



October 6, 2017

Week 7, Class #20

Software Project Management

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MWF – 10:00-11:30 - Kepner 0095F

This Week – Software Projects



✧ Monday, 10-2

- Lecture – Software Engineering

✧ Wednesday, 10-4

- Lecture – Software Process

✧ Friday, 10-6

- Lecture – Software Project Management

✧ Next Week

- Technology

Project Planning



✧ Engineers need to plan projects

- You have the knowledge to prevent a disaster
- Expectations must be managed
- Avoid the death march

✧ Organizations have a culture

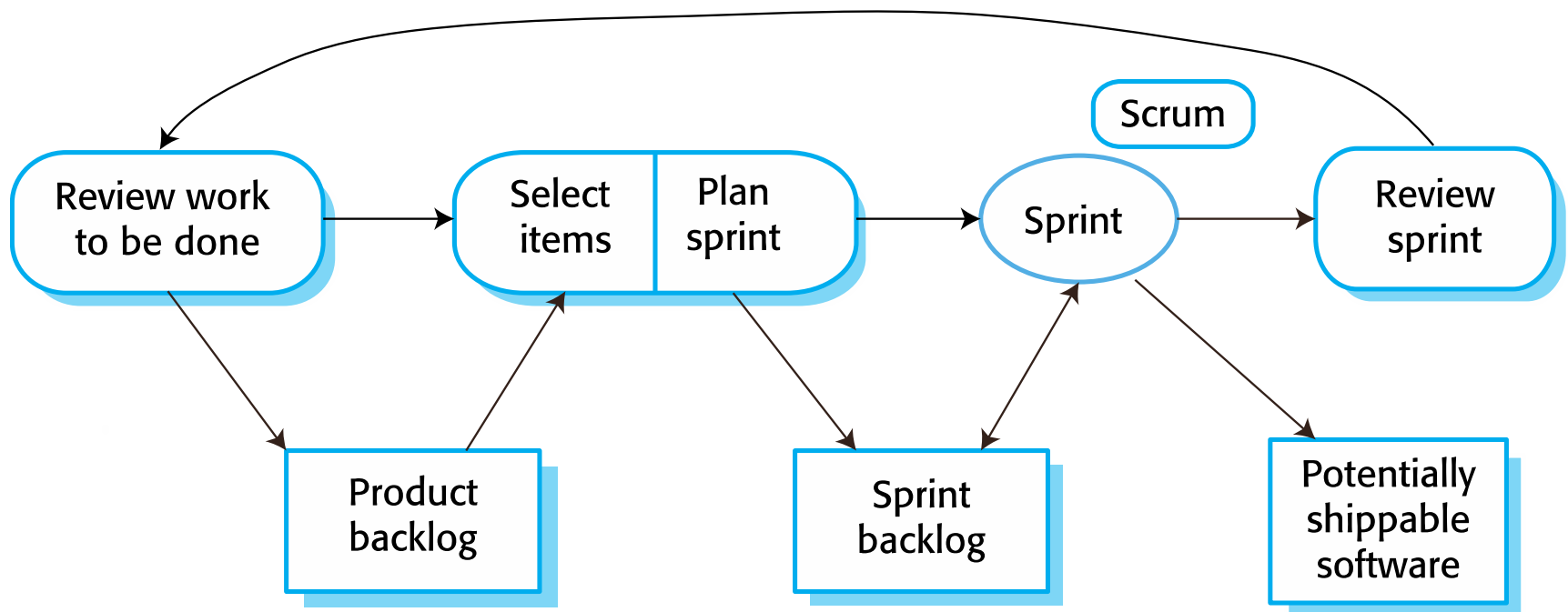
- Influence the culture you are in
- Know the limitations you face
- Commit to maximum contribution

Scrum – Agile Project Management



- ✧ Scrum is an agile method that provides a project management framework.
 - It is centred round a set of sprints, which are fixed time periods when a system increment is developed.
- ✧ Many practical development methods are a mixture of plan-based and agile development.
- ✧ Scaling agile methods for large systems is difficult.
 - Large systems need up-front design and some documentation and organizational practice may conflict with the informality of agile approaches.

Scrum sprint cycle



Scrum terminology (a)



Scrum term	Definition
Development team	A self-organizing group of software developers, which should be no more than 7 people. They are responsible for developing the software and other essential project documents.
Potentially shippable product increment	The software increment that is delivered from a sprint. The idea is that this should be 'potentially shippable' which means that it is in a finished state and no further work, such as testing, is needed to incorporate it into the final product. In practice, this is not always achievable.
Product backlog	This is a list of 'to do' items which the Scrum team must tackle. They may be feature definitions for the software, software requirements, user stories or descriptions of supplementary tasks that are needed, such as architecture definition or user documentation.
Product owner	An individual (or possibly a small group) whose job is to identify product features or requirements, prioritize these for development and continuously review the product backlog to ensure that the project continues to meet critical business needs. The Product Owner can be a customer but might also be a product manager in a software company or other stakeholder representative.

Scrum terminology (b)



Scrum term	Definition
Scrum	A daily meeting of the Scrum team that reviews progress and prioritizes work to be done that day. Ideally, this should be a short face-to-face meeting that includes the whole team.
ScrumMaster	The ScrumMaster is responsible for ensuring that the Scrum process is followed and guides the team in the effective use of Scrum. He or she is responsible for interfacing with the rest of the company and for ensuring that the Scrum team is not diverted by outside interference. The Scrum developers are adamant that the ScrumMaster should not be thought of as a project manager. Others, however, may not always find it easy to see the difference.
Sprint	A development iteration. Sprints are usually 2-4 weeks long.
Velocity	An estimate of how much product backlog effort that a team can cover in a single sprint. Understanding a team's velocity helps them estimate what can be covered in a sprint and provides a basis for measuring improving performance.

