EINSTEIN TELESCOPE ORGANISATION

ETO Project Overview

Fernando Ferroni

ET-PP 2 November 2026

Overview

- **Departmental updates**
  Brief updates from all ETO departments
- **In-kind personnel framework**
  Update on the framework development
- **Cost sharing memo**
  Raising awareness of the cost sharing

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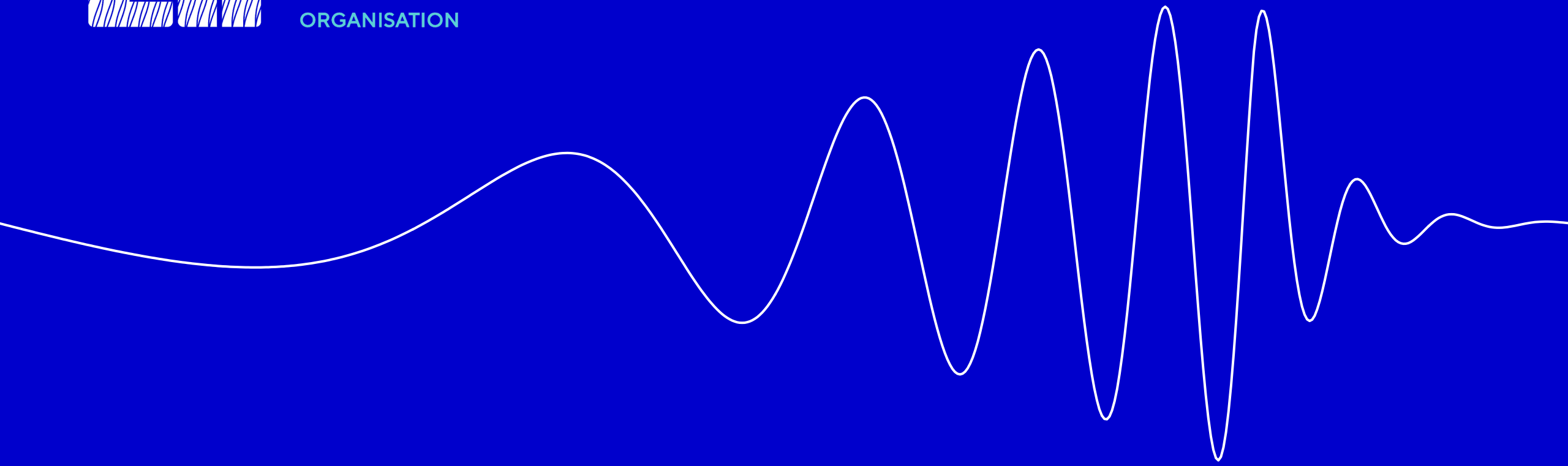

Directors’ Office

CERN's 2026-2030 Strategy commits to supporting ET

ET is explicitly named in CERN's strategy, giving a firm basis for continued collaboration through the preparation phase.



> *[…] Furthermore, given the significance to European science of the proposed Einstein Telescope (ET), CERN will continue its support through* ***externally funded activities****, including vacuum, civil engineering and other relevant technologies where CERN has unique and critical expertise.*

CERN's strategy and main objectives for the period 2026-2030 – Pillar 3, Aim 12

CERN and ESA extensions secure key expertise beyond 2026

ETO is negotiating extensions under both collaborations to retain access to internationally recognized expertise in areas critical to the ET preparation phase.

CERN



Scope

Collaboration spans Vacuum, CE, TI and Safety.

Current Agreement

Civil Engineering Collaboration ends in Dec 2026

Proposed Extension

2027-2028

ESA



Scope

Collaboration spans strategic and technical advice on Costing

Current Agreement

TPA ends in Dec 2026

Proposed Extension

Extend and expand support beyond 2026

- ✓ Retains trusted, independent expertise of Europe's two leading Research Organisations
- ✓ Strengthens technical and cost preparation
- ✓ Supports transition from design studies to implementation planning

Next steps – Q4 2026

Finalise CERN extension & advance ESA discussions

ETO Funders Group Meeting in Rome

EFG: Established through the 2024 MoU

- Joint ETO Fund created by Nikhef, INFN, BELSPO and FWO
- Establishes the ETO Funders Group (EFG)
- Appoints Nikhef as administrator of the Fund; Operational arrangements governed through a dedicated Service Level Agreement
- IFAE acceded in December 2025



EFG members and guests at INFN, Rome, 16 July 2026

In person EFG meeting on 16 July 2026 | Rome

- IFAE participated for the first time as EFG member, Represented by Eugenio Coccia and Mario Martínez
- BMFTR joined as observer Represented by Eckart Lilienthal
- Updates were provided on the technical, financial and organisational progress of ETO

Upcoming meetings

10-11 November 2026

ET-COMPASS Consortium Meeting

Rome

- First in-person ET-COMPASS consortium meeting, jointly organised by ETO and INFN
- Bringing together all beneficiaries to prepare project implementation and coordination
- Ensuring a smooth start of the two-year EU-funded project

14 December 2026

ETO-CERN Coordination Meeting

CERN

- Annual ETO-CERN coordination meeting at management level
- Review of ongoing collaboration and progress achieved during 2026
- Discussion of future priorities and next steps for continued CERN support to ET

