



EUROPEAN RESEARCH EXECUTIVE AGENCY (REA)

REA.C – Future Society
C.4 – Reforming European R&I and Research Infrastructures

GRANT AGREEMENT

Project 101079696 — ET-PP

PREAMBLE

This **Agreement** ('the Agreement') is **between** the following parties:

on the one part,

the **European Research Executive Agency (REA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and

on the other part,

1. 'the coordinator':

INSTITUTO DE FISICA DE ALTAS ENERGIAS (IFAE), PIC 999613907, established in CAMPUS DE BELLATERRA - UNIVERSIDAD AUTONOMA DE BARCELONA, CERDANYOLA DEL VALLES 08193, Spain,

and the following other beneficiaries, if they sign their 'accession form' (see Annex 3 and Article 40):

2. **ISTITUTO NAZIONALE DI FISICA NUCLEARE (INFN)**, PIC 999992789, established in Via Enrico Fermi 54, FRASCATI 00044, Italy,

3. **UNIWERSYTET WARSZAWSKI (UW)**, PIC 999572294, established in KRAKOWSKIE PRZEDMIESCIE 26/28, WARSZAWA 00 927, Poland,

4. **CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE CNRS (CNRS)**, PIC 999997930, established in RUE MICHEL ANGE 3, PARIS 75794, France,

5. **STICHTING NEDERLANDSE WETENSCHAPPELIJK ONDERZOEK INSTITUTEN (NIKHEF)**, PIC 999624092, established in WINTHONTLAAN 2, UTRECHT 3526 KV, Netherlands,

6. **UNIVERSITE CATHOLIQUE DE LOUVAIN (UCL)**, PIC 999980664, established in PLACE DE L UNIVERSITE 1, LOUVAIN LA NEUVE 1348, Belgium,

7. **UNIVERSITEIT ANTWERPEN (UAntwerpen)**, PIC 999902870, established in PRINSSTRAAT 13, ANTWERPEN 2000, Belgium,

8. **EUROPEAN GRAVITATIONAL OBSERVATORY(EGO) (OSSERVATORIO GRAVITAZIO NALEEUROPEO) (EGO)**, PIC 999540672, established in VIA EDOARDO AMALDI SANTO STEFANO A MACERATA, CASCINA 56021, Italy,

9. **DEUTSCHES ELEKTRONEN-SYNCHROTRON DESY (DESY)**, PIC 999986969, established in NOTKESTRASSE 85, HAMBURG 22607, Germany,

10. **WIGNER FIZIKAI KUTATOKOZPONT (Wigner RCP)**, PIC 954722113, established in Konkoly Thege Miklos ut 29-33, Budapest 1121, Hungary,

11. **MONTANUNIVERSITAET LEOBEN (MUL)**, PIC 999898117, established in FRANZ JOSEF STRASSE 18, LEOBEN 8700, Austria,

Unless otherwise specified, references to ‘beneficiary’ or ‘beneficiaries’ include the coordinator and affiliated entities (if any).

If only one beneficiary signs the grant agreement (‘mono-beneficiary grant’), all provisions referring to the ‘coordinator’ or the ‘beneficiaries’ will be considered — mutatis mutandis — as referring to the beneficiary.

The parties referred to above have agreed to enter into the Agreement.

By signing the Agreement and the accession forms, the beneficiaries accept the grant and agree to implement the action under their own responsibility and in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

The Agreement is composed of:

Preamble

Terms and Conditions (including Data Sheet)

Annex 1 Description of the action¹

Annex 2 Estimated budget for the action

Annex 2a Additional information on unit costs and contributions (if applicable)

Annex 3 Accession forms (if applicable)²

Annex 3a Declaration on joint and several liability of affiliated entities (if applicable)³

Annex 4 Model for the financial statements

Annex 5 Specific rules (if applicable)

¹ Template published on [Portal Reference Documents](#).

² Template published on [Portal Reference Documents](#).

³ Template published on [Portal Reference Documents](#).

TERMS AND CONDITIONS

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DATA SHEET

1. General data

Project summary:

Project summary
<p>Einstein Telescope (ET) will be the European Third-Generation (3G) Gravitational Wave (GW) Observatory, designed to observe the Universe by covering the whole spectrum observable from Earth with interferometric GW detectors. ET will put Europe at the forefront of the GW research being the first and most advanced 3G GW observatory. Europe will take the lead in the newborn multi-messenger astronomy by combining information delivered by ET with optical, IR, UV, gamma, cosmic ray and neutrino telescopes observations. ET will impact on our fundamental physics knowledge, and our understanding of the fundamental interactions governing the evolution of black-holes and neutron stars. The ET preparatory phase (ET-PP) will address a number of fundamental prerequisites for the approval, construction and operation of ET: the enlargement of the ET consortium, the legal framework, governance schemes, and financial regulations under which ET will be constructed and operated; the detailed technical design and costing of the ET observatory; the preparation of the ET site selection; detailing and cost-estimation of the required site infrastructure, and its socioeconomic and environmental impacts; the schemes for technology transfer, procurement and industry involvement in the technical design and construction of ET; the required linking with relevant science communities regarding the detailed definition of the science program, and the user services and data access model. For ET-PP, support is sought for work on the legal, governance and financial issues, for the installation of a project office coordinating and supporting management of ET-PP as well as the design of ET and the planning of the implementation, for site-related work, for studies regarding the optimization and production of ET components by industry, for linking with science communities and for increasing social awareness. Hence, ET-PP will deliver a detailed implementation plan for the ET infrastructure.</p>

Keywords: not defined

Project number: 101079696

Project name: Preparatory Phase for the Einstein Telescope Gravitational Wave Observatory

Project acronym: ET-PP

Call: HORIZON-INFRA-2021-DEV-02

Topic: HORIZON-INFRA-2021-DEV-02-01

Type of action: HORIZON Coordination and Support Actions

Granting authority: European Research Executive Agency

Grant managed through EU Funding & Tenders Portal: Yes (eGrants)

Project starting date: fixed date: 1 September 2022

Project end date: 31 August 2026

Project duration: 48 months

Consortium agreement: Yes

2. Participants

List of participants:

N°	Role	Short name	Legal name	Ctry	PIC	Total eligible costs (BEN and AE)	Max grant amount
1	COO	IFAE	INSTITUTO DE FISICA DE ALTAS ENERGIAS	ES	999613907	1 246 375.00	328 750.00
1.1	AE	BSC CNS	BARCELONA SUPERCOMPUTING CENTER-CENTRO NACIONAL DE SUPERCOMPUTACION	ES	999655520	372 250.00	231 250.00
2	BEN	INFN	ISTITUTO NAZIONALE DI FISICA NUCLEARE	IT	999992789	2 809 425.00	735 000.00
3	BEN	UW	UNIWERSYTET WARSZAWSKI	PL	999572294	482 383.75	167 500.00

N°	Role	Short name	Legal name	Ctry	PIC	Total eligible costs (BEN and AE)	Max grant amount
4	BEN	CNRS	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE CNRS	FR	999997930	2 508 313.75	907 500.00
5	BEN	NIKHEF	STICHTING NEDERLANDSE WETENSCHAPPELIJK ONDERZOEK INSTITUTEN	NL	999624092	2 991 197.50	728 750.00
6	BEN	UCL	UNIVERSITE CATHOLIQUE DE LOUVAIN	BE	999980664	243 750.00	56 250.00
7	BEN	UAntwerpen	UNIVERSITEIT ANTWERPEN	BE	999902870	619 000.00	15 000.00
8	BEN	EGO	EUROPEAN GRAVITATIONAL OBSERVATORY(EGO) (OSSERVATORIO GRAVITAZIO NALEEUROPEO)	IT	999540672	341 250.00	120 000.00
9	BEN	DESY	DEUTSCHES ELEKTRONEN-SYNCHROTRON DESY	DE	999986969	62 500.00	62 500.00
10	BEN	Wigner RCP	WIGNER FIZIKAI KUTATOKOZPONT	HU	954722113	100 625.00	15 000.00
11	BEN	MUL	MONTANUNIVERSITAET LEOBEN	AT	999898117	138 750.00	82 500.00
12	AP	UNIGE	UNIVERSITE DE GENEVE	CH	999974650	0.00	0.00
13	AP	UKRI	UNITED KINGDOM RESEARCH AND INNOVATION	UK	906446474	0.00	0.00
14	AP	UCAR	CARDIFF UNIVERSITY	UK	999979694	0.00	0.00
15	AP	UGLA	UNIVERSITY OF GLASGOW	UK	999974165	0.00	0.00
Total						11 915 820.00	3 450 000.00

Coordinator:

- INSTITUTO DE FISICA DE ALTAS ENERGIAS (IFAE)

3. Grant**Maximum grant amount, total estimated eligible costs and contributions and funding rate:**

Total eligible costs (BEN and AE)	Funding rate (%)	Maximum grant amount (Annex 2)	Maximum grant amount (award decision)
11 915 820.00	100	3 450 000.00	3 450 000.00

Grant form: Budget-based**Grant mode:** Action grant**Budget categories/activity types:**

- A. Personnel costs
 - A.1 Employees, A.2 Natural persons under direct contract, A.3 Seconded persons
 - A.4 SME owners and natural person beneficiaries
- B. Subcontracting costs
- C. Purchase costs
 - C.1 Travel and subsistence
 - C.2 Equipment
 - C.3 Other goods, works and services
- D. Other cost categories
 - D.2 Internally invoiced goods and services
- E. Indirect costs

Cost eligibility options:

- In-kind contributions eligible costs
- Parental leave
- Project-based supplementary payments
- Average personnel costs (unit cost according to usual cost accounting practices)
- Limitation for subcontracting
- Travel and subsistence:
 - Travel: Actual costs
 - Accommodation: Actual costs
 - Subsistence: Actual costs
- Equipment: depreciation only
- Indirect cost flat-rate: 25% of the eligible direct costs (categories A-D, except volunteers costs, subcontracting costs, financial support to third parties and exempted specific cost categories, if any)
- VAT: Yes
- Other ineligible costs

Budget flexibility: Yes (no flexibility cap)

4. Reporting, payments and recoveries

4.1 Continuous reporting (art 21)

Deliverables: see Funding & Tenders Portal Continuous Reporting tool

4.2 Periodic reporting and payments

Reporting and payment schedule (art 21, 22):

Reporting					Payments	
Reporting periods			Type	Deadline	Type	Deadline (time to pay)
RP No	Month from	Month to				
					Initial prefinancing	30 days from entry into force/10 days before starting date – whichever is the latest
1	1	12	Periodic report	60 days after end of reporting period	Interim payment	90 days from receiving periodic report
2	13	30	Periodic report	60 days after end of reporting period	Interim payment	90 days from receiving periodic report
3	31	48	Periodic report	60 days after end of reporting period	Final payment	90 days from receiving periodic report

Prefinancing payments and guarantees:

Prefinancing payment	
Type	Amount
Prefinancing 1 (initial)	1 839 885.00

Reporting and payment modalities (art 21, 22):

Mutual Insurance Mechanism (MIM): Yes

MIM contribution: 5% of the maximum grant amount (172 500.00), retained from the initial prefinancing

Restrictions on distribution of initial prefinancing: The prefinancing may be distributed only if the minimum number of beneficiaries set out in the call conditions (if any) have acceded to the Agreement and only to beneficiaries that have acceded.

Interim payment ceiling (if any): 90% of the maximum grant amount

Exception for revenues: Yes

No-profit rule: Yes

Late payment interest: ECB + 3.5%

Bank account for payments:

ES2221000424360200126144

Conversion into euros: Double conversion

Reporting language: Language of the Agreement

4.3 Certificates (art 24):

Certificates on the financial statements (CFS):

Conditions:

Schedule: only at final payment, if threshold is reached

Standard threshold (beneficiary-level):

- financial statement: requested EU contribution to costs \geq EUR 430 000.00

Special threshold for beneficiaries with a systems and process audit(see Article 24): financial statement: requested EU contribution to costs \geq EUR 725 000.00

4.4 Recoveries (art 22)**First-line liability for recoveries:**

Beneficiary termination: Beneficiary concerned

Final payment: Each beneficiary for their own debt

After final payment: Beneficiary concerned

Joint and several liability for enforced recoveries (in case of non-payment):

Individual financial responsibility: Each beneficiary is liable only for its own debts (and those of its affiliated entities, if any)

5. Consequences of non-compliance, applicable law & dispute settlement forum

Suspension and termination:

Additional suspension grounds (art 31)

Additional termination grounds (art 32)

Applicable law (art 43):

Standard applicable law regime: EU law + law of Belgium

Dispute settlement forum (art 43):

Standard dispute settlement forum:

EU beneficiaries: EU General Court + EU Court of Justice (on appeal)

Non-EU beneficiaries: Courts of Brussels, Belgium (unless an international agreement provides for the enforceability of EU court judgements)

6. Other

Specific rules (Annex 5): Yes

Standard time-limits after project end:

Confidentiality (for X years after final payment): 5

Record-keeping (for X years after final payment): 5 (or 3 for grants of not more than EUR 60 000)

Reviews (up to X years after final payment): 2

Audits (up to X years after final payment): 2

Extension of findings from other grants to this grant (no later than X years after final payment): 2

Impact evaluation (up to X years after final payment): 5 (or 3 for grants of not more than EUR 60 000)

CHAPTER 1 GENERAL

ARTICLE 1 — SUBJECT OF THE AGREEMENT

This Agreement sets out the rights and obligations and terms and conditions applicable to the grant awarded for the implementation of the action set out in Chapter 2.

ARTICLE 2 — DEFINITIONS

For the purpose of this Agreement, the following definitions apply:

Actions — The project which is being funded in the context of this Agreement.

Grant — The grant awarded in the context of this Agreement.

EU grants — Grants awarded by EU institutions, bodies, offices or agencies (including EU executive agencies, EU regulatory agencies, EDA, joint undertakings, etc.).

Participants — Entities participating in the action as beneficiaries, affiliated entities, associated partners, third parties giving in-kind contributions, subcontractors or recipients of financial support to third parties.

Beneficiaries (BEN) — The signatories of this Agreement (either directly or through an accession form).

Affiliated entities (AE) — Entities affiliated to a beneficiary within the meaning of Article 187 of EU Financial Regulation 2018/1046⁴ which participate in the action with similar rights and obligations as the beneficiaries (obligation to implement action tasks and right to charge costs and claim contributions).

Associated partners (AP) — Entities which participate in the action, but without the right to charge costs or claim contributions.

Purchases — Contracts for goods, works or services needed to carry out the action (e.g. equipment, consumables and supplies) but which are not part of the action tasks (see Annex 1).

Subcontracting — Contracts for goods, works or services that are part of the action tasks (see Annex 1).

In-kind contributions — In-kind contributions within the meaning of Article 2(36) of EU Financial

⁴ For the definition, see Article 187 Regulation (EU, Euratom) 2018/1046 of the European Parliament and of the Council of 18 July 2018 on the financial rules applicable to the general budget of the Union, amending Regulations (EU) No 1296/2013, (EU) No 1301/2013, (EU) No 1303/2013, (EU) No 1304/2013, (EU) No 1309/2013, (EU) No 1316/2013, (EU) No 223/2014, (EU) No 283/2014, and Decision No 541/2014/EU and repealing Regulation (EU, Euratom) No 966/2012 ('EU Financial Regulation') (OJ L 193, 30.7.2018, p. 1): "**affiliated entities** [are]:

- (a) entities that form a sole beneficiary [(i.e. where an entity is formed of several entities that satisfy the criteria for being awarded a grant, including where the entity is specifically established for the purpose of implementing an action to be financed by a grant)];
- (b) entities that satisfy the eligibility criteria and that do not fall within one of the situations referred to in Article 136(1) and 141(1) and that have a link with the beneficiary, in particular a legal or capital link, which is neither limited to the action nor established for the sole purpose of its implementation".

Regulation 2018/1046, i.e. non-financial resources made available free of charge by third parties.

Fraud — Fraud within the meaning of Article 3 of EU Directive 2017/1371⁵ and Article 1 of the Convention on the protection of the European Communities' financial interests, drawn up by the Council Act of 26 July 1995⁶, as well as any other wrongful or criminal deception intended to result in financial or personal gain.

Irregularities — Any type of breach (regulatory or contractual) which could impact the EU financial interests, including irregularities within the meaning of Article 1(2) of EU Regulation 2988/95⁷.

Grave professional misconduct — Any type of unacceptable or improper behaviour in exercising one's profession, especially by employees, including grave professional misconduct within the meaning of Article 136(1)(c) of EU Financial Regulation 2018/1046.

Applicable EU, international and national law — Any legal acts or other (binding or non-binding) rules and guidance in the area concerned.

Portal — EU Funding & Tenders Portal; electronic portal and exchange system managed by the European Commission and used by itself and other EU institutions, bodies, offices or agencies for the management of their funding programmes (grants, procurements, prizes, etc.).

CHAPTER 2 ACTION

ARTICLE 3 — ACTION

The grant is awarded for the action **101079696 — ET-PP** ('action'), as described in Annex 1.

ARTICLE 4 — DURATION AND STARTING DATE

The duration and the starting date of the action are set out in the Data Sheet (see Point 1).

CHAPTER 3 GRANT

ARTICLE 5 — GRANT

5.1 Form of grant

The grant is an action grant⁸ which takes the form of a budget-based mixed actual cost grant (i.e. a

⁵ Directive (EU) 2017/1371 of the European Parliament and of the Council of 5 July 2017 on the fight against fraud to the Union's financial interests by means of criminal law (OJ L 198, 28.7.2017, p. 29).

⁶ OJ C 316, 27.11.1995, p. 48.

⁷ Council Regulation (EC, Euratom) No 2988/95 of 18 December 1995 on the protection of the European Communities financial interests (OJ L 312, 23.12.1995, p. 1).

⁸ For the definition, see Article 180(2)(a) EU Financial Regulation 2018/1046: '**action grant**' means an EU grant to finance "an action intended to help achieve a Union policy objective".

grant based on actual costs incurred, but which may also include other forms of funding, such as unit costs or contributions, flat-rate costs or contributions, lump sum costs or contributions or financing not linked to costs).

5.2 Maximum grant amount

The maximum grant amount is set out in the Data Sheet (see Point 3) and in the estimated budget (Annex 2).

5.3 Funding rate

The funding rate for costs is 100% of the action's eligible costs.

Contributions are not subject to any funding rate.

5.4 Estimated budget, budget categories and forms of funding

The estimated budget for the action is set out in Annex 2.

It contains the estimated eligible costs and contributions for the action, broken down by participant and budget category.

Annex 2 also shows the types of costs and contributions (forms of funding)⁹ to be used for each budget category.

If unit costs or contributions are used, the details on the calculation will be explained in Annex 2a.

5.5 Budget flexibility

The budget breakdown may be adjusted — without an amendment (see Article 39) — by transfers (between participants and budget categories), as long as this does not imply any substantive or important change to the description of the action in Annex 1.

However:

- changes to the budget category for volunteers (if used) always require an amendment
- changes to budget categories with lump sums costs or contributions (if used; including financing not linked to costs) always require an amendment
- changes to budget categories with higher funding rates or budget ceilings (if used) always require an amendment
- addition of amounts for subcontracts not provided for in Annex 1 either require an amendment or simplified approval in accordance with Article 6.2
- other changes require an amendment or simplified approval, if specifically provided for in Article 6.2
- flexibility caps: not applicable.

⁹ See Article 125 EU Financial Regulation 2018/1046.

ARTICLE 6 — ELIGIBLE AND INELIGIBLE COSTS AND CONTRIBUTIONS

In order to be eligible, costs and contributions must meet the **eligibility** conditions set out in this Article.

6.1 General eligibility conditions

The **general eligibility conditions** are the following:

(a) for actual costs:

- (i) they must be actually incurred by the beneficiary
- (ii) they must be incurred in the period set out in Article 4 (with the exception of costs relating to the submission of the final periodic report, which may be incurred afterwards; see Article 21)
- (iii) they must be declared under one of the budget categories set out in Article 6.2 and Annex 2
- (iv) they must be incurred in connection with the action as described in Annex 1 and necessary for its implementation
- (v) they must be identifiable and verifiable, in particular recorded in the beneficiary's accounts in accordance with the accounting standards applicable in the country where the beneficiary is established and with the beneficiary's usual cost accounting practices
- (vi) they must comply with the applicable national law on taxes, labour and social security and
- (vii) they must be reasonable, justified and must comply with the principle of sound financial management, in particular regarding economy and efficiency

(b) for unit costs or contributions (if any):

- (i) they must be declared under one of the budget categories set out in Article 6.2 and Annex 2
- (ii) the units must:
 - be actually used or produced by the beneficiary in the period set out in Article 4 (with the exception of units relating to the submission of the final periodic report, which may be used or produced afterwards; see Article 21)
 - be necessary for the implementation of the action and
- (iii) the number of units must be identifiable and verifiable, in particular supported by records and documentation (see Article 20)

(c) for flat-rate costs or contributions (if any):

- (i) they must be declared under one of the budget categories set out in Article 6.2 and Annex 2

- (ii) the costs or contributions to which the flat-rate is applied must:
 - be eligible
 - relate to the period set out in Article 4 (with the exception of costs or contributions relating to the submission of the final periodic report, which may be incurred afterwards; see Article 21)
- (d) for lump sum costs or contributions (if any):
 - (i) they must be declared under one of the budget categories set out in Article 6.2 and Annex 2
 - (ii) the work must be properly implemented by the beneficiary in accordance with Annex 1
 - (iii) the deliverables/outputs must be achieved in the period set out in Article 4 (with the exception of deliverables/outputs relating to the submission of the final periodic report, which may be achieved afterwards; see Article 21)
- (e) for unit, flat-rate or lump sum costs or contributions according to usual cost accounting practices (if any):
 - (i) they must fulfil the general eligibility conditions for the type of cost concerned
 - (ii) the cost accounting practices must be applied in a consistent manner, based on objective criteria, regardless of the source of funding
- (f) for financing not linked to costs (if any): the results must be achieved or the conditions must be fulfilled as described in Annex 1.

In addition, for direct cost categories (e.g. personnel, travel & subsistence, subcontracting and other direct costs) only costs that are directly linked to the action implementation and can therefore be attributed to it directly are eligible. They must not include any indirect costs (i.e. costs that are only indirectly linked to the action, e.g. via cost drivers).

In-kind contributions provided by third parties free of charge may be declared as eligible direct costs by the beneficiaries which use them (under the same conditions as if they were their own, provided that they concern only direct costs and that the third parties and their in-kind contributions are set out in Annex 1 (or approved ex post in the periodic report, if their use does not entail changes to the Agreement which would call into question the decision awarding the grant or breach the principle of equal treatment of applicants; ‘simplified approval procedure’).

6.2 Specific eligibility conditions for each budget category

For each budget category, the **specific eligibility conditions** are as follows:

Direct costs

A. Personnel costs

A.1 Costs for employees (or equivalent) are eligible as personnel costs if they fulfil the general eligibility conditions and are related to personnel working for the beneficiary under an employment contract (or equivalent appointing act) and assigned to the action.

They must be limited to salaries (including net payments during parental leave), social security contributions, taxes and other costs linked to the remuneration, if they arise from national law or the employment contract (or equivalent appointing act) and be calculated on the basis of the costs actually incurred, in accordance with the following method:

{daily rate for the person
multiplied by
number of day-equivalents worked on the action (rounded up or down to the nearest half-day)}.

The daily rate must be calculated as:

{annual personnel costs for the person
divided by
215}.

The number of day-equivalents declared for a person must be identifiable and verifiable (see Article 20).

The actual time spent on parental leave by a person assigned to the action may be deducted from the 215 days indicated in the above formula.

The total number of day-equivalents declared in EU grants, for a person for a year, cannot be higher than 215, minus time spent on parental leave (if any).

For personnel which receives supplementary payments for work in projects (project-based remuneration), the personnel costs must be calculated at a rate which:

- corresponds to the actual remuneration costs paid by the beneficiary for the time worked by the person in the action over the reporting period
- does not exceed the remuneration costs paid by the beneficiary for work in similar projects funded by national schemes ('national projects reference')
- is defined based on objective criteria allowing to determine the amount to which the person is entitled

and

- reflects the usual practice of the beneficiary to pay consistently bonuses or supplementary payments for work in projects funded by national schemes.

The national projects reference is the remuneration defined in national law, collective labour agreement or written internal rules of the beneficiary applicable to work in projects funded by national schemes.

If there is no such national law, collective labour agreement or written internal rules or if the project-based remuneration is not based on objective criteria, the national project reference will be the average

remuneration of the person in the last full calendar year covered by the reporting period, excluding remuneration paid for work in EU actions.

If the beneficiary uses average personnel costs (unit cost according to usual cost accounting practices), the personnel costs must fulfil the general eligibility conditions for such unit costs and the daily rate must be calculated:

- using the actual personnel costs recorded in the beneficiary's accounts and excluding any costs which are ineligible or already included in other budget categories; the actual personnel costs may be adjusted on the basis of budgeted or estimated elements, if they are relevant for calculating the personnel costs, reasonable and correspond to objective and verifiable information

and

- according to usual cost accounting practices which are applied in a consistent manner, based on objective criteria, regardless of the source of funding.

A.2 and A.3 Costs for natural persons working under a direct contract other than an employment contract and costs for **seconded persons by a third party against payment** are also eligible as personnel costs, if they are assigned to the action, fulfil the general eligibility conditions and:

- (a) work under conditions similar to those of an employee (in particular regarding the way the work is organised, the tasks that are performed and the premises where they are performed) and
- (b) the result of the work belongs to the beneficiary (unless agreed otherwise).

They must be calculated on the basis of a rate which corresponds to the costs actually incurred for the direct contract or secondment and must not be significantly different from those for personnel performing similar tasks under an employment contract with the beneficiary.

A.4 The work of **SME owners** for the action (i.e. owners of beneficiaries that are small and medium-sized enterprises¹⁰ not receiving a salary) or **natural person beneficiaries** (i.e. beneficiaries that are natural persons not receiving a salary) may be declared as personnel costs, if they fulfil the general eligibility conditions and are calculated as unit costs in accordance with the method set out in Annex 2a.

B. Subcontracting costs

Subcontracting costs for the action (including related duties, taxes and charges, such as non-deductible or non-refundable value added tax (VAT)) are eligible, if they are calculated on the basis of the costs actually incurred, fulfil the general eligibility conditions and are awarded using the

¹⁰ For the definition, see Commission Recommendation 2003/361/EC: micro, small or medium-sized enterprise (SME) are enterprises

- engaged in an economic activity, irrespective of their legal form (including, in particular, self-employed persons and family businesses engaged in craft or other activities, and partnerships or associations regularly engaged in an economic activity) and
- employing fewer than 250 persons (expressed in 'annual working units' as defined in Article 5 of the Recommendation) and which have an annual turnover not exceeding EUR 50 million, and/or an annual balance sheet total not exceeding EUR 43 million.

beneficiary's usual purchasing practices — provided these ensure subcontracts with best value for money (or if appropriate the lowest price) and that there is no conflict of interests (see Article 12).

Beneficiaries that are 'contracting authorities/entities' within the meaning of the EU Directives on public procurement must also comply with the applicable national law on public procurement.

Subcontracting may cover only a limited part of the action.

The tasks to be subcontracted and the estimated cost for each subcontract must be set out in Annex 1 and the total estimated costs of subcontracting per beneficiary must be set out in Annex 2 (or may be approved ex post in the periodic report, if the use of subcontracting does not entail changes to the Agreement which would call into question the decision awarding the grant or breach the principle of equal treatment of applicants; 'simplified approval procedure').

