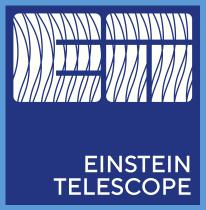
Project: 101079696 — ET-PP — HORIZON-INFRA-2021-DEV-02







# **ET-PP Status**

M. Martínez (ET-PP Coordinator)







Horizon Europe: Coordination and Support Actions



November 2025

Grant agreement: Nº 101079696

### Outline

- Introduction
- ET-PP status in numbers
- Interaction with EC officers
- GA main modifications
- Next steps

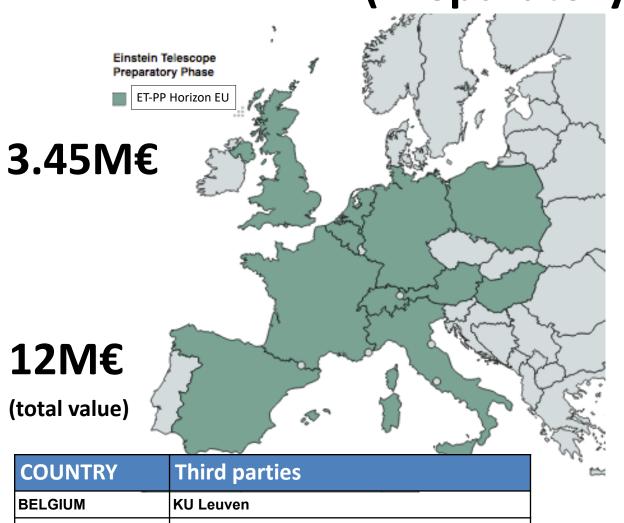






INFRA-DEV ET-PP (Preparatory Phase)

Funding & tender onnortunities



		1 & Tender Obbotton	IIIES		
European Commission			Partners		
SEARCH FUNDING & TE	ENDERS ▼ HOW TO	AUSTRIA	U. LEOBEN		
Preparatory phas	e of new ES	BELGIUM	U. ANTWERPEN		
TOPIC ID: HORIZON-IN	IFRA-2021-DEV-	BELGIUM	U. LOUVAIN		
Grant		EGO	EGO		
General information	General information	FRANCE	CNRS		
Topic description  Destination	Programme Horizon Europe Fra	GERMANY	DESY		
Conditions and documents	Call	HUNGARY	WIGNER RCP		
Partner search	Developing and co leadership (2021)	ITALY	INFN		
Submission service	Type of action	THE NETHERLANDS	NIKHEF		
Topic related FAQ  Get support	HORIZON-CSA HO	POLAND	U. WARSAW		
Go back to search	Deadline model single-stage	SPAIN	IFAE BSC-CNS (affiliated)		
results		SWITZERLAND (associated partner)	U. GENEVA		
		UK (associated partner)	UKRI CARDIFF GLASGOW		

BELGIUM KU Leuven

GERMANY RWTH (Aachen), AEI (MPI), LUH (Hannover)

THE NETHERLANDS VU (AMSTERDAM), UM (MAASTRICHT)

SPAIN ICCUB (Barcelona), UV (Valencia), UIB (Mallorca)
CDTI (Madrid)

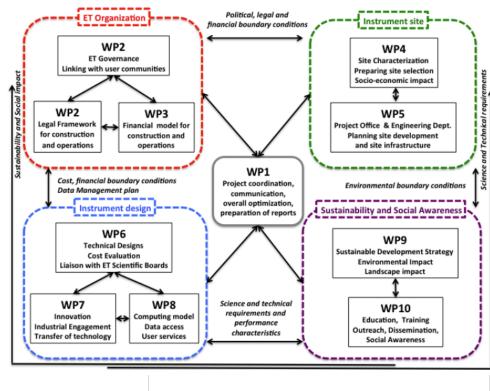
POLAND NCBJ, CAMK, Cyfronet, IMPAN

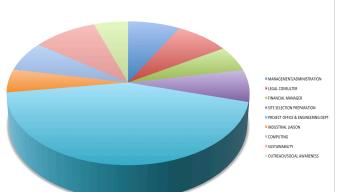
Einstein Telescope Preparatory Phase (ET-PP) in 2022 – 2026 HORIZON-INFRA-DEV EU Project coordinated by IFAE

