

# Project Management and Soft Skills

## Project Management: a Pragmatic Approach

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**(upon agreement via email)**

**A.Y. 2019-20**  
**Credits: 3**

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# Project Management: A Pragmatic Approach

*This lecture block does not aim at being general and comprehensive regarding the topic of Project Management, as this would require an effort not compatible with the objectives of this course.*

*The elementary management tools used in project activities are introduced.*



# Project Management

## Projects

**A Project** is a set of activities geared towards a specific *goal*. A project has (limited) *financial*, *human* and *technical* resources, and is *time* constrained. A project is a temporary endeavour.

**Project Management** is the activity aimed at *planning*, *executing*, *controlling*, and *closing* the work of a team to achieve the project goal and meet specific (measurable) success criteria.

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# Project Management

## Projects

### Examples:

- **Building a complex civil infrastructure (a skyscraper, a bridge, etc.)**
  - **Innovate the machinery of an industry plant.**
  - **Design, prototype, and test a new product.**
  - **Develop a new service to be offered by an IT company.**
  - **Organise a complex event (a conference, a school, etc.).**
  - **...**
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# Project Management

## Projects



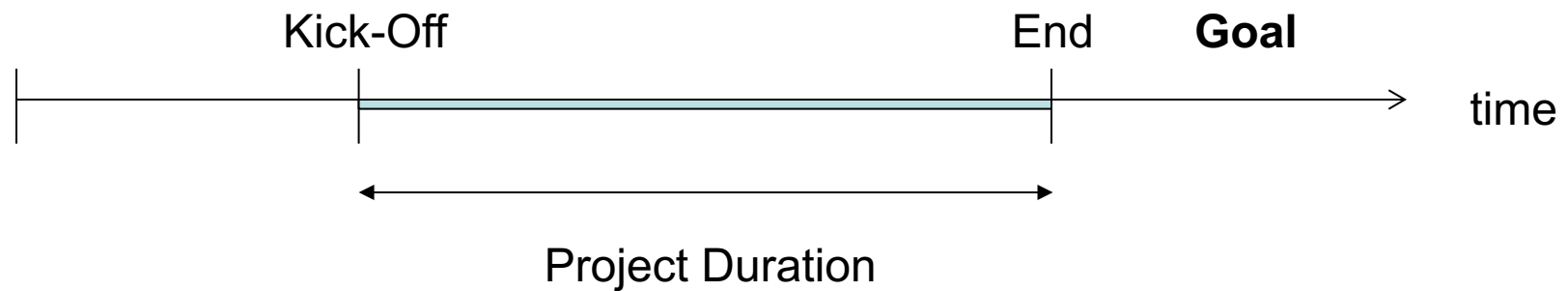
**Goal**

time

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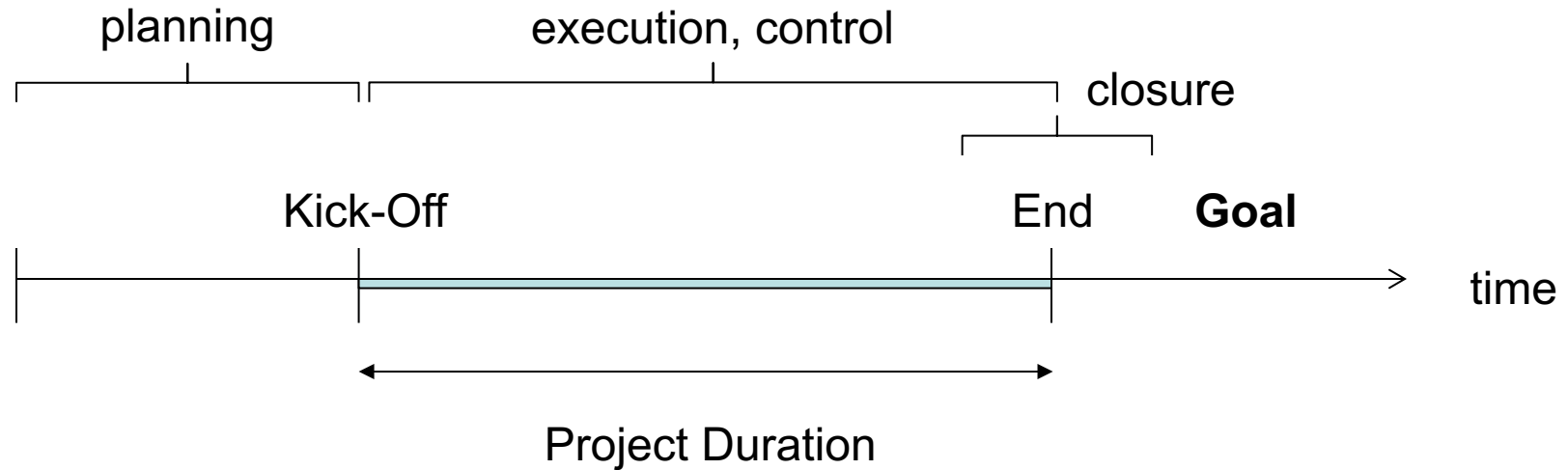
# Project Management

