IN5140

Smart processes and agile methods in Software Engineering

Group session 12

IN5140 - Exam 2014

Exercise 1 (20%)

- What is the motivation for software process improvement; that is, why should one work smarter when developing software?

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The motivation for software process improvement is the several benefits that it brings. A good process provides guidelines for efficient development, as well reducing risk and increasing predictability. Having everyone follow the same, well defined process also creates a common vision and culture, which also enables easier coordination and co-operation. Process improvements implemented correctly are likely to lower cost in the long run, since developers, testers, etc, are empowered to work more efficiently.

Exercise 3 (20%)

- Describe five core principles of Lean. The description should include a motivation for each of the principles, that is, its purpose.
- For each of these five principles, describe how using Scrum may support the principle.

Satisfy the customer

- **Satisfy the customer**, flow, visualization, avoiding waste and supporting change.

Create something which has value to the customer. This means producing something the customer actually wants. If we produce something that has no or little value to the customer, changes will have to be made (which can be costly), or our customer will be unhappy with the results, which is bad for business.

Satisfy the customer

- For each of these five principles, describe how using Scrum may support the principle.

Scrum focuses on delivering frequently so that the customer is constantly updated with the most recent changes. That way the customer can tell if we are making what the customer actually wanted

Flow

- Satisfy the customer, **flow**, visualization, avoiding waste and supporting change.

The process is stable, optimized and goes as planned without interruptions. The motivation is having little waste and an efficient process. A unstable process will likely have a negative effect on employees as well

Flow

- For each of these five principles, describe how using Scrum may support the principle.

Scrum defines sprints, which are constant timeboxes. Employees have the backlog which contains all the tasks that must be done, every single sprint. This acts as a stable process. The Scrum Master also “protects” the scrum team against interruptions during the sprint.

Visualization

- Satisfy the customer, flow, **visualization**, avoiding waste and supporting change.

Refers to planning and overview of processes. This can be done by using diagrams like BPMN, UML, Kanban boards etc. Visualization gives a shared understanding of the process, enabling more efficient co-operation.

Visualization

- For each of these five principles, describe how using Scrum may support the principle.

It is normal to have a Scrum board when following Scrum. Here, team members can see an overview of tasks under different categories “to do”, “in progress” and “done”. This gives a visualization of the process.

Avoiding waste

- Satisfy the customer, flow, visualization, **avoiding waste** and supporting change.

Waste refers to everything that requires resources, but does not give value to the customer. Define what the customer is willing to pay for in order to reduce waste. An important principle here is Just-in-Time which recommends not spending resources producing something before it is demanded. The motivation for avoiding waste is to ensure flow. Wasted resources can also be costly.

Avoiding waste

- For each of these five principles, describe how using Scrum may support the principle.

Scrum includes retrospective meetings which help optimize the process. As mentioned Scrum also includes frequent deliveries to make sure that only what the customer actually wants is produced.

Supporting change

- Satisfy the customer, flow, visualization, avoiding waste and **supporting change.**

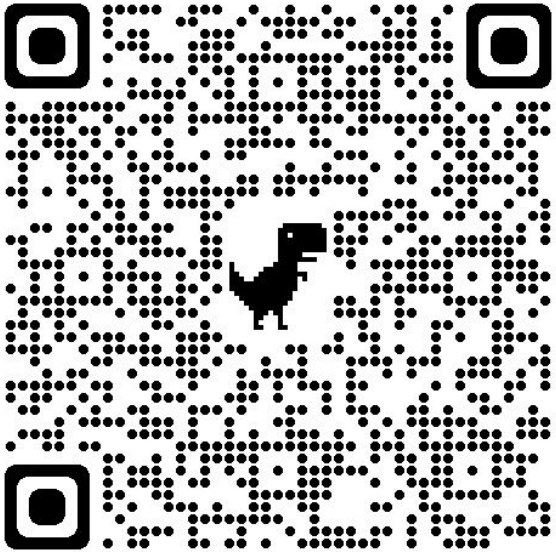
Supporting change refers to that changes should be welcomed, even late in the development. This helps meet the goal of satisfying the customer, as well as being competitive among many other organizations.

Supporting change

- For each of these five principles, describe how using Scrum may support the principle.

One of the reasons many organizations switched to Scrum instead of for instance the waterfall model was Scrums ability to handle change. If change is needed, it is simply added to the backlog and prioritization in the upcoming sprint. Since Scrum goes in iterations, it should not be a problem.

