Introduction to Project Management

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Goals

1) Revise the basic concepts of project management

2) See your PhD as a project

What is a Project?

What is a Project?

1) Unique purpose / scope

2) Temporary – start and end date

3) Budget – limited resources

1) Unique purpose / scope

2) Temporary – start and end date

3) Budget – limited resources

4) Progressively elaborated

Project

"An activity that has a beginning and an end, which is carried out to achieve a particular purpose to a set quality within given time constraints and cost limits"

Chartered Management Institute

"A unique set of co-ordinated activities, with definite starting and finishing points, undertaken by an individual or organisation to meet specific objectives within defined schedule, cost and performance parameters."

BS6079 (Guidance on the planning and execution of projects and the application of project management techniques)
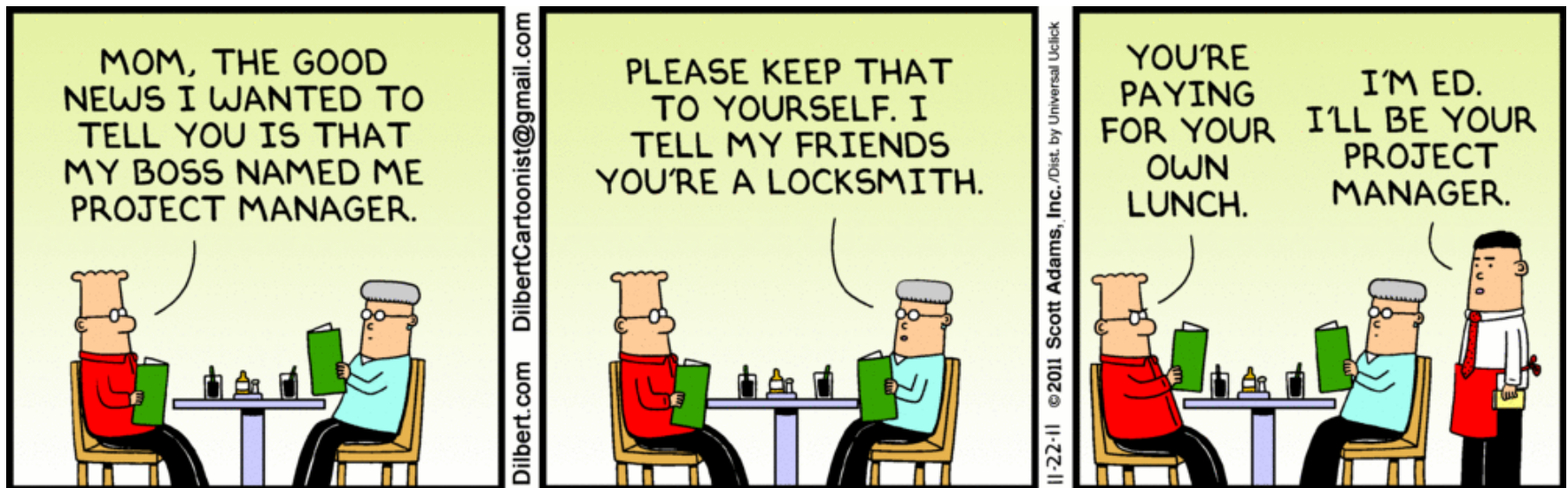
- Responsible for accomplishing project objectives – focuses on project's end

- Coordinates project activities

- Plans and executes the plan

- Balances the scope, time and cost and their impact on project quality

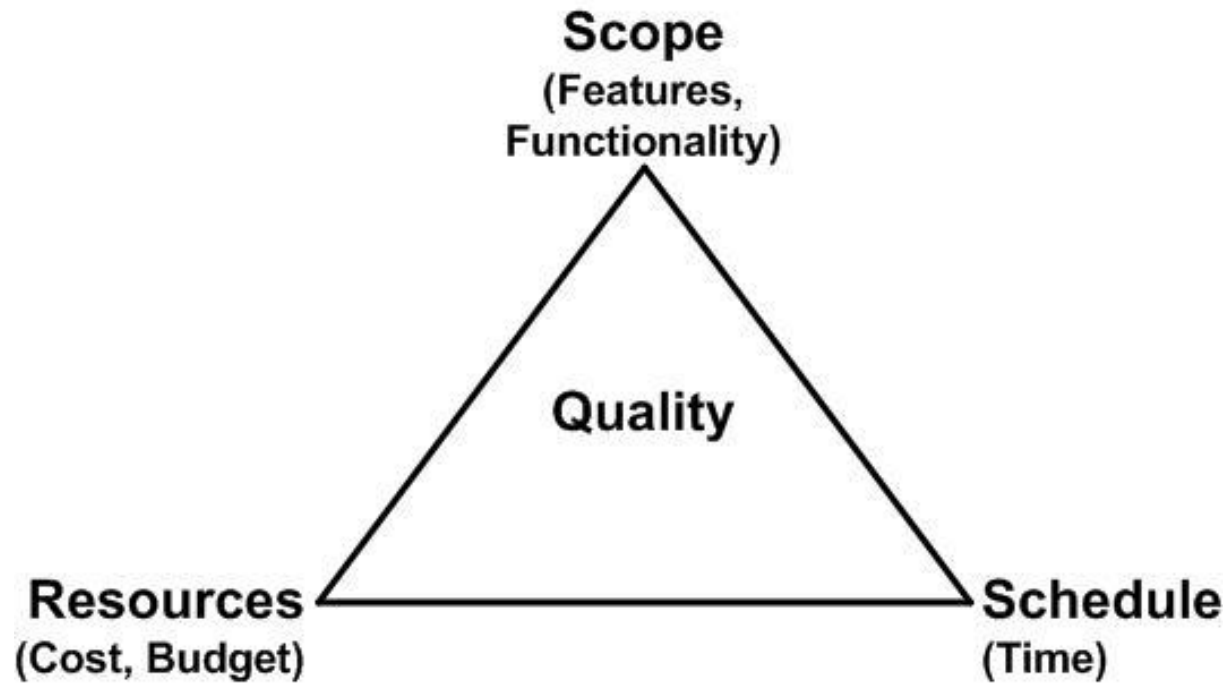# PhD as a project, you – project manager