## Projects



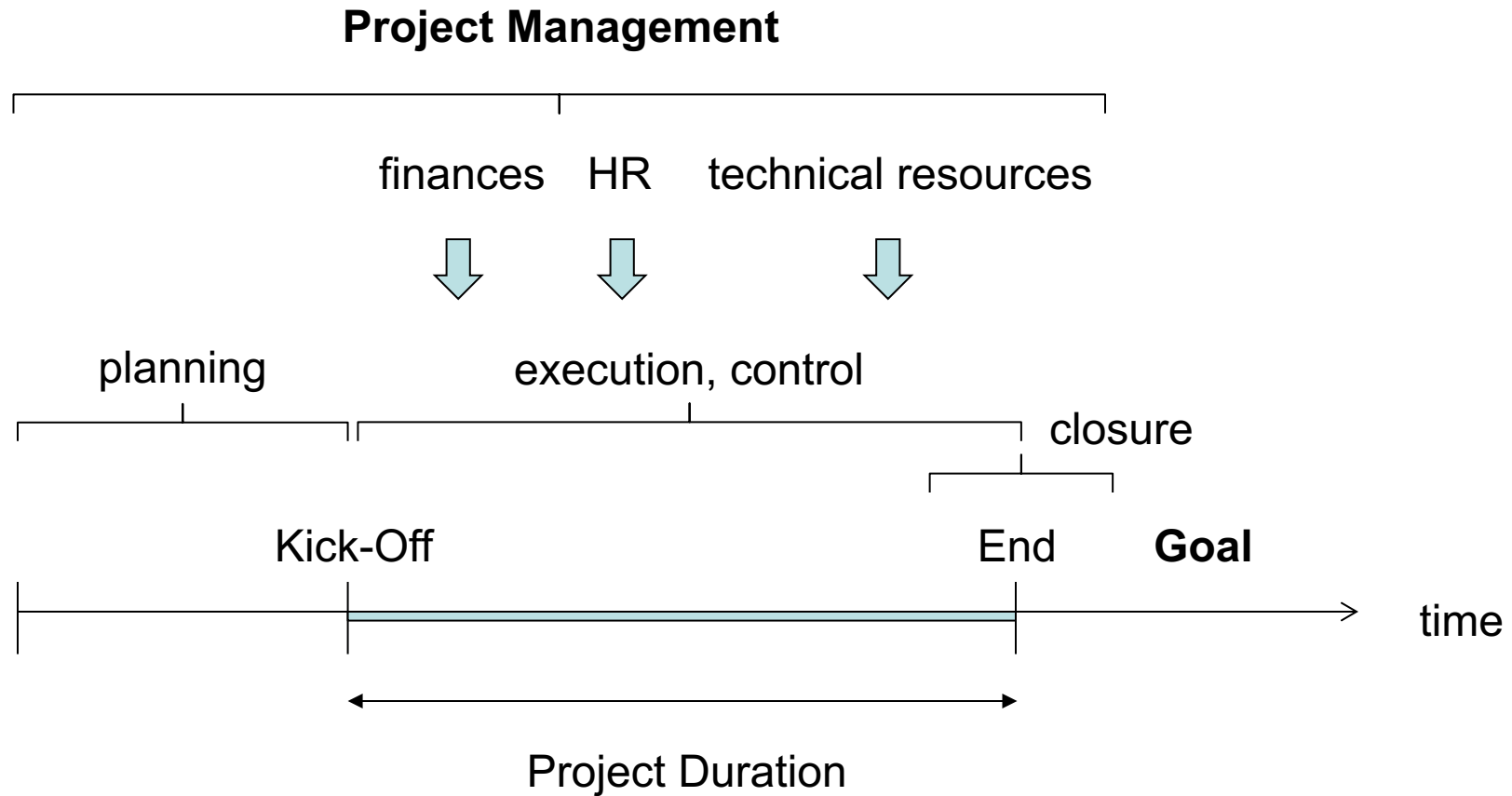
# Project Management

## Projects



# Project Management

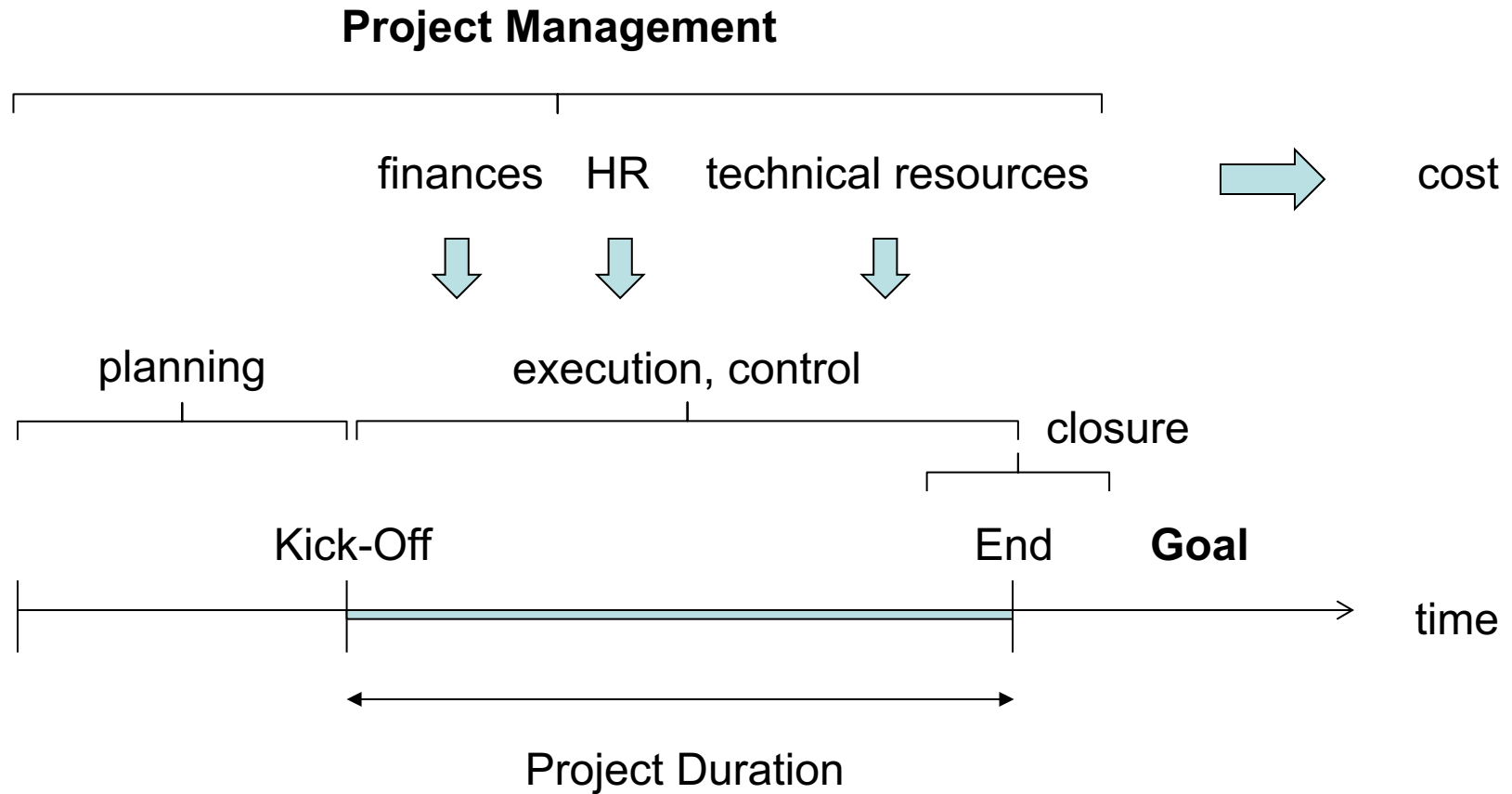
## Projects





# Project Management

## Projects



# Project Management

## Projects

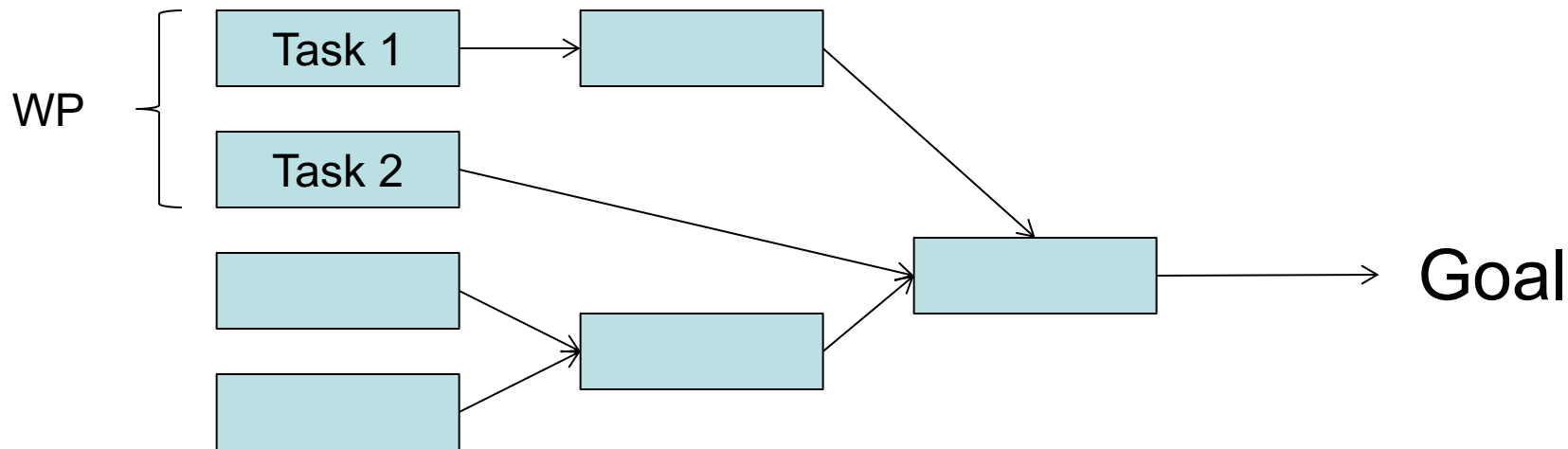
**Any Activity in (Professional) Life**

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# Project Management