15-16 December 2026

ETO Annual Meeting

CERN

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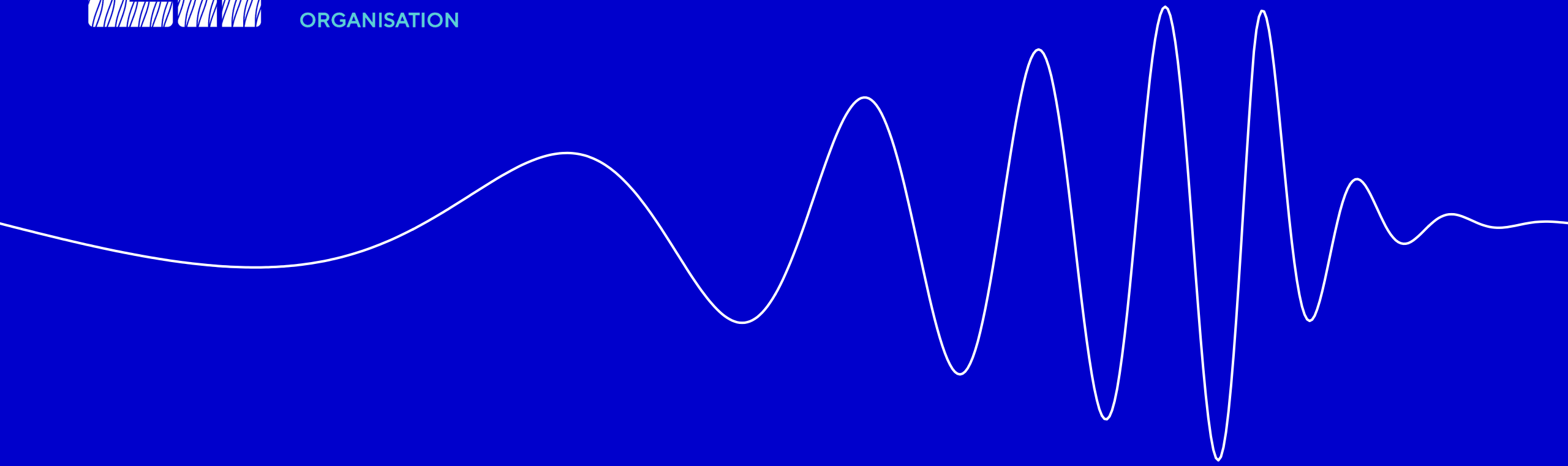

Project Office

Project Office: transitioning to a common, continuous framework

- The ETO project office led the **2025 Design Task Force** and the **2026 Geometry Comparison Report**.
- In both exercises we developed, introduced and further developed professional project management processes.
- These frameworks are new ingredients that ETO provided to the ET community and they will be essential for a cost-efficient and feasible project.
- **The challenge for the project office now is to manage a transition of these separate activities to a common, continuous framework for the whole Einstein Telescope project.**

Project Office: key next steps

- Data merging: 2025 Task Force, Pre-TDR and 2023 PBS to be merged into a single, consistent baseline.
- Process development: ETO collaborates with CERN to develop Configuration Management and 3D Integration processes, and with IMSE Aachen to develop Systems Engineering processes.
- Toolchain development: Development of Model-Based Systems Engineering (MBSE) tools and Configuration Management platforms enable centralised, professional environments and improves data availability.
- Organisational alignment: A strong alignment between ETO and others on a shared baseline and common tooling is imperative for effectiveness.

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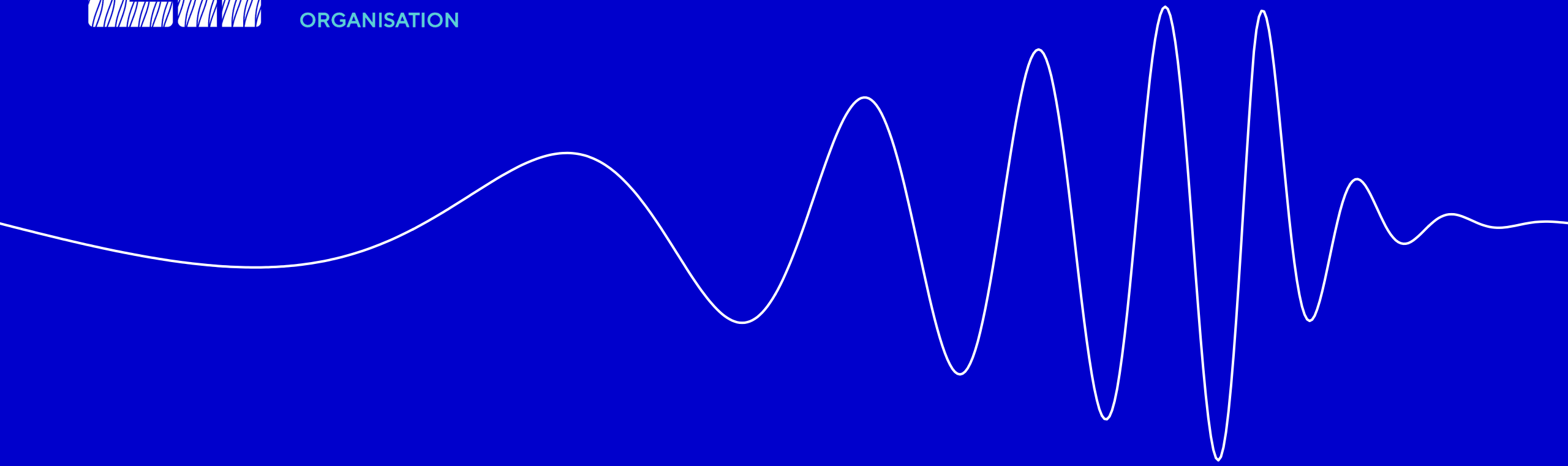
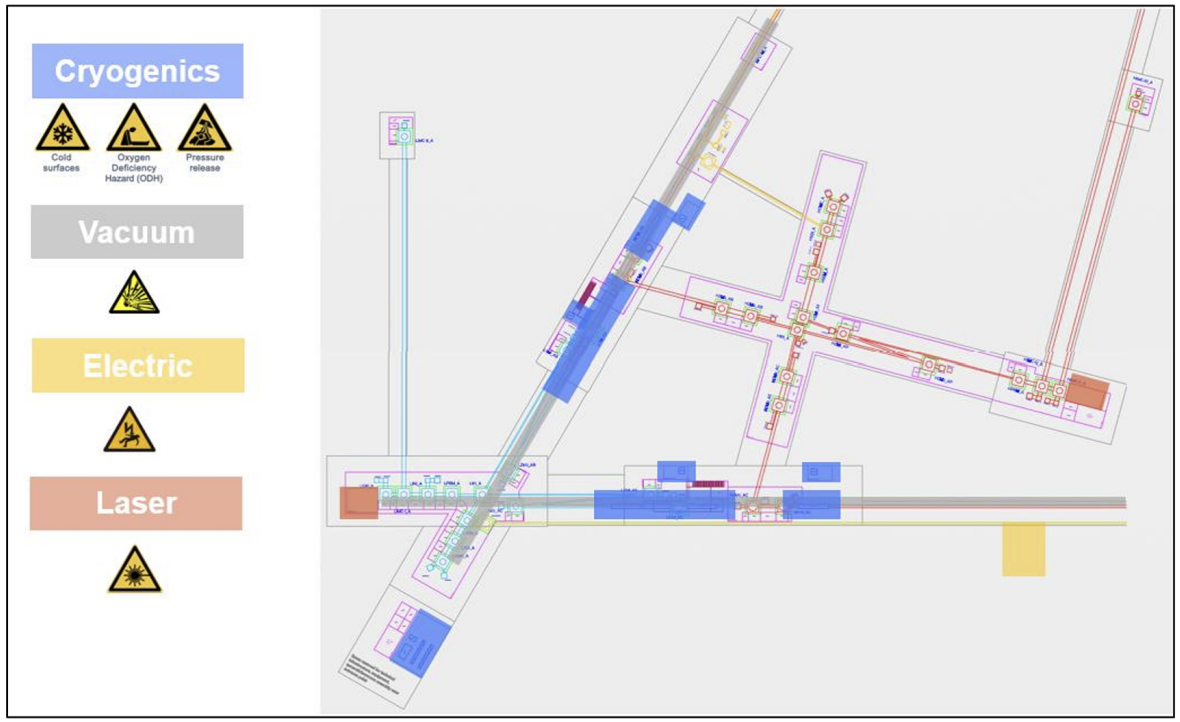


