

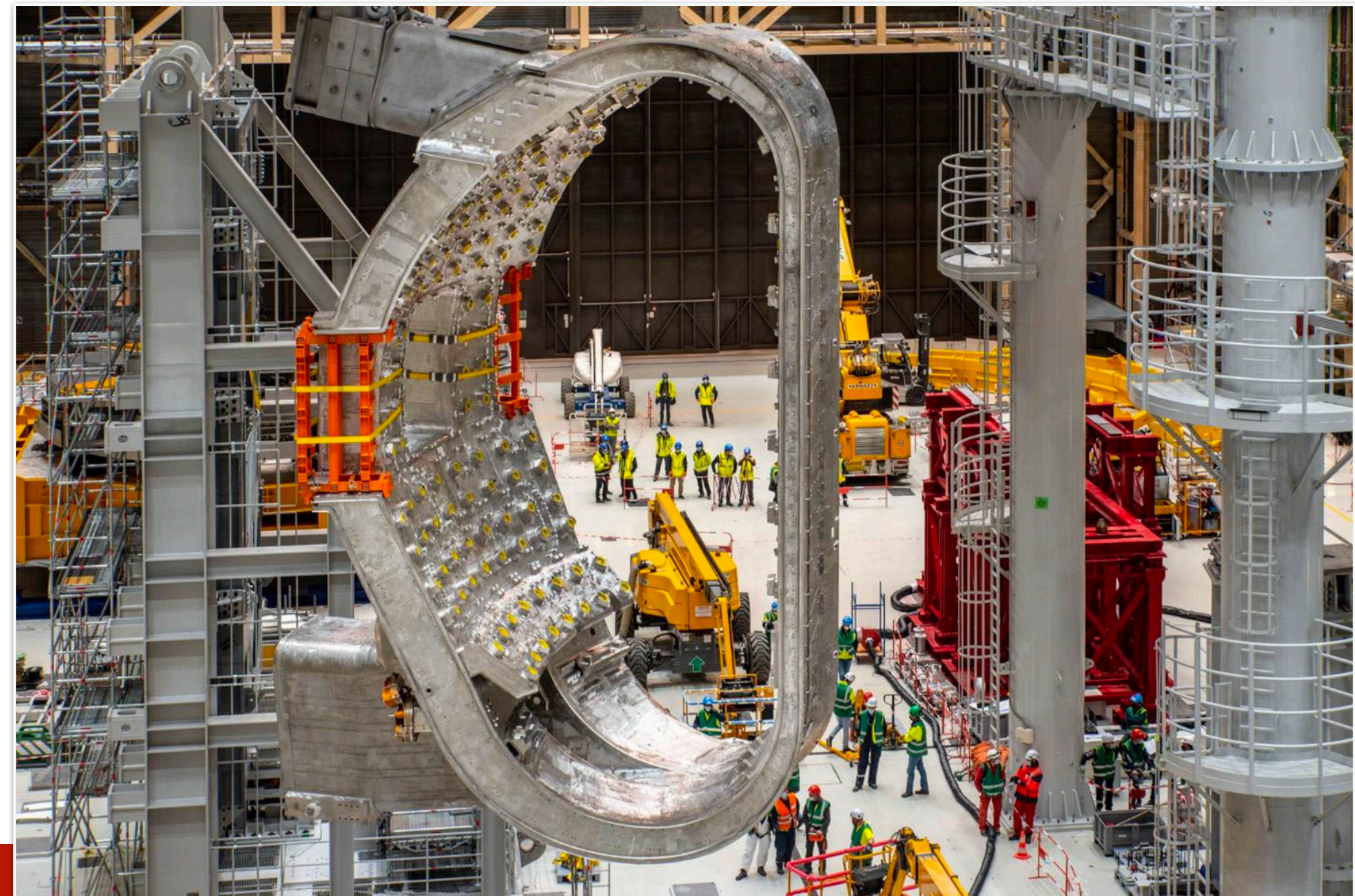
News from ET-coordination

ESFRI coordinators Antonio Zoccoli (INFN) & Stan Bentvelsen (Nikhef)

You are developing an absolute magnificent infrastructure!

- Big Science:
 - “Big Science, style of knowledge initiative [...] characterized by large-scale participation, supported by funding from communities of people, in which activities are performed by large groups of experts and craftsmen.”