C. Purchase costs

Purchase costs for the action (including related duties, taxes and charges, such as non-deductible or non-refundable value added tax (VAT)) are eligible if they fulfil the general eligibility conditions and are bought using the beneficiary's usual purchasing practices — provided these ensure purchases with best value for money (or if appropriate the lowest price) and that there is no conflict of interests (see Article 12).

Beneficiaries that are 'contracting authorities/entities' within the meaning of the EU Directives on public procurement must also comply with the applicable national law on public procurement.

C.1 Travel and subsistence

Purchases for **travel, accommodation and subsistence** must be calculated as follows:

- travel: on the basis of the costs actually incurred and in line with the beneficiary's usual practices on travel
- accommodation: on the basis of the costs actually incurred and in line with the beneficiary's usual practices on travel
- subsistence: on the basis of the costs actually incurred and in line with the beneficiary's usual practices on travel .

C.2 Equipment

Purchases of **equipment, infrastructure or other assets** used for the action must be declared as depreciation costs, calculated on the basis of the costs actually incurred and written off in accordance with international accounting standards and the beneficiary's usual accounting practices.

Only the portion of the costs that corresponds to the rate of actual use for the action during the action duration can be taken into account.

Costs for **renting or leasing** equipment, infrastructure or other assets are also eligible, if they do not exceed the depreciation costs of similar equipment, infrastructure or assets and do not include any financing fees.

C.3 Other goods, works and services

Purchases of **other goods, works and services** must be calculated on the basis of the costs actually incurred.

Such goods, works and services include, for instance, consumables and supplies, promotion, dissemination, protection of results, translations, publications, certificates and financial guarantees, if required under the Agreement.

D. Other cost categories

D.2 Internally invoiced goods and services

Costs for internally invoiced goods and services directly used for the action may be declared as unit cost according to usual cost accounting practices, if and as declared eligible in the call conditions, if they fulfil the general eligibility conditions for such unit costs and the amount per unit is calculated:

- using the actual costs for the good or service recorded in the beneficiary's accounts, attributed either by direct measurement or on the basis of cost drivers, and excluding any cost which are ineligible or already included in other budget categories; the actual costs may be adjusted on the basis of budgeted or estimated elements, if they are relevant for calculating the costs, reasonable and correspond to objective and verifiable information

and

- according to usual cost accounting practices which are applied in a consistent manner, based on objective criteria, regardless of the source of funding.

'Internally invoiced goods and services' means goods or services which are provided within the beneficiary's organisation directly for the action and which the beneficiary values on the basis of its usual cost accounting practices.

This cost will not be taken into account for the indirect cost flat-rate.

Indirect costs

E. Indirect costs

Indirect costs will be reimbursed at the flat-rate of 25% of the eligible direct costs (categories A-D, except volunteers costs, subcontracting costs, financial support to third parties and exempted specific cost categories, if any).

Contributions

Not applicable

6.3 Ineligible costs and contributions

The following costs or contributions are **ineligible**:

- (a) costs or contributions that do not comply with the conditions set out above (Article 6.1 and 6.2), in particular:
 - (i) costs related to return on capital and dividends paid by a beneficiary

- (ii) debt and debt service charges
 - (iii) provisions for future losses or debts
 - (iv) interest owed
 - (v) currency exchange losses
 - (vi) bank costs charged by the beneficiary's bank for transfers from the granting authority
 - (vii) excessive or reckless expenditure
 - (viii) deductible or refundable VAT (including VAT paid by public bodies acting as public authority)
 - (ix) costs incurred or contributions for activities implemented during grant agreement suspension (see Article 31)
 - (x) in-kind contributions by third parties: not applicable
- (b) costs or contributions declared under other EU grants (or grants awarded by an EU Member State, non-EU country or other body implementing the EU budget), except for the following cases:
- (i) Synergy actions: not applicable
 - (ii) if the action grant is combined with an operating grant¹¹ running during the same period and the beneficiary can demonstrate that the operating grant does not cover any (direct or indirect) costs of the action grant
- (c) costs or contributions for staff of a national (or regional/local) administration, for activities that are part of the administration's normal activities (i.e. not undertaken only because of the grant)
- (d) costs or contributions (especially travel and subsistence) for staff or representatives of EU institutions, bodies or agencies
- (e) other :
- (i) country restrictions for eligible costs: not applicable
 - (ii) costs or contributions declared specifically ineligible in the call conditions.

6.4 Consequences of non-compliance

If a beneficiary declares costs or contributions that are ineligible, they will be rejected (see Article 27).

This may also lead to other measures described in Chapter 5.

¹¹ For the definition, see Article 180(2)(b) of EU Financial Regulation 2018/1046: ‘**operating grant**’ means an EU grant to finance “the functioning of a body which has an objective forming part of and supporting an EU policy”.

CHAPTER 4 GRANT IMPLEMENTATION

SECTION 1 CONSORTIUM: BENEFICIARIES, AFFILIATED ENTITIES AND OTHER PARTICIPANTS

ARTICLE 7 — BENEFICIARIES

The beneficiaries, as signatories of the Agreement, are fully responsible towards the granting authority for implementing it and for complying with all its obligations.

They must implement the Agreement to their best abilities, in good faith and in accordance with all the obligations and terms and conditions it sets out.

They must have the appropriate resources to implement the action and implement the action under their own responsibility and in accordance with Article 11. If they rely on affiliated entities or other participants (see Articles 8 and 9), they retain sole responsibility towards the granting authority and the other beneficiaries.

They are jointly responsible for the *technical* implementation of the action. If one of the beneficiaries fails to implement their part of the action, the other beneficiaries must ensure that this part is implemented by someone else (without being entitled to an increase of the maximum grant amount and subject to an amendment; see Article 39). The *financial* responsibility of each beneficiary in case of recoveries is governed by Article 22.

The beneficiaries (and their action) must remain eligible under the EU programme funding the grant for the entire duration of the action. Costs and contributions will be eligible only as long as the beneficiary and the action are eligible.

The **internal roles and responsibilities** of the beneficiaries are divided as follows:

- (a) Each beneficiary must:
 - (i) keep information stored in the Portal Participant Register up to date (see Article 19)
 - (ii) inform the granting authority (and the other beneficiaries) immediately of any events or circumstances likely to affect significantly or delay the implementation of the action (see Article 19)
 - (iii) submit to the coordinator in good time:
 - the prefinancing guarantees (if required; see Article 23)
 - the financial statements and certificates on the financial statements (CFS) (if required; see Articles 21 and 24.2 and Data Sheet, Point 4.3)
 - the contribution to the deliverables and technical reports (see Article 21)
 - any other documents or information required by the granting authority under the Agreement
 - (iv) submit via the Portal data and information related to the participation of their affiliated entities.

(b) The coordinator must:

- (i) monitor that the action is implemented properly (see Article 11)
- (ii) act as the intermediary for all communications between the consortium and the granting authority, unless the Agreement or granting authority specifies otherwise, and in particular:
 - submit the prefinancing guarantees to the granting authority (if any)
 - request and review any documents or information required and verify their quality and completeness before passing them on to the granting authority
 - submit the deliverables and reports to the granting authority
 - inform the granting authority about the payments made to the other beneficiaries (report on the distribution of payments; if required, see Articles 22 and 32)
- (iii) distribute the payments received from the granting authority to the other beneficiaries without unjustified delay (see Article 22).

The coordinator may not delegate or subcontract the above-mentioned tasks to any other beneficiary or third party (including affiliated entities).

However, coordinators which are public bodies may delegate the tasks set out in Point (b)(ii) last indent and (iii) above to entities with ‘authorisation to administer’ which they have created or which are controlled by or affiliated to them. In this case, the coordinator retains sole responsibility for the payments and for compliance with the obligations under the Agreement.

Moreover, coordinators which are ‘sole beneficiaries’¹² (or similar, such as European research infrastructure consortia (ERICs)) may delegate the tasks set out in Point (b)(i) to (iii) above to one of their members. The coordinator retains sole responsibility for compliance with the obligations under the Agreement.

The beneficiaries must have **internal arrangements** regarding their operation and co-ordination, to ensure that the action is implemented properly.

If required by the granting authority (see Data Sheet, Point 1), these arrangements must be set out in a written **consortium agreement** between the beneficiaries, covering for instance:

- the internal organisation of the consortium
- the management of access to the Portal
- different distribution keys for the payments and financial responsibilities in case of recoveries (if any)
- additional rules on rights and obligations related to background and results (see Article 16)

¹² For the definition, see Article 187(2) EU Financial Regulation 2018/1046: “Where several entities satisfy the criteria for being awarded a grant and together form one entity, that entity may be treated as the **sole beneficiary**, including where it is specifically established for the purpose of implementing the action financed by the grant.”

- settlement of internal disputes
- liability, indemnification and confidentiality arrangements between the beneficiaries.

The internal arrangements must not contain any provision contrary to this Agreement.

ARTICLE 8 — AFFILIATED ENTITIES

The following entities which are linked to a beneficiary will participate in the action as ‘affiliated entities’:

- **BARCELONA SUPERCOMPUTING CENTER-CENTRO NACIONAL DE SUPERCOMPUTACION (BSC CNS)**, PIC 999655520, linked to INSTITUTO DE FISICA DE ALTAS ENERGIAS (IFAE)

Affiliated entities can charge costs and contributions to the action under the same conditions as the beneficiaries and must implement the action tasks attributed to them in Annex 1 in accordance with Article 11.

Their costs and contributions will be included in Annex 2 and will be taken into account for the calculation of the grant.

The beneficiaries must ensure that all their obligations under this Agreement also apply to their affiliated entities.

The beneficiaries must ensure that the bodies mentioned in Article 25 (e.g. granting authority, OLAF, Court of Auditors (ECA), etc.) can exercise their rights also towards the affiliated entities.

Breaches by affiliated entities will be handled in the same manner as breaches by beneficiaries. Recovery of undue amounts will be handled through the beneficiaries.

If the granting authority requires joint and several liability of affiliated entities (see Data Sheet, Point 4.4), they must sign the declaration set out in Annex 3a and may be held liable in case of enforced recoveries against their beneficiaries (see Article 22.2 and 22.4).

ARTICLE 9 — OTHER PARTICIPANTS INVOLVED IN THE ACTION

9.1 Associated partners

The following entities which cooperate with a beneficiary will participate in the action as ‘associated partners’:

- **UNIVERSITE DE GENEVE (UNIGE)**, PIC 999974650
- **UNITED KINGDOM RESEARCH AND INNOVATION (UKRI)**, PIC 906446474
- **CARDIFF UNIVERSITY (UCAR)**, PIC 999979694
- **UNIVERSITY OF GLASGOW (UGLA)**, PIC 999974165

Associated partners must implement the action tasks attributed to them in Annex 1 in accordance with

Article 11. They may not charge costs or contributions to the action and the costs for their tasks are not eligible.

The tasks must be set out in Annex 1.

The beneficiaries must ensure that their contractual obligations under Articles 11 (proper implementation), 12 (conflict of interests), 13 (confidentiality and security), 14 (ethics), 17.2 (visibility), 18 (specific rules for carrying out action), 19 (information) and 20 (record-keeping) also apply to the associated partners.

The beneficiaries must ensure that the bodies mentioned in Article 25 (e.g. granting authority, OLAF, Court of Auditors (ECA), etc.) can exercise their rights also towards the associated partners.

9.2 Third parties giving in-kind contributions to the action

Other third parties may give in-kind contributions to the action (i.e. personnel, equipment, other goods, works and services, etc. which are free-of-charge) if necessary for the implementation.

Third parties giving in-kind contributions do not implement any action tasks. They may not charge costs or contributions to the action, but the costs for the in-kind contributions are eligible and may be charged by the beneficiaries which use them, under the conditions set out in Article 6. The costs will be included in Annex 2 as part of the beneficiaries' costs.

The third parties and their in-kind contributions should be set out in Annex 1.

The beneficiaries must ensure that the bodies mentioned in Article 25 (e.g. granting authority, OLAF, Court of Auditors (ECA), etc.) can exercise their rights also towards the third parties giving in-kind contributions.

9.3 Subcontractors

Subcontractors may participate in the action, if necessary for the implementation.

Subcontractors must implement their action tasks in accordance with Article 11. The costs for the subcontracted tasks (invoiced price from the subcontractor) are eligible and may be charged by the beneficiaries, under the conditions set out in Article 6. The costs will be included in Annex 2 as part of the beneficiaries' costs.

The beneficiaries must ensure that their contractual obligations under Articles 11 (proper implementation), 12 (conflict of interest), 13 (confidentiality and security), 14 (ethics), 17.2 (visibility), 18 (specific rules for carrying out action), 19 (information) and 20 (record-keeping) also apply to the subcontractors.

The beneficiaries must ensure that the bodies mentioned in Article 25 (e.g. granting authority, OLAF, Court of Auditors (ECA), etc.) can exercise their rights also towards the subcontractors.

9.4 Recipients of financial support to third parties

If the action includes providing financial support to third parties (e.g. grants, prizes or similar forms of support), the beneficiaries must ensure that their contractual obligations under Articles 12 (conflict of interest), 13 (confidentiality and security), 14 (ethics), 17.2 (visibility), 18 (specific rules for carrying

out action), 19 (information) and 20 (record-keeping) also apply to the third parties receiving the support (recipients).

The beneficiaries must also ensure that the bodies mentioned in Article 25 (e.g. granting authority, OLAF, Court of Auditors (ECA), etc.) can exercise their rights also towards the recipients.

ARTICLE 10 — PARTICIPANTS WITH SPECIAL STATUS

10.1 Non-EU participants

Participants which are established in a non-EU country (if any) undertake to comply with their obligations under the Agreement and:

- to respect general principles (including fundamental rights, values and ethical principles, environmental and labour standards, rules on classified information, intellectual property rights, visibility of funding and protection of personal data)
- for the submission of certificates under Article 24: to use qualified external auditors which are independent and comply with comparable standards as those set out in EU Directive 2006/43/EC¹³
- for the controls under Article 25: to allow for checks, reviews, audits and investigations (including on-the-spot checks, visits and inspections) by the bodies mentioned in that Article (e.g. granting authority, OLAF, Court of Auditors (ECA), etc.).

Special rules on dispute settlement apply (see Data Sheet, Point 5).

10.2 Participants which are international organisations

Participants which are international organisations (IOs; if any) undertake to comply with their obligations under the Agreement and:

- to respect general principles (including fundamental rights, values and ethical principles, environmental and labour standards, rules on classified information, intellectual property rights, visibility of funding and protection of personal data)
- for the submission of certificates under Article 24: to use either independent public officers or external auditors which comply with comparable standards as those set out in EU Directive 2006/43/EC
- for the controls under Article 25: to allow for the checks, reviews, audits and investigations by the bodies mentioned in that Article, taking into account the specific agreements concluded by them and the EU (if any).

For such participants, nothing in the Agreement will be interpreted as a waiver of their privileges or immunities, as accorded by their constituent documents or international law.

Special rules on applicable law and dispute settlement apply (see Article 43 and Data Sheet, Point 5).

¹³ Directive 2006/43/EC of the European Parliament and of the Council of 17 May 2006 on statutory audits of annual accounts and consolidated accounts or similar national regulations (OJ L 157, 9.6.2006, p. 87).

10.3 Pillar-assessed participants

Pillar-assessed participants (if any) may rely on their own systems, rules and procedures, in so far as they have been positively assessed and do not call into question the decision awarding the grant or breach the principle of equal treatment of applicants or beneficiaries.

‘Pillar-assessment’ means a review by the European Commission on the systems, rules and procedures which participants use for managing EU grants (in particular internal control system, accounting system, external audits, financing of third parties, rules on recovery and exclusion, information on recipients and protection of personal data; see Article 154 EU Financial Regulation 2018/1046).

Participants with a positive pillar assessment may rely on their own systems, rules and procedures, in particular for:

- record-keeping (Article 20): may be done in accordance with internal standards, rules and procedures
- currency conversion for financial statements (Article 21): may be done in accordance with usual accounting practices
- guarantees (Article 23): for public law bodies, prefinancing guarantees are not needed
- certificates (Article 24):
 - certificates on the financial statements (CFS): may be provided by their regular internal or external auditors and in accordance with their internal financial regulations and procedures
 - certificates on usual accounting practices (CoMUC): are not needed if those practices are covered by an ex-ante assessment

and use the following specific rules, for:

- recoveries (Article 22): in case of financial support to third parties, there will be no recovery if the participant has done everything possible to retrieve the undue amounts from the third party receiving the support (including legal proceedings) and non-recovery is not due to an error or negligence on its part
- checks, reviews, audits and investigations by the EU (Article 25): will be conducted taking into account the rules and procedures specifically agreed between them and the framework agreement (if any)
- impact evaluation (Article 26): will be conducted in accordance with the participant’s internal rules and procedures and the framework agreement (if any)
- grant agreement suspension (Article 31): certain costs incurred during grant suspension are eligible (notably, minimum costs necessary for a possible resumption of the action and costs relating to contracts which were entered into before the pre-information letter was received and which could not reasonably be suspended, reallocated or terminated on legal grounds)
- grant agreement termination (Article 32): the final grant amount and final payment will be calculated taking into account also costs relating to contracts due for execution only after

termination takes effect, if the contract was entered into before the pre-information letter was received and could not reasonably be terminated on legal grounds

- liability for damages (Article 33.2): the granting authority must be compensated for damage it sustains as a result of the implementation of the action or because the action was not implemented in full compliance with the Agreement only if the damage is due to an infringement of the participant's internal rules and procedures or due to a violation of third parties' rights by the participant or one of its employees or individual for whom the employees are responsible.

Participants whose pillar assessment covers procurement and granting procedures may also do purchases, subcontracting and financial support to third parties (Article 6.2) in accordance with their internal rules and procedures for purchases, subcontracting and financial support.

Participants whose pillar assessment covers data protection rules may rely on their internal standards, rules and procedures for data protection (Article 15).

The participants may however not rely on provisions which would breach the principle of equal treatment of applicants or beneficiaries or call into question the decision awarding the grant, such as in particular:

- eligibility (Article 6)
- consortium roles and set-up (Articles 7-9)
- security and ethics (Articles 13, 14)
- IPR (including background and results, access rights and rights of use), communication, dissemination and visibility (Articles 16 and 17)
- information obligation (Article 19)
- payment, reporting and amendments (Articles 21, 22 and 39)
- rejections, reductions, suspensions and terminations (Articles 27, 28, 29-32)

If the pillar assessment was subject to remedial measures, reliance on the internal systems, rules and procedures is subject to compliance with those remedial measures.

Participants whose assessment has not yet been updated to cover (the new rules on) data protection may rely on their internal systems, rules and procedures, provided that they ensure that personal data is:

- processed lawfully, fairly and in a transparent manner in relation to the data subject
- collected for specified, explicit and legitimate purposes and not further processed in a manner that is incompatible with those purposes
- adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed
- accurate and, where necessary, kept up to date

- kept in a form which permits identification of data subjects for no longer than is necessary for the purposes for which the data is processed and
- processed in a manner that ensures appropriate security of the personal data.

Participants must inform the coordinator without delay of any changes to the systems, rules and procedures that were part of the pillar assessment. The coordinator must immediately inform the granting authority.

Pillar-assessed participants that have also concluded a framework agreement with the EU, may moreover — under the same conditions as those above (i.e. not call into question the decision awarding the grant or breach the principle of equal treatment of applicants or beneficiaries) — rely on the provisions set out in that framework agreement.

SECTION 2 RULES FOR CARRYING OUT THE ACTION

ARTICLE 11 — PROPER IMPLEMENTATION OF THE ACTION

11.1 Obligation to properly implement the action

The beneficiaries must implement the action as described in Annex 1 and in compliance with the provisions of the Agreement, the call conditions and all legal obligations under applicable EU, international and national law.

11.2 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28).

Such breaches may also lead to other measures described in Chapter 5.

ARTICLE 12 — CONFLICT OF INTERESTS

12.1 Conflict of interests

The beneficiaries must take all measures to prevent any situation where the impartial and objective implementation of the Agreement could be compromised for reasons involving family, emotional life, political or national affinity, economic interest or any other direct or indirect interest (‘conflict of interests’).

They must formally notify the granting authority without delay of any situation constituting or likely to lead to a conflict of interests and immediately take all the necessary steps to rectify this situation.

The granting authority may verify that the measures taken are appropriate and may require additional measures to be taken by a specified deadline.

12.2 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28) and the grant or the beneficiary may be terminated (see Article 32).

Such breaches may also lead to other measures described in Chapter 5.

ARTICLE 13 — CONFIDENTIALITY AND SECURITY

13.1 Sensitive information

The parties must keep confidential any data, documents or other material (in any form) that is identified as sensitive in writing ('sensitive information') — during the implementation of the action and for at least until the time-limit set out in the Data Sheet (see Point 6).

If a beneficiary requests, the granting authority may agree to keep such information confidential for a longer period.

Unless otherwise agreed between the parties, they may use sensitive information only to implement the Agreement.

The beneficiaries may disclose sensitive information to their personnel or other participants involved in the action only if they:

- (a) need to know it in order to implement the Agreement and
- (b) are bound by an obligation of confidentiality.

The granting authority may disclose sensitive information to its staff and to other EU institutions and bodies.

It may moreover disclose sensitive information to third parties, if:

- (a) this is necessary to implement the Agreement or safeguard the EU financial interests and
- (b) the recipients of the information are bound by an obligation of confidentiality.

The confidentiality obligations no longer apply if:

- (a) the disclosing party agrees to release the other party
- (b) the information becomes publicly available, without breaching any confidentiality obligation
- (c) the disclosure of the sensitive information is required by EU, international or national law.

Specific confidentiality rules (if any) are set out in Annex 5.

13.2 Classified information

The parties must handle classified information in accordance with the applicable EU, international or national law on classified information (in particular, Decision 2015/444¹⁴ and its implementing rules).

Deliverables which contain classified information must be submitted according to special procedures agreed with the granting authority.

¹⁴ Commission Decision 2015/444/EC, Euratom of 13 March 2015 on the security rules for protecting EU classified information (OJ L 72, 17.3.2015, p. 53).

Action tasks involving classified information may be subcontracted only after explicit approval (in writing) from the granting authority.

Classified information may not be disclosed to any third party (including participants involved in the action implementation) without prior explicit written approval from the granting authority.

Specific security rules (if any) are set out in Annex 5.

13.3 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28).

Such breaches may also lead to other measures described in Chapter 5.

ARTICLE 14 — ETHICS AND VALUES

14.1 Ethics

The action must be carried out in line with the highest ethical standards and the applicable EU, international and national law on ethical principles.

Specific ethics rules (if any) are set out in Annex 5.

14.2 Values

The beneficiaries must commit to and ensure the respect of basic EU values (such as respect for human dignity, freedom, democracy, equality, the rule of law and human rights, including the rights of minorities).

Specific rules on values (if any) are set out in Annex 5.

14.3 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28).

Such breaches may also lead to other measures described in Chapter 5.

ARTICLE 15 — DATA PROTECTION

15.1 Data processing by the granting authority

Any personal data under the Agreement will be processed under the responsibility of the data controller of the granting authority in accordance with and for the purposes set out in the Portal Privacy Statement.

For grants where the granting authority is the European Commission, an EU regulatory or executive agency, joint undertaking or other EU body, the processing will be subject to Regulation 2018/1725¹⁵.

¹⁵ Regulation (EU) 2018/1725 of the European Parliament and of the Council of 23 October 2018 on the protection of natural persons with regard to the processing of personal data by the Union institutions, bodies, offices and agencies

15.2 Data processing by the beneficiaries

The beneficiaries must process personal data under the Agreement in compliance with the applicable EU, international and national law on data protection (in particular, Regulation 2016/679¹⁶).

They must ensure that personal data is:

- processed lawfully, fairly and in a transparent manner in relation to the data subjects
- collected for specified, explicit and legitimate purposes and not further processed in a manner that is incompatible with those purposes
- adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed
- accurate and, where necessary, kept up to date
- kept in a form which permits identification of data subjects for no longer than is necessary for the purposes for which the data is processed and
- processed in a manner that ensures appropriate security of the data.

The beneficiaries may grant their personnel access to personal data only if it is strictly necessary for implementing, managing and monitoring the Agreement. The beneficiaries must ensure that the personnel is under a confidentiality obligation.

The beneficiaries must inform the persons whose data are transferred to the granting authority and provide them with the Portal Privacy Statement.

15.3 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28).

Such breaches may also lead to other measures described in Chapter 5.

ARTICLE 16 — INTELLECTUAL PROPERTY RIGHTS (IPR) — BACKGROUND AND RESULTS — ACCESS RIGHTS AND RIGHTS OF USE

16.1 Background and access rights to background

The beneficiaries must give each other and the other participants access to the background identified as needed for implementing the action, subject to any specific rules in Annex 5.

‘Background’ means any data, know-how or information — whatever its form or nature (tangible or intangible), including any rights such as intellectual property rights — that is:

and on the free movement of such data, and repealing Regulation (EC) No 45/2001 and Decision No 1247/2002/EC (OJ L 295, 21.11.2018, p. 39).

¹⁶ Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (‘GDPR’) (OJ L 119, 4.5.2016, p. 1).

- (a) held by the beneficiaries before they acceded to the Agreement and
- (b) needed to implement the action or exploit the results.

If background is subject to rights of a third party, the beneficiary concerned must ensure that it is able to comply with its obligations under the Agreement.

16.2 Ownership of results

The granting authority does not obtain ownership of the results produced under the action.

‘Results’ means any tangible or intangible effect of the action, such as data, know-how or information, whatever its form or nature, whether or not it can be protected, as well as any rights attached to it, including intellectual property rights.

16.3 Rights of use of the granting authority on materials, documents and information received for policy, information, communication, dissemination and publicity purposes

The granting authority has the right to use non-sensitive information relating to the action and materials and documents received from the beneficiaries (notably summaries for publication, deliverables, as well as any other material, such as pictures or audio-visual material, in paper or electronic form) for policy, information, communication, dissemination and publicity purposes — during the action or afterwards.

The right to use the beneficiaries’ materials, documents and information is granted in the form of a royalty-free, non-exclusive and irrevocable licence, which includes the following rights:

- (a) **use for its own purposes** (in particular, making them available to persons working for the granting authority or any other EU service (including institutions, bodies, offices, agencies, etc.) or EU Member State institution or body; copying or reproducing them in whole or in part, in unlimited numbers; and communication through press information services)
- (b) **distribution to the public** (in particular, publication as hard copies and in electronic or digital format, publication on the internet, as a downloadable or non-downloadable file, broadcasting by any channel, public display or presentation, communicating through press information services, or inclusion in widely accessible databases or indexes)
- (c) **editing or redrafting** (including shortening, summarising, inserting other elements (e.g. meta-data, legends, other graphic, visual, audio or text elements), extracting parts (e.g. audio or video files), dividing into parts, use in a compilation)
- (d) **translation**
- (e) **storage** in paper, electronic or other form
- (f) **archiving**, in line with applicable document-management rules
- (g) the right to authorise **third parties** to act on its behalf or sub-license to third parties the modes of use set out in Points (b), (c), (d) and (f), if needed for the information, communication and publicity activity of the granting authority

(h) **processing**, analysing, aggregating the materials, documents and information received and **producing derivative works**.

The rights of use are granted for the whole duration of the industrial or intellectual property rights concerned.