Engineering Department

ET-PP Deliverable 6.3

Status Report of the ET Research Infrastructure was submitted to the EU officer for approval.



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Deliverable 6.3
Status Report of the ET Research Infrastructure

ET-0230A-26 / 3459783

Writing team:
J. Bratanata, T. Bud, L. Hermida Peña, M. Marsella, R. Meijer, W. Wahbeh, P. Werneke
on behalf of
The Einstein Telescope Organisation

Issue:
Date: May 11, 2026
Updated based on review: September 31, 2026

This project has received funding from the European Commission Framework Programme Horizon Europe Coordination and Support action under grant agreement 101079696.
ET – Einstein gravitational wave Telescope – Design Study * A joint European Project
Web: http://www.einsteintelescope.eu

Engineering Department visit to CAOS and LNGS

CAOS: Center for Gravitational Wave Applications and Seismology
LNGS: INFN Gran Sasso National Laboratory

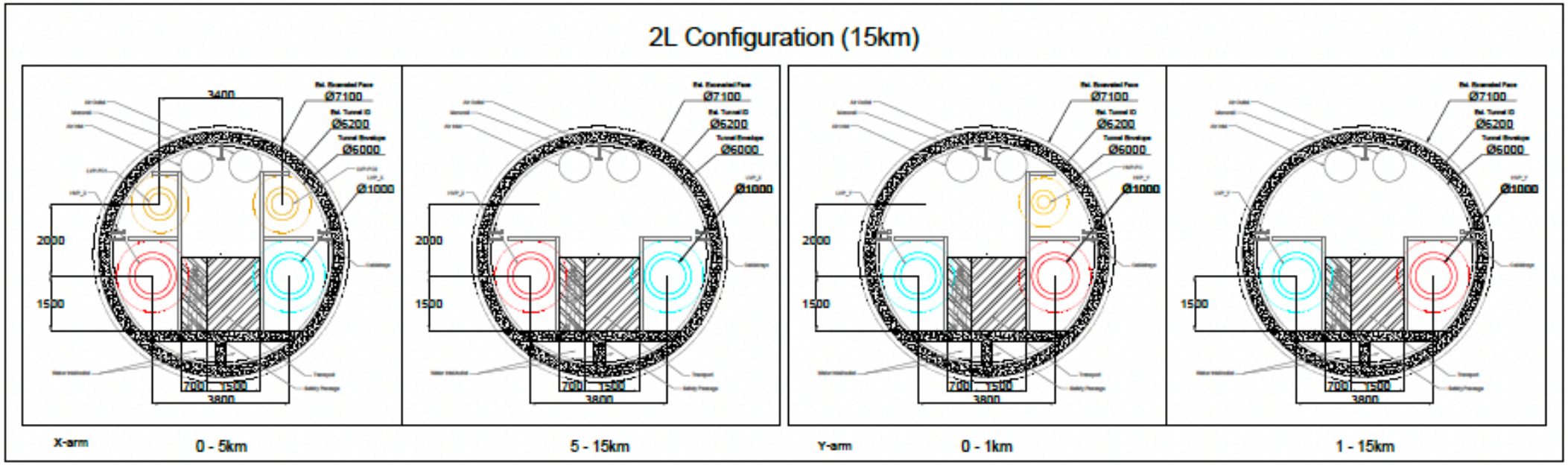
- Visits in September 2026 to discuss infrastructure for large towers: access, cleanrooms, scaffolding, servicing, …
- Integration of large towers underground
- Safety in underground areas: lessons learned: electronics, ventilation, cooling, fire safety, cryogenics, …



