



SWEN90016

# Software Processes & Project Management

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2019 – Semester 2  
Lecture 2



## Lecture Quizzes

1. Not marked.
2. Majority of exam multiple choice questions will be selected from these.

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## Lecture 1 – Recap

- ✓ Understand Assignments and our expectations
- ✓ Understand key elements of a Project and why organisations use them
- ✓ Understand the foundational components of Project Management
- ✓ Understand key skills, responsibilities & activities of a Project Manager
- ✓ Understand key elements of how to manage Projects
- ✓ Exposure to some Project Management Methodologies

## Lecture 1 – Recap

- ✓ Explore key drivers in why projects fail / succeed
- ✓ Understand how organisations select the best / right projects
- ✓ Understand the Project Initialization process, Business Case structure and why organisations use them
- ✓ Explore various Investment techniques and financial models
- ✓ Understand responsibilities associated with building a Business Case and the accountable group / individual
- ✓ Understand what a Project Charter is and how it is used



## L1 - Recap





# 2019 - Semester 2 Structure

Week #	Lecture Date	Old Arts Public Lecture Theatre Friday 3.15pm to 5.15pm	Assignment
1	29/07/19	Subject Introduction, Introduction to Projects and Project Management	
2	05/08/19	<b>Project Management Plan, SDLC's and Agile</b>	<b>Assignment 1 Spec available on LMS Friday 09/08</b>
3	12/08/19	Individuals, Motivation and Teams	
4	19/08/19	Stakeholder Management Communication Management	Assignment 2 available & Groups created during the workshops / tutorials – attendance mandatory
5	26/08/19	Project Planning and Scheduling Assignment 1 & 2 open forum / discussion	Assignment 1 (Individual) due Fri 30/08 @ 11.59 pm
6	02/09/19	Cost Estimation	
7	09/09/19	Risk Management	
8	16/09/19	Quality Management/Configuration Management	Assignment 2 (Part 1) due Wed 18/09 @ 11.59 pm
9	23/09/19	<b>University Holiday</b>	
	30/09/19	<b>Non Teaching Week – Mid semester break</b>	Assignment 2 (Part 2) due Sat 05/10 @ 11.59 pm
10	07/10/19	Ethics, Outsourcing & Procurement	Assignment 2 (Part 3) due Sat 12/10 @ 11.59 pm
11	14/10/19	Guest Lecture	Assignment 2 (Final) due Sat 19/10 @ 11.59 pm
12	21/10/19	Subject Revision and Exam Prep	Assignment 2 Project Demonstration during tutorials

## L2 - Intended Learning Objectives

1. Understand what a Process is and its relevance to Project Management.
2. Understand what a Project Management Plan (PMP) is and when it should be used.
3. Understand the components of a Project Management Plan.
4. Understand what a Software Development Lifecycle (SDLC) is and the advantages / disadvantages of various models.

## L2 - Intended Learning Objectives

5. Understand what Agile is and its origins.
6. Understand the Agile framework.
7. Understand Scrum – Roles, Ceremonies and Artefacts.
8. Understand advantages / disadvantages of Agile.
9. Understand some questions to help select which approach to use.

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# What is a Process?

A set of actions or activities  
that are randomly completed  
to achieve any outcome

A set of actions or activities  
that are randomly completed  
to achieve any outcome

A specific activity that is  
partially completed

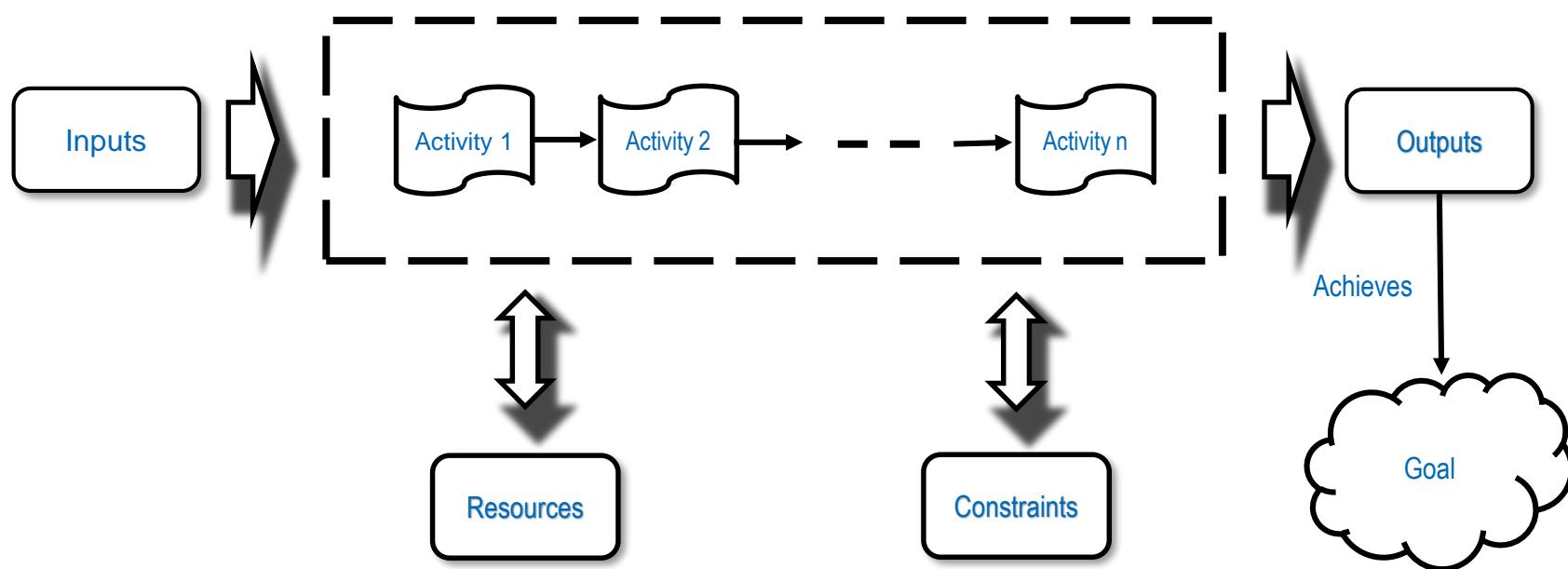
All of the above

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## L2.1 – What is a Process?

A process is a series of progressive and interdependent steps by which an end is attained.



## L2.1 – What does a Process have to do with Project Management and Software Engineering?

1. Project Management is a process as it defines a series of tasks (Planning, Executing and Controlling Projects) to deliver a specific / agreed outcome.
2. System Development Lifecycle (SDLC) is a term used in Software Engineering. It describes a process for planning, creating, testing, and deploying an information system. SDLC can be composed of hardware only, software only, or a combination of both.

## L2 - Intended Learning Objectives

1. ~~Understand what a Process is and its relevance to Project Management.~~
2. **Understand what a Project Management Plan (PMP) is and when it should be used.**
3. Understand the components of a Project Management Plan.
4. Understand what a Software Development Lifecycle (SDLC) is and the advantages / disadvantages of various models.

## L2.2 – Project Management Plan (Formal)

Almost every organisations will have it's own “version” of a Project Management Plan (PMP), however the reasons they have and use them are the same.

A PMP is a formal approved document that defines how the project is executed, monitored and controlled. It may be a summary or a detailed document.

It is a document that is owned, controlled and populated by the Project Manager and is used throughout the project.

A good PMP provides the required level of detail across key project components and is the one source of truth for all parties involved across the project.



# Lecture 2

## L2.2 – Project Charter V Project Management Plan

A Project Charter is a summary project proposal to secure approval for the project goals and terms (useful as part of Business Case).