Project success criteria

- On time

- On budget

- Meeting the objectives

https://pmhut.com/category/communications-management/project-closure/page/2

Copyright 2003-2006 Scott W. Ambler
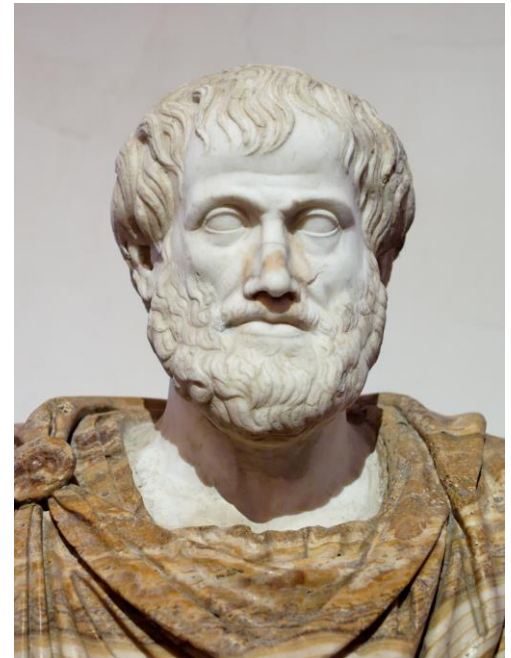
"First, have a definite, clear, practical ideal - a goal, an objective. Second, have the necessary means to achieve your ends; wisdom, money, materials, and methods. Third, adjust all your means to that end."

Aristotle

Project Life Cycle

Definition → Planning → Execution → Close-out

- WHY? – a problem to solve

- WHAT? HOW? – objectives, requirements, scope, basic

  idea about tasks

  … and what is NOT the project

- WHEN? – delivery of outputs, absolute deadline

- WHO? – stakeholders, funding source, project manager

Some definitions

- Every project starts with a **problem** to solve

- A response to this problem is a **goal** of your project

- When you make your goal specific and measurable it becomes an **objective**

- Once you know your objectives you can start defining and planning your project

In project management we start from an end – we start by defining what we want to achieve.

S	**M**	**A**	**R**	**T**
Specific	Measurable	Agreed	Realistic	Time-bound

Overall goal vs. specific objectives

Goal:

Expand my professional network

Objectives:

1. Create LinkedIn profile, post one article per month. Establish 100 contacts before June.
2. Attend two major IT conferences by the end of the year.
3. Make five presentations at networking events in the next two years.
4. Get a professional qualification on IT systems management during the 2021 / 22 term.
5. Visit three tech companies over the summer.

What are the SMART objectives of your project?

- **DELIVERABLES:** Tangible results that will enable the objectives to be achieved. (e.g. experimental results, data analysis, report, paper.)

- **MILESTONES:** Steps that will bring you closer to produce the deliverables. (e.g. decision on experimental model, selection of optimum material.)

Deliverables & Milestones

Del No	Ms NO	Title	Lead Beneficiary	Nature (Del)/ Verification (Ms	Dissemination level	Deadline (GA)	Month No
D1.1		Progress Report	UoL	Report	Confidential, only for members of the consortium (including the Commission Services)	01/03/2017	13
D1.2		Mid-Term Review Meeting	UoL	Other	Confidential, only for members of the consortium (including the Commission Services)	01/04/2018	26
D1.3		Draft Periodic Report	UoL	Report	Confidential, only for members of the consortium (including the Commission Services)	01/02/2018	24
D1.4		Supervisory Board of the network	UoL	Other	Confidential, only for members of the consortium (including the Commission Services)	01/04/2016	2
D1.5		Ethics	UoL	Report	Confidential, only for members of the consortium (including the Commission Services)	01/08/2016	6
	MS15	Planned recruitments completed	UoL	All fellows must be in place for month 12 at the latest		01/02/2017	12