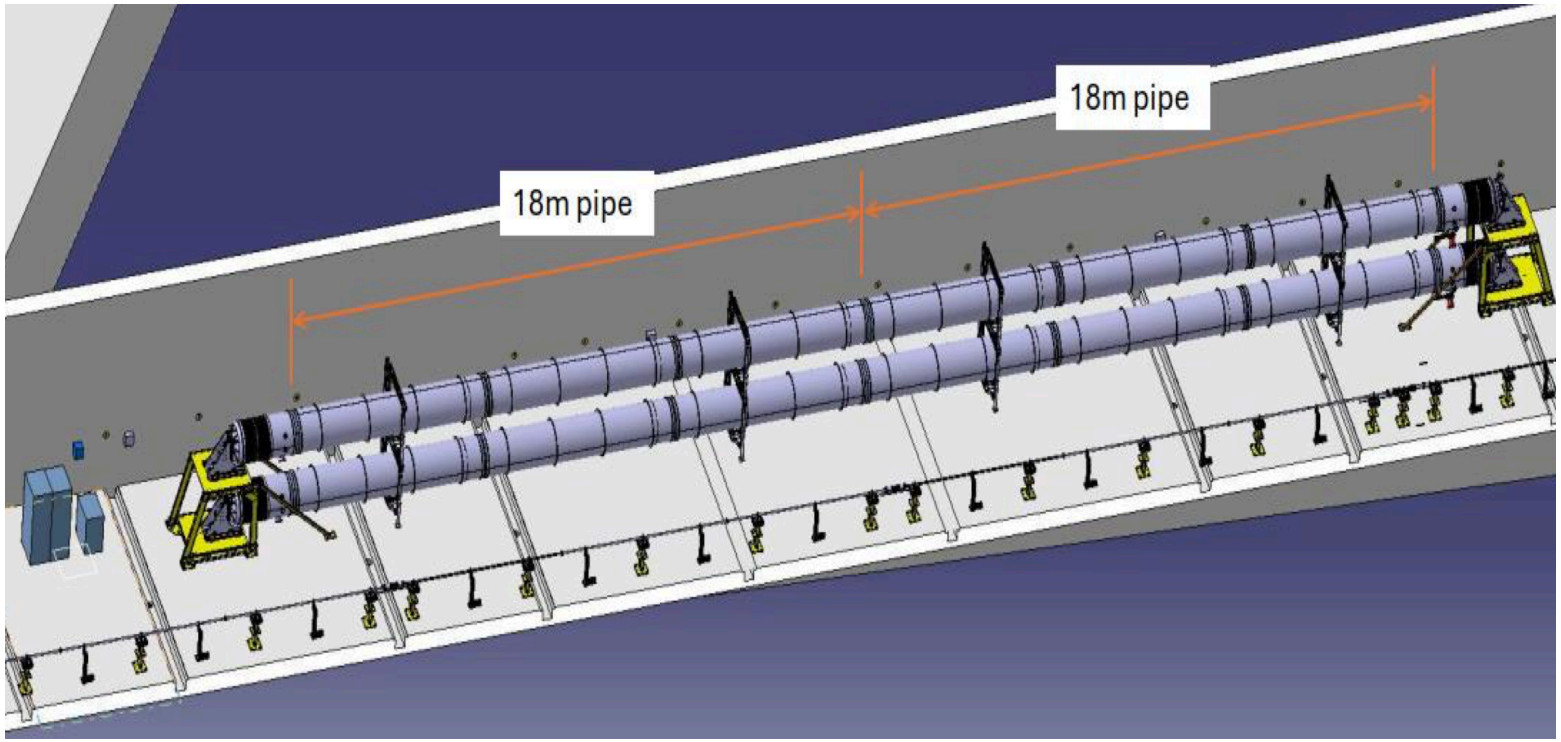


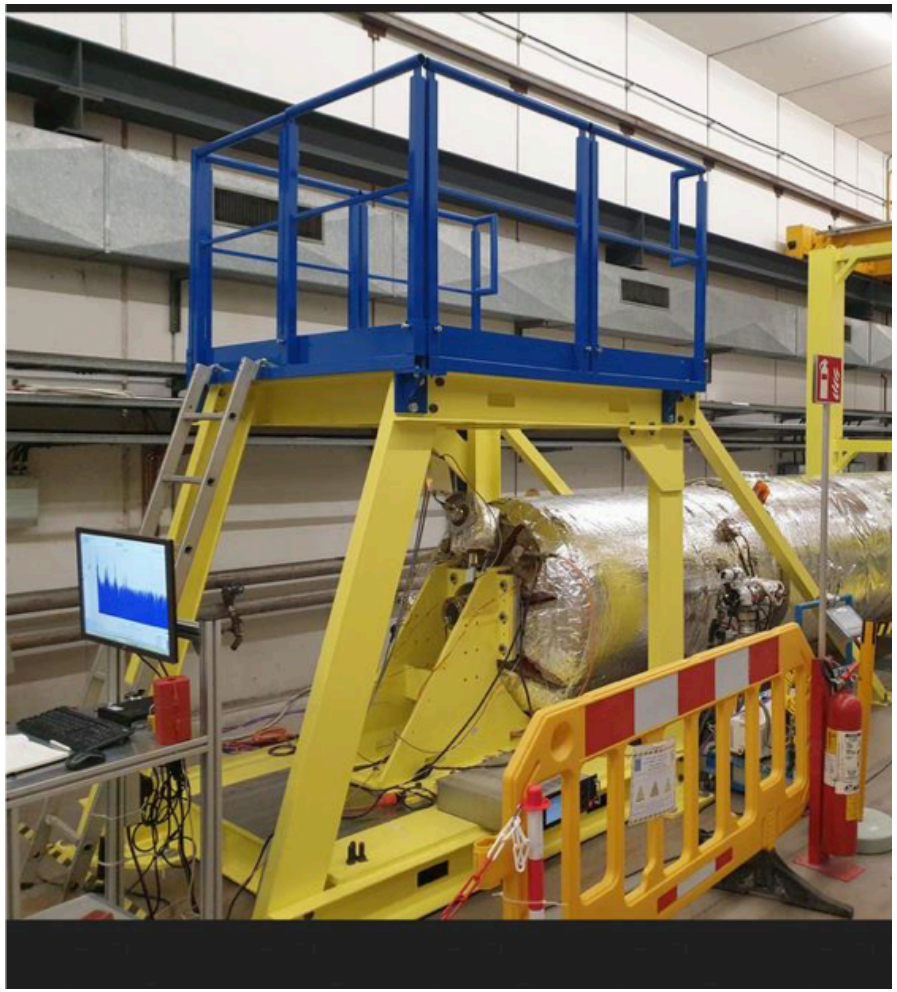


Cavern conceptual x-section for 2L configuration



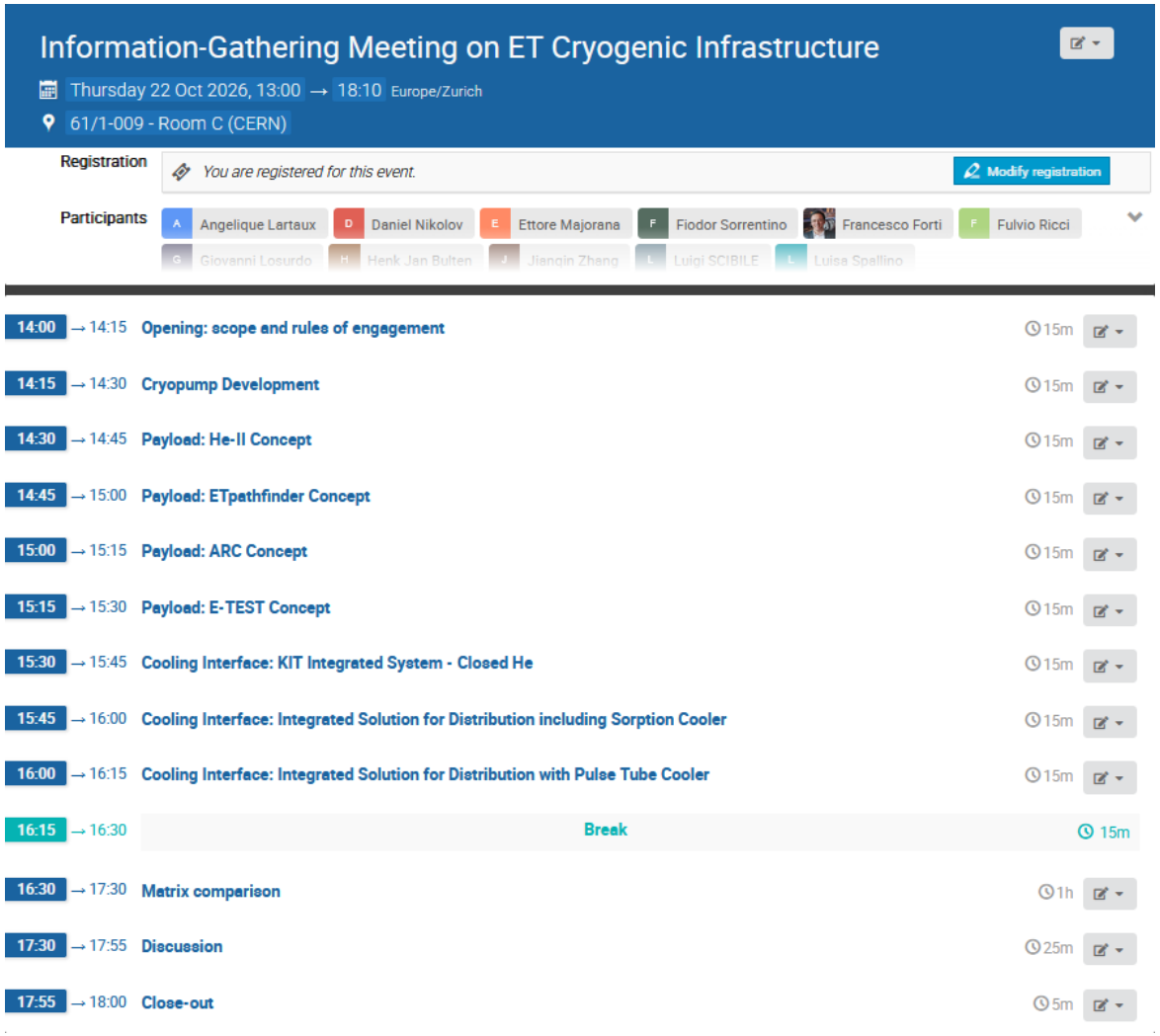
CERN vacuum arm test stand





Upcoming: Cryogenic Information Gathering Meeting

- 4 payload - cryostat concepts
- First step: an information- and requirements-gathering meeting: October 22nd at CERN
- Establish a common overview
- Identify main commonalities and differences between concepts



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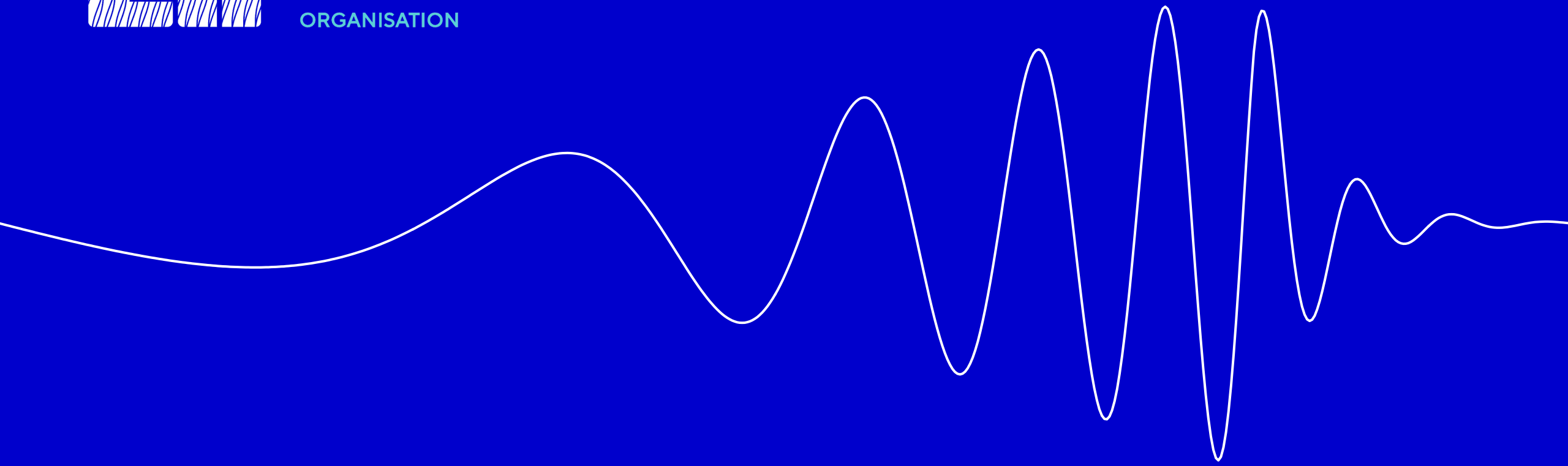


Communication

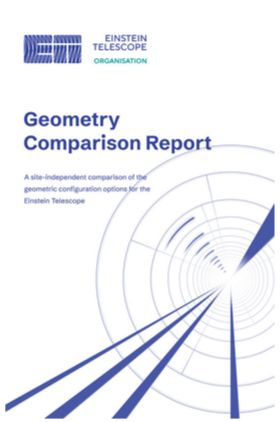
Highlights from the Communication Office

- Stories on the website:
  - LISA and Einstein Telescope team up to catch cosmic echoes https://einsteintelescope.eu/news/lisa-and-einstein-telescope-team-up-to-catch-cosmic-echoes/
  - Preparing the groundwork for site selection https://einsteintelescope.eu/news/preparing-the-groundwork-for-site-selection/
  - Building the quietest 120km in Europe https://einsteintelescope.eu/news/building-the-quietest-120-km-in-europe-how-cern-is-helping-prepare-beam-pipes-for-et/
  - Over 200 contributors deliver Einstein Telescope Geometry Comparison Report https://einsteintelescope.eu/news/over-200-contributors-deliver-einstein-telescope-geometry-comparison-report/



