



Horizon Europe: Coordination
and Support Actions



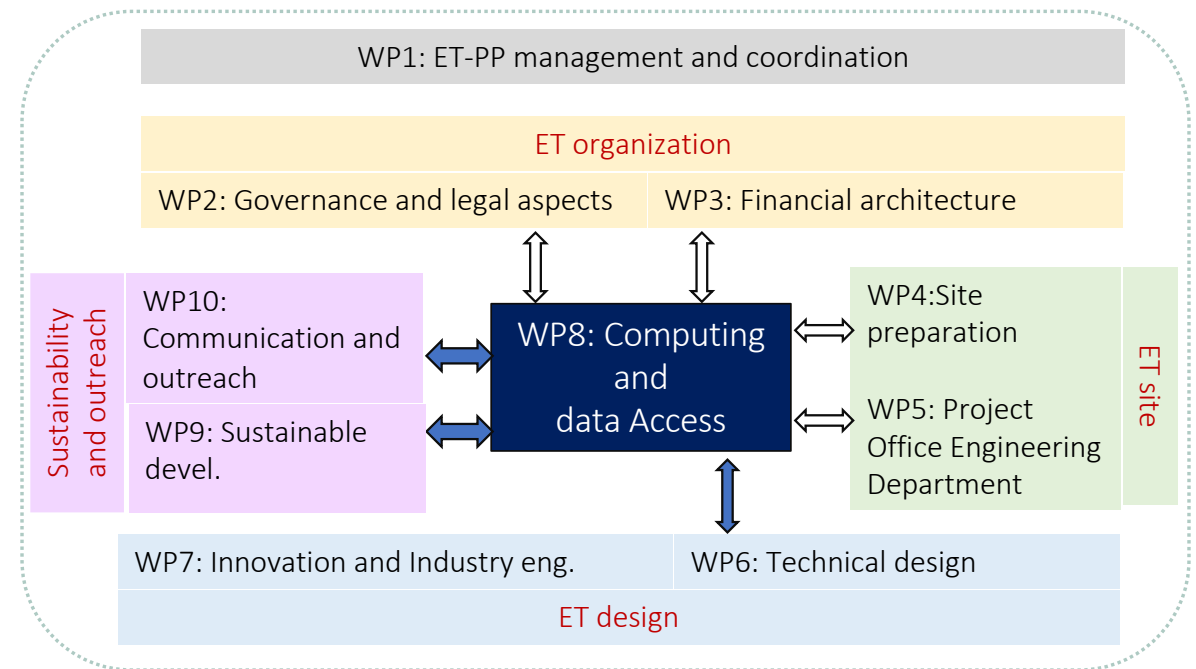
ET-PP WP8 1st review meeting

14/12/2023

Grant agreement: N° 101079696

WP 8: Computing model Introduction - Objectives

- Definition of the computing and data model of the Einstein Telescope.
- Definition of ET workflows.
- Estimation of the resources.
- Definition of the technical guidelines and principles for implementing the data access policies.



WP 8: Computing model

Introduction - Participation



ET-PP WP8

Achim Stahl - RWTH, Nadia Tonello - BSC

8.1 T0 data center	Patrice Verdier - CNRS
8.2 Computing and Data Model	Tassos Fragkos, Paul Laycock - UniGe
8.3 Resources estimation	Silvio Pardi – INFN
8.4 Data Access Implementation design	Nadia Tonello – BSC

WP 8: Computing model

Introduction - Participation



ET-PP WP8

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EIB

Stefano Bagnasco – INFN To, Patrice Verdier - CNRS

Division 1: Software frameworks and data challenge support	Andres Tanasijczuk – UCLouvain
Division 2: Services and Collaboration Support	Antonella Bozzi – EGO
Division 3: Computing and data model, Resource Estimation	Gonzalo Merino – PIC
Division 4: Multimessenger alerts infrastructure	Steven Schramm, UniGe
TTG: Technology tracking working group	Sara Vallero, INFN To