Deliverables & Milestones

| Del No	Ms NO	Title	Lead Beneficiary	Nature (Del)/ Verification (Ms)	Dissemination level	Deadline (GA)	Month No
D2.1		VELO prototype setup	UoL	Demonstrator	Public	01/05/2018	27
D2.2		treatment database	UoL	Demonstrator	Public	01/11/2019	45
D2.3		PC readout software	ASI	Report	Public	01/08/2017	18
D2.4		performance in clinical environments	ASI	Report	Public	01/05/2019	39
D2.5		studies into different detector materials	ASI	Demonstrator	Public	01/11/2019	45
D2.6		detector layout	ASI	Demonstrator	Public	01/11/2019	45
	MS1	decision for system integration	UoL	Develop the VELO detector into a stand-alone, non-invasive beam monitor		01/08/2017	18
	MS2	experimental data available	UoL	carry our measurements at CCC to study halo-dose correlation and assess suitability of monitor for treatment applications		01/11/2018	33
	MS3	selection of optimum detector material	ASI			01/11/2018	33
	MS4	confirm method	IBA	compare measured data with delivered spots by means of irradiation logs		01/08/2018	30
	MS5	characterize monitor performance through tests at PROSCAN	PSI			01/06/2018	28

Stakeholders

Stakeholders Identification

Identify KEY people/organizations connected to your project:

- who is directly involved in the project?

- who are the potential beneficiaries of the research?

- who might be negatively affected by it?

- who directly or indirectly supports your research?

- do you have any opponents?

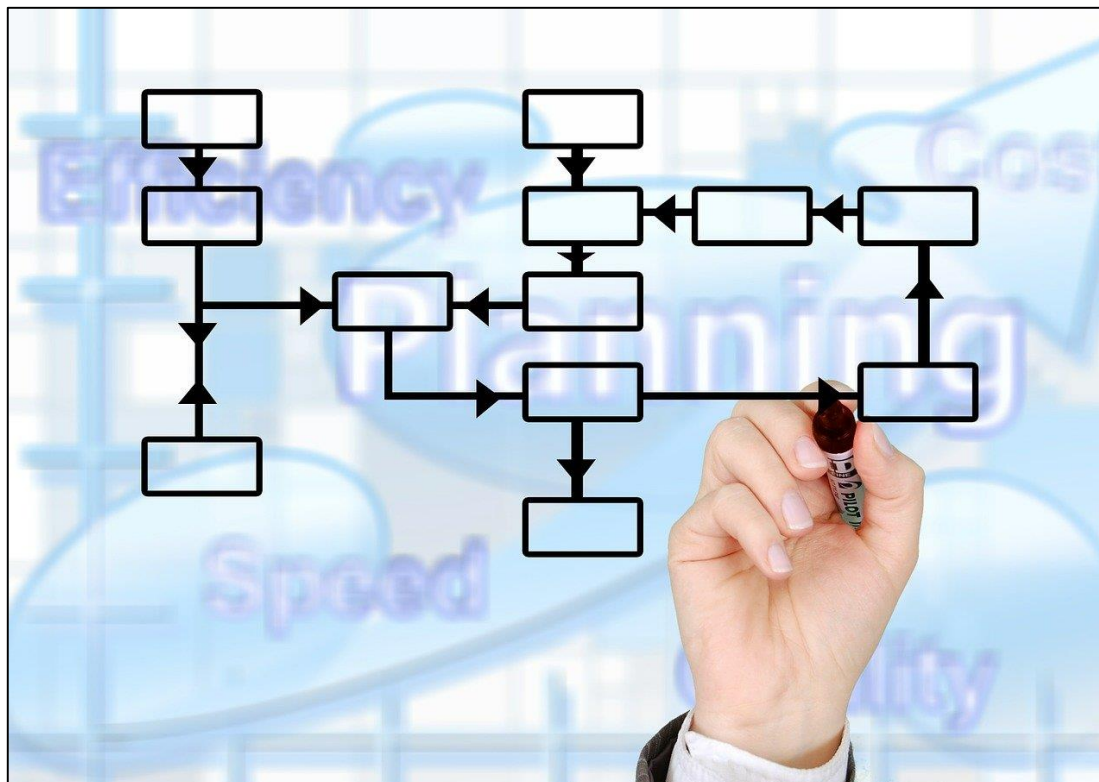- are there any positive or negative relationships amongst your stakeholders?
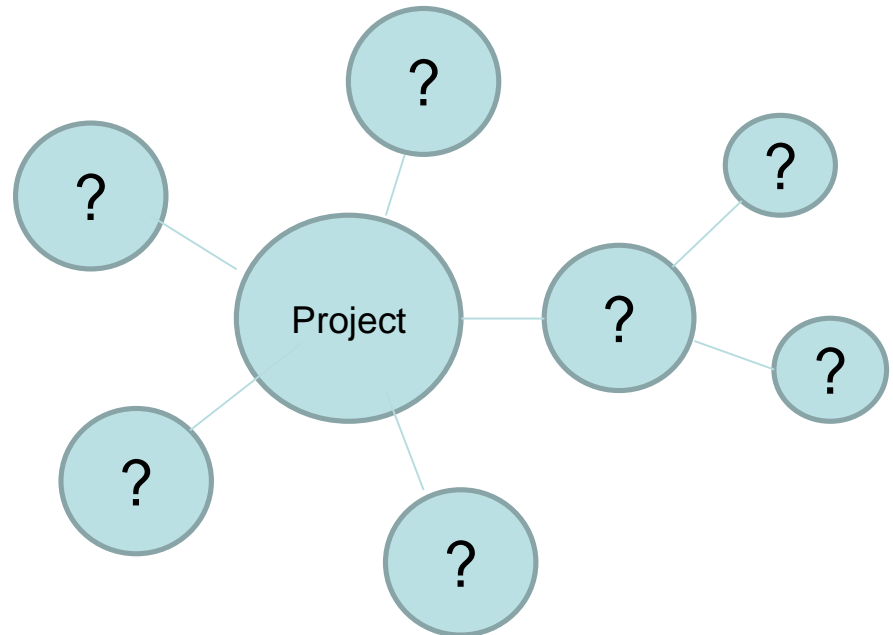
Communication – a priority!