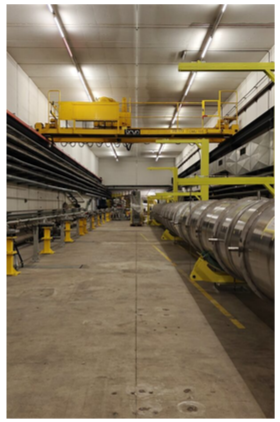
Newsroom

News
Events



9 OCTOBER 2026

Over 200 contributors deliver Einstein Telescope Geometry Comparison Report



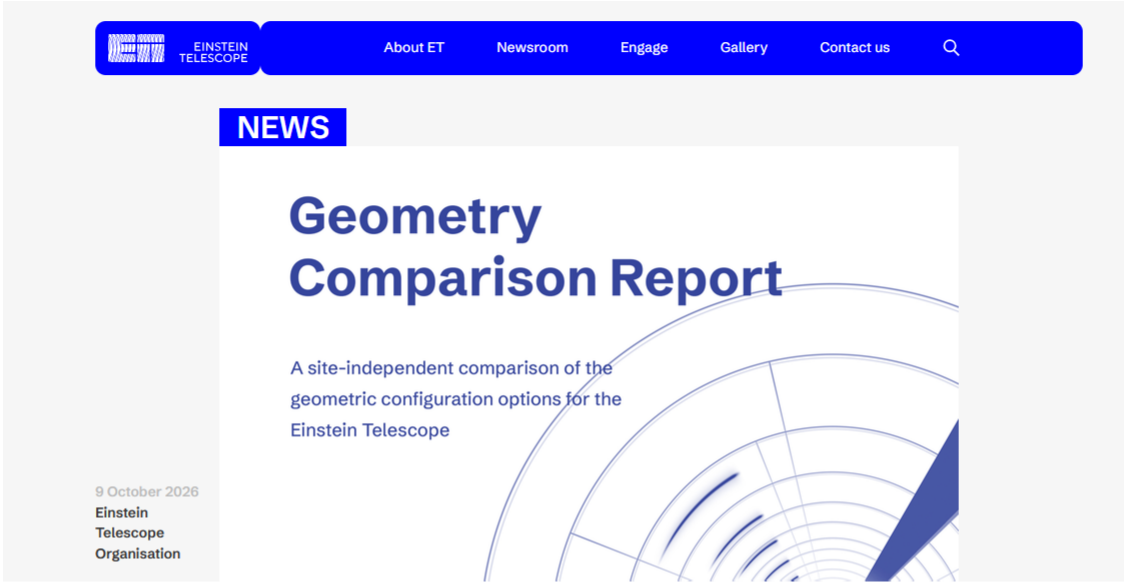
7 SEPTEMBER 2026

Building the quietest 120 km in Europe: how CERN is helping prepare beam pipes for ET



12 AUGUST 2026

Preparing the groundwork for site selection



Over 200 contributors deliver Einstein Telescope Geometry Comparison Report

On 7 October 2026, the Geometry Comparison Report was submitted to the Einstein Telescope Board of Governmental Representatives. That marked a major milestone after an intense half-year for the many people involved in developing this report. Over 200 experts from more than 20 research institutions contributed to the work, which

Coordinated news item with ET partners to get broad endorsement, and with communication professionals for distribution: managed to set the tone for the news articles that followed.

Highlights from the Communication Office

- Preparations for the Big Science Business Forum 2026 and ICRI2026, including the Einstein Telescope featuring in promotional campaigns in advance.



- In preparation: a framework for logo variations for various entities.
- Nice to know: the Einstein Telescope featured in the media >670 times between 30 June (last BGR meeting) and 15 October. ETO is monitoring this.

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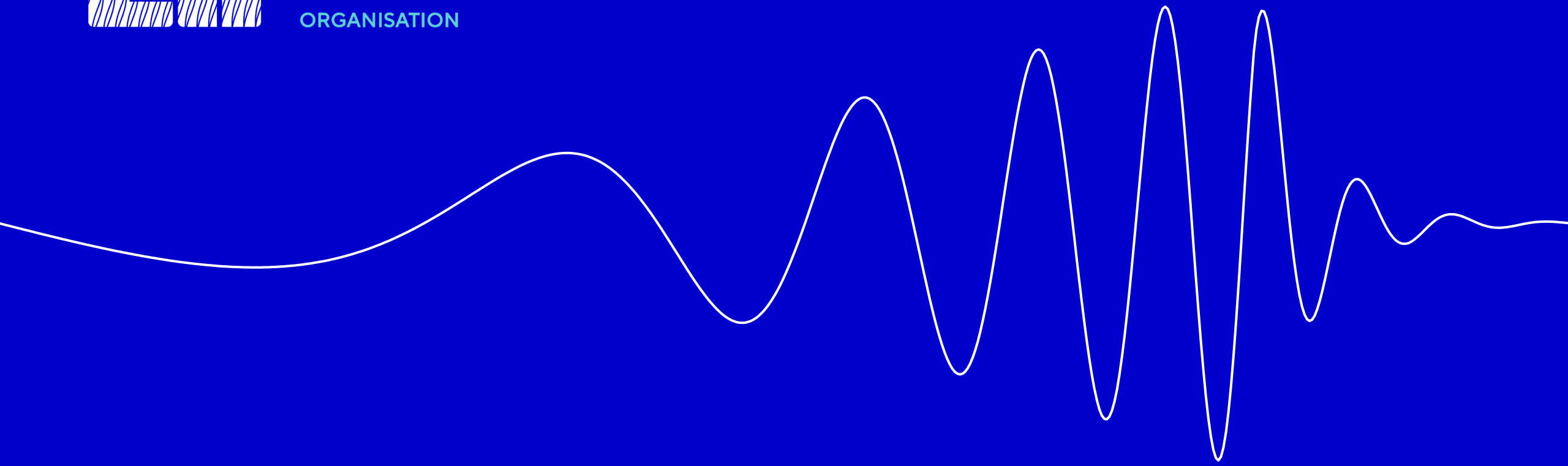
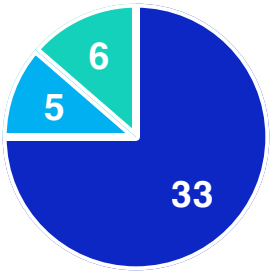


In Kind Personnel Contribution Framework

Why a formal secondment framework is important?

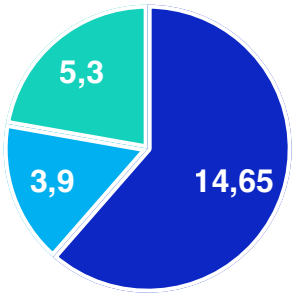
ETO currently counts 44* in-kind staff members, 24 FTEs.