→ <a href="https://etpp.ifae.es">https://etpp.ifae.es</a>

# Work Packages (WPs)

- WP1 Coordination and Management
- WP2 Organization, Governance and Legal Aspects
- WP3 Financial Architecture
- WP4 Site Preparation
- WP5 ETO Project Office / Engineering Dept.
- WP6 Technical Design
- WP7 Transfer of Technology
- WP8 Computing and Data Access
- WP9 Sustainable Development Strategy
- WP10 Education, Outreach and Citizen Engagement





A large fraction devoted to the creating of the Project Office/ Engineering Department (44%)

Funding for expert consulting on legal and financial aspects, socio-economic impacts, site selection related studies Significant funding for sustainability studies

Funding for ET-PP management, KTT, Computing model, and Outreach/Communication

#### Deliverables & Milestones

#### Deliverables

#	Deliverable	WP	Status
D1	D1.1: Dissemination and Exploitation (D&E) Plan	1	EC approved
D2	D1.2: Data Management Plan (DMP)	1	EC approved
D3	D2.1: Report providing options for legal entity	2	EC approved
D4	D2.2: Minutes of meetings with EC and involved ministries	2	EC approved
D10	D4.1: Scan of legal procedures, permitting and land acquisitions	4	EC approved
D11	D4.2: Updated socio-economic impact studies	4	in EC portal
D15	D5.1: Structure and mandate of the Project Office	5	EC approved
D16	D5.2: Functionalities required from the tools in support of the project management	5	EC approved
D17	D5.3: .Structure and mandate of the Engineering Department	5	EC approved
D18	D5.4: Funcional Engineering Department	5	in EC portal
D19	D5.5: Funcional Project Office	5	in EC portal
D20	D6.1: Refined Science Case	6	in EC portal
D21	D6.2: Vacuum pipe Design	6	in EC portal
D26	D7.1: Innovation plan	7	EC approved
D30	D8.1: Computing and Data Requirements	8	in EC portal
D36	D10.1: Initiate strategic media and communications plan	10	EC approved
D37	D10.2: Launch consortium website and social media accounts	10	in EC portal
D38	D10.3: Formulate strategic media and communications plan	10	in EC portal

ET Preparatory Phase Project WP 6: Technical Design

**ET-PP** web

https://etpp.ifae.es

Work package led by INFN

#### Objectives

WP6 - Technical Design [led by INFN]- has the mandate to provide the ET-PP project management with a refined scientific case, the Technical Design Report (TDR) of the RI hosting the ET interferometers, and the TDR of the set of detectors (interferometers) and facilities (vacuum and cryogenic apparatuses and plants) composing ET.

Furthermore WP6 has the duty to elaborate a data management plan (DMP) and a Data Access Policy in synergy with WP8 (see below) and WP2. The activities in WP6 take place inside the ET Collaboration and will take full advantage of the existing technical and

The chairs of the ET Steering Committee: H. Lück (LUH and AEI) and M. Punturo (INFN) act, together with P. Chiggiato (CERN), as cocoordinators of WP6. P. Chiqqiato coordinates the R&D and technical design of the ET pipe-arm vacuum system.

