NETADIS
Statistical Physics Approaches to Networks Across Disciplines

Applying for Grants and Funding

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HUGEF
HUMAN GENETICS FOUNDATION · TORINO

Motivation

If you plan to become a Researcher, in addition to your work in the lab/office you are expected to:

- publish the results of your work regularly;

- help training the next generation of scientists;

- obtain some (or all) of the resources that enable you to work.

You are choosing a narrow and steep path; be very careful and aware of the «rules of the game»

TIME INVESTMENT OPPORTUNITY COST

«To Whom it may concern»

Is there someone out there interested in my research?

What are the funding opportunities for the work I am doing?

I have a great idea, let me explain why you should care about it

The EU should invest on…

Once I will get a permanent position I will have the resources to pursue my research agenda.

GOOD LUCK!

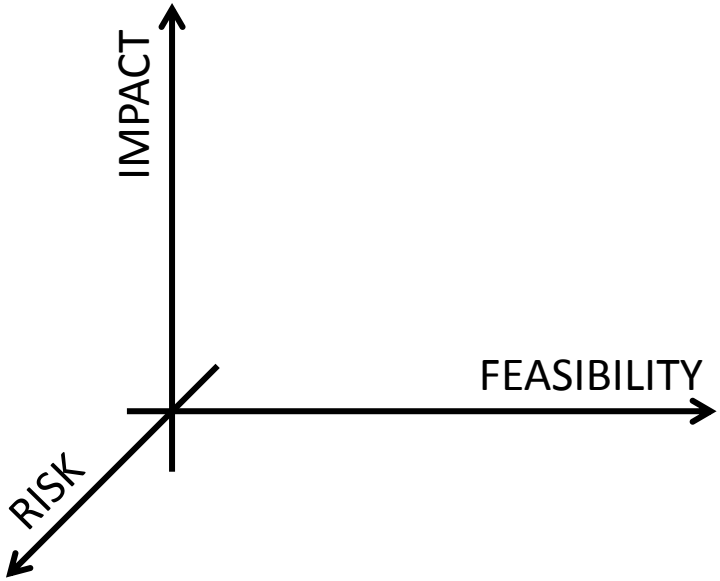
Selecting a Research Topic

What kind of research you are involved in?

- **Theoretical – Experimental**

- **Basic – Applied**

- **Labor/Tech intensive – Facilities**



- International – Local

- Mainstream – Niche

- Near-Term results – Long-Term prospects

- Cutting-edge – Focused

- Novel - Grounded

- Feasible – Challenging

«To Whom it may concern»

Most likely you will apply for **PUBLIC** (or pesudo public) money:

→ Impact

→ Accountabiliy

→ Competition

FOCUS

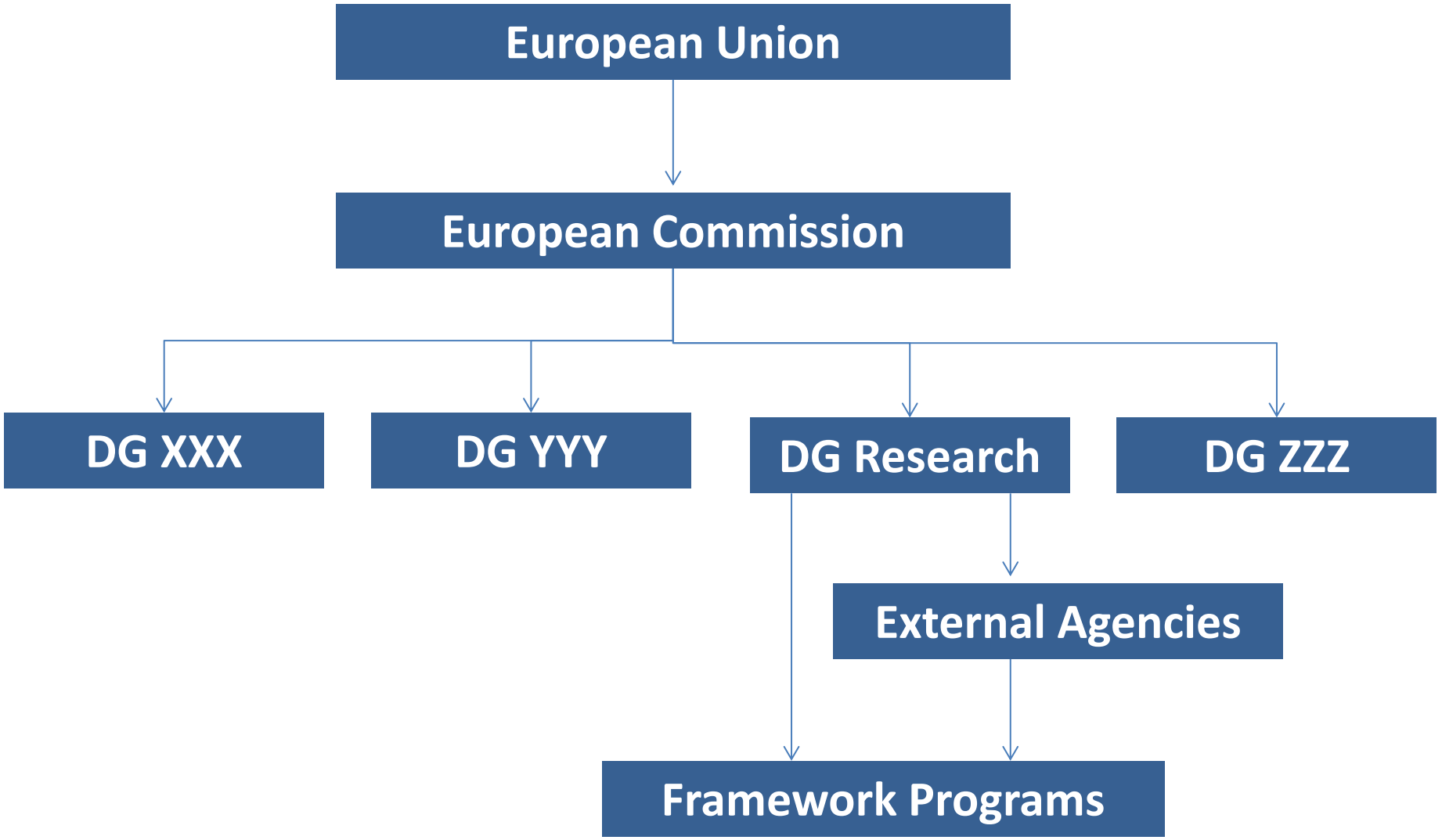
Private Money:

→ Reputation

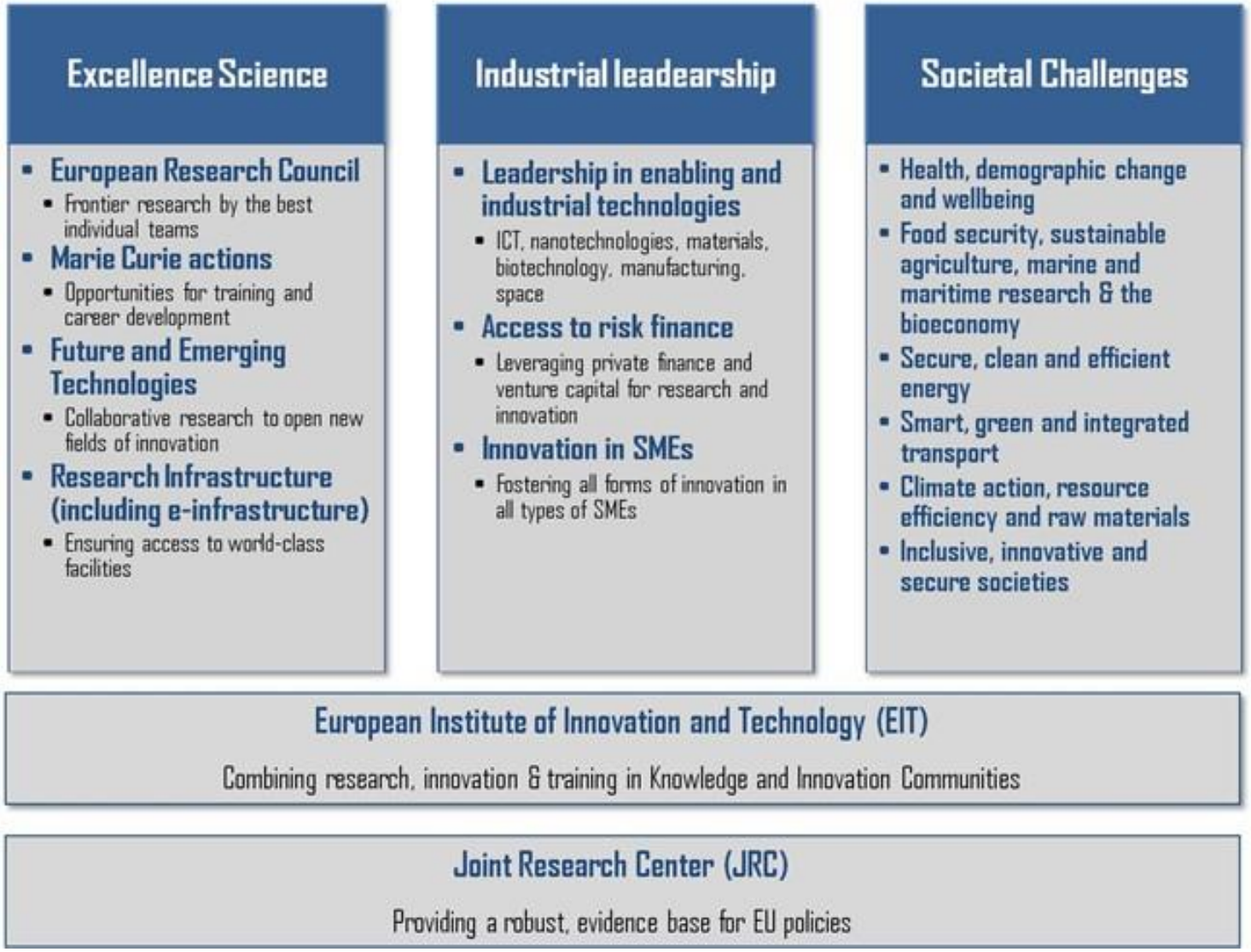
→ Results

→ Reliability

EU Funding Schemes



EU Funding Schemes



EU Funding Schemes

- **Top Down – Bottom Up**

- Collaborative research – monopartner

- Eligibility Criteria

- Success rate

- EU contribution – Project Costs

- Not only H2020

WRITING A PROPOSAL

WRITING A PROPOSAL

1. The quality of your grant application makes the difference: **do not concentrate only on the scientific approach**

2. Who is the **audience**? Are you able to explain your research in an effective way?

   → ad hoc reviewers
   → evaluation panels
   → project officers

3. **Impact**

4. Feasibility

Ask for external opinions!

5. Risk

6. **Why me/us? Why now? Why this grant?**

7. Rules of the game

8. Resources

WRITING A PROPOSAL

1. Define the **potential area of impact** of your reserach (who could care aobut it?)

2. Study the **literature** of the field (broad) and build a **map**: the context. It must be **exaustive but focused**

3. **What is the problem**?

4. Define a **clear set of goals** and ideally a **unifying concept** (this project will provide…)

5. Explain **how** you intend to proceed to achieve such goals:

   → Strategy
   → Methodology
   → Resources
   → Key intermediate goals
   → (yet again) IFR

6. What are your **assets**?

7. What are the **bottomnecks** or the **weaknesses** of your proposals?

WRITING A PROPOSAL

1. In writing the proposal **act as a reviewer** (you have experience, do you?)

   → Make sure to adopt a **clear and logic approach**

   → User-friendly **text editing**

   → Clear **assessment** of the key questions

   → **Anticipate** possibile questions and doubts

   → Be very **factual**

   → **Dissemination** of the results

   → What would **reinforce** the referee's opinion? (AB)

2. Remember that the **Project Officer** may have different/parallel concerns

WRITING A PROPOSAL

1. **Title**:

   short, focused, the most important concept first. Impact

2. **Acronym**:

   do not worry too much (avoid billant ideas), but stick to short and easy ones

3. **Abstract**:

   it must be concise, effective, intriguing. The first sentence must address the goal of the project. IT IS NOT A JOURNAL ARTICLE ABSTRACT!

4. **Keywords**:

   try to limit to 3, to be carefully picked up

These four elements are usually used to address your proposal to reviewers and panel members!

WRITING A PROPOSAL

Perfection is achieved, not when there is nothing more to add, but when there is nothing left to take away.

(Antoine de Saint-Exupery)

WRITING A PROPOSAL

A new generation of **beam extraction** of high energy particles from an accelerator is proposed in CRYSBEAM. Instead of macroscopic magnetic fields **bent thin crystal trapping** particles within the crystal lattice planes are used. This type of beam manipulation opens new fields of investigation of fundamental interactions between particles and of coherent interactions between particles and matter. An experiment connected to **Ultra High Energy Cosmic Rays study** in Earth high atmosphere is conducted.

Protons or ions of several TeV energy are **deflected** by the bent lattice planes to a chosen ? target only when the lattice planes are **parallel** to the particles direction.

The **three key ingredients** of CRYSBEAM are:

- a **goniometer** based on **piezoelectric** devices that **orients** with a high resolution and repeatability a **bent** finely-polished low-miscut **silicon crystal,** monitored by synthetic **diamond** sensors. Novel procedures in *crystal manufacturing & testing* and cutting-edge mechanical solutions for *motion technology in vacuum* are developed;
- a **silica screen** that **measures** the deflected particles emitting Cherenkov radiation in micrometric optical waveguides. Those are obtained with **a ultrashort laser** micro-machining technique as for photonic devices used in *quantum optics* and *quantum computing*. The screen is a direct beam-imaging detector for *a high radiation dose environment*;
- a **smart absorber simulating the Earth atmosphere** where particles are **smashed** and secondary showers are initiated. This sets the path ? to *measure hadronic cross sections* at an energy relevant for *cosmic rays* investigation.

