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PRINCIPLES OF PLANNING FOR IT PROJECTS

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Principles of Planning for IT Projects



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Introduction

- Building
- Timings
- Exercises
- Meals & refreshments
- Mobile Phones
- Conduct of course
- Introductions.




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Part 1 – Setting the Scene


1. Course Objectives
2. Where projects come from
3. What is a plan and where does it fit
4. Why plan ?
5. Case studies – Successful vs Unsuccessful Projects.



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Course Objectives

- By the end of the course, participants will be able to:
 - Describe what a project plan is and why a project plan is important
 - Describe the process for planning, particularly the schedule
 - Describe and apply scheduling techniques required to schedule logically
- This course focuses on the schedule. There is a lot more to planning than the schedule. The course will discuss how other areas such as Resource Management relate to the schedule
- This course will not cover tool use.



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Where do projects come from ?

- Some projects come via "The boss says"
- But most come via a defined process which includes the "should we ?" decision gate, typically via a Business Case.
- Sponsor (person with funding) makes decision, usually with input from other senior managers
- Focus of a Business Case is Costs vs Benefits
 - Includes initial planning and estimating information
 - Business Case forms Baseline, it should be kept current
 - Somewhat "chicken and egg" since Business case often is required prior to project initiation.



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An unsuccessful project

Myki ticketing system

- Major Cost/Schedule over-runs (Forecast cost \$850M as reported Feb10 in The Age vs \$300M when announced by the Transport Minister in 2003),
- Approach not agreed up front (simplified tram solution announced late),
- Major issues, technical and commercial,
- No clear objective
- No clear timeframe
- No clear scope
- Complexity & politics.

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Reflection

- Success is perceived by project Stakeholders, often they will have a different perspective of what constitutes success,
- Perceptions of success can change over time
 - eg Sydney Opera House
- Different projects have different success criteria, for some schedule is important, for others its capability while others cost or risk may be important,
- Plans should focus on the areas which most contribute to success:
 - For the Olympics schedule was most important
 - For the Space shuttle, quality was most important.

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Part 1 – Setting the Scene (Recap)

- Course Objectives
- Where projects come from
- What is a plan and where does it fit
- Why plan ?
- Case studies – Successful vs Unsuccessful Projects.

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Workshop 1 – Successful vs Unsuccessful Project Plans

- In groups of four, identify and discuss one example of:
 - An IT project which was successful, partly because of good planning
 - An IT project that failed, partly because of poor planning
- Nominate a different person who will present each of the two cases you have discussed.

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Part 2 – Planning the Plan

- Purpose of the schedule
- Planning approach (Jigsaw model)
- Rolling wave
- Time boxing
- Quantity based
- Workshop 2 – Planning approach.

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Purpose of the schedule

The schedule is a key planning artefact, the output of the planning process. Before constructing a schedule, be very clear what the purpose of the schedule is as this will affect the way it is constructed. Key questions include:

- Are there compliance requirements (e.g. contract schedule requirement), if so, what are they ?
- Is the schedule going to be used for performance reporting ?
- Is the schedule going to be used to "task" individuals ?
- Is the schedule going to be used for resource levelling ?
- Is the schedule going to be used to estimate effort /cost ?
- Is the schedule going to be used for Earned Value ?
- Does the schedule need to integrate with an EPM tool, for example timesheeting?

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Scope basics

- Scoping focuses on the "what", not "how" or "when"
- Scope definition in IT is generally based on Business Requirements
- Focus on "out of scope" more so than "in scope"
- Scope definition input comes from:
 - Scope statements in Project Mandate/Charter and/or Business Case
 - Stakeholder brainstorming
 - Past projects
- When there are several project delivery options there may be a different scope and plan for each option.

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Deliverables

- The project scope is the sum of all the deliverables (products or things) that have to be created or changed in order that a project may be delivered to the client,
- Project deliverables may be:
 - End deliverables that are handed over to the client – eg the application
 - Intermediate deliverables not necessarily handed over to the client – eg the Design document
 - Project Management deliverables used to manage the projects – eg the Project Management Plan
- Most WBS elements will have at least one deliverable
- For a plan to be complete all deliverables must be identified
- Quality Management will consider reviewers, approvers and Configuration Management (change control) of Deliverables.

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Work Breakdown Structure (WBS)

"A deliverable-oriented hierarchal decomposition of the work to be executed by the project team to accomplish the project objectives and create the required deliverables."

PMBOK Guide – 4th edition 2008
PMI Practice Standard for Work Breakdown Structures

Notice the focus is on products and deliverables regardless of approach.

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Two approaches to the WBS

- By Product or by Phase ? There is no right or wrong approach, each approach has it's strengths and weaknesses
- Schedules tend to be structured by phase then by product
- The lowest levels of the WBS should end up similar.

The WBS element "Application Design" will live within both these structures at a lower level

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Project Coding Structures

- A Matrix coding structure is often used to map Tasks to products and phases. Scheduling tools can then use these to group and display based on phase or product or both:

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Mapping WBS Responsibility

- A project Organisational Breakdown Structure (OBS) is quite different to a Line Management org chart
- For each WBS element there must be an owner or responsible manager
 - For outsourced components you may wish to map to an outsourced organisation
 - Responsibility defines "Control Points"
- Map the WBS to the OBS, there should only be one name per box
 - Beware of no name
 - Beware of multiple names
- Getting agreement is critical
- Forms the Responsibility Assignment Matrix (RAM).

