LEVEL 5

AGILE DEVELOPMENT

Lecturer Guide

Modification History

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1. Unit Overview and Objectives

This unit provides an introduction to the people, processes, practices and principles of agile development. It will prepare students for the future trends in software development and reinforce their understanding of the information systems development process.

The aims of this unit are to:

- introduce students to the subject of Agile Development;
- provide them with a basic understanding of the main concepts and terminology of Agile;
- give sufficient understanding of the lifecycle, framework, techniques to equip students to work within an agile team.

2. Learning Outcomes and Assessment Criteria

Learning Outcomes; The Learner will:	**Assessment Criteria;** The Learner can:
1. Understand the background to Agile development	1.1 Summarise the background to Agile development 1.2 Explain Agile development in relation to other development approaches (e.g. waterfall)
2. Understand the roles within an Agile development team	2.1 Explain the roles in an Agile development team 2.2 Evaluate the need for a particular role within an Agile development team for a particular project scenario
3. Understand the various Agile development techniques	3.1 Explain the various Agile development techniques 3.2 Evaluate the need for a particular Agile development technique for a particular project scenario
4. Understand an Agile development lifecycle	4.1 Describe an Agile development lifecycle 4.2 Explain the documentation required to support an Agile development lifecycle 4.3 Evaluate the use of an Agile development lifecycle for a particular project scenario
5. Understand the principles associated with an Agile development approach	5.1 Describe the principles associated with an Agile development approach

6. Be able to apply an Agile development approach to a particular project scenario	6.1 Describe how to apply an Agile development approach to a particular problem scenario 6.2 Suggest and justify the members of an Agile development team for a particular project scenario 6.3 Suggest and justify the use of particular Agile development techniques for a particular project scenario 6.4 Define a document set to support an Agile development approach for a particular project scenario 6.5 Populate a document set to support an Agile development approach for a particular project scenario

3. Syllabus

Syllabus			
Topic No	Title	Proportion	Content
1	An Overview of Agile	1/12 2 hour of lectures 2 hours of seminars 1 hour of tutorials	• An introduction and overview of the Agile Development unit • What is Agile? - the history • What Agile Approaches ***Learning Outcomes: 1 & 5***
2	The Agile Approach and Principles	1/12 2 hours of lectures 2 hours of seminars 1 hour of tutorials	• What is DSDM? • Philosophy of Agile and benefits • The 8 principles • The 5 key techniques • The Instrumental success factors • The Project Approach Questionnaire ***Learning Outcomes: 1 & 5***
3	Modelling	1/12 2 hours of lectures 2 hours of seminars 1 hour of tutorials	• What is a model? • Links to the 8 principles • Viewpoints for modelling • Modelling within the Agile lifecycle ***Learning Outcomes: 3 & 6***

4	Roles, Skills and Team Structures	1/12 2 hours of lectures 2 hours of seminars 1 hour of tutorials	• Agile team style (self-directing, empowered) • Agile team size and reasons • Project level roles and responsibilities • Solution Development Team roles and responsibilities • Specialist roles and other supporting roles ***Learning Outcomes: 2 & 6***
5	Lifecycle and Products	1/12 2 hours of lectures 2 hours of seminars 1 hour of tutorials	• The purpose of the configurable lifecycle • The 5 main phases and the two further phases of the lifecycle • For each phase: – Objectives – Preconditions – Points to consider • Products related to lifecycle phases • The three essential perspectives for the products ***Learning Outcomes: 4 & 6***
6	Project Management Considerations Part 1: Control Risk	1/12 2 hours of lectures 2 hours of seminars 1 hour of tutorials	• Key differences in style between Traditional and Agile project management • Control parameters in an Agile project • Communication including daily Stand Ups • Empowerment and escalation • Risk in an Agile project ***Learning Outcomes: 1, 2 & 6***
7	Project Management Considerations Part 2: Quality and Testing	1/12 2 hours of lectures 2 hours of seminars 1 hour of tutorials	• Configuration management • Quality and maintainability • Testing concepts • Metrics ***Learning Outcomes: 1, 2 & 6***
8	Facilitated Workshops	1/12 2 hours of lectures 2 hours of seminars 1 hour tutorials	• What is a Facilitated workshop? • The role of the Facilitator; co-facilitator/scribe; participants. • Workshop planning • Workshop success factors ***Learning Outcomes: 6***

9	Requirements Definition and Prioritisation	1/12 2 hours of lectures 2 hours of seminars 1 hour tutorials	• What is a requirement in Agile? • Defining requirements: User story format (as a... I need... in order to...) • Functional and non-functional requirements • Format and content of a requirement • The Prioritised Requirements List • MoSCoW as a key technique • Requirements and modelling ***Learning Outcomes: 6***
10	Iterative Development and Prototyping	1/12 2 hours of lectures 2 hours of seminars 1 hour tutorials	• What is a prototype? • What is iterative development? • Prototyping perspectives: – Functional – Usability – Non-functional – Capability/Technique prototype: Architectural Spike and Proof of Concept • Horizontal, Vertical and Combined development strategies • Prototyping: Identify, plan, evolve, review. • Iterative development as a key technique ***Learning Outcomes: 6***
11	Estimating and Timeboxing	1/12 2 hours of lectures 2 hours of seminars 1 hour tutorials	• The estimating process • Factors affecting an estimate • Estimating approaches • Problems with estimates • What is a timebox? • Timebox structure (Identify, plan, evolve, review) • Timebox links to MoSCoW and requirements • Delivery (increment) planning • Timebox planning • Timeboxing as a key technique ***Learning Outcomes: 6***
12	Unit Summary and Revision Guidance	1/12 2 hours of lectures 2 hours of seminars 1 hour tutorials	• Revision ***Learning Outcomes: All***

4. Related National Occupational Standards

The UK National Occupational Standards describe the skills that professionals are expected to demonstrate in their jobs in order to carry them out effectively. They are developed by employers and this information can be helpful in explaining the practical skills that students have covered in this unit.

Related National Occupational Standards (NOS)
Sector Subject Area: 6.1 ICT Professionals **Related NOS:** 4.4.P.3 – Monitor the effectiveness of systems analysis activities and their deliverables; 4.4.S.1 – Design, implement and maintain systems analysis activities; 4.4.S.2 – Manage the systems analysis assignment activities; 4.4.S.3 – Liaise with others on matters relating to systems analysis activities; 4.4.S.4 – Review and sign off systems analysis outcomes

5. Resources

Lecturer Guide: This guide contains notes for lecturers on the organisation of each topic, and suggested use of the resources. It also contains all of the suggested exercises, and model answers where these are appropriate.

PowerPoint Slides: These are presented for each topic for use in the lectures. They contain many examples which can be used to explain the key concepts. These are available in handout version; it is recommended that these are distributed to students for revision purposes.

Student Guide: This contains the topic overviews and suggested exercises.

6. Pedagogic Approach

Suggested Learning Hours					
Lecture:	**Tutorial:**	**Seminar:**	**Laboratory:**	**Private Study:**	**Total:**
24	12	24	-	90	150

The teacher-led time for this unit comprises lectures, group seminar sessions and tutorials. The breakdown of the hours is given at the start of each topic.

6.1 Lectures

Lectures are designed to start each topic and precede the associated seminar. PowerPoint slides are presented for use during these sessions. Typically, information will be transmitted to the students during the lectures, and it is intended that student participation will be encouraged. Some examples of suitable student exercises are included for reference and you are encouraged to use and extend these as best suits the needs of your students.

6.2 Seminars

Seminars are designed to follow the topic lectures. The purpose is to provide tasks to be performed in groups to give practice in the topics learned, and to position these within the Agile project lifecycle. The Agile Development Case Study (see Section 5 above) will also be used during this time.

6.3 Private Study

In addition to the taught portion of the unit, students will also be expected to undertake private study. Private Study time will be used to reinforce learning, to place information in context and to focus students' reading in preparation for future materials and activities.

Teachers will need to set deadlines for the completion of this work. These will ideally be after the seminar session and before the tutorial session for each topic, when private study exercises are usually reviewed. In some cases, some preparatory work for seminar sessions is also required and this is highlighted in the topic notes below as necessary.

6.4 Tutorials

These are designed to deal with the questions arising from the lectures, seminar and private study sessions.

7. Assessment

This unit will be assessed by means of an assignment worth 100% of the total mark. The assessment will cover the learning outcomes and assessment criteria given above. Samples assessments are available through the NCC Education Campus (http://campus.nccedu.com) for your reference.

8. Reading List

8.1 Suggested reading

A selection of texts must be available in your Accredited Partner Centre's library to support further reading around the content of this unit. The following list provides suggestions of some suitable sources:

DSDM Consortium. (2008). *DSDM : The Handbook*. DSDM Consortium.
ISBN-10: 0954482220 / 0954483227
ISBN-13: 978-0954482220

DSDM Consortium. (2014). DSDM Agile Project Framework (2014 Onwards): The Handbook. DSDM Consortium. eBook available at: https://www.dsdm.org/resources/dsdm-handbooks/the-dsdm-agile-project-framework-2014-onwards (Last accessed 14/09/2016)

Schwaber, K. and Sutherland, J. (2016). *The SCRUM Guide ™, The Definitive Guide to Scrum: The Rules of the Game*. Scrum.Org and ScrumInc. PDF version available at: http://www.scrumguides.org/docs/scrumguide/v2016/2016-Scrum-Guide-US.pdf (Last accessed 13/01/2017)

Tudor, D. and Tudor, I. (2010). *The DSDM Student Workbook,* 2nd edition*.* Galatea Training Services Ltd.
ISBN-10: 0954307135
ISBN-13: 978-0954307134

8.2 Additional Sources of Reference for Lecturers

The following texts are mentioned throughout this Lecturer Guide and serve as potential additional sources of background reading for lecturers. These are **not** intended for student use and it is **not** required to have copies of these books in your library. They may be of use if you feel you are unfamiliar with some of the topics mentioned throughout this unit.

Beck, K. and Andrea, C. (2004). *Extreme Programming Explained: Embrace Change*. Pearson Addison Wesley.
ISBN-10: 0321278658
ISBN-13: 978-0321278654

Coad, P., LeFebvre, E. and De Luca, J. (1998). *Java Modelling in Color with UML: Enterprise Components and Process*. Pearson Prentice Hall.
ISBN-10: 013011510X
ISBN-13: 978-0130115102

Cohn, M. (2004) *User Stories Applied: For Agile Software Development*. Pearson Addison Wesley.

Poppendick, M. and Poppendick, T. (2003). *Lean Software Development.* Pearson Addison Wesley.
ISBN-10: 0321150783
ISBN-13: 978-0321150783

8.2 Suggested Sources for Research

The following are suggested websites that are leaders in Agile Development. It is recommended that students visit them all during the course and appreciate that they will include the latest information, as well as historical information on Agile.

The Agile Alliance: https://www.agilealliance.org/

The Agile Business Consortium (previously DSDM Consortium): https://www.agilebusiness.org/ includes the DSDM Handbooks (online)

The Agile Manifesto: http://agilemanifesto.org/

Topic 1: An Overview of Agile

1.1 Learning Objectives

This topic provides an overview of the Agile Development unit as a whole, as well as an introduction to Agile, with a brief history of the Agile movement.

On completion of the topic, students will be able to:

- Identify and discuss the scope of the Agile Development Unit;
- Identify the key milestones in the development of Agile;
- Name several popular approaches to Agile;
- Distinguish between Agile and other development approaches (e.g. waterfall).

1.2 Pedagogic Approach

Information will be transmitted to the students during the lectures, although it is intended that student participation will be encouraged. Some examples of suitable student exercises are included in the body of the lecture for reference and lecturers are encouraged to use and extend these as best suits the needs of your students.

This topic has a slightly different approach to the seminar and tutorial time from subsequent topics. For this topic only, the private study time precedes the seminar. This time will be used to reinforce learning and to allow research into Agile, in preparation for future materials and activities. The seminar will then incorporate the presentation by small groups of their research. The tutorial will then provide a chance for feedback and discussion of the materials thus far.

1.3 Timings

Lecture:	2 hours
Private Study:	7.5 hours
Seminar:	2 hours
Tutorial:	1 hour

1.4 Lecture Notes

Lecturers' Notes:

The following is an outline of the material to be covered during the lecture time. These notes are intended to guide you as the tutor in the use of the slides. Please also refer to the slides.

The structure of this topic is as follows:

- Provide an introduction to the structure and content of this unit
- Give the aim, scope and coverage of the unit
- Introduce the history and key concepts of Agile, in comparison to the waterfall approach
- Show the structure of DSDM, which is the Agile approach of choice for further work.

1.5 Guidance on the Use of the Slides

Slides 2-11: Introduce yourself and the unit. The topic and content of this lecture is to position the whole unit's content and style, including: the unit aim and learning outcomes; its interactive nature; seminars and tutorials; assessments; how private study is used; the timetable for the unit.

Slide 12: This slide presents an exercise to gain a baseline for student knowledge of Agile. Ask students to write down 5 words which, to them, typify what Agile means in software development (their current perception). Ask one person for a word. By show of hands, see how many others thought that. Write each word on the board. When many words have been gathered, discuss these, identifying if they really are Agile and what they mean. Typical words are Creative; Flexible; Responsive; User-centred; Collaborative; Evolving; Iterative; Incremental; Dynamic; Progressive. Do not try to completely explain every word - these are intended to act as a baseline for understanding later and a basic idea of the meaning is satisfactory at this stage.

You may also find that your students have no idea what Agile means in which case you may want to prompt them that, as mentioned in the exercise, they should consider "Agile" as a description of an approach and framework for software development and deployment, and encourage them to make educated guesses based on the name.

Slide 13: This slide consolidates the exercise and gives the definitive words for what Agile is about. Some of these terms may be unfamiliar to your students so ensure they have a basic understanding of their meaning. They will be looked at in more detail later. The slide includes the following notes:

User Involvement: This is key. The user works with developers to shape the project and/or product.

Iterative and Incremental Development: Development is conducted in small sections, perhaps a set part of a system. It will be developed and tested in

repetitive cycles. Each iteration includes new sections/parts that are developed and tested until the project/product is complete.

Flexibility to embrace change: Traditionally development follows set steps from initial analysis through to implementation. Agile development employs a far more flexible approach to make changes to the design throughout the development process.

Prioritisation: With Agile development you can prioritise the elements of the project/product. This can help to enable elements of the new system to be implemented, while other parts can still be under development.

Collaborative working: There is far more diversity to allow several developers or teams to work on set parts of the project/product as it can be distributed as singular parts of a final product.

Slides 14-15: Some of the most well-known Agile approaches are identified here.

- **DSDM** emerged in 1995 from the need to deliver business systems software on time, in budget, and to the right quality. It arose as an "antidote" to rapid application development (RAD) approaches which often delivered on time and budget but at the cost of quality. DSDM Atern was the 2nd version of DSDM, coming to the forefront in 2008, and was written for business change projects, including software and non-software development. In 2014, the latest version, The DSDM Agile Project Framework (2014 Onwards) moved DSDM forward and looked to expand on previous versions and is used to provide current guidance on applying DSDM. Further details about its history are available in the suggested reading materials for this unit, *the DSDM Atern Student Workbook*, and in the *DSDM Handbook* (see Section 8.1 above). Students will have an opportunity to read up on this during the Private Study time for this topic. You should also make them aware of the DSDM Consortium website at http://www.dsdm.org.

- **Lean** came into software development from manufacturing, particularly experiences at Toyota and Motorola. It is often linked with Six Sigma process improvement, as much is to do with removal of waste, and process improvement. If you are unfamiliar with this approach, further details can be found for lecturer reference in Poppendick, M. and T. (2003). *Lean Software Development* (see Section 8.2 of the Unit Overview above for further details).

- **FDD** (Feature Driven Development) is attributed to Jeff De Luca, but based heavily on work by Peter Coad. If you require further information about this approach, further details can be found for lecturer reference in Chapter 6 of the book, *Java Modeling in Color with UML* by Peter Coad (see Section 8.2 of the Unit Overview above for further details).

- **XP** (Extreme Programming) is the work of Kent Beck and written up in the book, *Extreme Programming Explained: Embrace Change* (see Section 8.2 of the Unit Overview above for further details). Its focuses are: pair programming; constant integration, refactoring of code and test driven development.

- **Scrum** is attributed to Jeff Sutherland and Ken Schwaber. It is a simple framework for Agile software delivery and is well-known. It advocates an empirical approach to development and has a simple framework of Product and Sprint Backlogs, Product Owner; Scrummaster and self-organising teams. The best current reference is http://www.scrum.org.

- Other approaches include:

  - Crystal (Alistair Cockburn)

  - Adaptive Software Development (Jim Highsmith)

Students are expected to understand that various Agile approaches exist, each with a different focus. Notes on the slide provide you with the full names for each approach/method. You should share these with the students. A detailed understanding of each approach is not required, as they will do further research on this during Private Study time. We will be focusing on DSDM throughout this unit.

Slide 16: This slide presents the Agile Manifesto. It was signed in Snowbird, Utah by representatives of all major Agile approaches, including DSDM, Scrum and XP. Encourage students to note the differences between the items on the left and those on the right.

Slide 17: Introduce the history of the Waterfall approach to students. Herbert Benington first highlighted this type of development back in 1956 and Winston Royce's definition was certainly the basis for the process in his 1970 paper "*Managing the Development of Large Software Systems*". However, this is how it is generally understood today, with each phase come sequentially after the one before and without returning at any point to the previous phases. Agile development builds on the process by addressing the inadequacies of the Waterfall approach.

Slide 18: Royce in fact acknowledged the iterative approach as shown on this slide, seeing the learning from each stage as feeding back into the previous one. (The term "Agile" had not yet been coined.)

Slide 19: The Agile approach takes the steps from the Waterfall approach and allows for them to be fluidly revisited. The project will be separated into smaller projects that are managed incrementally until the project is complete.

Slide 20: DSDM Atern is the Agile method of choice for this course. It is:

- The only Agile approach truly scalable to very large projects and programmes;
- well documented;
- tried and tested over nearly two decades;
- free to use and free to view www.dsdm.org;
- built by practitioners;
- kept up to date by a not-for-profit UK based organisation, the DSDM Consortium.

Slide 21: The slide outlines the key advantages.

Slide 22: DSDM is one of the leading standard frameworks to follow the Agile approach. It can be used for any type of project and is increasingly being used outside of software development now.

Previously known as DSDM, and then DSDM Atern from 2008, is a proven framework for Agile project management.

What is DSDM?

"DSDM is a vendor-independent approach focused on helping people to work effectively together to achieve business goals. It can be used in any business, in any technical environment for any project.

A fundamental assumption of the DSDM approach is that nothing is built perfectly first time, but that as a rule of thumb 80% of the value of the solution can be delivered for 20% of the effort that it would take to produce the total solution (Pareto's Principle)."

DSDM Consortium (2016), "*The DSDM Agile Project Framework (2014 Onwards) Handbook",* https://www.dsdm.org/resources/dsdm-handbooks/the-dsdm-agile-project-framework-2014-onwards, dsdm.org, Last accessed 13th September 2016

Slide 23: DSDM differs from other traditional approaches by changing the focus of key factors relating to project management. It fixes costs and time scales at the outset and never compromises on quality, but the features may change throughout the development process. Traditionally, features are set and the costs and timescales may change. This can compromise quality. The DSDM method ensures that at the planning stage of the project, clear foundations are set and the project development has a far more creative approach with defined requirements to work to.

Slide 24: The method, which we will be exploring in detail through the unit, is an Agile Project Delivery Framework. The "Greek Temple" style diagram illustrates the key components of the approach:

- An overall Agile **philosophy;**
- A set of eight guiding **principles**;
- A **process**: the configurable lifecycle framework
- **People**: roles, role definitions and responsibilities
- **Products** covering the three project perspectives of:
  - business
  - management
  - solution
- **Practices** : 5 key techniques used within the approach
- The base of the diagram represents the underpinning guidance provided within the approach on: project management; quality and testing; metrics; estimating; risk management.
- ...plus a strong underpinning of common sense!

Each of these elements will be looked at in more depth as the unit progresses. You might like to refer students back to the topics for the unit on Slide 8 to illustrate this.

Slide 25: The DSDM process is evolutionary in design and enables effective delivery. The image shows how the foundations are set for the project to evolve freely and grow incrementally until the final project is deployed.

Slide 26: This slide provides a summary of the lecture. You could elicit students' understanding of each point to check what they have taken in during the lecture.

Slide 27-28: Present the tasks for the private study time. Students are free to complete the tasks individually or should be suitably arranged to work in pairs or small groups of no more than 3. Make sure that they understand that they need to complete these tasks before the seminar sessions for this topic.

