HERIOT WATT UNIVERSITY

PLANNING AND MANAGING PROJECTS

Some stuff on planning projects

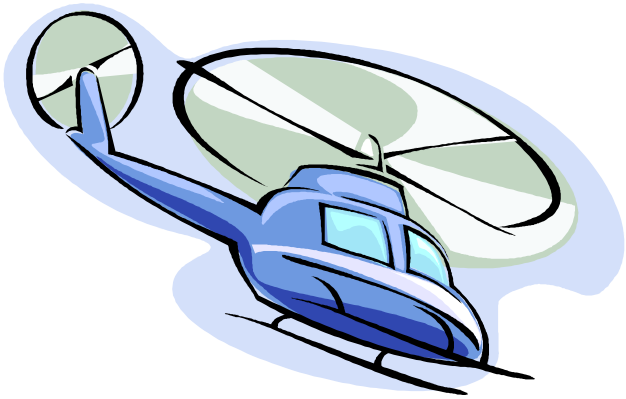
THE 6 STAGES OF ANY PROJECT:

- 1 Enthusiasm
- 2 Disillusionment
- 3 Panic
- 4 Search for the guilty
- 5 Punishment of the innocent
- 6 Reward of the non-participants

THEORIES OF MANAGEMENT

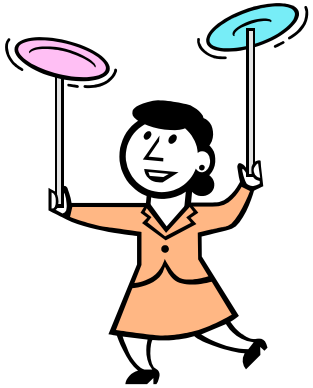
Kipper Management
Two-faced and no guts

Mushroom Management
Keep them in the dark and
feed them on you-know-what



Helicopter Management
Rise above it all

Rocking Horse Management
Plenty of action –no movement



Spinning Plates Management
Keep people working and activities going by running around, spinning the plates

Juggler Management
Keeps three balls in the air with one hand, whilst protecting the other two.

How Projects Really Work

adapted from www.projectcartoon.com

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  adapted from www.projectcartoon.com

HOW PROJECTS REALLY WORK

- How the analyst designed it

- How the prototypers built it

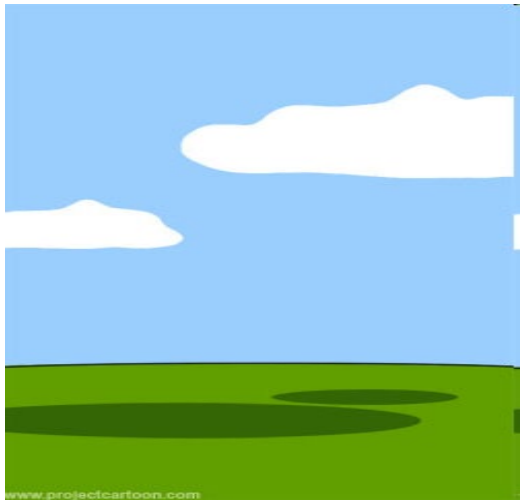
HOW PROJECTS REALLY WORK

- What the beta testers received

- How the business consultant described it

HOW PROJECTS REALLY WORK

- How the project was documented

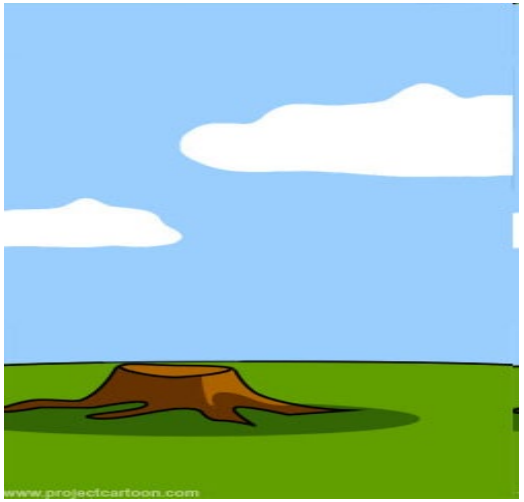


- What operations installed

HOW PROJECTS REALLY WORK

- How the customer was billed

- How it was supported



HOW PROJECTS REALLY WORK

- What marketing advertised

- What the customer really wanted

ESTABLISH THE AIMS OF THE DESIGN PROJECT

- Be clear first what your aims are
- What is the purpose of the design project?
- You need to agree and confirm with all involved the actual purpose of the design project. What are the outcomes required?
- Use SMART criteria to establish these essential starting parameters.