A PMP is an approved document showing how to achieve the approved project goals / benefits and provides the details on how to execute and manage the project (used as part of mobilisation and on-going management of the project).

**Simple Project Charter**

**Project Name:** [Project Name]

**Target Date:** [Date]

**Project Description:**  
Write out the project description here. Write out the project description here.

**Costs**

Item	Quantity	Rate	Total
Resources			
Equipment			
<b>Budget</b>			

**Project Team**

- Person 1 – Project Manager
- Person 2 – Team Lead
- Person 3 – Analyst
- Person 4 – Developer
- Person 5 – Quality
- Person 6 – Trainer
- Person 7 – Other
- Person 8 – Other
- Person 9 – Other
- Person 10 – Other

**Milestone 1** [date]  
[Description of what will be accomplished on this milestone]

**Milestone 2** [date]  
[Description of what will be accomplished on this milestone]

**Milestone 3** [date]  
[Description of what will be accomplished on this milestone]

**Gains**

Item	Quantity	Rate	Total
Cost Savings			
Time Savings			
Revenue Gain			
<b>Net Total</b>			

SWEN90016 Software Processes and Project Management -33- IT ALL STARTS HERE

**Primary Use:** Summary (few pages) of key information used to communicate, engage, gain buy-in and obtain approvals.

Section	Description	Period	Duration	Start Date	End Date
1. Title Page	Project Charter Template (Template)	2 days	2 days	Mon Nov 19	Mon Nov 20
2. Executive Summary	Project Charter	2 days	2 days	Mon Nov 19	Mon Nov 20
3. Table of Contents	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
4. Introduction	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
5. Project Scope	Project Charter	2 days	2 days	Mon Nov 19	Mon Nov 20
6. Project Description	Project Charter	2 days	2 days	Mon Nov 19	Mon Nov 20
7. Business Value	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
8. Constraints	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
9. Assumptions	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
10. Milestones	Project Charter	2 days	2 days	Mon Nov 19	Mon Nov 20
11. Deliverables	Project Charter	2 days	2 days	Mon Nov 19	Mon Nov 20
12. Project Charter Review	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
13. Project Charter Approval	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
14. Project Charter Distribution	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
15. Project Charter Audit	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
16. Project Charter Status	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
17. Project Charter Version	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
18. Project Charter Version History	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
19. Project Charter Version Control	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
20. Project Charter Version Log	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
21. Project Charter Version Control	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
22. Project Charter Version Control	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
23. Project Charter Version Control	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
24. Project Charter Version Control	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
25. Requirements Analysis	Project Charter	2 days	2 days	Mon Nov 19	Mon Nov 20
26. Requirements Gathering	Project Charter	2 days	2 days	Mon Nov 19	Mon Nov 20
27. Requirements Planning	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
28. Requirements Design Review	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
29. Requirements Design Review	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
30. Requirements Design Review	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
31. Requirements Analysis	Project Charter	2 days	2 days	Mon Nov 19	Mon Nov 20
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37. Requirements Gathering	Project Charter	2 days	2 days	Mon Nov 19	Mon Nov 20
38. Requirements Planning	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
39. Requirements Design Review	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
40. Requirements Design Review	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
41. Requirements Analysis	Project Charter	2 days	2 days	Mon Nov 19	Mon Nov 20
42. Requirements Gathering	Project Charter	2 days	2 days	Mon Nov 19	Mon Nov 20
43. Requirements Planning	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
44. Requirements Design Review	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21
45. Requirements Design Review	Project Charter	1 day	1 day	Tue Nov 20	Tue Nov 21

**Primary Use:** Detailed document used to establish and manage the project. Defines all key items the project needs to consider.



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## L2.3 – Project Management Plan (Formal)

A typical PMP consists of all / or most of the following categories.

- *Project Information*
  - Executive Summary
  - Financial Authority to proceed
  - Key Stakeholders
  - Scope
  - Delivery approach / SDLC - Waterfall or Agile
  - Resources / People
  - Key Milestones
  - Project Budget
  - Lessons learned applied to this project
  - Constraints

## L2.3 – Project Management Plan (Formal)

And.....

- *Project Governance*
  - Roles and Responsibilities
  - Mandatory Project Planning / Key Additional Activities
    - Schedule
    - Risk Management
    - Cost Estimation
    - Quality Assurance
    - Configuration Management (Change Management)

The PMP is a large multi-page document that takes time to prepare, review and complete. Multiple people (subject experts) are involved and prepare the specific details. The Project Manager coordinates all items and has ultimate accountability for the quality and final outcome.



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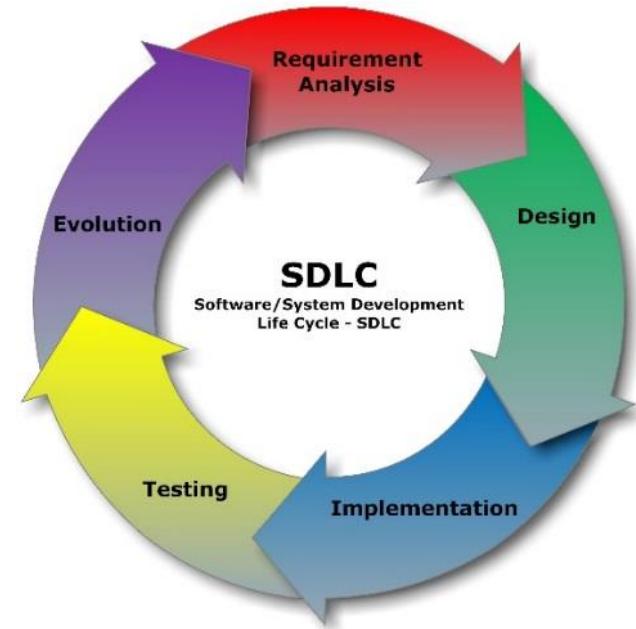


## L2.4 – Software Development Life Cycle (SDLC)

The systems development life cycle (SDLC), also referred to as the application development life-cycle, is a term used in systems engineering, information systems and software engineering to describe a **process** for planning, creating, testing and deploying an information system.

Activities in SDLC:

- Requirements gathering
- Systems / Architectural Design
- Implementation / coding / Integration
- Testing
- Evolution:
  - Delivery and Release - Deployment
  - Maintenance





## L2.4 – SDLCs

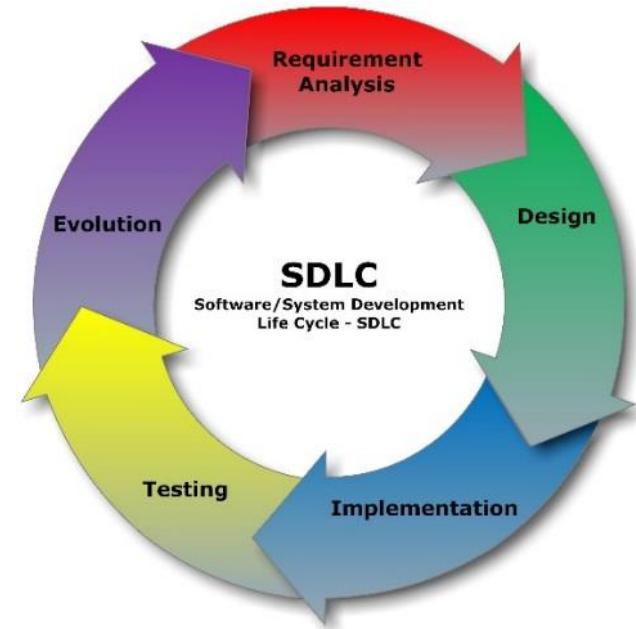
There are many SDLCs around with organisations typically favouring a blend of Formal and Agile approaches.