You could also take this opportunity to ensure that students know that these tasks are also presented in the Student Guide for this unit and to check that every student has one.

Slide 29: Take this opportunity to refer students to suggested reading sources.

1.6 Private Study

The time allocation for private study for this topic is 7.5 hours.

Lecturers' Notes:

Students have copies of the private study exercises in the Student Guide. They need to complete this work before the seminars for this topic.

You will use questions from quiz exercises at each tutorial.

Exercise 1: Familiarisation with DSDM

You should take this opportunity to familiarise yourself DSDM. Research the process in greater detail. Find at least one case study documenting how it was applied and make notes relating to what you see as the benefits.

Exercise 2: Research

Work in a pair or a small group (max 3) to complete this task.

Focus on the; Scrum, FDD, Lean and XP approaches introduced in the lecture. You should also produce a 50-100 word summary of each approach in your own words, ready for discussion at the seminar session for this topic.

Exercise 3: Quiz

Based on the research conducted in Exercise 1 and 2 write 5 quiz style questions based on this topic. You must also include answers. You should bring them to the Tutorial where you will discuss them and collectively agree on model answers for a selection from the group.

1.7 Seminar Notes

The time allowance for seminars in this topic is 2 hours.

Lecturers' Notes:

Students have copies of the seminar activities in the Student Guide. Answers are not provided in their guide.

For Exercise 1 below, you will need to make sure that each group presents on a different approach. If you have more than five groups, you will need to either have two groups presenting on the same approach, or amend the task to become an information poster rather than a presentation for example. While the groups prepare their presentations, monitor carefully to make sure that everyone is involved and will have a chance to speak. During the presentations, encourage students to take notes and to ask questions at the end. You should also elicit feedback on how well each presentation went. You might like students to consider marks out of five for categories such as information presented (content), clarity of presentation of ideas and delivery. At the end of the student presentations, you should summarise the main learning points about Agile.

For Exercise 2, you should act as Quiz Master and score-keeper during the quiz section of the task. Each group in turn should ask each question to one of the other groups (2 points for a correct answer). If the group cannot answer, the question is opened up to the other groups who get 1 point for a correct answer. You may need to adjust the total number of questions each team should write depending on how many groups there are in your class. The winning team gets an appropriate reward of your choice!

Exercise 1: Presentation from Researching Agile on the Web

Work with the same group you worked with during the private study time for this topic. Your tutor will select an Agile approach for you to focus on. You have 30 minutes to prepare a 10 minute presentation on your topic. You will need to:

- Think carefully about the information you should include
- Ensure your information is accurate
- Ensure everyone in your group has a role in both preparing **and** delivering the presentation
- Decide whether you will need to use any visual aids such as PowerPoint slides during the presentation.

Exercise 2: Agile Quick-fire Quiz

Work in the same groups. Use your research into DSDM and the other approaches, to list 10 questions to ask the other groups to test their knowledge. You will also need to make a note of the correct answers!

1.8 Tutorial Notes

The time allowance for the tutorial in this topic is 1 hour.

Lecturers' Notes:

Students have copies of the tutorial activities in the Student Guide. Answers are not provided in their guide.

You should start the tutorial with 15 mins to discuss random quiz style questions created during Private Study, and agree collectively on model answers.

For exercise 2 below, you could initially organise students into pairs or small groups to come up with their list of benefits and risks. Students can then present to the rest of the group as you lead a discussion about the Agile Manifesto.

In preparation for Topic 2, please note that if the seminar is to be held immediately after the Topic 2 lecture session, you will need to tell students to complete Private Study Exercise 1, reading the background information to the case study, before attending both the lecture and seminar.

Exercise 1: Quiz questions

Random questions will be selected from Private Study and shared. The group will collectively agree on model answers.

Exercise 2: Agile Principles

Look at the principles behind the Agile Manifesto (reproduced below). For each of the 12 principles, identify one benefit and one risk or difficulty associated with it.

You will then present these to the rest of the tutorial group and discuss your ideas as well as those presented by other students.

Principles behind the Agile Manifesto

We follow these principles:
Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.

Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.

Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.

Business people and developers must work together daily throughout the project.

Build projects around motivated individuals.

Give them the environment and support they need, and trust them to get the job done.

The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.

Working software is the primary measure of progress.

Agile processes promote sustainable development.

The sponsors, developers, and users should be able to maintain a constant pace indefinitely.

Continuous attention to technical excellence and good design enhances agility.

Simplicity--the art of maximizing the amount of work not done--is essential.

The best architectures, requirements, and designs emerge from self-organizing teams.

At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behaviour accordingly.

(Source: www.agilemanifesto.org)

Topic 2: The Agile Approach and Principles

2.1 Learning Objectives

This topic provides an overview of the Approach, Principles and Instrumental Success Factors for an Agile project using DSDM as the chosen method.

On completion of the topic, students will be able to:

- Identify the 8 principles of the DSDM Agile development approach;
- Identify the 5 key techniques;
- Define the structure of the DSDM approach;
- Discuss the Instrumental Success Factors;
- Analyse the environment for an Agile project using the Project Approach Questionnaire.

2.2 Pedagogic Approach

Information will be transmitted to the students during interactive lectures. They will then practise the skills during the seminar session, consolidate their learning during private study and gain feedback and answers to questions during the tutorial.

2.3 Timings

Lectures:	2 hours
Seminar:	2 hours
Private Study:	7.5 hours
Tutorials:	1 hour

2.4 Lecture Notes

Lecturers' Notes:

The following is an outline of the material to be covered during the lecture time. These notes are intended to guide you as the tutor in the use of the slides. Please also refer to the slides.

The structure of this topic is as follows:

- The Agile Manifesto
- What is DSDM?
- Structure of DSDM
- The philosophy and Principles of DSDM
- When to use DSDM

2.5 Guidance on the Use of the Slides

Slide 2: Introduce the topic structure. Explain that "Agile" is not a "method" or "methodology" but an approach and framework for development and delivery. As we saw in Topic 1, there are many flavours of this, all of which are underpinned by the values and principles summarised in the Agile Manifesto. We have chosen DSDM as the Agile approach we will follow because it is well-accepted, consistent, complete and well-documented. The topic covers:

- The Agile Manifesto
- What is DSDM?
- The Structure of DSDM
- The Philosophy and Principles of DSDM
- When to use DSDM (including Instrumental Success Factors and the Project Approach Questionnaire)

Slide 3: The Agile Manifesto was signed in Utah, USA by representatives of all of the major Agile approaches worldwide in 2001. A list of signatories can be seen at www.agilemanifesto.org. The DSDM approach was represented there.

The principles and values of the Agile Manifesto are reflected in the DSDM Agile approach. However, DSDM pre-dates the Agile Manifesto, and has its own specific set of eight principles, as will be seen later.

The students will have seen this slide in the opening Topic 1, and done some reading during private study time. Ask them about where the Agile Manifesto came from and check their understanding.

Slide 4: Dynamic Systems Development Method is an Agile approach which is different from others in its focus on “delivery on-time”, as well as meeting the business need. Many Agile approaches do not have the clear project-based focus of DSDM.

Ask the students what they see as the differences between, for example, Scrum and DSDM; or XP and DSDM , from their research after the previous topic.

Slides 5-6: Here, and until Slide 12, you should give the students a foundation level knowledge of the elements of DSDM.

DSDM was created in the United Kingdom and came out of the Rapid Application Development (RAD) movement of the mid 1990’s as a reaction to the sometimes poor quality of systems that RAD was producing. James Martin was one of the key authors of the RAD movement, and some of his ideas can still be seen in DSDM (e.g. timeboxing). The ideas of Barry Boehm and the Spiral Model of software development are also pre-cursers to the approach. DSDM was, and still is, a collaboratively-built approach, rather than the work of any one person.

DSDM was born when a group of companies and individuals formed a Consortium to counter the effects of “Bad RAD”, i.e. RAD which gave poor quality, unmaintainable systems.

DSDM was built incrementally and is still maintained and growing through the work of the DSDM Consortium https://www.agilebusiness.org/

Slide 7: The “Greek Temple” diagram is intended to allow understanding from the top down, and from the high level concepts to the detail. The philosophy gives the values of DSDM: The Principles are working guidance on the key issues in a project. The pillars of the temple are:

Process: The lifecycle

People: Roles and responsibilities

Products: The deliverables of the project, plus documentation to assist in managing and keeping business focus

Practices: The 5 key techniques

The base of the Temple is unnamed but emphasises a strong foundation of common sense!

Slides 8-9: These slides emphasise the culture of Agile and the key points which have to be there for DSDM to work effectively.

Slide 10: This slide emphasises that whilst Agile emerged from software development, the philosophy, and principles are appropriate to many kinds of projects. The slide shows a building (a hotel), which was partly built and then opened, whilst further “increments” of the building were still to be delivered. The business benefit and return on investment were thus able to be gained earlier than if the whole building had been finished before opening the hotel. The tutor should add from his/her own experiences of incremental delivery and prioritisation.

Slide 11: **Class Exercise:** Before showing this slide, ask the students to imagine themselves as users of a new personal bank-account management system, which they would use over the Internet. In small groups, ask them to list the things most important to them (and any features of their current bank account interface which they dislike.)

Then ask them how they would feel if the bank involved them in the project, helping to design the interface. How well-trained would they feel when using the delivered system in their everyday life after the project? How much would the system be likely to meet their needs etc.?

Then can then discuss the information on the slide. Benefits of user involvement in the project include all of their feelings from the exercise. Consider also the benefits of delivery of a solution to the users in small chunks, prioritisation according to the users' needs and focus on business benefit.

Slide 12: This slide refers to the 80/20 approach, or the Pareto rule. In projects, this is manifested in the following experiences:

- 20% of the requirements of a project probably give 80% of the benefit;
- It usually takes 20% of the time to do 80% of the work. The remaining work takes 80% of the time. This can be felt in projects where there is the feeling of being "about 80% complete" for a very long time!

Ask students if they have come across the 80/20 rule in other areas of life.

DSDM reduces the negative effects of not delivering all of the requirements by:

- Prioritisation;
- Delivering in small, useful "chunks" (increments).

Slide 13: In the 19080s, RAD engendered a JDI (Just Do It!) approach, which is quick, but not robust, not maintainable and inherently risky. More heavyweight approaches to software development (for example, Information Engineering (James Martin); Structured Systems Analysis and Design Method (UK Government, Learmonth and Burchett) produced more maintainable systems and reduced risk by better analysis but were too slow for businesses to build software to support them in taking advantage of market opportunities. DSDM balances Agility with sufficient rigour to be truly a "corporate strength" Agile approach.

Slide 14: A business system is not just technology (hardware and software). It has components of people and process and must always retain focus on a business objective.

Slide 15: This slide displays DSDM's famous "2 triangles". If we are inflexible about what features are delivered, then projects go over time and cost and quality also suffers. If we agree at the outset to prioritise features, cost, time and quality are protected.

Slide 16: Prioritisation at the outset means it is clear what the "heavy water" is and what can be allowed to splash out if time is short, or new, essential requirements come along. MoSCoW is further discussed in detail in a later Topic on Requirements.

Slide 17: You should spend time on each of the principles covered on this slide. Much of what has been said thus far in the lecture relates back to these. They are fundamental to the approach.

Class Exercise: Ask the students, in pairs, to choose which one of the principles they think is the most important and give a reason why. Ask them to choose a second one which they think would be hardest to get people to do. Facilitate a group discussion of these.

Slide 18: The 5 key techniques, or practices, displayed on this slide are the fundamental ways of working. These will be discussed and practiced in later topics.

Slide 19: The Instrumental Success Factors (ISFs) support the principles and are essential to setting up an environment in which Agile and DSDM in particular, can operate successfully. They may represent significant culture change for some organisations. The disregarding of any introduces project risk.

Slide 20: Before showing this slide, ask the students what kind of projects would benefit from an Agile, DSDM approach. What would be the factors which might prevent Agile working (e.g. no users being made available; the wrong users being involved; no real flexibility in requirements and a refusal to prioritise as anything other than Must Have)?

Then show and explain the slide. The kinds of projects most suited to the collaborative, prioritised, time-focused DSDM project are listed in the text surrounding the central circle. The Project Approach Questionnaire (PAQ) (included in full in the recommended text) brings together the 8 principles and the ISFs as a set of questions to be asked of the Business Sponsor at the outset of the project and periodically throughout. The PAQ should be used as a negotiating tool to adjust the conditions for the project, and NOT as a filter to decide which projects should be Agile.

The PAQ becomes an exercise for Topic 7 of this Unit, so there is no need to complete it here.

Slide 21-22: A summary of the content covered in this topic is provided on these slides.

Lecturers' Notes

You will need to remind students that they need to complete Private Study Exercise 1, which requires them to read the case study information, before attending the seminar for this topic.

2.6 Seminar Notes

The time allocation for this seminar session is expected to be 2 hours.

Lecturers' Notes:

Students have copies of the seminar activities in the Student Guide. Answers are not provided in their guide.

The seminar exercises for this topic are based on the Hotel Olympia case study. You need to ensure that students have read the background to the case study (Private Study Exercise 1) before attending.

You may want to begin the seminar by eliciting some general information about the case study to check students' basic understanding. Students should then work in small groups on Exercise 1 below. After each group have had time to discuss, they should present their objective on a flipchart or the board and explain their work to the other groups. The other students should critique the usefulness of the objective as a statement against which to judge (at the end of the project) whether the project has reached its goal.

You should then go through the suggested answer below and ask students to take notes or provide a copy of this to each student for future exercises. This is not a definitive solution: the key points, however, should be reflected in the students' answers. The answer is written in stages (which may in a real project be the results of a series of workshops with stakeholders). It is important to understand the business driver (business objective). Then a high-level objective will usually emerge before the detailed one can be written.

Teaching point: A clear specific, measurable objective will be crucial to the prioritisation of requirements later.

Exercise 1: Introduction to Case Study/Project Objective

The purpose of this exercise is:

2 To become familiar with the Hotel Olympia Scenario
3 To formulate a draft objective for the project.

This exercise requires reference to:

4 Hotel Olympia Background Information (see below)

For this exercise, you are a management team from the Hotel's Group Head Office by request of the Olympia Hotel's General Manager. The Olympics are taking place in the region in 12 weeks time, and although the hotel is able to open a new block of accommodation (300 extra rooms), their administrative systems will not cope.

1. Formulate what you see as the objective of this project to achieve in the next 12 weeks.

2. Consider each of the eight principles and state how well you think this should work in the hotel environment for this project.

3. Present the objective and the eight principles work to the group.

Suggested Answer:

Part 1: The Olympia Hotel: Project Objective

Three potential objectives are given, illustrating the thought process, from high-level to more detailed and measurable.

Business Objective

In 3 months, the Olympics will commence in our town. Without improved administrative systems, the hotel will lose a significant amount of business. The implications of this are that the hotel will be unable to meet its financial commitments, and may close.

Project Objective (high level)

The project must provide improved administrative systems (IT and human aspects) for the handling of guests, in time to allow the hotel to take advantage, profitably, of the extra business available during the Olympics.

Project Objective (detailed)

The project must provide a system (human and IT elements) for administration of reservations, booking, billing and accommodation of guests. It must also handle guest interfaces from booking functions to all other areas of the hotel.

The system must be able to handle up to 450 rooms, simultaneously occupied (with multiple occupancy) and give response times which allow the handling of guest administration to the satisfaction of the Hotel Manager.

It must allow secure handling of guests' personal and financial data.

The system must be available, in increments, within the next 12 weeks.

Part 2: The eight principles

	Principle	How well this will work in the Hotel project
1	**Focus on the business need**	There should be clear focus on the business need if the right individuals from the business are involved. The true priorities are to be able to administer guest accommodation effectively without disruption to guests.
2	**Deliver on time**	There is a business imperative to do this – and the Olympics will not move, so this should be self-enforcing.
3	**Collaborate**	A small team that already works closely together is present from the business. It will be necessary for the project manager to ensure integration of the IT head office personnel

4	**Never compromise quality**	There is a risk that quality will be compromised because of the short timescale and the fixed deadline. The project manager and Business Visionary must ensure MoSCoW prioritisation is used.
5	**Build incrementally from firm foundations**	There is a risk that the firm foundation will be skipped, because of the tight, fixed deadline.
6	**Develop iteratively**	Lack of DSDM experience may cause the team to estimate without allowing time for iteration. The project manager should coach the team here.
7	**Communicate continuously and clearly**	This should not be a problem, provided that the head office staff co-locate with the business during the project
8	**Demonstrate control**	The project manager must ensure that plans are visible to all and agreed

CASE STUDY

HOTEL OLYMPIA Background Information

Company Profile

The Hotel Olympia is a modern hotel, close to the Motorway links. It has 150 bedrooms, and is currently expanding this by a further 300. There is a Conference Centre attached to the hotel, but this is run as a separate business, the hotel merely providing rooms to the Conference Manager as a customer.

The Project

The hotel's "back-office" accounting systems were computerised four years ago, but these are now due for review and a number of improvements have been asked for by the Accountant. The “front desk” functions such as reservations, check-ins and check-outs are a mixture of separate word-processor templates for producing the bills and spreadsheets for room bookings, which are printed out each day and manually amended during the day. Management feel that these systems need to be more integrated. They also feel the need for additional features, such as detailed guest histories in order that direct mailings can be accurately targeted to the appropriate types of customer, for special promotions. They have stressed the need for computer systems not to interfere with the dialogue of receptionists with the guests. They must allow flexibility in the approach to guests.

The restaurant and bar billing systems produce receipts which are passed on separate pieces of paper to the front desk for adding to the guests’ bills. Receipts occasionally go astray in this process, and automatic transfer of the data from bar and restaurant directly to guest accounts is desired.

The ordering of food for the restaurant, and drinks for the bar and restaurant is haphazard and unreliable. It is recognised that advance knowledge of bookings would allow ordering to become more accurate and that a computerised ordering system, which would allow stocks of food to be controlled, would reduce wastage and allow considerable savings.

The systems at the Olympia have coped adequately with the levels of business to date. However, the Olympic Games are being held in the region in three months’ time, and the hotel hopes to triple its residency for the period of the games and for several months afterwards. It then hopes to maintain the new, higher level of business through extensive marketing. To this end, an extension consisting of 300 bedrooms, which was being built in a leisurely way, has been speeded up and is now almost ready for use. The reception staff have pointed out that the hotel cannot deal with the expected influx of customers with the systems they now use.

Advance Booking enquiries have already been made by over a hundred followers of visiting teams. These have not yet been treated as provisional bookings for specific rooms, but verbal offers of accommodation have been made. **All aspects of the hotel’s back office, front desk, restaurant and bar administration, and housekeeping systems will need to be changed to cope with this influx of customers.**

Current Computer Configuration

The current accounting systems are run as a multi-user system, using integrated software packages for sales ledger, purchase ledger and general ledger. These were written, and are maintained, by a local software company who would be willing to handle the integration needed between any new

front-desk system and their accounting system provided that the interface is clearly specified by the hotel.

At the front desk, there are three stand-alone PCs. One is used to record guest details on arrival, one to produce spreadsheet templates and one to enter billing details for the production of bills when the customer leaves.