Head-count



Permanent staff
Temporary staff
Other Funding

FTEs



*CERN/ESA staff excluded — not in-kind nor embedded in ETO

! **Only some of these contributions are well-formalised today**

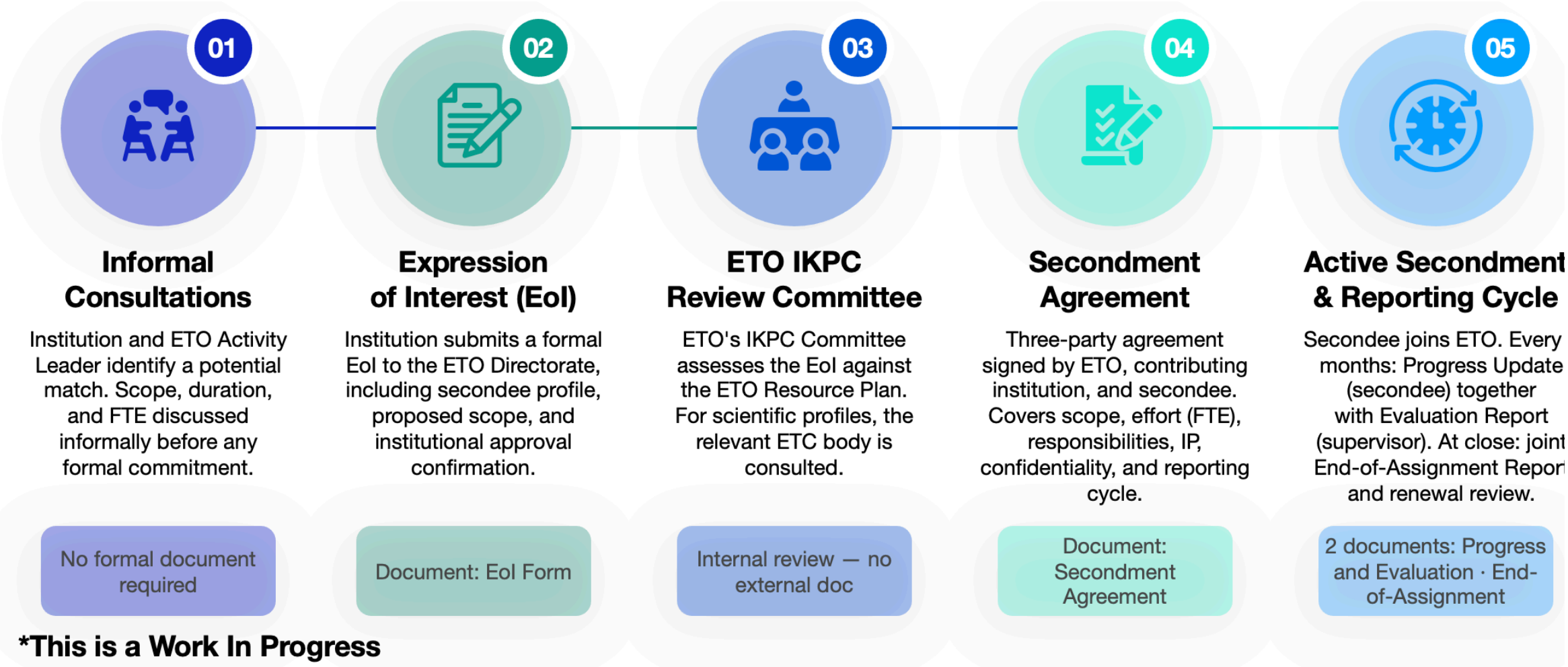
→ No formalisation means less visibility and no accountability for ETO and for contributing institutions

✓ The IKPC framework closes this gap with a process designed to fit each situation

A formal framework enables ETO to:

- **Align:** map every secondment to the ETO Resource Plan and work programme
- **Monitor:** track effort delivered and flag issues early through structured reporting
- **Recognise:** give contributing institutions and individuals proper visibility and credit

Concept IKPC process* – From interest to assignment and review



***This is a Work In Progress**

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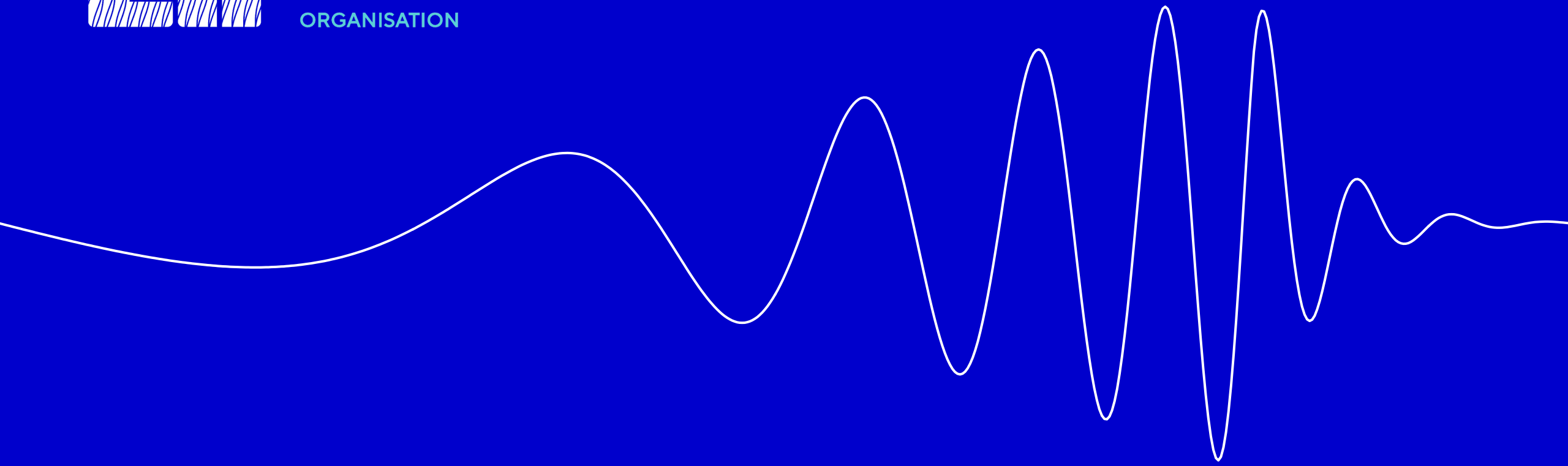

Memo on cost sharing

Raising awareness of the cost sharing issue

- The cost-sharing memo is not a final funding agreement: it creates a common starting point for discussing responsibilities.