- How are you going to communicate with stakeholders? How often?
- Manage conflicts and expectations!

Project Planning

- Work Breakdown Structure (WBS)
- Network diagrams
- Scheduling: Gantt Chart
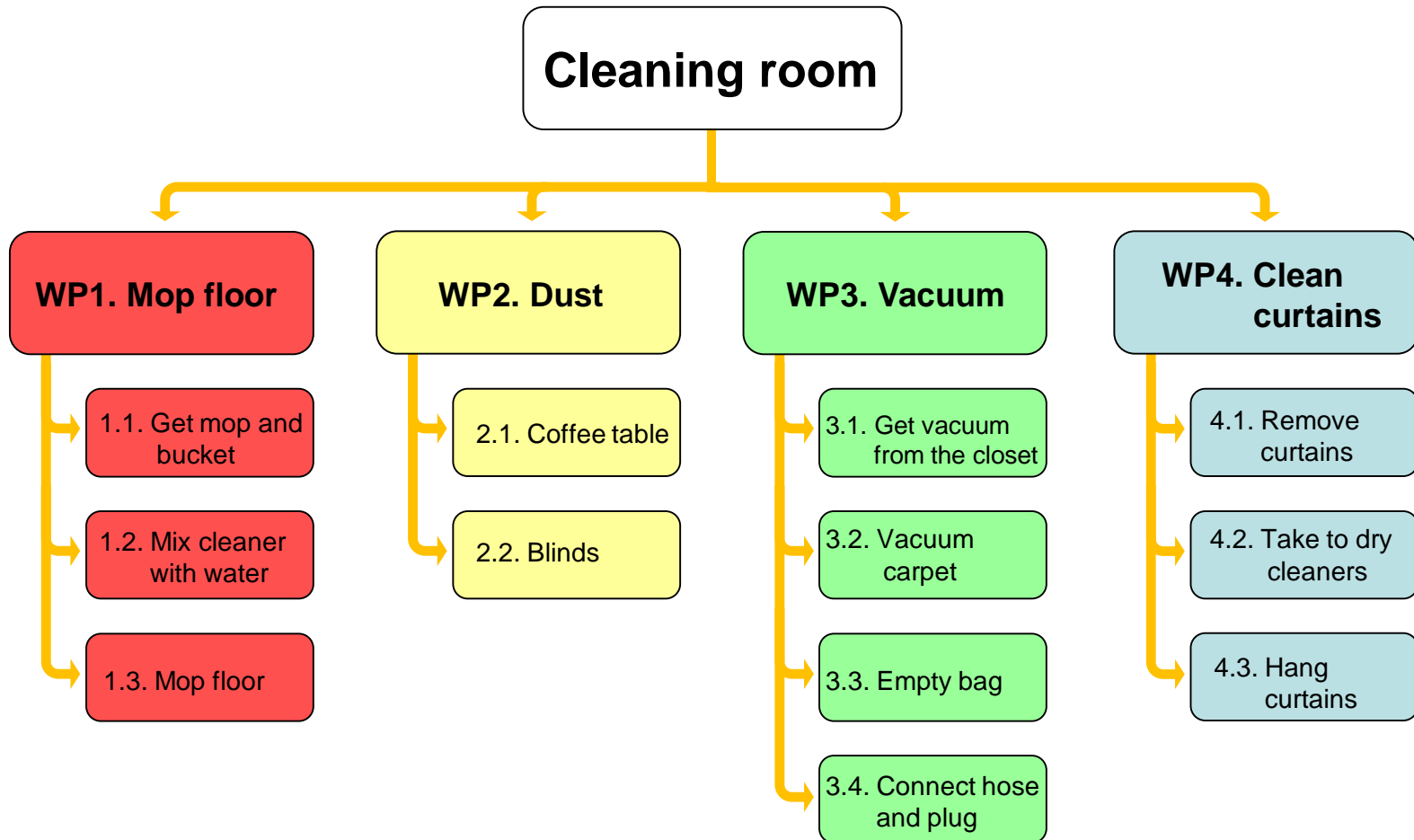
Sign off the Project Plan!

