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## XAC08-6 Professional Project Management

*This Lecture:*

Project Charter, Project Management Plan, Work Breakdown Structure

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## This Week

- Introduction
- Project Charter
- (Preliminary) Project Scope Statement
- Project Management
  - ♦ With Case Study UML & Agile
- Work Breakdown Structure
- About the Assignment

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## Project Charter and Project Management Plan Terminology

- Terminology comes from the PMBOK® but similar documents exist in any project. Other terms used:
  - ♦ Project Initiation Document, Project Mandate, Project Brief, Letter of Agreement, Statement of Work (~ Project Charter)
  - ♦ Strategy Plan, Project Execution Plan, Project Plan (~ Project Management Plan)

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## Project Charter and Project Management Plan Main Concept

- Project Charter:
  - ♦ Comes from “outside” the project and defines the project.
  - ♦ Unchanged during the project.
- Project Management Plan:
  - ♦ Owned by the project team.
  - ♦ Constantly updated during the course of the project.

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## Project Charter and Project Management Plan in the PMBOK®

- 1<sup>st</sup> Process in the PMBOK®:
  - ♦ **Develop Project Charter**
- 2<sup>nd</sup> Process:
  - ♦ Develop Project Scope Statement (preliminary). The definitive Scope Statement will be part of the Project Management Plan
- 3<sup>rd</sup> Process:
  - ♦ **Develop Project Management Plan**
  - ♦ One of the inputs is the preliminary Project Scope Statement.
- Many processes have “xyz Management Plan (updates)” as output (with xyz = Project, Time, Staffing, etc.)

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## The Project Charter

- The project charter is a document that formally recognizes the existence of a project. It describes the product to be delivered and addresses the business need of the project.
- The charter should be SMART:
  - ♦ Specific
  - ♦ Measurable
  - ♦ Achievable
  - ♦ Realistic
  - ♦ Time-specific

• The project charter defines:

- ♦ Objective
- ♦ The end result
- ♦ The customer
- ♦ Delivery dates
- ♦ Costs

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## Project Charter – Key Contents

- Project Title, Start & Finish Date
- Budget Information
- Project Manager (contact address)
- Project Objectives
- Approach
- Roles and Responsibilities (Sign off)
- Comments (from stakeholders)

**Examples on the Internet:**

- Project Charter with “smartdraw” software: [http://www.smartdraw.com/examples/form-bpm/project\\_charter.htm](http://www.smartdraw.com/examples/form-bpm/project_charter.htm)
- Six Sigma Project Charter with template: <http://www.isixsigma.com/library/content/c010216a.asp>
- Project Charter in South Carolina: <http://www.cio.sc.gov/PMDT/>

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## Inputs to the PMBOK® Process “Develop Project Charter”

- Contract and/or Project statement of work.
- Environmental and organizational factors
- Organizational process assets

**Reasons for projects:**

- ◆ Business need
- ◆ Product scope description
- ◆ Strategic plan

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## Typical Environmental and Organizational Factors

- Organizational or company culture and structure
- Infrastructure, for example, existing facilities and capital equipment
- Existing human resources
- Personnel administration (e.g. hiring and firing guidelines, employee performance reviews)
- Marketplace conditions
- Stakeholder risk tolerances
- Industry risk study information and risk databases

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## Organizational Process Assets

- Represents the organization’s processes and procedures and the organization’s learning and knowledge (“Lessons learned”), e.g.
  - ◆ Organizational standard processes
  - ◆ Standardized guidelines, templates, work instructions, evaluation criteria
  - ◆ Project closure guidelines or requirements (e.g. audits)
  - ◆ Financial control procedures
  - ◆ Information about previous projects (and why they failed)
  - ◆ Historical information (e.g. identified risk events)
  - ◆ ...

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## Between Project Charter and Project Management Plan: The Preliminary Project Scope Statement

- The **project scope statement** is the definition of the project – what needs to be done.
- A **preliminary** project scope statement may be produced between Project Charter and Project Management Plan.
- The initial project scope statement is developed from information provided by the initiator or sponsor. The project scope statement is **further refined** by the project management team in the scope definition process.

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## Possible Components of the Project Scope Statement

- Project and scope objectives.
- Product or service requirements and characteristics.
- Project boundaries.
- Project deliverables.
- Product acceptance criteria.
- Project constraints.
- Project assumptions.
- Initial project organization.
- Initial defined risks.
- Schedule milestones
- Order of magnitude cost estimate.
- Project configuration management requirements.
- Approval requirements.

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## Example: Project Constraints

- Budget constraints (financial limitations)
- Target-date constraints (e.g. Y2K projects, display of the product at a trade show)
- Resource-availability constraint (people, materials, or equipment)
- Duration constraint (the length of the project, e.g. road construction where a major road needs to be closed overnight)
- Task-predecessor constraint. (The task “put shoes on” requires the task “put socks on” to be completed first)

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## The Project Management Plan

- The *Project Management Plan* integrates subsidiary plans relating to the knowledge areas into one document.
- The Project Management Plan is a reference for managing the project. It should be “owned” by the project manager and the team.
- The Project Management Plan is updated and revised throughout the project.