## Work Packages (WPs), Tasks

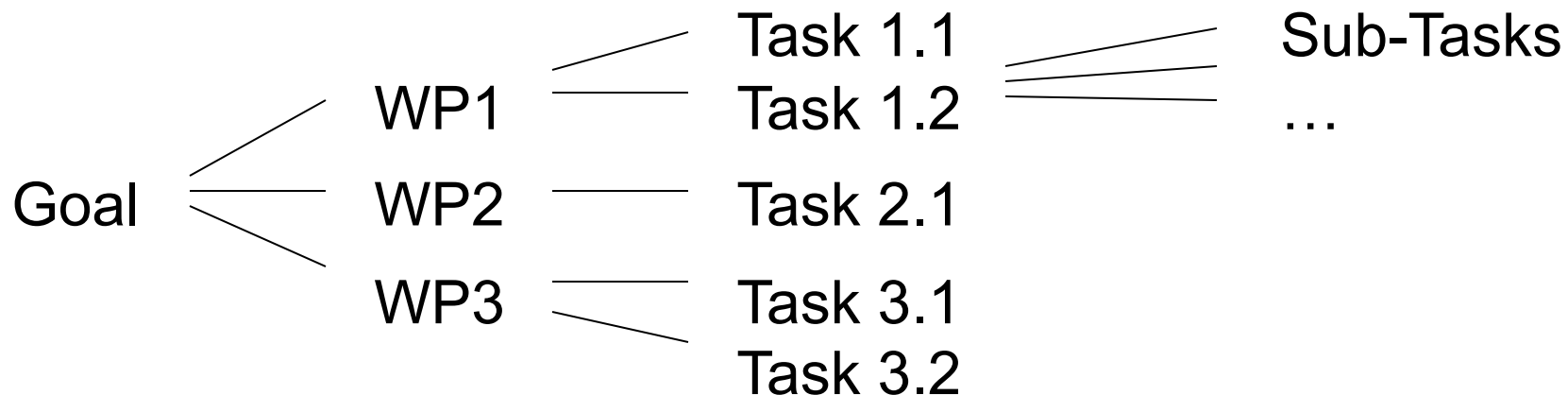
A project is formulated as a coordinated set of activities grouped into WPs and Tasks, (possibly in a tree-based fashion, forming a **WBS: Work Package Breakdown Structure**). The split into smaller, more manageable activities, makes management easier.