ESTABLISH THE AIMS OF THE DESIGN PROJECT CONT.

- Design and the creative process will always tend to zoom off in weird and wonderful directions - that's the nature of the creative process and of creative people - so you need to establish clear guidelines or things can become very difficult to control.
- It's all too easy to lose sight of the original purpose of any design project unless it is properly established, quantified, agreed and recorded.

SMART

- Specific (a clear written description of what is intended or required, the outcome needed)
- Measurable (quantify every aspect that is fixed, scale of application)
- Agreed (with all affected parties)
- Realistic (even highly conceptual projects need to have a realistic intention or the project is inherently flawed)
- Timebound (proper start and finish timescales, ideally with milestones along the way)

BRAINSTORMING PROCESS

Define and agree the objective.

Brainstorm ideas and suggestions having agreed a time limit.

Categorise/condense/combine/refine.

Assess/analyse effects or results.

Prioritise options/rank list as appropriate.

Agree action and timescale.

Control and monitor follow-up.

LEARNING OBJECTIVE

- Apply basic project management techniques to help plan a project

WHY PLAN?

- Predict start or end point of project
- Enable communication
- Highlight problems early
- Help manage risk

KEY DATES FOR YOU

- Portfolio and report due date
- Project test day

We usually call these important events of negligible/fixed duration milestones.

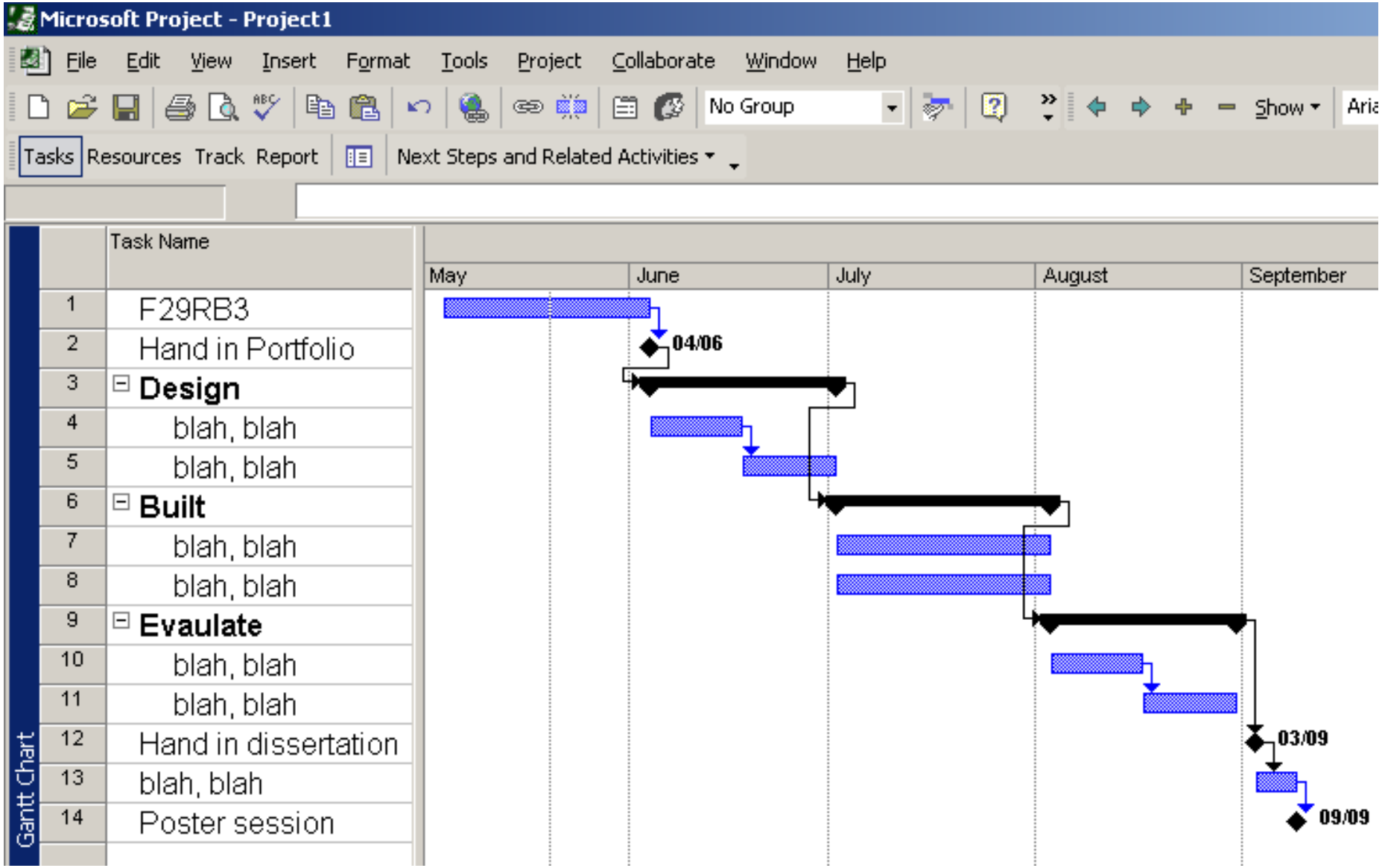
Most milestones match the final production of a deliverable