#### Deliverables

- · D6.1 Refined Science Case
- · D6.2 Vacuum pipe Design
- D6.3 Preliminary RI TDR
- · D6.4 Preliminary DET TDR
- D6.5 RI TDR · D6.6 DMP and Data Access Policy





Michele Punturo

ET Preparatory Phase Project About Partners - Work Packages





#### WP 5: Project Office and Engineering Department

Work package led by CNRS

WP5 - Project Office and Engineering Department [led by CNRS]- has the mission to establish the ET RI Project Office and the corresponding Engineering Department. The role of this WP is to set-up a project management environment for the ET construction

This environment will be supported by consultative and executive bodies equipped with means to monitor, control, coordinate and report on the technical design, the engineering, the technical specifications, the risks, the budget and the schedule.

These activities are project-wide and make use of methodologies and tools which are the same across the whole of the ET construction

Patrick Werneke

C. Olivetto (SACLAY), P. Werneke (NIKHEF) and A. Variola (INFN) act as co-coordinators of WP5 in this proposal.

#### Deliverables

- . D5.1 Structure and the mandate of the Project Office.
- . D5.2 Functionalities required from the tools in support of the project management.
- . D5.3 Structure and the mandate of the Engineering Department.
- · D5.4 Functional Engineering Department
- D5.5 Functional Project Office.



Christian Olivetto



Alessandro Variola

#### **ET-PP Work Package Leaders**



Mario Martínez Institut de Física d'Altes Energies (IFAE)



Domenico D'Urso University of Sassari & INFN



Alessandro Variola

Istituto Nazionale Di Fisica Nucleare (INFN)



Rob van der Meer Nikhef



Maria Antonietta Marsella

Istituto Nazionale Di Fisica Nucleare (INFN)



Fernando Ferroni Istituto Nazionale Di Fisica Nucleare (INFN)



Massimo Carpinelli European Gravitational Observatory (EGO)



Harald Lück

Albert Einstein Institut & Institut für Gravitationsphysik der Leibniz Universität Hannover



Nadia Tonello

Barcelona Supercomputing Center (BSC)



Nicolas Arnaud

Centre National de la Recherche Scientifique (CNRS)



Justin O'Byrne

United Kingdom Research And Innovation (UKRI)



Wim Walk Nikhef



Paolo Chiggiato

European Organization for Nuclear Research (CERN)



Achim Stahl

Deutsches Elektronen-Deutsches Elektronen-Synchrotron (DESY) Synchrotron (DESY)



Veronica Buccheri

Istituto Nazionale Di Fisica Nucleare (INFN)



✓ in

Christian Olivetto

Université Paris-Saclay

Michele Punturo

Istituto Nazionale Di Fisica

Nucleare (INFN)

Thomas Berghoefer

Vincenzo Napolano

European Gravitational

Observatory (EGO)

Miriam E.H. Roelofs Dorota Rosinska

Uniwersytet Warszawski (UW)



Patrick Werneke

Nikhef



Mauro Morandin

Istituto Nazionale Di Fisica Nucleare (INFN)



Chiara Arina

Universite Catholique De Louvain (UCL)



Robert Galler

Montanuniversitaet Leoben



## **ET-PP Status (summary)**

Progressing as planned
With delays and requiring
ET-PP Grant Agreement revision

- WP1 Coordination and Management
- WP2 Organization, Governance and Legal Aspects
- WP3 Financial Architecture
- WP4 Site Preparation (1)
- WP5 ETO Project Office / Engineering Dept.
- WP6 Technical Design (1)
- WP7 Transfer of Technology
- WP8 Computing and Data Access
- WP9 Sustainable Development Strategy
- WP10 Education, Outreach and Citizen Engagement

18 deliverables coming in the following 10 months

—> Very intense activity ahead of us

ET-PP consortium has encountered significant delays relative to the original schedule—primarily, though not exclusively, due to external factors.