# Project Management

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# Project Management

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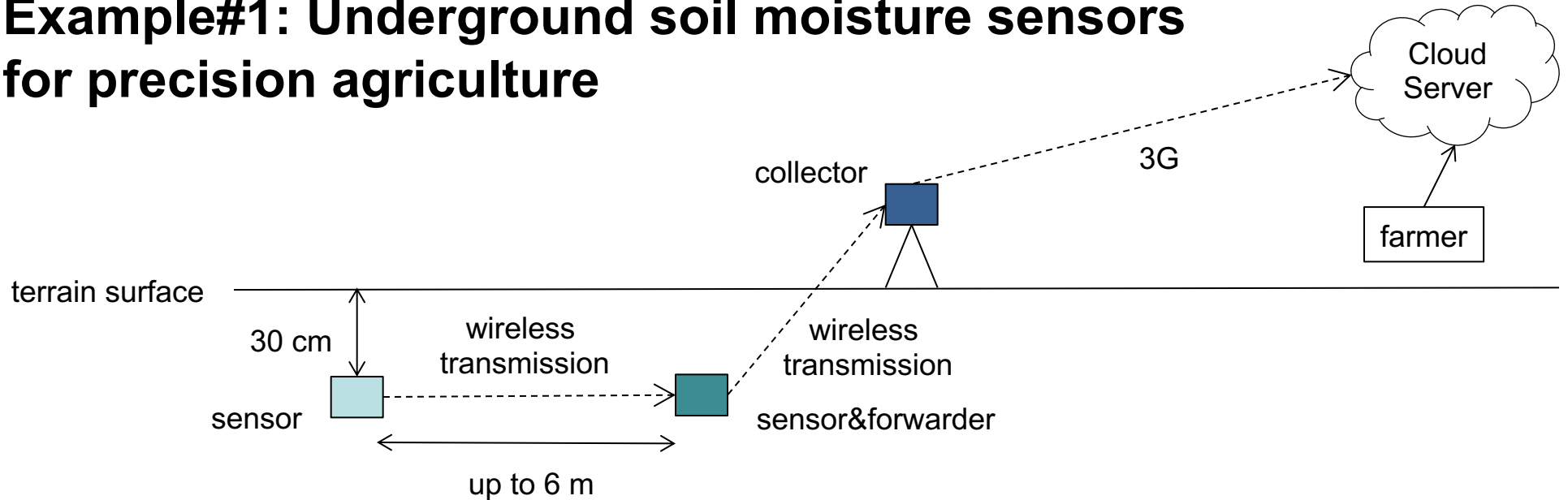
Every Task will be assigned a sub-goal and some resources (time, technical, financial, human) and a **leader** who will be responsible for the achievement of the goal.

The same applies to WPs, as they are composed of (multiple) tasks.