MS-PROJECT

- A widely used tool from Microsoft to help plan projects.
- Available on university PCs and if you contact information services you can get your own copy.
- Far more functionality than you'll need for your project.

GANTT CHARTS

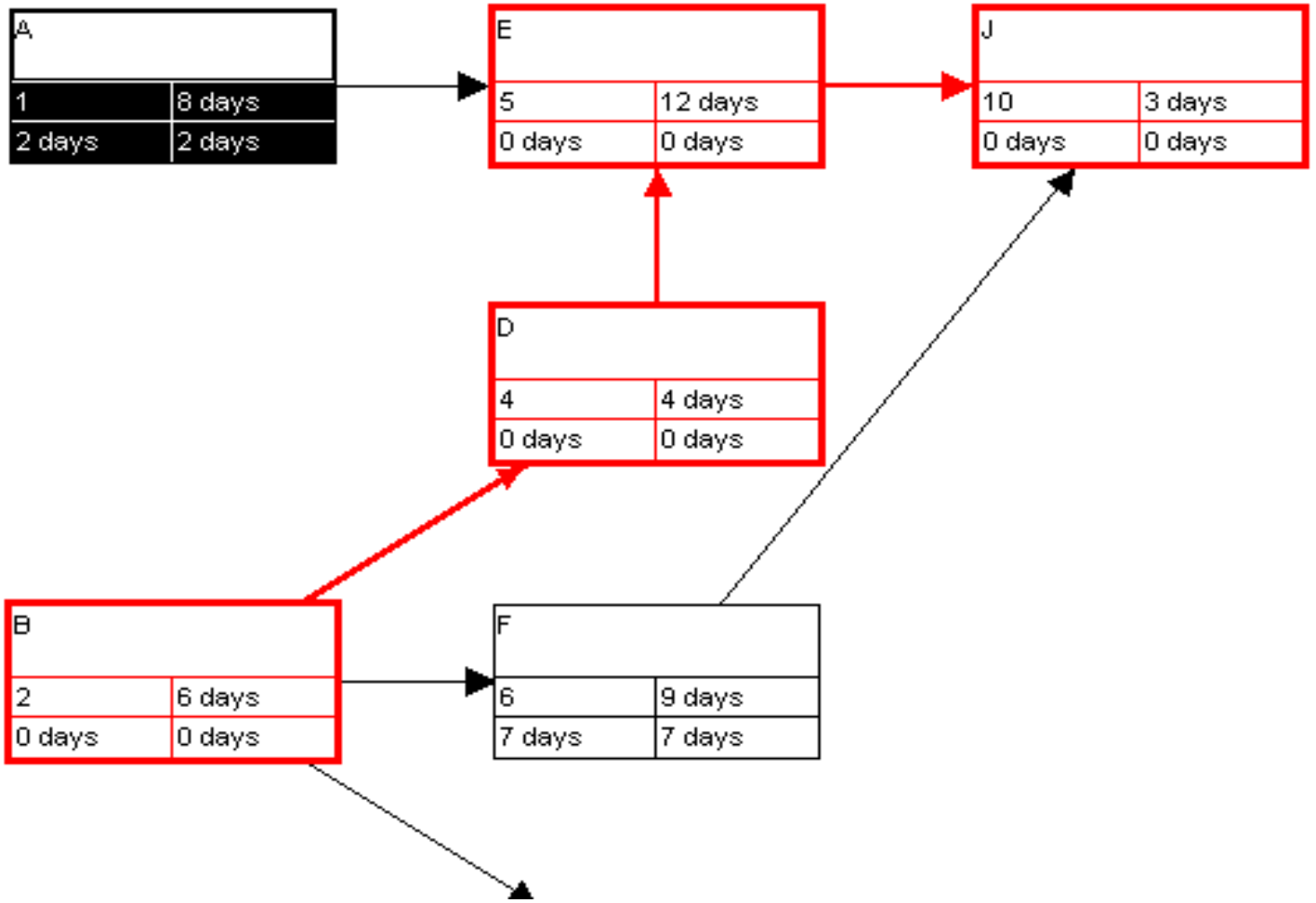
- Named after Henry Gantt.
- Around since 1st World War.
- Commonest graphical representation of plans.
- Can show *critical path*.
- But not great at showing *precedence*.
- Easy for novices to construct and interpret.
- Other charts/views are available in MS-Project.