- The WBS breaks a project into manageable units:
  - Sub-projects
    - *Work packages*
      - Tasks, activities

- Identifies all work to be done
- Identifies completion criteria (e.g. deliverables)
- It does not show dependencies between tasks
- It does not include timescales / schedules

The WBS helps to:

- Logically organize work so that it can be scheduled and assigned to team members
- Distribute the workload
- Identify resources needed
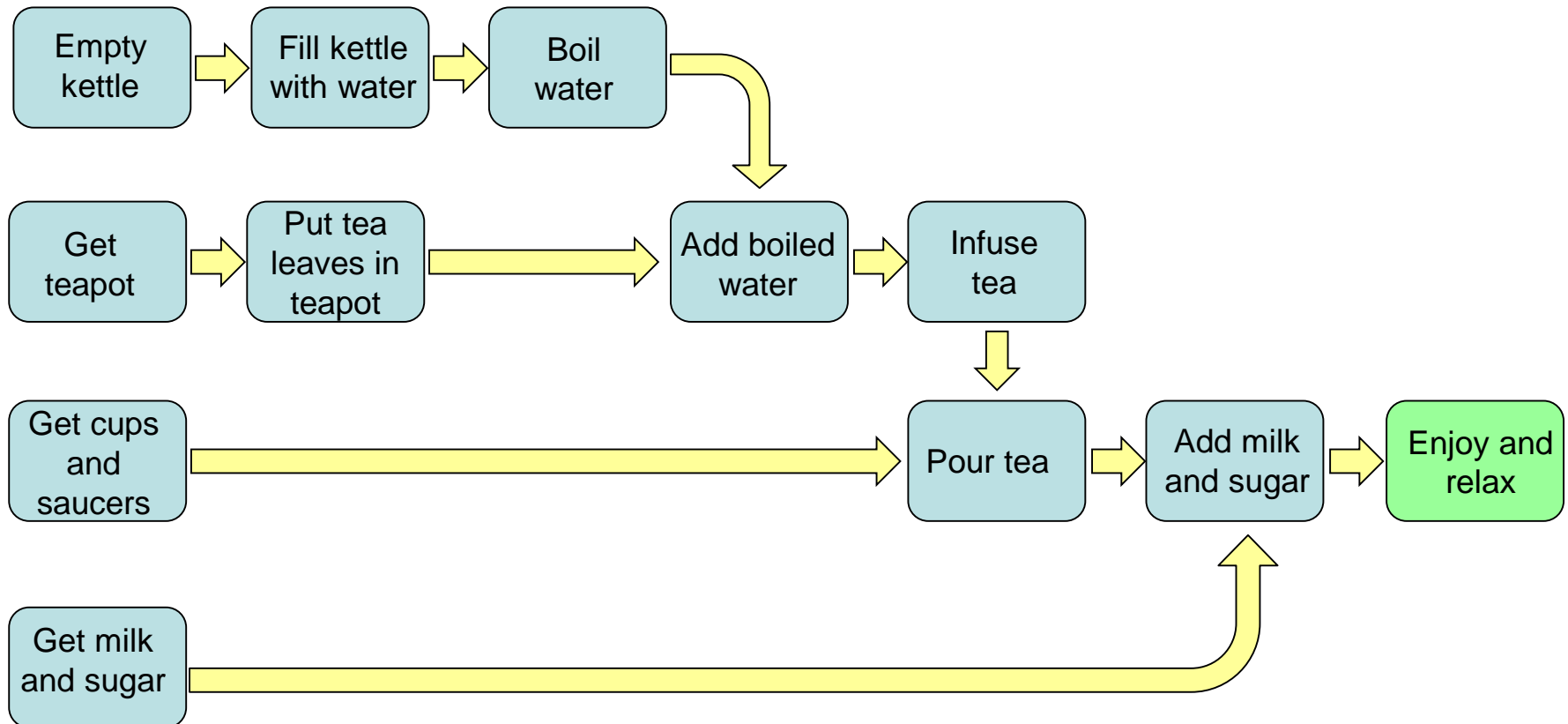- Communicate what has to be done