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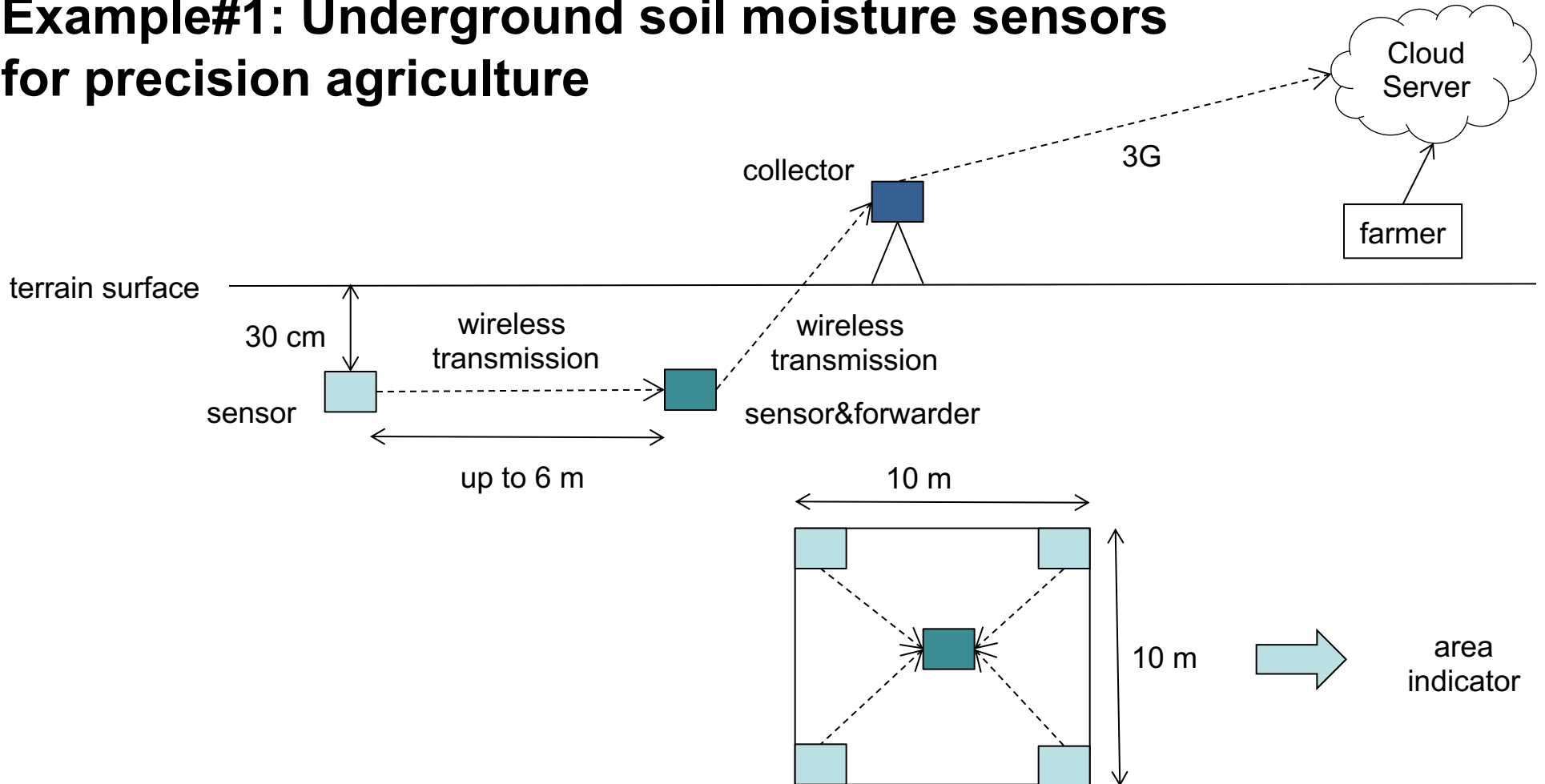
# Project Management

## Example#1: Underground soil moisture sensors for precision agriculture



# Project Management

## Example#1: Underground soil moisture sensors for precision agriculture



# Project Management

## Example#1: Underground soil moisture sensors for precision agriculture

### Tasks:

- T1: HW Design (sensor boards)
  - T2: FW Development (sensor boards)
  - T3: SW Development (cloud)
  - T4: Prototyping and Lab Tests
  - T5: On Field Tests
  - T6: Data Analysis
-



# Project Management

## Example#1: Underground soil moisture sensors for precision agriculture

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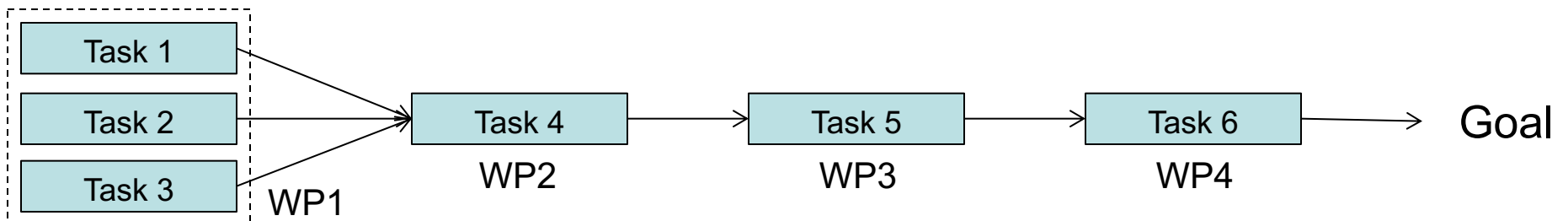
### WPs:

WP1: Platform

WP2: Lab

WP3: On Field

WP4: Analysis



# Project Management

## Example#1: Underground soil moisture sensors for precision agriculture

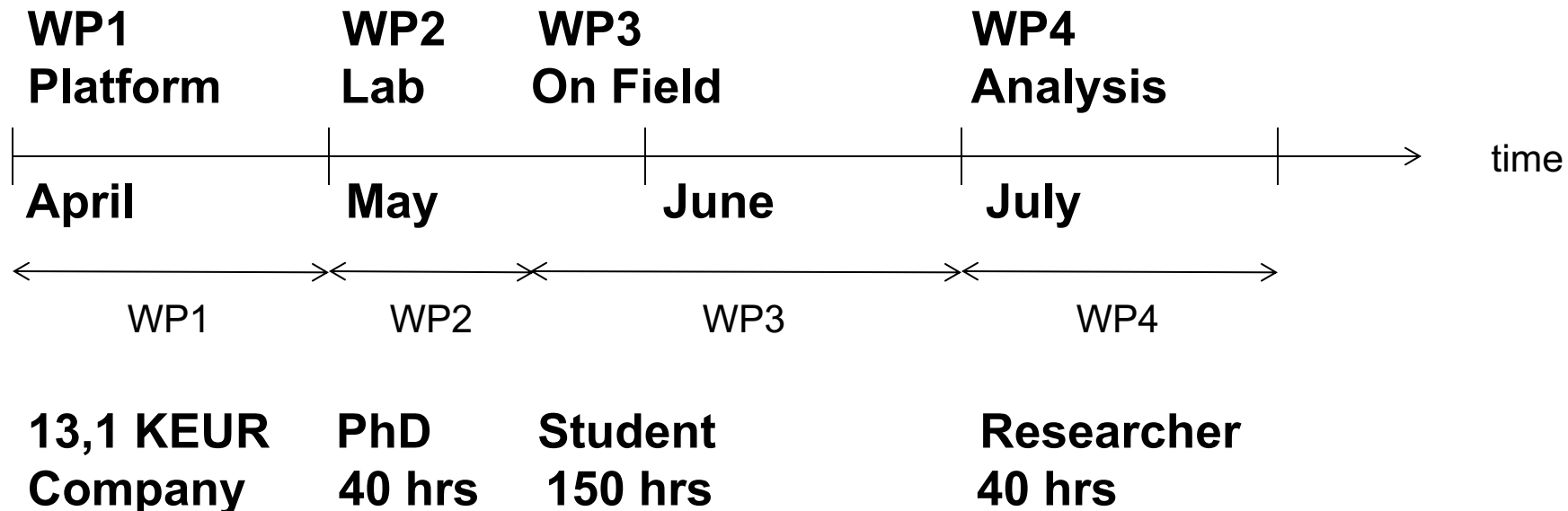
### Resources:

- **Financial:** 13,1 KEUR
  - **Human:** one student, not skilled, 150 hrs  
one PhD student, skilled on Lab testing, 40 hrs  
one researcher, expert of (agricultural) data analysis, 40 hrs
  - **Technical:** collector, cloud server
  - **Time:** four months (April-July 2018)
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# Project Management

## Example#1: Underground soil moisture sensors for precision agriculture

### Resources:



# Project Management

**Example#2: Organising a group week-end in Venice.**

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# Project Management

## **Example#2: Organising a group week-end in Venice.**

WP1 - Travel

WP2 - Hotel

WP3 - Finances

WP4 - Cultural

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# Project Management

## Example#2: Organising a group week-end in Venice.

WP1 - Travel	T1.1 - Choice from timetable
	T1.2 - Ticket
	T1.3 - Baggage
WP2 - Hotel	T2.1 - Choice
	T2.2 - Booking & Payment
WP3 - Finances	T3.1 - Assessment
	T3.2 - Gathering of funds
WP4 - Cultural	T4.1 - Choice of events

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# Project Management

## Interactive Session #1 – Teams of 3-4 | 15 min

### Organising a Summer School.

Your company X develops mechanical components, and you want to train students towards the set of competences that your company might need in the future. To this purpose, you will organise a summer school, to be offered to graduate students with an engineering degree. The school will include lectures given by University professors, and lab sessions offered by other companies belonging to the group led by company X.

Define a WBS including all activities to be planned and executed **before** start of the school, for its preparation (goal is KO of school).

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# Project Management

30

## Interactive Session #1 – Teams of 3-4 | ~~15~~<sup>↑</sup> min

1. You received via email your Team Number, *TN*, and *PMSS20\_TN.xls*.
  2. Disconnect from this lecture at the end of presentation of this slide.
  3. We will keep the lecture alive on TEAMS, so that in case of need you can re-connect with us and make questions.
  4. Join your *team* (identified through the *TN*) on TEAMS (button on the left hand side of the tool).
  5. Elect one of you in your team as the *rapporteur*.
  6. The rapporteur will put on the file *PMSS20\_TN.xls* the outcome of the discussion in your team. Refer to the first sheet: *IS1*.
  7. He/she will send it to [roberto.verdone@unibo.it](mailto:roberto.verdone@unibo.it) cc [a.baldini@unibo.it](mailto:a.baldini@unibo.it)
  8. We will resume the lecture after 30 min from now.
  9. We will look for some volunteer to present their outcome.
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# Break

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# \*\*\* Attendance Check \*\*\*

**Fill the attendance form**

www.robertoverdone.org

Teaching

PMSS

upper part of webpage

**“Attendance Today”**



# Project Management

## Interactive Session #1

**ANY TEAM PRESENTING  
THEIR OUTCOME ?**

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# Project Management

## Deliverables, Milestones

Every activity of a project produces as an outcome an intermediate or final output to be used by other project activities, or delivered to the outside world.

These outputs (**Deliverables**) can take the form of technical reports, documents, hardware prototypes, software, video, websites, etc.

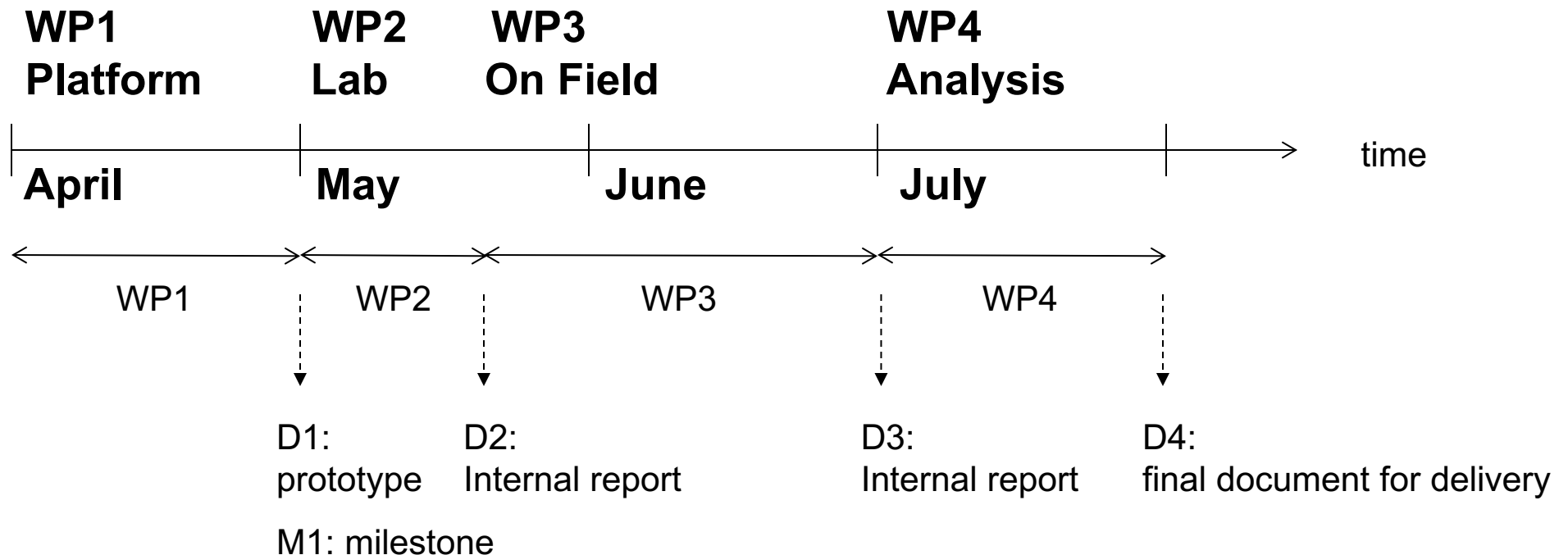
Some key points on the time axis describe moments when relevant deliverables are provided, or when something happens that generates the start of activities. They are denoted as **Milestones**.

