do their everyday work and establish collaboration [5], [8].

III. STRUCTURING RETROSPECTIVE MEETING

The sprint retrospective meeting is an important element of the Scrum process; therefore, the meeting should make the best out of given time. Team members should also be engaged to have relevant data generated. It is important to have an agenda already for the meeting and structure clear for all involved persons [8], [9], [12], [13].

Common structure of the meeting:

1. Setting a stage.
2. Gathering data.
3. Generating insights.
4. Deciding what to do.
5. Closing the retrospective.



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Fig. 1. Scrum iteration cycle, including sprint retrospective meeting positioned right after sprint review [11].

Setting a stage – this stage helps people focus on the work at hand. It reiterates the goal for the time the team has in the retrospective. It contributes to creating an atmosphere where people feel comfortable discussing issues [9], [10], [13].

Gathering data – it creates a shared picture of what happened making previous processes, tools, etc. results transparent and **clear**. Without a common picture, individuals tend to verify their own opinions and beliefs. Gathering data expands everyone's perspective [5], [6], [9].

Generating insights – after understanding data, the team must think why this happened and dig deeper to find a root cause for such a result. When generating insights, the team considers the data to identify strengths and issues from the previous iteration [8], [11].

Deciding what to do – after brainstorming the team should have a list of improvements, ways to go. At this stage, the team should agree on common actions for future collaboration. Usually they are 2–3 top points mentioned by the team to give more goal tending vision [8], [11].

Closing the retrospective – in the end it is necessary to close the meeting with appreciating of hard work from everybody and have an agreement of form for result documentation. This should serve as a purpose of visualising improvements; afterwards, the team can keep track of these improvements [5], [8], [11].

IV. TEAM MEETING

Reflecting to the Agile Manifesto statements: a team has a great value among others in the Agile software development processes. Sprint retrospective meetings are also held with the aim to bond team members together and improve future collaboration [9], [13].

Furthermore, this involves trust, openness, transparency and equality within the development team. Therefore, retrospective serves as a great purpose of acknowledging and strengthening these values [6], [13].

The key elements of practices are as follows:

- **Group work** – as every sports team also a development team needs to work together in order to achieve the desired result. All group work related practices are welcomed to use in sprint retrospective meetings in order to improve this aspect of team [13].
- **Individual opinion** – individual work is part of the whole product delivery. In sprint retrospective, it is mandatory to attend all involved parties for better insight generation. It is important to hear every individual opinion on the matter [6], [14], [15].
- **Public speaking** – according to Scrum Guide, a Scrum Master must facilitate sprint retrospective meeting; however, this is not always the case. Team members should be encouraged to speak freely with other teammates. All practices containing such elements are recommended for individual improvements [5], [13].

V. COMPARISON OF RETROSPECTIVE PRACTICES

The detailed review of different retrospective practices is compiled in Table I. The table summarises various known practices and describes these practices found in relation to studies and scientific papers [8], [13], [15], [18].

The methods are reviewed and compared using attributes identified in the previous paragraphs as important in Scrum and team collaboration methods.

The attributes considered for the comparison are as follows:

- Practice name.
- Type: setting the stage, gathering data, generating insights, deciding what to do and closing the retrospective.
- Duration: short, medium and long.
- Usage: different for each.
- Required materials: different for each.
- Group work: yes/no.
- Individual opinion: yes/no.
- Public speaking: yes/no.

TABLE I
COMPARISON OF RETROSPECTIVE PRACTICES

Practice name	Type	Duration	Usage	Required materials	Group work	Individual opinion	Public speaking
The Sailboat game	Generating insights, deciding what to do	Medium	After longer iteration, release and project retrospective	Board/big paper, markers, stickers	Yes	No	Yes
Mad/Sad/Glad	Generating insights	Medium	After short iteration	Stickers or board + markers	Yes	No	No
The Starfish game	Generating insights	Medium	After longer iteration, release and project retrospective	Stickers or board + markers	Yes	No	Yes
The 5Ls game	Generating insights	Medium	After longer iteration, release and project retrospective	Stickers or board + markers	Yes	No	No
KPT (Keep/Problem/Try)	Generating insights	Medium	After short iteration	Stickers or board + markers	Yes	No	Yes
Five Whys	Generating insights, deciding what to do	Long	Once problem occurs	Paper + markers	Yes	No	Yes
Team radar	Gathering data	Long	After longer iteration, release and project retrospective	Survey	No	Yes	No
Appreciation	Closing the retrospective, setting the stage	Short	At the end of any retrospective	–	No	No	Yes
Temperature reading	Closing the retrospective	Short	At the end of any retrospective	Stickers	No	Yes	No
One-word retrospective	Closing the retrospective, setting the stage	Short	After longer iteration, release and project retrospective	Stickers	No	Yes	Yes

VI. USE CASES

Practices reported in Table I can be used in different project situations according to their suitability for a particular team. Table I presents different views of data for better evaluation. This should help determine right practice to use a given project situation and help meeting facilitator in the preparation.

Some example setups for team meeting based on a situation in the project are provided below.

Situation 1:

If some team members are used to dominate others in meetings by forcing their opinion on others, the suggested practice is one-word retrospective or team radar, which will make everybody to share opinion. In this way, every member of the team will be a part of combined data analysis, and the end result will be more transparent and meaningful.

Some other practices can be adjusted to fit this category, e.g., the Starfish game originally is based on initiative of team members; however, a facilitator can transform this practice in the way where every team member should write/share at least one item on the board [9], [12].

Situation 2:

If some team members are introverts, the suggested practices would be the Sailboat game and the Starfish game where they should talk and discuss common opinion of the team. This will train them to speak freely in front of their team members.

In Table I, practices suitable for the development of public speaking abilities are identified by the public speaking attribute. However, other practices can also be adjusted for these purposes accordingly. For instance, one-word retrospective: after everybody has their name written down, they can make small groups with words, which match or mean the same. In this way, everybody shares their opinions and a small discussion is held within a team.

Situation 3:

If a team is divided into separate groups, the suggested practices are group work related practices where people can bond together, such as Five Whys or the 5Ls game. Both of these practices are based on the generation of team general insights on common opinion sharing.

It is important to share and have overall team voice in sprint retrospective meetings, which will benefit for team collaboration in general.

Another aspect of preparation work for team retrospective involves practice attributes, e.g., duration, type and usage. These are attributes, which can help determine right practices for the given project situation. Table I represents various practices that can be used throughout the project lifecycle. The aforementioned attributes can help plan next sprint retrospective.

Example situation:

After release retrospective is required where a team needs to look back on previous release problems and improve for the next one.

Furthermore, a possible practice could be one-word retrospective in order to start generating thoughts of previous release in simple form and this can be combined with the Sailboat game, which will generate more insights of release period and possible improvements for next upcoming release and its related aspects.

VII. CONCLUSION

Along with the recent Scrum method popularity, sprint retrospective meetings have obtained various formats and possibilities. Different practices have been developed during this time period to fit various needs across the software development industry [1], [9].

Team value is important in the Scrum method; therefore, industry specialists are adopting collaboration tools and techniques to fit different product team needs. Special attention is devoted to communication and good working conditions for employees. A sprint retrospective meeting is a great way to understand their needs and hear a general voice of company employees, thus making working conditions better for teams and for company in general [5], [6], [14].

The present paper has summarised a list of well-known practices and suggested their usage in order to facilitate the evaluation process for future meetings and preparation for them. Recommendations are also given for various situations in teams with the aim to help facilitate next team meetings and Scrum process in general.

The summary of the methods is aimed at a Scrum Master to ease the selection of appropriate practices for the retrospective meeting.

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