If materials or documents are subject to moral rights or third party rights (including intellectual property rights or rights of natural persons on their image and voice), the beneficiaries must ensure that they comply with their obligations under this Agreement (in particular, by obtaining the necessary licences and authorisations from the rights holders concerned).

Where applicable, the granting authority will insert the following information:

“© – [year] – [name of the copyright owner]. All rights reserved. Licensed to the [name of granting authority] under conditions.”

16.4 Specific rules on IPR, results and background

Specific rules regarding intellectual property rights, results and background (if any) are set out in Annex 5.

16.5 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28).

Such a breach may also lead to other measures described in Chapter 5.

ARTICLE 17 — COMMUNICATION, DISSEMINATION AND VISIBILITY

17.1 Communication — Dissemination — Promoting the action

Unless otherwise agreed with the granting authority, the beneficiaries must promote the action and its results by providing targeted information to multiple audiences (including the media and the public), in accordance with Annex 1 and in a strategic, coherent and effective manner.

Before engaging in a communication or dissemination activity expected to have a major media impact, the beneficiaries must inform the granting authority.

17.2 Visibility — European flag and funding statement

Unless otherwise agreed with the granting authority, communication activities of the beneficiaries related to the action (including media relations, conferences, seminars, information material, such as brochures, leaflets, posters, presentations, etc., in electronic form, via traditional or social media, etc.), dissemination activities and any infrastructure, equipment, vehicles, supplies or major result funded by the grant must acknowledge EU support and display the European flag (emblem) and funding statement (translated into local languages, where appropriate):



Funded by the
European Union



Co-funded by the
European Union



Funded by the
European Union



Co-funded by the
European Union

The emblem must remain distinct and separate and cannot be modified by adding other visual marks, brands or text.

Apart from the emblem, no other visual identity or logo may be used to highlight the EU support.

When displayed in association with other logos (e.g. of beneficiaries or sponsors), the emblem must be displayed at least as prominently and visibly as the other logos.

For the purposes of their obligations under this Article, the beneficiaries may use the emblem without first obtaining approval from the granting authority. This does not, however, give them the right to exclusive use. Moreover, they may not appropriate the emblem or any similar trademark or logo, either by registration or by any other means.

17.3 Quality of information — Disclaimer

Any communication or dissemination activity related to the action must use factually accurate information.

Moreover, it must indicate the following disclaimer (translated into local languages where appropriate):

“Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or [name of the granting authority]. Neither the European Union nor the granting authority can be held responsible for them.”

17.4 Specific communication, dissemination and visibility rules

Specific communication, dissemination and visibility rules (if any) are set out in Annex 5.

17.5 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28).

Such breaches may also lead to other measures described in Chapter 5.

ARTICLE 18 — SPECIFIC RULES FOR CARRYING OUT THE ACTION

18.1 Specific rules for carrying out the action

Specific rules for implementing the action (if any) are set out in Annex 5.

18.2 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28).

Such a breach may also lead to other measures described in Chapter 5.

SECTION 3 GRANT ADMINISTRATION

ARTICLE 19 — GENERAL INFORMATION OBLIGATIONS

19.1 Information requests

The beneficiaries must provide — during the action or afterwards and in accordance with Article 7 — any information requested in order to verify eligibility of the costs or contributions declared, proper implementation of the action and compliance with the other obligations under the Agreement.

The information provided must be accurate, precise and complete and in the format requested, including electronic format.

19.2 Participant Register data updates

The beneficiaries must keep — at all times, during the action or afterwards — their information stored in the Portal Participant Register up to date, in particular, their name, address, legal representatives, legal form and organisation type.

19.3 Information about events and circumstances which impact the action

The beneficiaries must immediately inform the granting authority (and the other beneficiaries) of any of the following:

- (a) **events** which are likely to affect or delay the implementation of the action or affect the EU's financial interests, in particular:
 - (i) changes in their legal, financial, technical, organisational or ownership situation (including changes linked to one of the exclusion grounds listed in the declaration of honour signed before grant signature)
 - (ii) linked action information: not applicable

(b) circumstances affecting:

- (i) the decision to award the grant or
- (ii) compliance with requirements under the Agreement.

19.4 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the grant may be reduced (see Article 28).

Such breaches may also lead to other measures described in Chapter 5.

ARTICLE 20 — RECORD-KEEPING**20.1 Keeping records and supporting documents**

The beneficiaries must — at least until the time-limit set out in the Data Sheet (see Point 6) — keep records and other supporting documents to prove the proper implementation of the action in line with the accepted standards in the respective field (if any).

In addition, the beneficiaries must — for the same period — keep the following to justify the amounts declared:

- (a) for actual costs: adequate records and supporting documents to prove the costs declared (such as contracts, subcontracts, invoices and accounting records); in addition, the beneficiaries' usual accounting and internal control procedures must enable direct reconciliation between the amounts declared, the amounts recorded in their accounts and the amounts stated in the supporting documents
- (b) for flat-rate costs and contributions (if any): adequate records and supporting documents to prove the eligibility of the costs or contributions to which the flat-rate is applied
- (c) for the following simplified costs and contributions: the beneficiaries do not need to keep specific records on the actual costs incurred, but must keep:
 - (i) for unit costs and contributions (if any): adequate records and supporting documents to prove the number of units declared
 - (ii) for lump sum costs and contributions (if any): adequate records and supporting documents to prove proper implementation of the work as described in Annex 1
 - (iii) for financing not linked to costs (if any): adequate records and supporting documents to prove the achievement of the results or the fulfilment of the conditions as described in Annex 1
- (d) for unit, flat-rate and lump sum costs and contributions according to usual cost accounting practices (if any): the beneficiaries must keep any adequate records and supporting documents to prove that their cost accounting practices have been applied in a consistent manner, based on objective criteria, regardless of the source of funding, and that they comply with the eligibility conditions set out in Articles 6.1 and 6.2.

Moreover, the following is needed for specific budget categories:

- (e) for personnel costs: time worked for the beneficiary under the action must be supported by declarations signed monthly by the person and their supervisor, unless another reliable time-record system is in place; the granting authority may accept alternative evidence supporting the time worked for the action declared, if it considers that it offers an adequate level of assurance
- (f) additional record-keeping rules: not applicable

The records and supporting documents must be made available upon request (see Article 19) or in the context of checks, reviews, audits or investigations (see Article 25).

If there are on-going checks, reviews, audits, investigations, litigation or other pursuits of claims under the Agreement (including the extension of findings; see Article 25), the beneficiaries must keep these records and other supporting documentation until the end of these procedures.

The beneficiaries must keep the original documents. Digital and digitalised documents are considered originals if they are authorised by the applicable national law. The granting authority may accept non-original documents if they offer a comparable level of assurance.

20.2 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, costs or contributions insufficiently substantiated will be ineligible (see Article 6) and will be rejected (see Article 27), and the grant may be reduced (see Article 28).

Such breaches may also lead to other measures described in Chapter 5.

ARTICLE 21 — REPORTING

21.1 Continuous reporting

The beneficiaries must continuously report on the progress of the action (e.g. **deliverables, milestones, outputs/outcomes, critical risks, indicators**, etc; if any), in the Portal Continuous Reporting tool and in accordance with the timing and conditions it sets out (as agreed with the granting authority).

Standardised deliverables (e.g. progress reports not linked to payments, reports on cumulative expenditure, special reports, etc; if any) must be submitted using the templates published on the Portal.

21.2 Periodic reporting: Technical reports and financial statements

In addition, the beneficiaries must provide reports to request payments, in accordance with the schedule and modalities set out in the Data Sheet (see Point 4.2):

- for additional prefinancings (if any): an **additional prefinancing report**
- for interim payments (if any) and the final payment: a **periodic report**.

The prefinancing and periodic reports include a technical and financial part.

The technical part includes an overview of the action implementation. It must be prepared using the template available in the Portal Periodic Reporting tool.

The financial part of the additional prefinancing report includes a statement on the use of the previous prefinancing payment.

The financial part of the periodic report includes:

- the financial statements (individual and consolidated; for all beneficiaries/affiliated entities)
- the explanation on the use of resources (or detailed cost reporting table, if required)
- the certificates on the financial statements (CFS) (if required; see Article 24.2 and Data Sheet, Point 4.3).

The **financial statements** must detail the eligible costs and contributions for each budget category and, for the final payment, also the revenues for the action (see Articles 6 and 22).

All eligible costs and contributions incurred should be declared, even if they exceed the amounts indicated in the estimated budget (see Annex 2). Amounts that are not declared in the individual financial statements will not be taken into account by the granting authority.

By signing the financial statements (directly in the Portal Periodic Reporting tool), the beneficiaries confirm that:

- the information provided is complete, reliable and true
- the costs and contributions declared are eligible (see Article 6)
- the costs and contributions can be substantiated by adequate records and supporting documents (see Article 20) that will be produced upon request (see Article 19) or in the context of checks, reviews, audits and investigations (see Article 25)
- for the final periodic report: all the revenues have been declared (if required; see Article 22).

Beneficiaries will have to submit also the financial statements of their affiliated entities (if any). In case of recoveries (see Article 22), beneficiaries will be held responsible also for the financial statements of their affiliated entities.

21.3 Currency for financial statements and conversion into euros

The financial statements must be drafted in euro.

Beneficiaries with general accounts established in a currency other than the euro must convert the costs recorded in their accounts into euro, at the average of the daily exchange rates published in the C series of the *Official Journal of the European Union* (ECB website), calculated over the corresponding reporting period.

If no daily euro exchange rate is published in the *Official Journal* for the currency in question, they must be converted at the average of the monthly accounting exchange rates published on the European Commission website (InforEuro), calculated over the corresponding reporting period.

Beneficiaries with general accounts in euro must convert costs incurred in another currency into euro according to their usual accounting practices.

21.4 Reporting language

The reporting must be in the language of the Agreement, unless otherwise agreed with the granting authority (see Data Sheet, Point 4.2).

21.5 Consequences of non-compliance

If a report submitted does not comply with this Article, the granting authority may suspend the payment deadline (see Article 29) and apply other measures described in Chapter 5.

If the coordinator breaches its reporting obligations, the granting authority may terminate the grant or the coordinator's participation (see Article 32) or apply other measures described in Chapter 5.

ARTICLE 22 — PAYMENTS AND RECOVERIES — CALCULATION OF AMOUNTS DUE

22.1 Payments and payment arrangements

Payments will be made in accordance with the schedule and modalities set out in the Data Sheet (see Point 4.2).

They will be made in euro to the bank account indicated by the coordinator (see Data Sheet, Point 4.2) and must be distributed without unjustified delay (restrictions may apply to distribution of the initial prefinancing payment; see Data Sheet, Point 4.2).

Payments to this bank account will discharge the granting authority from its payment obligation.

The cost of payment transfers will be borne as follows:

- the granting authority bears the cost of transfers charged by its bank
- the beneficiary bears the cost of transfers charged by its bank
- the party causing a repetition of a transfer bears all costs of the repeated transfer.

Payments by the granting authority will be considered to have been carried out on the date when they are debited to its account.

22.2 Recoveries

Recoveries will be made, if — at beneficiary termination, final payment or afterwards — it turns out that the granting authority has paid too much and needs to recover the amounts undue.

Each beneficiary's financial responsibility in case of recovery is in principle limited to their own debt and undue amounts of their affiliated entities.

In case of enforced recoveries (see Article 22.4), affiliated entities will be held liable for repaying debts of their beneficiaries, if required by the granting authority (see Data Sheet, Point 4.4).

22.3 Amounts due

22.3.1 Prefinancing payments

The aim of the prefinancing is to provide the beneficiaries with a float.

It remains the property of the EU until the final payment.

For **initial prefinancings** (if any), the amount due, schedule and modalities are set out in the Data Sheet (see Point 4.2).

For **additional prefinancings** (if any), the amount due, schedule and modalities are also set out in the Data Sheet (see Point 4.2). However, if the statement on the use of the previous prefinancing payment shows that less than 70% was used, the amount set out in the Data Sheet will be reduced by the difference between the 70% threshold and the amount used.

The contribution to the Mutual Insurance Mechanism will be retained from the prefinancing payments (at the rate and in accordance with the modalities set out in the Data Sheet, see Point 4.2) and transferred to the Mechanism.

Prefinancing payments (or parts of them) may be offset (without the beneficiaries' consent) against amounts owed by a beneficiary to the granting authority — up to the amount due to that beneficiary.

For grants where the granting authority is the European Commission or an EU executive agency, offsetting may also be done against amounts owed to other Commission services or executive agencies.

Payments will not be made if the payment deadline or payments are suspended (see Articles 29 and 30).

22.3.2 Amount due at beneficiary termination — Recovery

In case of beneficiary termination, the granting authority will determine the provisional amount due for the beneficiary concerned. Payments (if any) will be made with the next interim or final payment.

The **amount due** will be calculated in the following step:

Step 1 — Calculation of the total accepted EU contribution

Step 1 — Calculation of the total accepted EU contribution

The granting authority will first calculate the 'accepted EU contribution' for the beneficiary for all reporting periods, by calculating the 'maximum EU contribution to costs' (applying the funding rate to the accepted costs of the beneficiary), taking into account requests for a lower contribution to costs and CFS threshold cappings (if any; see Article 24.5) and adding the contributions (accepted unit, flat-rate or lump sum contributions and financing not linked to costs, if any).

After that, the granting authority will take into account grant reductions (if any). The resulting amount is the 'total accepted EU contribution' for the beneficiary.

The **balance** is then calculated by deducting the payments received (if any; see report on the distribution of payments in Article 32), from the total accepted EU contribution:

{total accepted EU contribution for the beneficiary
 minus
 {prefinancing and interim payments received (if any)}}.

If the balance is **positive**, the amount will be included in the next interim or final payment to the consortium.

If the balance is **negative**, it will be **recovered** in accordance with the following procedure:

The granting authority will send a **pre-information letter** to the beneficiary concerned:

- formally notifying the intention to recover, the amount due, the amount to be recovered and the reasons why and
- requesting observations within 30 days of receiving notification.

If no observations are submitted (or the granting authority decides to pursue recovery despite the observations it has received), it will confirm the amount to be recovered and ask this amount to be paid to the coordinator (**confirmation letter**).

If payment is not made to the coordinator by the date specified in the confirmation letter, the granting authority may call on the Mutual Insurance Mechanism to intervene, if continuation of the action is guaranteed and the conditions set out in the rules governing the Mechanism are met.

In this case, it will send a **beneficiary recovery letter**, together with a **debit note** with the terms and date for payment.

The debit note for the beneficiary will include the amount calculated for the affiliated entities which also had to end their participation (if any).

If payment is not made by the date specified in the debit note, the granting authority will **enforce recovery** in accordance with Article 22.4.

The amounts will later on also be taken into account for the next interim or final payment.

22.3.3 Interim payments

Interim payments reimburse the eligible costs and contributions claimed for the implementation of the action during the reporting periods (if any).

Interim payments (if any) will be made in accordance with the schedule and modalities set out the Data Sheet (see Point 4.2).

Payment is subject to the approval of the periodic report. Its approval does not imply recognition of compliance, authenticity, completeness or correctness of its content.

The **interim payment** will be calculated by the granting authority in the following steps:

- Step 1 — Calculation of the total accepted EU contribution
- Step 2 — Limit to the interim payment ceiling

Step 1 — Calculation of the total accepted EU contribution

The granting authority will calculate the ‘accepted EU contribution’ for the action for the reporting period, by first calculating the ‘maximum EU contribution to costs’ (applying the funding rate to the accepted costs of each beneficiary), taking into account requests for a lower contribution to costs, and CFS threshold cappings (if any; see Article 24.5) and adding the contributions (accepted unit, flat-rate or lump sum contributions and financing not linked to costs, if any).

After that, the granting authority will take into account grant reductions from beneficiary termination (if any). The resulting amount is the ‘total accepted EU contribution’.

Step 2 — Limit to the interim payment ceiling

The resulting amount is then capped to ensure that the total amount of prefinancing and interim payments (if any) does not exceed the interim payment ceiling set out in the Data Sheet (see Point 4.2).

Interim payments (or parts of them) may be offset (without the beneficiaries’ consent) against amounts owed by a beneficiary to the granting authority — up to the amount due to that beneficiary.

For grants where the granting authority is the European Commission or an EU executive agency, offsetting may also be done against amounts owed to other Commission services or executive agencies.

Payments will not be made if the payment deadline or payments are suspended (see Articles 29 and 30).

22.3.4 Final payment — Final grant amount — Revenues and Profit — Recovery

The final payment (payment of the balance) reimburses the remaining part of the eligible costs and contributions claimed for the implementation of the action (if any).

The final payment will be made in accordance with the schedule and modalities set out in the Data Sheet (see Point 4.2).

Payment is subject to the approval of the final periodic report. Its approval does not imply recognition of compliance, authenticity, completeness or correctness of its content.

The **final grant amount for the action** will be calculated in the following steps:

Step 1 — Calculation of the total accepted EU contribution

Step 2 — Limit to the maximum grant amount

Step 3 — Reduction due to the no-profit rule

Step 1 — Calculation of the total accepted EU contribution

The granting authority will first calculate the ‘accepted EU contribution’ for the action for all reporting periods, by calculating the ‘maximum EU contribution to costs’ (applying the funding rate to the total accepted costs of each beneficiary), taking into account requests for a lower contribution to costs, CFS threshold cappings (if any; see Article 24.5) and adding the contributions (accepted unit, flat-rate or lump sum contributions and financing not linked to costs, if any).

After that, the granting authority will take into account grant reductions (if any). The resulting amount is the ‘total accepted EU contribution’.

Step 2 — Limit to the maximum grant amount

If the resulting amount is higher than the maximum grant amount set out in Article 5.2, it will be limited to the latter.

Step 3 — Reduction due to the no-profit rule

If the no-profit rule is provided for in the Data Sheet (see Point 4.2), the grant must not produce a profit (i.e. surplus of the amount obtained following Step 2 plus the action’s revenues, over the eligible costs and contributions approved by the granting authority).

‘Revenue’ is all income generated by the action, during its duration (see Article 4), for beneficiaries that are profit legal entities (— with the exception of income generated by the exploitation of results, which are not considered as revenues).

If there is a profit, it will be deducted in proportion to the final rate of reimbursement of the eligible costs approved by the granting authority (as compared to the amount calculated following Steps 1 and 2 minus the contributions).

The **balance** (final payment) is then calculated by deducting the total amount of prefinancing and interim payments already made (if any), from the final grant amount:

$$\begin{aligned} & \{ \text{final grant amount} \\ & \text{minus} \\ & \{ \text{prefinancing and interim payments made (if any)} \} \}. \end{aligned}$$

If the balance is **positive**, it will be **paid** to the coordinator.

The amount retained for the Mutual Insurance Mechanism (see above) will be released and **paid** to the coordinator (in accordance with the rules governing the Mechanism).

The final payment (or part of it) may be offset (without the beneficiaries’ consent) against amounts owed by a beneficiary to the granting authority — up to the amount due to that beneficiary.

For grants where the granting authority is the European Commission or an EU executive agency, offsetting may also be done against amounts owed to other Commission services or executive agencies.

Payments will not be made if the payment deadline or payments are suspended (see Articles 29 and 30).

If — despite the release of the Mutual Insurance Mechanism contribution — the balance is **negative**, it will be **recovered** in accordance with the following procedure:

The granting authority will send a **pre-information letter** to the coordinator:

- formally notifying the intention to recover, the final grant amount, the amount to be recovered and the reasons why

- requesting a report on the distribution of payments to the beneficiaries within 30 days of receiving notification and
- requesting observations within 30 days of receiving notification.

If no observations are submitted (or the granting authority decides to pursue recovery despite the observations it has received) and the coordinator has submitted the report on the distribution of payments, it will calculate the **share of the debt per beneficiary**, by:

- (a) identifying the beneficiaries for which the amount calculated as follows is negative:

$$\left\{ \left\{ \begin{array}{l} \text{total accepted EU contribution for the beneficiary} \\ \text{divided by} \\ \text{total accepted EU contribution for the action} \end{array} \right\} \right. \\ \left. \begin{array}{l} \text{multiplied by} \\ \text{final grant amount for the action} \end{array} \right\}, \\ \text{minus} \\ \left\{ \text{prefinancing and interim payments received by the beneficiary (if any)} \right\}$$

and

- (b) dividing the debt:

$$\left\{ \begin{array}{l} \text{amount calculated according to point (a) for the beneficiary concerned} \\ \text{divided by} \\ \text{the sum of the amounts calculated according to point (a) for all the beneficiaries identified according to} \\ \text{point (a)} \end{array} \right\} \\ \text{multiplied by} \\ \left\{ \begin{array}{l} \text{the amount to be recovered} \end{array} \right\}.$$

and confirm the amount to be recovered from each beneficiary concerned (**confirmation letter**), together with **debit notes** with the terms and date for payment.

The debit notes for beneficiaries will include the amounts calculated for their affiliated entities (if any).

If the coordinator has not submitted the report on the distribution of payments, the granting authority will **recover** the full amount from the coordinator (**confirmation letter** and **debit note** with the terms and date for payment).

If payment is not made by the date specified in the debit note, the granting authority will **enforce recovery** in accordance with Article 22.4.

22.3.5 Audit implementation after final payment — Revised final grant amount — Recovery

If — after the final payment (in particular, after checks, reviews, audits or investigations; see Article 25) — the granting authority rejects costs or contributions (see Article 27) or reduces the grant (see Article 28), it will calculate the **revised final grant amount** for the beneficiary concerned.

The **beneficiary revised final grant amount** will be calculated in the following step:

Step 1 — Calculation of the revised total accepted EU contribution

Step 1 — Calculation of the revised total accepted EU contribution

The granting authority will first calculate the ‘revised accepted EU contribution’ for the beneficiary, by calculating the ‘revised accepted costs’ and ‘revised accepted contributions’.

After that, it will take into account grant reductions (if any). The resulting ‘revised total accepted EU contribution’ is the beneficiary revised final grant amount.

If the revised final grant amount is lower than the beneficiary’s final grant amount (i.e. its share in the final grant amount for the action), it will be **recovered** in accordance with the following procedure:

The **beneficiary final grant amount** (i.e. share in the final grant amount for the action) is calculated as follows:

$$\left\{ \begin{array}{l} \text{\{total accepted EU contribution for the beneficiary} \\ \text{divided by} \\ \text{total accepted EU contribution for the action\}} \\ \text{multiplied by} \\ \text{final grant amount for the action\}}. \end{array} \right.$$

The granting authority will send a **pre-information letter** to the beneficiary concerned:

- formally notifying the intention to recover, the amount to be recovered and the reasons why and
- requesting observations within 30 days of receiving notification.

If no observations are submitted (or the granting authority decides to pursue recovery despite the observations it has received), it will confirm the amount to be recovered (**confirmation letter**), together with a **debit note** with the terms and the date for payment.

Recoveries against affiliated entities (if any) will be handled through their beneficiaries.

If payment is not made by the date specified in the debit note, the granting authority will **enforce recovery** in accordance with Article 22.4.

22.4 Enforced recovery

If payment is not made by the date specified in the debit note, the amount due will be recovered:

- (a) by offsetting the amount — without the coordinator or beneficiary’s consent — against any amounts owed to the coordinator or beneficiary by the granting authority.

In exceptional circumstances, to safeguard the EU financial interests, the amount may be offset before the payment date specified in the debit note.

For grants where the granting authority is the European Commission or an EU executive

agency, debts may also be offset against amounts owed by other Commission services or executive agencies.

- (b) financial guarantee(s): not applicable
- (c) joint and several liability of beneficiaries: not applicable
- (d) by holding affiliated entities jointly and severally liable (if any, see Data Sheet, Point 4.4)
- (e) by taking legal action (see Article 43) or, provided that the granting authority is the European Commission or an EU executive agency, by adopting an enforceable decision under Article 299 of the Treaty on the Functioning of the EU (TFEU) and Article 100(2) of EU Financial Regulation 2018/1046.

If the Mutual Insurance Mechanism was called on by the granting authority to intervene, recovery will be continued in the name of the Mutual Insurance Mechanism. If two debit notes were sent, the second one (in the name of the Mutual Insurance Mechanism) will be considered to replace the first one (in the name of the granting authority). Where the MIM intervened, offsetting, enforceable decisions or any other of the above-mentioned forms of enforced recovery may be used mutatis mutandis.

The amount to be recovered will be increased by **late-payment interest** at the rate set out in Article 22.5, from the day following the payment date in the debit note, up to and including the date the full payment is received.

Partial payments will be first credited against expenses, charges and late-payment interest and then against the principal.

Bank charges incurred in the recovery process will be borne by the beneficiary, unless Directive 2015/2366¹⁷ applies.

For grants where the granting authority is an EU executive agency, enforced recovery by offsetting or enforceable decision will be done by the services of the European Commission (see also Article 43).

22.5 Consequences of non-compliance

22.5.1 If the granting authority does not pay within the payment deadlines (see above), the beneficiaries are entitled to **late-payment interest** at the rate applied by the European Central Bank (ECB) for its main refinancing operations in euros ('reference rate'), plus the rate specified in the Data Sheet (Point 4.2). The reference rate is the rate in force on the first day of the month in which the payment deadline expires, as published in the C series of the *Official Journal of the European Union*.

If the late-payment interest is lower than or equal to EUR 200, it will be paid to the coordinator only on request submitted within two months of receiving the late payment.

Late-payment interest is not due if all beneficiaries are EU Member States (including regional and local government authorities or other public bodies acting on behalf of a Member State for the purpose of this Agreement).

¹⁷ Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC (OJ L 337, 23.12.2015, p. 35).

If payments or the payment deadline are suspended (see Articles 29 and 30), payment will not be considered as late.

Late-payment interest covers the period running from the day following the due date for payment (see above), up to and including the date of payment.

Late-payment interest is not considered for the purposes of calculating the final grant amount.

22.5.2 If the coordinator breaches any of its obligations under this Article, the grant may be reduced (see Article 29) and the grant or the coordinator may be terminated (see Article 32).

Such breaches may also lead to other measures described in Chapter 5.

ARTICLE 23 — GUARANTEES

Not applicable

ARTICLE 24 — CERTIFICATES

24.1 Operational verification report (OVR)

Not applicable

24.2 Certificate on the financial statements (CFS)

If required by the granting authority (see Data Sheet, Point 4.3), the beneficiaries must provide certificates on their financial statements (CFS), in accordance with the schedule, threshold and conditions set out in the Data Sheet.

The coordinator must submit them as part of the periodic report (see Article 21).

The certificates must be drawn up using the template published on the Portal, cover the costs declared on the basis of actual costs and costs according to usual cost accounting practices (if any), and fulfil the following conditions:

- (a) be provided by a qualified approved external auditor which is independent and complies with Directive 2006/43/EC¹⁸ (or for public bodies: by a competent independent public officer)
- (b) the verification must be carried out according to the highest professional standards to ensure that the financial statements comply with the provisions under the Agreement and that the costs declared are eligible.

The certificates will not affect the granting authority's right to carry out its own checks, reviews or audits, nor preclude the European Court of Auditors (ECA), the European Public Prosecutor's Office (EPPO) or the European Anti-Fraud Office (OLAF) from using their prerogatives for audits and investigations under the Agreement (see Article 25).

If the costs (or a part of them) were already audited by the granting authority, these costs do not need to be covered by the certificate and will not be counted for calculating the threshold (if any).

¹⁸ Directive 2006/43/EC of the European Parliament and of the Council of 17 May 2006 on statutory audits of annual accounts and consolidated accounts or similar national regulations (OJ L 157, 9.6.2006, p. 87).