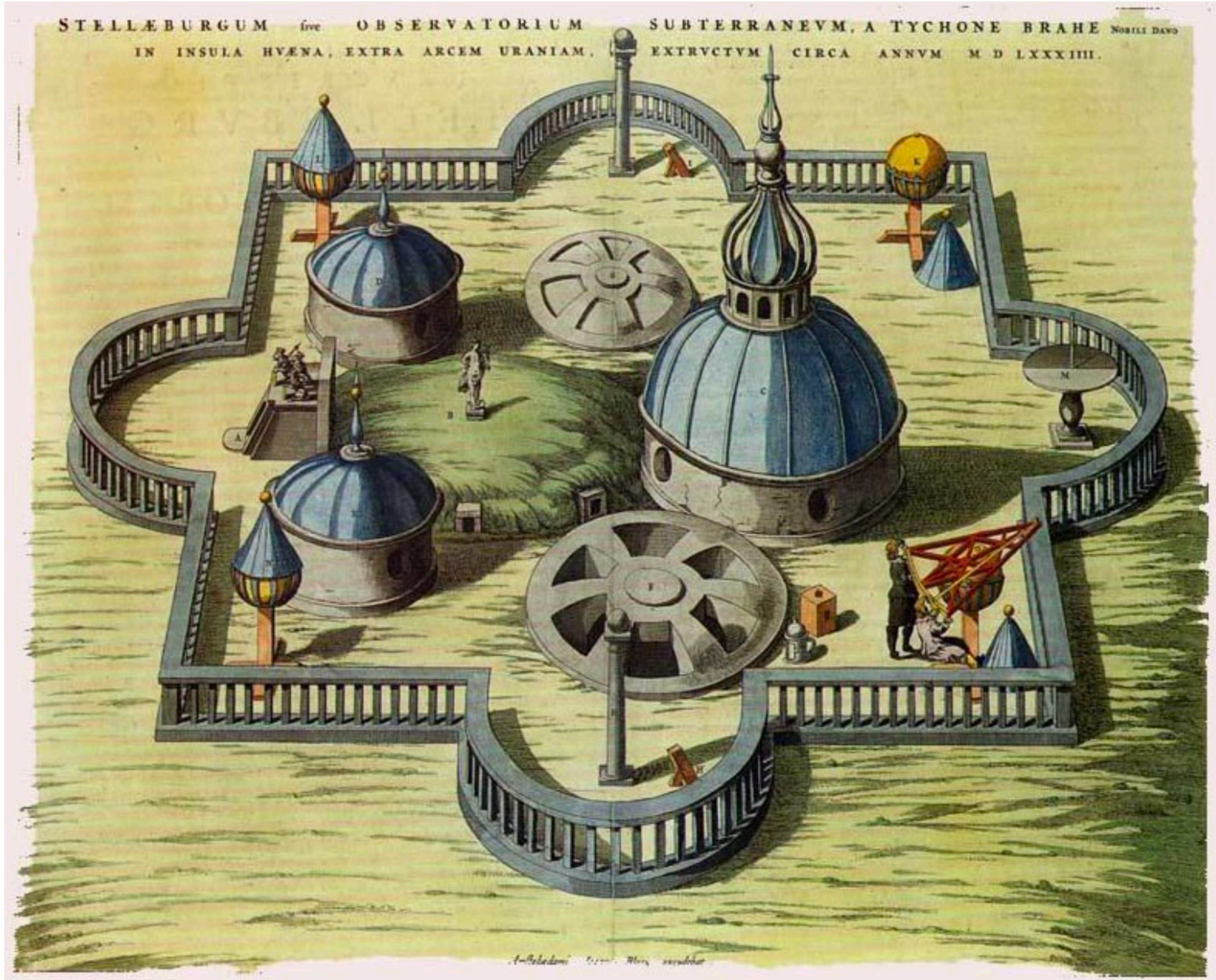
Leonardo Biagioni - ITER



What is Big Science?