The Scrum sprint cycle



- ✧ Sprints are fixed length, normally 2–4 weeks.
- ✧ The starting point for planning is the product backlog, which is the list of work to be done on the project.
- ✧ The selection phase involves all of the project team who work with the customer to select the features and functionality from the product backlog to be developed during the sprint.

The Sprint cycle



- ✧ Once these are agreed, the team organize themselves to develop the software.
- ✧ During this stage the team is isolated from the customer and the organization, with all communications channelled through the so-called 'Scrum master'.
- ✧ The role of the Scrum master is to protect the development team from external distractions.
- ✧ At the end of the sprint, the work done is reviewed and presented to stakeholders. The next sprint cycle then begins.

Essential Project Planning



✧ Constraints

- Time, Money, Features

✧ Milestones

- Four Essential Phases

✧ Features

- 4-5 Essential Features

✧ Velocity

- When will we be done

Teamwork in Scrum



- ✧ The 'Scrum master' is a facilitator who arranges daily meetings, tracks the backlog of work to be done, records decisions, measures progress against the backlog and communicates with customers and management outside of the team.
- ✧ The whole team attends short daily meetings (Scrums) where all team members share information, describe their progress since the last meeting, problems that have arisen and what is planned for the following day.
 - This means that everyone on the team knows what is going on and, if problems arise, can re-plan short-term work to cope with them.

Scrum



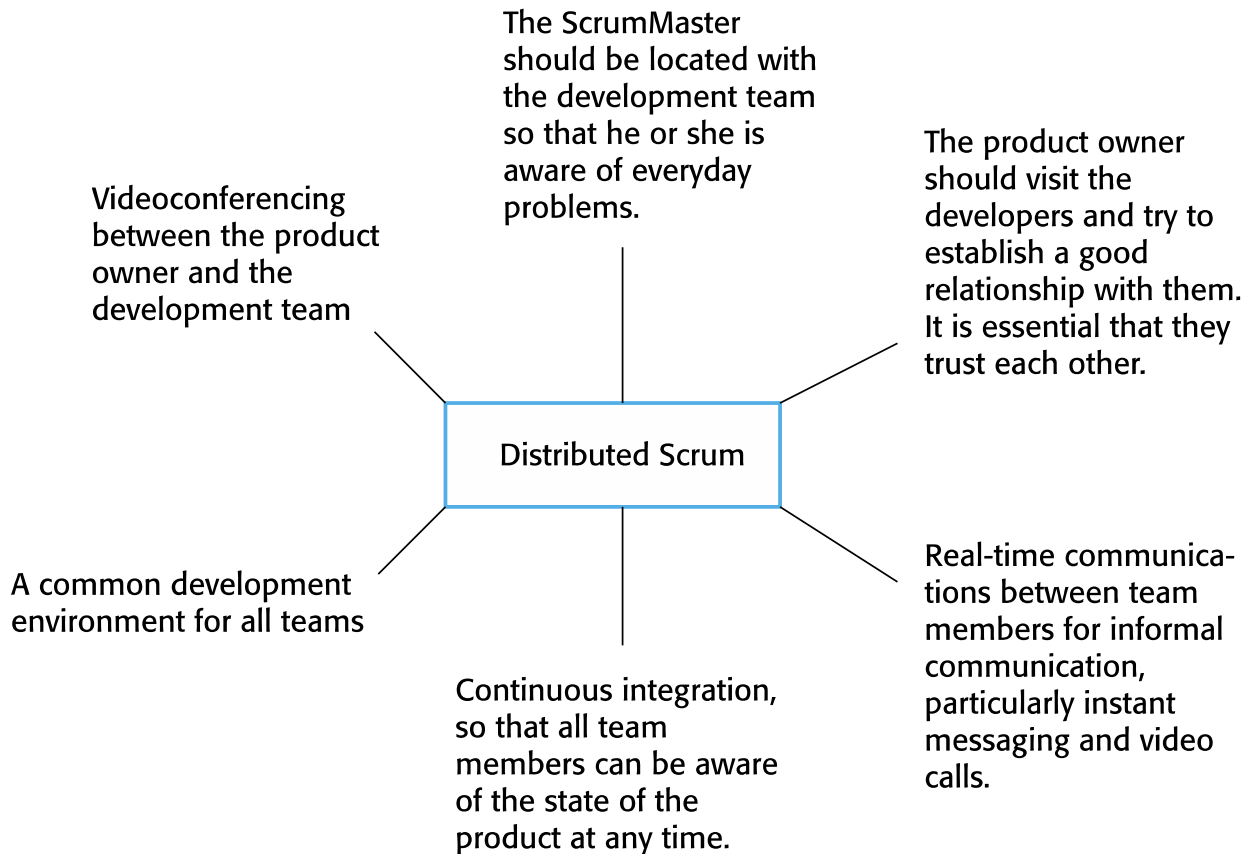
- ✧ Scrum is an agile method that focuses on managing iterative development rather than specific agile practices.
- ✧ Phases in Scrum
 - planning - general objectives and software architecture
 - sprint cycles - each cycle develops an increment of the system
 - project closure - wraps up the project, completes required documentation

Scrum benefits



- ✧ The product is broken down into a set of manageable and understandable chunks.
- ✧ Unstable requirements do not hold up progress.
- ✧ The whole team have visibility of everything and consequently team communication is improved.
- ✧ Customers see on-time delivery of increments and gain feedback on how the product works.
- ✧ Trust between customers and developers is established and a positive culture is created in which everyone expects the project to succeed.

Distributed Scrum



X



✧ X

✧ Y