IT4305: Rapid Software Development

BIT – 2nd Year

Semester 4

Learning Outcome

After successful completion of this course students will be able to:

- Obtain a firm foundation on Agile concepts and methodologies.

- Acquire understanding of the practices and application of Agile practices Scrum and XP

- Learn how to apply the Agile framework in software Development Projects

Outline of Syllabus

1. Introduction to Agile Software Development
2. Agile Principles
3. Introduction to Scrum
4. Core Concepts in Scrum
5. Scrum Roles
6. Scrum Planning
7. Sprinting
8. Alternative Approaches to Agile Software Development

References

1. Essential Scrum Practical Guide to the Most Popular Agile Process by Kenneth S. Rubin.

2. The Art of Agile Development by James Shore and Shane Warden

3. Agile and Iterative Development: A Manager's Guide by Craig Larman, Agile Software development series, Alistair Cockburn and Jim Highsmith, Series Editors

4. http://agilemanifesto.org

5. https://msdn.microsoft.com/en-us/library/hh533841.aspx

IT4305: Rapid Software Development

Scrum Roles

Duration: 09 hours

Learning Outcome

- Explain product owner's roles and his responsibilities.

- Identify the correct product owner for different projects.

- Describe Product owner teams.

- Describe the purpose of Scrum Master.

- Explain the principal responsibilities and characteristics of a Scrum Master.

- Describe the development team role.

- Describe principal responsibilities and characteristics of team role.

Learning Outcome Cont...

- Discuss different methods of structuring Scrum teams.

- Discuss distinction between a feature team and a component team.

- Explain issues of coordinating multiple, collaborating Scrum teams.

- Discuss the responsibilities of functional-area managers.

- Discuss the project manager role in Scrum.

Detailed Syllabus

5.1   Product Owner

5.2   Scrum Master

5.3   Development Team in Scrum

5.4   Scrum Team Structures

5.5   Managers

SCRUM RULES

- ❖ Teams
    - ❖ 7 – 9 members Cross-functional
- ❖ Time-boxes
- ❖ Feedback and learning through frequent delivery
- ❖ Predictability
- ❖ Collective and Adaptive planning to build the right product
- ❖ Productivity & Quality
    - ❖ Via Reduction of waste
    - ❖ Through team and time-boxed focus

SCRUM ROLES

❖Product Owner

❖SCRUM Master

❖Development Team

5.1 PRODUCT OWNER

5.1: Product Owner

- 5.1.1 Introduction

- 5.1.2 Principal Responsibilities

- 5.1.3 Characteristics/Skills

- 51.4 A Day in the Life

- 5.1.5 Who Should Be a Product Owner?

- 5.1.6 Product Owner Combined with Other Roles

- 5.1.7 Product Owner Team

PRODUCT OWNER

- Share the product vision/goals with the team
- Identify the requirements
- Prioritize the requirement
- Be the "GO TO" person for requirement clarifications
- Provide feedback
- Negotiate with stakeholders

PRODUCT OWNER

- The product owner must understand the needs and priorities of the stakeholders to act as their representative.

- Product owner acts as
    - ❖product manager
    - ❖business analyst
    - ❖part tester

PRODUCT OWNER-RESPONSIBILITIES

- Manage economics

- Groom the product backlog

- Participate in planning

- Collaborate with the development team

- Collaborate with the stakeholders

- Define acceptance criteria and verify that they are met

PRODUCT OWNER - MANAGE ECONOMICS

- Release-Level Economics

- Sprint-Level Economics

- Product Backlog Economics

PRODUCT OWNER - Participate in Planning

- Portfolio planning
    - ❖ Position the product correctly in the portfolio backlog
    - ❖ Determine when to start and end product development
- Product planning
    - ❖ Works with the stakeholders to envision the product
- Release planning
    - ❖ Define the content of the next release
- Sprint planning
    - ❖ Define a sprint goal