Earlier Big Science



European Strategy Forum on Research Infrastructures **ESFRI**

- Support for a coherent, strategy-led approach to Research Infrastructures

Einstein Telescope on the Roadmap since 2021

- Submitted by *Italy, Belgium, Netherlands, Poland and Spain*
- BSR members include: *Austria (obs), France, Germany (obs) and UK*

ET Consortium coordinated by Italy and the Netherlands

- INFRADEV Preparatory Phase lead by Mario Martinez (SP), as part of ETO

Big Science: Einstein Telescope

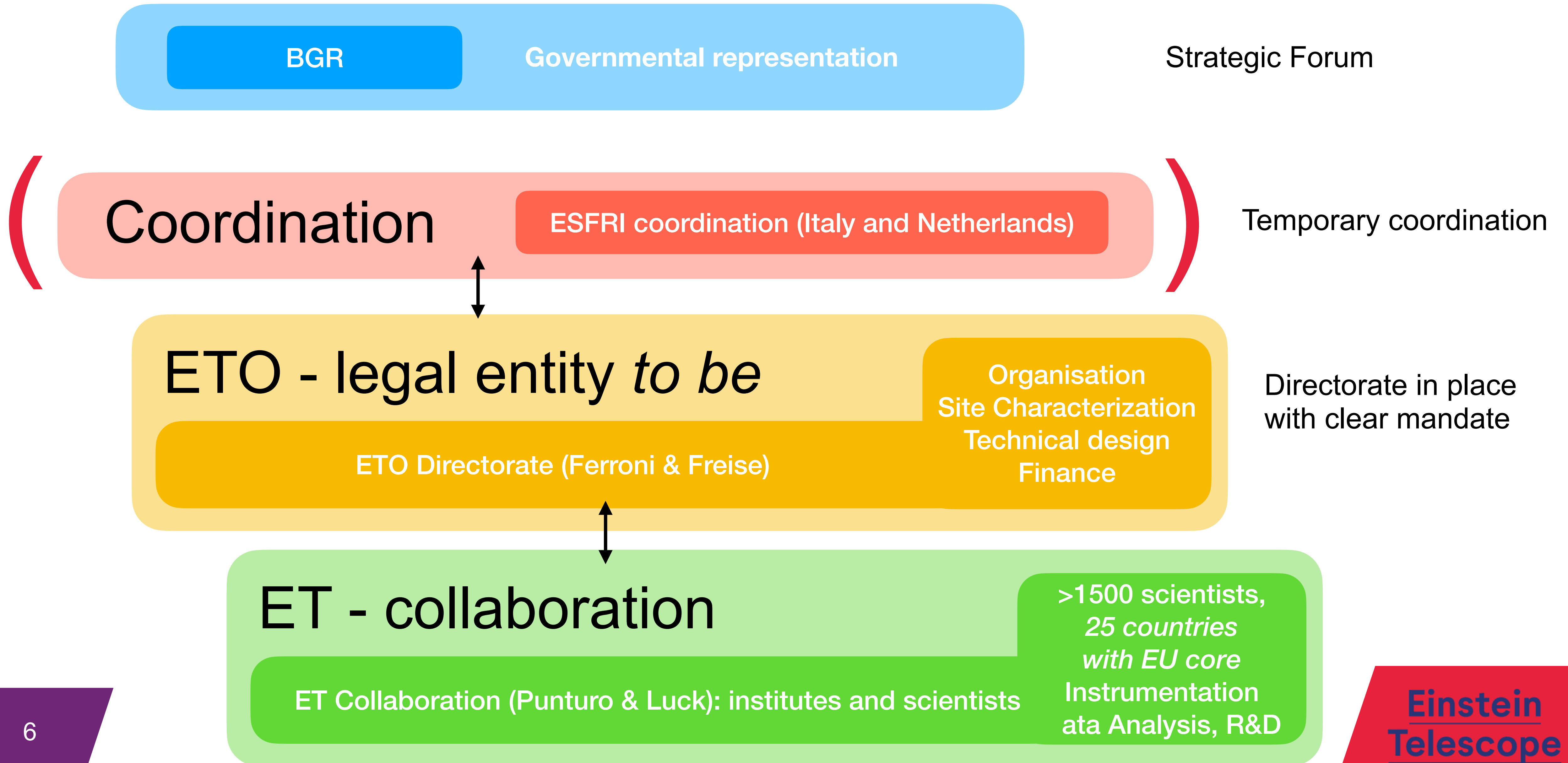
ET enters a crucial phase

- The (political) momentum for ET in Europe is large
- We have some basic uncertainties on the (design of the) infrastructure

Good and effective organization is mandatory!