### Formal Processes

- Waterfall
- Incremental
- V-Model

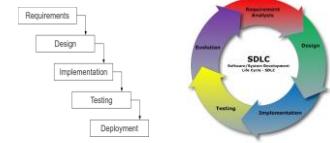
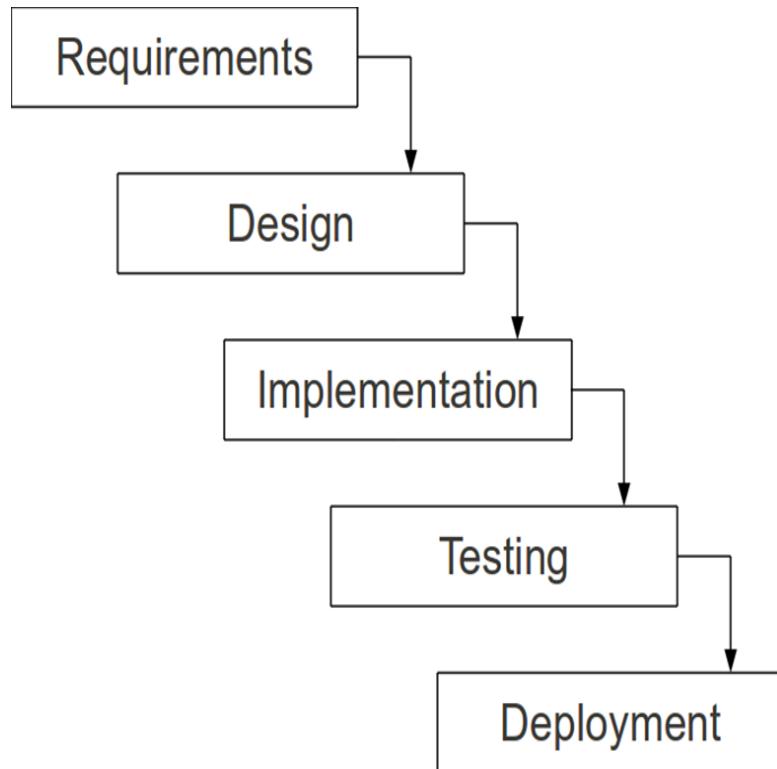
### Agile Processes

- Extreme Programming
- Scrum
- Kanban





## L2.4 – SDLC - Waterfall



### Advantages

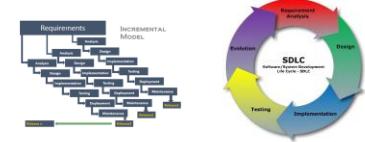
- Simple and easy to understand and use
- Easy to manage due to the rigidity of the model
- Phases are processed and completed one at a time
- Documentation available at the end of each phase
- Works well for projects where requirements are very well understood and remain stable

### Disadvantages

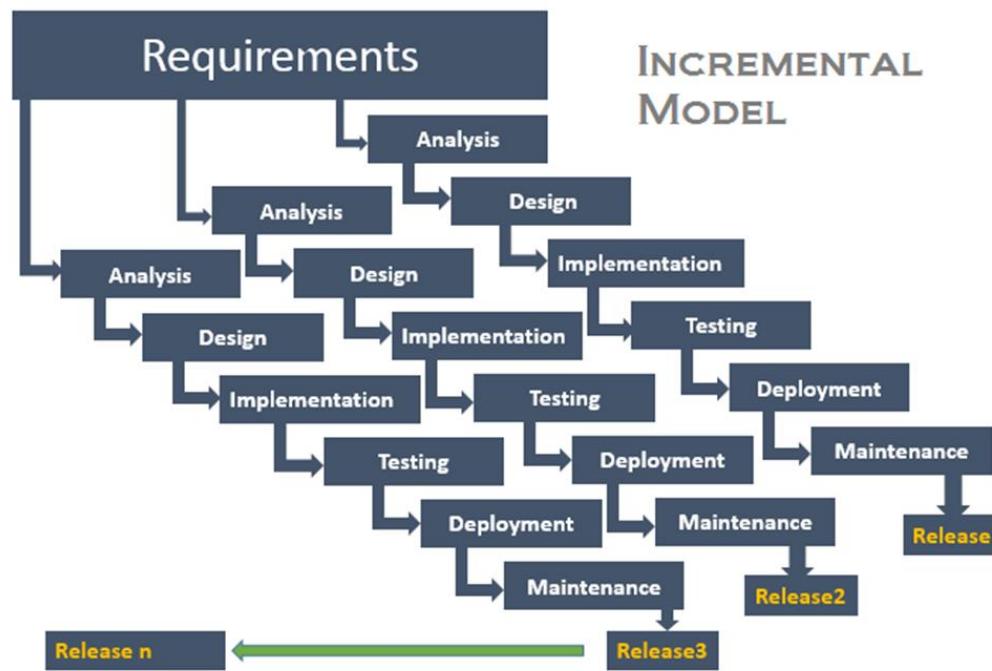
- Difficult to accommodate change after the process is underway
- One phase must be completed before moving on to the next
- Unclear requirements lead to confusion
- Client approval is in the final stage
- Difficult to integrate risk management due to uncertainty



## L2.4 – SDLC – Incremental Model

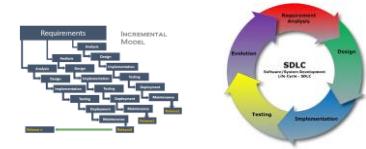


In incremental model the **whole requirement** is divided into various releases. Multiple cycles take place, making the life cycle a **multi-waterfall** cycle. Cycles are divided up into smaller, more easily managed modules.





## L2.4 – SDLC – Incremental Model



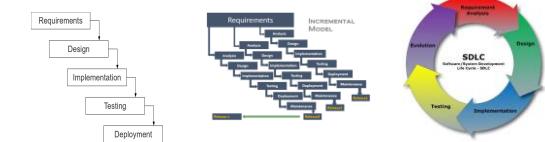
### Advantages

- Each release delivers an operational product
- Less costly to change the scope/requirements
- Customers can respond to each build
- Initial product delivery is faster
- Customers get important functionality early
- Easier to test and debug during smaller iterations

### Disadvantages

- More resources may be required
- More management attention is required
- Defining / partitioning the increments is difficult and often not clear
- Each phase of an iteration is rigid with no overlaps
- Problems may occur at the time of final integration

## L2.4 – SDLC – Formal Models



### Characteristics where “Formal” Models make sense to use

- Projects where the customer has a very clear view of what they want
- Projects that will require little or no change to requirements
- Software requirements are clearly defined and documented
- Software development technologies and tools are well-known
- Large scale applications and systems developments

# Which of the following information is typically captured in a Project Management Plan?

Executive Summary

Project costs and benefits / value

Project milestones

Project team / resources

All of the above

# Which of the following is a formal SDLC?

Waterfall

Rainforest

Journey  
cycle

All of the  
above

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5. Understand what Agile is and its origins.
6. Understand the Agile framework.
7. Understand Scrum – Roles, Ceremonies and Artefacts.
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9. Understand some questions to help select which approach to use.