PRODUCT OWNER - Groom the Product Backlog

- Creating and refining
- Estimating
- Prioritizing

While he/she is not doing these personally , he /she is responsible for making sure that the grooming activities take place
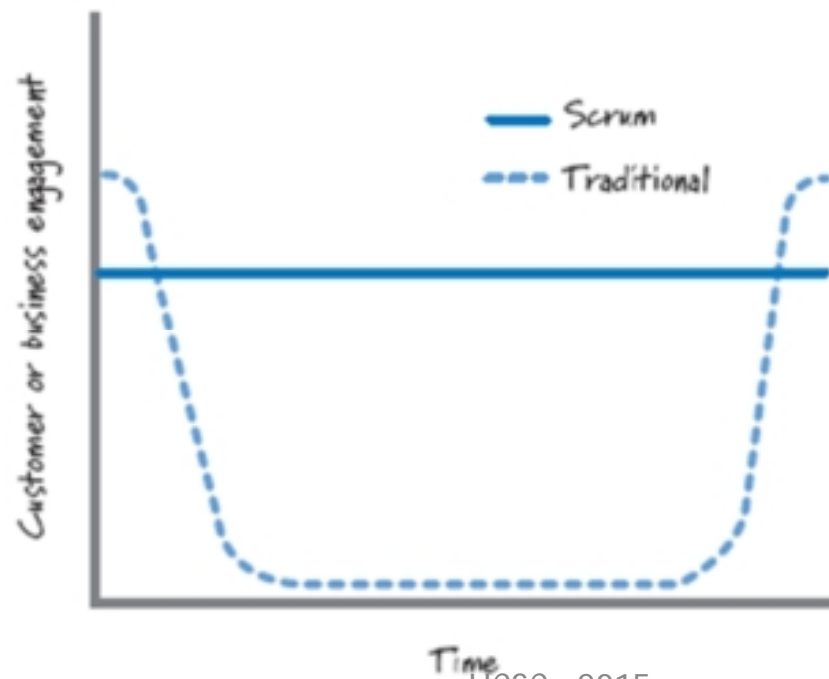
PRODUCT OWNER - Define Acceptance Criteria and Verify That They Are Met

- Defining the acceptance criteria for each product backlog item.
- The product owner may also write acceptance tests corresponding to the acceptance criteria

The product owner must ensure that acceptance tests are run prior to the review

PRODUCT OWNER - Collaborate with the Development Team

- Must closely collaborate with the development team on a frequent basis.
- An engaged, committed, everyday role