**17/22 milestones** achieved (will meet the rest before ET-PP ends in August 2026)

**20/40 deliverables** to date done (delays accumulated pushing deliverables to the edge of ET-PP timeline)

#### 2 deliverables not feasible

- Research infrastructure TDR
- Cost & schedule of excavation

### Interactions with EC in Brussels

- The ET-PP activities in 2025 driven by the formal RP2 (second period report after 2.5 years of execution) + preparation of Grant Agreement (GA) amendment
  - Formal EC Review on May 2025
  - Recommendations received in June 2025 (see next slides)
  - ET-PP meeting in July 2025 in BCN to analyse it
    - Answers submitted early August 2025
- Intense activity during last months to prepare GA modifications
- Initiated discussions on post-ET-PP
- GA amendment draft sent to Brussels (< 2 weeks ago)</li>
  - A 1 month period of negotiations will start now
  - Hoping for a new GA framework by end 2025
- ET-PP schedules to end by end of August 2026 as planned



Additional information at 2025 ET-PP annual meeting Barcelona, 22nd - 24th July



https://indico.ifae.es/event/2183/

### **General comments**

#### **Extracted from EC reports** & input from F2F conversations

- Compliments for high-quality documents on ET vacuum-pipe designs and refined science case
- Concern about the slow progress in the ET critical decisions
  - ".. A basic remark of the reviewers is that the current convoluted structure of the project makes it impossible to take critical decisions. Unfortunately this cannot be changed in the project's lifetime because it depends on factors and players outside ET-PP's reach and scope."
  - "...The interlocked scientific and political priorities on the detector's configuration have not been resolved one way or another, no critical decisions have been made whatsoever and the risk of complete failure of ET-PP is now closer than ever, considering also the additional complications from the new bid of Saxony as a candidate site."
- Confirmation that two of the original core deliverables (Research Infrastructure TDR and Legal Entity Statutes) are declare now unfeasible in the lifetime of ET-PP
  - "..Technical Design has produced two superb and complicated deliverables, but some of its core objectives of the other hand will not be achieved at all within the project's timeline and have to be dropped in favour of other, additional work."
- Concern about some deliverables now being pushed towards the end of the project at the risk of failing
  in delivering them with sufficient scope and quality.
  - "..Only a COMPLETE COMMITMENT by all parties involved will be able to achieve these goals in time."
- EC referees are very sensitive to FAIR and Open Access aspects
  - "..There is a requirement to clarify ET-PP's intentions for data handling in Deliverable 8.1. The Description of Action promises that ET data management (an ET-PP deliverable) will follow FAIR principles on open data."





### Deliverables & Milestones for RP2 review (May 2025)

- D4.2: Updated socio-economic impact studies
- D5.4: Functional Engineering Department
- D5.5: Functional Project Office
- D6.1: Refined Science Case
- D6.2: Vacuum pipe Design
- D8.1: Computing and Data Requirements

July 2025: We received the EC report as anticipated with requirement for revisions

July 2025: Dedicated discussion at the ET-PP annual meeting

— preparation of answers to comments

July 2025: ET-PP coordinator — EC officer F2F discussion

August 2025: Formal answer submitted to EC September 2025: New version of documents submitted September 2025 ALL documents approved by the EC

- D10.2: Launch consortium website and social media accounts
- D10.3: Formulate strategic media and communications plan
- M2: Document detailing the site-specific characteristics that impact ET sensitivity and its duty cycle.
- M3: Common methodology to estimate impact of site characteristics on ET sensitivity and operation
- M6: The Engineering Department as a functional unit complete
- M7: The Project Office as a functional unit complete
- M17: Preliminary Sustainability Plan

### Deliverables & Milestones for RP2 review (September 2025)

- D4.2: Updated socio-economic impact studies
- D5.4: Functional Engineering Department
- D5.5: Functional Project Office
- D6.1: Refined Science Case
- D6.2: Vacuum pipe Design
- D8.1: Computing and Data Requirements
- D10.2: Launch consortium website and social media accounts
- D10.3: Formulate strategic media and communications plan
- M2: Document detailing the site-specific characteristics that impact ET sensitivity and its duty cycle.
- M3: Common methodology to estimate impact of site characteristics on ET sensitivity and operation
- M6: The Engineering Department as a functional unit complete
- M7: The Project Office as a functional unit complete
- M17: Preliminary Sustainability Plan

September 2025 ALL documents approved by the EC

### **WP2 & WP3**

The progress on governance is limited, hindered by the lack of progress in the site selection.

