UNIVERSITY INSTITUTE OF COMPUTING

Agile Methodology

(24CAT-656)

Unit-2- Syllabus

Unit-2	Agile	Lecture Hours:10
Agile Project Management	Project Management introduction, Agile Scrum, Project management methodology, Selection of right project management methodology, Continuous integration and continuous delivery (CI/CD) in agile development.	
Scrum	Scrum framework, Scrum Roles, Agile Kanban, Agile Vs. Scrum. Product Backlog, Scrum Practices, Process flow of Scrum Methodologies,\	
Agile Design	Agile Daily Stand-up, Sprint Review meeting vs Daily Stand-up meeting in Agile, Definition of Done, Agile Design, Retrospective in Agile development.	

CONTENT OF THE SYLLABUS

• TEXT BOOKS

T1 David J. Anderson and Eli Schragenheim, Agile Management for Software Engineering: Applying the Theory of Constraints for Business Results, Prentice Hall, 2003.

T2 Hazza and Dubinsky, Agile Software Engineering, Series: Undergraduate Topics in Computer Science, Springer, 2009.

T3 Agile Software Development Ecosystems by Jim Highsmith, Addison-Wesley 2002, ISBN 0201760436.

• REFERENCES

R1 Craig Larman, Agile and Iterative Development: A Managers Guide, Addison-Wesley, 2004.

R2 Kevin C. Desouza, Agile Information Systems: Conceptualization, Construction, and Management, Butterworth-Heinemann, 2007.

Agile Practices

1. Iterative Development

- Through agile iterative development, bigger projects are broken down into smaller chunks and continuous tests are done in repetitive cycles. Through this practice, agile teams get a perspective on new features that need to be added to the final product or service and contributes towards more flexible product development.

Agile Practices

2. Daily Meetings

Regular meetings are key to agile implementation. These meetings should be short and concise, with each member of the team explicitly stating the progress of tasks and what needs to be done. This practice is a great way to monitor the performance of the team and check if there are any obstacles in the way of product development.

Agile Practices

3. Using Professional Tools

- Using project management tools for the implementation of agile methodology helps the team to better structure their workflows and improve team collaboration. For proper documentation and meetings management, professional project management software can greatly reduce the effort it takes to manage your tasks otherwise.

Agile Best Practices: Scrum Project Management

1. Creating Product Backlog and Product Vision Together

A product backlog is an ordered list of items that are required to be added to product development. A good practice for scrum implementation is to create the product backlog and product vision together so that both the development team and stakeholders are on the same page. This ensures mutual understanding and helps in aligning the vision in a better way.

Agile Best Practices: Scrum Project Management

2. Use Burndown Charts for Sprints

- A daily burndown chart is a great way of monitoring the progress of Sprints. Burndown charts graphically show the work that has been done and the total work remaining against time. It's a useful tool to inform the team about project scope and make them aware of scope creep that might occur. These charts also help in identifying the risks associated with undelivered work.

Agile Best Practices: Scrum Project Management

3. Setting communication guidelines for teams

- Uninterrupted communication is key for the Scrum framework and can become a bottleneck if not tackled efficiently. An effective way to ensure seamless communication is to formulate a communication strategy with all the essential guidelines for teams. This particular practice can really come in handy for remote teams as it will make team goals transparent.

Agile Best Practices: Scrum Project Management

4. Practicing Stand-Ups

- Also known as the ‘Daily Scrum’, stand-ups are short meetings held with the team members on a daily basis. These meetings are typically for a maximum of 15 minutes to keep their duration short. Practicing Stand-ups for product or project development are a great way to monitor the progress of work and helps in keeping everyone in the loop with the project updates. These meetings also assist the team in tracking the dos and don’ts of product development.

Agile Best Practices: Kanban Project Management

1. Visualizing Workflows

- Visualizing workflows in the form of boards or cards showing the progress status of each task is an easy way to keep track of tasks and point out hurdles in the product development cycle. These boards generally come with the option of dragging and dropping the tasks from one pane to another to show the progress.

Agile Best Practices: Kanban Project Management

2. Limiting Work in Progress

- Fixed constraints for work in process limits the total amount of cards in the active pane, consequently helping the team in understanding the work that needs to be done within a stipulated timeframe. By limiting the unfinished work, a constant need for re-prioritizing tasks is eliminated and bottlenecks are identified more effectively.

Agile Best Practices: Kanban Project Management

3. Continuous Feedback

- Continuous feedback from team members is critical in order to understand how the team is going along with the process. These feedbacks also help in identifying any hurdles that might be occurring in the product development cycle and reflect on what needs improvement.

Agile Best Practices: Kanban Project Management

4. Focusing on Flow

- Monitoring the flow of work items assists the team in keeping an eye on overall work progress, giving them an idea of how quickly they need to move along with the process. This flow facilitates the team in understanding the speed and smoothness of delivery.