1 The problem

ET cost estimates are becoming more mature, but there is not yet a definition of who should pay for which construction elements.

The site and geometry are still to be defined, so a final allocation would be premature.

2 The organising principle

Use the existing Product Breakdown Structure (PBS) as the common language.

Start at high level where technical/cost maturity is limited; go deeper only where the breakdown is sufficiently mature.

3 The intended result

A transparent first model linking:

- technical scope
- ownership / operational responsibility
- lifecycle considerations
- funding responsibility

—not simply a division of the total cost.

The key idea: funding follows the nature and lifecycle of the item

- For infrastructure, the proposal distinguishes what belongs to the host site from what is added, operated or maintained by a legal entity.

HOST NATIONS

Typically responsible for infrastructure inherent to the site and civil works.

Examples:

- underground civil engineering
- surface civil engineering
- general service infrastructure
- water management
- core electrical distribution installed with the excavations

FUTURE LEGAL ENTITY

Typically responsible for systems installed after excavation / handover and operated or maintained by the legal entity over its lifetime.

Examples:

- cooling & ventilation
- access control
- communications
- cryogenics
- cleanroom equipment
- infrastructure sensors

SUBSYSTEM CONSORTIA

Typically responsible for detector-specific scientific equipment and defined subsystem deliveries.

In the detailed infrastructure proposal, SC involvement appears where an item interfaces directly with scientific equipment.

Example: vacuum infrastructure is proposed as SC + LE.

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Thank you

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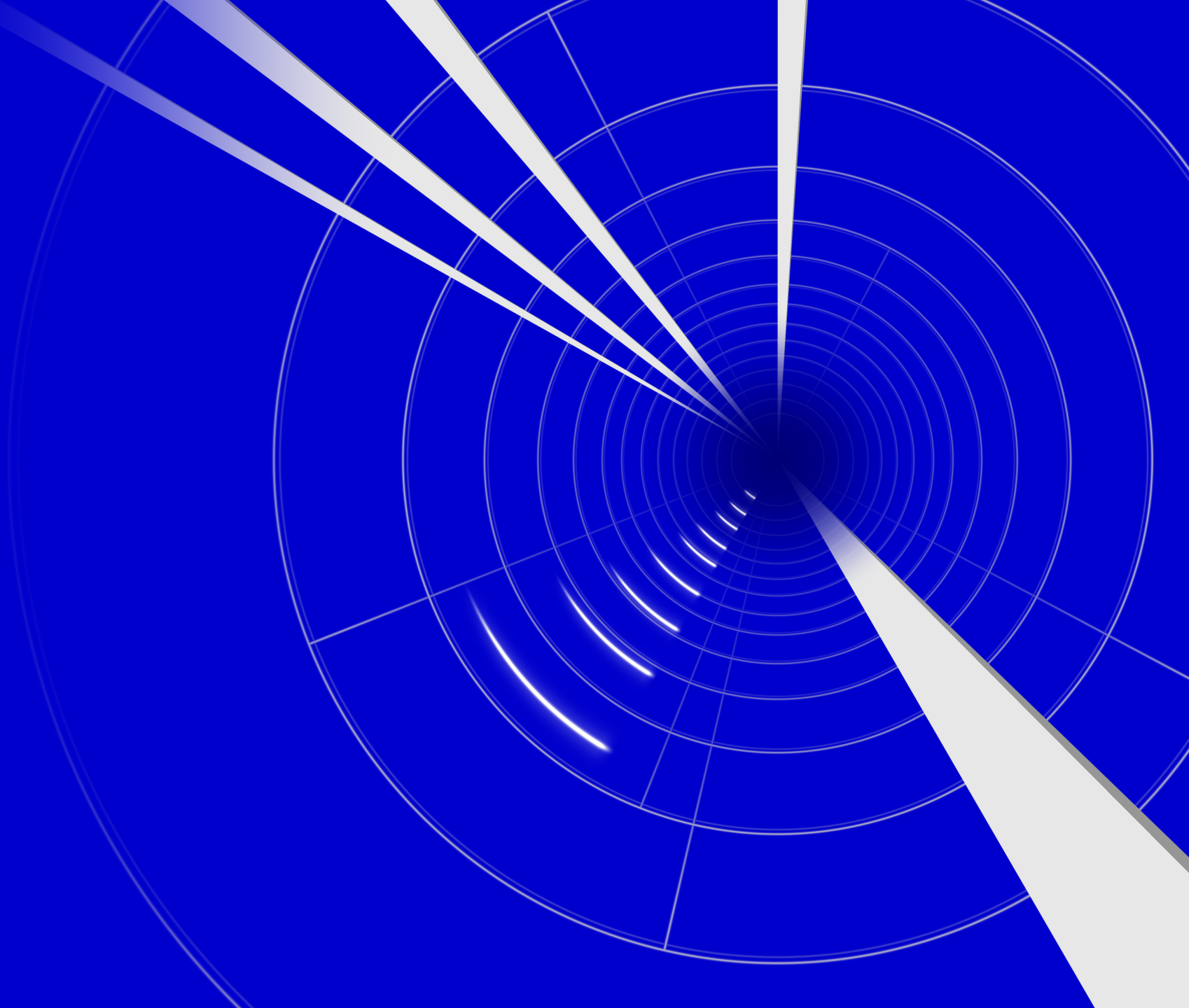

The PBS becomes the bridge between technical scope and funding

- Three top-level domains lead to different funding logics.

INSTRUMENT PBS

Interferometers, lasers, mirrors and monitoring systems.

Logic proposed:

SC (Subsystem Consortia)-led funding, because these are scientific detector components developed and delivered by institutions in the collaboration.

Funding detail remains dependent on the evolving PBS.

ELECTRONIC INFRASTRUCTURE PBS

Computing and data-management infrastructure.

Logic proposed:

LE (future Legal Entity) + SC, but the current maturity does not yet support a more detailed allocation.

The technical model is still evolving.

INFRASTRUCTURE PBS

Civil engineering + technical infrastructure, underground and surface.

This is currently the most mature area: HC feasibility studies and GCR work provide a basis for going further into the cost hierarchy.

Logic: HN (Host Nations) + LE + SC.