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## Contents of the Project Management Plan

- The Project Management Plan documents:
  - ♦ The **processes** selected by the *project management team*.
  - ♦ The **tools** and **techniques** to be used.
  - ♦ The selected *project life cycle* and project phases.
  - ♦ How work will be **executed** and changes will be monitored/controlled
  - ♦ **Communication** techniques used (team + stakeholders)
- Exercise: Discuss the **differences** of tools & techniques, life cycle, execution and communication between a software project based on the **UML** and an **agile** software project (next slides).

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## Case Study – UML & Agile The UML - Process (according to Larman)

1. Use Cases
2. Conceptual Model
3. System Sequence Diagram
4. System Contracts
5. Collaboration Diagram
6. Class Diagram
7. Code

[http://www.objectsbydesign.com/books/larman\\_process.html](http://www.objectsbydesign.com/books/larman_process.html)

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## Case Study – UML & Agile The Agile Manifesto

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

<http://agilemanifesto.org>

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## Case Study – UML & Agile Agile UML – Best of Both Worlds

- Ideogramic UML, <http://www.ideogramic.com/products/uml/agile-uml.html>
  - ♦ Use UML for communication between developers in the context of an agile methodology.
- Bernhard Rumpe: Agile Modeling with the UML, [http://www.bretagne.ens-cachan.fr/DIT/People/Claude.Jard/sam\\_06\\_05\\_2003\\_rumpe\\_trans.pdf](http://www.bretagne.ens-cachan.fr/DIT/People/Claude.Jard/sam_06_05_2003_rumpe_trans.pdf)  
Proposes a pragmatic approach to link agile methods to model-based software development. The UML has here supporting role in requirements and design documentation, code generation and test case development.


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## Subsidiary Plans of the Project Management Plan

- The Project Management Plan may be composed of one or more subsidiary plans,
  - Scope management plan
  - Schedule management plan
  - Cost management plan
  - Quality management plan
  - Process improvement plan
  - Staffing management plan
  - Communication management plan
  - Risk management plan
  - Procurement management plan

Separate plan for each knowledge area.

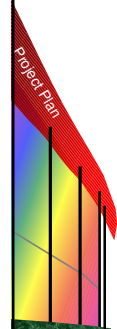


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## Input of the "Develop Project Management Plan" PMBOK® Process

- Project Charter
- Project scope statement (preliminary)
- Project management processes
- Forecasts
- Environmental and organizational factors
- Organizational process assets
- Work performance information

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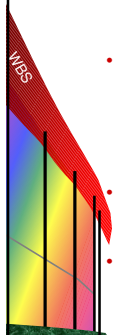


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## The Work Breakdown Structure (WBS)

- Used as a basis for a number of processes in particular to produce the subsidiary plans of the Project Management Plan.
- The WBS is a **deliverable-oriented hierarchy** of decomposed project components that organises and defines the total scope of the project. The WBS is a representation of the detailed project scope statement that specifies the work to be accomplished by the project.
- The elements comprising the WBS assist the stakeholders in viewing the end product of the project.
- The work at the lowest-level WBS component is estimated, scheduled, and tracked.

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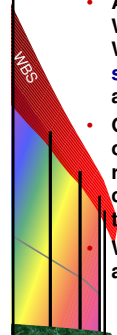


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## The Dictionary of the WBS

- A WBS dictionary is a companion document to the WBS that describes each WBS element. For each WBS element, the WBS dictionary includes a **statement of work**, a **list of associated activities**, and a **list of milestones**.
- Other information can include the responsible organisation, start and end dates, resources required, an estimate of cost, charge number, contract information, quality requirements, and technical references.
- WBS elements should be cross-referenced as appropriate.

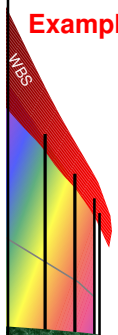
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## Example WBS

- Prepare materials
  - Buy paint
  - Buy a ladder
  - Buy brushes/rollers
  - Buy wallpaper remover
- Prepare room
  - Remove old wallpaper
  - Remove detachable decorations
  - Cover floor with old newspapers
  - Cover electrical outlets/switches with tape
  - Cover furniture with sheets
- Paint the room
- Clean up the room
  - Dispose or store left over paint
  - Clean brushes/rollers
  - Dispose of old newspapers
  - Remove covers

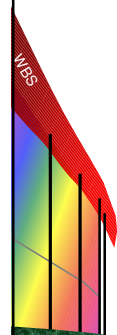


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## Developing the WBS

- Divide the total work of the project into major groups...
- ...then subdivide these groups into tasks...
- ...then divide these tasks into sub-tasks
- Subtasks should be small enough to permit adequate control and visibility
- But avoid excess bureaucracy!

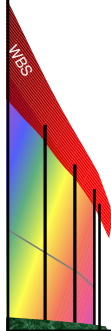
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## An approach to WBS

- Geographically discrete components
- Time based phases and stages
- Intermediate or final major deliverables
- Discrete structural, process, system or device components
- Deliverable elements that can be associated with distinctive types of people-skills or resources

<http://www.maxwideman.com/musings/wbswar.htm>



## Summary

- The following documents have been discussed:
  - ♦ Project Charter
  - ♦ Project Management Plan
  - ♦ Work Breakdown Structure
- Projects can come in a variety of flavours, see example Agile and UML