Lean Development Model

1. Identifying Value

- Carefully break down complex projects into smaller tasks and sub-tasks to identify the value associated with each one of them. This practice will lead to a better understanding of workflows and will help in identifying the unnecessary tasks that need to be eliminated, thus adding more value to the workstream.

Lean Development Model

2. Reducing Waste

- From the project management perspective, reducing waste addresses the elimination of any tasks, meetings, or documentation that are of no value to the overall product development. This elimination gives a clear direction to the team members and contributes towards the actual value addition process.

Lean Development Model

3. Continuous Improvement

- To successfully implement lean project management, there would be a constant need for improvements throughout the project development. One practice to achieve improvements is to clearly communicate the requirements and guidelines to team members for achieving more with minimal waste.

Extreme Programming (XP)

1. Planning Game

- All team members of a team should meet and participate in the planning process. There should be no ambiguity between the team(s) working on a particular project. This can take a form of meetings that occur after defined intervals to take updates and monitor progress accordingly.

Extreme Programming (XP)

2. Test-driven Development

- Before the final code, continuous tests are run to check the functionality of individual pieces of code. This practice helps programmers to go through situations where the code might fail. It also helps in lowering the defects and saves time to develop the software.

Extreme Programming (XP)

3. Small Releases

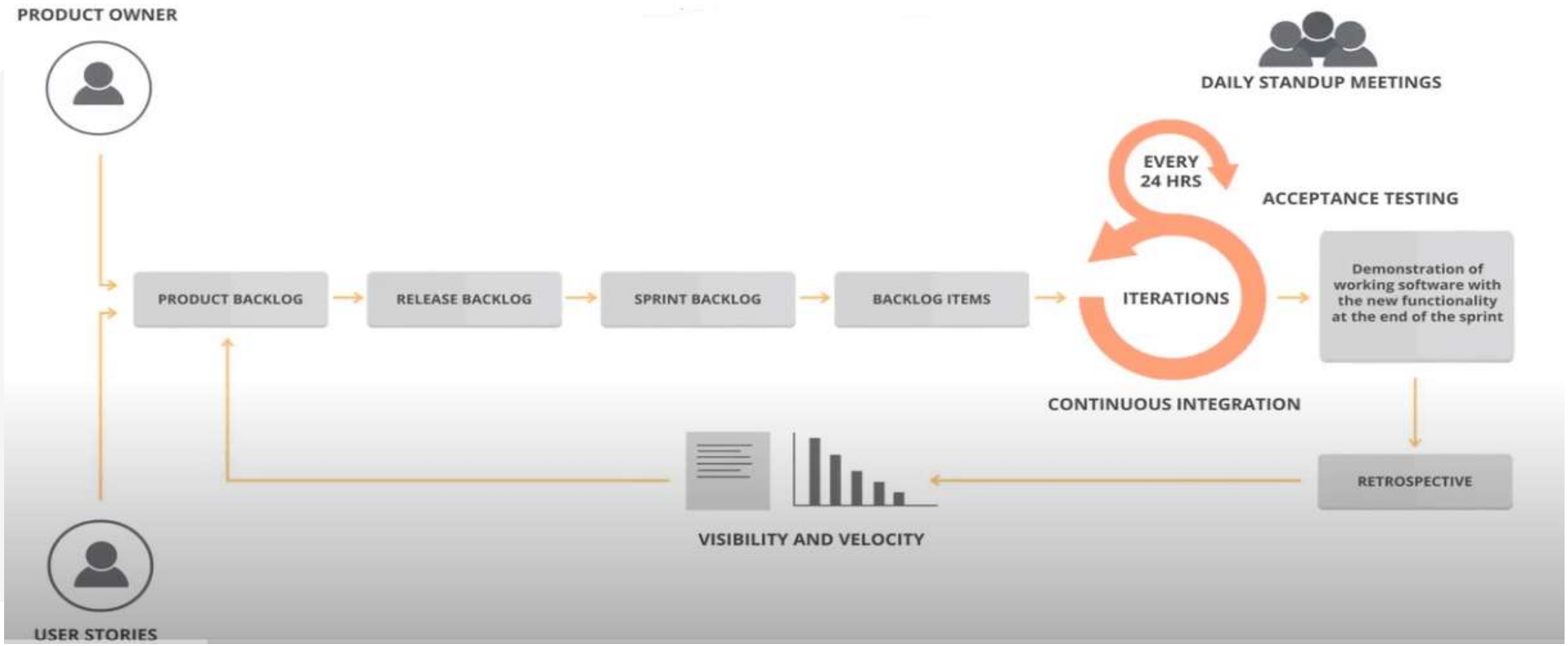
- Working on a similar principle of iterations, this concept focuses on small releases throughout the lifecycle of product development. This particular practice helps the entire team in understanding how the product is coming along, and identify any glitches that might occur during the product development cycle.

Extreme Programming (XP)

4. Simple Design

- The simple design of software requires less time to write and takes minimum effort to fix problems. This practice also helps in cutting down the overall costs of developing a product and paves way for team members to always find an easier way to get things done.

Process flow of Scrum Methodologies



THANK YOU