Microsoft Project - Project1
File Edit View Insert Format Tools Project Collaborate Window Help
No Group
Show
Tasks Resources Track Report
Next Steps and Related Activities
Task Name
1 F29RB3
2 Hand in Portfolio
3 Design
4 blah, blah
5 blah, blah
6 Built
7 blah, blah
8 blah, blah
9 Evaulate
10 blah, blah
11 blah, blah
12 Hand in dissertation
13 blah, blah
14 Poster session
Gantt Chart
May
June
July
August
September
04/06
03/09
09/09

NETWORK DIAGRAMS

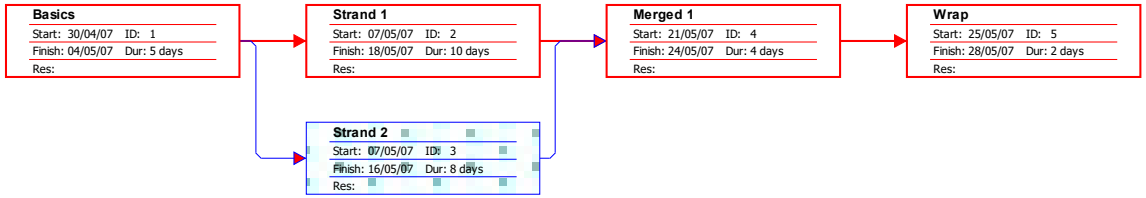
- Clearer dependencies
- Critical path shown in red here
- MS Project converts Gantt to Network and vice versa

PERT NETWORK CHARTS



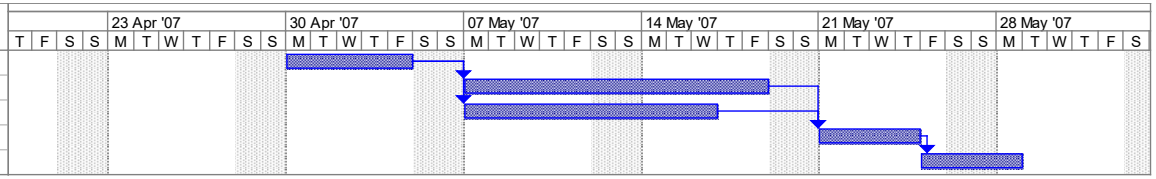
GANTT VS NETWORK VIEWS

Network diagram



Gantt chart

ID	Task Name	Duration	Start	Finish	Predecessors
1	Basics	5 days	Mon 30/04/07	Fri 04/05/07	
2	Strand 1	10 days	Mon 07/05/07	Fri 18/05/07	1
3	Strand 2	8 days	Mon 07/05/07	Wed 16/05/07	1
4	Merged 1	4 days	Mon 21/05/07	Thu 24/05/07	2,3
5	Wrap	2 days	Fri 25/05/07	Mon 28/05/07	4



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- Visio
- Word

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FEATURES

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- Fitness chart for women
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Take advantage of enhancements to IM.