## L2.5 – SDLCs

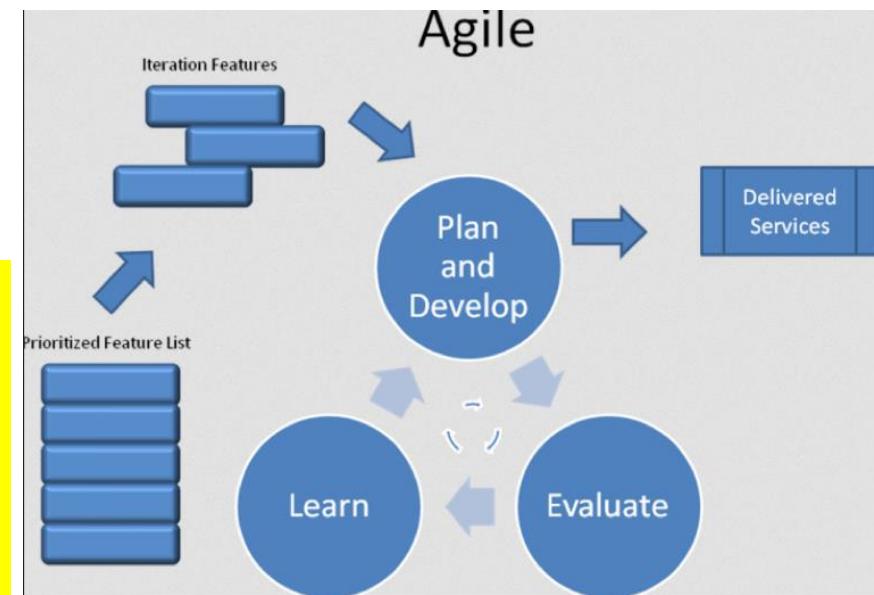
There are many SDLCs around with organisations typically favouring a blend of Formal and Agile approaches.

### Formal Processes

- Waterfall
- Incremental
- V-Model

### Agile Processes

- Kanban
- Extreme Programming
- Scrum



## L2.5 – Why is Agile attractive

- We are in an ever changing global world with the pace of change increasing
- Customer needs and demands are exponentially increasing – products must continually be delivered
- Low Technology cost, ease of use and the global market place has increased competition and reduced entry barriers
- The war for talent is over – and we have lost! Cross functional teams help minimise the potential loss
- Long development cycles are like long lunches – a thing of the past
- Quality is no longer something we do / check later – it must be part of everything we do
- Cross functional groups are more fun!

## L2.5 – What is Agile

- A set of methodologies based on iterative development where requirements and solutions evolve through collaboration between self-organising cross-functional teams
- A disciplined process that encourages frequent inspection and adaptation
- A leadership philosophy that encourages teamwork, self-organisation and accountability
- A set of engineering best practices intended to allow for rapid delivery of high-quality software
- A business approach that aligns development with customer needs and company goals

## L2.5 – What is Agile

- In software development, we think about methodologies, activities, interactions, results, work products, artefacts and processes to organise the work.

*The main tasks of software development remain the same regardless of methodology used, however with Agile, the flow of activities, how they are undertaken and who is involved is extremely different.*

## L2.5 – What is Agile - Origins

- Changes initiated in large US corporates in 1990's
- Software engineers frustrated with
  - long lead times before products were delivered
  - Decisions made early in the project couldn't be changed later
- 17 software engineer thought leaders met first in 2000 to discuss software engineering and different approaches
- Famous meeting in 2001 at the Snowbird ski lodge in Utah where they met to change the way the industry designed, engineered and deployed software
- Brought together by the Agile Manifesto

<https://techbeacon.com/agility-beyond-history%E2%80%94-legacy%E2%80%94-agile-development>

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## L2.6 – Agile Framework

Primary elements of the Agile framework include:

- Manifesto
- 12 Key Principles
- Kanban
- Scrum

## L2.6 – Agile Framework - *Manifesto*

### Agile Manifesto

We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:

Individuals and interactions	over	processes and tools
Working software	over	comprehensive documentation
Customer collaboration	over	contract negotiation
Responding to change	over	following a plan

That is, while there is value in the items on the *right*, we value the items on the *left* more.

<http://www.agilealliance.org>

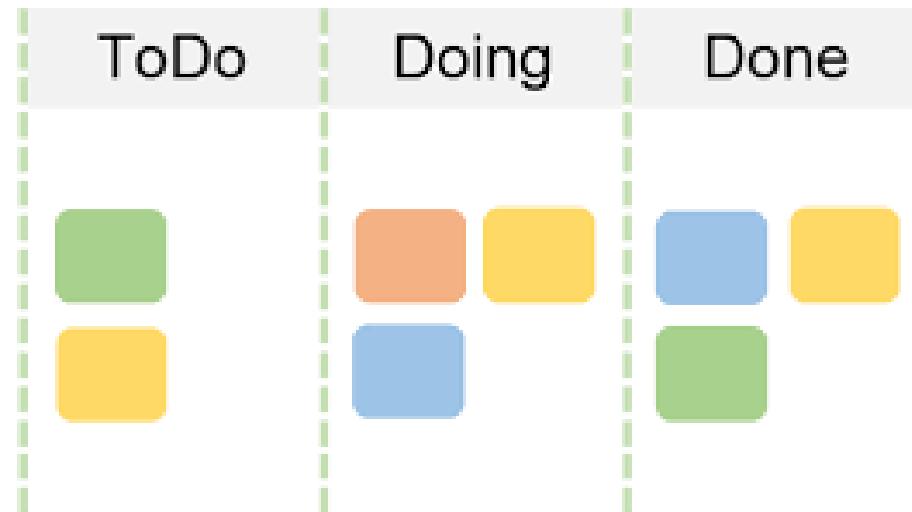
## L2.6 – Agile Framework – *12 Key Principles*

1. Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.
2. Welcome changing requirements, even late in development. Agile harness change for the customer's competitive advantage.
3. Deliver working software frequently, from a couple of weeks to a couple of months, shorter timeframes is the preference.
4. Business people and developers must work together daily throughout the project.
5. Build projects around motivated individuals. Give them the environment and support they need and trust them.
6. The most efficient and effective method of conveying information to and within a development team is face-to-face
7. Working software is the primary measure of progress.
8. Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
9. Continuous attention to technical excellence and good design enhances agility.
10. Simplicity - the art of maximizing the amount of work not done - is essential.
11. The best architectures, requirements, and designs emerge from self-organising teams.
12. At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.