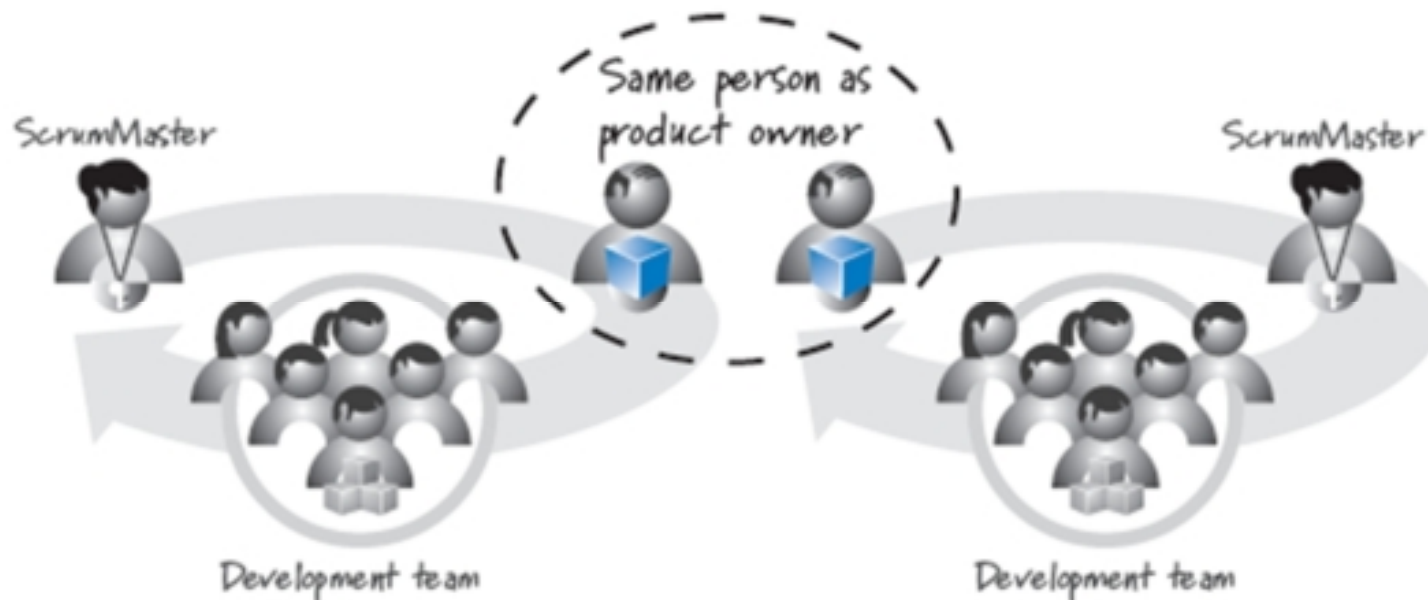

Refer to page 170

PRODUCT OWNER - Collaborate with the Stakeholders

- **Internal stakeholders**
  - ❖ Business systems owners
  - ❖ Executive management
  - ❖ Program management
  - ❖ Marketing and sales
- **External stakeholders**
  - ❖ Customers
  - ❖ Users
  - ❖ Partners
  - ❖ Regulatory bodies

The product owner must work closely with the entire stakeholder community to gather input and guide product development

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PRODUCT OWNER –Multiple Roles

- Product owner and a member of the development team
- Product owner and the Scrum Master

Refer to page 182

22

PRODUCT OWNER –Product Owner Team

- Every Scrum team MUST have a single person who is identified as the product owner
- Should we allow a team of people to perform the product owner role?

> Why a "product owner team" ?
> The workload of being a product owner might be greater than any one full-time person can reasonably perform. If so , the product owner can delegate some product owner responsibilities to other people as long as there is one person on the team who is the decision maker.

- Product Owner Proxy
- Chief Product Owner
- Product line owner
- Feature product owner