The R&D for the various components of such system are developed in this project and a direct test at CERN accelerators with an installation on the **Large Hadron Collider** at CERN is proposed. A brand new concept of particle accelerator **operations** will be finally set in place.

WRITING A PROPOSAL

TIPS:

- Simplify

- schematize concepts (use figures)

- exploit written English/American effectiveness

- be paranoid in looking for typos, mistakes

- if you want to look reliable and professional, be reliable and professional

- avoid self-assesments, opinions (eg. on different fields of research), tautological reasoning

- assess your proposal vis a vis the call

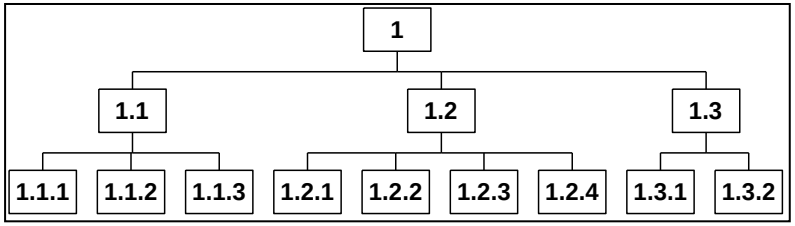
- seek for external opinions and tough reviewers

IF YOU FAIL TO PLAN, YOU PLAN TO FAIL

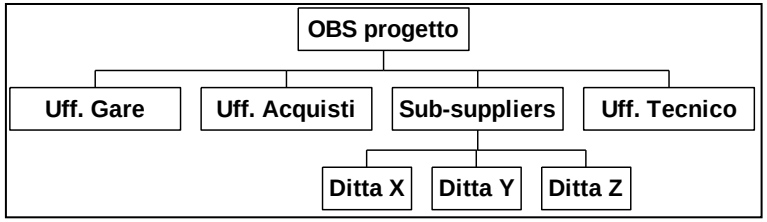
Project Management

PROJECT MANAGEMENT IN A NUTSHELL

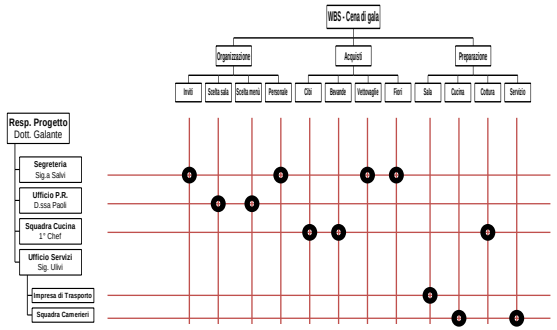
Passo 1 : WBS - Cosa si deve fare ?



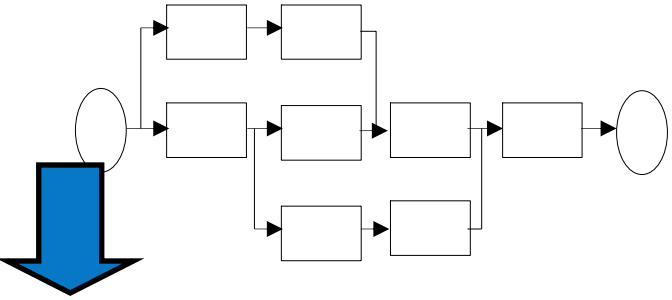
Passo 2 : OBS - Chi sono i responsabili ?



Passo 3 : RAM – Assegnazione responsabilità

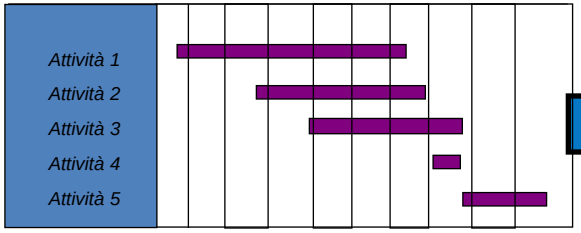


Passo 4 : Network – Logica di progetto

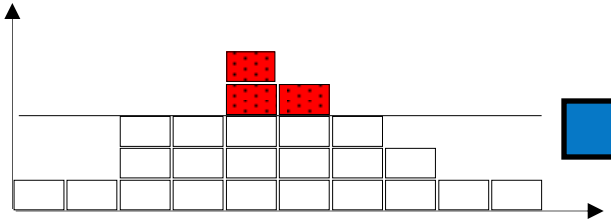


BASELINE

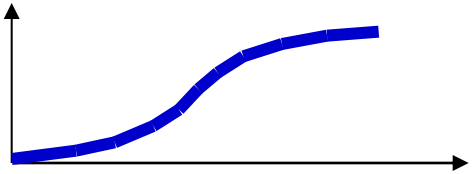
Passo 5 : Diagr. di Gantt – Master
Diagr. di Gantt - Dettaglio



Passo 6 : Piano delle risorse



Passo 7 : Piano dei costi

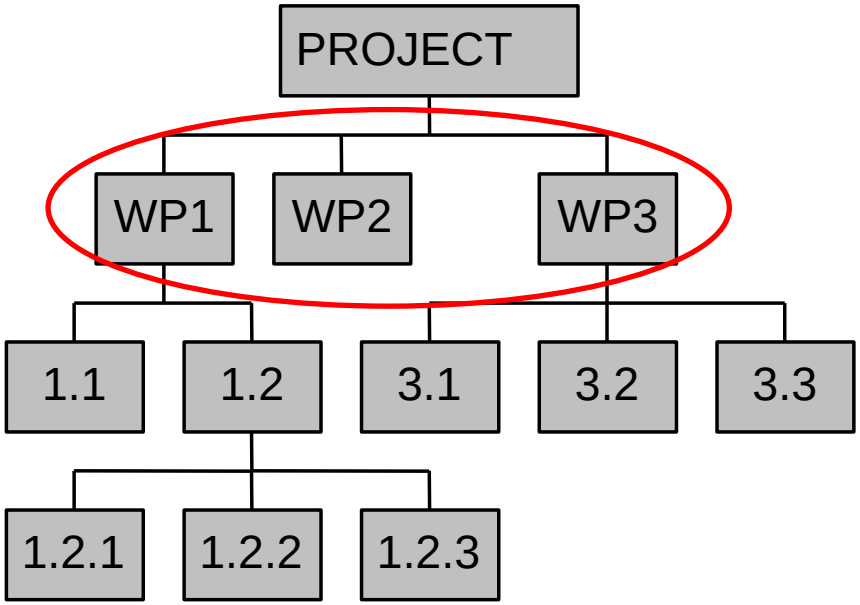


W.B.S. Work Breakdown Structure

It consists in the scomposition of the project into **subprojects/parts** and activities according to a chart structure.