24.3 Certificate on the compliance of usual cost accounting practices (CoMUC)

Not applicable

24.4 Systems and process audit (SPA)

Beneficiaries which:

- use unit, flat rate or lump sum costs or contributions according to documented (i.e. formally approved and in writing) usual costs accounting practices (if any) or
- have formalised documentation on the systems and processes for calculating their costs and contributions (i.e. formally approved and in writing), have participated in at least 150 actions under Horizon 2020 or the Euratom Research and Training Programme (2014-2018 or 2019-2020) and participate in at least 3 ongoing actions under Horizon Europe or the Euratom Research and Training Programme (2021-2025 or 2026-2027)

may apply to the granting authority for a systems and process audit (SPA).

This audit will be carried out as follows:

Step 1 – Application by the beneficiary.

Step 2 – If the application is accepted, the granting authority will carry out the systems and process audit, complemented by an audit of transactions (on a sample of the beneficiary's Horizon Europe or the Euratom Research and Training Programme financial statements).

Step 3 – The audit result will take the form of a risk assessment classification for the beneficiary: low, medium or high.

Low-risk beneficiaries will benefit from less (or less in-depth) ex-post audits (see Article 25) and a higher threshold for submitting certificates on the financial statements (CFS; see Articles 21 and 24.2 and Data Sheet, Point 4.3).

24.5 Consequences of non-compliance

If a beneficiary does not submit a certificate on the financial statements (CFS) or the certificate is rejected, the accepted EU contribution to costs will be capped to reflect the CFS threshold.

If a beneficiary breaches any of its other obligations under this Article, the granting authority may apply the measures described in Chapter 5.

ARTICLE 25 — CHECKS, REVIEWS, AUDITS AND INVESTIGATIONS — EXTENSION OF FINDINGS

25.1 Granting authority checks, reviews and audits

25.1.1 Internal checks

The granting authority may — during the action or afterwards — check the proper implementation of the action and compliance with the obligations under the Agreement, including assessing costs and contributions, deliverables and reports.

25.1.2 Project reviews

The granting authority may carry out reviews on the proper implementation of the action and compliance with the obligations under the Agreement (general project reviews or specific issues reviews).

Such project reviews may be started during the implementation of the action and until the time-limit set out in the Data Sheet (see Point 6). They will be formally notified to the coordinator or beneficiary concerned and will be considered to start on the date of the notification.

If needed, the granting authority may be assisted by independent, outside experts. If it uses outside experts, the coordinator or beneficiary concerned will be informed and have the right to object on grounds of commercial confidentiality or conflict of interest.

The coordinator or beneficiary concerned must cooperate diligently and provide — within the deadline requested — any information and data in addition to deliverables and reports already submitted (including information on the use of resources). The granting authority may request beneficiaries to provide such information to it directly. Sensitive information and documents will be treated in accordance with Article 13.

The coordinator or beneficiary concerned may be requested to participate in meetings, including with the outside experts.

For **on-the-spot visits**, the beneficiary concerned must allow access to sites and premises (including to the outside experts) and must ensure that information requested is readily available.

Information provided must be accurate, precise and complete and in the format requested, including electronic format.

On the basis of the review findings, a **project review report** will be drawn up.

The granting authority will formally notify the project review report to the coordinator or beneficiary concerned, which has 30 days from receiving notification to make observations.

Project reviews (including project review reports) will be in the language of the Agreement.

25.1.3 Audits

The granting authority may carry out audits on the proper implementation of the action and compliance with the obligations under the Agreement.

Such audits may be started during the implementation of the action and until the time-limit set out in the Data Sheet (see Point 6). They will be formally notified to the beneficiary concerned and will be considered to start on the date of the notification.

The granting authority may use its own audit service, delegate audits to a centralised service or use external audit firms. If it uses an external firm, the beneficiary concerned will be informed and have the right to object on grounds of commercial confidentiality or conflict of interest.

The beneficiary concerned must cooperate diligently and provide — within the deadline requested — any information (including complete accounts, individual salary statements or other personal data)

to verify compliance with the Agreement. Sensitive information and documents will be treated in accordance with Article 13.

For **on-the-spot** visits, the beneficiary concerned must allow access to sites and premises (including for the external audit firm) and must ensure that information requested is readily available.

Information provided must be accurate, precise and complete and in the format requested, including electronic format.

On the basis of the audit findings, a **draft audit report** will be drawn up.

The auditors will formally notify the draft audit report to the beneficiary concerned, which has 30 days from receiving notification to make observations (contradictory audit procedure).

The **final audit report** will take into account observations by the beneficiary concerned and will be formally notified to them.

Audits (including audit reports) will be in the language of the Agreement.

25.2 European Commission checks, reviews and audits in grants of other granting authorities

Where the granting authority is not the European Commission, the latter has the same rights of checks, reviews and audits as the granting authority.

25.3 Access to records for assessing simplified forms of funding

The beneficiaries must give the European Commission access to their statutory records for the periodic assessment of simplified forms of funding which are used in EU programmes.

25.4 OLAF, EPPO and ECA audits and investigations

The following bodies may also carry out checks, reviews, audits and investigations — during the action or afterwards:

- the European Anti-Fraud Office (OLAF) under Regulations No 883/2013¹⁹ and No 2185/96²⁰
- the European Public Prosecutor's Office (EPPO) under Regulation 2017/1939
- the European Court of Auditors (ECA) under Article 287 of the Treaty on the Functioning of the EU (TFEU) and Article 257 of EU Financial Regulation 2018/1046.

If requested by these bodies, the beneficiary concerned must provide full, accurate and complete information in the format requested (including complete accounts, individual salary statements or

¹⁹ Regulation (EU, Euratom) No 883/2013 of the European Parliament and of the Council of 11 September 2013 concerning investigations conducted by the European Anti-Fraud Office (OLAF) and repealing Regulation (EC) No 1073/1999 of the European Parliament and of the Council and Council Regulation (Euratom) No 1074/1999 (OJ L 248, 18/09/2013, p. 1).

²⁰ Council Regulation (Euratom, EC) No 2185/1996 of 11 November 1996 concerning on-the-spot checks and inspections carried out by the Commission in order to protect the European Communities' financial interests against fraud and other irregularities (OJ L 292, 15/11/1996, p. 2).

other personal data, including in electronic format) and allow access to sites and premises for on-the-spot visits or inspections — as provided for under these Regulations.

To this end, the beneficiary concerned must keep all relevant information relating to the action, at least until the time-limit set out in the Data Sheet (Point 6) and, in any case, until any ongoing checks, reviews, audits, investigations, litigation or other pursuits of claims have been concluded.

25.5 Consequences of checks, reviews, audits and investigations — Extension of results of reviews, audits or investigations

25.5.1 Consequences of checks, reviews, audits and investigations in this grant

Findings in checks, reviews, audits or investigations carried out in the context of this grant may lead to rejections (see Article 27), grant reduction (see Article 28) or other measures described in Chapter 5.

Rejections or grant reductions after the final payment will lead to a revised final grant amount (see Article 22).

Findings in checks, reviews, audits or investigations during the action implementation may lead to a request for amendment (see Article 39), to change the description of the action set out in Annex 1.

Checks, reviews, audits or investigations that find systemic or recurrent errors, irregularities, fraud or breach of obligations in any EU grant may also lead to consequences in other EU grants awarded under similar conditions ('extension to other grants').

Moreover, findings arising from an OLAF or EPPO investigation may lead to criminal prosecution under national law.

25.5.2 Extension from other grants

Results of checks, reviews, audits or investigations in other grants may be extended to this grant, if:

- (a) the beneficiary concerned is found, in other EU grants awarded under similar conditions, to have committed systemic or recurrent errors, irregularities, fraud or breach of obligations that have a material impact on this grant and
- (b) those findings are formally notified to the beneficiary concerned — together with the list of grants affected by the findings — within the time-limit for audits set out in the Data Sheet (see Point 6).

The granting authority will formally notify the beneficiary concerned of the intention to extend the findings and the list of grants affected.

If the extension concerns **rejections of costs or contributions**: the notification will include:

- (a) an invitation to submit observations on the list of grants affected by the findings
- (b) the request to submit revised financial statements for all grants affected
- (c) the correction rate for extrapolation, established on the basis of the systemic or recurrent errors, to calculate the amounts to be rejected, if the beneficiary concerned:

- (i) considers that the submission of revised financial statements is not possible or practicable or
- (ii) does not submit revised financial statements.

If the extension concerns **grant reductions**: the notification will include:

- (a) an invitation to submit observations on the list of grants affected by the findings and
- (b) the **correction rate for extrapolation**, established on the basis of the systemic or recurrent errors and the principle of proportionality.

The beneficiary concerned has **60 days** from receiving notification to submit observations, revised financial statements or to propose a duly substantiated **alternative correction method/rate**.

On the basis of this, the granting authority will analyse the impact and decide on the implementation (i.e. start rejection or grant reduction procedures, either on the basis of the revised financial statements or the announced/alternative method/rate or a mix of those; see Articles 27 and 28).

25.6 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, costs or contributions insufficiently substantiated will be ineligible (see Article 6) and will be rejected (see Article 27), and the grant may be reduced (see Article 28).

Such breaches may also lead to other measures described in Chapter 5.

ARTICLE 26 — IMPACT EVALUATIONS

26.1 Impact evaluation

The granting authority may carry out impact evaluations of the action, measured against the objectives and indicators of the EU programme funding the grant.

Such evaluations may be started during implementation of the action and until the time-limit set out in the Data Sheet (see Point 6). They will be formally notified to the coordinator or beneficiaries and will be considered to start on the date of the notification.

If needed, the granting authority may be assisted by independent outside experts.

The coordinator or beneficiaries must provide any information relevant to evaluate the impact of the action, including information in electronic format.

26.2 Consequences of non-compliance

If a beneficiary breaches any of its obligations under this Article, the granting authority may apply the measures described in Chapter 5.

CHAPTER 5 CONSEQUENCES OF NON-COMPLIANCE

SECTION 1 REJECTIONS AND GRANT REDUCTION

ARTICLE 27 — REJECTION OF COSTS AND CONTRIBUTIONS

27.1 Conditions

The granting authority will — at beneficiary termination, interim payment, final payment or afterwards — reject any costs or contributions which are ineligible (see Article 6), in particular following checks, reviews, audits or investigations (see Article 25).

The rejection may also be based on the extension of findings from other grants to this grant (see Article 25).

Ineligible costs or contributions will be rejected.

27.2 Procedure

If the rejection does not lead to a recovery, the granting authority will formally notify the coordinator or beneficiary concerned of the rejection, the amounts and the reasons why. The coordinator or beneficiary concerned may — within 30 days of receiving notification — submit observations if it disagrees with the rejection (payment review procedure).

If the rejection leads to a recovery, the granting authority will follow the contradictory procedure with pre-information letter set out in Article 22.

27.3 Effects

If the granting authority rejects costs or contributions, it will deduct them from the costs or contributions declared and then calculate the amount due (and, if needed, make a recovery; see Article 22).

ARTICLE 28 — GRANT REDUCTION

28.1 Conditions

The granting authority may — at beneficiary termination, final payment or afterwards — reduce the grant for a beneficiary, if:

- (a) the beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed:
 - (i) substantial errors, irregularities or fraud or
 - (ii) serious breach of obligations under this Agreement or during its award (including improper implementation of the action, non-compliance with the call conditions, submission of false information, failure to provide required information, breach of ethics or security rules (if applicable), etc.), or
- (b) the beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed — in other EU grants

awarded to it under similar conditions — systemic or recurrent errors, irregularities, fraud or serious breach of obligations that have a material impact on this grant (see Article 25).

The amount of the reduction will be calculated for each beneficiary concerned and proportionate to the seriousness and the duration of the errors, irregularities or fraud or breach of obligations, by applying an individual reduction rate to their accepted EU contribution.

28.2 Procedure

If the grant reduction does not lead to a recovery, the granting authority will formally notify the coordinator or beneficiary concerned of the reduction, the amount to be reduced and the reasons why. The coordinator or beneficiary concerned may — within 30 days of receiving notification — submit observations if it disagrees with the reduction (payment review procedure).

If the grant reduction leads to a recovery, the granting authority will follow the contradictory procedure with pre-information letter set out in Article 22.

28.3 Effects

If the granting authority reduces the grant, it will deduct the reduction and then calculate the amount due (and, if needed, make a recovery; see Article 22).

SECTION 2 — SUSPENSION AND TERMINATION

ARTICLE 29 — PAYMENT DEADLINE SUSPENSION

29.1 Conditions

The granting authority may — at any moment — suspend the payment deadline if a payment cannot be processed because:

- (a) the required report (see Article 21) has not been submitted or is not complete or additional information is needed
- (b) there are doubts about the amount to be paid (e.g. ongoing audit extension procedure, queries about eligibility, need for a grant reduction, etc.) and additional checks, reviews, audits or investigations are necessary, or
- (c) there are other issues affecting the EU financial interests.

29.2 Procedure

The granting authority will formally notify the coordinator of the suspension and the reasons why.

The suspension will **take effect** the day the notification is sent.

If the conditions for suspending the payment deadline are no longer met, the suspension will be **lifted** — and the remaining time to pay (see Data Sheet, Point 4.2) will resume.

If the suspension exceeds two months, the coordinator may request the granting authority to confirm if the suspension will continue.

If the payment deadline has been suspended due to the non-compliance of the report and the revised report is not submitted (or was submitted but is also rejected), the granting authority may also terminate the grant or the participation of the coordinator (see Article 32).

ARTICLE 30 — PAYMENT SUSPENSION

30.1 Conditions

The granting authority may — at any moment — suspend payments, in whole or in part for one or more beneficiaries, if:

- (a) a beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed or is suspected of having committed:
 - (i) substantial errors, irregularities or fraud or
 - (ii) serious breach of obligations under this Agreement or during its award (including improper implementation of the action, non-compliance with the call conditions, submission of false information, failure to provide required information, breach of ethics or security rules (if applicable), etc.), or
- (b) a beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed — in other EU grants awarded to it under similar conditions — systemic or recurrent errors, irregularities, fraud or serious breach of obligations that have a material impact on this grant.

If payments are suspended for one or more beneficiaries, the granting authority will make partial payment(s) for the part(s) not suspended. If suspension concerns the final payment, the payment (or recovery) of the remaining amount after suspension is lifted will be considered to be the payment that closes the action.

30.2 Procedure

Before suspending payments, the granting authority will send a **pre-information letter** to the beneficiary concerned:

- formally notifying the intention to suspend payments and the reasons why and
- requesting observations within 30 days of receiving notification.

If the granting authority does not receive observations or decides to pursue the procedure despite the observations it has received, it will confirm the suspension (**confirmation letter**). Otherwise, it will formally notify that the procedure is discontinued.

At the end of the suspension procedure, the granting authority will also inform the coordinator.

The suspension will **take effect** the day after the confirmation notification is sent.

If the conditions for resuming payments are met, the suspension will be **lifted**. The granting authority will formally notify the beneficiary concerned (and the coordinator) and set the suspension end date.

During the suspension, no prefinancing will be paid to the beneficiaries concerned. For interim payments, the periodic reports for all reporting periods except the last one (see Article 21) must not contain any financial statements from the beneficiary concerned (or its affiliated entities). The coordinator must include them in the next periodic report after the suspension is lifted or — if suspension is not lifted before the end of the action — in the last periodic report.

ARTICLE 31 — GRANT AGREEMENT SUSPENSION

31.1 Consortium-requested GA suspension

31.1.1 Conditions and procedure

The beneficiaries may request the suspension of the grant or any part of it, if exceptional circumstances — in particular *force majeure* (see Article 35) — make implementation impossible or excessively difficult.

The coordinator must submit a request for **amendment** (see Article 39), with:

- the reasons why
- the date the suspension takes effect; this date may be before the date of the submission of the amendment request and
- the expected date of resumption.

The suspension will **take effect** on the day specified in the amendment.

Once circumstances allow for implementation to resume, the coordinator must immediately request another **amendment** of the Agreement to set the suspension end date, the resumption date (one day after suspension end date), extend the duration and make other changes necessary to adapt the action to the new situation (see Article 39) — unless the grant has been terminated (see Article 32). The suspension will be **lifted** with effect from the suspension end date set out in the amendment. This date may be before the date of the submission of the amendment request.

During the suspension, no prefinancing will be paid. Costs incurred or contributions for activities implemented during grant suspension are not eligible (see Article 6.3).

31.2 EU-initiated GA suspension

31.2.1 Conditions

The granting authority may suspend the grant or any part of it, if:

- (a) a beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed or is suspected of having committed:
 - (i) substantial errors, irregularities or fraud or
 - (ii) serious breach of obligations under this Agreement or during its award (including improper implementation of the action, non-compliance with the call conditions,

submission of false information, failure to provide required information, breach of ethics or security rules (if applicable), etc.), or

- (b) a beneficiary (or a person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed — in other EU grants awarded to it under similar conditions — systemic or recurrent errors, irregularities, fraud or serious breach of obligations that have a material impact on this grant
- (c) other:
 - (i) linked action issues: not applicable
 - (ii) the action has lost its scientific or technological relevance, for EIC Accelerator actions: the action has lost its economic relevance, for challenge-based EIC Pathfinder actions and Horizon Europe Missions: the action has lost its relevance as part of the Portfolio for which it has been initially selected

31.2.2 Procedure

Before suspending the grant, the granting authority will send a **pre-information letter** to the coordinator:

- formally notifying the intention to suspend the grant and the reasons why and
- requesting observations within 30 days of receiving notification.

If the granting authority does not receive observations or decides to pursue the procedure despite the observations it has received, it will confirm the suspension (**confirmation letter**). Otherwise, it will formally notify that the procedure is discontinued.

The suspension will **take effect** the day after the confirmation notification is sent (or on a later date specified in the notification).

Once the conditions for resuming implementation of the action are met, the granting authority will formally notify the coordinator a **lifting of suspension letter**, in which it will set the suspension end date and invite the coordinator to request an amendment of the Agreement to set the resumption date (one day after suspension end date), extend the duration and make other changes necessary to adapt the action to the new situation (see Article 39) — unless the grant has been terminated (see Article 32). The suspension will be **lifted** with effect from the suspension end date set out in the lifting of suspension letter. This date may be before the date on which the letter is sent.

During the suspension, no prefinancing will be paid. Costs incurred or contributions for activities implemented during suspension are not eligible (see Article 6.3).

The beneficiaries may not claim damages due to suspension by the granting authority (see Article 33).

Grant suspension does not affect the granting authority's right to terminate the grant or a beneficiary (see Article 32) or reduce the grant (see Article 28).

ARTICLE 32 — GRANT AGREEMENT OR BENEFICIARY TERMINATION

32.1 Consortium-requested GA termination

32.1.1 Conditions and procedure

The beneficiaries may request the termination of the grant.

The coordinator must submit a request for **amendment** (see Article 39), with:

- the reasons why
- the date the consortium ends work on the action ('end of work date') and
- the date the termination takes effect ('termination date'); this date must be after the date of the submission of the amendment request.

The termination will **take effect** on the termination date specified in the amendment.

If no reasons are given or if the granting authority considers the reasons do not justify termination, it may consider the grant terminated improperly.

32.1.2 Effects

The coordinator must — within 60 days from when termination takes effect — submit a **periodic report** (for the open reporting period until termination).

The granting authority will calculate the final grant amount and final payment on the basis of the report submitted and taking into account the costs incurred and contributions for activities implemented before the end of work date (see Article 22). Costs relating to contracts due for execution only after the end of work are not eligible.

If the granting authority does not receive the report within the deadline, only costs and contributions which are included in an approved periodic report will be taken into account (no costs/contributions if no periodic report was ever approved).

Improper termination may lead to a grant reduction (see Article 28).

After termination, the beneficiaries' obligations (in particular Articles 13 (confidentiality and security), 16 (IPR), 17 (communication, dissemination and visibility), 21 (reporting), 25 (checks, reviews, audits and investigations), 26 (impact evaluation), 27 (rejections), 28 (grant reduction) and 42 (assignment of claims)) continue to apply.

32.2 Consortium-requested beneficiary termination

32.2.1 Conditions and procedure

The coordinator may request the termination of the participation of one or more beneficiaries, on request of the beneficiary concerned or on behalf of the other beneficiaries.

The coordinator must submit a request for **amendment** (see Article 39), with:

- the reasons why
- the opinion of the beneficiary concerned (or proof that this opinion has been requested in writing)

- the date the beneficiary ends work on the action ('end of work date')
- the date the termination takes effect ('termination date'); this date must be after the date of the submission of the amendment request.

If the termination concerns the coordinator and is done without its agreement, the amendment request must be submitted by another beneficiary (acting on behalf of the consortium).

The termination will **take effect** on the termination date specified in the amendment.

If no information is given or if the granting authority considers that the reasons do not justify termination, it may consider the beneficiary to have been terminated improperly.

32.2.2 Effects

The coordinator must — within 60 days from when termination takes effect — submit:

- (i) a **report on the distribution of payments** to the beneficiary concerned
- (ii) a **termination report** from the beneficiary concerned, for the open reporting period until termination, containing an overview of the progress of the work, the financial statement, the explanation on the use of resources, and, if applicable, the certificate on the financial statement (CFS; see Articles 21 and 24.2 and Data Sheet, Point 4.3)
- (iii) a second **request for amendment** (see Article 39) with other amendments needed (e.g. reallocation of the tasks and the estimated budget of the terminated beneficiary; addition of a new beneficiary to replace the terminated beneficiary; change of coordinator, etc.).

The granting authority will calculate the amount due to the beneficiary on the basis of the report submitted and taking into account the costs incurred and contributions for activities implemented before the end of work date (see Article 22). Costs relating to contracts due for execution only after the end of work are not eligible.

The information in the termination report must also be included in the periodic report for the next reporting period (see Article 21).

If the granting authority does not receive the termination report within the deadline, only costs and contributions which are included in an approved periodic report will be taken into account (no costs/contributions if no periodic report was ever approved).

If the granting authority does not receive the report on the distribution of payments within the deadline, it will consider that:

- the coordinator did not distribute any payment to the beneficiary concerned and that
- the beneficiary concerned must not repay any amount to the coordinator.

If the second request for amendment is accepted by the granting authority, the Agreement is **amended** to introduce the necessary changes (see Article 39).

If the second request for amendment is rejected by the granting authority (because it calls into question the decision awarding the grant or breaches the principle of equal treatment of applicants), the grant may be terminated (see Article 32).

Improper termination may lead to a reduction of the grant (see Article 31) or grant termination (see Article 32).

After termination, the concerned beneficiary's obligations (in particular Articles 13 (confidentiality and security), 16 (IPR), 17 (communication, dissemination and visibility), 21 (reporting), 25 (checks, reviews, audits and investigations), 26 (impact evaluation), 27 (rejections), 28 (grant reduction) and 42 (assignment of claims)) continue to apply.

32.3 EU-initiated GA or beneficiary termination

32.3.1 Conditions

The granting authority may terminate the grant or the participation of one or more beneficiaries, if:

- (a) one or more beneficiaries do not accede to the Agreement (see Article 40)
- (b) a change to the action or the legal, financial, technical, organisational or ownership situation of a beneficiary is likely to substantially affect the implementation of the action or calls into question the decision to award the grant (including changes linked to one of the exclusion grounds listed in the declaration of honour)
- (c) following termination of one or more beneficiaries, the necessary changes to the Agreement (and their impact on the action) would call into question the decision awarding the grant or breach the principle of equal treatment of applicants
- (d) implementation of the action has become impossible or the changes necessary for its continuation would call into question the decision awarding the grant or breach the principle of equal treatment of applicants
- (e) a beneficiary (or person with unlimited liability for its debts) is subject to bankruptcy proceedings or similar (including insolvency, winding-up, administration by a liquidator or court, arrangement with creditors, suspension of business activities, etc.)
- (f) a beneficiary (or person with unlimited liability for its debts) is in breach of social security or tax obligations
- (g) a beneficiary (or person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has been found guilty of grave professional misconduct
- (h) a beneficiary (or person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed fraud, corruption, or is involved in a criminal organisation, money laundering, terrorism-related crimes (including terrorism financing), child labour or human trafficking
- (i) a beneficiary (or person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) was created under a different jurisdiction with the intent to circumvent fiscal, social or other legal obligations in the country of origin (or created another entity with this purpose)
- (j) a beneficiary (or person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed:

- (i) substantial errors, irregularities or fraud or
- (ii) serious breach of obligations under this Agreement or during its award (including improper implementation of the action, non-compliance with the call conditions, submission of false information, failure to provide required information, breach of ethics or security rules (if applicable), etc.)
- (k) a beneficiary (or person having powers of representation, decision-making or control, or person essential for the award/implementation of the grant) has committed — in other EU grants awarded to it under similar conditions — systemic or recurrent errors, irregularities, fraud or serious breach of obligations that have a material impact on this grant (extension of findings from other grants to this grant; see Article 25)
- (l) despite a specific request by the granting authority, a beneficiary does not request — through the coordinator — an amendment to the Agreement to end the participation of one of its affiliated entities or associated partners that is in one of the situations under points (d), (f), (e), (g), (h), (i) or (j) and to reallocate its tasks, or
- (m) other:
 - (i) linked action issues: not applicable
 - (ii) the action has lost its scientific or technological relevance, for EIC Accelerator actions: the action has lost its economic relevance, for challenge-based EIC Pathfinder actions and Horizon Europe Missions: the action has lost its relevance as part of the Portfolio for which it has been initially selected

32.3.2 Procedure

Before terminating the grant or participation of one or more beneficiaries, the granting authority will send a **pre-information letter** to the coordinator or beneficiary concerned:

- formally notifying the intention to terminate and the reasons why and
- requesting observations within 30 days of receiving notification.

If the granting authority does not receive observations or decides to pursue the procedure despite the observations it has received, it will confirm the termination and the date it will take effect (**confirmation letter**). Otherwise, it will formally notify that the procedure is discontinued.

For beneficiary terminations, the granting authority will — at the end of the procedure — also inform the coordinator.

The termination will **take effect** the day after the confirmation notification is sent (or on a later date specified in the notification; ‘termination date’).

32.3.3 Effects

- (a) for **GA termination**:

The coordinator must — within 60 days from when termination takes effect — submit a **periodic report** (for the last open reporting period until termination).

The granting authority will calculate the final grant amount and final payment on the basis of the report submitted and taking into account the costs incurred and contributions for activities implemented before termination takes effect (see Article 22). Costs relating to contracts due for execution only after termination are not eligible.

If the grant is terminated for breach of the obligation to submit reports, the coordinator may not submit any report after termination.

If the granting authority does not receive the report within the deadline, only costs and contributions which are included in an approved periodic report will be taken into account (no costs/contributions if no periodic report was ever approved).

Termination does not affect the granting authority's right to reduce the grant (see Article 28) or to impose administrative sanctions (see Article 34).

The beneficiaries may not claim damages due to termination by the granting authority (see Article 33).

After termination, the beneficiaries' obligations (in particular Articles 13 (confidentiality and security), 16 (IPR), 17 (communication, dissemination and visibility), 21 (reporting), 25 (checks, reviews, audits and investigations), 26 (impact evaluation), 27 (rejections), 28 (grant reduction) and 42 (assignment of claims)) continue to apply.