Staff Organisation within the Hotel

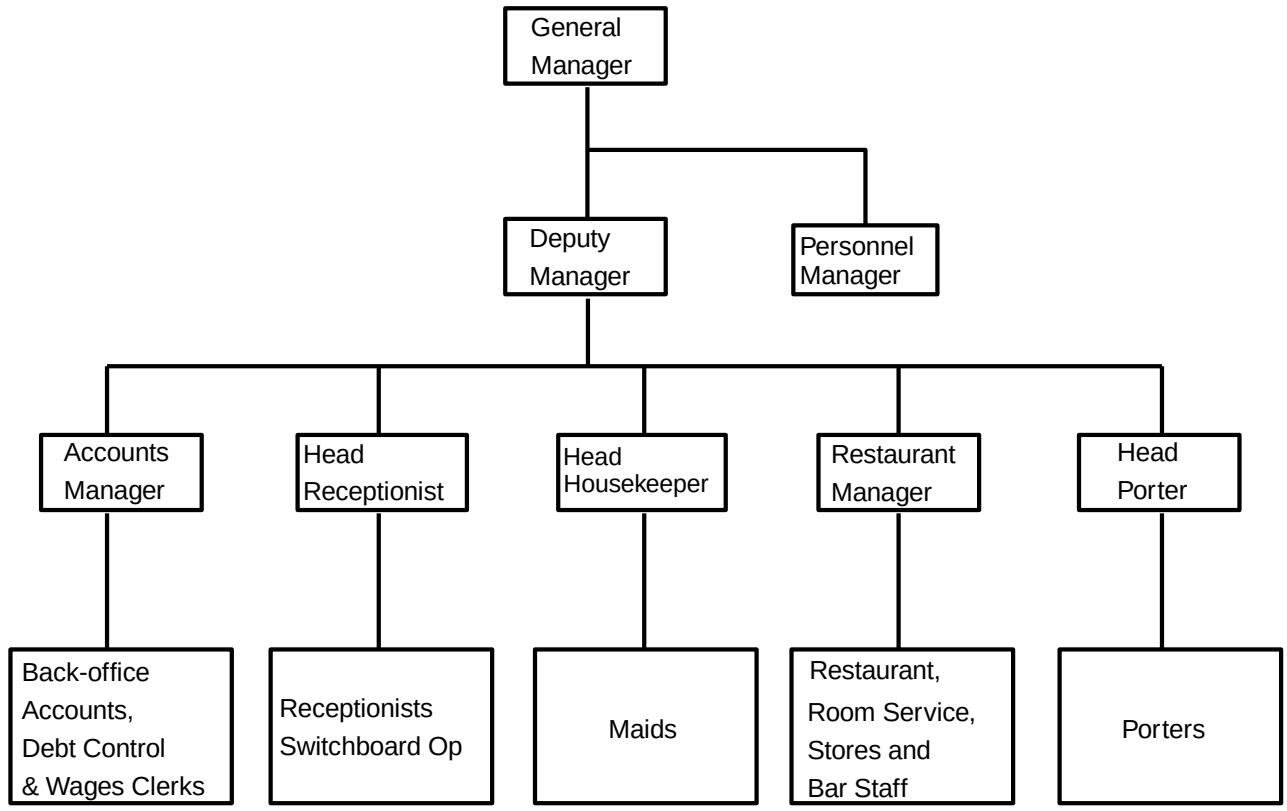


Figure 1.0: Olympia Hotel Staff Organisation Chart

Staff Responsibilities

The individual responsibilities of the key members of the hotel staff are described below. Also given below are the notes taken during interviews detailing the current system and the problems of the current system as identified by the interviewee.

General Manager

Assisted by the Deputy Manager, the General Manager is in charge of the day-to-day smooth running of the hotel, its finances and stores, and is also responsible for future planning.

Accounts Manager

The Accounts Manager is responsible for all back-office accounting functions including acceptance of account-customers, credit-checking, debt-chasing and the maintenance of the hotel's financial records. The Accounts Manager's responsibilities also include payment of staff wages.

Head Receptionist

The Head Receptionist is in charge of day-to-day running of Reception (the Front Desk) and all of its procedures, and also responsible for notifying the housekeeper of rooms for service and for the porters and switchboard. The Head Receptionist is also responsible for ensuring an effective link with Accounts.

Other Receptionists

The other receptionists handle the acceptance of bookings, greeting and checking-in of guests; maintenance of an up-to-date "rooms available" chart; preparation of accounts for guests; notification to the housekeeper of rooms for service and to the restaurant and kitchen for guest food requirements; keeping the porters informed of newspaper requirements.

Interview Notes

Person Interviewed: General Manager (L Timmis)

Subject: Existing systems: overview, problems and objectives

Current Systems Overview

Guests may book rooms in advance or turn up without prior booking. Bookings made by telephone must be confirmed in writing. A deposit is usually paid for block bookings.

On checking in, the guest is asked to complete an index-card listing personal details and car registration number before being given a room-key. The room-charge and details of whether full-board, half-board, or bed-and-breakfast, are recorded on the guest's account (one account per room). Any special dietary needs are notified to the restaurant immediately.

On checking out, bills are calculated to include restaurant receipts, bar receipts, and telephone calls as recorded on the Switchboard Operator's Log. A guest who has a customer-account with the hotel may pay none, part or all of the bill, the balance being sent to Accounts to be put to the sales ledger for normal invoicing and statements.

Reception prepare daily lists for the Housekeeper to advise which rooms require service, and for the restaurant to notify room-numbers and number of guests expected for breakfast, lunch and dinner.

Problem Areas

The accounting system was brought in mainly to address the problem of bad debts. This has been fairly successful and the staff are now becoming comfortable with the use of the system, although there were some initial teething problems due to inexperience with computers.

The front-desk systems are too slow: guests frequently experience unacceptably long delays on checking-out. The reconciliation of cash for passing through to accounts is often delayed and inaccurate which results in angry words between the Accountant and the Head Receptionist.

Some problems have been experienced with the reservations procedure, which has resulted in double booking.

Additionally, information about guest histories, required for planning and marketing purposes, is not readily available.

No information is available to assess unsatisfied demand for rooms. Other information is time-consuming to extract.

Person Interviewed: Head Receptionist (R. Allenby)

Subject: Existing systems, problems and objectives

Current System Overview

Guests usually book their accommodation, and may do so anything up to two years in advance, either by telephone or letter. Some guests, or their companies, are customer-account holders with the hotel. Guests must always confirm in writing if they are not already customer-account holders with the hotel (Customer-account holders are companies or individuals who have a standing agreement with the hotel to book rooms, and will be allowed to pay bills monthly, in arrears). For all bookings, reception send a written confirmation of the booking. Customers may be asked to pay a deposit, particularly in the case of large block-bookings. Bookings may at first be provisional and be confirmed later. Bookings (provisional or confirmed) and are all recorded on the room-booking chart, which is a spreadsheet printed out from one of the PCs at reception. The original documents related to the booking are annotated with a reservation number (next sequential number) and filed in arrival-date order in an office behind reception. A reservation card is completed and filed in reservation number order.

On checking in, guests are asked to complete an index card (if a booking has previously been made, this will be the reservation card) with personal details. This is filed in guest-name sequence in reception and discarded once the bill has been paid. The guest's room-account is annotated with the room charge and meals required. On checking out the bill is finalised with newspaper charges and last-day telephone, bar, and restaurant charges. The guest may pay the whole bill or have all or part of it allocated to his company's customer-account. All cash received is recorded in the daily cash book.

At the start of each day, restaurant, bar, room service and telephone charges are added to the appropriate room accounts. Each day, lists are prepared for the housekeeper to identify rooms for service and rooms changing occupancy the following day; for the night-porter to notify newspaper requirements; and for the restaurant to give room-numbers of guests expected for each meal. These are prepared from the Room Booking Chart and the guest's account.

At the end of the day, all payments received are reconciled against the daily cash book and sent, together with the paid-up bills and bills deferred for company payment, to Accounts.

Overnight the Booking Chart spreadsheets are updated with the information from the room booking charts by the Night Receptionist. Although it is possible to update the spreadsheets directly on the screen during the day, the reception staff found it took too long to locate the appropriate spreadsheet which was then extremely difficult to read on the screen. They requested the information be printed off each day and the sheets are manually updated.

Person Interviewed: Head Receptionist (R. Allenby)

Subject: Existing systems, problems and objectives

Problems

Some problems occur with prior bookings as the Room Bookings chart becomes illegible after it has been manually changed several times.

The Room Bookings charts are printed off each morning (1 chart for each floor of the hotel) each with details of 30 rooms. Charts are produced for the next six weeks. If a customer wishes to reserve a room beyond the six weeks period then that weeks' chart is printed out and manually updated. Although the policy is to fill the hotel from the lower floors upwards, block bookings often disturb this pattern, and determining room availability can be a slow process.

Checking out can be time-consuming, as many bills are queried and errors are often found, for example, bar receipts allocated to wrong accounts, or simple addition errors (bills are calculated manually, with the help of a calculator. Occasionally, room charges, held on the Room Booking chart, are found to be in error.

Customer-account numbers given by guests are not checked until the final bill arrives in the accounts office, after the guest has left the premises.

The reconciliation of cash at the end of the day means that substantial sums of money are often held at Reception, which is recognised as a security risk. More frequent release of cash to Accounts would mean that reception was without the cash-book for periods of time, which is unacceptable. The use of separate loose sheets for cash recording has been tried but failed as these often got lost.

Person Interviewed: Receptionist in charge of reservations (S. Fisher)

Subject: Bookings

Current System Overview

Guests may make enquiries and bookings either in writing or by telephone. Telephoned bookings are treated as provisional bookings unless a credit-card number or one of the hotel's customer-account numbers is quoted. A written communication may result in either a firm booking or a provisional booking.

Guests making provisional bookings are required to confirm the booking in writing within 2 weeks of the reservation date, (although we always ask them to confirm within 7 days). If the booking is made too close to the arrival-date for this to be possible, the accommodation will be released for re-letting at 6pm on the date of arrival. Provisional bookings are identified in the Room Booking Chart with a "P" against the date of reservation and reservation number. A reservation card is completed and marked "P". The next reservation number is kept on a card at the front of the reservations tray.

A written booking may be taken as a firm booking if the guest's accommodation requirements can be matched exactly. For a firm booking, a written confirmation is always sent by the hotel. Such bookings may include a deposit, which is recorded as part-payment against the guest's account. The accommodation is booked as "reserved" in the room Booking Chart and the reservation number, date and "F" entered against the dates required. A reservation card is completed and filed in the reservations tray. The original confirmation or booking letter is filed in date-of-accommodation sequence.

Either a provisional or firm booking may be cancelled. Provided that this is 14 days or more before the date accommodation is required, no charge will be made. Within 14 days, if a deposit has been paid or a customer-account is involved, the guest's account is referred to Accounts for decision on whether a refund, or a charge, is appropriate. All appropriate records are amended to cancel the booking.

Volumes and Trends

The statistical data was collected as accurately as possible given the limitations of the current system and is detailed below.

Volumes:

Number of rooms:	150 Bedrooms (increasing to 450 during this project)
Average stay:	2 nights
Average room occupants:	1.1
Average bookings/month:	1800 (for 2000 guests approx)
Prior reservations/month:	1400
Average % full:	80% (120 rooms /night)
Number of Customer Accounts:	300

Trends:

Most residents are on business. Therefore the majority of trade is weekdays, with weekends and holidays being less busy (no figures available to exactly quantify trends).

STRENGTHS AND WEAKNESSES OF THE CURRENT SYSTEMS

Strengths

The systems are fairly simple and on-the-job training is easy. No computer skill is needed.

Weaknesses / Problem Areas

1. Reservations procedure can result in double booking due to illegibility.
2. Determining room availability is slow due to manual searching of the large room booking chart.
3. Delays on checking-out due to errors:
    - bar receipts allocated to wrong accounts;
    - arithmetic errors in calculation;
    - room charges, from Room Booking Chart, are wrong.
4. Customer-account numbers are not checked until after the guest has left the premises.
5. The reconciliation of cash at the end of the day means that substantial sums of money are often held at Reception.
6. Information about guest histories, required for planning and marketing purposes, is not readily available.
7. Information to assess unsatisfied demand for rooms is not available. Other information is time-consuming to extract.

8. If a guest checks out ahead of schedule, the room is not released until the intended check-out date.

2.7 Private Study

The time allowance for private study in this topic is expected to be 7.5 hours.

Lecturers' Notes:

Students have copies of these private study exercises in their Student Guide. They need to complete this work before the tutorial for this topic.

Exercise 1:

Before attending the seminar session, read the background to the Hotel Olympia case study. You can find this in the seminar notes for this topic.

Exercise 2:

Using the Case Study background information, complete the Project Approach Questionnaire (PAQ) for the Hotel Olympia, as you see it at this point in the project.

DSDM Project Approach Questionnaire		***Indicate the closest collective opinion***					***Comments***
Ref	**Statement**	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**	
1	The business driver behind the project is clearly stated and is visible to all members of the project team.						
2	The Business Sponsor and/or Business Visionary demonstrate clear ownership of the project.						
3	The Business Sponsor, Business Visionary and Technical Coordinator all understand and accept the DSDM philosophy.						

4	The development has a clearly-defined timescale.						
5	The requirements can be prioritised and there is flexibility to accept that not all requirements are 'Must Have' requirements.						
6	Requirements have been defined at a high level at the outset of the project, and it is acknowledged that changes are likely during development of the detail.						
7	It is accepted that the detail of both the requirements and the solution will emerge as the project progresses.						
8	The Business Sponsor and Business Visionary are aware of the importance of active business involvement and have the willingness and authority to commit appropriate business resources to the project as required.						
9	The Business Ambassadors are sufficiently empowered to guide the day to day evolution of the solution.						
10	The Solution Developers are sufficiently empowered to provide the best solution they can from a business perspective within pre-agreed architectural constraints.						
11	Solution development resources are allocated at an appropriate level and the team will be largely stable throughout the project (or, at least, throughout each increment).						
12	The Project Team and Solution Development team are able to adopt the roles and responsibilities within DSDM.						

13	It will be possible for the Solution Developers to have easy access to Business Ambassadors and Business Advisors throughout the project.						
14	The Solution Development team (including both business and solution development resources) will have the appropriate collective knowledge and/or technical skills to deliver the solution.						
15	The Solution Development team (including both business and solution development resources) will have the appropriate soft skills (communication, negotiation etc.) to work effectively with each other and those around them.						
16	Strategies for continuous communication and collaborative working practices are sufficient to clearly support iterative development of the solution.						
17	The development technology tools and techniques support an iterative approach to solution development.						
18	There are no technical, contractual or other constraints to prevent the solution being broken into increments for development and delivery (even if the products of such increments are not deployed immediately).						
19	All project participants understand and accept that on-time delivery of an acceptable solution is the primary measure of success for the project.						
20	All parties accept that continual assessment of the fitness for purposes of all deliverables during development is essential.						

21	There are no mandatory standards or practices in force that will work against the evolution of a solution from a baselined set of high level requirements.						

Suggested Answer:

The PAQ is also picked up in the risk exercise in Topic 6. However, to look at it here, and again in Topic 6, when the approach is better understood, should prove useful. A full sample answer is included in Topic 6.

Exercise 3:

In preparation for the tutorial session for this topic, make a note of any questions you have about the case study exercises, the private study reading and the practical exercises from the recommended text. You will have a chance to discuss these with your tutor during the tutorial.

Exercise 4: Quiz

Based on the research conducted in Exercise 1 and 2 write 5 quiz style questions based on this topic. You must also include answers. You should bring them to the Tutorial where you will discuss them and collectively agree on model answers for a selection from the group.

2.8 Tutorial Notes

The time allowance for the tutorial in this topic is 1 hour.

Lecturers' Notes:

Students have copies of the tutorial activities in the Student Guide. Answers are not provided in their guide.

You should start the tutorial with 15 mins to discuss random quiz style questions created during Private Study, and agree collectively on model answers.

In this tutorial, you should lead a discussion for exercise 2 about students' assessment of the riskiness of the case study project, after they have had time to share their findings and discuss this in small groups.

The rest of the available time can then be used to allow students ask any questions they have about the content of this topic.

Exercise 1: Quiz questions

Random questions will be selected from Private Study and shared. The group will collectively agree on model answers.

Exercise 2:

Present your findings to the Project Approach Questionnaire from Private Study Exercise 3 to the other students in your group. What is your assessment of how 'risky' the project seems, from an Agile point of view?

Topic 3 Modelling

3.1 Learning Objectives

This topic provides an overview of the approach to modelling in an Agile project. On completion of the topic, students will be able to:

- Describe the perspectives from which models may be created;
- Explain what a model is and the benefits of modelling;
- List types of models which may be used in an Agile project;
- Identify points in the Agile project lifecycle where models are appropriate;
- Construct a scoping diagram (context diagram) for a given scenario;
- Discuss the benefits and limitations of models.

3.2 Pedagogic Approach

Information will be transmitted to the students during the lectures. They will then practise the skills during the seminar session, consolidate their learning during private study and gain feedback and answers to questions during the tutorial.

3.3 Timings

Lectures:	2 hours
Seminar:	2 hours
Private Study:	7.5 hours
Tutorials:	1 hour

3.4 Lecture Notes

Lecturers' Notes:

The following is an outline of the material to be covered during the lecture time. These notes are intended to guide you as the tutor in the use of the slides.

The structure of this topic is as follows:

- What is Modelling?
- Modelling Perspectives
- Modelling within the lifecycle
- Modelling tips

3.5 Guidance on the Use of the Slides

Slide 2: This slide presents an overview of Topic 3 coverage.

Slide 3: This slide shows the 5 key techniques in Agile as seen in Topic 2. You should highlight that Modelling (diagramming) is one of the 5 key techniques, as defined in the DSDM approach.

Slide 4: **Class Exercise:** Ask the students to think of a range of diagrams used in development projects. This is a baseline to find out what modelling techniques (or more specifically diagrams) the students already know. They may have learned some techniques such as flowcharts and swimlane diagrams in other units. Many will be aware of organisation charts (organograms). These are all common diagrams used to:

- structure
- communicate
- simplify

The purpose of the exercise is to find out what common language the students have in diagramming; encourage the use of diagrams as a means of communication.

Their diagrams will typically be about one or more of the following:

- WHO (the people/roles)
- WHAT(the data being moved)
- HOW (the processes and procedures)
- WHERE (the locations in which things happen, are stored, work etc)
- WHEN (the events which trigger action)
- WHY (the objectives, and eventually the requirements gathered)

These ideas are further elaborated on Slide 7.

Slide 5: This slide summarises the exercise by looking at what students have drawn. The slide offers a definition of what a model should be.

Slide 6: This slide provides typical examples of models and diagrams.

Slide 7: This slide presents the 6 perspectives recognised in industry standard models (a framework for information systems architecture) by John Zachman of IBM. (See http://www.zachman.com/about-the-zachman-framework for more information on the Zachman framework.)

Slide 8: The image and annotation on this slide demonstrate that there are business aspects to What, Where, When, How, Who and Why. These drive the internal technology-supported aspects.

Slide 9: **Class Exercise:** This exercise is designed to show the weakness of words alone. Split the class into small groups (of three or four). One student in the group then describes a journey they know well, but that is unknown to the other students (this may be their journey home or to the house of a family member.) It should be a relatively short journey (walking, cycling or by car) for which the roads could be drawn on a single sheet of paper.

During the explanation, the students doing the drawing are not allowed to ask questions or speak at all. The outcome should be several different "maps", of which none may be exactly right. The tutor can then reinforce the benefits of modelling and diagramming as a means of communication.

Slide 10: This slide shows the type of modelling and the creators of the models at different lifecycle phases. You should emphasise the increasing levels of detail and refinement as the phases progress.

Slides 11-12: These images illustrate some typical uses for models. You should link these to "what, when, where, how, who, why" and comment on the benefit of modelling from the user's perspective.

Slide 13: This slight reminds candidates of the 8 principles of DSDM.

Slide 14: **Class Exercise:** Here the students are asked to link modelling to the 8 principles and prepare a short presentation. Ideally, students should present this information as a diagram. It will be interesting to see how many students think to do so!

There is no set answer. The purpose is to remind the students that everything they do encompasses the 8 principles.

Slide 15: Modelling is not just a way of documenting a system; it provides a powerful analysis and validation tool. It is both a means to understand the system under investigation and to communicate current practices and proposed changes. It should not place a major overhead of work on the team. The more different disciplines (business, Developer, Tester etc.) can understand and use the same techniques, the less redrafting will be needed. There can then be "serial refinement" as the project progresses into more detail.

Slide 16: A summary of the content covered in this topic is provided on this slide.

3.6 Seminar notes

The time allocation for the seminar sessions for this topic is 2 hours.

Lecturers' Notes:

Students have copies of the seminar activities in the Student Guide. Answers are not provided in their guide.

Exercise 1: A Context Diagram for the Hotel Olympia Project

The purpose of the exercise is:

- To show how a model/diagram can assist in defining the scope of a project.

This exercise requires reference to:

- Hotel Olympia background information
- Outputs from Topic 2 Seminar Exercise 1

You should spend approximately 1 hour on the exercise, plus time to review the results of your classmates.

Work in groups as directed by your lecturer. Imagine you are a mix of developers and business people who must perform the task and communicate with senior management.

1. Draw a high level diagram of your choice (rich picture, function hierarchy, context diagram or simple illustration) which helps to define scope and structure of the project for the hotel, to communicate with a mix of technical and business people in senior management.

2. Prepare to present this diagram to the whole course group.

Suggested Answer

There is no set answer - a variety of diagrams are acceptable here. These should be drawn from the diagrams which students already knew before the lecture. The intention is not to teach a new modelling technique but rather to focus the group on choosing the best means of communication for the target audience.

Presentation to the other groups and a group discussion should elicit the points on the best diagrams to choose for this.

The key discussion points are:

- The suitability of the diagramming style to the audience;
- The scope: should bar, restaurant and kitchen be considered to be within the scope of the project?