Work Breakdown Structure

```
                          ┌─────────────────┐
                          │  Cleaning room  │
                          └─────────────────┘
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WP1. Mop floor
- 1.1. Get mop and bucket
- 1.2. Mix cleaner with water
- 1.3. Mop floor

WP2. Dust
- 2.1. Coffee table
- 2.2. Blinds

WP3. Vacuum
- 3.1. Get vacuum from the closet
- 3.2. Vacuum carpet
- 3.3. Empty bag
- 3.4. Connect hose and plug

WP4. Clean curtains
- 4.1. Remove curtains
- 4.2. Take to dry cleaners
- 4.3. Hang curtains

Network diagrams:

- Logical representations of scheduled project activities
- Define the sequence of work in a project and chronological order of activities
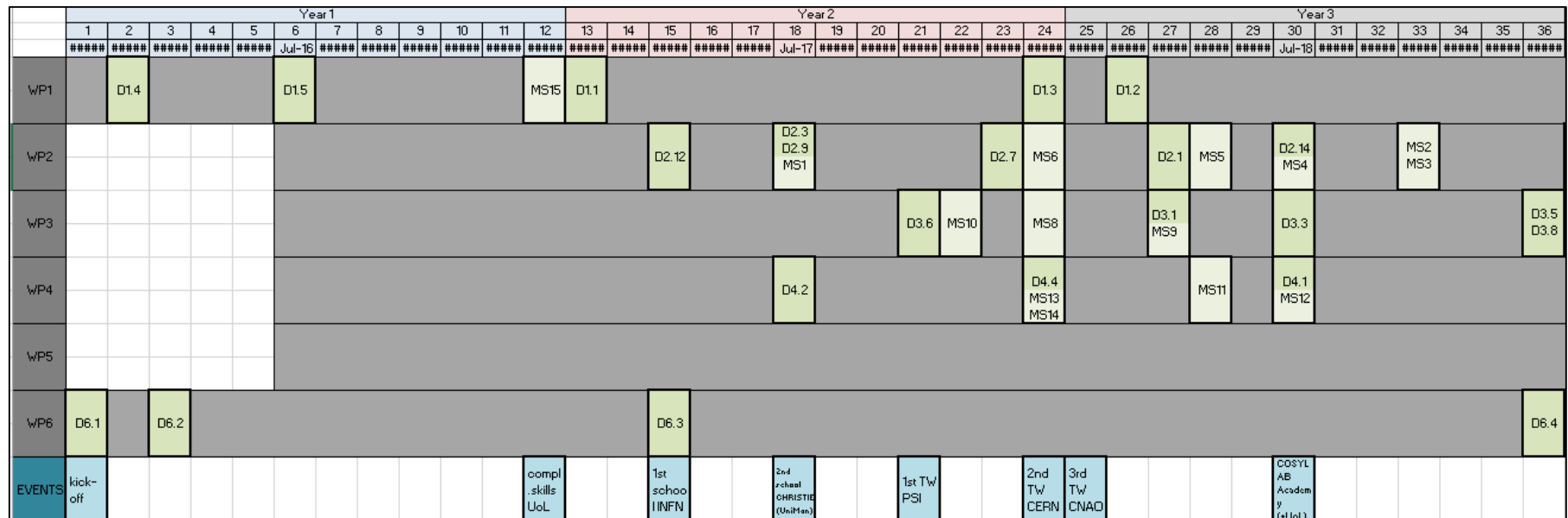- Dependencies between tasks
- Drawn from left to right

- Determine calendar dates for activities and delivery of results
- Presented on a timeline

- Base on your experience
- Get advice from others with more experience
- Ask multiple experts and take a careful average
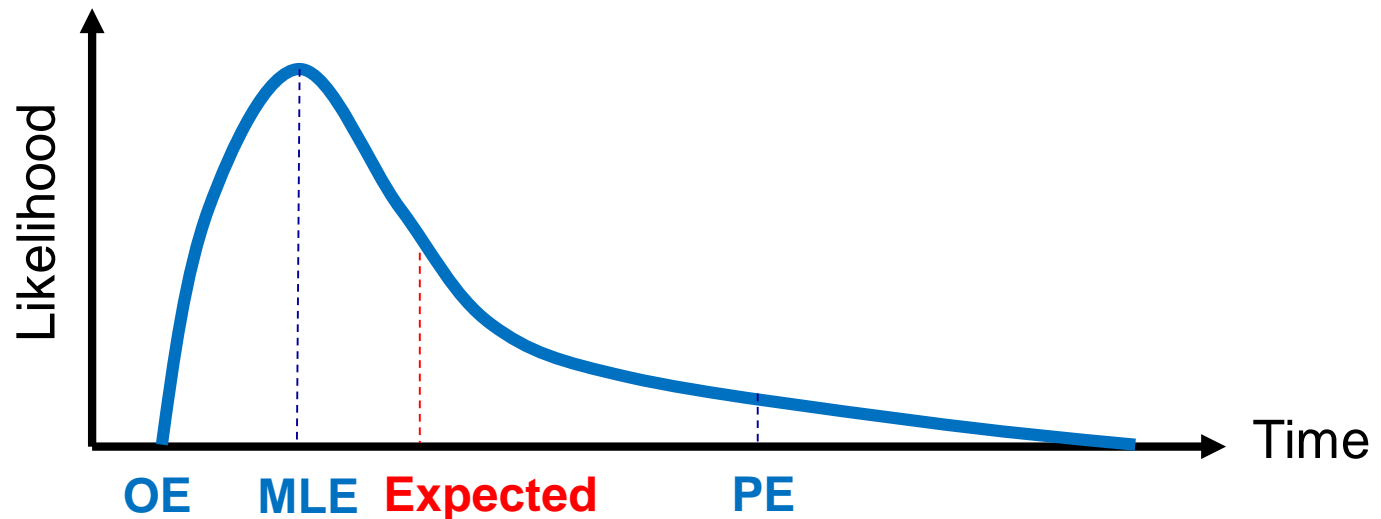- Find a similar task
- Educated guess

Three-point estimate method

- Optimistic estimate (OE)
- Most likely (MLE)
- Pessimistic estimate (PE)