(b) for beneficiary termination:

The coordinator must — within 60 days from when termination takes effect — submit:

- (i) a **report on the distribution of payments** to the beneficiary concerned
- (ii) a **termination report** from the beneficiary concerned, for the open reporting period until termination, containing an overview of the progress of the work, the financial statement, the explanation on the use of resources, and, if applicable, the certificate on the financial statement (CFS; see Articles 21 and 24.2 and Data Sheet, Point 4.3)
- (iii) a **request for amendment** (see Article 39) with any amendments needed (e.g. reallocation of the tasks and the estimated budget of the terminated beneficiary; addition of a new beneficiary to replace the terminated beneficiary; change of coordinator, etc.).

The granting authority will calculate the amount due to the beneficiary on the basis of the report submitted and taking into account the costs incurred and contributions for activities implemented before termination takes effect (see Article 22). Costs relating to contracts due for execution only after termination are not eligible.

The information in the termination report must also be included in the periodic report for the next reporting period (see Article 21).

If the granting authority does not receive the termination report within the deadline, only costs and contributions included in an approved periodic report will be taken into account (no costs/contributions if no periodic report was ever approved).

If the granting authority does not receive the report on the distribution of payments within the deadline, it will consider that:

- the coordinator did not distribute any payment to the beneficiary concerned and that
- the beneficiary concerned must not repay any amount to the coordinator.

If the request for amendment is accepted by the granting authority, the Agreement is **amended** to introduce the necessary changes (see Article 39).

If the request for amendment is rejected by the granting authority (because it calls into question the decision awarding the grant or breaches the principle of equal treatment of applicants), the grant may be terminated (see Article 32).

After termination, the concerned beneficiary's obligations (in particular Articles 13 (confidentiality and security), 16 (IPR), 17 (communication, dissemination and visibility), 21 (reporting), 25 (checks, reviews, audits and investigations), 26 (impact evaluation), 27 (rejections), 28 (grant reduction) and 42 (assignment of claims)) continue to apply.

SECTION 3 OTHER CONSEQUENCES: DAMAGES AND ADMINISTRATIVE SANCTIONS

ARTICLE 33 — DAMAGES

33.1 Liability of the granting authority

The granting authority cannot be held liable for any damage caused to the beneficiaries or to third parties as a consequence of the implementation of the Agreement, including for gross negligence.

The granting authority cannot be held liable for any damage caused by any of the beneficiaries or other participants involved in the action, as a consequence of the implementation of the Agreement.

33.2 Liability of the beneficiaries

The beneficiaries must compensate the granting authority for any damage it sustains as a result of the implementation of the action or because the action was not implemented in full compliance with the Agreement, provided that it was caused by gross negligence or wilful act.

The liability does not extend to indirect or consequential losses or similar damage (such as loss of profit, loss of revenue or loss of contracts), provided such damage was not caused by wilful act or by a breach of confidentiality.

ARTICLE 34 — ADMINISTRATIVE SANCTIONS AND OTHER MEASURES

Nothing in this Agreement may be construed as preventing the adoption of administrative sanctions (i.e. exclusion from EU award procedures and/or financial penalties) or other public law measures, in addition or as an alternative to the contractual measures provided under this Agreement (see,

for instance, Articles 135 to 145 EU Financial Regulation 2018/1046 and Articles 4 and 7 of Regulation 2988/95²¹).

SECTION 4 FORCE MAJEURE

ARTICLE 35 — FORCE MAJEURE

A party prevented by force majeure from fulfilling its obligations under the Agreement cannot be considered in breach of them.

‘Force majeure’ means any situation or event that:

- prevents either party from fulfilling their obligations under the Agreement,
- was unforeseeable, exceptional situation and beyond the parties’ control,
- was not due to error or negligence on their part (or on the part of other participants involved in the action), and
- proves to be inevitable in spite of exercising all due diligence.

Any situation constituting force majeure must be formally notified to the other party without delay, stating the nature, likely duration and foreseeable effects.

The parties must immediately take all the necessary steps to limit any damage due to force majeure and do their best to resume implementation of the action as soon as possible.

CHAPTER 6 FINAL PROVISIONS

ARTICLE 36 — COMMUNICATION BETWEEN THE PARTIES

36.1 Forms and means of communication — Electronic management

EU grants are managed fully electronically through the EU Funding & Tenders Portal (‘Portal’).

All communications must be made electronically through the Portal, in accordance with the Portal Terms and Conditions and using the forms and templates provided there (except if explicitly instructed otherwise by the granting authority).

Communications must be made in writing and clearly identify the grant agreement (project number and acronym).

Communications must be made by persons authorised according to the Portal Terms and Conditions. For naming the authorised persons, each beneficiary must have designated — before the signature of this Agreement — a ‘legal entity appointed representative (LEAR)’. The role and tasks of the LEAR are stipulated in their appointment letter (see Portal Terms and Conditions).

²¹ Council Regulation (EC, Euratom) No 2988/95 of 18 December 1995 on the protection of the European Communities financial interests (OJ L 312, 23.12.1995, p. 1).

If the electronic exchange system is temporarily unavailable, instructions will be given on the Portal.

36.2 Date of communication

The sending date for communications made through the Portal will be the date and time of sending, as indicated by the time logs.

The receiving date for communications made through the Portal will be the date and time the communication is accessed, as indicated by the time logs. Formal notifications that have not been accessed within 10 days after sending, will be considered to have been accessed (see Portal Terms and Conditions).

If a communication is exceptionally made on paper (by e-mail or postal service), general principles apply (i.e. date of sending/receipt). Formal notifications by registered post with proof of delivery will be considered to have been received either on the delivery date registered by the postal service or the deadline for collection at the post office.

If the electronic exchange system is temporarily unavailable, the sending party cannot be considered in breach of its obligation to send a communication within a specified deadline.

36.3 Addresses for communication

The Portal can be accessed via the Europa website.

The address for paper communications to the granting authority (if exceptionally allowed) is the official mailing address indicated on its website.

For beneficiaries, it is the legal address specified in the Portal Participant Register.

ARTICLE 37 — INTERPRETATION OF THE AGREEMENT

The provisions in the Data Sheet take precedence over the rest of the Terms and Conditions of the Agreement.

Annex 5 takes precedence over the Terms and Conditions; the Terms and Conditions take precedence over the Annexes other than Annex 5.

Annex 2 takes precedence over Annex 1.

ARTICLE 38 — CALCULATION OF PERIODS AND DEADLINES

In accordance with Regulation No 1182/71²², periods expressed in days, months or years are calculated from the moment the triggering event occurs.

The day during which that event occurs is not considered as falling within the period.

‘Days’ means calendar days, not working days.

ARTICLE 39 — AMENDMENTS

²² Regulation (EEC, Euratom) No 1182/71 of the Council of 3 June 1971 determining the rules applicable to periods, dates and time-limits (OJ L 124, 8/6/1971, p. 1).

39.1 Conditions

The Agreement may be amended, unless the amendment entails changes to the Agreement which would call into question the decision awarding the grant or breach the principle of equal treatment of applicants.

Amendments may be requested by any of the parties.

39.2 Procedure

The party requesting an amendment must submit a request for amendment signed directly in the Portal Amendment tool.

The coordinator submits and receives requests for amendment on behalf of the beneficiaries (see Annex 3). If a change of coordinator is requested without its agreement, the submission must be done by another beneficiary (acting on behalf of the other beneficiaries).

The request for amendment must include:

- the reasons why
- the appropriate supporting documents and
- for a change of coordinator without its agreement: the opinion of the coordinator (or proof that this opinion has been requested in writing).

The granting authority may request additional information.

If the party receiving the request agrees, it must sign the amendment in the tool within 45 days of receiving notification (or any additional information the granting authority has requested). If it does not agree, it must formally notify its disagreement within the same deadline. The deadline may be extended, if necessary for the assessment of the request. If no notification is received within the deadline, the request is considered to have been rejected.

An amendment **enters into force** on the day of the signature of the receiving party.

An amendment **takes effect** on the date of entry into force or other date specified in the amendment.

ARTICLE 40 — ACCESSION AND ADDITION OF NEW BENEFICIARIES

40.1 Accession of the beneficiaries mentioned in the Preamble

The beneficiaries which are not coordinator must accede to the grant by signing the accession form (see Annex 3) directly in the Portal Grant Preparation tool, within 30 days after the entry into force of the Agreement (see Article 44).

They will assume the rights and obligations under the Agreement with effect from the date of its entry into force (see Article 44).

If a beneficiary does not accede to the grant within the above deadline, the coordinator must — within 30 days — request an amendment (see Article 39) to terminate the beneficiary and make any changes

necessary to ensure proper implementation of the action. This does not affect the granting authority's right to terminate the grant (see Article 32).

40.2 Addition of new beneficiaries

In justified cases, the beneficiaries may request the addition of a new beneficiary.

For this purpose, the coordinator must submit a request for amendment in accordance with Article 39. It must include an accession form (see Annex 3) signed by the new beneficiary directly in the Portal Amendment tool.

New beneficiaries will assume the rights and obligations under the Agreement with effect from the date of their accession specified in the accession form (see Annex 3).

Additions are also possible in mono-beneficiary grants.

ARTICLE 41 — TRANSFER OF THE AGREEMENT

In justified cases, the beneficiary of a mono-beneficiary grant may request the transfer of the grant to a new beneficiary, provided that this would not call into question the decision awarding the grant or breach the principle of equal treatment of applicants.

The beneficiary must submit a request for **amendment** (see Article 39), with

- the reasons why
- the accession form (see Annex 3) signed by the new beneficiary directly in the Portal Amendment tool and
- additional supporting documents (if required by the granting authority).

The new beneficiary will assume the rights and obligations under the Agreement with effect from the date of accession specified in the accession form (see Annex 3).

ARTICLE 42 — ASSIGNMENTS OF CLAIMS FOR PAYMENT AGAINST THE GRANTING AUTHORITY

The beneficiaries may not assign any of their claims for payment against the granting authority to any third party, except if expressly approved in writing by the granting authority on the basis of a reasoned, written request by the coordinator (on behalf of the beneficiary concerned).

If the granting authority has not accepted the assignment or if the terms of it are not observed, the assignment will have no effect on it.

In no circumstances will an assignment release the beneficiaries from their obligations towards the granting authority.

ARTICLE 43 — APPLICABLE LAW AND SETTLEMENT OF DISPUTES

43.1 Applicable law

The Agreement is governed by the applicable EU law, supplemented if necessary by the law of Belgium.

Special rules may apply for beneficiaries which are international organisations (if any; see Data Sheet, Point 5).

43.2 Dispute settlement

If a dispute concerns the interpretation, application or validity of the Agreement, the parties must bring action before the EU General Court — or, on appeal, the EU Court of Justice — under Article 272 of the Treaty on the Functioning of the EU (TFEU).

For non-EU beneficiaries (if any), such disputes must be brought before the courts of Brussels, Belgium — unless an international agreement provides for the enforceability of EU court judgements.

For beneficiaries with arbitration as special dispute settlement forum (if any; see Data Sheet, Point 5), the dispute will — in the absence of an amicable settlement — be settled in accordance with the Rules for Arbitration published on the Portal.

If a dispute concerns administrative sanctions, offsetting or an enforceable decision under Article 299 TFEU (see Articles 22 and 34), the beneficiaries must bring action before the General Court — or, on appeal, the Court of Justice — under Article 263 TFEU.

For grants where the granting authority is an EU executive agency (see Preamble), actions against offsetting and enforceable decisions must be brought against the European Commission (not against the granting authority; see also Article 22).

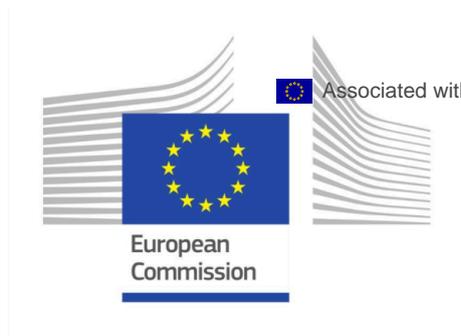
ARTICLE 44 — ENTRY INTO FORCE

The Agreement will enter into force on the day of signature by the granting authority or the coordinator, depending on which is later.

SIGNATURES

For the coordinator

For the granting authority



ANNEX 1



Horizon Europe (HORIZON)

Description of the action (DoA)

Part A

Part B

DESCRIPTION OF THE ACTION (PART A)

COVER PAGE

Part A of the Description of the Action (DoA) must be completed directly on the Portal Grant Preparation screens.

PROJECT	
<i>Grant Preparation (General Information screen) — Enter the info.</i>	
Project number:	101079696
Project name:	Preparatory Phase for the Einstein Telescope Gravitational Wave Observatory
Project acronym:	ET-PP
Call:	HORIZON-INFRA-2021-DEV-02
Topic:	HORIZON-INFRA-2021-DEV-02-01
Type of action:	HORIZON-CSA
Service:	REA/C/04
Project starting date:	fixed date: 1 September 2022
Project duration:	48 months

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Staff effort	14
List of deliverables	15
List of milestones (outputs/outcomes)	29
List of critical risks	31
Project reviews	32

PROJECT SUMMARY

Project summary

Grant Preparation (General Information screen) — Provide an overall description of your project (including context and overall objectives, planned activities and main achievements, and expected results and impacts (on target groups, change procedures, capacities, innovation etc)). This summary should give readers a clear idea of what your project is about.

Use the project summary from your proposal.

Einstein Telescope (ET) will be the European Third-Generation (3G) Gravitational Wave (GW) Observatory, designed to observe the Universe by covering the whole spectrum observable from Earth with interferometric GW detectors. ET will put Europe at the forefront of the GW research being the first and most advanced 3G GW observatory. Europe will take the lead in the newborn multi-messenger astronomy by combining information delivered by ET with optical, IR, UV, gamma, cosmic ray and neutrino telescopes observations. ET will impact on our fundamental physics knowledge, and our understanding of the fundamental interactions governing the evolution of black-holes and neutron stars.

The ET preparatory phase (ET-PP) will address a number of fundamental prerequisites for the approval, construction and operation of ET: the enlargement of the ET consortium, the legal framework, governance schemes, and financial regulations under which ET will be constructed and operated; the detailed technical design and costing of the ET observatory; the preparation of the ET site selection; detailing and cost-estimation of the required site infrastructure, and its socioeconomic and environmental impacts; the schemes for technology transfer, procurement and industry involvement in the technical design and construction of ET; the required linking with relevant science communities regarding the detailed definition of the science program, and the user services and data access model.

For ET-PP, support is sought for work on the legal, governance and financial issues, for the installation of a project office coordinating and supporting management of ET-PP as well as the design of ET and the planning of the implementation, for site-related work, for studies regarding the optimization and production of ET components by industry, for linking with science communities and for increasing social awareness. Hence, ET-PP will deliver a detailed implementation plan for the ET infrastructure.

LIST OF PARTICIPANTS

PARTICIPANTS

Grant Preparation (Beneficiaries screen) — Enter the info.

Number	Role	Short name	Legal name	Country	PIC
1	COO	IFAE	INSTITUTO DE FISICA DE ALTAS ENERGIAS	ES	999613907
1.1	AE	BSC CNS	BARCELONA SUPERCOMPUTING CENTER-CENTRO NACIONAL DE SUPERCOMPUTACION	ES	999655520
2	BEN	INFN	ISTITUTO NAZIONALE DI FISICA NUCLEARE	IT	999992789
3	BEN	UW	UNIwersytet Warszawski	PL	999572294
4	BEN	CNRS	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE CNRS	FR	999997930
5	BEN	NIKHEF	STICHTING NEDERLANDSE WETENSCHAPPELIJK ONDERZOEK INSTITUTEN	NL	999624092
6	BEN	UCL	UNIVERSITE CATHOLIQUE DE LOUVAIN	BE	999980664
7	BEN	UAntwerpen	UNIVERSITEIT ANTWERPEN	BE	999902870

PARTICIPANTS*Grant Preparation (Beneficiaries screen) — Enter the info.*

Number	Role	Short name	Legal name	Country	PIC
8	BEN	EGO	EUROPEAN GRAVITATIONAL OBSERVATORY(EGO) (OSSERVATORIO GRAVITAZIO NALEEUROPEO)	IT	999540672
9	BEN	DESY	DEUTSCHES ELEKTRONEN-SYNCHROTRON DESY	DE	999986969
10	BEN	Wigner RCP	WIGNER FIZIKAI KUTATOKOZPONT	HU	954722113
11	BEN	MUL	MONTANUNIVERSITAET LEOBEN	AT	999898117
12	AP	UNIGE	UNIVERSITE DE GENEVE	CH	999974650
13	AP	UKRI	UNITED KINGDOM RESEARCH AND INNOVATION	UK	906446474
14	AP	UCAR	CARDIFF UNIVERSITY	UK	999979694
15	AP	UGLA	UNIVERSITY OF GLASGOW	UK	999974165

LIST OF WORK PACKAGES

Work packages						
<i>Grant Preparation (Work Packages screen) — Enter the info.</i>						
Work Package No	Work Package name	Lead Beneficiary	Effort (Person-Months)	Start Month	End Month	Deliverables
WP1	Management & Coordination	1 - IFAE	88.80	1	48	D1.1 – Dissemination and Exploitation (D&E) Plan D1.2 – Data Management Plan (DMP)
WP2	Organization, Governance and Legal Aspects	5 - NIKHEF	39.80	1	48	D2.1 – Report providing options for legal entity D2.2 – Minutes of meetings with EC and involved ministries D2.3 – Legal entity statutes D2.4 – Roadmap to establish the legal entity and its implementation.
WP3	Financial Architecture	6 - UCL	74.00	1	48	D3.1 – Handbook for design and construction phase D3.2 – Handbook for operating phase D3.3 – Financial plan and Scenario analysis
WP4	Site Preparation	5 - NIKHEF	45.20	1	48	D4.1 – Scan of legal procedures, permitting and land acquisitions D4.2 – Updated socio-economic impact studies D4.3 – Complete quantification of all the aspects impacting the ET performance. D4.4 – Report on 3D geology, hydrology, etc. model with localisation of the ET infrastructure D4.5 – Updated cost and schedule estimates of the excavations

Work packages						
<i>Grant Preparation (Work Packages screen) — Enter the info.</i>						
Work Package No	Work Package name	Lead Beneficiary	Effort (Person-Months)	Start Month	End Month	Deliverables
WP5	Project Office & Engineering Department	4 - CNRS	595.00	1	48	D5.1 – Structure and mandate of the Project Office D5.2 – Functionalities required from the tools in support of the project management D5.3 – Structure and mandate of the Engineering Department D5.4 – Funcional Engineering Department D5.5 – Funcional Project Office
WP6	Technical Design	2 - INFN	111.50	1	48	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
WP7	Innovation and Industrial Engagement	2 - INFN	88.00	1	48	D7.1 – Innovation plan D7.2 – Report on industry engagement plan execution D7.3 – Model for pursuing in ET a balanced industrial return D7.4 – Report on TT and Intellectual property management in ET
WP8	Computing and Data Access	1 - IFAE	99.00	1	48	D8.1 – Computing and Data Requirements D8.2 – Computing and Data Model D8.3 – Data Access Implementation Guidelines
WP9	Sustainable Development Strategy	8 - EGO	116.80	1	48	D9.1 – ET Sustainable Development Implementation Strategy D9.2 – ET Environmental impact assessment and mitigation strategy

Work packages						
<i>Grant Preparation (Work Packages screen) — Enter the info.</i>						
Work Package No	Work Package name	Lead Beneficiary	Effort (Person-Months)	Start Month	End Month	Deliverables
						D9.3 – ET CO2 footprint ET assessment and mitigation strategy
WP10	Education, Outreach and Citizen Engagement	3 - UW	106.00	1	48	D10.1 – Initiate strategic media and communications plan D10.2 – Launch consortium website and social media accounts D10.3 – Formulate strategic media and communications plan D10.4 – Complete bank of graphics and multimedia resources D10.5 – Launch ECR mentorship and training programme

Work package WP1 – Management & Coordination

Work Package Number	WP1	Lead Beneficiary	1. IFAE
Work Package Name	Management & Coordination		
Start Month	1	End Month	48

Objectives

Global coordination of the ET-PP activities across the different WPs. Reports to EC.

Description

Management and Coordination - will be responsible for the global management and coordination of the WP activities. WP1 will be responsible for the ET-PP administrative activities including regular scientific and financial reports to EC, and will contribute globally to increase the social awareness of the project. IFAE will devote 36 PM reimbursed by EC and will contribute with 52.8 PM reimbursed by its own resources.

Work package WP2 – Organization, Governance and Legal Aspects

Work Package Number	WP2	Lead Beneficiary	5. NIKHEF
Work Package Name	Organization, Governance and Legal Aspects		
Start Month	1	End Month	48

Objectives

This work package focuses on issues related to organization, governance and legal aspects. The activity tries to reconcile international, national and regional political and financial priorities.

Description

The main goal of this work package is to provide all necessary input for the political processes related to site selection, legal entity and governance. The main deliverables include the preparation of the required legal forms and these include the governance model documents. Here the main principle will be that structure follows function and this requires close cooperation between scientific, technical, legal and financial experts in order to allow a stable and fruitful long term operation of the facility. The activity includes the development of options on scientific and user related legal form requirements, development of options on scientific and user related governance model requirements. The preparation of legal form and governance model documents based on consensus requirements. Moreover the activity will align as temporal funding profiles in Europe and perform financial engineering for the construction phase. Finally a business plan will be set up for the operation phase. NIKHEF will devote 15 PM reimbursed by EC and will contribute with 10 PM reimbursed by its own resources. INFN will contribute with 10 PM reimbursed by its own resources. UKRI will contribute with 4,8 PM reimbursed by its own resources.

Work package WP3 – Financial Architecture

Work Package Number	WP3	Lead Beneficiary	6. UCL
Work Package Name	Financial Architecture		
Start Month	1	End Month	48

Objectives

To prepare the financial items of a signature-ready contract to commonly fund and build ET.

Description
<p>Investigate all aspects of the funding architecture required to ensure the construction, operation, and eventual decommissioning of the ET even with different alternatives in construction and legal settings; to identify risks (price, time, technological, legal, etc.); to define guidelines with a fair sharing of costs and scientific, industrial and socio-economic returns among all participating parties in the ET collaboration; and to set a strong financial model and a common tool for all financial data.</p> <p>INFN will devote 14 PM reimbursed by EC and will contribute with 10 PM reimbursed by its own resources. UCL will devote 6 PM reimbursed by EC and will contribute with 11 PM reimbursed by its own resources. DESY will devote 9 PM reimbursed by EC and will contribute with 24 PM reimbursed by its own resources.</p>

Work package WP4 – Site Preparation

Work Package Number	WP4	Lead Beneficiary	5. NIKHEF
Work Package Name	Site Preparation		
Start Month	1	End Month	48

Objectives
Facilitate the site selection process by collecting –and wherever possible quantifying – all relevant site-specific aspects entering the ET site selection process. This will be done for all sites that aspire to submit a bid book to host the ET infrastructure.

Description
<p>Collect and treat in a transparent manner the information from the sites and provide comprehensive documentation to facilitate the site selection process. Relevant aspects for site characterization range from issues directly impacting the sensitivity/performance i.e. discovery potential of ET like seismic noise, seismic activity and duty cycle, to aspects that impact the construction/operation costs such as rock stability and sub-surface hydrology to ‘softer’ aspects such socio-economic impact, accessibility and quality of life. For many of the aspects the actual work will not be done within the WP4 itself, but will be provided by the ET Collaboration and/or will be outsourced to a professional organisation.</p> <p>INFN will contribute with 10 PM reimbursed by its own resources. UW will contribute with 12 PM reimbursed by its own resources. NIKHEF will contribute with 10 PM reimbursed by its own resources. Wigner RCP will contribute with 13,2 PM reimbursed by its own resources.</p>

Work package WP5 – Project Office & Engineering Department

Work Package Number	WP5	Lead Beneficiary	4. CNRS
Work Package Name	Project Office & Engineering Department		
Start Month	1	End Month	48

Objectives
To set-up a Project Management environment and the Engineering Department for the ET RI construction project.

Description
<p>Establish the ET project office and the corresponding engineering department. The role of this WP is to set-up a project management environment for the ET RI construction project. 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.</p> <p>IFAE will contribute with 24 PM reimbursed by its own resources. INFN will devote 36 PM reimbursed by EC and will contribute with 141 PM reimbursed by its own resources.</p>

CNRS will devote 108 PM reimbursed by EC and will contribute with 121 PM reimbursed by its own resources.
 NIKHEF will devote 36 PM reimbursed by EC and will contribute with 124 PM reimbursed by its own resources.
 ANTW will contribute with 5 PM reimbursed by its own resources.

Work package WP6 – Technical Design

Work Package Number	WP6	Lead Beneficiary	2. INFN
Work Package Name	Technical Design		
Start Month	1	End Month	48

Objectives

Delivering of the technical design of both the research infrastructure and the hosted detectors of ET. Delivering the science case in a global context. Delivering, in collaboration with WP2 and WP8, the Data Management Plan and the Data Access Policy for ET.

Description

This WP will act as a bridge between ET-PP and the ET collaboration. In fact, the ET collaboration is already well organised in specific boards targeting the objectives of this WP6. The activities indicated in this work package are carried out by a larger community (currently more than 400 scientists) that is only rudimentarily represented by the person-months indicated in the WP6 table. There are many more institutions and universities (more than 80 in December 2021) involved in this activity than indicated in the current WP6 table; as it is impossible to list them all, we provide a link to a public list here: <https://apps.et-gw.eu/tds/ql/?c=16183>. The overall structure of the ET collaboration producing the deliverables is presented in Figure 2. Finally, as indicated by the deliverables, WP6 will provide the Technical Design Report both for the research infrastructure and for the detectors, as developed by the collaboration. Furthermore, the Data Management Plan and the Data Access policy will be defined together with WP2 and WP8.

IFAE will contribute with 10 PM reimbursed by its own resources.

INFN will contribute with 20 PM reimbursed by its own resources.

UW will contribute with 1 PM reimbursed by its own resources.

CNRS will contribute with 28 PM reimbursed by its own resources.

NIKHEF will contribute with 2,5 PM reimbursed by its own resources.

ANTW will contribute with 48 PM reimbursed by its own resources.

UNIGE will contribute with 2 PM reimbursed by its own resources.

Work package WP7 – Innovation and Industrial Engagement

Work Package Number	WP7	Lead Beneficiary	2. INFN
Work Package Name	Innovation and Industrial Engagement		
Start Month	1	End Month	48

Objectives

The objective of this WP is to address all connections between ET and industry. These are: Contact with industry to do R&D for innovation (new technologies and products) and place orders. This is divided into making sure we know the appropriate companies, that they can produce what we need, that they are interested in our innovation and possible spin-off and that they will generate financial return to the participating countries. In-kind contributions of 8 person-months from the Spanish CDTI third party, relevant for task 2, are also listed under IFAE.

Description

Task 1. Promotion of innovative technologies

SWOT Analysis of promotion strategies on experiences and best practices in similar Big Science projects. [MS in M8]

Define appropriate objectives that ET could establish to support and enhance the development of innovative technologies and incorporation of new ventures in the implementation of the ET project. Develop plan of action to be executed in C&O phase of ET. [D in M12]

Task 2. Liaison with industry
 Risk analysis on maturity of technologies and industry capabilities needed in the C&O phase.
 Mapping of engagement initiatives already in place in partner countries, both for ET and other RIs. Address gaps from Risk analysis and extend activities into an Engagement plan for national and international activities. [MS in M10].
 Execute this plan and report on activities at the end of the project [D in M42].
 Study the options for a balanced industrial return in tendering procedures from other RI [MS in M15].
 Create a model and strategy for pursuing in ET a balanced industrial return [D in M33].