3.7 Private Study

The time allocation for private study in this topic is 7.5 hours.

Lecturers' Notes:
Students have copies of the private study exercises in the Student Guide. They need to complete this work before the tutorial for this topic.

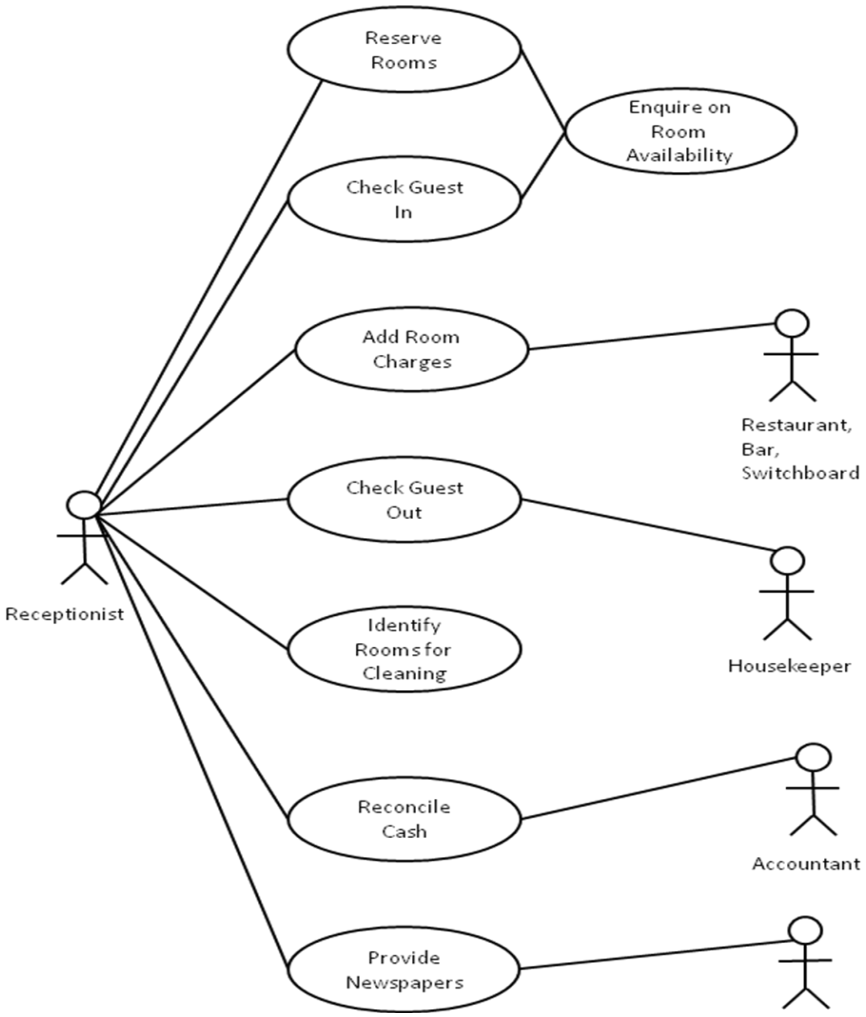
Exercise 1:

Through your own research, investigate the technique of High-level Use Case modelling.

Draw a high-level (scoping) use case diagram for the Hotel Olympia, based on the background information and the interview with the Head Receptionist (presented in Topic 2).

Suggested Answer:

Hotel Olympia – "As Is" Front Desk Systems - Use Case Scoping Diagram



Exercise 2: Quiz

Based on the research conducted in Exercise 1 write 5 quiz style questions based on this topic. You must also include answers. You should bring them to the Tutorial where you will discuss them and collectively agree on model answers for a selection from the group.

Exercise 3:

In preparation for the tutorial session for this topic, make a note of any questions you have about the case study exercises, the private study reading and the practical exercises from the recommended text. You will have a chance to discuss these with your tutor during the tutorial.

3.8 Tutorial Notes

The time allowance for the tutorial in this topic is 1 hour.

Lecturers' Notes:

Students have copies of the tutorial activities in the Student Guide. Answers are not provided in their guide.

You should start the tutorial with 15 mins to discuss random quiz style questions created during Private Study, and agree collectively on model answers.

Students should share their findings in small groups for exercise 2, and then report back to the whole class. You should lead the discussion about High-level Use Case modelling and the use case scoping diagrams students have produced for the case study.

The rest of the available time can then be used to allow students ask any questions they have about the content of this topic.

Exercise 1: Quiz questions

Random questions will be selected from Private Study and shared. The group will collectively agree on model answers.

Exercise 2:

Discuss your research into High-level Use Case modelling (Exercise 1) with the other students in your group. You should prepare to feedback the most interesting findings to the rest of the class and augment your own notes with any useful ideas suggested by other students.

You should also share your use case scoping diagram and explain how you arrived at your final diagram.

Topic 4: Roles, Skills and Team Structures

4.1 Learning Objectives

This topic provides an overview of the roles, skills and responsibilities in an Agile Team and the way in which effective teams are structured.

On completion of the topic, students will be able to:

- Describe the style of working of an Agile team as compared to a non-Agile team (self-directing, empowered);
- Discuss the style and recommended size of an Agile team;
- Understand the roles and responsibilities in an Agile team;
- Identify the roles required and the individuals best qualified to fill them, in a given scenario.

4.2 Pedagogic Approach

Information will be transmitted to the students during the lectures. They will then practise the skills during the seminar session, consolidate their learning during private study and gain feedback and answers to questions during the tutorial.

4.3 Timings

Lectures:	2 hours
Seminar:	2 hours
Private Study:	7.5 hours
Tutorials:	1 hour

4.4 Lecture Notes

Lecturers' Notes:

The following is an outline of the material to be covered during the lecture time. These notes are intended to guide you as the tutor in the use of the slides.

The structure of this topic is as follows:

- How do teams work?
- Team size and style
- Agile roles and responsibilities

4.5 Guidance on the Use of the Slides

Slide 2: This slide presents an overview of Topic 4 coverage.

Slide 3 and 4: **Class Exercise:** The purpose of this exercise is to show how groups work together. You should break the class into suitable groups, based on a mix of experience. The group needs to:

1 Decide on a group name (this gives a group identity, and encourages members to behave as a group)

2 Decide what information they need would to know as a group to be effective together when working on a project. You should not prompt the answers, but answers should include:

- Clear group objective
- Clear timeframe
- Knowledge of each other's skills

They should then:

3 Try to find out something about their group as a whole which is **NOT** shared by any of the other groups.

4 Ideas for the "differences" can be elicited by the following facilitation technique, which involves each group working on producing a 'group coat of arms' as follows. Each group should do this separately from the other groups:

- Draw a shield or circle and divide into quadrants.
- Label the quadrants in turn: JOB (or 'education background' if more appropriate); FAMILY; FAVOURITE SPORT; HOBBY.
- They should then fill in the quadrants to establish what they have in common.
- Each group then looks at what they know about their group (e.g. none have any brothers; they all hate football etc.) and identify where they have similarities which may not be shared by the other groups.

Note: They are allowed to ask other groups about their "shields" but should not be prompted to do so. Typically they will NOT take the initiative to ask other groups! Competition and group isolation usually take over. You could point this out **AFTER**

the exercises and presentations are complete: Groups set their own rules, even if those rules are not imposed by management.

Slide 5: This slide lists the characteristics of an Agile team. You should compare this to those associated with a tightly-managed Waterfall team.

Slides 6-8: The diagrams on these slides show the Agile team roles of DSDM as well as project level roles (Governance) and Solution Development Team roles.

Slide 9: It is possible for one set of project level roles to govern several Solution Development Teams. Teams should be split in this way and kept small ('7-plus-or-minus-two' being the ideal team size). This is based on "Miller's Limit", defined by psychologist George Miller, related to the capacity of the human brain to manage 7 plus or minus two concepts at a time. This extends to the span of communication between people.

Slide 10-11: Specialist roles can be introduced to the team on a full or part time basis, as required. The level of empowerment of the Solution Development Team roles and the added specialist roles should be clearly defined in any Agile project.

Slide 12-15: A summary of the content covered in this topic is provided on these slides. Go through each point with students, checking their understanding.

4.6 Seminar Notes

The time allocation for the seminar sessions for this topic is 2 hours.

Lecturers' Notes:

Students have copies of the seminar exercises in the Student Guide. The exercises for this topic are based on the case study role briefs (These are also used in Topic 8).

Students should spend approximately one hour working in groups to complete the exercise. When reviewing the results, each group should display their choices so that all groups' results can be compared. Discuss the differences and encourage groups to justify their choices.

Exercise 1: Team roles

The purpose of this exercise is to identify appropriate people for DSDM project roles.

This exercise requires reference to:

- Hotel Olympia Case Study: Background Information - Interview Notes
- Role briefs for staff available for workshops (see below)

Work in groups as directed by your lecturer. For this exercise, you are a management team who have been brought in from the hotel's Group Head Office by request of the Olympia Hotel's General Manager.

1. Use the role briefs below to identify which members of staff could take one or more DSDM team roles in Template A below. Ensure that every role is filled.

   Some roles may have more than one person and sometimes a person may hold more than one role. Give reasons for your choices.

   Use the comment column in the table below to note any concerns about the suitability of the people chosen and/or to show other people who you considered.

HOTEL OLYMPIA

Role Briefs for Workshops

Staff available for workshops:

The Business

General Manager	Les Timmis
Chief Accountant	Evelyn Cash
Assistant Accountant	Lee Ditton
Marketing Manager	Lin Barking
Deputy Head Receptionist	Sam Fisher
Kitchen Manager	Pat O'Cake
Restaurant Manager	Karel Singh

IT Staff from the Head Office of the Hotel Group (Normally located 200km away)

IT Analyst/developer	Stevie Reader
IT Analyst/developer	Chris Mist
IT Analyst/developer	Nicky Fox
IT Analyst/developer	Val Derry
IT Analyst/developer	Georgie Gere

Other staff who may need to be involved:

(no role briefs are available for these; check with General Manager for availability):

Head Receptionist	Ros Allenby
Deputy Manager	Des Prescot
Personnel Manager	Jan Petersen
Trainee Receptionist	Denni Blake

General Manager:	**Les Timmis**
Responsibilities:	In charge of the day-to-day smooth running of the hotel, its finances and stores; also responsible for future strategy and planning for the hotel
Character:	Friendly but imprecise, often ineffectual
Management Style:	Delegates everything
System requirements:	To avoid chaos when the influx of visitors are at the hotel. To ensure that the hotel remains profitable
Likes:	People
Dislikes:	Discord amongst the staff.

Accountant:	**Evelyn Cash**
Responsibilities:	In charge of Back-office accounting functions including acceptance of account-customers, credit checking, debt-chasing and the maintenance of the hotel's financial ledgers. Also responsible for the payment of staff wages.
Background:	Evelyn has been the accountant for the hotel for six years and was involved in the installation of the computer system currently used for accounting functions.
Character:	Precise, assertive, determined
Management Style:	Direct, dictatorial, often abrasive
System requirements:	To reduce duplication of effort and increase accuracy in Accounts.
Likes:	Order, obedience
Dislikes:	Hesitant people

Marketing Manager:	**Lin Barking**
Responsibilities:	Lin is responsible for pricing policy for the hotel; advertising and planning marketing campaigns; doing market research to identify new ways of attracting customers. Lin would sum up the job as: identifying, anticipating and satisfying customer's requirements profitably.
Background;	Lin has worked in Marketing for 3 years; 2 of these with another hotel in the group and the past 12 months with Olympia. She has an Economics degree and an MBA.
Character:	Friendly and charming.

Management Style:	Brisk and Energetic.
System Requirements:	Management information particularly information on where customers found our hotel and on unsatisfied demand where customers tried to book but were told that we had no rooms available
Likes:	Efficiency, People
Dislikes:	Lack of information

Assistant Accountant:	**Lee Ditton**
Experience:	Has been a business manager and knows IT superficially. Has been trained as a facilitator but has little experience thus far.
Character:	tactful, assertive, determined
Management Style:	consensus always sought
System Requirements:	To help the team at Olympia develop and implement what the business really needs.
Likes:	people
Dislikes:	impoliteness

Receptionist:	**Sam Fisher**
Responsibilities:	In charge of reservations.
Character:	Precise, efficient, determined, imaginative, lateral-thinker
Management Style:	Friendly but firm
System Requirements:	To deal with customers in a friendly and efficient manner, especially on arrival and check-out. To reduce duplication of effort and increase accuracy at the Front Desk
Likes:	Order, efficiency
Dislikes:	Bossy people Not getting own way

Kitchen Manager:	**Pat O'Cake**
Responsibilities:	Producing weekly menus for breakfast, lunch and dinner. Advance ordering of food to fulfil the menus. Ordering and catering for functions. Ensuring the smooth running of the kitchen and looking after the kitchen staff.
Character:	Usually friendly, but can be temperamental
Management Style:	None. Acts as one of the workers.
System Requirements:	To have no disruption to the normal running of the kitchen
Likes:	Food, often eating more of the kitchen stock than is acceptable!
Dislikes:	Being told what to do, or having other people's ideas imposed in the kitchen.

Restaurant Manager:	**Karel Singh**
Responsibilities:	In charge of the restaurant and restaurant staff. Handles seating arrangements for functions such as business meetings and weddings. Ensures an adequate supply of crockery, cutlery and table linen. Places orders for floral displays with an outside supplier.
Character:	Erratic, always seems irritated by something
Management Style:	Bossy, often making unreasonable demands of staff
System Requirements:	To ensure that the orders of guests are satisfied. Too frequently, the items on the menu become unavailable too soon, and guests are disappointed.
Likes:	Very friendly with the General Manager
Dislikes:	Does not speak to the accountant, dislikes the reception staff.

IT Analyst/developer:	**Stevie Reader**
Experience:	IT systems development from a business analysis perspective. Has never actually been a developer. Business analysis knowledge is self-taught and unstructured. Has led teams on two previous projects including the accounts back office system. Gets on quite well with the accountant
Character:	Assertive, determined
Management style:	Likes to work in teams
System requirements:	Would like to try out an Agile framework for a project.

Likes:	People with clarity of purpose
Dislikes:	People who change their minds about requirements

IT Analyst/developer:	**Chris Mist**
Experience:	Programmer and systems analyst. Has Agile programming experience. Has worked as a database designer
Character:	Intelligent but can be stubborn even when better ideas have come from others.
Management Style:	Likes to work alone. Hates Agile ideas such as working in teams.
System Requirements:	To implement a trouble-free product which meets specification.
Likes:	Elegant IT solutions
Dislikes:	Technophobes

IT Analyst/developer:	**Val Derry**
Experience:	Software developer and systems analyst. Has been an systems analyst for only eight months. Works with Chris Mist reasonably well, in spite of Chris's unfriendly nature.
Character:	Bright but not very confident until thoroughly familiar with the work
Management Style:	Likes to work as part of a team
System requirements:	To work on a major project in a team
Likes:	Praise
Dislikes:	Criticism

IT Analyst/developer:	**Georgie Gere**
Experience:	Has developed many systems using programming languages and Web development tools. Likes getting involved with the fine detail and producing solutions with own ideas added.
Character:	Good communicator but likes to make own decisions
Management Style:	Individualist
System Requirements:	To be given a major challenge
Likes:	Cricket

Dislikes:	Being made to work to rigid specifications

IT Analyst/developer:	**Nicky Fox**
Experience:	Junior developer using Web development tools
Character:	Energetic, but sometimes does not think of consequences of rapid actions.
Management Style:	None
System Requirements:	To add an interesting project to the CV
Likes:	Dancing, music, anything but work
Dislikes:	Being blamed for everything.

Project Roles for the Hotel Olympia Project

ROLE	PERSON	REASON	COMMENT
Business Sponsor			
Business Visionary			
Business Ambassador			
Business Advisor			
Project Manager			
Technical Co-ordinator			
Team Leader			
Business Analyst			
Solution Developer			
Solution Tester			
Other Specialist Roles			

Suggested Answer:

Please note that students should also have notes in their Comment column on other people they considered for the role and any risk or reservation about their choice.

E.g. Les Timmis is the Sponsor but he is indecisive, so this could be a risk.

ROLE	PERSON	REASON
Business Sponsor	Les Timmis	Owns the budget and is sufficiently senior to allocate resources and remove problems
Business Visionary	Evelyn Cash	Understands the architecture of the business and the links between departments. Sufficiently senior to remove problems

Business Ambassador(s)	Sam Fisher (Reception); Lee Ditton (Accounts); Pat O'Cake (Kitchen); Karel Singh (Restaurant & Bar); Lin Barking (Marketing)	A person the business is happy to empower with decision making for their area, but sufficiently "hands-on" in the job to make sensible decisions about how the new system can work. Only one per functional area.
Business Advisor(s)	To be decided, but anyone needed for information or review. These are not the decision makers	
Project Manager	Stevie Reader	This could be a business person (e. g. Lee Ditton or Evelyn Cash) or an IT person. They need project management skills and the time to manage the project. They also need to be prepared to empower and facilitate the team rather than direct, in an Agile project.
Technical Co-ordinator	Georgie Gere	This needs to be a person with good technical skills, a knowledge of configuration management and standards and a personality to facilitate the links between different teams. This is the technical Architect.
Team Leader	Stevie Reader (possibly others)	If there is only one team, it may be the project manager, to avoid unnecessary hierarchical structure. However, the Agile team usually chooses its own leader.
Business Analyst	Stevie Reader	The only person with Business Analysis skills is Stevie Reader. However, does he/she have the time to do this role in addition to others?
Solution Developer (s)	Val Derry, Nicky Fox	We need the best Agile developers available.
Solution Tester	Chris Mist	Chris is a developer but could test the work of others and could drive with the setting up of best-practice testing (independent, prioritised etc.)
Other Specialist Roles	An Operations Co-ordinator (Release Manager). Possibly Chris Mist or Georgie Gere	Other specialist roles may also be needed. The Operations Co-ordinator is particularly selected since there needs to be someone to ensure co-ordinated releases into live operation, given the incremental nature of Agile deliveries.

4.7 Private Study

The time allocation for private study in this topic is 7.5 hours.

Lecturers' Notes: Students have copies of the private study exercises in the Student Guide. They need to complete this work before the tutorial for this topic.

Exercise 1:

Research team role analysis (Meredith Belbin's approach, plus any one other approach you find) and prepare a presentation of the team roles proposed here.

Be prepared to discuss the advantages of using such an approach with the Agile team.

Exercise 2: Quiz

Based on the research conducted in Exercise 1 write 5 quiz style questions based on this topic. You must also include answers. You should bring them to the Tutorial where you will discuss them and collectively agree on model answers for a selection from the group.

Exercise 3:

In preparation for the tutorial session for this topic, make a note of any questions you have about the case study exercises, the private study reading and the practical exercises from the recommended text. You will have a chance to discuss these with your tutor during the tutorial.

4.8 Tutorial Notes

The time allowance for the tutorial in this topic is 1 hour.

Lecturers' Notes:

Students have copies of the tutorial activities in the Student Guide. Answers are not provided in their guide.

You should start the tutorial with 15 mins to discuss random quiz style questions created during Private Study, and agree collectively on model answers.

Students should present their private study work in Exercise 2 below. The rest of the available time can then be used to allow students ask any questions they have about the content of this topic.

Exercise 1: Quiz questions

Random questions will be selected from Private Study and shared. The group will collectively agree on model answers.

Exercise 2:

Work in a small group and present your findings from the team role research that you conducted during the private study time for this topic. Work together to develop a presentation to give to the other groups.

Suggested Answer:

The most commonly-found approach is Belbin Team Roles (www.belbin.com).

Roles are:

- Shaper
- Co-ordinator
- Implementer
- Plant
- Monitor-evaluator
- Team Worker
- Completer/Finisher
- Specialist

You should lead a review with the following teaching points:

1. People vary in the team roles they naturally take on, but all roles have something different to offer.

2. Each role has its strengths and its weaknesses.

3. The analysis gives a “language” for the team to understand their differences and to accommodate these.

Topic 5: Lifecycle and Products

5.1 Learning Objectives

This topic provides an overview of the configurable lifecycle of an Agile project and the structure and context of products to be produced, to give sufficient rigour to project management whilst still retaining the flexibility of the Agile approach.

On completion of the topic, students will be able to:

- Explain why a lifecycle is necessary;
- Describe the DSDM lifecycle;
- Identify the different phases of the lifecycle, with objectives, preconditions, points to consider;
- Describe the three essential perspectives for the products;
- Discuss how to configure the lifecycle and the purpose of doing this;
- Compile key products for a given scenario.