## L2.6 – Agile Framework - *Kanban*

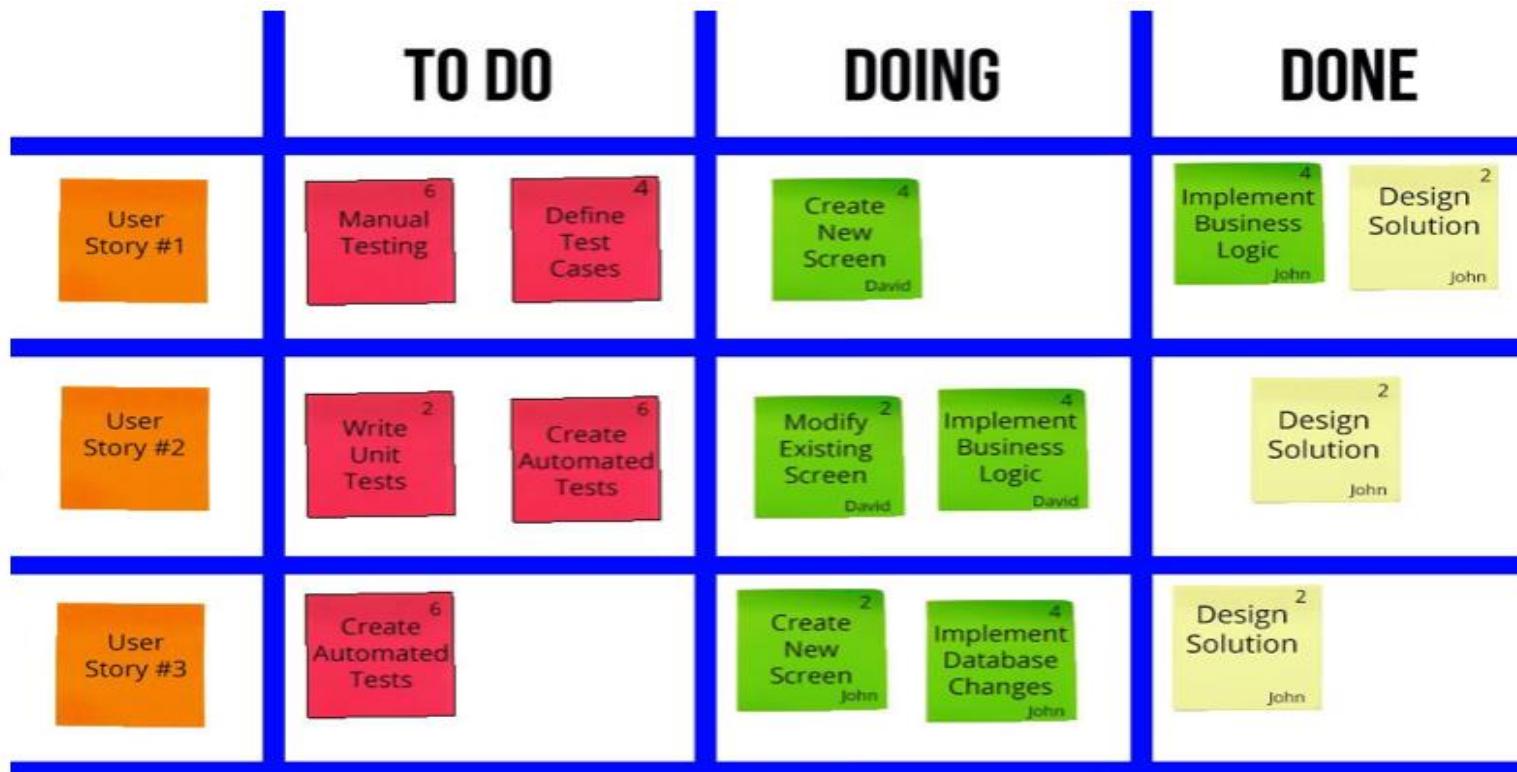
- ***Signboard / Billboard:*** Work items are visualised to provide participants a view of progress and process, from start to finish usually via a Kanban board





## L2.6 – Agile Framework - *Kanban*

Visual progress gives transparency/accountability for self-organizing teams often referred to as **SWIMLANE** boards





## L2.6 – Agile Framework - *Scrum*

Scrum is an agile way to manage a project

“The... ‘relay race’ approach to product development...may conflict with the goals of maximum speed and flexibility. Instead a holistic or ‘rugby’ approach—where a team tries to go the distance as a unit, passing the ball back and forth—may better serve today’s competitive requirements.”

Hirotaka Takeuchi and Ikujiro Nonaka, “The New New Product Development Game”, *Harvard Business Review*, January 1986.



# Lecture Break

## BREAK

Please return promptly as the

Lecture will re-start in **5 mins**

# What is Agile?

A set of methodologies based on iterative development where requirements and solutions evolve through collaboration between self-organising cross-functional teams

A software development methodology that does not require any structure or documentation

An approach that enables developers and projects to self-select and deliver what they feel is the best solution for the customer

The way you describe the flexibility of the development / project team working on specific activities

# What is a Scrum in the Agile world

Something the team does on the weekend when they play rugby

**A**

A set of practices used in agile project management that emphasise daily communication

**B**

Something that developers used to build a website

**C**

A sequential process to deliver an outcome similar to a relay race

**D**

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## L2.7 – Scrum

### Scrum in 100 words

- Scrum is an agile process that allows us to focus on delivering the highest business value in the shortest time.
- It allows us to rapidly and repeatedly inspect actual working software (every two to four weeks).
- The business sets the priorities. Teams self-organise to determine the best way to deliver the highest priority features.
- Every two to four weeks, you can see real working software and decide to release it as is or continue to enhance it for another sprint.

## L2.7 – Scrum is used by many organisations

- Microsoft
- Yahoo
- Google
- Electronic Arts
- High Moon Studios
- Lockheed Martin
- Philips
- Siemens
- Nokia
- Capital One
- BBC
- Intuit
- Intuit
- Nielsen Media
- First American Real Estate
- BMC Software
- Ipswitch
- John Deere
- Lexis Nexis
- Sabre
- Salesforce.com
- Time Warner
- Turner Broadcasting
- Oce

## L2.7 – Scrum is used for all types of projects

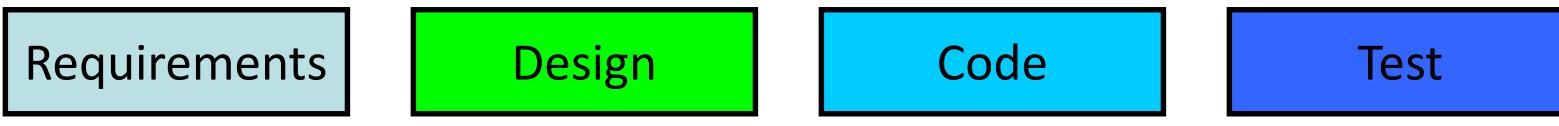
- Commercial software
- In-house development
- Contract development
- Fixed-price projects
- Financial applications
- ISO 9001-certified applications
- Embedded systems
- 24x7 systems with 99.999% uptime requirements
- the Joint Strike Fighter
- Video game development
- FDA-approved, life-critical systems
- Satellite-control software
- Websites
- Handheld software
- Mobile phones
- Network switching applications
- ISV applications
- Some of the largest applications in use

## L2.7 – Scrum Key Characteristics

- Self-organising teams
- Product progresses in a series of focused sprints
- Requirements are captured as items in a list of product backlog
- Scrum is one of the agile processes – the one most widely used, discussed and debated
- Time frame is contained to a manageable size (weeks or months)



## L2.7 – Scrum Framework - *Sprints*



Rather than doing one thing at a time...