Therefore we (EC) recommend

- 1) the extension of the deadline to July 2026
- 2) a commitment to deliver a clear and focused document for the July 2026 deliverable

We plan to provide a focused and clear D2.3 document with alternative contents by April 2026.

"Legal report on suitable legal entities for the intermediate phase"

This report will be focused on suitable options in the jurisdictions of the potential host sites: Netherlands, Italy, Belgium and Germany.

	,
#	Details. (ORIGINAL PROPOSAL)
D1	D1.1: Dissemination and Exploitation (D&E) Plan
	, , ,
D2	D1.2: Data Management Plan (DMP)
D2	D2 1. Depart providing entires for legal entity
D3	D2.1: Report providing options for legal entity
D4	D2.2: Minutes of meetings with EC and involved ministries
	·
D5	D2.3: Legal report on suitable legal entities for the intermediate phase
D6	D2.4: Roadmap to establish the legal entity and its implementation
D7	D3.1: Handbook for design and construction phase
D8	D3.2: Handbook for operating phase
D9	D3.3: Financial plan and Scenario analysis
N 4 4	On a titution of the analysis
M1	Constitution / first meeting of the resource board

Slightly modify the contents of D2.4 towards producing a "Roadmap to establish an intermediate legal entity"

WP3 deliverables will be also modified In synergy with the WP2 modifications

-> ETO financial aspects for intermediate legal entity

### WP4

The activities on Site Characterization have experienced notable delays

Progress relies heavily on the activities of the local teams at each site and on the availability of data. The EMR, Lusatia and Sardinia teams have developed significantly different plans and timelines.

Dedicated F2F discussions with WP4 coordinators and local team leaders to plan for the rest of deliverables before the end of ET-PP (July 2026) — with the aim to guarantee success

Reached consensus with ETO, WP4 coordinators and local teams to proceed with this plan

#	Details	Status
D10	D4.1: Scan of legal procedures, permitting and land acquisitions	Done
D11	D4.2: Updated socio-economic impact studies	Done
D12	D4.3: Complete quantification of all the aspects impacting the ET performance	Not feasible Redefined
D13	D4.4: Report on 3D geology, hydrology, etc. model with localisation of the ET infrastructure	Not feasible Redefined
D14	D4.5: Updated cost and schedule estimates of the excavations	Dropped
M2	Document detailing the site-specific characteristics that impact ET sensitivity and its duty cycle.	Done
M3	Common methodology to estimate impact of site characteristics on ET sensitivity and operation	Done

Drop the deliverable related to "Updated Cost & schedule estimate of the excavation" —> Sites will not share cost numbers without synchronisation —> unfeasible

Provide: First preliminary quantification of all the aspects impacting the ET performance for each site (3 sites)

Provide: First 3D geology, hydrology, etc. model with approximated localisations of the ET infrastructure (3 sites)

## WP6 — TDRs and Physics Case

- Compliments from EC to ET-PP for the highquality of the D6.1 and D6.2 documents
- D6.5 (Research Infrastructure TDR) is not considered feasible within ET-PP timeframe. Such document can only be made after site selection.
- Declared (accumulated) delays for D6.4 —
   Preliminary Detector TDR expected by April 2026
- D6.3 Preliminary RI design document expected by the end of ET-PP
- Some elements of the D6.6 (Data Management Plan and Data Access Policy) have been anticipated already now in response to EC comments

#	Details	Status
D20	D6.1: Refined Science Case	Done
D21	D6.2: Vacuum pipe Design	Done
D22	D6.3: Preliminary RI design	Delayed
D23	D6.4: Preliminary DET TDR	Delayed
D24	D6.5: RI TDR	Not feasible Dropped
D25	D6.6: DMP and Data Access Policy	
M8	ET Collaboration in place	

Very significant progress has been made in the final definition of the optical layouts of the experiment as a fundamental prerequisite for the construction of the detector layout. More work is still needed to reach a mature PBS (Product BreakDown structure) that would facilitate the preparation of the preliminary TDR document.