5.2 Pedagogic Approach

Information will be transmitted to the students during the lectures. They will then practise the skills during the seminar session, consolidate their learning during private study and gain feedback and answers to questions during the tutorial.

5.3 Timings

Lectures:	2 hours
Seminar:	2 hours
Private Study:	7.5 hours
Tutorials:	1 hour

5.4 Lecture Notes

Lecturers' Notes:

The following is an outline of the material to be covered during the lecture time. These notes are intended to guide you as the tutor in the use of the slides. Please also refer to the slides.

There are not as many slides as usual for this lecture. This is because there is a considerable amount of reference material in the official DSDM manual (The DSDM Project Framework Handbook (2014 Onwards)), where the products are shown in full detail. Whilst the level of detail in the DSDM Handbook is not necessary for the assessment of this unit, it is useful background reading. The DSDM Handbook can purchased in hard copy, or can be viewed under resources/DSDM Handbooks on the website, http://www.agilebusiness.org.

Please note that some resources are needed for the class exercise below. These are listed under the 'class exercise' heading.

The structure of this topic is as follows:

- The lifecycle
- The phases of the lifecycle
- The products and their perspectives

5.5 Guidance on the Use of the Slides

Slide 2: This slide presents an overview of Topic 5 coverage.

Slide 3: This is the central slide of the lecture. You should explain each phase in the lifecycle in detail. A detailed description can be found in the notes section under this slide in the PowerPoint presentation.

Detailed product descriptions are also provided in the DSDM Handbook. Talk through the quality criteria against the key products.

You may also wish to reprise a slide to show Waterfall from Topic 1 of the unit at this point.

Slides 4-6: **Class Exercise: Waterfall versus Agile Life Cycles**

For this exercise, you will need 20 coins for each team (the teams may provide their own or you can supply them); a timer for each team (one team member with a watch will do) and a whiteboard/flipchart.

- Divide the group into teams of seven.
- Each team forms a straight line against a cleared table
- The coins are placed in a heap at one end of the table.
- The seven people in the team adopt the roles of Analyst, Designer, Developer, Tester, User Acceptance Tester, Implementer and QA/Timekeeper. The role of each individual is represented by turning a coin over.
- The teams will work simultaneously, in competition with each other.

Pass 1: The Waterfall Way

Timed by the timekeeper, the coins are first turned to all “heads” by the analyst, and passed as a batch to the designer. The designer turns them all to “tails” and passes them as a batch to the developer, and so in down the line until the implementer has taken his turn and shouts “Stop”. At this point the timekeeper records the time on the whiteboard/flipchart. The timekeeper turns no coins but acts as quality control to ensure no cheating.

Pass 2: The Agile Way

This time, the above roles still operate in the same way, but as soon as one coin is turned it can be passed to the next role, rather than waiting for a batch to be completed. Again the timekeeper watches quality and times the event, and records the time as before when the implementer shouts ‘Stop!’

Outcome: the time taken should be significantly shorter with the Agile way.

The teaching points to draw out of this activity are that Agile works faster if resources are dedicated. Waterfall resourcing requires people to be on many projects simultaneously; Agile works better with dedicated resources.

Slides 7-8: The lifecycle can be configured in many ways. Here just a few options are shown.

It is very common in Agile projects to overlap Exploration and Engineering phases in one timebox. The products of Engineering are just an evolution of the Exploration products. Emphasise, however, that there is still detailed analysis (Exploration) to be done, timebox by timebox, on the functionality in that timebox, before code is built (Engineering).

Slide 9: During each phase of the lifecycle there is a focus on three aspects:

- Business: This covers vision and cost-benefit justification aspects
- Solution: This covers the evolving solution and the documentation to support this
- Management: This covers the planning and control of the project

Slide 10: The products of DSDM are displayed on this slide. These are fully described in the latest version of the DSDM Handbook. Students will carry out research during Private Study regarding the main products.

Slide 11-14: A summary of the content covered in this topic is provided on these slides.

Slide 15: SCRUM uses similar products, but manages them differently. This slide outlines what the terms Product backlog and Sprint backlog mean in SCRUM.

5.6 Seminar Notes

The time allocation for the seminar sessions for this topic is 2 hours.

Lecturers' Notes

Students have copies of the seminar activities in the Student Guide. Answers are not provided in their guide.

You should act as the Business Sponsor for the exercise below. You are concerned that the reservations are already piling up. A system for reservations is needed within the next 4 weeks to be of use. You are also concerned that if a new system is delivered to the reception staff on the day before the Olympics, it will be a disaster!

There are no suitable solutions available within the hotel group and you would prefer a simple solution, built in-house, and delivered in small chunks every two weeks, if possible. You are not interested in having a web interface for customers to use at this point, just a front-desk system for the reception staff and good links to accounts, bar, restaurant and kitchen.

Exercise 1:

The purpose of this exercise is:

- To consider appropriate configuration of the lifecycle for the Hotel Olympia Project
- To produce one product (A one-page summary of the Outline Solution, which is one part of the Feasibility Assessment).

This exercise requires reference to:

- Hotel Olympia background information
- Answers from seminar exercises thus far

For this exercise, you are the Project Manager, the Business Analyst, the Business Visionary and the Technical Co-ordinator.

1. Remind yourselves of the background information for the Olympia Hotel.

2. Decide on a suitable lifecycle configuration for this project to include incremental delivery, over the next 12 weeks, of a solution to meet the project objective. Please note, this is not a full plan of the project, just a high level view of the likely deliveries.

3. Show your planned lifecycle stages on a flip chart, for presenting to the other groups later.

4. Describe the outline solution, in words and diagrams (models).

5. Present your lifecycle and outline solution to the other groups.

Suggested Answer:

There is no one correct answer.

However, some overlapping of Exploration and Engineering is likely. The solution should also show delivery in increments during the 12 weeks.

The Deployment activities should be shown and may occur per development timebox.

Each group should present their work on a flipchart or board and present it to the other groups. The other students should critique the lifecycle configuration shown.

You should go through the options given by the different groups, drawing out the benefits and risks of the different options.

5.7 Private Study

The time allocation for private study in this topic is 7.5 hours.

Lecturers' Notes:

Students have copies of the private study exercises in the Student Guide. They need to complete this work before the tutorial for this topic.

Exercise 1:

Research the 14 following products of DSDM:

1. Terms of Reference
2. Business Case
3. Prioritised Requirements List
4. Solution Architecture Definition
5. Development Approach Definition
6. Delivery Plan
7. Management Approach Definition
8. Feasibility Assessment
9. Foundation Summary
10. Evolving Solution
11. Timebox Plan
12. Timebox Review Record
13. Project Review Report
14. Benefits Assessment

Many of the products have sub-products within them.

Draw a diagram (mind-map, hierarchy or similar) to illustrate the 14 key products and their sub-products, for presentation to the tutorial group.

Exercise 2: Quiz

Based on the research conducted in Exercise 1 write 5 quiz style questions based on this topic. You must also include answers. You should bring them to the Tutorial where you will discuss them and collectively agree on model answers for a selection from the group.

Exercise 3:

In preparation for the tutorial session for this topic, make a note of any questions you have about the case study exercises, the private study reading and the practical exercises from the recommended text. You will have a chance to discuss these with your tutor during the tutorial.

5.8 Tutorial Notes

The time allowance for the tutorial in this topic is 1 hour.

Lecturers' Notes:

Students have copies of the tutorial activities in the Student Guide. Answers are not provided in their guide.

You should start the tutorial with 15 mins to discuss random quiz style questions created during Private Study, and agree collectively on model answers.

Once the students have had the opportunity to share their work in small groups for exercise 2, you should facilitate a whole group feedback session. This should also involve discussion of the products.

Any remaining time can then be used to deal with students' questions on the content of this topic.

Exercise 1: Quiz questions

Random questions will be selected from Private Study and shared. The group will collectively agree on model answers.

Exercise 2:

Share your diagram of the structure of the 14 products from private study Exercise 1 with the other students in your group. Discuss the key things you found out and any differences in the diagrams.

Topic 6 Project Management Part 1: Control and Risk

6.1 Learning Objectives

This topic provides an overview of key considerations in project management, as they are affected by an Agile approach. On completion of the topic, students will be able to:

- Explain how Agile project management differs from traditional project management;
- Explain the use of the Agile control parameters;
- Identify the Agile differences from traditional project management for key components of project management;
- Apply risk considerations to an Agile project management scenario.

6.2 Pedagogic Approach

Information will be transmitted to the students during the lectures. They will then practise the skills during the seminar session, consolidate their learning during private study and gain feedback and answers to questions during the tutorial.

6.3 Timings

Lectures:	2 hours
Seminar:	2 hours
Private Study:	7.5 hours
Tutorials:	1 hour

6.4 Lecture Notes

Lecturers' Notes:

The following is an outline of the material to be covered during the lecture time. These notes are intended to guide you as the tutor in the use of the slides.

The structure of this topic is as follows:

- Traditional project management compared with Agile project management
- The Control aspects of Agile project management
- Risk in Agile project management
- Part 2 of Agile Project Management, in Topic 7, will cover other aspects, in particular Quality and Testing

6.5 Guidance on the Use of the Slides

Slides 2-3: These slides present an overview of Topic 6 coverage. Please note there are two separate lectures focusing on Project Management, of which this is the first. Topic 7 will cover other aspects, in particular Quality and Testing.

Slides 4-5: The Agile Project manager is more of a facilitator, allowing the Agile team to be more self-organising and self-directed than in a traditional waterfall project.

Other Agile differences relate to the evolutionary approach to specification, where detail emerges as the project progresses.

Class Exercise:

The students should stand around the room in pairs. You should ask each pair to assign a project manager. The remaining person is a team worker. You should then brief the project managers as follows:

1. The Traditional Way

The project manager must decide on a point in the room to get his teamworker to. She/he should then get her/his team to the appropriate place (without sharing where the end-point is) by just issuing the directions: left; right, forwards; backwards; stop and start.

2. The Agile Way

The project manager tells his team worker where the end-objective is and allows them to decide for themselves how to get there.

Outcomes:

- The Traditional way is harder, riskier and less satisfying than the Agile way.
- The Agile way, whilst quicker, expects personal responsibility and a level of skill from the teamworker.

Slides 6-7: Agile project managers need to be flexible in their approach and have a clear understanding of the business and technical issues surrounding the project. They need to facilitate the team and promote a collaborative, joined up approach where all participants are equals. They must ensure that the project is well managed with regards to time allocated to support the team and avoid burning out.

The Project Manager must promote and enable good communication. Communication must be factored in throughout the project. This includes project practices such as daily stand-up meetings, facilitated workshops, modelling and prototyping. It is helpful if teams work closely together physically, but remote teams can work equally effectively if they communicate regularly. Getting the communication right will build a strong team and project.

Slide 8: The inverted triangle is a strong DSDM concept: in a traditional waterfall project, the features would be fixed and this will often result in allowing time and cost to vary or in compromising quality. DSDM protects quality, time and cost by being flexible about features delivered, under the control of clear business prioritisation (MoSCoW prioritisation was covered in Topic 2).

Slide 9: This slide shows the products related to planning in the lifecycle.

Slides 10-11: These slides consider risk in an Agile project. Reduction of risk is often linked with the quantity of analysis and design work undertaken “up front” in the project. Some Agile approaches advocate the idea of not wasting time on “up front” work (hence NDUF - no design up front); waterfall is well-known for BDUF (big design up front); DSDM advocates doing enough design up front (EDUF) in order to mitigate the risk of rework due to lack of understanding of the project area, whilst retaining the competitive advantage of delivery of some benefit early, and benefit delivery frequently because of incremental development and delivery”

Slides 12-13: The risks specifically related to the use of DSDM are associated with things which must change from the waterfall culture: the involvement throughout of the right business people; the need for flexibility of prioritised requirements; the acceptance by the business that the control is exercised on time and cost, and quality is retained, by de-scoping lower-priority requirements.

There is a link between risks and the Project Approach Questionnaire, completed during the feasibility phase and revisited throughout the project.

This PAQ was completed as a part of the exercises for Topic 2, for the Case Study.

Slide 14: **Class Exercise: The three control parameters of cost, time and features**

This exercise may be run during or at the end of the lecture. Its purpose is to illustrate the idea of prioritising features to stay on time and budget

1. Divide the class into groups of six
2. Each group lists (on a flipchart or board) 20 features they need in a house (e.g. roof, walls etc. but can be as “wild” as plasma TV, spa-pool etc.)
3. Having listed these, the tutor then advises that only half of these will be possible, within the budget. The group then must decide which are essential and which should be dropped.

Teaching points:

- Hard to prioritise without a clear objective
- Need to know if we will **ever** get the ones we de-scope.
- Different people within the group have different priorities
- We often identify more requirements than we really need

Slides 15-16: A summary of the content covered in this topic is provided on these slides. Go through the points with the students and check their understanding.

6.6 Seminar Notes

The time allocation for the seminar sessions for this topic is 2 hours.

Lecturers' Notes

Students have copies of the seminar exercises in the Student Guide. Answers are not provided in the Student Guide. The exercises are based on the Hotel Olympia case study.

The Task:
Break the class into groups of 4 or 5 (add business ambassadors if the groups needs to be larger). You should act as the Business Sponsor, answering any questions put to you. Ensure each group uses the Project Approach Questionnaire (PAQ) template. Students will need to use their previous reading plus some extrapolation of what they know of hotels in order to answer this and to suggest risks.

Review:
Ask each group to present their PAQ, along with their risks and mitigations to the rest of the class. Discuss any discrepancies between the PAQs. Then provide copies of the suggested solution for each student.

Exercise 1: Agile Risk Assessment

The purpose of this exercise is to:

- To identify initial risks to the Agile way of working by completing a Project Approach Questionnaire.
- To consider major risks and their mitigations

This exercise requires reference to:

- Hotel Olympia Background Information
- All Case Study exercises completed to this point

Work in small groups as directed by your tutor. For this exercise, you are the Project Manager, Business Visionary, Technical Co-ordinator and Business Analyst. Your tutor will act as Business Sponsor, if required.

1. Review the Project Approach Questionnaire for the Hotel Olympia case study, previously completed in Topic 2, identifying any changes.

2. Identify 2 key **Agile** risks to the case study project

3. Suggest ways to mitigate these risks

Suggested Answer

DSDM Project Approach Questionnaire		*Indicate the closest collective opinion*					*COMMENT*
Ref	**Statement**	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**	
1	The business driver behind the project is clearly stated and is visible to all members of the project team.	Y					
2	The Business Sponsor and/or Business Visionary demonstrate clear ownership of the project.	Y					
3	The Business Sponsor, Business Visionary and Technical Coordinator all understand and accept the DSDM philosophy.			Y			They may need training.
4	The development has a clearly-defined timescale.	Y					
5	The requirements can be prioritised and there is flexibility to accept that not all requirements are 'Must Have' requirements.		Y				They all know they must not miss the deadline, but will they really be prepared to drop requirements?
6	Requirements have been defined at a high level at the outset of the project, and it is acknowledged that changes are likely during development of the detail.			Y			More definition yet to be done
7	It is accepted that the detail of both the requirements and the solution will emerge as the project progresses.	Y					
8	The Business Sponsor and Business Visionary are aware of the importance of active business involvement and have the willingness and authority to commit appropriate business resources to the project as required.	Y					

9	The Business Ambassadors are sufficiently empowered to guide the day to day evolution of the solution.		Y				This remains to be seen!
10	The Solution Developers are sufficiently empowered to provide the best solution they can from a business perspective within pre-agreed architectural constraints.			Y			These are developers unknown to the management. They should be trusted, but will they?
11	Solution development resources are allocated at an appropriate level and the team will be largely stable throughout the project (or, at least, throughout each increment).			Y			We need to check this, and negotiate for it
12	The Project Team and Solution Development team are able to adopt the roles and responsibilities within DSDM.		Y				They need training
13	It will be possible for the Solution Developers to have easy access to Business Ambassadors and Business Advisors throughout the project.	Y					Everyone can live on site in the hotel
14	The Solution Development team (including both business and solution development resources) will have the appropriate collective knowledge and/or technical skills to deliver the solution.		Y				These are the best people we have
15	The Solution Development team (including both business and solution development resources) will have the appropriate soft skills (communication, negotiation etc.) to work effectively with each other and those around them.		Y				Most of them seem fine

16	Strategies for continuous communication and collaborative working practices are sufficient to clearly support iterative development of the solution.			Y			These need to be agreed
17	The development technology tools and techniques support an iterative approach to solution development.			Y			These need to be purchased
18	There are no technical, contractual or other constraints to prevent the solution being broken into increments for development and delivery (even if the products of such increments are not deployed immediately).	Y					
19	All project participants understand and accept that on-time delivery of an acceptable solution is the primary measure of success for the project.	Y					
20	All parties accept that continual assessment of the fitness for purposes of all deliverables during development is essential.	Y					
21	There are no mandatory standards or practices in force that will work against the evolution of a solution from a baselined set of high level requirements.	Y					

The outcome of the completed PAQ is favourable towards an Agile project, but with some details still to be worked out.

Major Risks:

Many possible answers may be correct. However, the most risky areas are those in the PAQ where we have a neutral answer (or worse) to the question.

For example:

Statement 11:

Solution development resources are allocated at an appropriate level and the team will be largely stable throughout the project (or, at least, throughout each increment).

Risk 1: The developers will be reassigned onto another project by Head Office (who are supplying them): This will lead to delay to time of delivery of increments.

Mitigation: Arrange for the Business Sponsor and Business Visionary to negotiate with Head Office to emphasise that these specific developers are needed for the whole 12 weeks.

Risk 2: The receptionist acting as Business Ambassador may be too busy with day-to-day work at reception to be properly engaged with the solution development team: this may cause delay or a poorer-quality solution.

Mitigation: Senior management should engage temporary staff cover (agency staff) to give the receptionist freedom to work with the Solution Development Team

6.7 Private Study

The time allocation for private study in this topic is 7.5 hours.

Lecturer Notes:

Students have copies of the private study exercises in the Student Guide. They need to complete this work before the tutorial for this topic.

Exercise 1:

Research and List 10 major differences between traditional project management and Agile project management.

Suggested Answer:

Some of the key differences are shown below. Others are possible.

	Traditional (Waterfall) Project Management	Agile Project Management
1	Directive	Facilitative
2	Resources on multiple projects	Dedicated resources
3	Few large deliveries	Multiple small deliveries
4	Separate phases	Overlapping and merged phases
5	Testing at the end	Testing throughout
6	Teams not empowered	Empowered team members
7	Large teams	Small teams
8	Large, inflexible plans	Flexible plans to embrace change
9	Plans belong to the PM	Plans belong to the Team
10	Limited user involvement	User involvement within the development team

Exercise 2: Quiz

Based on the research conducted in Exercise 1 write 5 quiz style questions based on this topic. You must also include answers. You should bring them to the Tutorial where you will discuss them and collectively agree on model answers for a selection from the group.

Exercise 3:

In preparation for the tutorial session for this topic, make a note of any questions you have about the case study exercises, the private study reading and the practical exercises from the recommended text. You will have a chance to discuss these with your tutor during the tutorial.

6.8 Tutorial Notes

The time allowance for the tutorial in this topic is 1 hour.

Lecturers' Notes:

Students have copies of the tutorial activities in the Student Guide. Answers are not provided in their guide.

You should start the tutorial with 15 mins to discuss random quiz style questions created during Private Study, and agree collectively on model answers.

Once the students have had the opportunity to share their work in small groups for exercise 2, you should facilitate a whole group feedback session. Any remaining time can then be used to deal with students' questions on the content of this topic.

Exercise 1: Quiz questions

Random questions will be selected from Private Study and shared. The group will collectively agree on model answers.

Exercise 2:

Share with your group the differences you listed between traditional and Agile project management. Make notes on any points which other students suggest.

Topic 7: Project Management Part 2: Quality and Testing

7.1 Learning Objectives

This topic provides an overview of key considerations in project management, as they are affected by an Agile approach. On completion of the topic, you will be able to:

- Explain the Agile project management approach to:
  - Configuration Management
  - Quality;
  - Maintainability;
  - Quality Management and Testing;
- Explain the Agile testing concepts;
- Perform a stand up meeting in relation to a given project scenario;
- Apply Agile project management considerations (Configuration Management, Quality, Maintainability) to a given scenario.

7.2 Pedagogic Approach

Information will be transmitted to the students during the lectures. They will then practise the skills during the seminar session, consolidate their learning during private study and gain feedback and answers to questions during the tutorial.

7.3 Timings

Lectures:	2 hours
Seminar:	2 hours
Private Study:	7.5 hours
Tutorials:	1 hour

7.4 Lecture Notes

Lecturers' Notes:

The following is an outline of the material to be covered during the lecture time. These notes are intended to guide you as the tutor in the use of the slides.