EiB – WP8 synergy

		WP8 Tasks			
		T8.1 T0 data center	T8.2 Computing and data model	T8.3 Resources	T8.4 Data access implementation
ET EiB Divisions	D1 SW frameworks and Data Challenges		Computing frameworks domains and data formats	Resources for frameworks execution and data storage availability	Data availability Data releases format
	D2 Services and collaboration support				Tools for monitoring, AAI (IAM) data access
	D3 Computing and data models, resources estimation	T0 storage and computing resources estimation	Computing model Data model	Resources estimation	
	D4 Multimessenger alerts infrastructure				Tools for multi-messenger alerts
Technology tracking working group					

WP 8: Computing model Tasks

- **Coordination** and organization of the activities with the ET e-Infrastructure Board (EiB).
- **Meetings:** Weekly (chairs) – biweekly (all-hands) online. Participation to ET-PP meeting (online/F2F), as well as the ET symposium.
- **Priorities** have been identified:
 - Set-up and update of the ET **EMDB** (hosted and managed by EGO)
 - Preparation of the ET **AAI**: in progress. Resources have to be assigned.
 - Set-up of a collaboration **tool for file sharing**, in testing phase for EiB-WP8 and WP10.
 - Collection of **requirements** from other ET-PP WPs and ET Boards, in preparation of the D8.1 and contribution to the first WP8 workshop (Milestone due at M12).
 - IGWN** (International Gravitational-Wave Observatory Network) Collection and discussion about the current models, solutions, limitations.
 - ET computing and data model:** Analysis of the possible extension of the IGWN current models
- The ET Collaboration and the ET-O required the contribution of WP8 and EiB experts to the first version of the **Product Backbone Structure Document**.
- Evaluation of WP8-EiB contribution and collaboration with **ESCAPE** for ET is ongoing.

WP 8: Computing model

Task 8.1 T0 data center

Lead

CNRS- Patrice Verdier

Objective

Design the T0 data center and define the on-site services.

Activities

- Define Tier-0 storage and computing requirements to contribute to D8.1
- Collaboration with other ET-PP WPs and ET Boards:
 - WP2 Governance
 - WP4 On-site data storage and data access
 - WP6 Technical design
 - Close collaboration with ISB (and other Boards) about the conceptual design of the Tier0.

WP 8: Computing model

Task 8.1 T0 data center

YEAR 1 Objectives

Collection of requirements from the ET-O

YEAR 1 Activities

Contribution to the definition of the first version of the ET PBS for the computing part
Connection with the ESCAPE Collaboration.

YEAR 1 Results

The draft of the PBS is available to the ET internal area.

WP 8: Computing model

Task 8.2 Computing and Data Model

Lead

UniGe, Tassos Fragkos, Paul Laycock

Objective

Develop the computing and data model of ET

Activities

- Define the workflow requirements from instrument to publication to contribute to D8.1
- Collaboration with other ET-PP WPs
 - WP2 Governance
 - WP6 Technical design, cost evaluation
 - WP9 Data mid long term curation and preservation sustainability
 - WP10 Dissemination, distribution of legacy data
 - Close collaboration with ISB and OSB (and other Boards) to define the scientific data and computing model.
- Edition of D8.1 & D8.2

WP 8: Computing model

Task 8.2 Computing and Data Model

YEAR 1 Objective

Collect the computing requirements for ET

YEAR 1 Activities

- Analysis of the present solutions (IGWN, ESCAPE) with the collaboration of ET and external experts, who have participated to meetings and workshops.
- ESCAPE solutions analysis (VRE, data lake, AAI, ...)
- Recruitment of an expert in Computing Models for ET-PP.
- Preparation for the organization of the first WP8 workshop in Geneva (<https://indico.ego-gw.it/event/590/>) to collect requirements for the ET computing model.
- Preparation of the D8.1 first draft

WP 8: Computing model

Task 8.3 Resources estimation

Lead

INFN, Silvio Pardi

Objective

Estimation of the computing resources (computing power and data storage)

Activities

- Define operational cost requirements and potential mitigation to contribute to D8.1
- Collaboration with other ET-PP WPs for workshops and sessions regarding ET
 - WP2 Governance
 - WP4 On-site data storage and data access
 - WP9 Data mid-long term curation and preservation sustainability
 - WP10 Dissemination, distribution of legacy data
- Participation of EiB (and other Boards) discussion about computing resources and data needs.