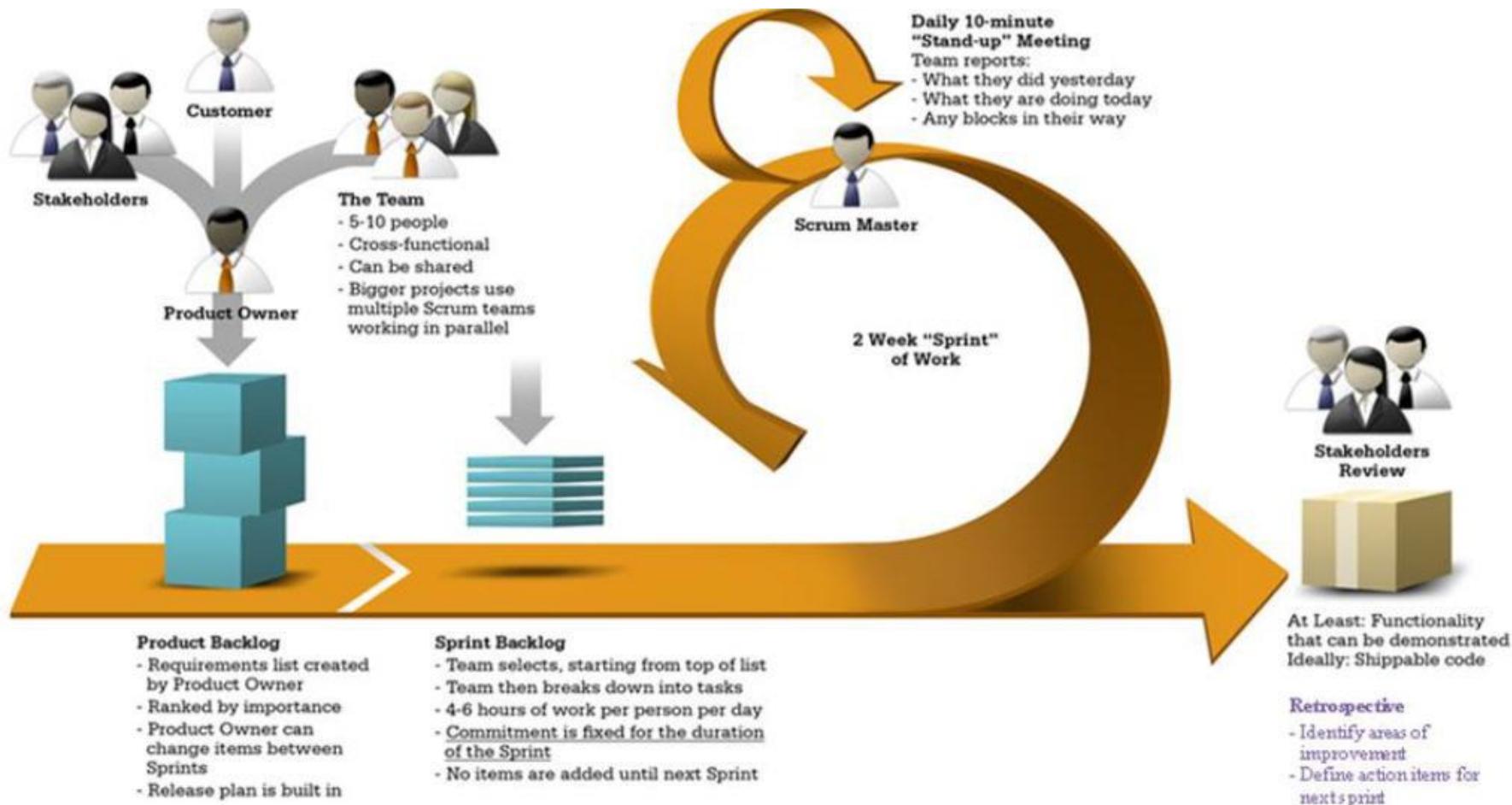
...Scrum teams do a little of everything all the time



Source: "The New New Product Development Game" by Takeuchi and Nonaka. Harvard Business Review, January 1986.



## L2.7 – Scrum Framework





## L2.7 – Scrum Framework

### Roles

- Product owner
- ScrumMaster
- Team

[www.mountaingoatsoftware.com](http://www.mountaingoatsoftware.com)

### Ceremonies

- Sprint planning
- Sprint review
- Sprint retrospective
- Daily stand-ups

### Artifacts

- Product backlog
- Sprint backlog
- Burndown charts



## L2.7 – Scrum Roles

### Roles

- Product owner
- ScrumMaster
- Team

### Ceremonies

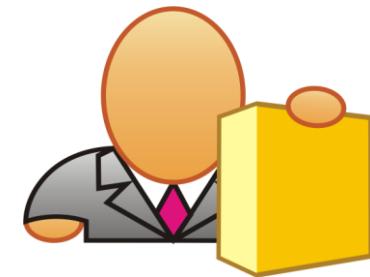
- Sprint planning
- Sprint review
- Sprint retrospective
- Daily stand-ups

### Artifacts

- Product backlog
- Sprint backlog
- Burndown charts

## L2.7 – Scrum Roles – *Product Owner*

- Defines the features of the product
- Decides on release date and content
- Is responsible for the Benefits / Profitability of the product (ROI)
- Prioritises features according to market value
- Adjusts features and priority every iteration, as needed
- Accepts or reject work results



## L2.7 – Scrum Roles – *Scrum Master*



- Represents management to the project
- Responsible for enacting Scrum values and practices
- Removes impediments / road blocks
- Ensures that the team is fully functional and productive
- Enables close cooperation across all roles
- Shields the team from external interferences
- Is a member & active participant of the Scrum Team



## L2.7 – Scrum Roles – *The Team*



- Typically 6 - 9 people
- Cross-functional:
  - Programmers, testers, user experience designers, business representatives etc.
- Members should be full-time – some exceptions
- Co-located (physically or virtually)



## L2.7 – Scrum Ceremonies / Meetings

### Roles

- Product owner
- ScrumMaster
- Team

### Ceremonies

- Sprint planning
- Sprint review
- Sprint retrospective
- Daily stand-ups

### Artifacts

- Product backlog
- Sprint backlog
- Burndown charts

## L2.7 – Scrum Ceremonies / Meetings

### *Sprint Planning*

- Defines how to achieve sprint goal (design)
- Create sprint backlog (User Stories) from product backlog
- Estimate sprint backlog in team velocity and Story Points
- Product Owner priority guides the work
- Release Plan is created
- High-level design is considered

## L2.7 – Scrum Ceremonies / Meetings

### *Sprint Planning Meeting*

#### 1<sup>st</sup> Half of the meeting

- Team defines **what** can be done in this sprint
- Starts by writing down the Sprint goal
- Identify the items from the backlog that can achieve this

#### 2<sup>nd</sup> Half of the meeting

- Team figures out **how** the work will get done
- Break down each item in the sprint backlog into tasks to capture all the work required
- The tasks form the basis of the sprint plan that is used to track, cost and manage progress

Source: Head First Agile – A Brain-Friendly Guide to Agile Principles, Ideas, and Real-World Practices By [Andrew Stellman, Jennifer Greene](#)



## L2.7 – Scrum Ceremonies / Meetings

### *Daily Stand-up*

- Parameters
  - Daily
  - 15-minutes and no more than 30 mins
  - Stand-up
- Not for problem solving / Not a status meeting
  - Whole world is invited
  - Only team members, ScrumMaster, product owner, can talk
- Helps avoid other unnecessary meetings
- 3 key questions asked:
  1. What did I do yesterday.
  2. What will I do today.
  3. What is in my way to get my work completed.





## L2.7 – Scrum Ceremonies / Meetings

### *Sprint Reviews - Showcase*

- Team presents what it accomplished during the sprint
- Typically takes the form of a demo of new features or underlying architecture
- Informal
- 2-hour prep time rule
- No slides
- Whole team participates
- Invite the world



## L2.7 – Scrum Ceremonies / Meetings

### *Sprint Retrospective*

- Periodically look at what is and isn't working
- Typically 30 minutes
- Done after every sprint
- Whole team participates:
  - ScrumMaster and Team
- Possibly Product Owner, customers and others
- Discuss what to:
  - Start Doing, Stop Doing and Continue Doing



## L2.7 – Scrum Artefacts

### Roles

- Product owner
- ScrumMaster
- Team

### Ceremonies

- Sprint planning
- Sprint review
- Sprint retrospective
- Daily stand-ups

### Artifacts

- Product backlog
- Sprint backlog
- Burndown charts

## L2.7 – Scrum Artefacts – Product Backlog

### User Stories

- A User Story is a requirement expressed from the perspective of an end-user / customer of the system
- User stories shift the focus from writing about requirements to talking about them
- User stories are short, simple descriptions of a feature told from the perspective of the customer who wants the new capability of the system. They follow a simple template:
  - *As a < type of user >, I want < some goal > so that < some reason >*