The structure of this topic is as follows:

- Quality and Configuration Management
- Testing

7.5 Guidance on the Use of the Slides

Slide 2: This slide presents an overview of Topic 7 coverage. It should be noted that Configuration Management is covered with quality because there is a strong link between the two: without version control and good management of the developing solution (configuration items) the quality of the end solution cannot be protected.

Slide 3: The industry best-practice definition of quality is "fitness for purpose". DSDM considers both the quality of the solution and the quality of the process for arriving at the solution. Agile teams not only work to produce an appropriate quality solution but, through "retrospectives" at the end of each timebox, and constant refining of their ways of working, strive to improve those working practices.

Slide 4: These are the key areas where quality may suffer.

Slide 5: The International Standards Organisation (ISO) has defined standards for quality in software-related projects. ISO 9001 and other standards in this numerical sequence (ISO 9000) apply. These can be expressed simply as in the slide: "Say what you are going to do, do it, demonstrate that you have done it." Thus, for each timebox within the project we should set our expectations at the outset and test against those at the timebox end.

Slide 6: Quality checking activities (Testing) can take a variety of forms, as listed here.

Slide 7: Maintainability is an aspect of the quality of a solution. Agile is often seen as a "quick and dirty" approach, producing poor quality or unmaintainable solutions. DSDM was specifically developed to protect quality, including an "up-front" decision about the maintainability of the solution to be developed.

Slide 8: **Class Exercise: Maintainability**

This is intended as an informal exercise for discussion within the class. The probable answer is that a system will be produced for re-engineering later. This is because time is very short and something must be done to limit damage to the business. However, you can bring in the need for management to commit to a budget being available beyond the 3 month timeframe for these later improvements.

Slide 9: Configuration management is a protector of the quality of the emerging solution, controlling the elements of the solution as it is developed. Configuration management is about:

- Planning
- Identification of configuration items
- Control of change
- Status accounting - reporting
- Verification - that the status of items in the records matches their actual status

The pictures on the slide show:

- Cows - Configuration items are identified uniquely (cows are identified individually by ear-tags)
- A judge's hammer or 'gavel' - a prisoner is having his "status" set! Status of Configuration items needs to be agreed: e.g. draft, approved, implemented.
- A Jail - This is to indicate the protection and control of pieces of work (configuration items) once they have been placed under control (restriction of access to them)
- Builder: the product is evolving and needs control of status during this evolution
- A bird in a cage - we need to prevent value being lost by developed parts of the solution "escaping" or being lost.
- Barbed-wire fence: This shows the need to have configuration management to protect the emerging products of the project.

The key Agile point is that configuration management must not restrict the constant evolution of the solution. However, an appropriate level of control is needed

Slide 10-11: These slide shows a definition of configuration management and change control.

Slide 12: Note that a champion for configuration management should be identified within the team, rather than this control being supplied from sources external to the team.

Slide 13: You should define "baseline" and discuss the need for baselining, especially in a fluid, constantly-changing Agile environment.

Slide 14: The only way to monitor to improve is to capture metrics for the project. The Agile project should not be over-burdened with this, but does need some simple, easy-to-collect metrics for process improvement.

Slide 15: **Class Exercise: Metrics**

This is a short group-discussion exercise. There is no right answer, but any metric must be:

- A good, direct measure of success of a specific aspect of the project
- Not high in overhead to collect
- Imaginative

It has been said within DSDM over the years that, at the end of the project, the size of the smiles on the users' faces are the best metric!

Slide 16: The final part of the quality topic is testing - checking the quality.

Agile testing takes place throughout the lifecycle and has its own testing concepts, based on testing best practice. Specifically, Agile uses concepts such as "fail fast"; "collaborative" and "prioritised".

Slide 17: **Class Exercise: Using the Key Techniques in Testing**

The students should spend approximately 30 minutes assembling their points for each technique. You can then allow each group to describe the effect on testing and how the techniques could help in testing in an Agile project.

The discussion points in the answer would include:

- Modelling
  - Can be used to structure tests
  - Process models can be used to ensure coverage of the tests by showing, simply, all of the processes
- Moscow Prioritisation
  - Tests can be prioritised – it will seldom be possible to run all possible tests
- Facilitated workshops.
  - Team members and other relevant stakeholders can use workshops to plan testing, define test priorities, and collaboratively test.

Slide 18: A summary of the content covered in this topic is provided on this slide. Go through each point with students to check their understanding.

7.6 Seminar Notes

The time allocation for the seminar sessions for this topic is 2 hours.

Lecturers' Notes

Students have copies of the seminar exercises in the Student Guide. Answers are not provided in the Student Guide. The exercises are based on the Hotel Olympia case study.

The Task:

Break the class into groups of 4 or 5 (add business ambassadors if the groups needs to be larger) You should act as the Business Sponsor, answering any questions put to you. Ask each group to present and discuss their mapping. Afterwards, hand out copies of the suggested solution to each student.

Exercise 1:

The purpose of this exercise is:

- To act as a reminder to keep the 8 Principles at the centre of the project work - these are the things which will cause problems if not addressed.
- To see the mapping of principles to Quality and Testing, Configuration, Maintainability and Metrics

This exercise requires reference to:

- Hotel Olympia Background information
- Outputs from all exercises thus far

Work in a group as directed by your tutor. Imagine you are a mix of developers and business people who must perform the task and communicate with senior management.

1. Map each of the 8 principles, in a matrix, to the topics of:
   - Quality
   - Maintainability
   - Configuration Management
   - Testing
   - Metrics

2. Prepare to present this work to your classmates.

Suggested Answer:

There is no set answer; a variety of answers are justifiable. An example of the style of answer is give below.

	Principle	Quality	Maintainability	Config. Mgt	Testing	Metrics
1	Focus on the Business Need	Fitness for business purpose	Part of the “fitness”	Protects “fitness”	Business Testing as well as technical	Helps benefits realisation assessment
2	Deliver On Time	Part of quality is that the solution is there when needed	Do not compromise this just to meet a timebox	Hand-over of the configuration to “live running” needs to be planned for	Allow time for adequate testing throughout	Simple metrics with not too much “overhead”
3	Collaborate	Right people deliver right quality	Set the right level	Working together to the same CM standards	Technical Solution Tester assists Business Ambassador	A difficult one to measure!
4	Never Compromise Quality	This says it all. But agree the right quality - not over-engineered!	Part of quality	This protects quality	Checks quality	Can show where errors are being repeated and improve process quality
5	Build Incrementally from Firm Foundations	Firm Foundations allow quality to be built in	Firm Foundation allows dependencies and structure to be recognised	Baselining gives clear foundations	Increments tested as they evolve - testing not left to the end	Metrics per increment help improve future increments

6	Develop Iteratively	This could compromise quality if allowed to be chaotic	The firm foundation needs to be there and understanding of the structure of the system (modelling) Otherwise an unmaintainable system may "grow"	This could compromise quality if allowed to be chaotic	Testing throughout	Metric collected by the team, as a part of the work they do, not added on as extra work.
7	Communicate Continuously and Clearly	This will ensure the quality focus throughout.				
8	Demonstrate Control	Foundations Phase sets clear responsibilities for quality. MoSCoW prioritisation retains control, as does CM. Metrics show any areas for concern				

7.7 Private Study

The time allocation for private study in this topic is expected to be 7.5 hours.

Lecturers' Notes:

Students have copies of the private study exercises in the Student Guide. They need to complete this work before the tutorial for this topic.

Exercise 1:

Research the topic of Agile Project Management to answer the following questions. Prepare a one-page discussion of each point.

a. Is Agile inherently more risky than traditional (Waterfall) methods?
b. How do you know when an Agile Project will deliver?
c. Do we really need an Agile project manager when the team is an empowered team?
d. Many large organisations use corporate project management approaches such as PRINCE2, which ties into their programme and portfolio structure. Can they use Agile?

Exercise 2:

Work in a small group to prepare your answers from Exercise 1 into a 20 minute presentation. You will deliver this to the other groups during the tutorial for this topic.

Suggested Answer:

Some of the points expected to emerge are given against each heading. However, the student answer is expected to be a reasoned argument, rather than just bullets.

a. Agile risks are typically around the 8 principles and the Instrumental Success Factors. Such ideas as:

    - Availability of resources (at the right time, dedicated)
    - Availability of correct business input throughout
    - Inability to collaborate (e.g. unwillingness, contractual pressures, locations separate)
    - Lack of senior management support

b. Some Agile approaches, such as Scrum, work from a backlog and deliver in increments, so it is known when delivery will occur, but not everything may be delivered.

    DSDM uses timeboxes and MoSCoW Prioritisation to fix when delivery will happen and that at least the minimum useable subset (Must Haves) will be delivered. Thus, delivery is clearer than in a traditional project.

c. The following article by Cohn and Schwaber presents a good justification of the need for agile project management.

- Cohn, M. and Schwaber, K. (2003). The Need for Agile Project Management. *Agile Times,* 1 [Available Online] http://www.mountaingoatsoftware.com/articles/14-the-need-for-agile-project-management.

d. The answer is that many large organisations have well-established corporate approaches such as PRINCE2 and the PMI approach, but can use Agile within these frameworks to enable delivery of business valuable products frequently and effectively. Both PRINCE2's accrediting body, the APMGroup, and PMI have established Agile certifications in 2010 and 2011 respectively.

   Also see the following article for further information:

   - Tudor, D. (2006). PRINCE2 and DSDM . Why should I use both? [Available Online] http://www.tcc-net.com/project-management/articles/prince2-dsdm-why-use-both/

Exercise 3: Quiz

Based on the research conducted in Exercise 1 and 2 write 5 quiz style questions based on this topic. You must also include answers. You should bring them to the Tutorial where you will discuss them and collectively agree on model answers for a selection from the group.

Exercise 4:

In preparation for the tutorial session for this topic, make a note of any questions you have about the case study exercises, the private study reading and the practical exercises from the recommended text. You will have a chance to discuss these with your tutor during the tutorial.

7.8 Tutorial Notes

The time allowance for the tutorial in this topic is 1 hour.

Lecturers' Notes:

Students have copies of the tutorial activities in the Student Guide. Answers are not provided in their guide.

You should start the tutorial with 15 mins to discuss random quiz style questions created during Private Study, and agree collectively on model answers.

Following this the remainder of the tutorial should be used for students to give the presentations they prepared during the private study time. If you have a large class with many groups, you may prefer for each group to only present their answer to one of the questions.

At this stage of the unit, you should also introduce the assessed assignment to students. Assignments for the relevant assessment cycle are available from the NCC Education Campus (http://campus.nccedu.com). You will need to ensure that each student has a copy of the assignment and understands the requirements.

Exercise 1: Quiz questions

Random questions will be selected from Private Study and shared. The group will collectively agree on model answers.

Exercise 2:

During this tutorial, you will give the presentation you prepared during Private Study Exercise 2 to the rest of the class, following the instructions given by your tutor.

You should take notes during the other students' presentations and ask questions as necessary.

Topic 8: Facilitated Workshops

8.1 Learning Objectives

This topic provides an overview of facilitated workshops, their use in Agile projects and what facilitation is. On completion of the topic, students will be able to:

- Explain what a facilitated workshop is, and the benefits and risks;
- Describe the roles and responsibilities in a facilitated workshop;
- Identify where facilitated workshops would be used in an Agile project;
- Plan, prepare for and run a facilitated workshop, towards a given outcome;
- Take the roles of facilitator, participant and scribe in workshops.

8.2 Pedagogic Approach

Information will be transmitted to the students during the lectures. They will then practise the skills during the seminar session, consolidate their learning during private study and gain feedback and answers to questions during the tutorial.

8.3 Timings

Lectures:	2 hours
Seminar:	2 hours
Private Study:	7.5 hours
Tutorials:	1 hour

8.4 Lecture Notes

Lecturers' Notes:

The following is an outline of the material to be covered during the lecture time. These notes are intended to guide you as the tutor in the use of the slides.

The structure of this topic is as follows:

- What is a facilitated workshop?
- Workshop types
- Workshop roles
- Planning and dynamics
- Success factors

8.5 Guidance on the Use of the Slides

Slide 2: This slide presents an overview of Topic 8 coverage.

Slide 3: Facilitated workshops are one of the DSDM 5 key techniques.

Slide 4: The key points are the product outcome (not just a "talking shop"); the empowerment of the participants, without which the product produced may not be accepted beyond the workshop; and the independence of the facilitator.

Slide 5: Like the referee in a game of soccer or rugby, facilitators know and apply the rules, but enable play to flow. They also promote fair play. Another analogy is the conductor of an orchestra – he/she does not play the notes, but ensures music emerges from the talents of the participants.

Slide 6: **Class Exercise:** The class should be divided into small groups (3 or 4) and asked to discuss risks and benefits of facilitated workshops.

Typical answers may include:

Risks:

- Wrong people involved
- Not all invited participants attend
- People not empowered to produce the product
- Product not clear

What they are good for:

- Buy in/mutual understanding
- Conflict is identified rather than hidden
- Speed of decision making
- Collaborative effort produces better results than individual effort

Slide 7: This slide summarises some key benefits. However, the exercise above should have highlighted others.

Slide 8: This slide displays a few examples of workshops. This is not intended to be the definitive, complete list, but represents some of the more commonly run workshops in Agile projects.

Slide 9: The roles defined are outlined in brief in the slide notes as follows:

Basic definitions of these roles are:

- Workshop owner – Owns the objective of the workshop and usually the budget.
- Workshop Facilitator – Manages the workshop process. Acts as the impartial manager of the workshop.
- Workshop Co-Facilitator – supports the Workshop Facilitator to ensure efficient management of the workshop.
- Participants – chosen as they will be able to meet the objectives of the workshop.
- Workshop Scribe – takes minutes/notes and outlines how the objectives have been met. These will be shared with all stakeholders.
- Observer(s) – Optional role, but not participatory. There to gain knowledge/experience.

The latest DSDM Handbook defines the workshop roles further, and you should point students to read this. Available at: https://www.agilebusiness.org/

Slide 10: **Class Exercise:** You should emphasise that preparation is key to the success of the workshop. The aspects sought are:

- Purpose (What is the objective?)
- Product (What form should the product take?)
- People (Who needs to be there? Who owns the workshop? Who will facilitate and scribe)
- Place (and time) (Where and when should it run)
- Process (what is the best process to get the required product produced collaboratively by the invited participants?)

Slide 11: Emphasise that running the workshop is only part of the job. Pre-preparation is needed, including the sending out of an agenda and possibly interviews with participants. Post-workshop, the workshop report needs to summarise the product and any actions and issues to be taken forward. Note this is not a set of detailed minutes. This should be issued no later than 48 hours after the workshop.

Slide 12: A workshop will benefit from agreeing some “rules of engagement” with the group.

Slide 13: Sometimes a workshop is NOT the best way to produce a product: if collaboration is not needed; if there is one expert who is best to produce it; if the organisational culture does not empower people to work in groups in this way. However, where they are appropriate, facilitated workshops are fast, powerful and gain great acceptance of the products produced.

Slide 14: A few of the key learning points from workshops show these to be the top success factors for facilitated workshops.

Slide 15: A summary of the content covered in this topic is provided on this slide. Go through the points with the students and check their understanding.

8.6 Seminar Notes

The time allocation for the seminar sessions for this topic is 2 hours.

Lecturers' Notes:

Students have copies of the seminar exercises in the Student Guide. Answers are not provided in the Student Guide. The seminar exercises are based on the Hotel Olympia case study.

The time is divided into:

Preparation:	30 minutes
Facilitated Workshop:	45 minutes
Review:	45 Minutes

In this exercise, the students prepare for, and then run, a facilitated workshop. Each student must prepare from the perspective of a particular role. If the group is large, you may have to split this exercise into several separate workshops. The maximum number of participants for a workshop would be 12, as follows:

Facilitator 1
Facilitator 2 (to take over half way through)
Scribe 1/co-facilitator
Scribe 2/co-facilitator
Business Sponsor
Business Visionary
Business Ambassadors:
- Sam Fisher
- Karel Singh
- Pat O'Cake
- Lee Ditton

Technical staff:
- Stevie Reader (Project Manager)
- Georgie Gere (Technical Co-ordinator)

Preparation (30 minutes):
Students prepare in pairs (not larger groups, otherwise the workshop work may be done before the real workshop). The facilitation team of 4 prepare agendas for the workshop and hand them out to the participants, then prepare the workshop room.

Workshop (45 minutes):
The facilitation team runs the workshop to obtain the product: a set of high-level requirements for the Hotel Olympia project.

Review (45 Minutes):
You should lead the review to demonstrate a review technique which allows every participant to input their points. This may, for example, be through the use of post-it notes and each student writing down two positive points and two learning points on different post-it notes, for collection into a display on a board at the front of the class.

Exercise 1: Requirements Capture Workshop

The purpose of this exercise is to prepare for and participate in (or facilitate) a facilitated workshop.

This exercise requires reference to:

- Hotel Olympia Background information, Interview Notes; Strengths and Weaknesses
- Role briefs for staff available for workshops (available from the Topic 4 seminar)
- Outputs from previous seminar exercises

You will be assigned a role by your tutor. You will be one of the following:

- A business person from the hotel
- A developer
- A facilitator or co-facilitator/scribe

1. Prepare for and participate in a workshop, the purpose of which is to:

   a. Ensure everyone is aware of the project objective (assume this is already authorised by the Business Sponsor) and the timeframe for the project

   b. Ensure everyone knows/accepts their roles in the project (already authorised by the Business Sponsor)

   c. Capture high level requirements

2. As a group, run the workshop. You should allow approximately 45 minutes for the workshop itself.

3. Follow the guidance from your tutor and review the success of the workshop.

Suggested Answer:

The workshop should produce a set of requirements related loosely to those provided as a handout for Topic 9. However, the key outcome of the workshop is the experience of facilitating and participating in such an event.

8.7 Private Study

The time allocation for private study in this topic is 7.5 hours.

Lecturers' notes:

Students have copies of the private study exercises in the Student Guide. They need to complete this work before the tutorial for this topic.

Exercise 1:

Use the Internet to research an effective technique to use in a workshop you are to prepare. Many websites do business games and facilitation techniques, including www.squarewheels.com and www.businessballs.com. There is also http://www.iafworld.com which is the home of the international association of facilitators.

In pairs, or small groups, prepare to facilitate a short workshop (15 minutes) to run with six participants from other groups during the tutorial. Prepare an agenda to issue to participants and be ready to run the workshop with a group at the next tutorial. Typical topics to choose are:

- Identify the top 10 most popular sports
- Analyse the group's favourite hobbies
- Identify the top 10 things that make the group happy and sad
- Imagine you are IT testers. Identify 10 ideas to improve the effectiveness of your testing.

Exercise 2: Quiz

Based on the research conducted in Exercise 1 write 5 quiz style questions based on this topic. You must also include answers. You should bring them to the Tutorial where you will discuss them and collectively agree on model answers for a selection from the group.

Exercise 3:

In preparation for the tutorial session for this topic, make a note of any questions you have about the case study exercises, the private study reading and the practical exercises from the recommended text. You will have a chance to discuss these with your tutor during the tutorial.

8.8 Tutorial Notes

The time allowance for the tutorial in this topic is 1 hour.

Lecturers' Notes:

Students have copies of the tutorial activities in the Student Guide. Answers are not provided in their guide.

You should start the tutorial with 15 mins to discuss random quiz style questions created during Private Study, and agree collectively on model answers.

The tutorial will then centre on students workshops.

You should also allow time during the tutorial to check that students are working on their assignments and answer any general questions on the expected scope of the work. You may also wish to remind them of the submission deadline and documentation requirements.

Exercise 1: Quiz questions

Random questions will be selected from Private Study and shared. The group will collectively agree on model answers.

Exercise 2:

Run the workshops you designed in your private study time on another group in the class, as assigned by your tutor.

Suggested Answer:

You should review each group's workshop based on the information given in the lecture.

Topic 9: Requirements Definition and Prioritisation

9.1 Learning Objectives

This topic provides an overview of the Agile approach to requirements elicitation, analysis, definition and management. On completion of the topic, students will be able to:

- Explain what a requirement is, and the difference between functional and non-functional requirements;
- Explain the differences between the levels of detail of traditional requirements and agile requirements;
- Explain the concept of a user story and the advantages and disadvantages of this approach to requirements;
- Define a given number of requirements from a scenario, using user stories;
- Explain the purpose and application of MoSCoW prioritisation;
- Prioritise a list of requirements from a given scenario, according to MoSCoW rules;
- Discuss the link between requirements and modelling.