Exercise 2 (50%)



Exercise 2 (50%)

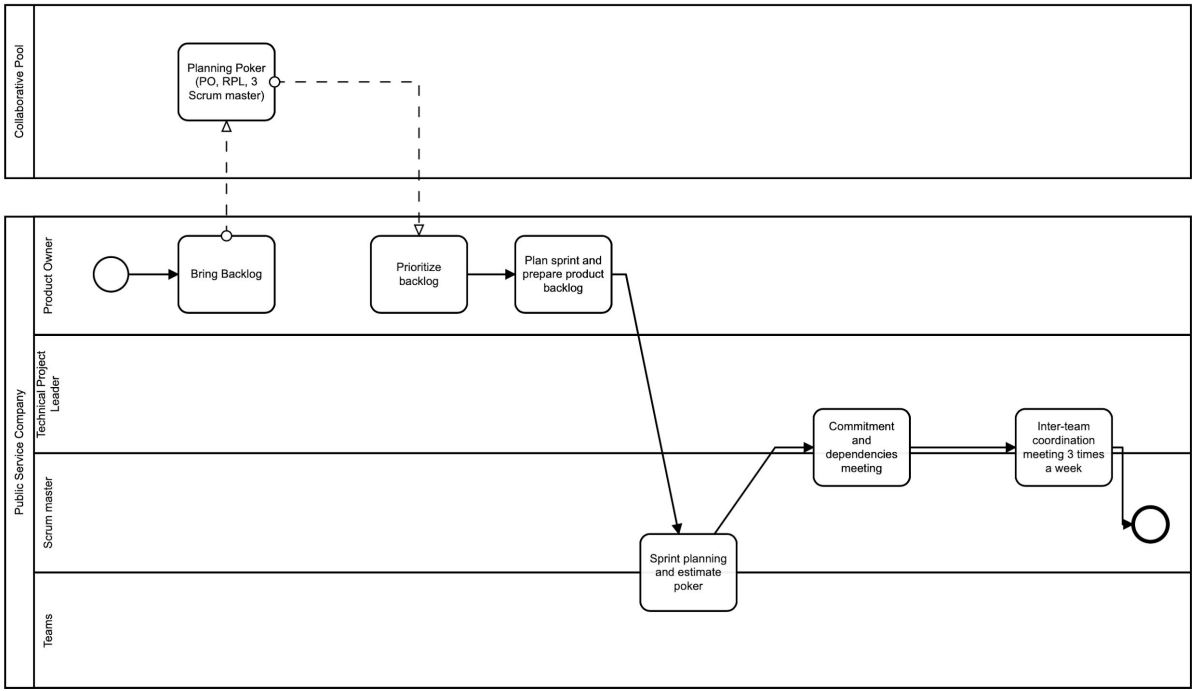
1. Use BPMN to document the Product Backlog process described above as a process model.
2. Propose changes in the organization of the project and in the Product Backlog process that might have improved the situation described above.
3. Suggest and describe a minimum of three measures that the project could use to evaluate the effects of the changes in the organization of the project and the Product Backlog process that you suggested.
4. Describe how data of the proposed measures could be collected and analysed.

Assumptions

- The tools I was using did not have functionality for making choregraphies notation shown in the BPMN notation poster. I have therefore placed them, but without saying explicit which roles are involved. The roles included are the lane directly above and below the task. The task that involves three lanes is therefore drawn as a collaborative lane.
- Most tasks potentially affect the backlog. I was considering having a gateway that if changes would have to be made, the backlog would be changed, and if not, move on to the next task. However it was unclear which role would do this for each step. It also proved to be quite unreadable in the end. Therefore, please note that if changes to the backlog is needed in each task, this can be done.
- I also assume that the Scrum Master is present in the teams sprint planning meeting
- Some tasks consist of two tasks. E.g. Sprint planning and estimation poker. This is because these tasks seem to be included in the same meeting. Therefore shown as one task.

Use BPMN to document the Product Backlog process described above as a process model.

1.



Propose changes in the organization of the project and in the Product Backlog process that might have improved the situation described above.

As far as I understand from the description, there are in total 3 activities where the backlog can be changed, and 2 activities where dependencies are discussed. If the main problem is that the backlog is not refined enough to meet changed requirements and that there are too many unseen dependencies, these activities do not serve its purpose. The first proposed change would therefore be to ensure that these activities and meetings are efficient and actually help reach their initial goal. If not, they should be dropped.

- Catch bugs earlier - automated tests and Merge systems (PR)
- Make it easier to change the main backlog consistently through the development
- Work more Agile ← The process seem to be quite “stiff”
- Should the actual user be involved in the process? ← Not mentioned in the case

Suggest and describe a minimum of three measures that the project could use to evaluate the effects of the changes in the organization of the project and the Product Backlog process that you suggested.

- Delays before/after changes introduced
- Number of bugs in backlog as a whole
- Number of bug backlog items in each sprint

(b). For each measure, show the relationship between the measure and the purpose of the changes.

- Less delays
- Less bugs

Describe how data of the proposed measures could be collected and analysed.