Each level of the chart correspods to a more detailed definition of the project activity and implementation.

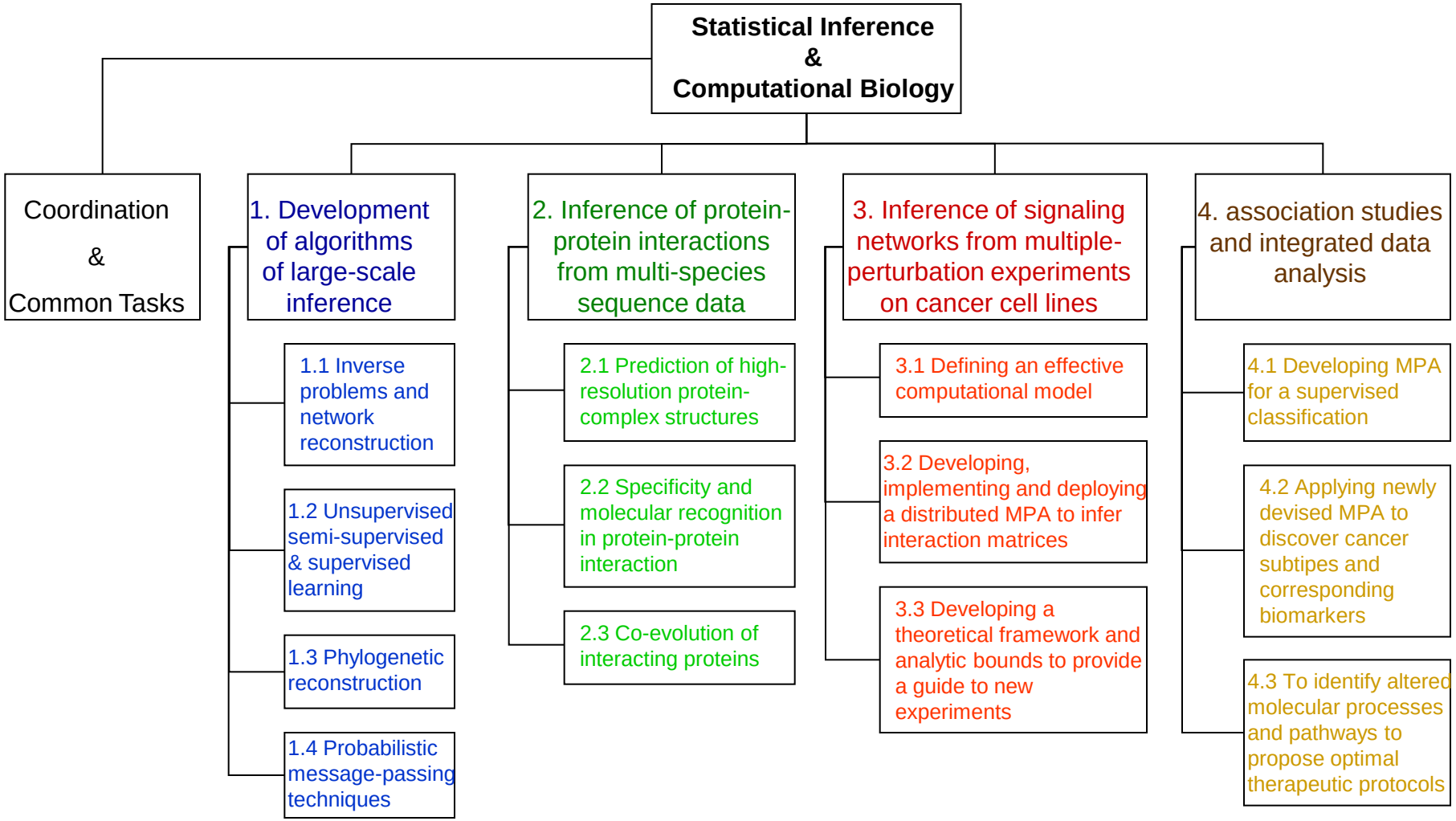
It should be **instrumental** to a correct implementation and not artificial.



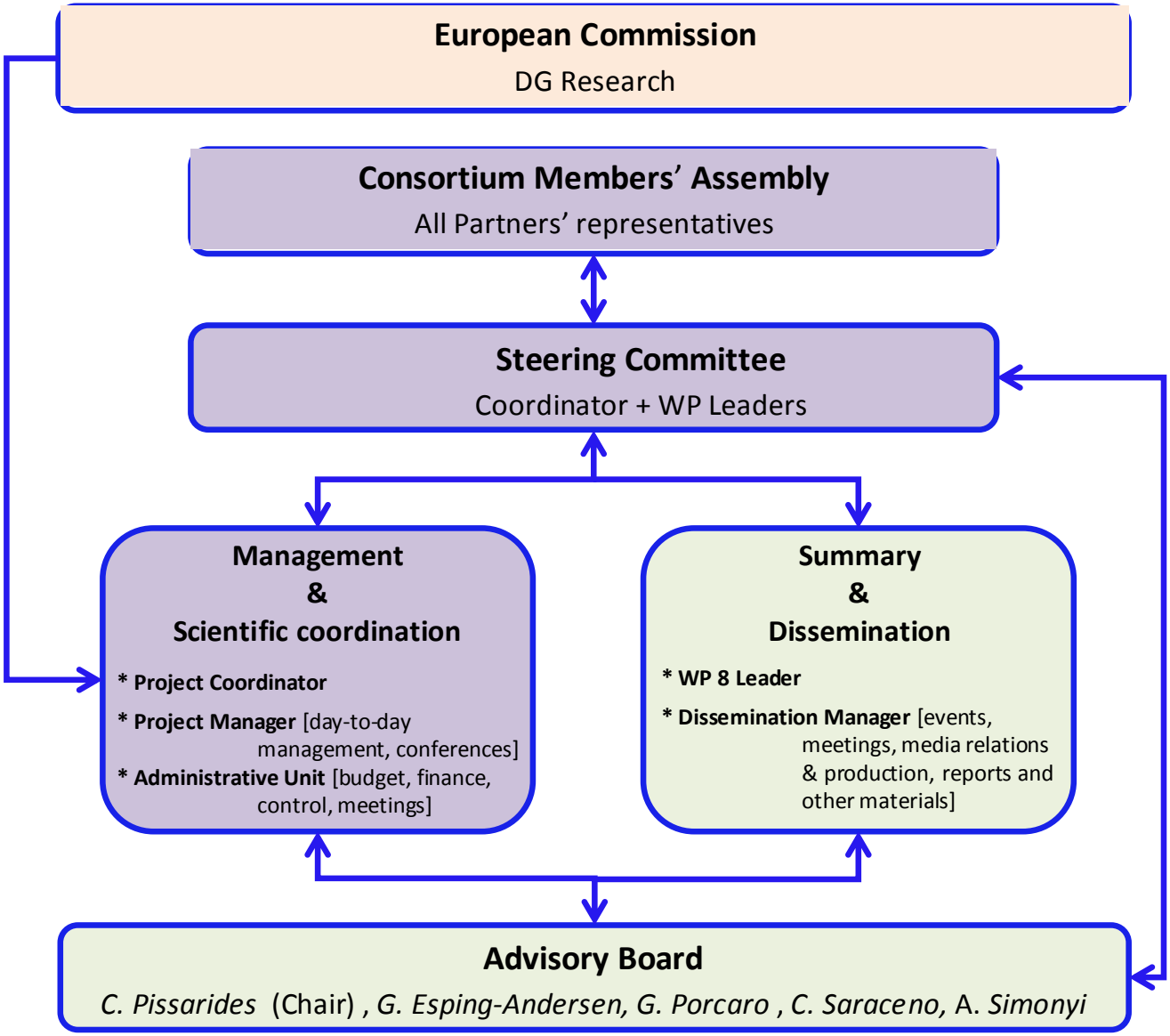
Each W.B.E. (Work Breakdown Element) is linked to one and only one of the elements of the higher level.