9.2 Pedagogic Approach

Information will be transmitted to the students during the lectures. They will then practise the skills during the seminar session, consolidate their learning during private study and gain feedback and answers to questions during the tutorial.

9.3 Timings

Lectures:	2 hours
Seminar:	2 hours
Private Study:	7.5 hours
Tutorials:	1 hour

9.4 Lecture Notes

Lecturers' Notes:

The following is an outline of the material to be covered during the lecture time. These notes are intended to guide you as the tutor in the use of the slides.

The structure of this topic is as follows:

- What is a requirement?
- Defining the requirements
- Requirements in the lifecycle
- Requirements and modelling
- The Requirement Lifecycle

9.5 Guidance on the Use of the Slides

Slide 2: This slide presents an overview of Topic 9 coverage.

Slide 3: Class Exercise: The purpose of this exercise is to show students that a requirement can be many things, both positive and negative. Typical results may include:

Positives: Wish; Want; Must Have; Desire; Need; Legal Obligation; Social Responsibility.

Negatives may include: Something we don't want, or we want to prevent; Constraint; Restriction;

Slide 4: This slide consolidates the discussions of the previous class exercise.

Slide 5: Each requirement should be given a unique ID. Highlight to students that they should not renumber requirements once they are given these unique numbers; it causes confusion and we need traceability of requirements through from capture to implementation or rejection.

We define the 'what' rather than the 'how' for functional requirements. This allows flexibility for the team to implement the best solution within the time they have.

Non-functional requirements must not be missed. These are the measures of performance: how well the system must perform to be acceptable.

Each requirement needs acceptance criteria to make it clear what constitutes success i.e. so that the team knows when the job is "done".

Slide 6: Slide 6 mentions the format for a requirement as "As a ....I need ... in order to ..." This format is the User Story, and is a fundamental concept of Agile. The method espouses the idea of the user story. Hence, the private study work after this session allows the student to research this further. Here, you should highlight this format and give a few examples of requirements expressed in this form.

A User Story is a piece of functionality that will be valuable to either a user or purchaser. It comprises:

- A written description
- Later conversations fleshing out the details of the story
- Acceptance criteria and tests to determine when the story has been satisfied within the project.

It is of the format:

As a (user or purchaser)

I need (the valuable piece of functionality)

So that (I can achieve something valuable)

For example: As a Receptionist, I need to be able to identify vacant rooms for a date, so that I can sell those rooms and dates to a customer

User stories can be at many levels (like the hierarchy of traditional requirements), from an Epic level (the objective of the project) down to really detailed pieces of functionality. It is also possible to express non-functional requirements as user stories.

Additional material on this can be derived from Mike Cohn's book if required (Cohn, M. (2004) User Stories Applied: For Agile Software Development. Pearson Addison Wesley.)

Slide 7: **Class Exercise:**

Give the students a simple requirement, such as "set up a personal bank account" and ask them, in groups, to elaborate this from the perspectives of:

1. The customer
2. The bank manager

If time permits, more practice can be given with further examples relevant to the group, such as:

"As a student I need an Agile Development qualification so that I can ....."

Slides 8-9: Non-functional Requirements are the 'how well' aspect of functional requirement. They are related to one or more functional requirement and act as the added extras that will ensure the final product not only meets the functional requirements established, but takes in to account the overall needs of the final product, such as; security, user interface, branding and response times.

Slides 10-11: Requirements become more detailed throughout the phases of the lifecycle. From high level during the feasibility stage to evolving requirements identified during exploration and engineering.

Slide 12: Requirements can be mapped to our models, to allow structuring into useful development "chunks". The diagram shows an example of a reservations system,

and how the high level requirement of 'Handle reservations' is broken down and demonstrated during the modelling process.

Slide 13: Requirements detail emerges as the project progresses.

Slides 14-16: A fuller definition of MoSCoW is provided here. A useful way of determining a 'Must Have' is to ask, "What is the worst thing that would happen if we left this requirement out?" If the answer is "the project would fail completely" or "the organisation would go out of business" then it probably is a 'Must Have'!

Slide 17: **Class Exercise:**

This is a reprise of the exercise in Topic 6 which looked at the requirements for a house. If preferred, a new exercise could be used to identify 20 requirements for a mobile phone, a job, or a holiday. Students should work in groups of approximately 4. These can then be used to explore the types of requirements which have emerged: Functional and Non-functional.

The Non-functional requirements can then be elaborated further by asking:

- Any security requirements?
- Any availability requirements?
- Any performance requirements?

The students should then prioritise the requirements: M, S, C and possibly some Won't Haves.

You should then discuss these prioritisations, using questions such as:

- How many Must Haves are there? Is that too many
- What is the worst that would happen if that Must Have was not delivered within 3 months? Within 6 months?
- How do we distinguish a Should Have from a Could Have?

Slide 18: Requirements can be captured in many ways, including workshops. However, more work needs to be done to ensure requirements are complete, consistent and not conflicting. The Business Analyst brings skills to the team to ensure good requirements definition, analysis and validation and management through the lifecycle.

Slides 19-20: A summary of the content covered in this topic is provided on these slides. Go through the points with the students and check their understanding of each one.

9.6 Seminar Notes

The time allocation for the seminar sessions for this topic is 2 hours.

Lecturers' Notes:

Students have copies of the seminar exercises in the Student Guide. Answers are not provided in the Student Guide. The seminar exercises are based on the Hotel Olympia case study.

Divide the class into groups of 4-6, to act as a mix of Solution Developers, Business Ambassadors and Solution Testers in the Solution Development Team empowered to do this job. Ensure that each group uses the requirement list template in their Student Guide.

During the review of the group work:

- Match the requirements listed in the handout with the business function they support. Clarify or sub-divide the requirements if necessary.
- Identify by name the user resource needed for each requirement - This must be the Business Ambassador, since it is their responsibility and only they are the empowered business person for their area.
- Prioritise the requirements (MoSCoW) – You should check that there are not too many "Must Haves" and that the dependencies of Must or Should or Could Have requirements are taken into account, with the lower priority requirements becoming Must Haves because of the dependency.
- Identify **three** essential global non-functional requirements and **one** which is specific to one function - The teaching point here is that non-functional requirements require time in the plan and therefore cost money to include.

Exercise 1: Structuring and Prioritising Requirements

The purpose of this exercise is:

- To structure and prioritise requirements

This exercise requires reference to:

- Outputs from earlier seminar exercises and the list of requirements in the table below.

Work in groups of 4-6. You are a mixture of Solution Developers, Business Ambassadors and Solution Testers in the Solution Development Team empowered to do this job. Typically you would be:

- One or two business people from the hotel (accountant, receptionist)
- One or two developers/testers
- The Project Manager or Team Leader

1. Match the requirements listed below with the business function they support. Clarify or split the requirements if necessary.

2. Identify, by name, the user resource needed for each requirement.

3. Prioritise the requirements (MoSCoW).

4. Identify three essential global non-functional requirements and one which is specific to one function.

Olympia Hotel Requirements List

Requirements Definition and Prioritisation

Functional Areas:

a. Reserve rooms
b. Check-in
c. Add charges to bills, such as newspapers, meals etc.
d. Check out
e. Prepare housekeeping information
f. Control kitchen stock
g. Produce management and marketing information

You need to record the GLOBAL non-functional requirements at the end of this worksheet.

Functional Requirements

Req Id	Original Requirement	New Id	Functional Requirement(s)	Function A - G	Non-Functional Requirement(s)	MSCW Priority	Business Ambassador
1	Facility to make, amend and delete reservations using "user-friendly" screens. The user should be able to select easily which function he/she wants to carry out. The outline screens should all look the same.						
2	Check-in facility, which will quickly and efficiently update the reservation to "arrived" or store appropriate details if customer just walks in and accommodation is available.						
3	Ability to print, on request, written confirmation of bookings. This is for customer-account holders and for written bookings.						

Req Id	Original Requirement	New Id	Functional Requirement(s)	Function A - G	Non-Functional Requirement(s)	MSCW Priority	Business Ambassador
4	Ability to produce details of provisional bookings not confirmed within 14 days of the reservation date, with the option to the user to release the rooms.						
5	Links from restaurant and bar tills to update customer accounts automatically and instantly.						
6	Link from telephone switchboard to update customer accounts automatically.						
7	Facility for newspaper orders to be entered directly to the customer account.						
8	Daily production of newspaper requirements list.						
9	Forward-loading figures on hotel occupancy to be produced for use in ordering food and drink.						
10	A computerised stock control system for food and drink with automated links to bar and restaurant for charging.						
11	Daily production of lists for housekeeping and the restaurant.						

Req Id	Original Requirement	New Id	Functional Requirement(s)	Function A - G	Non-Functional Requirement(s)	MSCW Priority	Business Ambassador
12	Facility for adding items on check-out and then the automatic production of customer bills. If customer-account, checking account number is the correct one with a customer-account file						
13	Input of payment type on check-in and whether part or the entire bill is being paid. If payment by cash at check-out, update cash receipt data, this data being made available to the accounting systems.						
14	Input if no payment, (customer account holders) account to be sent to accounts department and letter/invoice generated.						
15	Facility to handle cancellations including notification to Accounts if a refund or charge is involved.						
16	Facility to interrogate customer data on usage of rooms.						
17	Facility to classify customers (business, weekend breaks, holidays) and reasons for choosing the Hotel (facilities, position, service).						

Req Id	Original Requirement	New Id	Functional Requirement(s)	Function A - G	Non-Functional Requirement(s)	MSCW Priority	Business Ambassador
18	Facility to interrogate room occupancy figures and forward loading data.						

Global Non-Functional Requirements:

	Non-functional Requirement (e.g. security, performance, response time)	Acceptance Criteria	Related Functional Requirements
G NFR1			
G NFR2			
G NFR 3			

9.7 Private Study

The time allocation for private study in this topic is 7.5 hours.

Lecturers' Notes

Students have copies of the private study exercises in the Student Guide. They need to complete this work before the tutorial for this topic.

Exercise 1:

Research the description of requirements a User Stories.

Rewrite requirements 1 – 5 of the list of requirements for the case study as User Stories, for review in the tutorial.

Suggested Answer:

Functional Requirements

Req Id	Original Requirement		As A ...	I Need to	So That
1	Facility to make, amend and delete reservations using "user-friendly" screens. The user should be able to select easily which function he/she wants to carry out. The outline screens should all look the same.	1a	Receptionist	Make a booking	I can reserve a room, or rooms for a customer
		1b	Receptionist	Amend a booking	I can release rooms not needed and have correct customer information
		1c	Receptionist	Delete a Booking	I can release rooms not needed and make them available for re-booking
			Note: the Non-functional aspects could be addressed as separate stories, or as acceptance criteria for these stories.		
2	Check-in facility, which will quickly and efficiently update the reservation to "arrived" or store appropriate details if customer just walks in and accommodation is available.	2a	Receptionist Or night porter	Check Reserved Guests in	I can match them with a previous reservation

Req Id	Original Requirement		As A ...	I Need to	So That
		2b	Receptionist Or night porter	Check New Guests in	I can collect and store details and allocate rooms
3	Ability to print, on request, written confirmation of bookings. This is for customer-account holders and for written bookings.	3a	Receptionist	Print confirmation	Customers can check the details of their booking
4	Ability to produce details of provisional bookings not confirmed within 14 days of the reservation date, with the option to the user to release the rooms.	4	Receptionist	Print unconfirmed provisional bookings	Bookings not confirmed can be cancelled and rooms released
5	Links from restaurant and bar tills to update customer accounts automatically and instantly.	5a	Restaurant Manager	Create customer bills	I can update the customer's room account with what is owed
		5b	Bartender	Record drinks sold	I can charge the customer's account and keep track of stock used

Exercise 2: Quiz

Based on the research conducted in Exercise 1 write 5 quiz style questions based on this topic. You must also include answers. You should bring them to the Tutorial where you will discuss them and collectively agree on model answers for a selection from the group.

Exercise 3:

In preparation for the tutorial session for this topic, make a note of any questions you have about the case study exercises, the private study reading and the practical exercises from the recommended text. You will have a chance to discuss these with your tutor during the tutorial.

9.8 Tutorial Notes

The time allowance for the tutorial in this topic is 1 hour.

Lecturers' Notes:

Students have copies of the tutorial activities in the Student Guide. Answers are not provided in their guide.

You should start the tutorial with 15 mins to discuss random quiz style questions created during Private Study, and agree collectively on model answers.

The tutorial should then centre on private study outputs.

After reviewing the private study outputs, the rest of the available time can then be used to allow students ask any questions they have about the content of this topic.

Exercise 1: Quiz questions

Random questions will be selected from Private Study and shared. The group will collectively agree on model answers.

Exercise 2:

Review the User Stories you wrote in your private study time with the rest of your group.

Suggested Answer:

You should share the sample answer from the private study exercise with the students after going through their answers.

Topic 10: Iterative Development and Prototyping

10.1 Learning Objectives

This topic provides an overview of the key technique of Iterative Development, and the use of prototyping in an Agile project. On completion of the topic, students will be able to:

- Define what a prototype is in an Agile project;
- Explain what iterative development is and the iterative development lifecycle;
- Discuss the link between prototyping and requirements;
- Describe the “FUN” approach to prototyping (Functional, Usability, Non-functional);
- Explain horizontal, vertical and combined approaches to the planning of timeboxes;
- Compile and demonstrate a simple prototype in a given scenario.

10.2 Pedagogic Approach

Information will be transmitted to the students during the lectures. They will then practise the skills during the seminar session, consolidate their learning during private study and gain feedback and answers to questions during the tutorial.

10.3 Timings

Lectures:	2 hours
Seminar:	2 hours
Private Study:	7.5 hours
Tutorials:	1 hour

10.4 Lecture Notes

Lecturers' Notes:

The following is an outline of the material to be covered during the lecture time. These notes are intended to guide you as the tutor in the use of the slides.

The structure of this topic is as follows:

- Iterative Development
- Prototyping
- Evolutionary Development Strategies

10.5 Guidance on the Use of the Slides

Slide 2: This slide presents an overview of Topic 10 coverage.

Slide 3: Iterative Development is one of the 5 key techniques. It intrinsically embodies prototyping.

Slides 4-6: Iterative development is the process of evolving a solution incrementally. The iterative development cycle shows the process by which an increment of the solution is identified and its evolution is planned; then, the piece of solution (a prototype) is evolved and a review is performed to check on how well it does what is required, which will often result in the cycle being repeated. The recommendation is that the repeats are planned to investigate, refine and consolidate the product.

Slide 7: When evolving a prototype, it may be evolved from three perspectives (usually separately, but these may overlap). These perspectives are functional, usability and non-functional as shown on the slide.

Slides 8-9: A prototype in an Agile project may be a throw-away model, but is more often a piece of functionality which will grow and evolve into the real product.

Slide 10: Prototyping does not have to be a development of code (i.e. screen-based, animated), although it can be. It can also be:

- Paper-based;
- A role play done by people to work out or demonstrate a process;
- A video-captured trial of a piece of functionality;
- Experimental: A prototype set up to try out an approach, to see if it is workable (a capability technique prototype) – i.e. can we do this? Is it possible? Is it a workable solution?).
- Screen-based: a technology-based prototype can be appropriate, both for checking the functionality and the "look and feel" and usability of the interface.

Slide 11: **Class Exercise:** A Role-play prototype

We are all more familiar with prototyping something on a screen or paper, but sometimes, especially when setting up a new process, or challenging an old one, a role-play is an effective tool.

You should complete this exercise with the group. Four volunteers are needed, to take the roles of:

1. Customer
2. Waiting customer
3. The Bank Cash Machine (ATM) itself
4. Bank Clerk who fills the machine with cash

You will act as facilitator. The rest of the group are observers and process-improvers.

Method:

The customer approaches the ATM.

1st Pass: Go through what normally happens:

1. Insert card
2. Enter pin
3. Type in requirement for cash
4. Remove card
5. Take cash

Ask the group to challenge each step of the way. What are the problems? What are the improvements possible?

2nd Pass: There is insufficient cash in the machine. The clerk needs to fill it, whilst a customer is waiting.

What are the problems? What are the improvements possible?

Slides 12-15: These slides look at the different perspectives on prototyping in more detail.

Slide 16: The planning of the project can take on prototyping at three levels:

- Vertical, where one piece of functionality is developed through to testing and implementation in one timebox.
- Horizontal, where many functions are taken and prototypes are just at screen-level, for example. Further timeboxes must then develop the logic, links to databases etc.
- A combined approach may be used which combines these approaches: first a horizontal prototype is created and then each function is vertically selected and developed. This is the most common approach in software-related projects.

Slides 17-18: A summary of the content covered in this topic is provided on these slides. Go through the points with the students and check their understanding of each one.

10.6 Seminar Notes

The time allocation for the seminar sessions for this topic is 2 hours.

Lecturers' Notes

Students have copies of the seminar exercises in the Student Guide. Answers are not provided in the Student Guide. The seminar exercises are based on the Hotel Olympia case study.

Break the class into groups of 4 or 5 for this exercise. You should act as the Business Sponsor.

Students should present their prototypes to the other groups, who should give feedback and ask questions in the role of receptionists. After the students' presentations, discuss their highlights. Link this back to the 8 Principles, especially "Communicate continuously and clearly".

Exercise 1: Prototyping

The purpose of this exercise is:

- to prepare and present a simple, paper-based prototype (or role-play prototype) of the reservations aspect of the Hotel Olympia project. This will be used to inform staff of the changes they are likely to see.

This exercise requires reference to:

- Hotel Olympia Background Information
- Answers from seminar exercises thus far

For this exercise, you are the Project Manager and relevant members of the Solution Development Team.

1. Create a simple prototype for reservations function within the hotel.

2. Explain what perspective this is testing (functional, usability, non-functional) and why.

3. Prepare a short presentation to show this prototype to other groups, who will be looking at it from the point of view of the receptionists who will be handling reservations when the new systems are implemented.

Suggested Answer:

You should go through the options given by each different group, drawing out the benefits and highlights of the different options.

The delegates may have prototyped in any of the ways suggested (screen-based, role-play, paper-based). They should be challenged to state what their prototype is testing: functionality; usability; performance or all of these.

10.7 Private Study

The time allocation for private study in this topic is 7.5 hours.

Lecturers' Notes

Students have copies of the private study exercises in the Student Guide. They need to complete this work before the tutorial for this topic.

Exercise 1:

Explain how prototyping could be used within the case study to evaluate the effectiveness of electronic tills for the bar and restaurant. What kind of prototype would this be? What are the advantages and disadvantages of performing this kind of prototype?

Prepare the above as a presentation to explain the prototype as if to the hotel management.

Suggested Answer:

The prototype would be a capability/technique prototype. The students may suggest many options. One of these would be having one till installed and trying it out.

Advantages: Reduced risk if it doesn't work, compared to just replacing all tills.

Disadvantage: Raised expectations and we may choose not to do this in the end.

Exercise 2: Quiz

Based on the research conducted in Exercise 1 write 5 quiz style questions based on this topic. You must also include answers. You should bring them to the Tutorial where you will discuss them and collectively agree on model answers for a selection from the group.

Exercise 3:

In preparation for the tutorial session for this topic, make a note of any questions you have about the case study exercises, the private study reading and the practical exercises from the recommended text. You will have a chance to discuss these with your tutor during the tutorial.

10.8 Tutorial Notes

The time allowance for the tutorial in this topic is 1 hour.

Lecturers' Notes:

Students have copies of the tutorial activities in the Student Guide. Answers are not provided in their guide.

You should start the tutorial with 15 mins to discuss random quiz style questions created during Private Study, and agree collectively on model answers.

The tutorial should then centre on private study exercise 1 outputs.

After reviewing the private study outputs, the rest of the available time can then be used to allow students ask any questions they have about the content of this topic.

Exercise 1: Quiz questions

Random questions will be selected from Private Study and shared. The group will collectively agree on model answers.

Exercise 2:

Present the prototype you selected in Exercise 1 of the private study session to the rest of the group, and highlight its advantages and disadvantages.

Suggested Answer:

Reviews students' choices to reinforce:

- the perspectives Functional Usability and Performance
- the capability/technique prototype
- the advantages and disadvantages of prototyping

Topic 11: Estimating and Timeboxing

11.1 Learning Objectives

This topic provides an overview of estimating, and the key technique of timeboxing, together with timebox planning and the link to requirements.

On completion of the topic, students will be able to:

- Explain the need for estimating and the factors affecting estimates;
- Estimate given tasks to establish the different approaches which can be used;
- Identify factors affecting estimating and the link between estimating and requirements detail;
- Define what timeboxes are and the different levels of these within a project;
- Produce and present a timeboxed delivery plan for a given scenario.