WP 8: Computing model

Task 8.3 Resources estimation

YEAR 1 Objective

(No specific objectives) Estimation of the computing resources starts after requirements collection.

YEAR 1 Activities

- Define operational cost requirements and potential mitigation to contribute to D8.1
- Support to the distribution of the first ET Data Challenge (MDC1) input data, delivered by the OSB Div10.
- Talk at CHEP: “Computing Challenges for the Einstein Telescope project”. <http://et-origin.cism.ucl.ac.be>
<https://indico.jlab.org/event/459/contributions/11503/>

WP 8: Computing model

Task 8.4 Data Access

Lead

BSC, Nadia Tonello

Objectives

- Define data access implementation strategy for ET

Activities

- Collaboration with other ET-PP WPs for workshops and sessions regarding ET data
 - WP2 Governance
 - WP4 On-site data storage and data access
 - WP9 Data mid-long term curation and preservation sustainability
 - WP10 Dissemination, distribution of legacy data
- Participation of EiB (and other Boards) discussion about data availability and access needs.
- Edition of D8.3

WP 8: Computing model

Task 8.4 Data Access

YEAR 1 Objectives

- Define data access requirements

YEAR 1 Activities

- Recruitment of a junior engineer for support of WP8 activities.
- Contribution to ET-PP DMP
- Contribution to D8.1
- Organization of the parallel session on Computing of the ET Symposium in Cagliari.
- Analysis of the tools for files sharing and edition, and presentation. Set-up of a test working space in B2DROP.bsc.es for files sharing. Prototype space created at BSC for WP8 and WP10 (test volunteers).

WP 8: Critical risks

No critical risks and deviations during the first reporting period.

Risks for the next period

- **Mock Data Challenge (MDC) follow-up** might be partial, especially for the first MDC, due to late AAI deployment, and for missing an efficient MDC coordination tool. More MDCs will follow.

Mitigation: closer coordination with MDC leads at OSB Div10.

- **The feedback from MDCs** might be not enough to converge on a numeric estimate of the computing model.

Mitigation: produce a detailed strategy to obtain the number in due time.

WP 8: Computing model

Deliverables and milestones



Milestones - Workshops		WPs collaboration	Due date
M8.1	Workflows Requirements collection and constraints: computing and data		July 2023 → 26-27 Oct 2023
M8.2	Computing Infrastructures availability for ET workflows, characteristics	WP9	Aug 2024
M8.3	On site infrastructure, computing and data model	WP6	Aug 2025
M8.4	Low latency and offline workflows and computing model	WP6	Dec 2025
M8.5	Data management, access, policy and implementation	WP2, WP6	July 2026

Deliverables		Lead	Due date
D8.1	Workflows Requirements collection and constraints: computing and data	UniGe	Feb 2024
D8.2	Computing Infrastructures availability for ET workflows, characteristics	UniGe	Feb 2026
D8.3	On site infrastructure, computing and data model	BSC	July 2026

WP 8: Contribution from each partner

INSTITUTION		PM as per Annex I	PM in the period
BSC	CONTRIBUTIVES	9	2,55
	REQUESTED EC	36	13,11
CNRS	CONTRIBUTIVES	3	0,24
INFN	CONTRIBUTIVES	3	0
UniGe	CONTRIBUTIVES	48	5,4
Total Person Months	CONTRIBUTIVES	63	8,19
Total Person Months	REQUESTED EC	36	13,11
		99	21,30

% PMs used = 21,5

WP 8: Outlook and perspectives

- **Successful coordination** and organization of the activities with the ET e-Infrastructure Board (EIB).
- Chairs and all-hands **online meetings**. Participation to ET-PP meeting (online/F2F), ET symposium and annual meetings.
- **M8.1 WP8 workshop** very successful. Preparation of the M8.2 WP8 workshop about computing resources availability, in collaboration with WP9 - sustainability
- **ET AAI** follow up activities for reaching a first implementation in the next period.
- **Maintenance** of collaboration tool for file sharing (EIB-WP8 and WP10) and test of new required features.
- **D8.1 Computing and Data Requirements** finalization
- ET Computing Model: IGWN current models, solutions, limitations taken into account
- Contribution and collaboration with **ESCAPE**, in view of OSCARS applications.

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