Task 3. Technology transfer (Intellectual property)
 Define the principles that have to shape the ET approach to the management of the Technology Transfer processes and, specifically, the management of the Intellectual property [D in M44].
 IFAE will devote 14 PM reimbursed by EC and will contribute with 12 PM reimbursed by its own resources.
 INFN will devote 12 PM reimbursed by EC and will contribute with 12 PM reimbursed by its own resources.
 UW will contribute with 19 PM reimbursed by its own resources.
 NIKHEF will devote 2 PM reimbursed by EC and will contribute with 12 PM reimbursed by its own resources.
 ANTW will contribute with 5 PM reimbursed by its own resources.

Work package WP8 – Computing and Data Access

Work Package Number	WP8	Lead Beneficiary	1. IFAE
Work Package Name	Computing and Data Access		
Start Month	1	End Month	48

Objectives

Definition of the computing and data model of ET, including the definition of the workflow, estimate of the resources.
 Data Access – technical guidelines and principles for implementing the data access policies defined in WP6 and WP2.

Description

Task 8.1: “T0 data center” / coordinator CNRS: Conceptual design of the center in close collaboration with the instrument science board. Definition of the services provided by the center, delimitation against services realized with distributed computing.

Task 8.2: “Computing and Data Model” / coordinator UNIGE: Development of the computing and data model in close cooperation with the instrument science board and observational science board of ET. Definition of the workflow from the instrument to the publication.

Task 8.3: “Resources” / coordinator INFN: Estimate of the computing resources (computing power and data storage), the personnel, and the operational cost required for all aspects of ET computing. The potential for mitigation must be addressed.

Task 8.4: “Data Access Implementation” / coordinator BSC: guidelines for the data policy compliance, relevant to the data storage, access, process and distribution, on all relevant time scales, respecting the EU policies on open data.

The coordinators of the WP and the tasks will be assisted by a computing engineer financed through the EU budget. The ET collaboration will support the work with the expertise of a number of specialists from France (CNRS, including CCIN2P3), Hungary (WIGNER, BME-MIT), Italy (INFN, including CNAF), the Netherlands (NIKHEF), Poland (Cyfronet,CAMK,IMPAN,UW), Spain (IFAE, ICCUB, UIB), Switzerland (UNIGE), and others adding up to approx. 5 FTE (not included in table 3.1b, which shows only the coordinated or financed effort). Of special importance, is the contribution of the group from the University of Geneva coordinating task 8.2 and supporting it with their own personnel and financial contribution from the State Secretariat for Education Research and Innovation (SERI).

BSC-CNS will devote 36 PM reimbursed by EC and will contribute with 9 PM reimbursed by its own resources.
 INFN will contribute with 3 PM reimbursed by its own resources.
 CNRS will contribute with 3 PM reimbursed by its own resources.
 UNIGE will contribute with 48 PM reimbursed by its own resources.

Work package WP9 – Sustainable Development Strategy

Work Package Number	WP9	Lead Beneficiary	8. EGO
Work Package Name	Sustainable Development Strategy		
Start Month	1	End Month	48

Objectives

1. Study and minimize the carbon footprint of ET, including computing and travel.
2. Evaluate and minimize the landscape and environmental impact.
3. Evaluate the contributions of the infrastructure to the UN sustainable goals.

Description

Task 9.1 ET Carbon footprint assessment and mitigation (CNRS, EGO, INFN)
 9.1.1 ET carbon budget.
 9.1.2 ET Energy consumption optimization.
 Task 9.2 Landscape, environmental and societal impact (INFN, EGO, CNRS, MUL)
 9.2.1: Assessing and minimizing the ET impact on its environment.
 9.2.2 Environmental management approach.
 9.2.3 Analyse and define an overall strategy for the reclamation, reuse and recycling of the excavated materials.
 INFN will devote 18 PM reimbursed by EC and will contribute with 39,2 PM reimbursed by its own resources.
 CNRS will contribute with 13 PM reimbursed by its own resources.
 EGO will devote 18 PM reimbursed by EC and will contribute with 12,6 PM reimbursed by its own resources.
 MUL will devote 12 PM reimbursed by EC and will contribute with 4 PM reimbursed by its own resources.

Work package WP10 – Education, Outreach and Citizen Engagement

Work Package Number	WP10	Lead Beneficiary	3. UW
Work Package Name	Education, Outreach and Citizen Engagement		
Start Month	1	End Month	48

Objectives

1. Establish coordination procedures for trans-national ET Consortium outreach and communications.
2. Create, disseminate and curate ET Consortium communications and outreach materials.
3. Design educational resources on ET Consortium science and technology.
4. Develop a mentorship and training programme for ET Consortium early career researchers.

Description

Task 10.1 Establish a network of communications and outreach points of contact, with robust procedures for gathering and disseminating news updates and outreach materials.
 Task 10.2 Develop and maintain ET Consortium website and social media platforms, supported by high-quality multimedia materials.
 Task 10.3 Develop strategic plan for ET Consortium engagement with the scientific community, funding agencies, politicians and other key stakeholders.
 Task 10.4 Develop and deliver a comprehensive, sustainable mentorship and training programme for ET Consortium early-career researchers.
 IFAE will contribute with 3 PM reimbursed by its own resources.
 INF will contribute with 5 PM reimbursed by its own resources.
 UW will devote 24 PM reimbursed by EC and will contribute with 20 PM reimbursed by its own resources.
 NIKHEF will contribute with 10 PM reimbursed by its own resources.
 EGO will contribute with 28,4 PM reimbursed by its own resources.

Wigner RCP will contribute with 6 PM reimbursed by its own resources.
UCAR will contribute with 4,8 PM reimbursed by its own resources.
UGLA will contribute with 4,8 PM reimbursed by its own resources.

STAFF EFFORT

Staff effort per participant											
<i>Grant Preparation (Work packages - Effort screen) — Enter the info.</i>											
Participant	WP1	WP2	WP3	WP4	WP5	WP6	WP7	WP8	WP9	WP10	Total Person-Months
1 - IFAE	88.80				24.00	10.00	26.00			3.00	151.80
1.1 - BSC CNS								45.00			45.00
2 - INFN			24.00	10.00	177.00	20.00	24.00	3.00	57.20	5.00	320.20
3 - UW				12.00		1.00	19.00			44.00	76.00
4 - CNRS					229.00	28.00		3.00	13.00		273.00
5 - NIKHEF		39.80		10.00	160.00	2.50	14.00			10.00	236.30
6 - UCL			17.00								17.00
7 - UAntwerpen					5.00	48.00	5.00				58.00
8 - EGO									30.60	28.40	59.00
9 - DESY			33.00								33.00
10 - Wigner RCP				13.20						6.00	19.20
11 - MUL									16.00		16.00
12 - UNIGE						2.00		48.00			50.00
14 - UCAR										4.80	4.80
15 - UGLA										4.80	4.80
Total Person-Months	88.80	39.80	74.00	45.20	595.00	111.50	88.00	99.00	116.80	106.00	1364.10

LIST OF DELIVERABLES

Deliverables						
<i>Grant Preparation (Deliverables screen) — Enter the info.</i>						
<i>The labels used mean:</i>						
<i>Public — fully open ( automatically posted online)</i>						
<i>Sensitive — limited under the conditions of the Grant Agreement</i>						
<i>EU classified — RESTREINT-UE/EU-RESTRICTED, CONFIDENTIEL-UE/EU-CONFIDENTIAL, SECRET-UE/EU-SECRET under Decision 2015/444</i>						
Deliverable No	Deliverable Name	Work Package No	Lead Beneficiary	Type	Dissemination Level	Due Date (month)
D1.1	Dissemination and Exploitation (D&E) Plan	WP1	1 - IFAE	R — Document, report	PU - Public	6
D1.2	Data Management Plan (DMP)	WP1	1 - IFAE	R — Document, report	PU - Public	6
D2.1	Report providing options for legal entity	WP2	5 - NIKHEF	R — Document, report	PU - Public	11
D2.2	Minutes of meetings with EC and involved ministries	WP2	5 - NIKHEF	R — Document, report	PU - Public	11
D2.3	Legal entity statutes	WP2	5 - NIKHEF	R — Document, report	PU - Public	36
D2.4	Roadmap to establish the legal entity and its implementation.	WP2	5 - NIKHEF	R — Document, report	PU - Public	47
D3.1	Handbook for design and construction phase	WP3	6 - UCL	R — Document, report	PU - Public	36
D3.2	Handbook for operating phase	WP3	6 - UCL	R — Document, report	PU - Public	42
D3.3	Financial plan and Scenario analysis	WP3	6 - UCL	R — Document, report	PU - Public	47
D4.1	Scan of legal procedures, permitting and land acquisitions	WP4	5 - NIKHEF	R — Document, report	PU - Public	10
D4.2	Updated socio-economic impact studies	WP4	2 - INFN	R — Document, report	PU - Public	15
D4.3	Complete quantification of all the aspects impacting the ET performance.	WP4	3 - UW	R — Document, report	PU - Public	28

Deliverables						
<i>Grant Preparation (Deliverables screen) — Enter the info.</i>						
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Deliverable No	Deliverable Name	Work Package No	Lead Beneficiary	Type	Dissemination Level	Due Date (month)
D4.4	Report on 3D geology, hydrology, etc. model with localisation of the ET infrastructure	WP4	2 - INFN	R — Document, report	PU - Public	29
D4.5	Updated cost and schedule estimates of the excavations	WP4	5 - NIKHEF	R — Document, report	PU - Public	42
D5.1	Structure and mandate of the Project Office	WP5	4 - CNRS	R — Document, report	PU - Public	25
D5.2	Functionalities required from the tools in support of the project management	WP5	4 - CNRS	R — Document, report	PU - Public	25
D5.3	Structure and mandate of the Engineering Department	WP5	4 - CNRS	R — Document, report	PU - Public	25
D5.4	Funcional Engineering Department	WP5	5 - NIKHEF	R — Document, report	PU - Public	28
D5.5	Funcional Project Office	WP5	2 - INFN	R — Document, report	PU - Public	28
D6.1	Refined Science Case	WP6	12 - UNIGE	R — Document, report	PU - Public	18
D6.2	Vacuum pipe Design	WP6	7 - UAantwerpen	R — Document, report	PU - Public	24
D6.3	Preliminary RI TDR	WP6	2 - INFN	R — Document, report	PU - Public	24
D6.4	Preliminary DET TDR	WP6	5 - NIKHEF	R — Document, report	PU - Public	24
D6.5	RI TDR	WP6	2 - INFN	R — Document, report	PU - Public	40
D6.6	DMP and Data Access Policy	WP6	9 - DESY	R — Document, report	PU - Public	46
D7.1	Innovation plan	WP7	1 - IFAE	R — Document, report	PU - Public	11

Deliverables						
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Deliverable No	Deliverable Name	Work Package No	Lead Beneficiary	Type	Dissemination Level	Due Date (month)
D7.2	Report on industry engagement plan execution	WP7	5 - NIKHEF	R — Document, report	PU - Public	42
D7.3	Model for pursuing in ET a balanced industrial return	WP7	2 - INFN	R — Document, report	PU - Public	33
D7.4	Report on TT and Intellectual property management in ET	WP7	2 - INFN	R — Document, report	PU - Public	44
D8.1	Computing and Data Requirements	WP8	12 - UNIGE	R — Document, report	PU - Public	18
D8.2	Computing and Data Model	WP8	12 - UNIGE	R — Document, report	PU - Public	42
D8.3	Data Access Implementation Guidelines	WP8	1 - IFAE	R — Document, report	PU - Public	47
D9.1	ET Sustainable Development Implementation Strategy	WP9	4 - CNRS	R — Document, report	PU - Public	18
D9.2	ET Environmental impact assessment and mitigation strategy	WP9	2 - INFN	R — Document, report	PU - Public	24
D9.3	ET CO2 footprint ET assessment and mitigation strategy	WP9	8 - EGO	R — Document, report	PU - Public	36
D10.1	Initiate strategic media and communications plan	WP10	3 - UW	R — Document, report	PU - Public	11
D10.2	Launch consortium website and social media accounts	WP10	8 - EGO	DEC —Websites, patent filings, videos, etc	PU - Public	24

Deliverables

Grant Preparation (Deliverables screen) — Enter the info.

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Deliverable No	Deliverable Name	Work Package No	Lead Beneficiary	Type	Dissemination Level	Due Date (month)
D10.3	Formulate strategic media and communications plan	WP10	5 - NIKHEF	R — Document, report	PU - Public	24
D10.4	Complete bank of graphics and multimedia resources	WP10	1 - IFAE	R — Document, report	PU - Public	36
D10.5	Launch ECR mentorship and training programme	WP10	13 - UKRI	R — Document, report	PU - Public	44

Deliverable D1.1 – Dissemination and Exploitation (D&E) Plan

Deliverable Number	D1.1	Lead Beneficiary	1. IFAE
Deliverable Name	Dissemination and Exploitation (D&E) Plan		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	6	Work Package No	WP1

Description
Dissemination and Exploitation Plan

Deliverable D1.2 – Data Management Plan (DMP)

Deliverable Number	D1.2	Lead Beneficiary	1. IFAE
Deliverable Name	Data Management Plan (DMP)		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	6	Work Package No	WP1

Description
Data Management Plan (DMP)

Deliverable D2.1 – Report providing options for legal entity

Deliverable Number	D2.1	Lead Beneficiary	5. NIKHEF
Deliverable Name	Report providing options for legal entity		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	11	Work Package No	WP2

Description
Report providing options for legal entity

Deliverable D2.2 – Minutes of meetings with EC and involved ministries

Deliverable Number	D2.2	Lead Beneficiary	5. NIKHEF
Deliverable Name	Minutes of meetings with EC and involved ministries		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	11	Work Package No	WP2

Description
Minutes of meetings with EC and involved ministries

Deliverable D2.3 – Legal entity statutes

Deliverable Number	D2.3	Lead Beneficiary	5. NIKHEF
Deliverable Name	Legal entity statutes		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	36	Work Package No	WP2

Description
Legal entity statutes

Deliverable D2.4 – Roadmap to establish the legal entity and its implementation.

Deliverable Number	D2.4	Lead Beneficiary	5. NIKHEF
Deliverable Name	Roadmap to establish the legal entity and its implementation.		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	47	Work Package No	WP2

Description
Roadmap to establish the legal entity and its implementation ready for approval by (proto Council) and/or Ministries

Deliverable D3.1 – Handbook for design and construction phase

Deliverable Number	D3.1	Lead Beneficiary	6. UCL
Deliverable Name	Handbook for design and construction phase		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	36	Work Package No	WP3

Description
Handbook for design and construction phase

Deliverable D3.2 – Handbook for operating phase

Deliverable Number	D3.2	Lead Beneficiary	6. UCL
Deliverable Name	Handbook for operating phase		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	42	Work Package No	WP3

Description
Handbook for operating phase

Deliverable D3.3 – Financial plan and Scenario analysis

Deliverable Number	D3.3	Lead Beneficiary	6. UCL
Deliverable Name	Financial plan and Scenario analysis		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	47	Work Package No	WP3

Description
Financial plan and Scenario analysis

Deliverable D4.1 – Scan of legal procedures, permitting and land acquisitions

Deliverable Number	D4.1	Lead Beneficiary	5. NIKHEF
Deliverable Name	Scan of legal procedures, permitting and land acquisitions		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	10	Work Package No	WP4

Description
Scan of legal procedures, permitting and land acquisitions i.e. the steps to be taken prior to starting excavations.

Deliverable D4.2 – Updated socio-economic impact studies

Deliverable Number	D4.2	Lead Beneficiary	2. INFN
Deliverable Name	Updated socio-economic impact studies		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	15	Work Package No	WP4

Description
Updated socio-economic impact studies. Scan of accessibility, quality of life etc.

Deliverable D4.3 – Complete quantification of all the aspects impacting the ET performance.

Deliverable Number	D4.3	Lead Beneficiary	3. UW
Deliverable Name	Complete quantification of all the aspects impacting the ET performance.		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	28	Work Package No	WP4

Description
Complete quantification of all the aspects impacting the ET performance for each site

Deliverable D4.4 – Report on 3D geology, hydrology, etc. model with localisation of the ET infrastructure

Deliverable Number	D4.4	Lead Beneficiary	2. INFN
Deliverable Name	Report on 3D geology, hydrology, etc. model with localisation of the ET infrastructure		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	29	Work Package No	WP4

Description
Report on 3D geology, hydrology, etc. model with localisation of the ET infrastructure

Deliverable D4.5 – Updated cost and schedule estimates of the excavations

Deliverable Number	D4.5	Lead Beneficiary	5. NIKHEF
Deliverable Name	Updated cost and schedule estimates of the excavations		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	42	Work Package No	WP4

Description
Updated cost and schedule estimates of the excavations. Including, if necessary: instrumentation for Newtonian Noise cancellation; costs of debris removal; costs of land acquisition, permitting, etc.

Deliverable D5.1 – Structure and mandate of the Project Office

Deliverable Number	D5.1	Lead Beneficiary	4. CNRS
Deliverable Name	Structure and mandate of the Project Office		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	25	Work Package No	WP5

Description
A document which defines the structure and the mandate of the Project Office

Deliverable D5.2 – Functionalities required from the tools in support of the project management

Deliverable Number	D5.2	Lead Beneficiary	4. CNRS
Deliverable Name	Functionalities required from the tools in support of the project management		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	25	Work Package No	WP5

Description

A document describing the functionalities required from the tools in support of the project management activity used across all the project units

Deliverable D5.3 – Structure and mandate of the Engineering Department

Deliverable Number	D5.3	Lead Beneficiary	4. CNRS
Deliverable Name	Structure and mandate of the Engineering Department		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	25	Work Package No	WP5

Description

A document containing the structure and the mandate of the Engineering Department

Deliverable D5.4 – Funcional Engineering Department

Deliverable Number	D5.4	Lead Beneficiary	5. NIKHEF
Deliverable Name	Funcional Engineering Department		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	28	Work Package No	WP5

Description

The Engineering Department as a functional unit complete with key figures operational, mission statement and budget.

Deliverable D5.5 – Funcional Project Office

Deliverable Number	D5.5	Lead Beneficiary	2. INFN
Deliverable Name	Funcional Project Office		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	28	Work Package No	WP5

Description

The operational Project Office as a functional unit complete with manpower, mission and budget.

Deliverable D6.1 – Refined Science Case

Deliverable Number	D6.1	Lead Beneficiary	12. UNIGE
Deliverable Name	Refined Science Case		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	18	Work Package No	WP6

Description

Refined Science Case. Describe the science targets of ET in the updated global scenario.

Deliverable D6.2 – Vacuum pipe Design

Deliverable Number	D6.2	Lead Beneficiary	7. UAntwerpen
Deliverable Name	Vacuum pipe Design		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	24	Work Package No	WP6

Description

Vacuum pipe Design. Vacuum pipe is one of the most expensive components of the ET facility and it needs a specific design process.

Deliverable D6.3 – Preliminary RI TDR

Deliverable Number	D6.3	Lead Beneficiary	2. INFN
Deliverable Name	Preliminary RI TDR		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	24	Work Package No	WP6

Description

Preliminary RI TDR. The ET civil infrastructures will be realised in an iterative process and a preliminary design is expected in M24.

Deliverable D6.4 – Preliminary DET TDR

Deliverable Number	D6.4	Lead Beneficiary	5. NIKHEF
Deliverable Name	Preliminary DET TDR		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	24	Work Package No	WP6

Description

Preliminary DET TDR. In parallel to the civil infrastructure design, the hosted detectors need to be designed in an iterative process.

Deliverable D6.5 – RI TDR

Deliverable Number	D6.5	Lead Beneficiary	2. INFN
Deliverable Name	RI TDR		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	40	Work Package No	WP6

Description			
RI TDR. Final TDR of the civil infrastructures.			

Deliverable D6.6 – DMP and Data Access Policy

Deliverable Number	D6.6	Lead Beneficiary	9. DESY
Deliverable Name	DMP and Data Access Policy		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	46	Work Package No	WP6

Description			
DMP and Data Access Policy. The policy for accessing data in ET will be defined in synergy with WP2 and WP8.			

Deliverable D7.1 – Innovation plan

Deliverable Number	D7.1	Lead Beneficiary	1. IFAE
Deliverable Name	Innovation plan		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	11	Work Package No	WP7

Description			
Innovation plan			

Deliverable D7.2 – Report on industry engagement plan execution

Deliverable Number	D7.2	Lead Beneficiary	5. NIKHEF
Deliverable Name	Report on industry engagement plan execution		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	42	Work Package No	WP7

Description			
Report on industry engagement plan execution			

Deliverable D7.3 – Model for pursuing in ET a balanced industrial return

Deliverable Number	D7.3	Lead Beneficiary	2. INFN
Deliverable Name	Model for pursuing in ET a balanced industrial return		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	33	Work Package No	WP7

Description			
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Model for pursuing in ET a balanced industrial return

Deliverable D7.4 – Report on TT and Intellectual property management in ET

Deliverable Number	D7.4	Lead Beneficiary	2. INFN
Deliverable Name	Report on TT and Intellectual property management in ET		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	44	Work Package No	WP7

Description

Report on TT and Intellectual property management in ET

Deliverable D8.1 – Computing and Data Requirements

Deliverable Number	D8.1	Lead Beneficiary	12. UNIGE
Deliverable Name	Computing and Data Requirements		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	18	Work Package No	WP8

Description

Computing and Data Requirements (M18): Documentation of the inputs on the computing and data requirements received during the process.

Deliverable D8.2 – Computing and Data Model

Deliverable Number	D8.2	Lead Beneficiary	12. UNIGE
Deliverable Name	Computing and Data Model		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	42	Work Package No	WP8

Description

Computing and Data Model.

Deliverable D8.3 – Data Access Implementation Guidelines

Deliverable Number	D8.3	Lead Beneficiary	1. IFAE
Deliverable Name	Data Access Implementation Guidelines		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	47	Work Package No	WP8

Description

Data Access Implementation Guidelines.
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Deliverable D9.1 – ET Sustainable Development Implementation Strategy

Deliverable Number	D9.1	Lead Beneficiary	4. CNRS
Deliverable Name	ET Sustainable Development Implementation Strategy		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	18	Work Package No	WP9

Description

ET Sustainable Development Implementation Strategy.

Deliverable D9.2 – ET Environmental impact assessment and mitigation strategy

Deliverable Number	D9.2	Lead Beneficiary	2. INFN
Deliverable Name	ET Environmental impact assessment and mitigation strategy		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	24	Work Package No	WP9

Description

ET Environmental impact assessment and mitigation strategy.

Deliverable D9.3 – ET CO2 footprint ET assessment and mitigation strategy

Deliverable Number	D9.3	Lead Beneficiary	8. EGO
Deliverable Name	ET CO2 footprint ET assessment and mitigation strategy		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	36	Work Package No	WP9

Description

ET CO2 footprint ET assessment and mitigation strategy.

Deliverable D10.1 – Initiate strategic media and communications plan

Deliverable Number	D10.1	Lead Beneficiary	3. UW
Deliverable Name	Initiate strategic media and communications plan		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	11	Work Package No	WP10

Description

Initiate strategic media and communications plan.

Deliverable D10.2 – Launch consortium website and social media accounts

Deliverable Number	D10.2	Lead Beneficiary	8. EGO
Deliverable Name	Launch consortium website and social media accounts		
Type	DEC — Websites, patent filings, videos, etc	Dissemination Level	PU - Public
Due Date (month)	24	Work Package No	WP10

Description
Launch consortium website and social media accounts.

Deliverable D10.3 – Formulate strategic media and communications plan

Deliverable Number	D10.3	Lead Beneficiary	5. NIKHEF
Deliverable Name	Formulate strategic media and communications plan		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	24	Work Package No	WP10

Description
Formulate strategic media and communications plan.

Deliverable D10.4 – Complete bank of graphics and multimedia resources

Deliverable Number	D10.4	Lead Beneficiary	1. IFAE
Deliverable Name	Complete bank of graphics and multimedia resources		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	36	Work Package No	WP10

Description
Complete bank of graphics and multimedia resources.

Deliverable D10.5 – Launch ECR mentorship and training programme

Deliverable Number	D10.5	Lead Beneficiary	13. UKRI
Deliverable Name	Launch ECR mentorship and training programme		
Type	R — Document, report	Dissemination Level	PU - Public
Due Date (month)	44	Work Package No	WP10

Description
Launch ECR mentorship and training programme.

LIST OF MILESTONES

Milestones					
<i>Grant Preparation (Milestones screen) — Enter the info.</i>					
Milestone No	Milestone Name	Work Package No	Lead Beneficiary	Means of Verification	Due Date (month)
1	Constitution / first meeting of the resource board	WP3	6-UCL	Workshop	33
2	Document detailing the site-specific characteristics that impact ET sensitivity and its duty cycle.	WP4	5-NIKHEF	Report	3
3	Common methodology to estimate impact of site characteristics on ET sensitivity and operation and, if required, a scheme to compensate it.	WP4	5-NIKHEF	Report	10
4	The recruitment of the Project Office team is completed.	WP5	4-CNRS	Report.	15
5	All three documents (WP5-D5.1, D5.2 and D5.3) are published.	WP5	4-CNRS	Report.	25
6	The Engineering Department as a functional unit complete	WP5	5-NIKHEF	Report.	27
7	The Project Office as a functional unit complete	WP5	2-INFN	Report.	27
8	ET Collaboration in place	WP6	2-INFN	ET Symposium	11
9	Analysis of promotion strategies accomplished	WP7	1-IFAE	Report.	8
10	Engagement plan produced	WP7	5-NIKHEF	Report.	10
11	Analysis of balanced industrial return strategies accomplished	WP7	2-INFN	Report.	15

Milestones					
<i>Grant Preparation (Milestones screen) — Enter the info.</i>					
Milestone No	Milestone Name	Work Package No	Lead Beneficiary	Means of Verification	Due Date (month)
12	Workflows Requirements collection and constraints: computing and data	WP8	1-IFAE	Workshop (+D8.1)	11
13	Computing Infrastructures availability for ET workflows, characteristics	WP9, WP8	1-IFAE	Workshop (+ D8.1)	24
14	On site infrastructure, computing and data model	WP6, WP8	4-CNRS	Workshop (+D8.2)	36
15	Low latency and offline workflows and computing model	WP6, WP8	2-INFN	Workshop (+D8.2)	40
16	Data management, access, policy and implementation	WP2, WP6, WP8	1-IFAE	Workshop (+D8.3)	46
17	Preliminary sustainability plan	WP9	8-EGO	Report.	11
18	ET Sustainability Workshop	WP9	8-EGO	Workshop+Report	18
19	Final sustainability plan	WP9	8-EGO	Reports.	47
20	Appointment of Communications and Outreach Coordinator	WP10	3-UW	Appointment contract	8
21	ET Consortium website and social media launched	WP10	8-EGO	Public launch	24
22	ECR Mentorship and Training programme established	WP10	3-UW	Report.	44

LIST OF CRITICAL RISKS

Critical risks & risk management strategy			
<i>Grant Preparation (Critical Risks screen) — Enter the info.</i>			
Risk number	Description	Work Package No(s)	Proposed Mitigation Measures
1	Delay in completing hiring process for new full-time engineering positions (low, medium).	WP5	Assign existing part-time personal from partner institutes to assist in the start-up phase.
2	Difficulties to find personnel in the participant institutions for the leadership and the collaborator positions required for the Project Office and the Engineering Department (low, medium).	WP5	Provide temporary support from the collaboration and invite experts from external institutes.
3	Delays in producing the RI TDR (i) Medium (ii) High	WP6, WP5	Involve external engineering companies in order to speed-up the process.
4	Delays in producing the Detector TDR (i) Medium (ii) Medium.	WP6, WP5	Define a staged installation strategy and prioritise design of first stage.
5	Limited interest on the part of industry in the preparatory phase of the ET (likelihood medium, severity medium).	WP7	Monitor industry implication and enforce industry engagement plan if needed.
6	Low level of industrial capabilities identified in certain areas of the project (likelihood medium, severity medium)	WP7	Implement measures in industry engagement plan to involve industry in R&D projects with key institutes
7	Difficulties to find full time personnel adequately in time, with the skills needed for the project (i) Medium (ii) Medium	WP2, WP6, WP4, WP7, WP10, WP5, WP1, WP9, WP8, WP3	Dedicate part of the time of more than one person of the Collaboration to cover the needs, and complement with personnel in-kind contribution.
8	Scientists are not able to provide sufficiently detailed information to elaborate the computing and data model (i) Low (ii) (Medium-Low)	WP8	The computing and data model will be generic and realistic to satisfy the given requirements.
9	The pandemic delays the organization and limit the participation to workshops planned to receive input	WP2, WP6, WP4, WP7, WP10, WP5,	Online planned workshops and webinars, adjust timing, offline surveys...