The deliverable D6.3 (*Preliminary Research Infrastructure design document*) is now formally under the supervision of ETO, following the approach adopted for the vacuum document.

# WP7 — Transfer of Technology WP8 — Computing Model

#### The two WPs are delivering as ET-PP originally planned

#	Details	WP	Status	Due by	Delivered	Comment
D26	D7.1: Innovation plan	7	EC approved	Done		Done
D27	D7.2: Report on industry engagement plan execution	7		Feb 2026		Expected to be on track
D28	D7.3: Model for pursuing in ET a balanced industrial return	7	Internal review	May 2025		Submitted
D29	D7.4: Report on TT and Intellectual property management in ET	7		April 2026		Expected to be on track
D30	D8.1: Computing and Data Requirements	8	Submitted to EC	Feb 2024	Feb 2024	Done
D31	D8.2: Computing and Data Model	8		Feb 2026		Expected to be on track
D32	D8.3: Data Access Implementation Guidelines	8		Jul 2026		Expected to be on track
M9	Analysis of promotion strategies accomplished	7		Abril 2023	Abril 2023	Done
M10	Engagement plan produced	7		June 2023	Oct 2023	Done
M11	Analysis of balanced industrial return strategies accomplished	7		Nov 2023	Oct 2024	Done
M12	Workflows Requirements collection and constraints: computing and data	8		July 2023	July 2023	Done
13	Computing Infrastructures availability for ET workflows, characteristics	8		Aug 2024	Jul 2024	Done
14	On site infrastructure, computing and data model	8		Aug 2025		Expected to be on track
15	Low latency and offline workflows and computing model	8		Dec 2025		Expected to be on track
16	Data management, access, policy and implementation	8		Jun 2026		Expected to be on track

Important documents to come — Computing Data Model & Data Access Policy

# WP9 — Sustainability

#	Details	WP	Status	Expected
D33	D9.1: ET Sustainable Development Implementation Strategy	9	Delayed	June 2026
D34	D9.2: ET Environmental impact assessment and mitigation strategy	9	Delayed	December 2025
D35	D9.3: ET CO2 footprint ET assessment and mitigation strategy	9	Delayed	February 2026
M17	Preliminary sustainability plan	9	Delayed	Done
M18	ET Sustainability Workshop	9		Done
M19	Final sustainability plan	9		Expected to be on track

A concern from EC Officer & ET-PP coordinator (no deliverable done yet) and accumulated delays towards the end of ET-PP timeline

Sustainability studies are linked to activities on site characterisation and civil engineering aspects

Robust sustainability related documents (meeting the required EC standards) required involving private companies specialised on the subject —> The presence of ARUP (private company) already facilitated the final approval of M17 document

### ACTION TAKEN IN ET-PP ANNUAL MEETING IN JULY 2025

- Plan for rest of deliverables and milestones to be reflected in the GA amendment — DONE
- Discuss with site representatives on the availability of data for sustainability results — ONGOING

Dedicated session in the meeting to plan for the deliverables.

# ET-PP WP7, WP8, WP9 are organizing three workshops with industry involvement:

- Sustainability of ET infrastructure Rome, 16-17/2/2026
- Industry computing Workshop NIKHEF, 14-15/4/2026
- Vacuum and cryogenic Workshop CERN, 21-22/4/2026