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Float

- Float represents the amount of flexibility that exists in scheduling tasks or milestones,
- Float is calculated by scheduling tools:
 - Total Float represents the amount of time a task/milestone can be delayed without affecting the end date of the project
 - Free Float represents the amount of time a task or milestone can be delayed without affecting the start date of successor task(s)/milestone(s)
 - Zero float typically represents a "critical" task/milestone
 - The chain of tasks/milestones with zero float is referred to as the "critical path" as it determines the end date of the project schedule
- Float is fundamental to managing issues such as resource conflict and for optimising schedules
- Float in MS Project is referred to as "Slack".

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Developing a Closed Network

- A **Closed Network** is developed when every Task has a start predecessor and a finish successor, except the Start Milestone(s), Finish Milestone(s) and any inter-project dependencies:

- An **Open Network** is when one or more Tasks do not have a successor and therefore the activity may be delayed without delaying the end date of the project. The schedule will not calculate float properly or the critical path:

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Calculation part 1

- Every time there is a change, the tool runs a forward pass to determine early start and early finish dates, this is the earliest tasks/milestones can possibly be scheduled and is what most scheduling tools show on the Gantt chart.

Note MS Project treats Milestones as 5pm if they have a predecessor

- The forward pass is shown in red above, using:
 $EF = ES + DUR - 1$ (the 1 day adjustment is for am/pm)
- The tools then convert from working days to dates using the project calendar.

Continued

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Calculation part 2

- The tool also runs a backward pass to determine late start and late finish dates, this is the latest they can possibly be scheduled.

Note MS Project treats Milestones as 5pm if they have a predecessor

- The backward pass is shown in blue above, using:
 $LS = LF - DUR + 1$ (the 1 day adjustment is for am/pm)

Continued

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Calculation part 3

- Comparing Early & Late dates determines Free and Total Float. In this example:
 - Task E has 4 days Free Float, it is only free to move 4 days until it affects Task F
 - Task E has 28 days Total Float, it is free to move up to 28 days until it affects the project end date

Note MS Project treats Milestones as 5pm if they have a predecessor

- Total Float = $LF - EF$.


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Task constraints


- Constraints are normally used to represent events outside the control of the project team. An example would be representing the date of a dependency from another project,
- There are many types of constraints which can be used, the main types:
 - Affect either the Start or the Finish of a task
 - Affect either the Early dates ("No Earlier Than"), the Late dates ("No Later Than") or both (a "Must" constraint)
 - No constraint is considered "As Soon as Possible" (ASAP)
- The "Start No Earlier Than" (SNET) constraint is the constraint most likely to be used, unless constraining a Milestone, in which case a "Finish No Earlier Than" (FNET) constraint should be used.
- Some tools set a constraint automatically when you enter a start or finish date.

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Workshop 5 – Resource assignments and basic levelling

- Revisit the schedule created in Workshop 4, use the Gantt chart with resource allocations provided
- Consider resource workload, assuming maximum work availability is 100% or 8hrs per day, how will the schedule need to change ?
- Determine the total number of manhours for you and the Technical resource
- Assuming you are costed at \$100ph and the Tech at \$75ph, the Server costs \$5,000 and the UPS \$1,000, what is the likely total cost of this WBS element ?





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Part 6 – Finalising & Baseline

- Schedule integration
- Final review
- Distribution and Stakeholder review
- Setting the Baseline
- Baseline change
- Workshop 6 – Schedule review.





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Schedule integration

Once the various WBS elements have been scheduled and resourced, it is time to bring together (integrate) the various schedule pieces to create the “big picture”

- Link together via major dependencies, defined as part of planning the pieces
- You need to add the overhead/management activity.

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Final review


Final schedule review questions include:

- Does the schedule cover the whole project scope?
- Are the basics of a healthy schedule covered:
 - All tasks have predecessors and successors
 - Durations defined
 - Minimal constraints
- Does the critical path make sense?
- Do the float values make sense ?

Continued




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Final review continued

- Is the schedule achievable and is it in alignment with the contract?
- Does the schedule address identified risks?
- Is there any delay allowance? (Contingent Time)
- Have all resources been considered, is the schedule optimised/levelled ?
- Does the schedule highlight any potential delays to the client?




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Stakeholder review

Ownership of a schedule by the project team and Stakeholders is important, ownership will only come from people who are involved.

- It is important that Stakeholder Analysis is undertaken to ensure the necessary people are involved with the schedule review
- For larger projects, provide filtered extracts (eg by WBS element, Summary report, critical path(s))
- Distribute via pdf or printed output, don't rely on people's ability to use a scheduling tool
- Consider a workshop to gain broad agreement.



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What next:

- Choose and learn how to use a scheduling tool. Use of a tool needs to be second nature, just like driving a car, we don't use much brain power thinking about the clutch or brakes. Good driving is about road awareness not the mechanics of driving. Too many people lack sufficient tool skills and so become a victim of the tool,
- When planning remember white boards, pen & paper, sticky notes are all great tools too,
- Consider learning more about Cost Management, that will provide an insight into how to better integrate schedules with resource and cost management.

Course evaluation & feedback