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# Project Management

## Deliverables, Milestones

**Example#1: Underground soil moisture sensors for precision agriculture**



# Project Management

## Deliverables, Milestones

### Example#1: Underground soil moisture sensors for precision agriculture

#### Table of Deliverables

<b>D#</b>	<b>Title</b>	<b>Type</b>	<b>Delivery date</b>
D1	Platform; prototype	Prototype	April 30
D2	Lab tests	Int. report	May 15
D3	On Field tests	Int. report	June 30
D4	Final assessment	Techn. report	July 31

#### Table of Milestones

<b>M#</b>	<b>Title</b>	<b>Type</b>	<b>Date</b>
M1	Platform; prototype	Prototype	April 30

# Project Management

## Gantt, PERT

**A Gantt diagram** is a pictorial description of the WBS that shows the *duration* of all activities, and when Deliverables and Milestones are expected. Useful in the planning phase, and during the course of the project for controlling purposes.

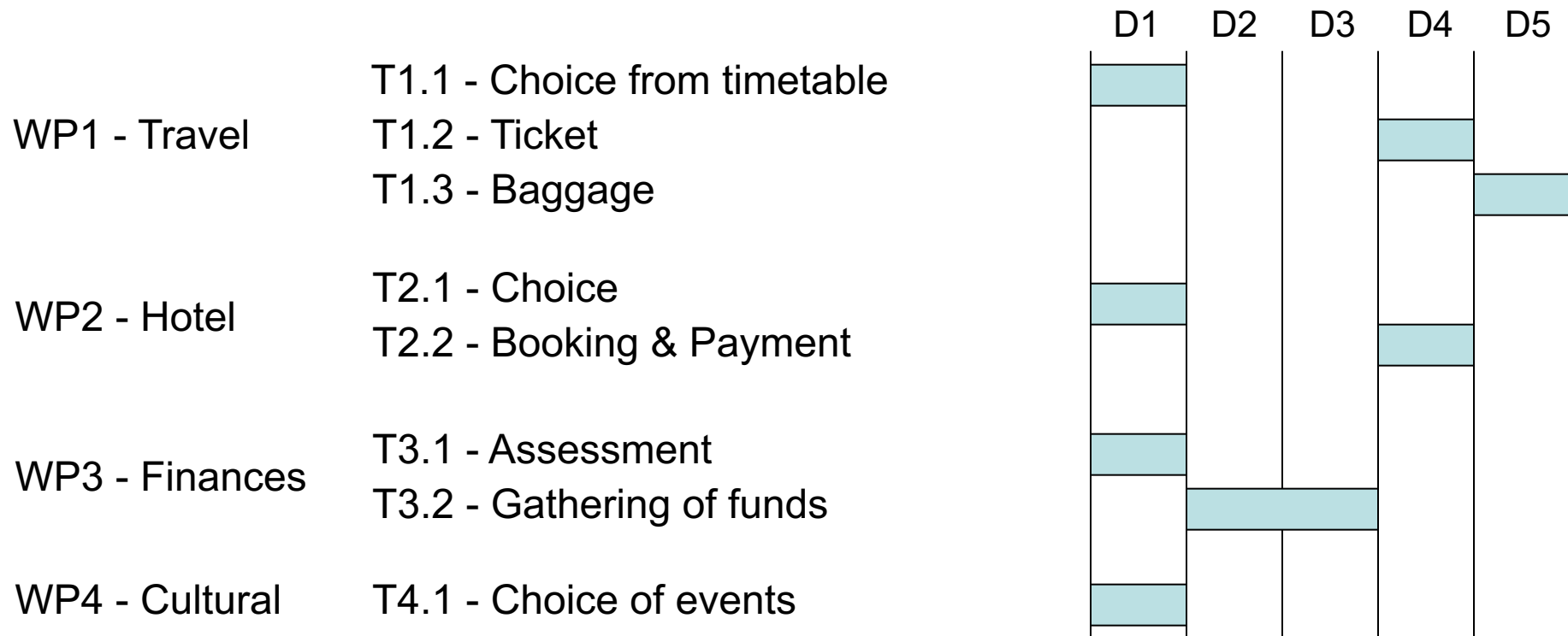
**A PERT (Program Evaluation and Review Technique) diagram** is a pictorial description of the *interrelations* between the different project activities. It aims at supporting the project manager in the planning and execution phases, for the determination of the minimum project duration and the **Critical Path**.