Details on each of the events in the backup slides

### WP10-Education, Outreach and Citizen Engagement

#	Details	WP	Status	Due by	Delivered	Comment
D36	D10.1: Initiate strategic media and communications plan	10	EC approved	Done		
D37	D10.2: Launch consortium website and social media accounts	10	Submitted to EC	Aug 2024	Oct 2024	
D38	D10.3: Formulate strategic media and communications plan	10	Submitted to EC	Aug 2024	Oct 2024	
D39	D10.4 Complete bank of graphics and multimedia resources	10		Aug 2025		
D40	D10.5 Launch ECR mentorship and training programme	10		April 2026		Expected to be on track
20	Appointment of Communications and Outreach Coordinator	10		April 2023	July 2023	
21	ET Consortium website and social media launched	10		Aug 2024	Oct 2024	
22	ECR Mentorship and Training programme established	10		April 2026		Expected to be on track

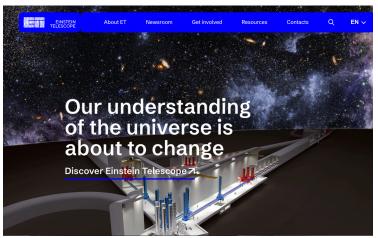
#### https://einsteintelescope.eu

#### Mission of WP10 is almost concluded

—> ECR mentoring and training programme







### Summary & next step

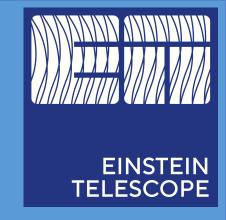
- GA amendment proposal already submitted to formally adjust to the new ET-PP timelines & scope & redirect some funds Designed to guarantee a successful conclusion / smooth transition to post-ET-PP
  - Formally declaring the dropping of two of the deliverables
  - Re-define the timelines for some of the incoming deliverables
- ET-PP will provide a legal report on suitable entities for the intermediate phase, together with a roadmap for creating an interim legal entity, including financial analysis.
- A plan for site-related ET-PP documents have been discussed and agreed with all 3 sites
  - ET-PP will provide First preliminary quantification of all the aspects impacting the ET performance for each site (3 sites)
  - ET-PP will provide First 3D geology, hydrology, etc. model with approximated localisations of the ET infrastructure
  - ET\_PP will NOT provide documents related to cost estimates for excavation
    - this is not anymore compatible with ET-PP timeframe
- ET-PP will provide a preliminary Detector TDR (under the responsibility of ET Collaboration) and a design related document for the research infrastructure (under the supervision of ETO)
- Last ET-PP annual meeting in BCN already scheduled for early May 2026
- ET-PP ends in August 2026 we have still lots of work to do and many important documents to deliver

Project: 101079696 — ET-PP — HORIZON-INFRA-2021-DEV-02





and Support Actions



### **ET Annual Meeting**

## **ET-PP Status**

M. Martínez (ET-PP Coordinator)

November 2025

Grant agreement: Nº 101079696

# Bonus slides

On the different Workshops

# The Einstein Telescope Large Underground Research Infrastructure:

# Environmental Challenges and Possible Solutions to guarantee Long Term Sustainability

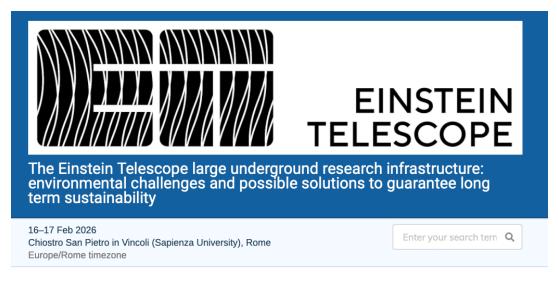
16 - 17 February, 2026 Sapienza University, Rome

This academia-industry workshop aims to convene distinguished researchers, experts and industry specialists to address critical environmental sustainability challenges associated with large underground scientific infrastructures, specifically examining the Einstein Telescope project as a paradigmatic case.