Critical risks & risk management strategy			
<i>Grant Preparation (Critical Risks screen) — Enter the info.</i>			
Risk number	Description	Work Package No(s)	Proposed Mitigation Measures
	and feedback from the stakeholders (i) Low (ii) Medium	WP1, WP9, WP8, WP3	
10	Delays in technical designs (i) Medium (ii) Medium.	WP9	Adoption of a reference scenario.
11	Evolution of the national energy policies (i) Low (ii) Low.	WP9	Consultation with national institution.
12	Delay in appointment of outreach officer. (i) M; (ii) M.	WP10	Temporary use of in-kind contributions from WP10 team to coordinate activities.
13	Delay in design of Consortium website. (i) M; (ii) M.	WP10	Use simpler template to ensure a minimal website can be launched.
14	General failure by task coordinators to complete deliverables. (i) L (ii) H.	WP10	Establish, as a first, key deliverable (within 6M) robust internal procedures for sign-off on C&O materials.

PROJECT REVIEWS

Project Reviews			
<i>Grant Preparation (Reviews screen) — Enter the info.</i>			
Review No	Timing (month)	Location	Comments
RV1	14	tbd	
RV2	32	tbd	
RV3	49	tbd	

HISTORY OF CHANGES		
Date	Page/Section	Nature of change and reason / justification of change proposed (if applicable)
20/04/2022	1/ List of participants	The list of participants has been deleted according to the guidelines.
20/04/2022	1/ Table of contents	A table of content has been added according to the guidelines.
20/04/2022	18-29/ tables 3.1a, 3.1b, 3.1c, 3.1d, 3.1e, 3.1f	Tables 3.1a, 3.1b, 3.1c, 3.1d, 3.1e, 3.1f have been deleted according to the guidelines.
02/05/2022	18/ Table 3.1g: 'Subcontracting costs'	We have modified the amount budgeted in subcontracting costs for IFAE from 22500 eur to 2500 eru, because the initial foreseen costs for meeting organisation must be budgeted under Other Goods and Services. Then, an amount of 16000 eur have be added to the Other Goods and Services budget in the electronic portal. The total EC request contribution remains the same.
02/05/2022	18/ Table 3.1g: 'Subcontracting costs'	We have modified the amount budgeted in subcontracting costs for NIKHEF from 155000 eur to 100000 eur, because the 55000 eur foreseen for the Preparation of ET legal documents by professional organization must be budgeted under Other Goods and Services. Then, an amount of 44000 eur have be added to the Other Goods and Services budget in the electronic portal. The total EC request contribution remains the same.
02/05/2022	18/Table 3.1h: 'Purchase costs' items (travel and subsistence, equipment and other goods, works and services)	According to the budget modification, we modified the table 3.1h for IFAE by assigning 26000 eur in Other Goods and Services, and a total of 136keur.
02/05/2022	19/Table 3.1h: 'Purchase costs' items (travel and subsistence, equipment and other goods, works and services)	According to the budget modification, we modified the table 3.1h for NIKHEF by assigning 223000 eur in Other Goods and Services, and a total of 263000 eur.
06/05/2022	18/ Table 3.1g: 'Subcontracting costs'	We have modified the justification text for the subcontracting of INFN.
22/05/2022	Number of PMs per WPs	The table Table 3.1f: Summary of staff effort was showing the number of PMs collaborative (no reimbursed by EC) per partner. We have corrected this info and in SYGMA portal we informed the number of PMs reimbursed by EC.
22/05/2022	Changes in deliverables dates	We have changed the following deliverables due dates: * D1 new date: M11 * D4 new date: M11 * D6 new date: M47 * D9 new date: M47 * D12 new date: M28 * D13 new date: M29 * D14 new date: M42 * D26 new date: M11 * D32 new date: M47 * D36 new date: M11
22/05/2022	Changes in milestones dates	We have changed the following milestones due dates: * M8 new date: M11 * M12 new date: M11 * M17 new date: M11 * M19 new date: M47
22/05/2022	Budget modification of beneficiary UW	In the preparation of the original proposal UW declared itself as coordinator of the Polish ET consortium which would include the contributions of all the Polish institutions. Based on this, we summed the person months declared by all the Polish institutions under

		<p>the UW single label.</p> <p>Recently we understood this would not have the desired/anticipated legal statute and therefore changes were needed: we maintained the UW genuine contribution and put the rest of the PMs declared under UW but coming from other Polish institutions as third party contributions. This works since UW is the only institution being beneficiary of funds.</p> <p>Concerning the monetary value of the contributive PMs, the UW representative initially used an EU averaged value that did not reflect the reality of the actual costs of the personnel in Poland. This has been now adjusted to the real values. This translated into different (lower) contributions more in line with the expectations by UW management. Same is true for the declared contributions by own resources for the (new) Polish third parties. The initial personnel costs were 835.200€ and now are 307.907€. For travel, previously 147.200€ and now 42.000€.</p>
22/05/2022	19/3.2 Capacity of participants and consortium as a whole	A short description for University of Glasgow and University of Cardiff has been add, since these 2 institutions are presented now as associated partners of the project.
22/05/2022	3/1.1 Objectives	<p>We modified this sentence:</p> <p>We anticipate a EU budget request of 3.45M€ for a total duration of four years. This complements a very significant in-kind contribution from participants and third parties of about 10.55M€, for a total estimated cost of the ET-PP project of 14 M€.</p> <p>By that one:</p> <p>We anticipate a EU budget request of 3.45M€ for a total duration of four years. This complements a very significant own resources contributions from participants and third parties of about 9.35M€, for a total estimated cost of the ET-PP project of 12.8 M€.</p>
01/07/2022	6/1.1 Objectives	In page 6 we added a table showing the number of contributive (not reimbursed) and requested EC (reimbursed by EC) PMs per institution and WP.

Einstein Telescope Preparatory Phase (ET-PP)

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1. Excellence

The core scientific field of Einstein Telescope (ET) is gravitational wave (GW) physics. GWs are opening a new window on the cosmos that can revolutionise humanity's understanding of the universe up to cosmological distances and unlock unexplored territories of extreme physical conditions that no experiment on Earth can ever provide. ET has the ambitious mission to push the limits of our ability to detect GWs and learn more about the evolution of our Universe back to its earliest form right after the Big Bang. Based on well proven and experimentally tested concepts, ET will exploit cutting-edge technologies and push them to their physical limits. It combines the well-proven technologies from the current advanced LIGO and Virgo detectors with beyond-state-of-the-art systems planned for the next evolution stage of the advanced detectors, in an infrastructure designed to accommodate several technology upgrades over many decades. ET has been recently included in the ESFRI roadmap 2021.

The ET Collaboration is steadily growing and it is constituted by 83 institutions from 10 European countries. The collaboration already counts with a well-defined internal organization in several boards with the required technical and scientific competence. The ET political support has increased since 2020, when the ESFRI candidature was formally supported by five European countries. A first step towards an initial ET governance model was recently made in the form of a Project Directorate chaired by F. Ferroni (INFN) and J. van den Brand (NIKHEF), and two boards: a Board of Governmental Representatives (BGR) including representatives from Ministries from interested countries and a Board of Scientific Representatives (BSR) including representatives from funding agencies from 11 countries. With time the BGR and BSR may merge in future to form a proto-Council. For the purpose of this preparatory phase (ET-PP) application, the participation is concentrated in 15 partner institutions (plus an affiliated institution), acting as liaisons and coordinators at the national level.

1.1 Objectives

The main objective of this ET-PP proposal is to support crucial items in the preparatory phase of the experiment, including: the enlargement of the ET consortium, the legal framework, governance schemes, and financial regulations under which the ET Research Infrastructure (RI) will be constructed and operated; the technical design and costing of the ET observatory; the preparation of the site selection, where ET will be deployed, detailing and cost-estimation of the required site infrastructure, and its socio-economic and environmental impacts; the schemes for technology transfer, procurement and industry involvement in the technical design and construction of ET; and the required linking with relevant science communities regarding the detailed definition of the science program, and the user services and data access model. We anticipate a EU budget request of 3.45M€ for a total duration of four years. This

complements a very significant own resources contributions from participants and third parties of about 9.35M€, for a total estimated cost of the ET-PP project of 12.8 M€.

The activities are organized in a set of ten well-defined work packages (WPs) with precise deliverables and milestones. Some of the work packages address explicitly aspects that were singled out during the ESFRI selection process. In the following, the definition and a brief description of the different WPs is provided. As detailed in Section 1.2, strong links between WPs are built.

WP1 - Management and Coordination [led by IFAE] - will be responsible for the global management and coordination of the WP activities within ET-PP, with the aim to guarantee an adequate use of the resources, and to facilitate a continuous and strong coordination across WPs and technical activities, by applying a transparent transfer-of-knowledge and information policy. In addition, WP1 will be responsible for the ET-PP administrative activities including regular reports and the follow-up of financial execution, and will contribute globally to increase the social awareness of the ET project. M. Martinez (IFAE) acts as IP and coordinator of the ET-PP project, under the responsibility of the ET Project Directorate, in charge of the birth of the ET RI.

IFAE will devote 36 PM reimbursed by EC and will contribute with 52.8 PM reimbursed by its own resources.

WP2 - ET Organization, Governance and Legal Aspects [led by NIKHEF]- has the mandate to put the foundations for establishing the internal organization model and the governance of the ET RI, including the framework related to the definition of ET as a legal entity, and to facilitate the geographic enlargement of the ET consortium. WP2 will contribute to the political convergence across stakeholders on critical decisions affecting the main aspects of the research infrastructure like, for example, the final ET RI layout, site selection, total cost, etc. In addition, WP2 has the mandate to define the formal connections with other GW observatories and scientific communities. J. O'Byrne (STFC UKRI), F. Ferroni (INFN) and J. van den Brand (NIKHEF) act as co-coordinators of WP2 in this proposal.

NIKHEF will devote 15 PM reimbursed by EC and will contribute with 10 PM reimbursed by its own resources.

INFN will contribute with 10 PM reimbursed by its own resources.

UKRI will contribute with 4,8 PM reimbursed by its own resources.

WP3 - Financial Architecture [led by UCL]- has the mandate to investigate all aspects of the funding architecture required to ensure the construction, operation, and eventual decommissioning of ET with different alternatives in construction and legal settings; to identify risks (price, time, technological, legal, etc.); to define guidelines with a fair sharing of costs and scientific, industrial and socio-economic returns among all participating parties in the ET consortium; and to set a strong financial model and a common tool for all financial data. In the framework of ET-PP, the main objective is to prepare the financial items of a signature-ready contract to commonly fund and build ET. Ch. Arina (U. Louvain), T. Berghöfer (DESY), A. Sequi (INFN) act as co-coordinators of WP3 in this proposal.

INFN will devote 14 PM reimbursed by EC and will contribute with 10 PM reimbursed by its own resources.

UCL will devote 6 PM reimbursed by EC and will contribute with 11 PM reimbursed by its own resources.

DESY will devote 9 PM reimbursed by EC and will contribute with 24 PM reimbursed by its own resources.

WP4 - Site Preparation [led by NIKHEF]- is responsible for collecting and processing, from each potential site, all the required information necessary for site qualification. This includes site specific characteristics that might impact the ET scientific performance, socio-economic impacts, legal implications, and civil engineering costs. The information will be treated in a coherent and transparent manner, with the aim of facilitating a site selection process in a timescale consistent with ET anticipated schedule. M. Campinelli (INFN) and F. Linde (NIKHEF) act as co-coordinators of WP4 in this proposal.

INFN will contribute with 10 PM reimbursed by its own resources.

UW will contribute with 12 PM reimbursed by its own resources.

NIKHEF will contribute with 10 PM reimbursed by its own resources.

Wigner RCP will contribute with 13,2 PM reimbursed by its own resources.

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 project. 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  the ET construction project. R. Flaminio (CNRS), A. Freise (NIKHEF), and R. Saban (INFN) act as co-coordinators of WP5 in this proposal.

IFAE will contribute with 24 PM reimbursed by its own resources.
INFN will devote 36 PM reimbursed by EC and will contribute with 141 PM reimbursed by its own resources.
CNRS will devote 108 PM reimbursed by EC and will contribute with 121 PM reimbursed by its own resources.
NIKHEF will devote 36 PM reimbursed by EC and will contribute with 124 PM reimbursed by its own resources.
UAntwerpen will contribute with 5 PM reimbursed by its own resources.

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 scientific boards inside the experiment. The chairs of the ET Steering Committee: H. Lück (Hanover) and M. Punturo (INFN) act, together with P. Chiggiato (CERN), as co-coordinators of WP6. P. Chiggiato coordinates the R&D and technical design of the ET pipe-arm vacuum system.

IFAE will contribute with 10 PM reimbursed by its own resources.
INFN will contribute with 20 PM reimbursed by its own resources.
UW will contribute with 1 PM reimbursed by its own resources.
CNRS will contribute with 28 PM reimbursed by its own resources.
NIKHEF will contribute with 2,5 PM reimbursed by its own resources.
UAntwerpen will contribute with 48 PM reimbursed by its own resources.
UNIGE will contribute with 2 PM reimbursed by its own resources.

WP7 – Innovation and Industrial engagement [led by INFN]- will be responsible for all the aspects related to Technology Transfer including the promotion of innovative technologies inside the ET project, the proper management of the intellectual property, and establishing the liaisons with industry to maximize the industrial returns. M. Morandin (INFN) and R. van der Meer (NIKHEF) act as co-coordinators of WP7 in this proposal.

IFAE will devote 14 PM reimbursed by EC and will contribute with 12 PM reimbursed by its own resources.
INFN will devote 12 PM reimbursed by EC and will contribute with 12 PM reimbursed by its own resources.
UW will contribute with 19 PM reimbursed by its own resources.
NIKHEF will devote 2 PM reimbursed by EC and will contribute with 12 PM reimbursed by its own resources.
UAntwerpen will contribute with 5 PM reimbursed by its own resources.

WP8 – Computing and Data Access [led by BSC-CNS]- is devoted to realizing the model for computing and data access for ET, including: the definition of the workflow, the estimation of the required resources, the design of the online Tier-0 data center, and the clarification of the policy for the storage and the access to the ET data on all relevant time scales, respecting the EU policies on open data. To a very large extent, the work relies on existing efforts in the ET Collaboration, and also counts with the presence of experts from large computing centers with long experience on massive computing demanding challenges. S. Girona (BSC-CNS) and A. Stahl (Aachen) act as co-coordinators of WP8 in this proposal.

BSC-CNS will devote 36 PM reimbursed by EC and will contribute with 9 PM reimbursed by its own resources.
INFN will contribute with 3 PM reimbursed by its own resources.
CNRS will contribute with 3 PM reimbursed by its own resources.
UNIGE will contribute with 48 PM reimbursed by its own resources.

WP9 - Sustainable Development Strategy [led by EGO]- focuses on those crucial aspects necessary for the design of a sustainable RI, minimizing the landscape and environmental impacts. This includes, for example, strategies for low carbon footprint, low energy consumption, sustainable reuse of excavation materials and a smart model for transportation. N. Arnaud (CNRS), S. Katsanevas (EGO) and M. Marsella (INFN/U. Rome) act as co-coordinators of WP9 and count on the presence of M. R. Galler (MUL).

INFN will devote 18 PM reimbursed by EC and will contribute with 39,2 PM reimbursed by its own resources.
CNRS will contribute with 13 PM reimbursed by its own resources.

EGO will devote 18 PM reimbursed by EC and will contribute with 12,6 PM reimbursed by its own resources.
 MUL will devote 12 PM reimbursed by EC and will contribute with 4 PM reimbursed by its own resources.

WP10 - Education, Outreach and Citizen Engagement [led by UW]- has the mandate to promote to the widest possible audience the game-changing scientific potential of ET for astronomy, cosmology and fundamental physics. It will coordinate across all member countries of our Consortium the creation and dissemination of educational and promotional materials that will bring the scientific vision of the ET RI to all relevant stakeholders - including other scientists, journalists, politicians and policy makers, industry leaders, school and university students and the general public. M. Hendry (UKRI) and D. Rosinska (UW) act as co-coordinators of WP10 in this proposal.

- IFAE will contribute with 3 PM reimbursed by its own resources.
- INFN will contribute with 5 PM reimbursed by its own resources.
- UW will devote 24 PM reimbursed by EC and will contribute with 20 PM reimbursed by its own resources.
- NIKHEF will contribute with 10 PM reimbursed by its own resources.
- EGO will contribute with 28,4 PM reimbursed by its own resources.
- Wigner RCP will contribute with 6 PM reimbursed by its own resources.
- UCAR will contribute with 4,8 PM reimbursed by its own resources.
- UGLA will contribute with 4,8 PM reimbursed by its own resources.

Next table shows the number of contributive (not reimbursed) and requested EC (reimbursed by EC) PMs per institution and WP:

INSTITUTION	PMs	WP1	WP2	WP3	WP4	WP5	WP6	WP7	WP8*	WP9	WP10	Total Person-
1 IFAE	CONTRIBUTIVES	52,8	0	0	0	24	10	12	0	0	3	101,8
	REQUESTED EC	36	0	0	0	0	0	14	0	0	0	50
1.1 BSC	CONTRIBUTIVES	0	0	0	0	0	0	0	9	0	0	9
	REQUESTED EC	0	0	0	0	0	0	0	36	0	0	36
2 INFN	CONTRIBUTIVES	0	10	10	10	141	20	12	3	39,2	5	250,2
	REQUESTED EC	0	0	14	0	36	0	12	0	18	0	80
3 UW	CONTRIBUTIVES	0	0	0	12	0	1	19	0	0	20	52
	REQUESTED EC	0	0	0	0	0	0	0	0	0	24	24
4 CNRS	CONTRIBUTIVES	0	0	0	0	121	28	0	3	13	0	165
	REQUESTED EC	0	0	0	0	108	0	0	0	0	0	108
5 NIKHEF	CONTRIBUTIVES	0	10	0	10	124	2,5	12	0	0	10	168,5
	REQUESTED EC	0	15	0	0	36	0	2	0	0	0	53
6 UCL	CONTRIBUTIVES	0	0	11	0	0	0	0	0	0	0	11
	REQUESTED EC	0	0	6	0	0	0	0	0	0	0	6
7 UAntwerpen	CONTRIBUTIVES	0	0	0	0	5	48	5	0	0	0	58
	REQUESTED EC	0	0	0	0	0	0	0	0	0	0	0
8 EGO	CONTRIBUTIVES	0	0	0	0	0	0	0	0	12,6	28,4	41
	REQUESTED EC	0	0	0	0	0	0	0	0	18	0	18
9 DESY	CONTRIBUTIVES	0	0	24	0	0	0	0	0	0	0	24
	REQUESTED EC	0	0	9	0	0	0	0	0	0	0	9
10 Wigner RCP	CONTRIBUTIVES	0	0	0	13,2	0	0	0	0	0	6	19,2
	REQUESTED EC	0	0	0	0	0	0	0	0	0	0	0
11 MUL	CONTRIBUTIVES	0	0	0	0	0	0	0	0	4	0	4
	REQUESTED EC	0	0	0	0	0	0	0	0	12	0	12
12 UNIGE	CONTRIBUTIVES	0	0	0	0	0	2	0	48	0	0	50
13 UKRI	CONTRIBUTIVES	0	4,8	0	0	0	0	0	0	0	0	4,8
14 UCAR	CONTRIBUTIVES	0	0	0	0	0	0	0	0	0	4,8	4,8
15 UGLA	CONTRIBUTIVES	0	0	0	0	0	0	0	0	0	4,8	4,8
Total Person Months	CONTRIBUTIVES	52,8	24,8	45	45,2	415	111,5	60	63	68,8	82	968,1
Total Person Months	REQUESTED EC	36	15	29	0	180	0	28	36	48	24	396
		88,8	39,8	74	45,2	595	111,5	88	99	116,8	106	1364,1

1.2 Coordination and/or support measures and methodology

In Figure 1, the global structure of the ET-PP project is shown and the main connections and interplays across WPs are presented. The WPs are naturally clustered into four main areas related to the organization, the instrument design, the instrument site and the sustainability and social related aspects, with WP1 orchestrating the global coordination. In the following some relevant aspects are discussed.

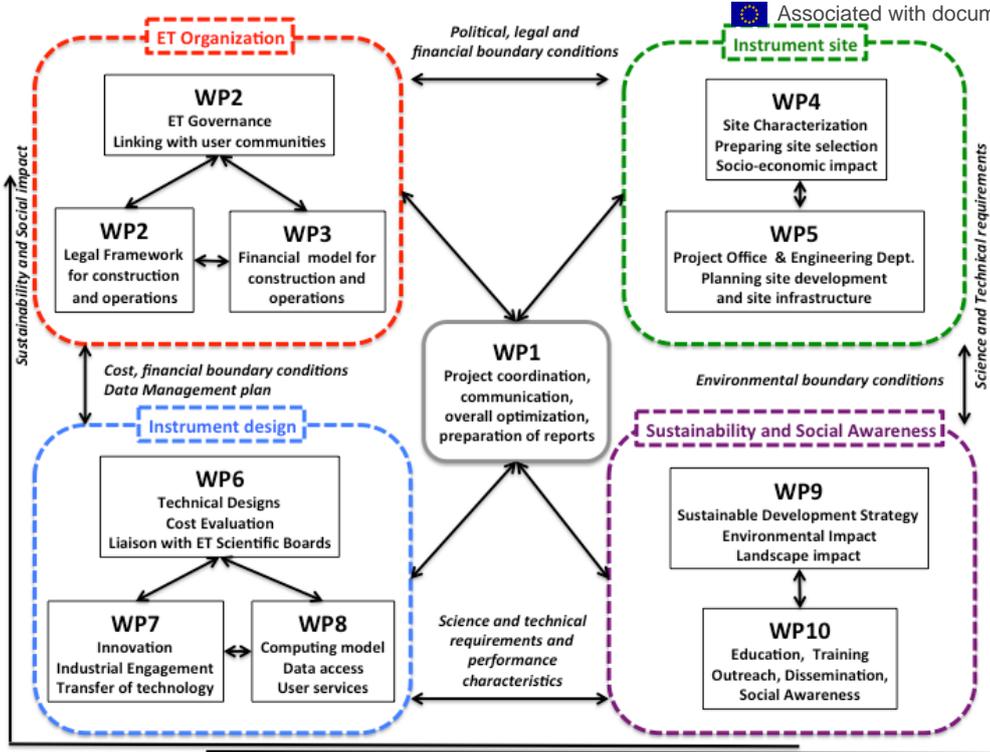


Figure 1: Project structure and interrelation of the different work packages, aiming to illustrate the most important relations between work packages.

Organization, Governance, Legal Entity and Site Selection. ET-PP must ensure that the main decision-making bodies, i.e. Ministries are provided with the relevant information in a transparent manner as much as possible. This includes at least a detailed science case document. This includes multi-messenger topics and will require discussions and possibly agreements with astronomy organizations such as ESA and ESO. The scientific and technical requirements for ET will be defined in the context of a future third-generation (3G) global network of observatories. As ET will be embedded in a global network, a common framework must be developed to tackle the computing and data issues, including low latency and alert distribution. Moreover, an international collaboration on R&D will be developed. This includes topics as mirrors, coating, quantum and cryogenic technologies, vibration isolation, vacuum technology, environmental monitoring and control, and civil infrastructure technologies (e.g. excavation). Here we strive towards detector architectures that include a level of design homogeneity in order to simplify the implementation, taking into account local conditions. At present LIGO, Virgo and KAGRA constitute a global 2G network of gravitational-wave observatories where various computational aspects have been integrated in an International Gravitational Wave Network (IGWN) framework. In this context a common engaged roadmap must be developed to go from the current generation 2G to 3G. Associated governance documents for the next phase must be developed together with involved funding agencies. Finally, the site-selection will be prepared at the level of Ministries, and again WP2, in close coordination with WP4 and WP1, will ensure that adequate information is provided in a transparent manner. This includes both geophysical information and cost studies for site infrastructure and detector architectures and identification of value engineering priorities and cost cap targets.

A primary objective of ET-PP is to prepare a legal entity for the ET RI. The preferred implementation has to be determined and may be that of an Intergovernmental Organization (IGO) based upon a treaty-strength international Convention as exemplified by CERN or the recently formed SKA IGO. In this model, governments sign the fixed Convention in a durable and powerful commitment. like CERN and SKA. Alternatively, a European Research Infrastructure Consortium (ERIC) model can be considered in which each partner deposits with the European Commission a letter of commitment to the agreed work of the consortium, signed by an appropriate government official. Another option that will be considered is an International non-profit member company such as a Delaware LLC, German GmbH, Dutch Stichting, or a Belgian Association International san but Lucrative [AISBL]. Governments can be members of the corporation and can make written company formation documents and contribution agreements that are legally binding and internationally recognized. These can have independent and appropriate procurement and employment systems and are fully responsible for all financial matters.

Note that all three governance models contain a strong central management. The final selection of which model to adopt must be prepared by the Ministries, project leaders and the funding agencies together. The path to the ultimate governance structure is similar no matter which of these three is chosen. An important objective is to expand the number of stakeholders participating in the ET project. We expect that during this process a Council will be established for ET that will run the “in-creation” RI management, leading to the disappearance of the existing ET-PP management structure.

In the present governance model under consideration, the ET Council is the highest authority of the Organization and has responsibility for all-important decisions. It controls ET’s activities in scientific, technical and administrative matters. It approves programmes of activity, adopts the budgets and reviews expenditure. The Council is assisted by the Scientific Policy Committee and the Finance Committee. The Director-General, appointed by the Council, manages the ET Observatory. The Director-General is assisted by a directorate and runs the Laboratory through a structure of departments. ET is run by the Member States, each of which has two official delegates to the ET Council. One represents his or her government’s administration; the other represents national scientific interests. The Scientific Policy Committee evaluates the scientific merit of activities proposed by physicists and makes recommendations on ET’s scientific programme. Its members are scientists elected by their colleagues on the committee and appointed by Council on the basis of scientific eminence without reference to nationality. Some members are also elected from Non-Member States. The Finance Committee is composed of representatives from national administrations and deals with all issues relating to financial contributions by the Member States and to the Organization’s budget and expenditure.