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Check now and ensure your Office is current.

IN THE SPOTLIGHT: INFOPATH

Assistance	Quiz	Training
Introducing Microsoft Office InfoPath 2003	Quiz: InfoPath	How to customise controls in InfoPath

Help

Office Update

Check for Updates

Clip of the Day

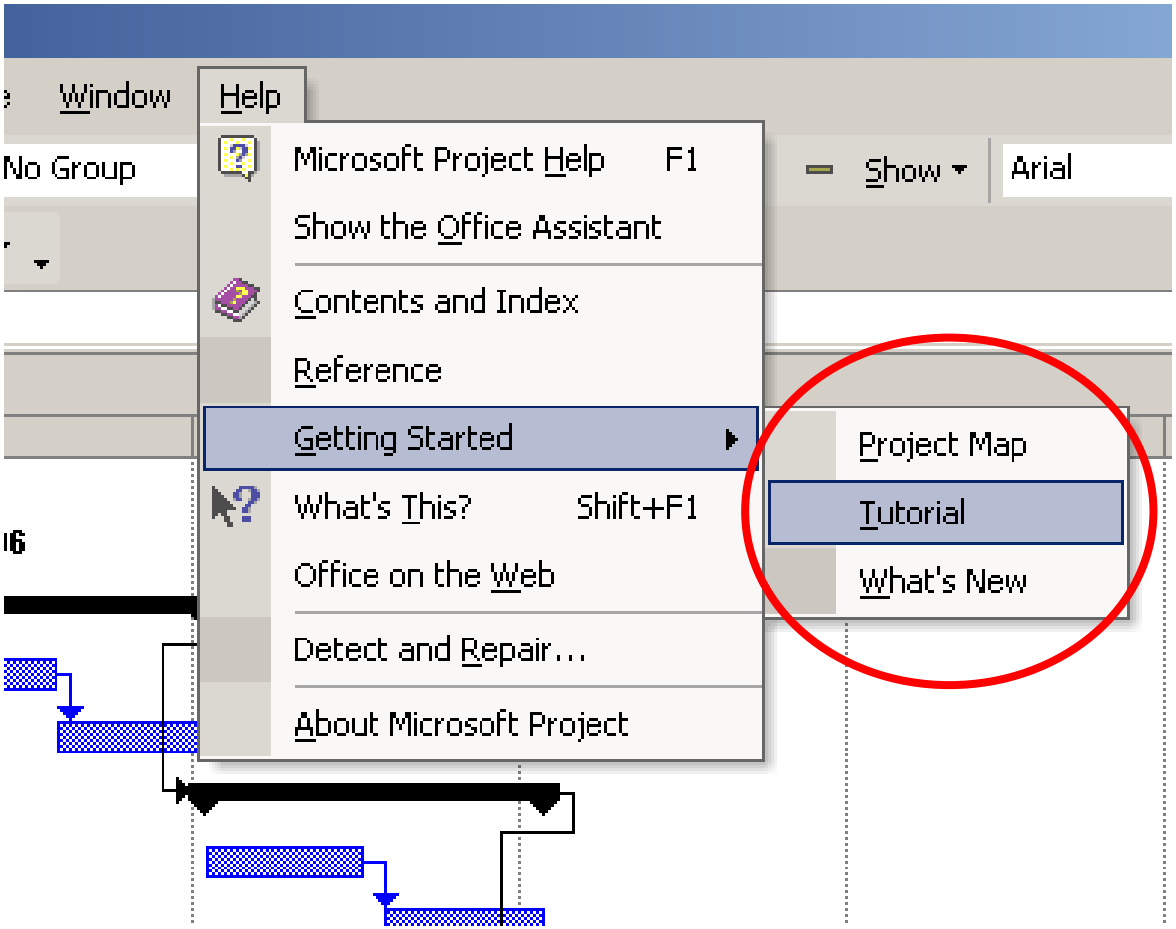
Office 2003 Editions

- Download/order a trial (US)
- Reasons to upgrade (US)
- About Office 2003 Editions
- How to buy

Quick links

- See Office demos
- Small business
- Protect your PC
- Find solutions
- Office quizzes
- Calendars and planners
- Clip art page count is back!