The work required to complete the W.B.E. is the result of the work contained in all the lower WBEs.

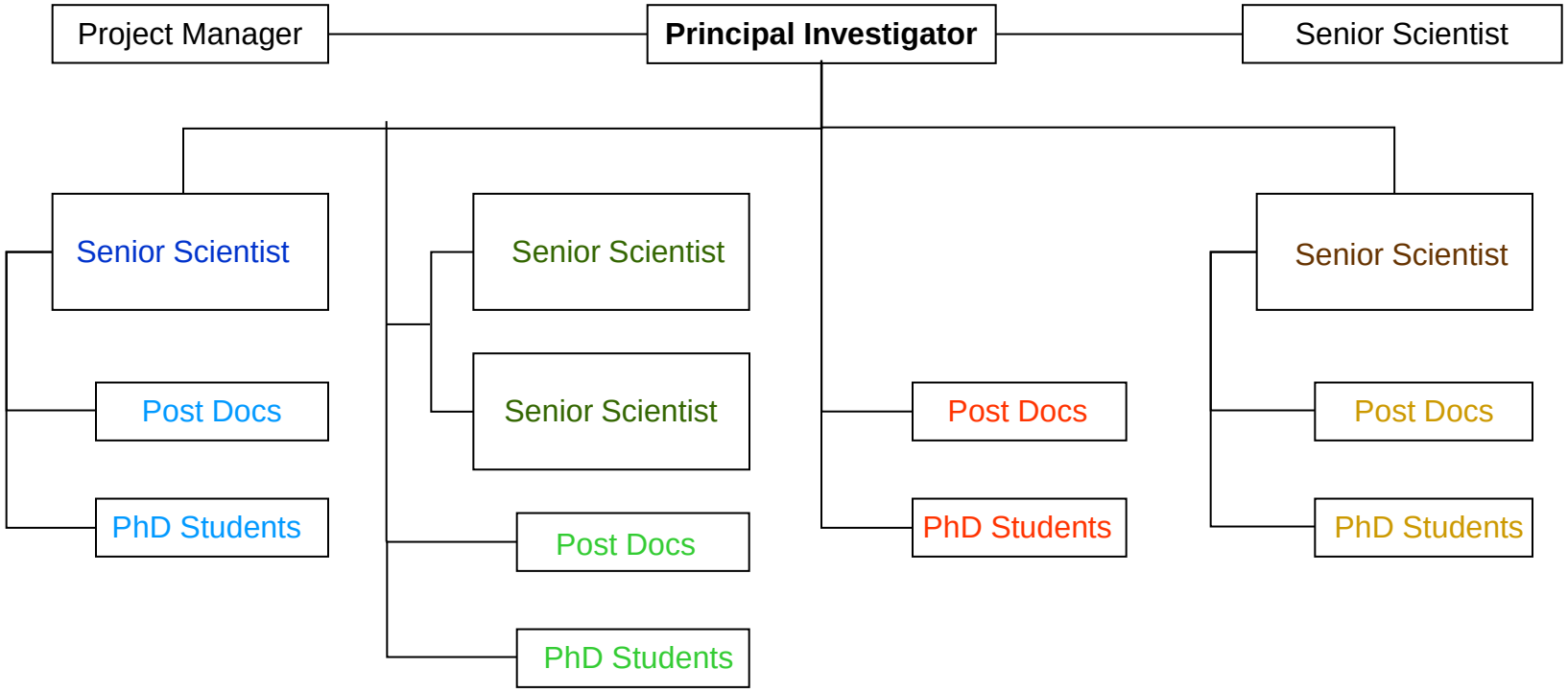
W.B.S. Work Breakdown Structure



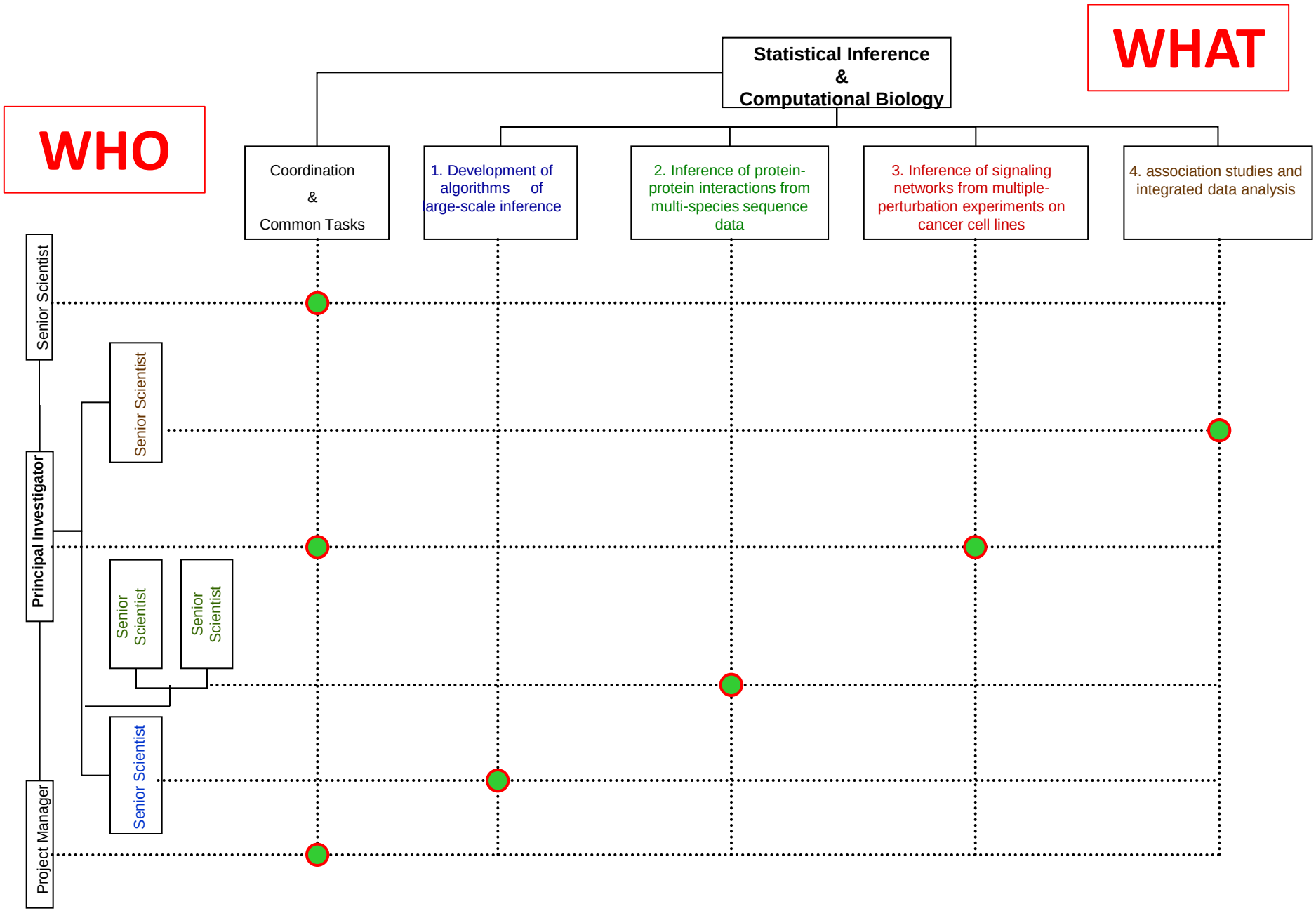
… management structure



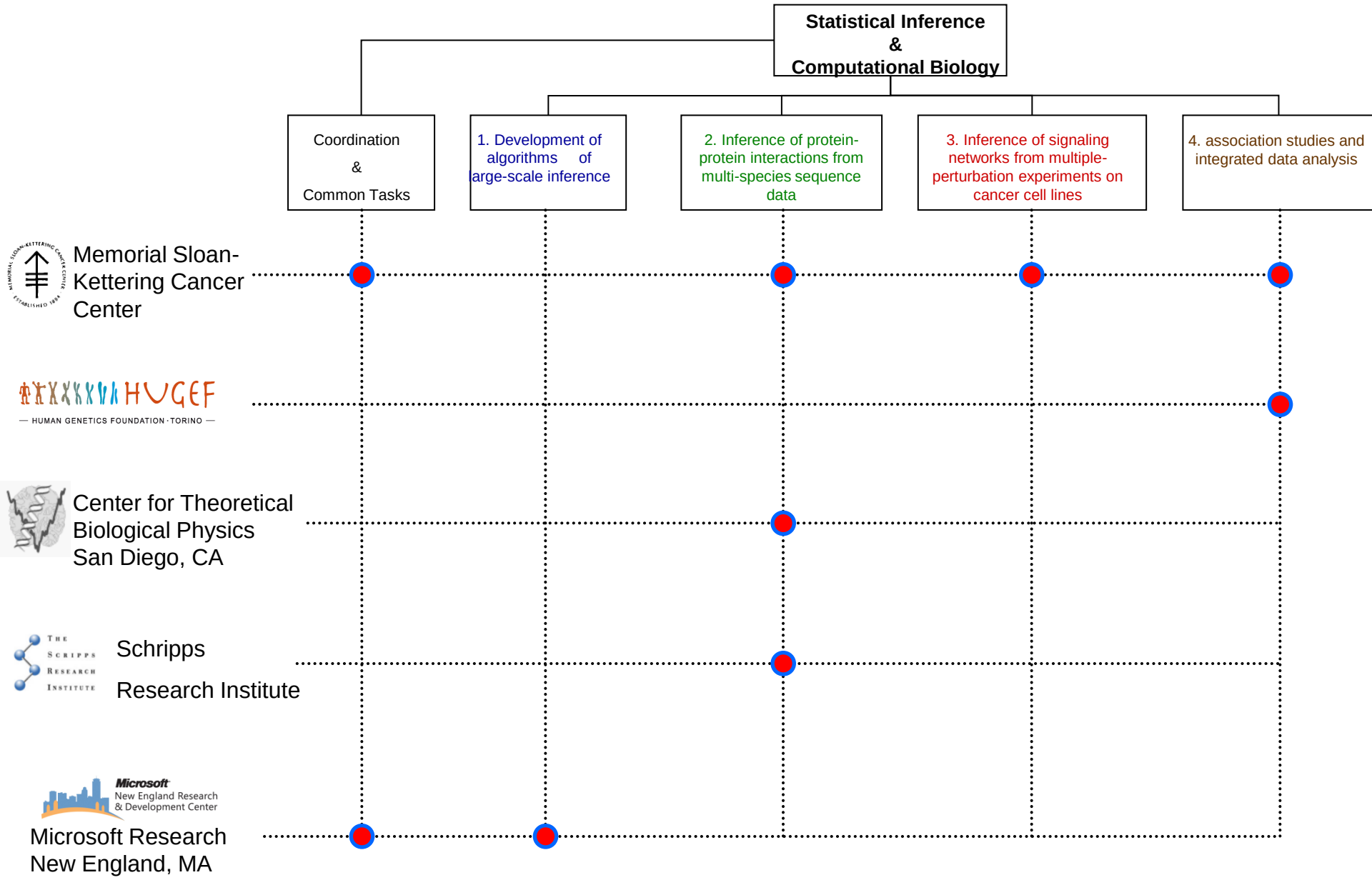
O.B.S. Organization Breakdown Structure



R.A.M. Responsibility Assignment Matrix



… collaborations

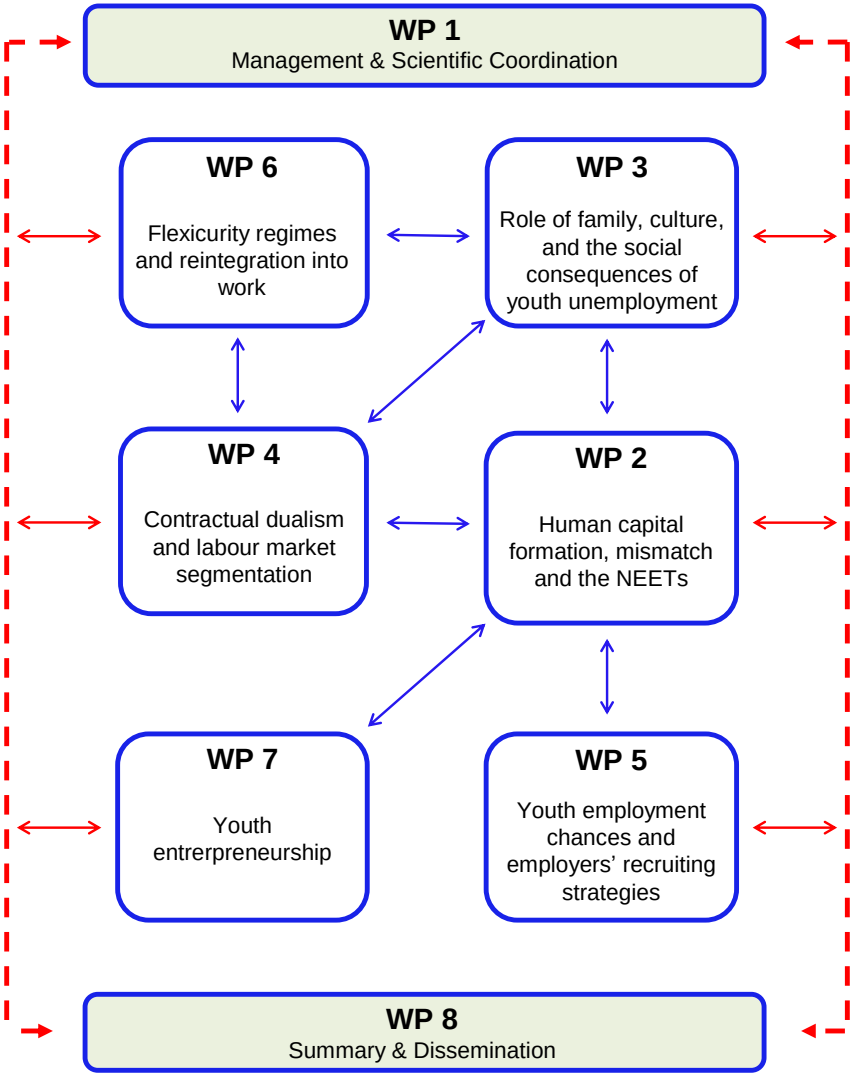


PERT diagram

The **Program** (or **Project**) **Evaluation and Review Technique**, commonly abbreviated **PERT**, is a tool, used to analyze and represent the tasks involved in completing a given project.