## L2.7 – Scrum Artefacts – Product Backlog

### User Stories

- User stories are written at varying levels of detail.
- They can cover a large amounts of functionality such as this example from a Professional Membership Website:
  - *As a site visitor, I can get all information associated with my professional membership*
- Because this level of detail is too large for an agile team to complete in one iteration, it is sometimes split into smaller user stories before it is worked on



## L2.7 – Scrum Artefacts – Product Backlog

### Story Points

- Story points are a unit of measure for expressing an estimate of the overall effort that will be required to fully implement a product backlog item or any other piece of work
- Story points help estimate how much work can be done in a sprint
- When estimating with story points, a value is assigned to each item. The raw values are unimportant, what matters are the relative values
- A story that is assigned a 2 should be twice as much as a story that is assigned a 1. It should also be two-thirds that is estimated as a 3 story point.
- Instead of assigning 1, 2 and 3, that team could assign 100, 200 and 300. Or 1 million, 2 million and 3 million. It is the ratios that matter, not the actual numbers



## L2.7 – Scrum Artefacts – Product Backlog



### Product Backlog

User Story 1

User Story 2

User Story 3

User Story 4

User Story 5

User Story nn

- The requirements
- A list of all desired work on the project
- Ideally expressed such that each item has value to the users or customers of the product
- Product Backlog User Stories are selected for a Sprint by Product Owner
- Reprioritised at the start of each sprint

## L2.7 – Scrum Artefacts – Product Backlog Example - Professional Body Website

### Product Backlog

User Story 1

User Story 2

User Story 3

User Story 4

User Story 5

User Story 6

#### ***News Section – Sprint 1***

- User Story 1 - As a site visitor, I can read current news on the home page
- User Story 2 - As a site visitor, I can email news items to the editor
- User Story 3 - As a site member, I can subscribe to an RSS feed of news

#### ***Courses and Events – Sprint 2***

- User Story 4 - As a site visitor, I can see a list of all upcoming “Certification Courses.” I can page through them if there are a lot
- User Story 5 - As a site visitor, I can see a list of all upcoming “Other Courses” (non-certification courses). I can page through them if necessary
- User Story 6 - As a site visitor, I can see a list of all upcoming “Events.” Events are things such as the conferences, free seminars, etc.

[www.mountaingoatsoftware.com/agile/scrum/scrum-tools/product-backlog/example](http://www.mountaingoatsoftware.com/agile/scrum/scrum-tools/product-backlog/example)



## L2.7 – Scrum Artefacts – Product Backlog Example - Professional Body Website

### Product Backlog

User Story 1

User Story 2

User Story 3

User Story 4

User Story 5

User Story 6

#### **News Section - Total of 6 Story Points to complete Sprint 1**

- User Story 1 - As a site visitor, I can read current news on the home page – 1 Story Points
- User Story 2 - As a site visitor, I can email news items to the editor – 2 Story Points
- User Story 3 - As a site member, I can subscribe to an RSS feed of news – 3 Story Points

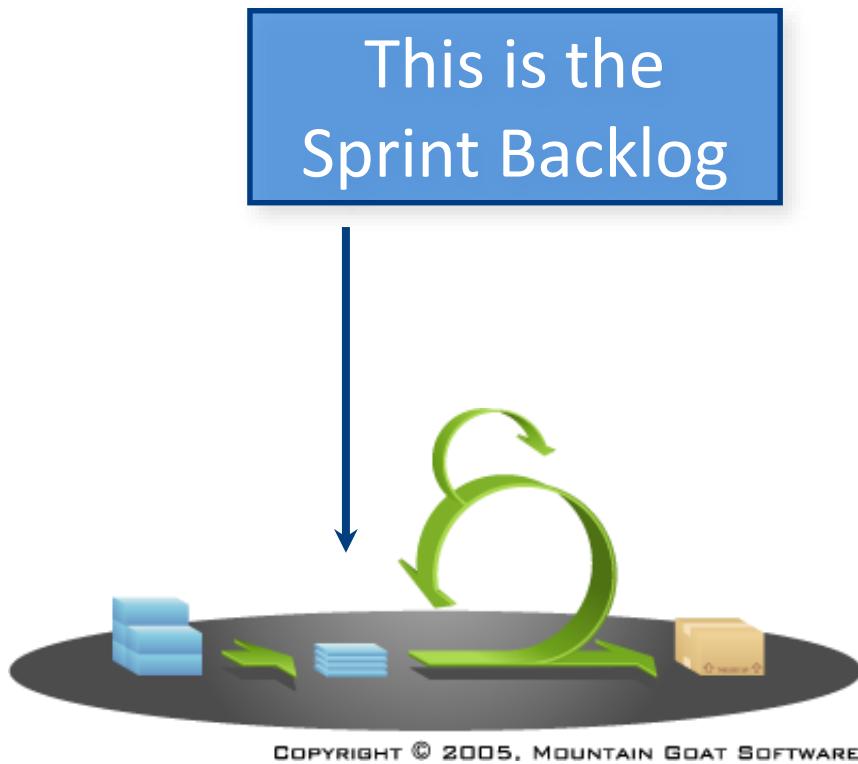
#### **Courses and Events - Total of 8 Story Points to complete Sprint 2**

- User Story 4 - As a site visitor, I can see a list of all upcoming “Certification Courses.” I can page through them if there are a lot – 2 Story Points
- User Story 5 - As a site visitor, I can see a list of all upcoming “Other Courses” (non-certification courses). I can page through them if necessary – 5 Story Points
- User Story 6 - As a site visitor, I can see a list of all upcoming “Events.” Events are things such as the conferences, free seminars, etc. – 1 Story Points

**To complete this total Product Backlog would take 14 Story Points**

[www.mountaingoatsoftware.com/agile/scrum/scrum-tools/product-backlog/example](http://www.mountaingoatsoftware.com/agile/scrum/scrum-tools/product-backlog/example)

## L2.7 – Scrum Artefacts – Sprint Backlog / User Story



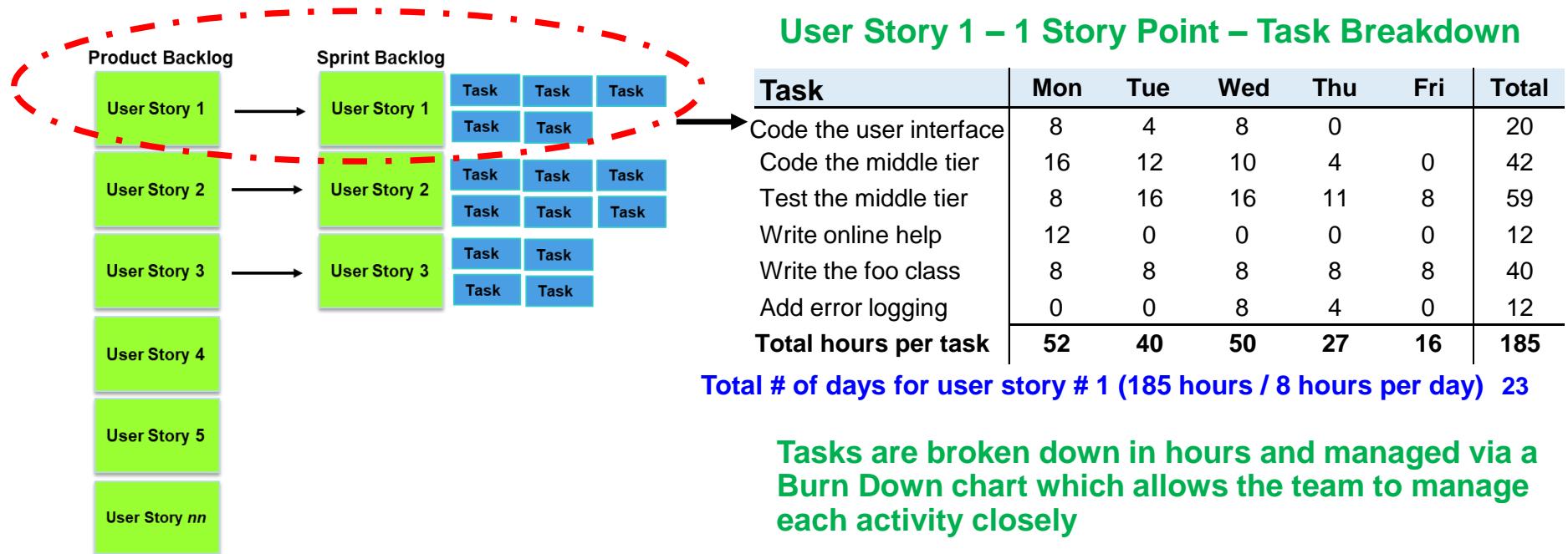
- Scrum team decompose User Stories to Low level User Stories during Sprint Planning
- The User Stories are used for a conversation between the SME and developer. Developer updates the User Stories with the tasks and hours estimates, "Just-In-Time"
- Remaining estimated items are updated daily
- Sprint Backlog is seldom altered
- User stories in the sprint are either completed 100% or not done