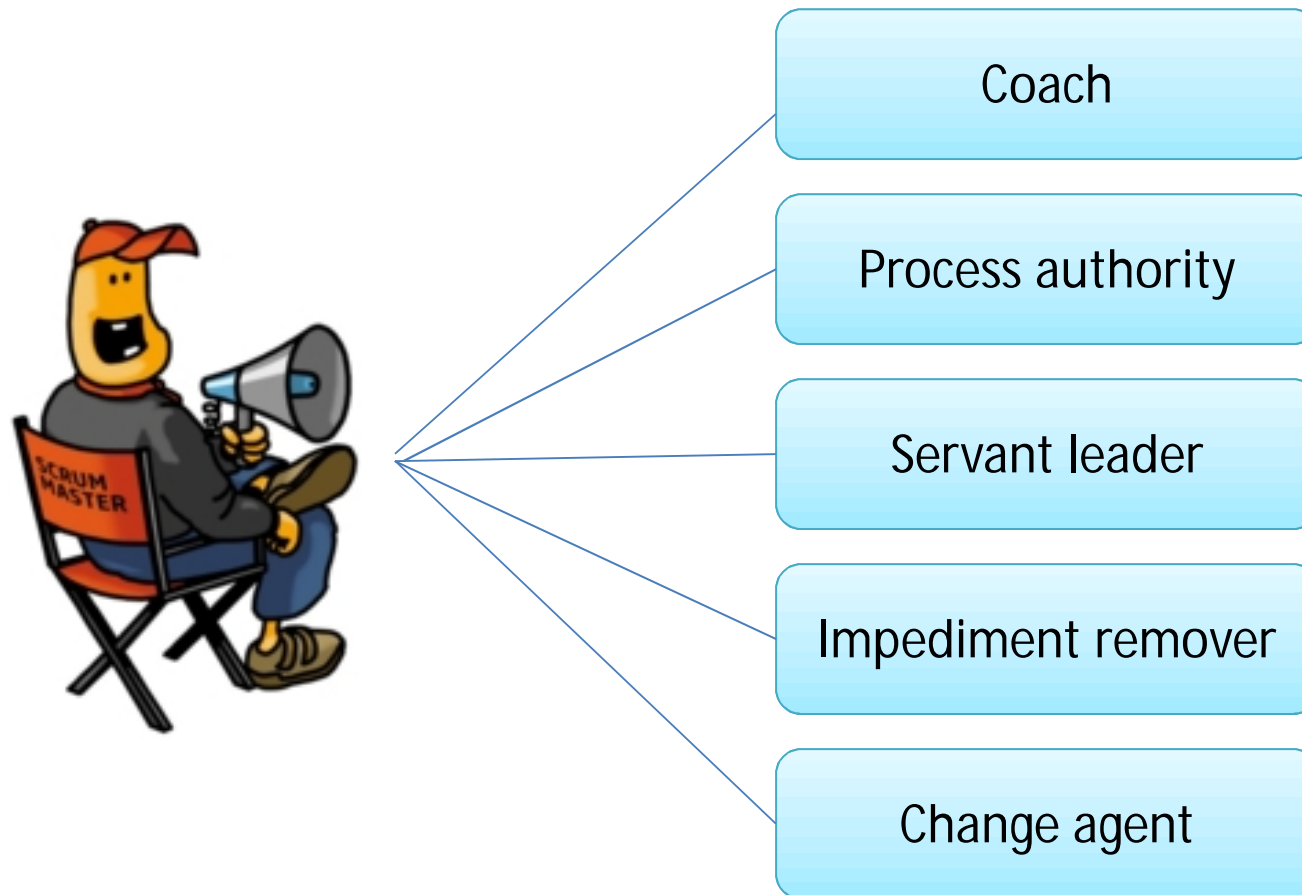# 5.2 SCRUM MASTER

5.2: Scrum Master

- 5.2.1 Introduction
- 5.2.2 Principal Responsibilities
- 5.2.3 Characteristics/Skills
- 5.2.4 A Day in the Life
- 5.2.5 Fulfilling the Role

SCRUM MASTER

- Be a facilitator

  - ❖ focused on helping everyone understand and embrace the Scrum values, principles, and practices

- Remove obstacles faced by the team

- Assist the team in achieving the iteration goals

- Coach the team on SCRUM principles

  - ❖ Acts as a coach to both the development team and the product owner

SCRUM MASTER - Responsibilities

Coach

Process authority

Servant leader

Impediment remover

Change agent

SCRUM MASTER- Coach

- Coaches both the development team and the product owner

  - ❖ Can remove barriers between the roles and enable the product owner to directly drive development

- Observes how the team is using Scrum and does anything possible to help it get to the next level of performance

"I'm not here to solve your problems for you; instead, I'm here to help you solve your own problems."

SCRUM MASTER-Servant Leader

- The Scrum Master is a servant to the Scrum team

Asks ,

❖ What can I do today to help you and the team be more effective?

Instead ,

❖ What are you going to do for me today ?

SCRUM MASTER-Process Authority

- Ensure that the Scrum team adheres to the Scrum values, principles, etc.

- Not the same type of authority that a project manager would have ,

  ❖ The Scrum Master doesn't hire and fire .