PERT is a method to analyze the involved tasks in completing a given project, the time needed to complete each task, and to identify the minimum time needed to complete the total project.

PERT was developed primarily to simplify the planning and scheduling of large and complex projects.



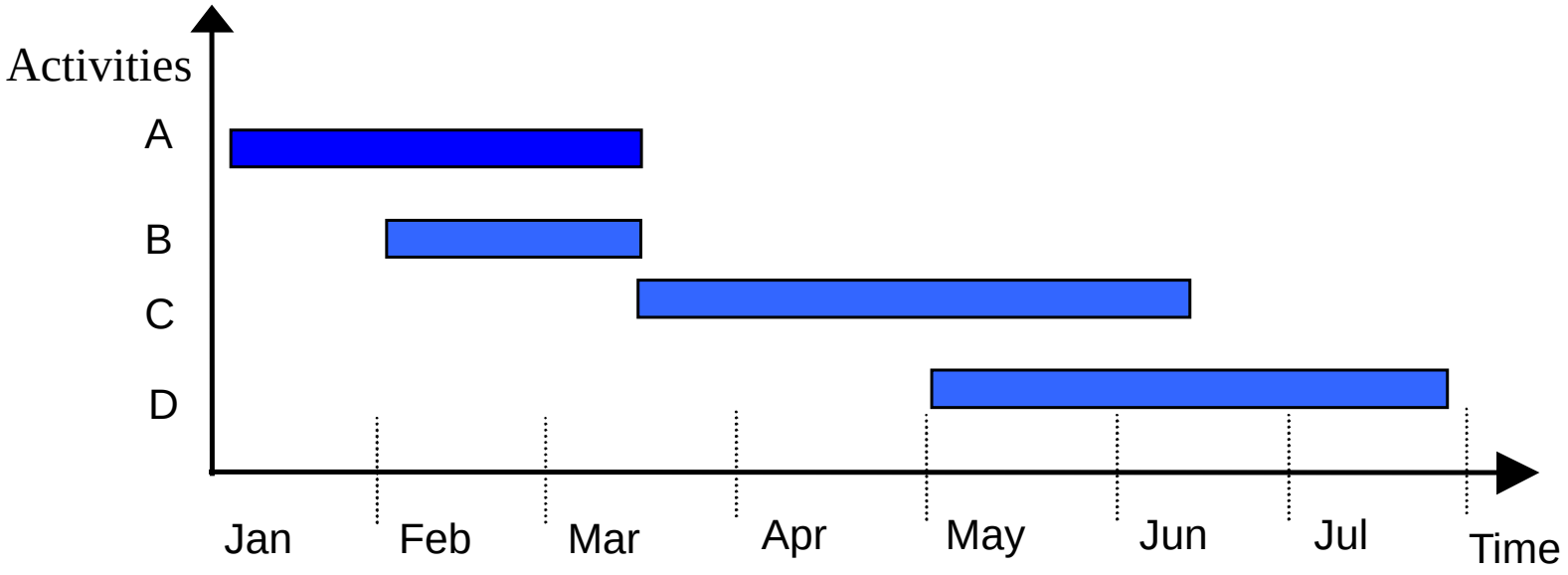
Gantt diagram

It is a representation of the evolution of the project on a **temporal scale**.

Each segment represents a specific W.B.E.

The length of the segment is proportional to the duration of the related activity.

It is useful to **monitor** the **implementation** of the project and to spot **criticalities**



Deliverables

A **Deliverable** is a tangible or intangible object produced as a result of the project that is intended to be delivered to a customer (either internal or external).

A deliverable could be a report, a document, a server upgrade or any other **building block** of an overall project.

A deliverable may be composed of multiple smaller deliverables. It may be either an **outcome** to be achieved or an **output** to be provided.

A deliverable differs from a milestone in that a milestone is a *measurement of progress* toward an output whereas the deliverable is **the result of the process**.

For a typical project, a milestone might be the completion of a product design while the deliverable might be the technical diagram of the product.