- Expected = [OE + 4(MLE) +PE] / 6
- Add contingency (~ 15%)
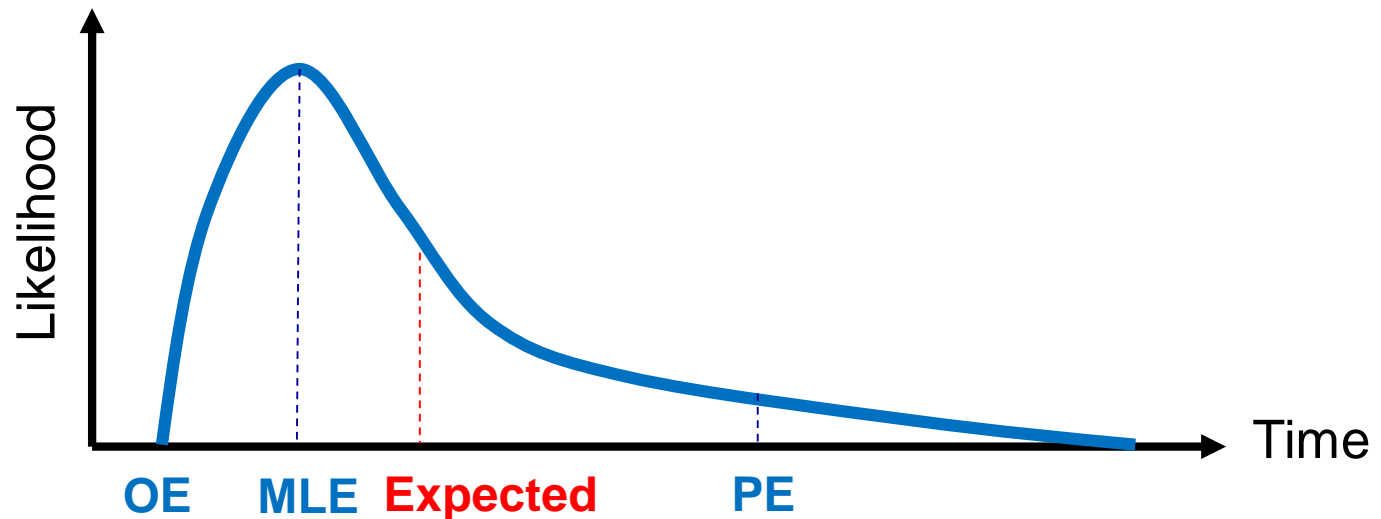
Three-point estimate method

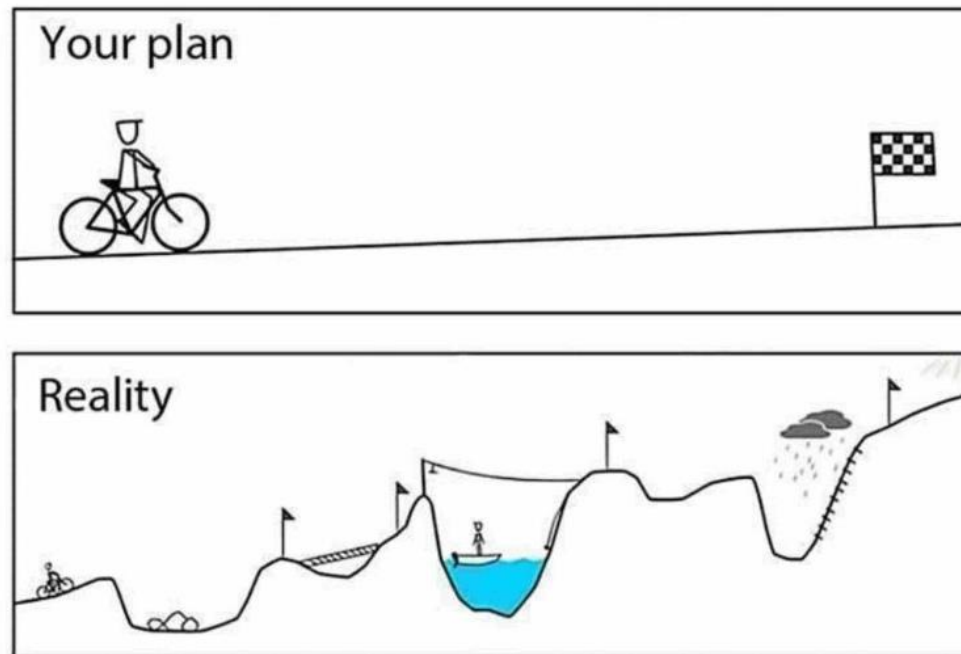- Optimistic estimate (OE)   = 35'
- Most likely (MLE)   = 42'
- Pessimistic estimate (PE)   = 90'
- Expected = [OE + 4(MLE) +PE] / 6   = 49'
- Add contingency (~ 15%)   = 56'

Can nine women deliver a baby in one month ?

- Identify sources of risk
- Assess risk
- Prepare contingency plan

- Funding
- Time
- Staffing
- Project size and/or complexity
- Customer / stakeholders relations
- Communication
- Organizational resistance
- External factors

Organisational / management risks:

- Ill-defined project or no project at all
- Unrealistic goals / planning
- No execution of project plan

Technical / scientific risks:

- Project based on invalid hypotheses
- Faulty equipment
- Lack of relevant facilities

Interpersonal communication:

- Relation with supervisor / postdoc
- Conflicts with colleagues
- No access given to the lab / facilities / use of equipment

Personal risks:

- Loss of motivation
- Loss of self-esteem
- Financial situation
- Personal situation

Risk assessment

- Probability
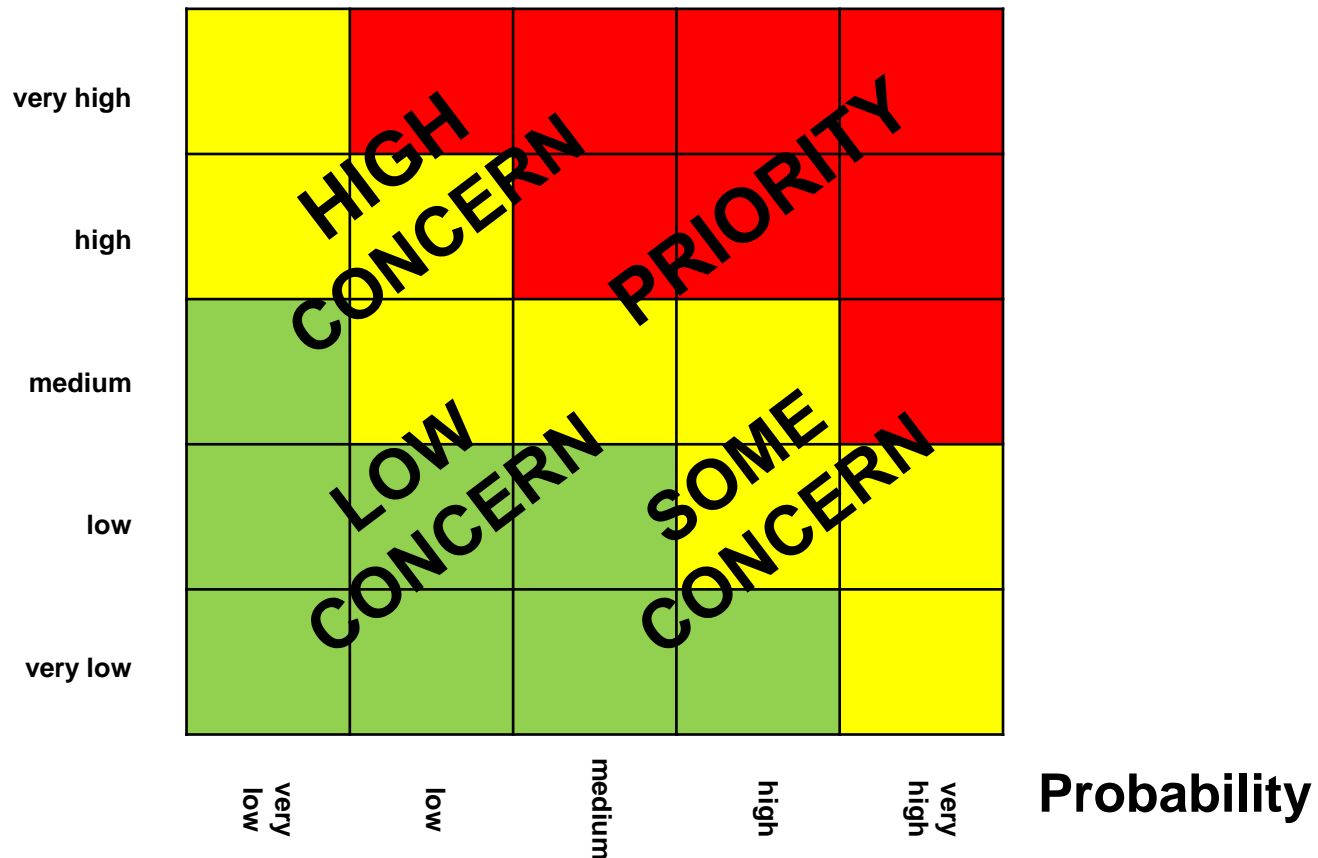
- Impact

- Overall exposure = probability and impact

Risk assessment

Risk log

Risk No	Description	Probability	Impact	Risk-mitigation measures
1	Recruitment delay	Medium	High	4 months contingency built into time plan
2	Fellows leave before end of project	Medium	High	Early: alternative candidate recruitment; Late: senior staff available in all WPs to complete tasks
3	Information flow disturbed	Low	High	Communication will be realized via different channels to minimize the risk; clear communication plan established

- Execute and manage project plan
- Continuous monitoring of progress
- Keeping your plan up to date – changes may be needed
- Ongoing communication with stakeholders

- Project completion report
- Administrative close-out
- Review of the implementation
- Lessons learned
- Communication of the results!

Celebrate successes ☺

- Start seeing yourself as a project manager

- Re-consider your project plan on regular basis

- Keep good links with stakeholders

- Task planning, setting of milestones and deliverables and risk analysis can be crucial !

Good luck!

Acknowledgements

These slides are based on a course of project management prepared by Magdalena Klimontowska