  ❖ Cannot dictate to the team what tasks to do or how to do them.

  ❖ Not responsible for making sure the work gets done

SCRUM MASTER-   Interference Shield

- Protects the development team from outside interference

  - ❖ remain focused on delivering business value every sprint

- Acts as an interceptor

SCRUM MASTER- Impediment Remover

- Responsible for removing impediments / obstructions that inhibit the team's productivity.

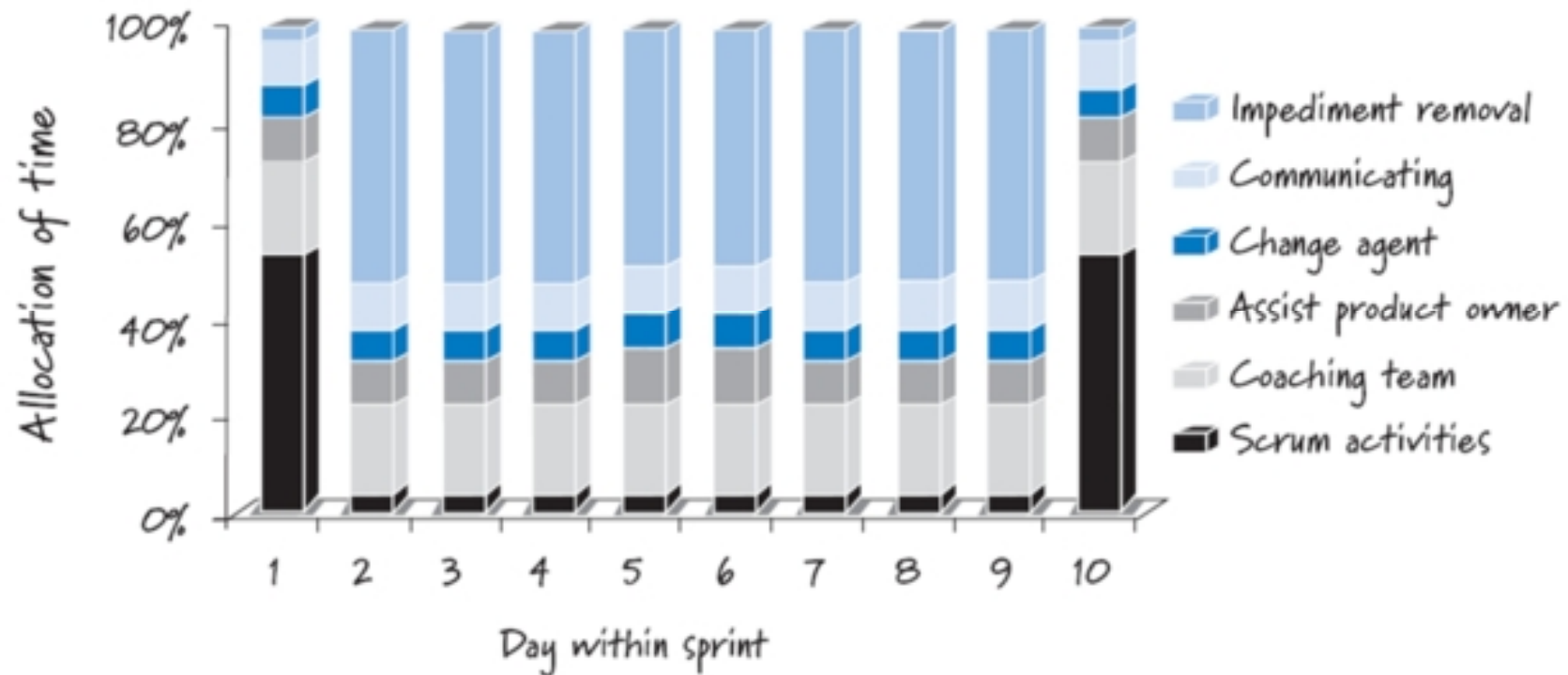Eg: A Scrum team that was consistently fails to meet its sprint goals

impediment can be an unstable production server that the team using during testing.