11.2 Pedagogic Approach

Information will be transmitted to the students during the lectures. They will then practise the skills during the seminar session, consolidate their learning during private study and gain feedback and answers to questions during the tutorial.

11.3 Timings

Lectures:	2 hours
Seminar:	2 hours
Private Study:	7.5 hours
Tutorials:	1 hour

11.4 Lecture Notes

Lecturers' Notes:

The following is an outline of the material to be covered during the lecture time. These notes are intended to guide you as the tutor in the use of the slides.

The structure of this topic is as follows:

- How do we estimate?
- The estimating process
- Estimating in the DSDM lifecycle
- What is a timebox?
- Planning the project

11.5 Guidance on the Use of the Slides

Slide 2: This slide presents an overview of Topic 11 coverage.

Slide 3: Timeboxing is one of DSDM 5 key techniques. Estimating is integral to effective timeboxing.

Slides 4-6: **Class Exercise 1:** The purpose of this exercise is to show the process we go through when estimating, as well as highlighting some of the pitfalls. The pictures show we may be picturing a different job from others when we estimate, which sometimes accounts for wrong estimates.

Introduce the first exercise to the group as: "I want YOU to build ME a wall." This is an individual exercise with neither conferring nor collaboration. Each individual makes their best estimate by whatever means they choose.

Class Exercise 2: Without reviewing Exercise 1, go straight into Exercise 2 with, "I want YOU to estimate how long it will take ME to drive from A to B (substitute in places well-known to some of the students)". This shows the benefit of previous experience in the job being estimated. It also highlights that if the experts estimate, but a non-expert does the job, the estimates will be wrong!

Review with students how they reached their estimates:

- Break the job down into elements
- Relate to previous similar experience
- Just a guess?
- Allow for environmental conditions (e.g. traffic)
- Allow for dependency (e.g. must one level of bricks dry before the next can be put on top?)

All of these are good approaches in the right circumstances. Also critically important are:

- Obtain more than one estimate
- Involve the people who will do the job in estimating. This is critical to agile!

Slides 7-11: These slides consolidate the points learned in the above exercises.

Slide 12: Estimates improve as more detail is known, throughout the DSDM lifecycle. However, in Waterfall, the attempt to do substantial detailed work ”up front” meant that a long time elapsed during this investigation, and the situation of the business was changing during this time. Thus very precise estimates could be made, but of a situation which was no longer current.

Slides 13-14: There is an inverse relationship between the level of detail of requirements and the precision of estimates. The suggestion that at Feasibility there are <10 very high level requirements, at Foundations there are <100 high level requirements and that beyond Foundations there are >100 detailed requirements, show the hierarchical breakdown of requirements which progresses through the lifecycle. These numbers are rules of thumb only - however, they illustrate the intent to go into only enough detail to make the decision to move to the next lifecycle phase.

Slide 15: This slide highlights the fact that the Solution Development Team who will eventually carry out the work must be involved in the estimating, in an Agile project. During Foundation, they make estimates (possibly using Agile techniques such as “Planning Poker”). These are often done in facilitated workshops. They must be made in an environment in which the team members are “safe” and “trusted” so that estimates are not affected by peer pressure or management criticism. The team are asked to only commit to estimates they believe in – but when they are working in timeboxes, they should “honour their commitments” and work to achieve the estimates they set for themselves.

Slide 16: What is a timebox? This slide marks a change of focus in the lecture, while building on the previous slides on estimating. Now we consider planning in timeboxes during Exploration and Engineering. It is important for control of the project that the whole attitude of the project is that time does not slip. If there is any threat to time the first recourse is to consider de-scoping ‘Could Have’ and ’Should Have’ requirements.

Slide 17: The slide presents a real life example of professions where extending the time is not an option.

Slide 18: This slide shows one option for planning an Agile project. Here the Exploration and Engineering activities are overlapped within each timebox. Each timebox concentrates on a vertical prototyping of a piece of functionality.

Slide 19: For control purposes, development timeboxes should be between two and six weeks long.

Slide 20: This slide shows the recommended proportion of each priority within the timebox.

Slide 21: This slide outlines planning at different levels throughout the lifecycle. This relates back to Topic 5 - Lifecycle and Products.

Slide 22: This diagram relates back to previous topics, and reminds the students of the internal structure of the development timebox, which aids control of delivery on time at the end of each timebox.

Slide 23: This is a suggestion of the way in which plans can be built, with planning cards (or user stories) to physically lay out the plan for an increment (containing several timeboxes). The corners of the card hold information needed for planning:

ID:	A unique identifier for the unit of work or user story
MoSCoW:	The agreed priority for this element
Dependency:	The dependency of this piece of work on others (using their unique ID to reference them)
Who:	The resources committed to the development of this piece of work
Size:	The amount of effort (estimate) required by each resource to complete the piece of work.

Slides 24-25: A summary of the content covered in this topic is provided on these slides. Go through the points with students and check their understanding of each one.

11.6 Seminar Notes

The time allocation for the seminar sessions for this topic is 2 hours.

Lecturers' Notes

Students have copies of the seminar exercises in the Student Guide. Answers are not provided in the Student Guide. The seminar exercises are based on the Hotel Olympia case study.

The production of the plan is a lengthy job for the group, taking at least 1 hour. Thus, presentations may need to be limited to 10 minutes each, depending upon class size.

The Task:

Break the class into groups of 4 or 5.

The students need to:
- Use the requirements which they prioritised and structured in the Topic 9 seminar, as well as the template below of estimated days for each requirement, to build a timeboxed Delivery Plan
- Prepare a wallchart plan, for presentation to the other groups. The purpose of the plan is to show clearly, timebox by timebox, the level of engagement of resources - particularly the user resources. This will enable management to make arrangements for bringing in temporary staff at specific times to cover the workload of the Business Ambassadors
- Facilitate a workshop to present the plan and allow discussion and the capture of actions.

You should act as the Business Visionary and one member of each group should be assigned the roles of Project Manager, Business Analyst, Business Ambassador (S), Solution Developers and Solution Tester. The rest of the class will be observers of the presentation and participants in a workshop to discuss the plan, which the group who produced the plan will facilitate.

Review:

After the presentations, discuss the highlights of the plans. The following are key teaching points:
- It is worth presenting a rough draft of a plan to management for discussion before going into great detail, to ensure the basic concepts are accepted (e.g. user involvement.) This saves wasted work if they fundamentally disagree.
- The Big Visible Plan is a key Agile concept and part of the "Communicate Continuously and Clearly" principle
- Every piece of work needed must be reflected in the plan, and the estimates there.
- Plan from a user functionality (user story) perspective.
- Timeboxes must allow for Exploration, Engineering and Deployment before any releases can be made.
- The Solution Delivery Team must be involved in the estimating and planning, to ensure feasibility of the plan and commitment of the individuals to deliver it.

Exercise 1: Timebox Planning

The purpose of this exercise is:

- To produce a first-draft delivery plan, showing development timeboxes and the functionality to be delivered from them.

- To show user and technical Solution Development Team resources needed by each of the timeboxes.
- To prepare for and participate in an informal workshop to present and discuss the plan.

This exercise requires reference to:

- Outputs from all previous seminar exercises, the project objective and the diagram of the scope of the system.
- The prioritised requirements list, with the group's own MoSCoW priorities from the Topic 9 seminar exercise.
- The table below on estimates for the requirements.

You are members of the empowered Solution Development team for the project, plus the Project Manager. For the preparation of the plan, you can gain input from the Business Visionary in the form of your tutor. For the workshop and presentation of the plan, you will have to provide:

- A facilitator
- A presenter
- A scribe

Note that this will not be an independent facilitation. Observe whether this makes a difference.

1. Produce a timeboxed and visible delivery plan for the whole 12 week period, divided into 2 or 3-week timeboxes to cover the functionality necessary to satisfy the requirements.

   - Identify, and make visible, the high-level requirements to be addressed in each timebox and their priorities *(MoSCoW)*.
   - Identify by name the user and technical resources needed for each timebox to allow the work to be done.
   - Check that there is no overloading of users' and technical time in any timebox.

2. Prepare for a presentation of your first draft timeboxed plan to deliver to the hotel management. The objectives of this workshop are to:

   - Ensure that the plan is understood by all, and is viable.
   - Obtain commitment of resources to the timeboxes.
   - Note any changes needed to the plan.
   - Highlight any requirements which have become 'Won't Haves'.

Olympia Hotel Requirements List: Estimates, for use in Timebox Planning

Constraints for this Exercise:

- You may use **only 2 developers,** full time.
- You will need to ask for any business user resources you need.
- Estimates include Exploration, Engineering, Testing and Deployment activities, but you should show where deployments are happening on your plan.
- Each requirement can use only one developer, for simplicity of this exercise.

					User time		Developer and Tester time	
Old Req Id	**Original Requirement**	**New Id**	**MSCW**	**Requirement Short Name**	**DAYS Per user (Business Ambassador)**	**User(s) resource needed (initials)**	**DAYS per Developer, and the same again per Tester**	**Developer and Tester resource needed (initials)**
1	Facility to make, amend and delete reservations using "user-friendly" screens. The user should be able to select easily which function he/she wants to carry out. The outline screens should all look the same.	1a		Make reservation	6		8	
		1b		Amend reservation	4		6	
		1c		Delete reservation	4		6	
2	Check-in facility, which will quickly and efficiently update the reservation to "arrived" or store appropriate details if customer just walks in and accommodation is available.			Check-in	4		6	
3	Ability to print, on request, written confirmation of bookings. This is for customer-account holders and for written bookings.			Print booking confirmation	4		6	
4	Ability to produce details of provisional bookings not confirmed within 14 days of the reservation date, with the option to the user to release the rooms.			Release provisional booking	4		6	

5	Links from restaurant and bar tills to update customer accounts automatically and instantly.			Add restaurant and bar charges	4		8	
6	Link from telephone switchboard to update customer accounts automatically.			Add switchboard charges	4		6	
7	Facility for newspaper orders to be entered directly to the customer account.			Add newspaper order	2		4	
8	Daily production of newspaper requirements list.			Produce newspaper list	2		4	
9	Forward-loading figures on hotel occupancy to be produced for use in ordering food and drink.			Capture occupancy figures	4		8	
10	A computerised stock control system for food and drink with automated links to bar and restaurant for charging.			Stock control system	15		30	
11	Daily production of lists for housekeeping and the restaurant.			Produce occupancy lists	3		4	
12	Facility for adding items on check-out and then the automatic production of customer bills. If customer-account, checking account number is the correct one with a customer-account file	12a		Add bill items	1		2	
		12b		Produce bills	4		8	

13	Input of payment type on check-in and whether part or the entire bill is being paid. If payment by cash at check-out, update cash receipt data, this data being made available to the accounting systems.	13a		Input payment type	4		6	
		13b		Allow cash payment	4		4	
14	Input if no payment, (customer account holders) account to be sent to accounts department and letter/invoice generated.			Allow checkout with later payment	4		6	
15	Facility to handle cancellations including notification to Accounts if refund or charge is involved.			Cancel booking	4		6	
16	Facility to interrogate customer data on usage of rooms.			Customer data usage enquiry	6		6	
17	Facility to classify customers (business, weekend breaks, holidays) and reasons for choosing the Hotel, (facilities, position, service).			Add customer class	4		4	
18	Facility to interrogate room occupancy figures and forward loading data.	18a		Capture room occupancy data	4		8	
		18b		Future room occupancy Enquiry	4		8	

Global Non-Functional Requirements

Don't forget that the non-functional requirements may require extra time in the delivery plan to build in and deploy!

Global NFR Req Id	Non-functional Requirement	Related requirements	Acceptance Criteria	User Effort (days)	Dev. Effort (days)
G NFR1	"User-friendly" screens.	All customer-facing	Screens are deemed usable and signed off by the empowered Business Ambassador for that function	1 day per timebox	1 day per timebox
G NFR2	Standard screens (The screens should all look the same)	All	Screens conform to GUI standard xxx	1 day per timebox	1 day per timebox
G NFR 3	Quick responses	All	Response time should be no more than 2 seconds from entry of request to return of first data, for 98% of all user-facing transactions	0	5 days in total for system tuning

11.7 Private Study

The time allocation for private study in this topic is 7.5 hours.

Lecturers' Notes
Students have copies of the private study exercises in the Student Guide. They need to complete this work before the tutorial for this topic.

Exercise 1:

In groups of 4 – 6, research the Agile planning technique of planning poker. You may like to refer to the following book for information, or conduct research using the Internet.

- Cohn, M. (2005). Agile Estimating and Planning. Pearson Prentice Hall

Produce a short report on the way in which this works, along with the advantages and disadvantages.

Exercise 2:

Within your group, try out planning poker for a simple task: e.g. running between two points, passing obstacles.

1. First, your group should look at the "job" and estimate it using planning poker. Discuss estimate differences and agree a size in story points.
2. Consider a second similar task and estimate it in relation to the first (Is it twice as big, five times as big, etc.?)
3. Get one member of the group to perform the first task. Compare the estimate with the actual.
4. How does this affect your expectation for the second task?
5. Try the second task and compare actual with estimate. How good was the group estimate?
6. Write up the results of the experiment for group discussion in the tutorial.

Suggested Answer:

Students should provide feedback on their experiments. The main teaching points are:

- Estimates are just that – not quotations. They are not always accurate.
- Several people estimating is better than one
- The person doing the job has to buy in to the estimate.

Exercise 3: Quiz

Based on the research conducted in Exercise 1 and 2 write 5 quiz style questions based on this topic. You must also include answers. You should bring them to the Tutorial where you will discuss them and collectively agree on model answers for a selection from the group.

Exercise 4:

In preparation for the tutorial session for this topic, make a note of any questions you have about the case study exercises, the private study reading and the practical exercises from the recommended text. You will have a chance to discuss these with your tutor during the tutorial.

11.8 Tutorial Notes

The time allowance for the tutorial in this topic is 1 hour.

Lecturers' Notes:

Students have copies of the tutorial activities in the Student Guide. Answers are not provided in their guide.

You should start the tutorial with 15 mins to discuss random quiz style questions created during Private Study, and agree collectively on model answers.

The tutorial should then centre on research and experiments from private study tasks.

After reviewing the private study outputs, the rest of the available time can then be used to allow students ask any questions they have about the content of this topic.

Exercise 1: Quiz questions

Random questions will be selected from Private Study and shared. The group will collectively agree on model answers.

Exercise 2:

Feedback the results of your research and experiments from the private study work to the rest of the class.

Topic 12: Summary and Revision Guidance

12.1 Learning Objectives

On completion of the topic, students will be able to:

- Place techniques taught in this whole unit in the context of the unit themes;
- Demonstrate an understanding of concepts taught and recognise the links between them;
- Place the principles, roles and key techniques taught during the unit into the appropriate place(s) in the lifecycle;
- Demonstrate the ability to be proactive in directing their own revision.

12.2 Pedagogic Approach

This topic provides a summary of the unit. No fresh material is presented: the lecture is used as an opportunity to identify areas for student revision. Revision notes will be used to trigger student requests for revision exercises during the following seminar and private study.

12.3 Timings

Lectures:	2 hours
Seminar:	2 hours
Private Study:	7.5 hours
Tutorials:	1 hour

12.4 Lecture Notes

Lecturers' Notes:

The following is an outline of the material to be covered during the lecture time. These notes are intended to guide you as the tutor in the use of the slides. Please also refer to the slides.

For this topic, the slides are a reprise of the key slides from throughout the unit, to jog the students' memories and gather questions and ideas for revision.

The structure of this topic is as follows:

- Summary: placing the topics already presented in the context of the unit's themes
- Highlighting links with other subject areas
- Revision of key concepts

12.5 Guidance on the Use of the Slides

Slide 2: This slide presents an overview of Topic 12 coverage.

Slide 3: This slide reminds students of the unit learning outcomes. You should advise them to make their own revision lists to cover these.

Slide 4: Before revising the content of the unit using the rest of the slides, run the following class exercise:

Part 1 – Writing (4 minutes):

Ask each individual student to make a list of their top 7 concepts of Agile on a card. Explain that they only have 4 minutes to complete this activity.

Part 2 – Mingling (10 minutes):

Everyone in the room stands up, with their 7 key concepts of Agile. They must mingle with other students, silently checking what 7 key concepts others have written down. If they meet someone with the same concept, each of the pair can award themselves a point for the matching concept. Each concept on a student's list is allowed up to 5 matches, i.e. 5 points.

After 10 minutes, tell the students that time is up and they should return to their seats.

Part 3 - Checking:

Check if anyone has scored the maximum of 35 points and go through the list of most common concepts. You could hand out a small prize for the highest score.

Slides 5-8: A revision of all of the key topics starts here, beginning with a recap of Agile approaches and Waterfall.

Slides 9-11: You should ask the group to explain why DSDM is a robust and well-defined Agile approach before showing these slides.

Slide 12: **Class Exercise:** Divide the class into groups of 4. Give them 10 minutes to come up with 10 questions to ask of the other groups. The questions should be atomic, not a combined question, and should have just one answer. They should also be points which the asker of the question feels they could answer themselves. For example:

NOT:

"List ALL 8 of the DSDM principles";

BUT:

Q: "Which principle encourages the establishment of a sound business case?"

A: "Focus on the business need."

You should act as quizmaster and facilitate a relay race of quick-fire questions. You can organise the quiz in any way that seems appropriate, but below is one suggestion:

1. Use A, B, C, D, E etc. to represent the groups and award each group 3 lives to begin with.
2. 1 person from Group A asks one chosen person from Group B a question. If person B answers incorrectly, the team lose a life. Then one person from Group B asks a person from Group C a question, and so on.
3. Teams must leave the game as soon as they lose all of their lives. The last team remaining, or the one with most lives when time is called/all questions have been asked, is the winner.

Topics which caused difficulty could be noted on a board or flip chart for revision.

Slides 13-18: The key elements of DSDM are covered on these slides: philosophy, principles, lifecycle, products, roles, 5 key techniques.

Slides 19-22: Each of these slides is dedicated to one key technique

Slide 23-24: These slides provide a reminder of timeboxing.

Slides 25-29: Further coverage of DSDM is provided on these slides, including:

- Project Management
- Quality and Testing
- Requirements
- Estimating

Slide 30: A summary of the Agile Development unit scope and coverage is again provided on this slide.

12.6 Seminar Notes

The time allocation for the seminar sessions for this topic is 2 hours.

Lecturers' Notes

This is the final seminar of the unit. The objective is to ensure that students have gained a sound grasp of the key concepts and issues. The seminar is intended to be conducted in small groups. Students have copies of the seminar exercises in the Student Guide.

Exercise 1:

Your tutor will put you into small groups with your classmates. In your groups, answer the following questions:

- State in a few sentences what Agile is and how it is different from a more traditional waterfall approach. What benefits does it bring? What additional risks does it have?
- Explain the 8 principles of DSDM.
- Draw a simple model (diagram) of this unit and its interactions, to help with revision.
- Describe a typical work pattern for a co-located Solution Development Team.
- Explain each of the 5 main stages of the DSDM life cycle. What are the other 2?
- Explain the different approach to project management of an Agile project, as compared to waterfall one.
- Describe the benefits of:
  - Facilitated workshops
  - Requirements
  - Prototyping
  - Estimating
  - Timeboxing

12.7 Private Study

The time allocation for private study in this topic is 7.5 hours.

Lecturers' Notes

Students have copies of the private study exercises in the Student Guide. They need to complete this work before the tutorial for this topic.

Individual areas for study should have emerged from student suggestions and requests during the lecture and seminar session for this topic.

Exercise 1:

Refresh your knowledge by re-reading any notes and the Student Guide to remind you of the topics.

Make a note of any questions you want to ask in the final tutorial session.

Exercise 2: Quiz

Every topic included a Private Study task to create a quiz. Look at the quizzes you have created throughout the unit. Using these quizzes to a final create 20 multiple choice question quiz. You should include answers. Your quiz should cover all topics and be suitable for a fellow student to answer.

12.8 Tutorial Notes

The time allowance for tutorial in this topic is 1 hour.

Lecturers' Notes

This final tutorial will allow questions and feedback arising from the case study exercises, the private study reading.

You should start the tutorial with 15 mins to ask students to share some random multiple choice questions created during Private Study, and see if students agree collectively on answers.

The remainder of the tutorial will be an opportunity for general questions or queries.

Exercise 1: Quiz questions

Random questions will be selected from Private Study and shared. The group will collectively agree the correct answer.

Exercise 2:

In this final tutorial, you should use the opportunity to raise any questions or queries arising from the case study exercises, private study reading.