## L2.7 – Scrum Artefacts – Sprint Backlog / User Story Example - Professional Body Website

### Sprint Backlog - News Section – 6 Story Points

- User Story 1 - As a site visitor, I can read current news on the home page – 1 Story Points
- User Story 2 - As a site visitor, I can email news items to the editor – 2 Story Points
- User Story 3 - As a site member, I can subscribe to an RSS feed of news – 3 Story Points





## L2.7 – Scrum Artefacts – Burn Down Chart

- A burn down chart is a graphical representation of work left to do versus time.
- The outstanding work (or backlog of user stories) is often on the vertical axis, with time along the horizontal.
- It is used to predict when all of the work will be completed.



# What are the key characteristics of Scrum?

A process that allows teams to focus on delivering the highest business value in the shortest time

The business sets the priorities. Our teams self-manage to determine the best way to deliver the highest priority features

Continued delivery of working software - every two weeks to a month anyone working

All of the above

Start the presentation to see live content. Still no live content? Install the app or get help at [PollEv.com/app](https://PollEv.com/app)

# In which Scrum ceremony does the team provide an update and review activities?

Sprint Planning **A**

Sprint Initialisation **B**

Sprint Review **C**

Daily Stand-ups **D**

Sprint Retrospective **E**

# What is a User Story?

Stories developers tell about nightmare product owners

A

A requirement expressed from the perspective of an end-user / customer of the system

B

All of the above

C

Start the presentation to see live content. Still no live content? Install the app or get help at [PollEv.com/app](https://PollEv.com/app)

# What is a burn down chart?

A burn down chart is a graphical representation of work left to do versus time

Something that is used to show how burnt out the team is

Eminen's latest song

Start the presentation to see live content. Still no live content? Install the app or get help at [PollEv.com/app](https://PollEv.com/app)

## L2.7 – Scrum Summary

- Lets have another look at **SCRUM**

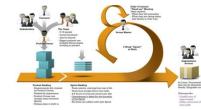
<https://www.youtube.com/watch?v=9TycLR0TqFA>



## L2 - Intended Learning Objectives

5. Understand what Agile is and its origins.
6. Understand the Agile framework.
7. Understand Scrum — Roles, Ceremonies and Artefacts.
8. Understand advantages / disadvantages of Agile.
9. Understand some questions to help select which approach to use.

## L2.8 – Agile – Advantages & Disadvantages



### Advantages

- Customer satisfaction by rapid, continuous delivery of usable software
- People and interactions are emphasised rather than process and tools
- Continuous attention to technical excellence, good design and quality
- Regular adaptation to changing circumstances

### Disadvantages

- Difficult to assess the effort required at the beginning
- Can be very demanding (from traditional approaches) on users time
- Harder for new starters to integrate into the team
- Agile is a very different approach – It can be intense for the team
- Requires experienced resources (which are limited in today's market)



## L2 - Intended Learning Objectives

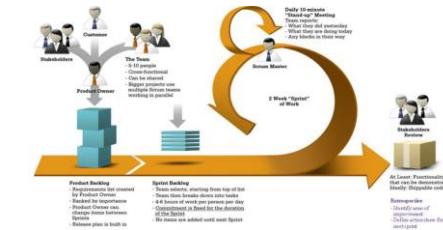
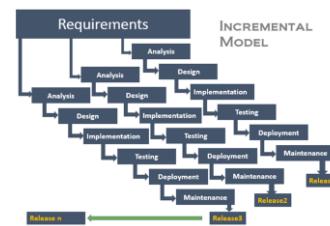
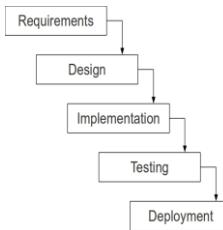
5. Understand what Agile is and its origins.
6. Understand the Agile framework.
7. Understand Scrum – Roles, Ceremonies and Artefacts.
8. Understand advantages / disadvantages of Agile.
9. Understand some questions to help select which approach to use.

## L2.9 – Formal or Agile which one Should I use???



There is no one right answer. The following questions can assist deciding:

- How Stable Are the Requirements?
- Do the end users need to collaborate?
- Is the Time Line Aggressive or Conservative
- What Is the Size of the Project
- Where Are the Project Teams Located
- What Are the Critical Resources?



## Agile Where to find out more information

- [www.agilealliance.org](http://www.agilealliance.org)
- [www.mountaingoatsoftware.com/scrum](http://www.mountaingoatsoftware.com/scrum)
- [www.scrumalliance.org](http://www.scrumalliance.org)
- [www.controlchaos.com](http://www.controlchaos.com)



# 2019 - Semester 2 Structure

Week #	Lecture Date	Old Arts Public Lecture Theatre Friday 3.15pm to 5.15pm	Assignment
1	29/07/19	Subject Introduction, Introduction to Projects and Project Management	
2	05/08/19	Project Management Plan, SDLC's and Agile	Assignment 1 Spec available on LMS Friday 09/08/19
3	12/08/19	<b>Individuals, Motivation and Teams</b>	
4	19/08/19	Stakeholder Management Communication Management	Assignment 2 available & Groups created during the workshops / tutorials – attendance mandatory
5	26/08/19	Project Planning and Scheduling Assignment 1 & 2 open forum / discussion	Assignment 1 (Individual) due Fri 30/08 @ 11.59 pm
6	02/09/19	Cost Estimation	
7	09/09/19	Risk Management	
8	16/09/19	Quality Management/Configuration Management	Assignment 2 (Part 1) due Wed 18/09 @ 11.59 pm
9	23/09/19	<b>University Holiday</b>	
	30/09/19	<b>Non Teaching Week – Mid semester break</b>	Assignment 2 (Part 2) due Sat 05/10 @ 11.59 pm
10	07/10/19	Ethics, Outsourcing & Procurement	Assignment 2 (Part 3) due Sat 12/10 @ 11.59 pm
11	14/10/19	Guest Lecture	Assignment 2 (Final) due Sat 19/10 @ 11.59 pm
12	21/10/19	Subject Revision and Exam Prep	Assignment 2 Project Demonstration during tutorials