SCRUM MASTER - Change Agent

- The scrum master not only help change or fix technical issues but change minds too

- Helps others understand the need for change, the impacts of Scrum outside of the Scrum team, and the broad-reaching benefits Scrum can help achieve.

SCRUM MASTER – Spending the day

SCRUM MASTER - Characteristics/Skills

- Knowledgeable

- Questioning

- Patient

- Collaborative

- Protective

- Transparent

SCRUM MASTER- Combined with Other Roles

- If talented enough , one can work both as development team member and Scrum master

    ❖ could suffer from a conflict of interest

- Can be the scrum master for more than one team

- Same person serve as both scrum master and product owner is highly discouraged.

5.3: DEVELOPMENT TEAM IN SCRUM

5.3: Development Team in Scrum

- 5.3.1 Introduction
- 5.3.2 Role-Specific Teams
- 5.3.3 Principal Responsibilities
- 5.3.4 Characteristics/Skills

DEVELOPMENT TEAM

- Traditional software development approaches define various job types
  - ❖ Architect
  - ❖ Programmer
  - ❖ Tester
  - ❖ database administrator etc...

- Scrum defines the role of development team, which is a cross-functional collection of these types of people

> The development team must do all of the work to produce one or more vertical slices of working product functionality

DEVELOPMENT TEAM : Responsibilities

- Perform Sprint Execution

- Inspect and Adapt Each Day

- Groom the Product Backlog

- Groom the Product Backlog

- Inspect and Adapt the Product and Process

DEVELOPMENT TEAM- Characteristics

- Self-organizing
- T-shaped skills
- Cross-functionally diverse and sufficient
- Long-lived
- High-bandwidth communications
- Musketeer attitude
- Right-sized
- Transparent communication
- Works at sustainable pace
- Focused and committed

5.4 SCRUM TEAM STRUCTURES

Reference 01 page 213

5.4: Scrum Team Structures

- 5.4.1 Introduction
- 5.4.2 Feature Teams versus Component Teams
- 5.4.3 Multiple-Team Coordination

Feature Teams Vs Component Teams

- A feature team is a cross-functional and cross-component team that can pull end customer features from the product backlog and complete them.

- A component team focuses on the development of a component that can be used to create only part of an end-customer feature.

> Scrum favors feature teams. Unfortunately, many organizations prefer component teams

Combined feature team and component teams

- A member of a component team can be assigned to be a member of a feature team
  - ❖Better promote shared code ownership within the feature teams (pollinator)
  - ❖Collect changes that the feature teams need to make within component areas and discuss those changes with their colleagues on the component teams (harvester)
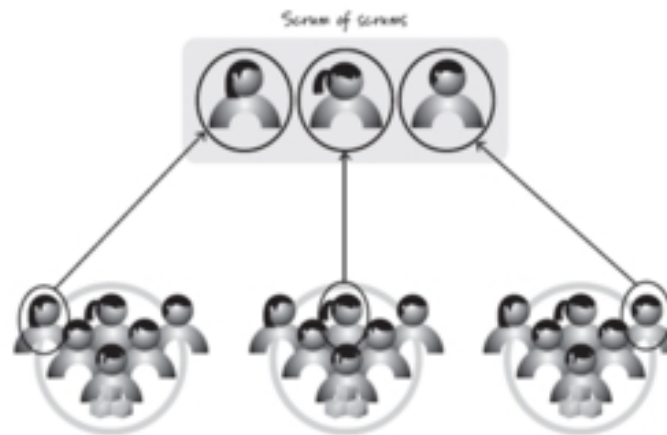
Multiple-Team Coordination

- Scrum scales by having multiple right-sized Scrum teams

- How to coordinate those teams ?
  - ❖ scrum of scrums
  - ❖ release train.