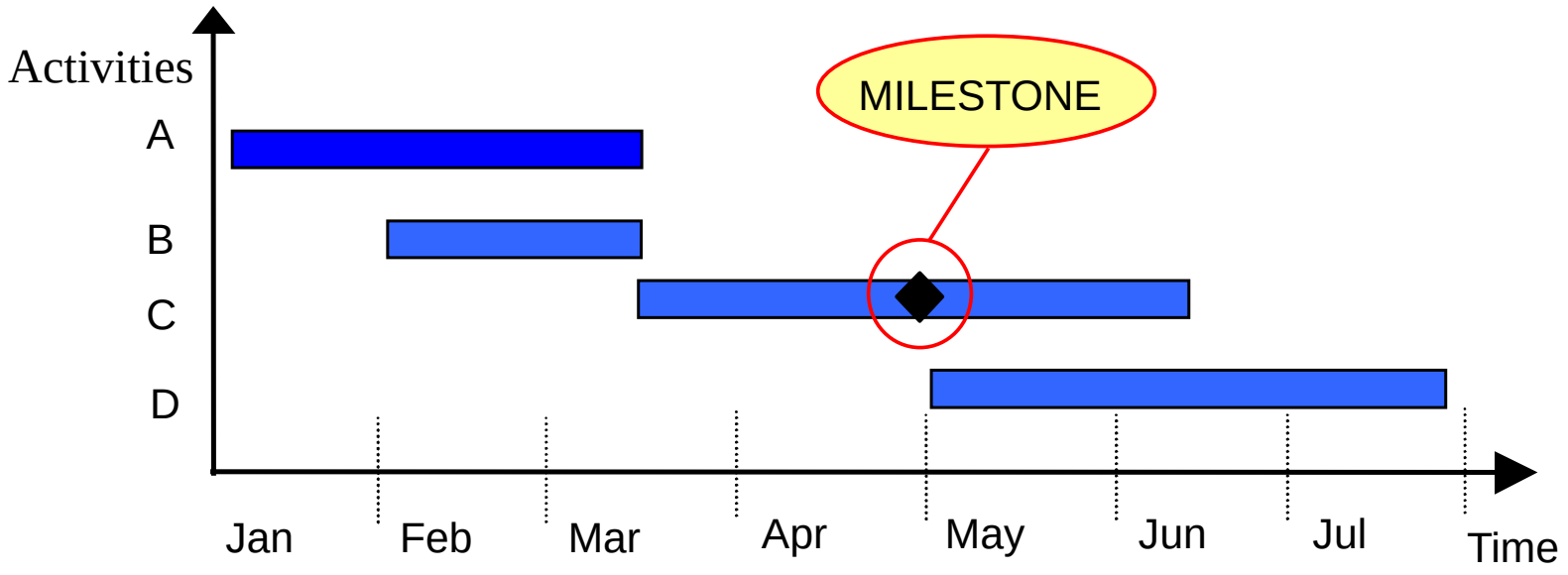
Milestones

A **milestone** is an event that receives special attention.

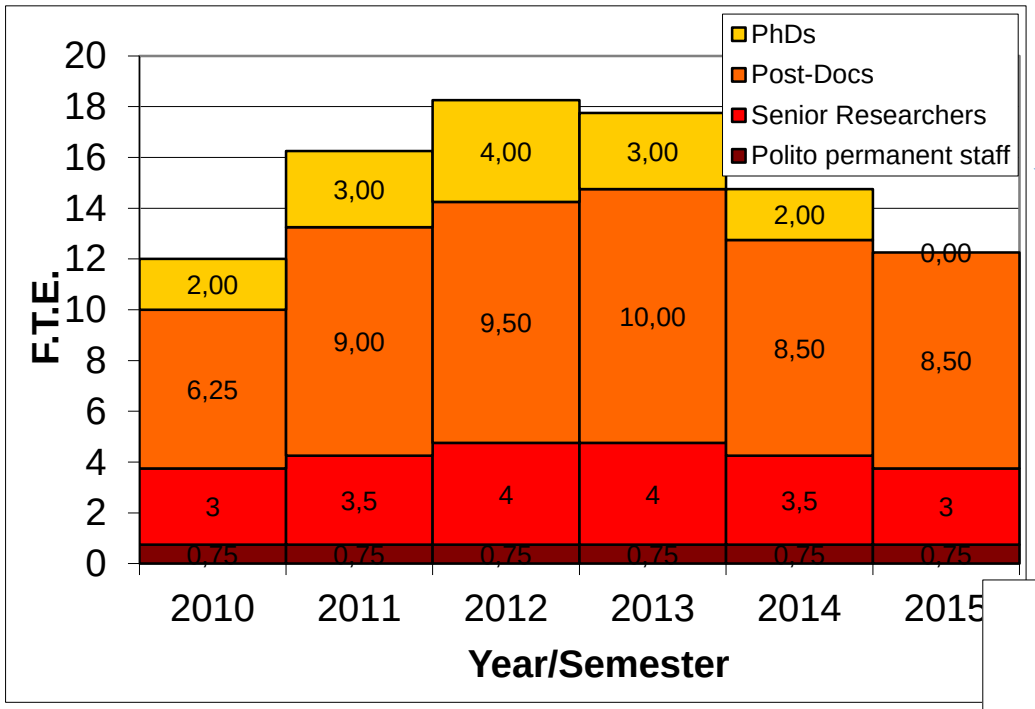
It is often put at the end of a stage to mark the completion of a work package or phase.

Milestones can be put before the end of a phase so that **corrective actions** can be taken, if problems arise.

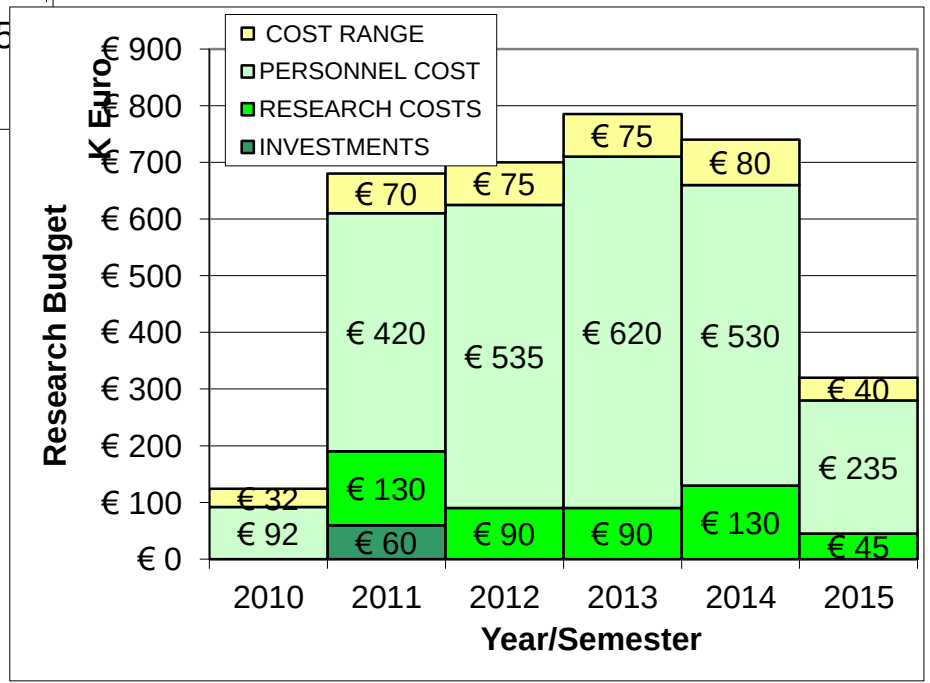
A milestone may also signify an **important decision** or the derivation of a critical piece of information, which outlines or affects the future of a project.



Use of [human] resources & Budget



Budget



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