- Timelines are short and the expectations are high
- Further intensify professional project management

EUROPEAN GOVERNANCE SET-UP



BGR: terms of reference (ToR)

Established as strategic forum

- To discuss and agree on the progress and process of realizing ET, with coordinators
- Prepare and approve the documents needed for the setting up of the ET legal entity

ET BGR will especially aim to reach consensus on

- the procedure to select the host country for the ET
- the legal model, governance structure and founding documents;
- the financial plan and the draft internal financial rules;
- policy papers;
- the procedure for selection of the Interim Executive Director when needed;
- any other issues deemed necessary by the ET BGR and its members.

A dual structure:

1) project organisation (towards legal entity) and 2) scientific collaboration

ETO (ET Organisation)

A project organisation to construct a legal entity to design, build and operate a research infrastructure.

ET Collaboration

The collaboration defines the scientific goals and requirements of the detector.

A few remarks

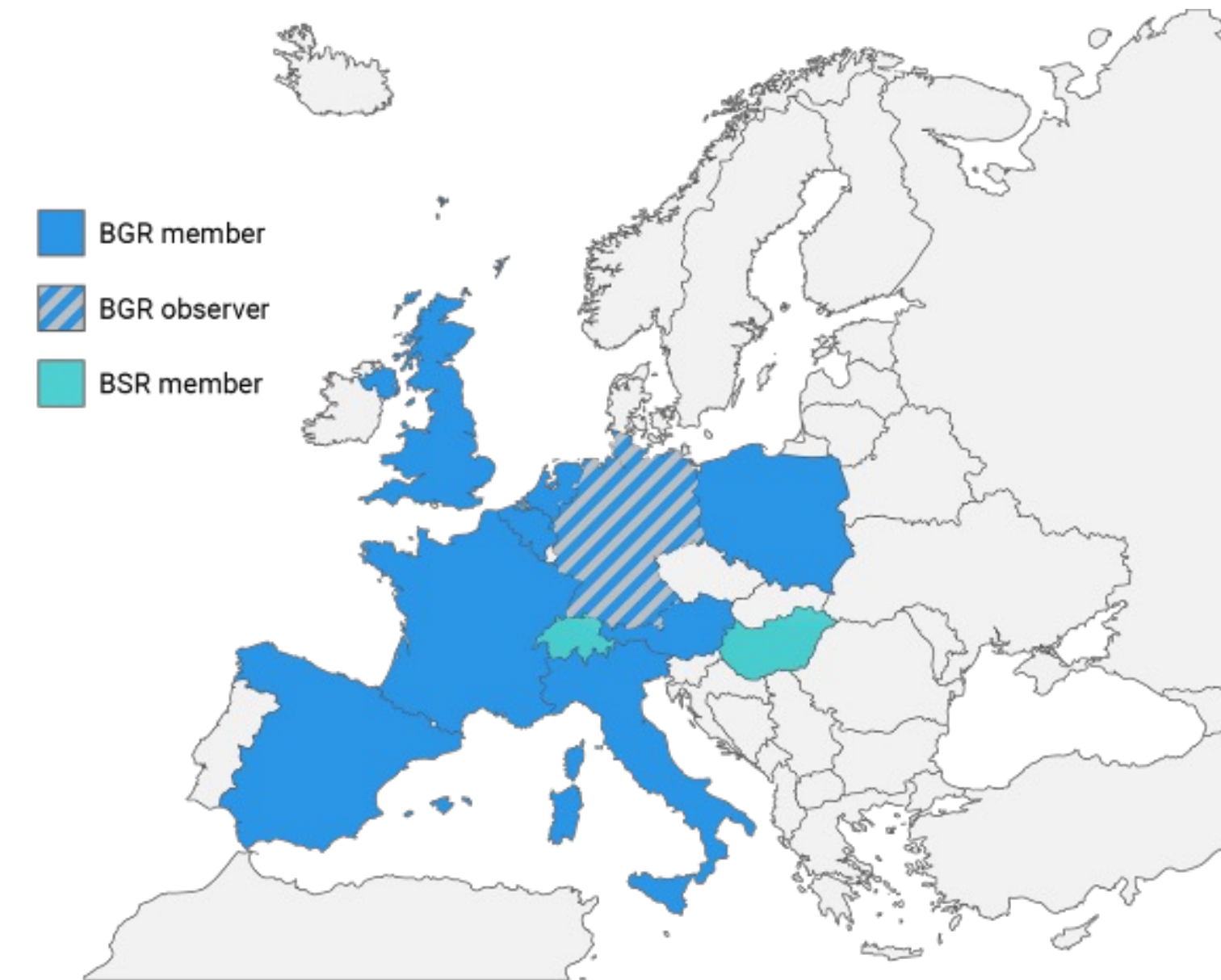
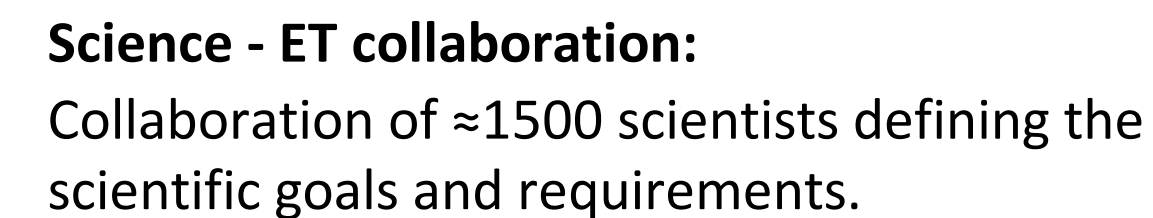
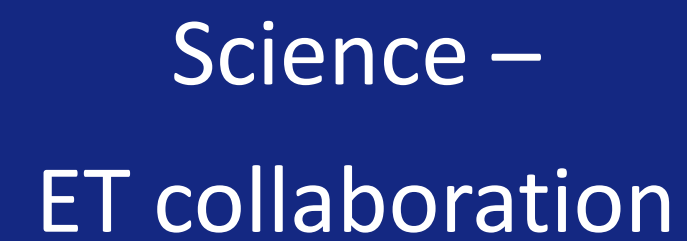
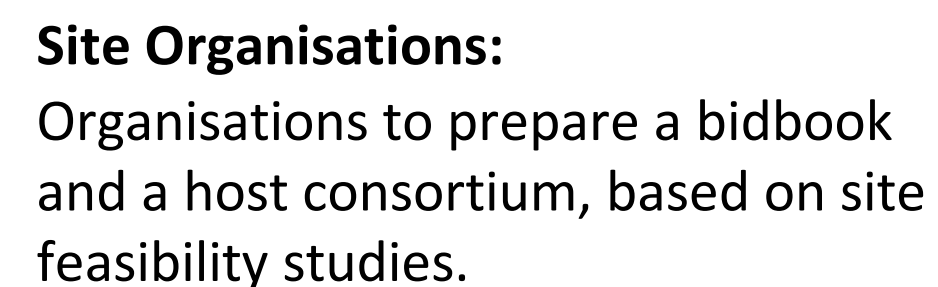
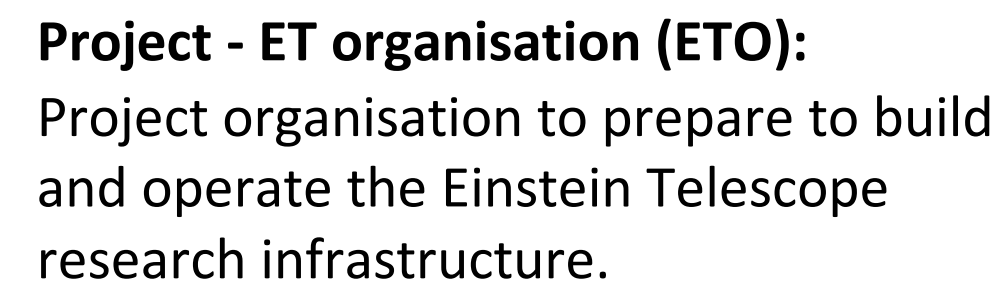
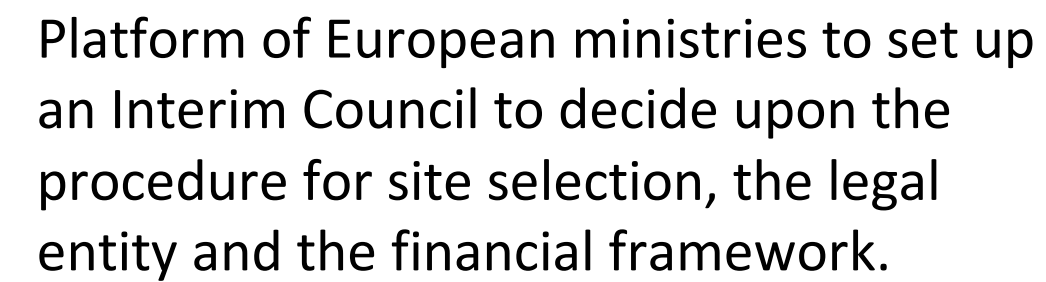
The organization of the ET may seem complex