IN SOME VERSIONS…



PLANS NEED TASKS & TASKS NEED DURATIONS

- Brainstorm tasks (work with others?)
- Subdivide tasks until each is about 1 or 2 weeks in duration or less
  - If you can get down to days then great, but beware of the need for contingencies (see later)
- Tasks (Do not copy these! You are all different):
  - Hand in portfolio (zero days)
  - Design experiments (10 days)
  - Have ridiculously long holiday (1 day)
  - …

DEPENDENCY/PRECEDENCE RELATIONSHIPS

- Describe what activities must be done before another activity can take place
  - Boil kettle before adding water to cup
  - Pick up hand set before dialling number
  - Buy computer system before installing it.
  - Write dissertation before submitting it.

CRITICAL PATH

- The chain of sequential activities that determines the minimum time required for the project.
- Passes through activities with least float.
- If you mess with critical tasks, you mess with the project's end date!!
- You might wish to show the critical path on your Gantt chart.
  - MS-Project can help you.

FLOAT (SLACK)

- Total Float
  - amount of time a task can be delayed without affecting the end date of the project.
  - Critical path tasks have zero total float.
- Free Float
  - amount of time a task can be delayed before affecting the next task.
  - Used for managing resources without impacting on future tasks.

MEETINGS WITH SUPERVISOR

- Valuable project management opportunities.
  - Check progress
  - Make decisions
  - Agree changes to plan

- Frequency and duration varies as the project progresses.

PRAGMATIC REALITIES OF PM

- All projects are unique
- None will run exactly to plan
- All involve people
- Project Management involves change and decision making - people like neither!
- A structured approach & tools make things easier
- Do not be a slave to your plans
  - They should be living artefacts
  - Change them as necessary
- All projects have an element of risk.

RISK MANAGEMENT

- We may have a plan, but there are events beyond our control, or simply unforeseen.
- Impossible to eliminate risk completely.
- Risk taking is human nature.

RISK MANAGEMENT

- Risk: the chance of adverse consequences occurring
- Risk is inherent and inevitable
- The degree of risk varies widely
- We need to know:
  - what risks are there?
  - how likely are they to occur?
  - what will their impact be if they do?
  - what can we do to minimise their occurrence?