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# Project Management

## Gantt, PERT

### Example#2: Organising a group week-end in Venice.



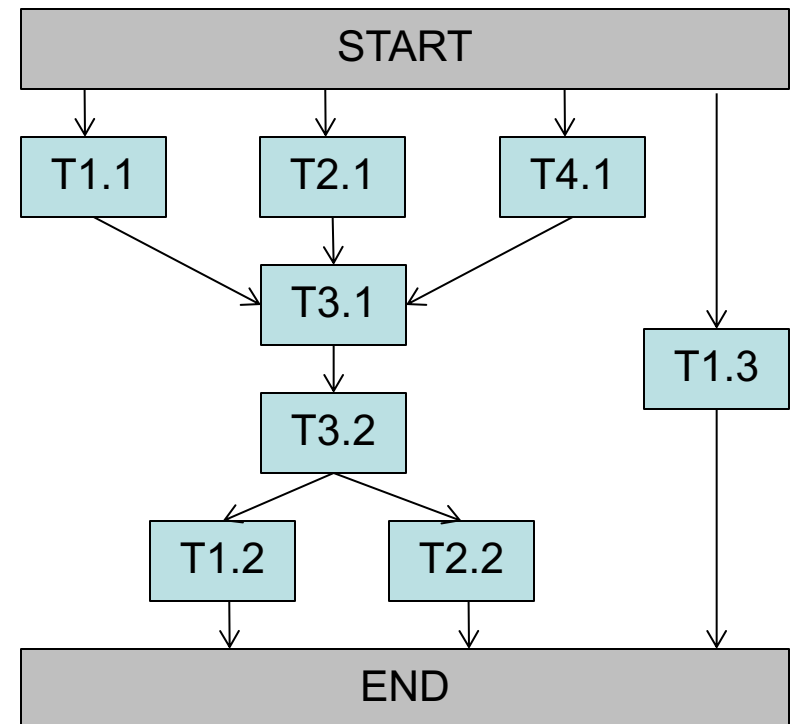


# Project Management

## Gantt, PERT

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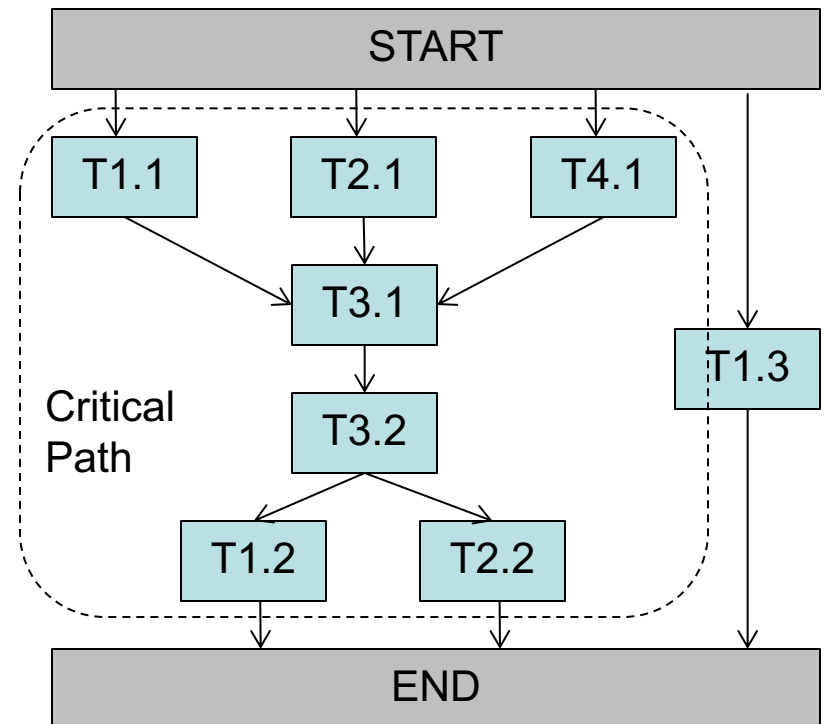


# Project Management

## Gantt, PERT

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# Project Management

## Interactive Session #2 – Teams of 3-4 | 30 min

**Submit a proposal for financial support to the Ministry.**

Your company intends to invest on new equipment; you hear of a financing opportunity offered by the Ministry. For the proposal (you have one month of time), you need to submit: i) ten pages describing in detail the company profile, its organisation (owners, roles...) and strategy, and the equipment to buy; ii) offers from three equipment providers; iii) an excel file showing financial data and market forecasts, proving that breakeven will be reached by three years; iv) the minutes of a board meeting with approval of all documents; v) proof of payment of admission fee via bank transfer.


**Prepare a WBS, and Gantt. Include table of deliverables.**

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# Project Management

40

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# Project Management

## Interactive Session #2

**ANY TEAM PRESENTING  
THEIR OUTCOME ?**

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# Test DA

**During the interactive sessions,  
did you feel more comfortable in:**

- analysing the problem and identifying the WBS, or
- planning the activities required (Gantt and PERT), or
- both?

[www.robertoverdone.org](http://www.robertoverdone.org) → Teaching → PMSS → Test DA

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# See (!) you next week



# Don't forget your homework!

- **Test DA (via Google Form) by Mar 25, 12 am**  
**[www.robertoverdone.org](http://www.robertoverdone.org)**
  - **Teaching**
  - **PMSS**
- **File PMSS20\_TN.xls by Mar 25, 12 am**  
**Via email to [a.baldini@unibo.it](mailto:a.baldini@unibo.it)**  
**Subject: PMSS20 - PM**