- Scientific community has initiated the idea of ET some 20 years ago
 - You have become an international powerful collaboration
- Organisation inspired by CERN
 - Council: BGR
 - Accelerator complex: ETO
 - Detectors: ET collaboration

It is our intention to establish a *lean* organizational ETO structure

- Provide ETO with sufficient tools to design the infrastructure
 - Production of deliverables needs to be efficient and effective
- Ramp-up: ETO needs some time (and funding)

Governance; European context



Mandate of the ETO

The ET Directors are mandated by the ET Coordinators to:

1. Set up the organization and the operations of the ETO
 - Defining the structure of the ETO (Phase I)
 - e.g. setting deadlines and quality control criteria.
2. Compare the triangle geometry with the geometry of two L-shaped infrastructures
 - In scientific potential, risk analysis and costs
3. Develop a budget plan and schedule for the Design and Preparation Phase I
 - Control the budget and account for the funds allocated to the ETO (Phase I) by the ET Coordinators
4. Steer and oversee the studies and the production of the documentation
 - For the BGR to be in a position to review, modify, update and approve the report and finally set-up the organization for the construction and operation of the gravitational wave detector.

ETO funding

Funding of ETO - funding agencies

- ETO needs funding to provide its deliverables
 - Provide a tool to the ETO directorate for all technical studies and deliverables
 - Keywords: *high quality, solid, robust*
- At the level of the funding agencies we plan to establish an 'ETO fund'
 - ETO needs an MoU based agreement to receive contributions
 - Cash and in-kind contributions at national and institutional levels
 - IFAE will provide the administrative support
 - We set-up an 'Resources Review Board' with the participating FA's to oversee the spendings
 - ET-PP WP2 is will soon provide the MoU for the ETO fund

Funding the ETO

First overview of necessary actions and a working organization

- Contribution needed: 6-9 ME cash and 6 ME in-kind for the period 2024-2026

- Utilize the expertise of CERN

- Technical expertise

- CERN contract on civil engineering signed by INFN, IFAE and Nikhef

- Management and support

- Personel (mostly in-kind)

- staff: 1.5 ME/year
 - support: 0.5 ME/year

- Cash contribution - mostly CERN
 - CERN expertise for TDR (budget estimates):
 - Vacuum pipe design CERN (1.2 M€)
 - Civil engineering design (1.4 M€):
 - CERN Consultancy Services (0.9 M€)
 - Civil engineering studies (0.5 M€)
 - Detector installations design studies (~3.0 M€)
 - Site evaluation report (0,5 M€)
 - Management (phase 2 – 4):
 - Planning Report (1 M€)
 - Health and safety plan (0.5 M€)
 - Budget and risk plan (0.5 M€)
 - Supporting (CERN requests):
 - Document management system (0.5 M€)
 - Engineering support (0.5 M€)

Main current responsibilities of ETO

1. Constructing the roadmap

- A bottom-up inventory of tasks and deliverables to design the infrastructure

2. Advising on the geometry

- Combination of scientific performance, feasibility, risk and cost
 - during construction and operation phase
- Consider international scenario's