Team Coordination : Scrum of Scrums

- Allows multiple teams to coordinate their inter-team work

- Individual members of the various development teams participate

  ❖ development team determines based on who can best speak to the inter-team dependency issues
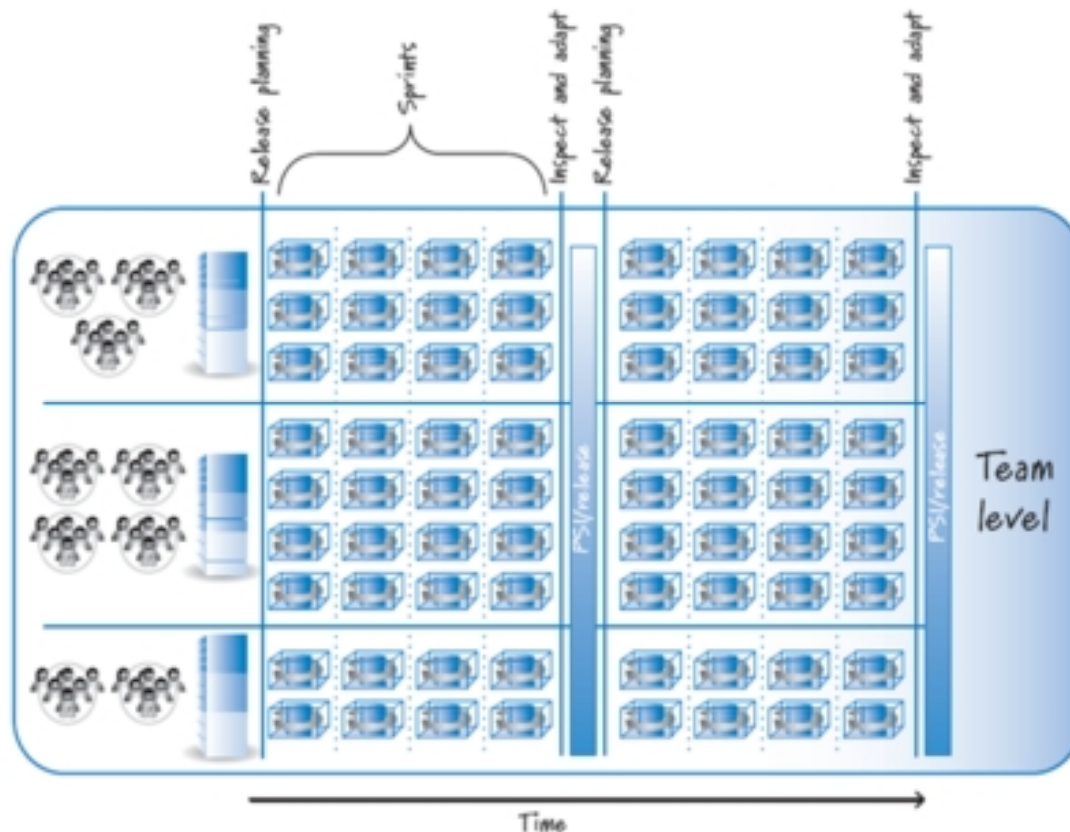
47

Refer to page 219

Team Coordination : Release Train

- Cross-team synchronization.
- Focuses on fast, flexible flow at the level of a larger product.
- The train metaphor is used .
  - ❖ Features will "leave the station."
  - ❖ Need to get their "cargo" onto the train at the appointed time.
  - ❖ The release train always "departs" on time and "waits" for no one
  - ❖ if a team misses the train, there will be another train departing at a known time in the future

Team Coordination : Release Train

- Nine teams clustered into three feature areas

- Each team within a feature area performs its own sprint

- Using a technique like scrum of scrums, all the teams within a feature area coordinate their work

Refer to page 221