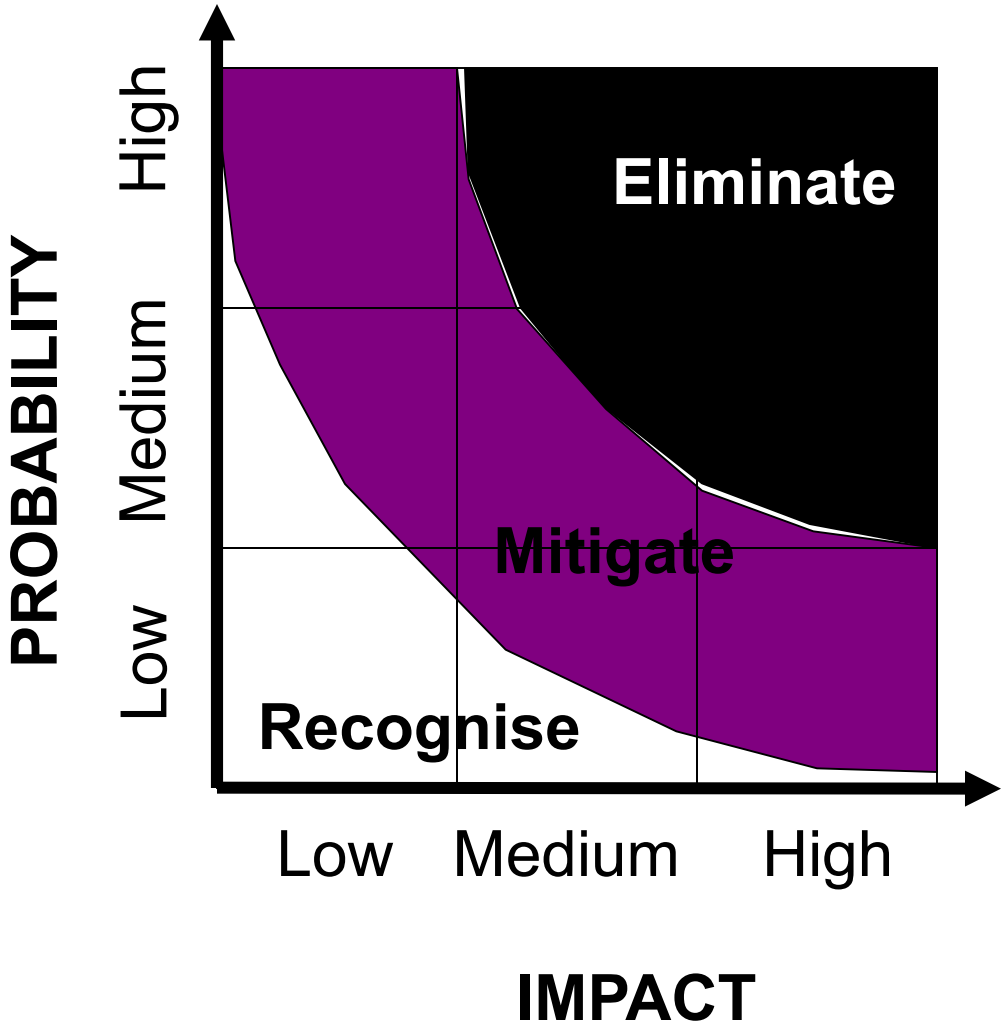
CONSEQUENCES OF RISK

- Lack of time to fix problems, investigate issues, develop solutions, etc
- Grumpy supervisors
- Lower marks than expected
- Stress, heroics and late nights
- Etc

Prediction & Control

- Predicting Risk
  - Your experience
  - Your supervisor's experience
  - Simulations
  - Experiments (prototypes)
  - Planning
- Controlling Risk
  - Contingencies
  - Planning

RISK MAP


PROBABILITY
High
Medium
Low
Eliminate
Mitigate
Recognise
Low
Medium
High
IMPACT

RISK PLANS

- Alternative plans when things go wrong
- Prepared in advance
- Work through each activity
  - what could go wrong?
  - what are the consequences?

RISK EVALUATION

- For any project we should attempt to identify the risks and quantify their potential effects.
- One common approach is to construct a project risk matrix utilising a checklist of possible risks and to classify each risk according to its relative importance and likelihood

Risk	Importance	Likelihood
Collaborators uncooperative	**H**	**M**
Requirement X proves impossible to implement	**H**	**L**
Task Y takes longer than expected	**L**	**M**
System performance poor	**L**	**M**
Show-stopping requirement emerges late on	**M**	**L**
License period ends	**L**	**L**
Supervisor leaves	**L**	**H**
Tool unavailable	**H**	**H**

- Often, each risk will have an associated contingency plan.

RISKS TO WATCH FOR…

- New technology
- New processes
- New domain
- Lack of customer/user involvement
- Overestimating productivity
- Unspecified qualitative requirements
- Growing feature/bug list.

YOUR TASK

- Produce a project plan using MS-Project or any other method you choose
- This plan should include a Gantt chart.
  - You can experiment with other views if you like (e.g. PERT), but make sure you have the Gantt.
- You also need to provide a discussion of the plan including consideration of risk management.

NEAT QUOTES FROM DEMARCO & LISTER

- "If a project has no risks, don't do it".
- "Risk management is project management for adults".

Waltzing with Bears: Managing Risk on Software Projects.

See http://www.systemsguild.com/

Presentation adapted from presentations by Dr. R Dewar and Prof. R Pooley