#### **WORKSHOP SESSIONS**

- Introduction
- Life cycle sustainability assessment
- Sustainable transportation and smart energy
- Efficient operation
- Solutions for underground construction
- Environmental and social Impact
- Industry engagement and sustainable procurement



Overview

Preliminary
Timetable

Event venue

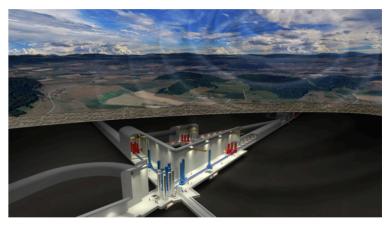
How to reach
the venue

Accomodation

Secretariat Contact

et-sustainability-...

The Einstein Telescope large underground research infrastructure: environmental challenges and possible solutions to guarantee long term sustainability



This workshop is organized by **ET-PP WP9** in collaboration with **WP7**, which is taking care of the session on industry involvement.

# ET INDUSTRY COMPUTING WORKSHOP

14 - 15 April, 2026 Nikhef, Amsterdam

The objective of the workshop is twofold:

- firstly, to examine the opportunities that the development of information technologies will offer for realizing the scientific potential of the Einstein Telescope
- secondly, to explore possible approaches to collaboration with industry that can be effective in enabling beneficial synergies.



#### **WORKSHOP TOPICS:**

- Al-enabled algorithms, tools and approaches for data analysis
- Al tools for software development and more
- Evolution of processor architectures (accelerators, stream processors, neuromorphic...) incl. Quantum
- Storage and data management technologies
- Network technologies and cybersecurity
- Infrastructure and sustainability





#### **INDUSTRY COMPUTING WORKSHOP 2026**

The Einstein Telescope Preparatory Phase European Project (ET-PP) and the ET Collaboration e-Infrastructure Board are organising a workshop on ET computing, to be held at Nikhef on April 14-15, 2026.

The objective of the workshop is twofold: firstly, to examine the opportunities that the development of information technologies will offer for realizing the scientific potential of the Einstein Telescope; and secondly, to explore possible approaches to collaboration with industry that can be effective in enabling beneficial synergies.

Topics for the workshop will be hardware and software technologies, future trends and sustainability issues related to:

- · Al-enabled algorithms, tools and approaches for data analysis
- Al tools for software development and more
- Evolution of processor architectures (accelerators, stream processors, neuromorphic...)
- Storage and data management technologies
- Network technologies

This Workshop is being organized by ET-EiB and ET-PP WP8, in collaboration with ET-PP WP7

# Einstein Telescope vacuum-cryo systems industrial workshop: opportunities and challenges

21-22 April, 2026 CERN

The purpose of the workshop is to bring together the leading institutes which are designing the vacuum and cryogenic systems of the Einstein Telescope and European Big Science industries specialised in vacuum and cryogenic technologies, to discuss the challenges and opportunities ahead.



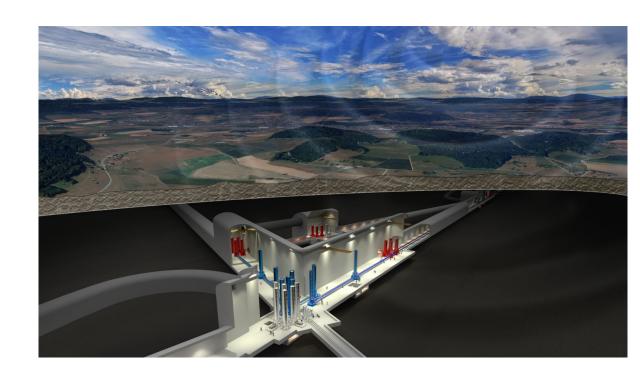
#### **WORKSHOP PROGRAM:**

#### Day 1 I 14.00 - 18.00

- Opening of the event
- Vacuum tubes session I
- Vacuum tubes session II

#### Day 2 | 9.00 - 17.00

- Vacuum towers session
- Cryogenics session I
- Cryogenics session II
- Visits to CERN pilot sector, workshops.



This Workshop is organized by **ET-PP WP7**