3. Advising on the site(s) for ET

- Site criteria that includes politically and financially motivated elements

4. Technical design reports

- Develop detailed designs for the various geometries

5. The detailed time sequence

- So that site organizations can produce a reliable bidbook by 2026

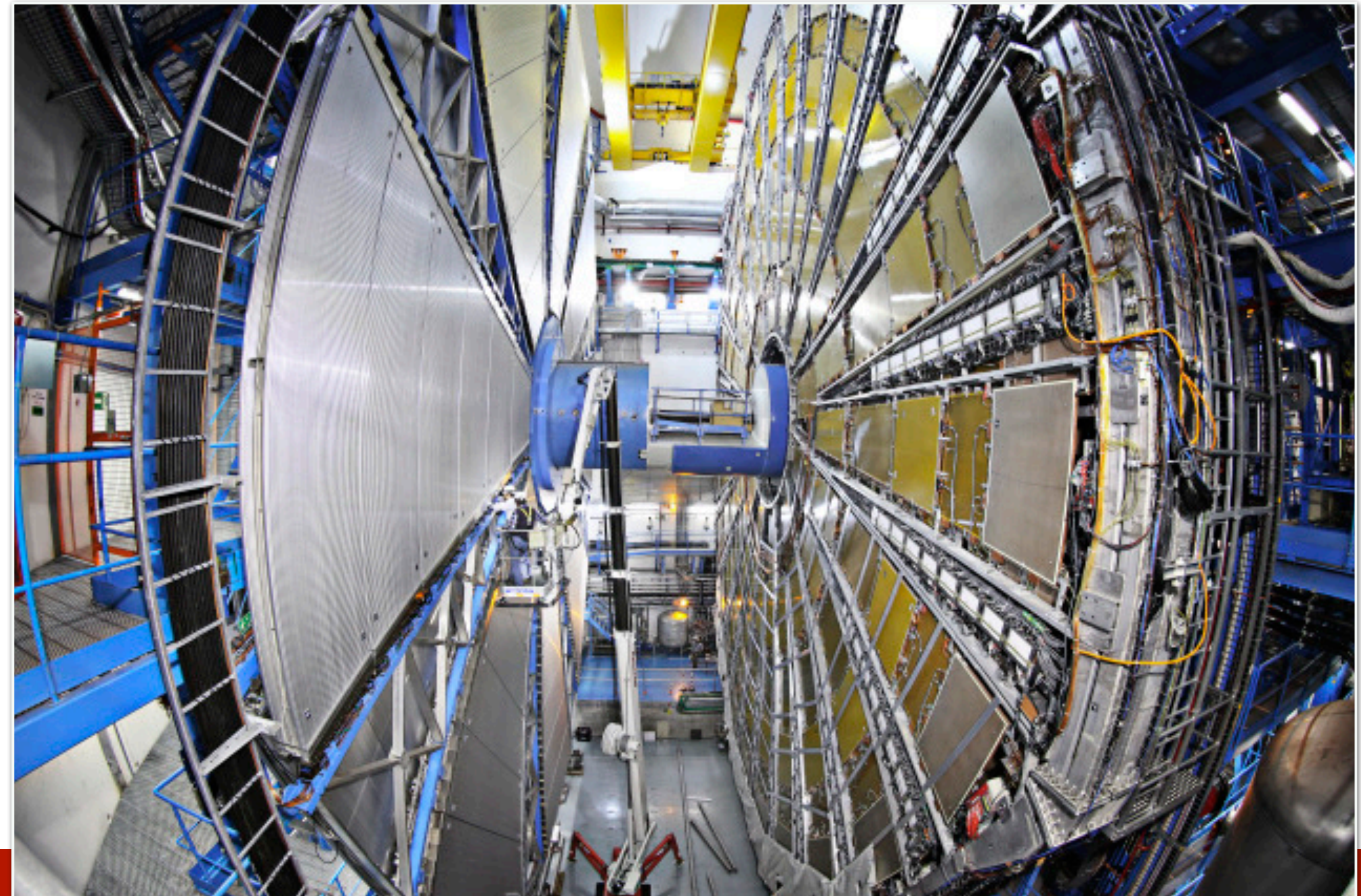
Responsibilities of the ET collaboration

The scientific design: done by the collaboration

- E.g. optical design or attenuation benches, etc...
- Requirements on the infrastructure

Where lies the ownership?

- E.g. construction of the instrument subsystems by institutes together with industry
 - Does this fit in the current setup?
- My ATLAS experience:
 - Institutes were/are in competition to take construction responsibilities



ET coordinator meeting with ETO and ETC

Recent meeting with ETO and EB of ET

- ET is a complex project.
 - Smooth interaction between the various bodies is mandatory to make good progress.
- A review of the current organization seems natural
 - We will setup an external review procedure during the coming months.
- On the short term, an 'internal ET working group' will focus on ETO-ETC
 - The charges of the working group to be discussed.
 - With the aim for further increase the team building between ETO and EB
 - We plan to review regularly, as inspired by e.g. the LHCC at CERN

Clear procedures, with the aim to work effectively!

Next BGR meeting

Meeting in October 2024

- Mature discussion on the legal entity of ETO
- Update on the roadmap presented by ETO
- Timeline on decisions , e.g. geometry and location
- Procedure for the bidbook

We look forward to further contributions from the ET collaboration!