Site Preparation. A timely selection of the RI site, currently foreseen by 2025, is a fundamental aspect of the ET-PP program. As already pointed out, the task of the WP4 is to collect –and wherever possible to quantify – all relevant site-specific aspects entering the project’s site selection process. This for all sites that aspires to submit a bid book to host the RI. Without being exhaustive, these aspects range from issues directly impacting the sensitivity/performance i.e. discovery potential of ET like seismic noise, seismic activity and duty cycle, to aspects that impact the construction/operation costs such as rock stability and sub-surface hydrology to ‘softer’ aspects such socio-economic impact, accessibility and quality of life. In view of the anticipated prolonged operation of the RI, the site must also be safeguarded against the future installation of noise-generating facilities such as windmills, railroads, etc. in the vicinity. Apart from that each site must commit to the to be agreed upon schedule once selected i.e. possible delays in the start-up of notably the excavation works related to legal procedures, permitting, land acquisition, etc. must be taken care of beforehand.

Two items are at the core of the WP4 objective: how to arrive at robust and comparable cost and schedule estimates of the civil engineering (excavations) work in view of taking into account aspects such as the geology, the local population, nature conservation; and how to establish the impact of site characteristics on ET sensitivity and operation and, if needed, how to compensate it and at which level it would be possible to mitigate it. For many of the aspects the actual work will not be done within WP4 itself, but will be provided by the ET Collaboration via WP6 (in particular the parameters affecting the ET sensitivity) or will be outsourced to a professional organisation (e.g. socio-economic impact studies, quality of life assessment). Instead, within this WP4 the relevant aspects will be defined, collected, analysed and if needed quantified.

Financial Architecture. To develop the financial architecture for ET, it is important to establish commonly accepted and well-defined guidelines for the planning, monitoring and reviewing of costs, the provisioning of in-kind contribution and the financing and evaluation of R&D activities that will be run during this preparatory phase. It’s also important to agree rules to measure and recognize effort and contribution provided by the partners through national and EU funded projects. These internal rules will be set and described in handbooks, one for the design and construction phase and one for the operating phase and, at the end, set in a signature-ready contract to fund and build ET. A financial module of the project management information system (PMIS) will be implemented to set up a living model for scheduling and budgeting. According to modern industry standards a “rolling wave” approach will be followed in funding and expenses management to progressively improve the financial planning. Cost risks in procurement will be identified and measures will be developed to mitigate these risks in close collaboration with the governance and project management working groups. Key indicators will be identified to monitor project execution. The financial plan will be developed, at different levels, according to the possible governance and legal status. Then, different scenarios will be elaborated to run sensibility analysis to cost and time variability and different procurement methodology. The results will help to set the right quantity of contingencies and “when and how” they can be used. WP3 in charge of the financial architecture, in close coordination with WP2, will be responsible for preparing, carrying out and following up biannual meetings during the ET preparatory phase. Annual progress reports will be

shared with all involved funding agencies and ministries as well as the Physical Sciences and Engineering Strategic Working Group of ESFRI. As already mentioned, the ET Finance Committee will be established.

Project Office and Engineering Department. One of the main missions of ET-PP is the creation and consolidation of the ET Project Office and the corresponding Engineering Department. It is foreseen that a significant fraction of the requested ET-PP funds (about 43%) are devoted to this mission. Holding to the primary constraints which are the scope, the schedule, and the budget, the role of the Project Office is to guarantee, that the as built RI -comprising infrastructure, technical systems and the interferometer itself- fully complies with the requirements, the parameters, the layout detailed in the TDR without having undergone changes which were not endorsed by the stakeholders. While the requirements, the parameters, the layout of the interferometer are set by the collaboration in charge of the GW observatory, the infrastructure and technical systems associated with the interferometer are designed, procured, installed, commissioned, maintained and eventually dismantled by an Engineering Department yet to be created. The scope, the mandate and the composition of this unit will be defined within WP5. The architecture and location of the Project Office will be defined early during the ET-PP project to allow the start-up of the Project Office well before the completion of the project. The host(s) of the project office is expected to provide office space and the relevant infrastructure free of charge. The project office will be established for the preparatory phase; for the construction and operational phases, once the ET site selection process has been concluded, a different organization and location may be appropriate, with a proposal arising from the work in the preparatory phase.

The work to set-up the Project Office will be carried-out by personnel hired in the scope of ET-PP that will be supervised by engineers and scientists who have been involved in project management in their home institutions. The leaders of WP5 will constitute the Steering Board which will monitor and take part in the activities of the team until the end of the ET-PP project. It is also assumed that both the Head of the Project Office and the Head of the Engineering Department will be picked among the experienced staff in the community of GW observatories without receiving financial support from ET-PP.

Technical Design. One of the main objectives of the ET-PP is to provide a revisited/refined TDR of ET including both the infrastructure and the experiment together with updated cost estimates. Not a surprise, this work will be developed to a large extent within the ET Collaboration, and will count with the assistance of experts on civil engineering, vacuum, cryogenics and infrastructure services in the ET Project Office. In particular, the vacuum system for ET's arms will be one of the most challenging ever built for research facilities. An intimate relation with experts from the CERN vacuum department has been established. CERN will coordinate the TDR on the baseline solution for the vacuum system for ET's arms. This includes detailed information on the proposed technologies, planning and tunnel integration, and budget. In parallel CERN will coordinate the activity on value engineering to find the best compromise between cost and performance. For that purpose, material selection, manufacturing techniques and pumping technologies will be investigated in close collaboration with the European industry and the collaborating institutes.

WP6 serves as a bridge to the ET Collaboration, already well organised in specific boards (see Figure 2), with the required technical and scientific competences and precise mandates. The Observational Science Board (OSB), currently composed by more than 200 scientists, and led by three co-chairs with specific skills in Fundamental Physics, Multi-Messenger Astronomy and Data Analysis, will deliver a refined ET science case, taking into account the latest update in the observatory design. The Instrument Science Board (ISB), currently composed of a few hundred scientists and engineers, will take care of the development of the TDR of the interferometers composing the ET detectors. The TDR of the RI and the design of the vacuum system will be realised under the management of the project directorate and the Project Office in WP5, in close collaboration with the ISB. Technological collaboration with major laboratories in Europe and in the world, highly skilled on the specific technological aspects will be pursued. The coherence between the WP6 activities and the ET Collaboration actions are guaranteed by the chairs of WP6 and of the ET steering committee. Given the existing resources in the ET Collaboration, the WP6 activities will be done without receiving support from this ET-PP action.

Computing model and data access. The development of a valid computing and data access model is an objective of ET-PP. It requires close cooperation with ISB, OSB and E-Infrastructure Board (EIB) of the ET Collaboration to define the workflow from the instrument to the publication. A geographically distributed model of resources is foreseen as the only way to match the computing needs of the experiment over its lifetime. A powerful T0 on-site computing center will receive the data taken by the experiment. The model will define the services provided by the center, and the delimitation against services realized with distributed computing. The development of the model is intimately linked to a proper estimate of the computing resources (computing power and data storage), the personnel, and the operational cost required for all aspects of ET computing, where the potential for mitigation must be

addressed. Similarly, the ET computing solutions must include those aspects related to the sustainability and energy efficiency of the model. Moreover, ET-PP will develop a policy on the storage, curation, preservation of the data and the access to the data, following all the EU open data standards. As pointed out, this requires the close coordination of WP8 with WP6 and WP2, where the latter addresses the required coordination with other GW observatories.

Innovation and Industrial engagement. Establishing the proper contacts with industry for R&D and in preparation for the future massive industrial production during the RI construction phase is a pillar of the ET-PP program. Goods and services needed to build the RI facility are demanding in terms of technical, engineering, managerial or manufacturing capabilities. It can be expected therefore that the number of companies that can satisfy the requirements imposed in the tendering procedures might be in some cases limited. In order to guarantee a sufficient level of competition and industrial capability, measures are needed to attract the interest of a sufficient number of companies and, in some extreme cases, where suppliers with sufficient capabilities may not exist, engage companies in the R&D phases to prepare them for subsequent effective involvement in the production phase. ET-PP will define the appropriate objectives that ET could establish to support and enhance the development of innovative technologies and the incorporation of new ventures in the implementation of the ET project. At the same time, a mapping of the engagement initiatives already in place in partner countries, both for ET and other RIs will be made along with the validation of the maturity of the technologies and industry capabilities needed in the construction and operations phase. This might translate into the need for a new engagement plan for national and international activities. Those activities will be driven by WP7 in close cooperation with the Projects Office. The proper balance of industrial returns to the countries that constitute the ET consortium will be at the root of the success of the ET project. During ET-PP, and in coordination with WP3, models for a balanced industrial return in tendering procedures used in other RI will be studied, with the aim to arrive at a satisfactory solution. Finally, ET-PP will bring the opportunity to determine the approach ET will follow for the management of the Technology Transfer processes and, specifically, the management of the Intellectual Property.

Sustainability. As already mentioned, one crucial aspect of the ET-PP is to develop the strategy for the realization of a sustainable RI. During the next few years, an accurate evaluation of the ET carbon footprint during both its construction and initial operation stages will take place. All power consumptions of the infrastructure will be taken into account (instruments, service plants, computing facilities) as well as those linked to the transportations (commuting, supplies, travels) by analysing all the scientific scenarios envisioned. The study will be based on simulations and projections using literature standards, plus some critical revision of the existing studies for the current ground-based gravitational-wave detectors: the two LIGO instruments (USA), Virgo at EGO (Italy) and KAGRA (Japan, underground). Surveys made by large research infrastructures like CERN and SKA will be used as well, both for their methodology and as inspiration for the actions for ET. A responsible energy consumption policy will be reinforced by increasing the efficiency of all devices, reducing the ET global need for energy thanks to an optimised design of the most energy-consuming areas, and by recovering as much emitted energy as possible (e.g. heat from cooling systems) to reuse it. Moreover, a responsible production for the consumed energy will be promoted, whether it be produced on site (e.g. by arrays of solar panels) or provided by external suppliers. Such optimization will be done separately for the three main elements of the on-site infrastructure –underground constructions, surface buildings and the local computing center – that all have different requirements to fulfil and challenges to meet. A joint work of WP9 with WP6 and WP8 is foreseen.

Landscape and environmental impact. The ET-PP plan includes specific actions on how to optimize the surface transportation network and design an underground transportation system for personnel and materials, by identifying the paths, the types of users, the vehicles needed, and also by considering the highest safety standards; on the planning and management issues related to the definition of critical areas (safety and environmental) and to the necessary investigations to obtain the associated risk assessments; on the impact of different scenarios for the design of the underground structures (tunnels, shafts and caverns) to minimize interference with external surface infrastructure networks, urban and natural areas; on the development of layout concepts for the foreseen surface infrastructures taking into account technical requirements, environmental constraints and connection with existing infrastructure and service plants; on the development of integrated processes for environmental assessment evaluation in agreement with local regulations; on the study of the impact on biodiversity and on the hydrologic cycle; and, finally, on a global approach for non-hazardous and hazardous waste management and recycling both during the construction and operation phases. A joint work of WP9 with WP5 is foreseen.

Inspired by relevant CERN actions, ET-PP will study the organization to manage environmental issues. As part of its Environmental Protection Strategy, ET may launch an ET Environmental Protection Steering Board to identify

and prioritize environmental areas to be addressed and to propose programs of action, and an ET Energy Management Panel to monitor the ET energy consumption and identify measures to improve efficiency and promote energy re-use. These actions will be developed in the framework of WP9 and WP2 and the environmental protection regulations of the ET hosting and member states.

Social awareness. The ET project relies on a significant investment of public funds from the different countries forming the ET consortium. Therefore, the awareness and recognition of the project value by the society is of utmost importance. Moreover, the ET project has the duty to return the investment to society also in the form of outreach, education and training opportunities for the general public and the next generations of scientists. In the ET-PP structure, WP10 is formed by a large community with huge experience on outreach and communication activities in the framework of LIGO/Virgo gravitational wave experiments. WP10, in close collaboration with WP1, will establish procedures for coordination of outreach and communications across national networks and WPs. It will create, disseminate and curate high-quality promotional materials on ET science and technology, and design educational resources on ET science and technology, aligned with national STEM curricula. In particular, this involves the design, development and maintenance of a dedicated ET website and social media platforms, as well as the design and production of a range of professional-quality videos and interactive resources on ET science and technology. In addition, ET-PP will develop a sustainable mentorship and training programme for early career researchers, including gender balance aspects, and a training plan for design and delivery of future summer schools.

2. Impact

2.1 Project's pathways towards impact

The clear WP structure and the strong links built across WPs (see Figure 1) are key aspects of ET-PP that pave the path towards reaching the goals and the required impact. The appointed co-coordinators of the different WPs were carefully selected and are a distinguished set of prominent and internationally recognized experts on the field with great experience on managing Big Science projects. In many cases, the WP co-coordinators bring first-hand experience from international laboratories like EGO, CERN or DESY, among others.

The ET-PP requested funds (3.45M€) are strategically placed to maximize their impact. However, the ET-PP success relies on the strong commitment from the different institutions participating in the proposal, putting forward very significant in-kind contributions in the form of dedicated personnel and cash. The personnel contracts funded by ET-PP EU funds will have a duration of three years and will count with co-funding from the host institutions, committed to extend the contracts to match the duration of the ET-PP project. As described in Section 3.2, the ET-PP participants are deeply involved in GW experiments and already provided strong support to ET.

As already mentioned, a main objective of ET-PP is to establish the governance of the ET project as a legal entity and to facilitate the formation of a strong Project Directorate structure, leading to a solid technical design and cost estimates (for the infrastructure, detectors and computing), and a timely site selection preparation, presumably resulting into a geographic and financial enlargement of the ET consortium. Figure 2 presents, in the framework of the Project Directorate, details on the positions ET-PP will promote. As anticipated, emphasis will be put in the definition of a strong Project Office and Engineering Department. They will principally be staffed by personnel hired by the participants, as in-kind contributions and/or from support requested in this application. This includes the following positions:

- *Technical Coordinator*: with the primary mission of technical management that focuses on the definition, the configuration, the schedule, the budget, the safety, the logistics, the installation, and the interferences on the worksites.
- *Systems Engineer*: that focuses on how to design, integrate, interface and manage a complex system like ET over its life cycles and will take a leading role in a methodical, multidisciplinary approach for the design, the interfaces, the constraints, the costing, the realization, the technical management, the commissioning, the operation, and final dismantling of the facility.
- *Parameters, Layout and Risk Manager*: in charge who interfaces with the ET Collaboration to collect, process and store the parameters and the requirements to elaborate the layout and the configuration which will be translated into the baseline design of the interferometer. She/he manages change requests, handles non-conformities and is in charge of risk management.

- *Software Engineer*: with quality control competences and experience of a project management environment who will participate to the selection and the procurement, and will take the lead in the installation, the configuration and the commissioning of the project management software suite which will be used for configuration management, project breakdown structures, work break down structures, risk matrices, document workflows, planning, earned value management, etc.
- *Civil Engineer*: expertise internal to the ET project that, in collaboration with national institutes and the ET collaboration, translates user requirements into specifications and interfaces with the companies which will carry out the civil engineering works. She/he will be in charge of the reception of the civil engineering works also resolving non-conformities.
- *Integration and Technical Infrastructures Engineer*: with expertise in technical infrastructure systems (ventilation, cooling, electricity distribution, logistics, handling and transport) who will focus on the integration of the technical infrastructures, the detectors and the detector subsystems in the civil engineering works. He/she will interface with the civil engineer to propagate the requirements and the constraints.
- *Vacuum Engineer*: expertise internal to the ET project that, in collaboration with national institutes, CERN and the ET collaboration, translates user requirements into specifications and interfaces with the companies which will be contracted to manufacture, install, commission, and eventually operate and maintain the vacuum systems.

Within ET-PP, a total of **1.5M€** are allocated to facilitate the hiring of five highly qualified young engineers with the required competences. The engineers will be strategically placed in those host centers such that they are surrounded by experienced staff engineers providing the required supervision.

ET-PP will help to address important sustainability and environmental aspects affecting the RI design by hiring experts of those matters, for which **0.3M€** are allocated. In addition, ET-PP will be instrumental in resolving financial and legal aspects, in establishing the relation with industry, and in validating the cost and the socio-economic impact of the new infrastructure. For this purpose, ET-PP will support the creation of the Financial Manager and Industrial Liaison positions with a total of about **0.35M€**. Finally, ET-PP will allocate **0.26M€** for the preparation of legal documents and **0.2M€** for professional consulting expenses related to civil engineering costs and socio-economic impacts.

For the success of the ET project, a close cooperation of the Project Office under the leadership of the Project Directorate with the ET Collaboration is necessary. This is particularly relevant for the ET vacuum system, which constitutes a significant fraction of the total cost of the RI and will be directly managed by the Project Office. The cost of the vacuum system would be about 500 M€ if the same technology as for Virgo were to be used. Therefore, robust development is required to find the best compromise between cost and performance; for that purpose, material selection, manufacturing techniques and pumping technologies will be investigated in close collaboration with the European industry and the collaborating institutes. Given the importance of the ET vacuum system and the cost, its design will be outsourced to professionals from the CERN vacuum department providing the corresponding TDR. The anticipated CERN service costs (about 1M€ in three years) will be covered by own funds from the participants. The first 0.3M€ 1-year cost has been already secured by INFN and NIKHEF contributions.

The design of a valid and scalable computing and data access model for ET, due by the end of the ET-PP period, is put in the hands of experts on distributed computing from different European centers and experts on high-performance computing from supercomputing centers within PRACE, with experience on data management and CPU/GPU-intensive computation tasks for GW physics. They play a central role in the current GW experiments and have long experience on WLCG computing for the LHC at CERN. Despite the fact ET counts with a strong community related to computing aspects, it is somehow dispersed in many projects. ET-PP will play an important role in focusing existing efforts and reaching the objectives by promoting the creation of a fully committed computing engineer position acting as coordinator. For this purpose, a total amount of about **0.23M€** is allocated.

A proper management of the ET-PP project, to maintain strong links and a fluid transfer of information across WPs over the duration of the project, and to prepare reports to the EC and the corresponding financial execution, requires a reinforced E-PP administration and secretariat at the coordinating institution. For this purpose, a total of about **0.27M€** is allocated. As pointed out, ET-PP includes a WP devoted to increasing the social awareness of the project and returning the society investment in the form of education and training programs. A strong community of experts on outreach and communication is already in place in the framework of the LIGO/Virgo experiments and ET will profit from it. Nevertheless, global coordination should be reinforced and the production of high-quality contents for media communication, including the maintenance of a website, requires professional support. For this purpose

ET-PP plans to devote a total of **0.14M€** to these activities. Finally, a total of about **0.2M€** are devoted to cover travel costs and the organization of workshops across different WPs.

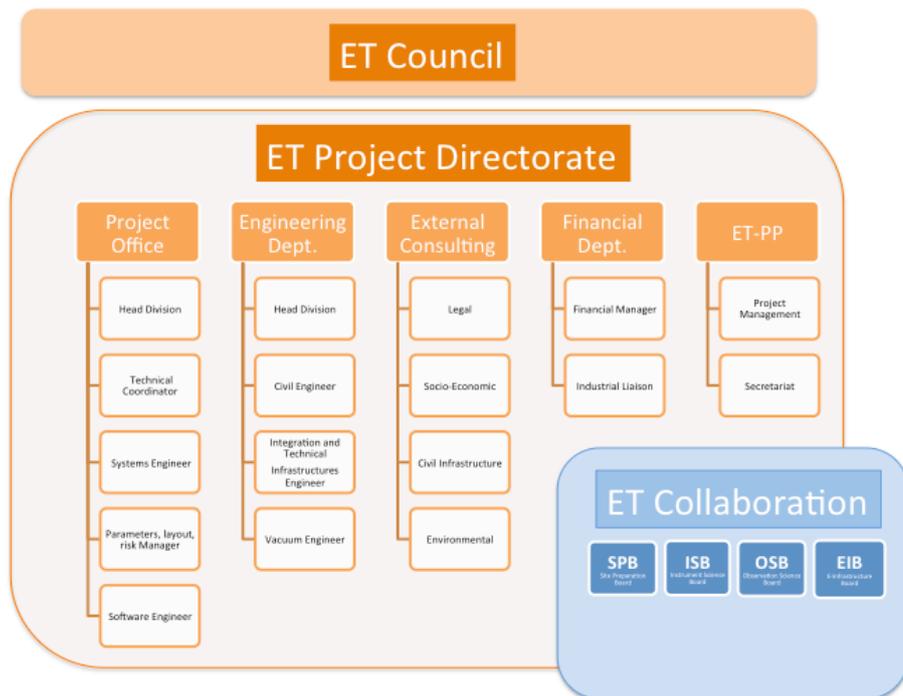


Figure 2. Positions promoted by the ET-PP actions directly related to the Project Directorate. The activities directly related to the ET Collaboration in ET-PP are funnelled via WP6.

2.2 Measures to maximise impact - Dissemination, exploitation and communication

A proper communication and dissemination of information across WPs and with representatives from the different funding agencies is mandatory for the success of the ET-PP project. As already mentioned, a clear and well-defined structure of WPs has been established, where the intimate relation with the existing ET Collaboration internal organization has been preserved, while bringing new key players with the necessary skills. During the execution of ET-PP, regular meetings will be organized by each of the WPs co-coordinators, complemented by monthly WP-coordinators meetings chaired by the ET-PP coordinator.

Similarly, a close and continuous interaction with the BSR and BGR boards is anticipated for all the aspects related to governance, financial architecture, legal framework and site selection preparation. Following high standards in other large research infrastructures, governing boards meetings will be formalized and a solid system of documentation and reporting will be established to guarantee a transparent access to all the relevant information by all the interested parties. ET-PP will result in the preparation of legal form and governance model documents based on consensus requirements, the financial items of a signature-ready contract to commonly fund and build ET, and a business plan will be set up for the operation phase.

The geographical enlargement of the ET consortium will be a priority in ET-PP for which the ET Project Directorate will proactively maintain conversations with new European countries expressing interest in joining ET. As pointed out, ET is framed within IGWN in order to define a worldwide common roadmap for 3G experiments. During ET-PP the international coordination with the USA, Asia and Oceania will be reinforced via bilateral and multilateral dedicated workshops.

One of the ET-PP missions is the delivery of updated TDRs. This requires a significant R&D effort in aspects related to mirrors, coating, quantum and cryogenic technologies, vibration isolation, vacuum technology, environmental monitoring and control, and civil infrastructure technologies. Detailed studies that will result in a number of scientific and technical publications and in some cases they might translate into patents.

A major milestone of ET-PP is the selection of the ET location by 2025. This will be the result of a complex process, involving several factors, that should be carefully and adiabatically driven during ET-PP and that requires

transparency and exquisite communication among parties. In addition to promoting a fluid and transparent communication with funding agencies, measures will be put in place to pave the path towards a site selection process that preserves the political convergence, including comprehensive internal and external reviews, the organization of town meetings, workshops at different stages of the selection process, as well as topical workshops for different technical inputs relevant for the decision, where the harmonization and proper scrutiny of the information provided by the sites will be guaranteed. As a result, a number of technical documents will be publicly delivered including all the information relevant from each site like, for example, legal procedures, permitting and land acquisitions i.e. the steps to be taken prior to starting excavations; updated socio-economic impact studies; reports on accessibility, quality of life etc; a complete quantification of all the aspects impacting ET performance for each site; 3D geology, hydrology, etc. model with detailed localisation of the RI; and a robust and complete cost and schedule estimates of the excavations.

As pointed out, an early involvement of industry is fundamental. In order to attract the interest of industry, the existing liaisons with the industrial capabilities in each of the countries will be fully exploited and industrial sessions will be organized. A clear and consistent view of the ET project finances and costs, and a fair share policy in the industrial returns in each country contributing to the construction and operation costs of ET, will be needed to raise the necessary construction funds and to maintain a strong commitment of the different funding agencies over time. A functional Financial Board during ET-PP providing information to the participants of the ET consortium in a comprehensive, transparent and consistent manner will be instrumental to achieve those goals. This includes a report on industry engagement plan execution, a model for pursuing in ET a balanced industrial return, and a report on Technology Transfer (TT) and Intellectual Property management in ET.

An intense campaign of outreach and communication in social media, of utmost importance to create the necessary atmosphere for raising the interest of the society on the ET project and its recognition at local, national and international levels, will be performed. As pointed out, the ET community counts with an experienced network of outreach officials in the different countries. ET-PP will facilitate that the activities are carried out in a centralized and coordinated manner. Actions will include the design, development and maintenance of a dedicated ET Consortium website and social media platforms, and the commissioning and production of high-quality outreach materials. Such materials will be used on the ET Consortium website and social media, in professional outreach and political engagement, at science centres, science festivals and exhibitions and within formal education and citizen science programmes. The goal of these materials will be to create an established, professional brand for ET, emphasising its game-changing scientific potential for astronomy, cosmology and fundamental physics. Materials will span all aspects of ET Consortium instrument and observational science and technology, including multi-messenger and multi-band gravitational-wave astronomy synergies, and all materials will be translated into the languages of all ET Consortium partner institutions. In addition to the science and technology content, materials will also showcase ET as a conduit for STEM careers - emphasising the importance of diversity and promoting under-represented groups - and as a driver for industrial innovation. Moreover, the materials will emphasise the pan-European nature of the ET Consortium as an international community of scientists, engineers and other professionals and a unifying project that strengthens pathways for cultural exchange amongst EU countries and their people.

Finally, ET-PP will develop a strategy for delivering a comprehensive, sustainable mentorship and training programme for early-career researchers (ECRs) across the ET Consortium with special attention to gender balance issues. The structure of the programme will combine delivery of formal workshops and training sessions with establishing an annual ECR “excellence awards” scheme and an informal mentoring and support network that pairs ECRs with established ET Consortium researchers. The main goal of the programme will be to establish a pipeline for identifying and supporting the development of future ET Consortium leaders (on the mid-2030s timescale of ET operations) from amongst the current ECR cohort.

2.3 Summary

KEY ELEMENT OF THE IMPACT SECTION

SPECIFIC NEEDS	D & E & C MEASURES	EXPECTED RESULTS
<i>What are the specific needs that triggered this project?</i>	What dissemination, exploitation and communication measures will you apply to the results?	What do you expect to generate by the end of the project? 1. ET established as a legal entity.

<ol style="list-style-type: none"> 1. The enlargement of the ET consortium, and the definition of the legal framework, governance schemes, and financial regulations under which the RI will be constructed and operated. 2. The revisited technical design and costing of the observatory. 3. The timely selection of the site where ET will be deployed, detailing and cost-estimation of the required site infrastructure, and its socio-economic and environmental impacts. 4. To determine the schemes for technology transfer, procurement and industry involvement in the technical design and construction of ET. 5. The required linking with relevant science communities regarding the detailed definition of the science program, and to determine the user services and the computing and data access model. 	<p><i>Dissemination.</i></p> <ol style="list-style-type: none"> 1. Scientific and Technical publications on the ET science case, the infrastructure and the experiment. 2. Documents internal to ET Council describing the governance and financial model. 3. Legal documents establishing ET as legal entity. 4. Documents internal to ET Council describing the site selection process. 5. Scientific Workshops and Meetings with Industrial partners <p><i>Exploitation.</i></p> <ol style="list-style-type: none"> 1. Patenting R&D results. 2. Transfer of Technology to Industry for ET construction. <p><i>Communication.</i></p> <ol style="list-style-type: none"> 1. Outreach and news on social media to explain the ET project. 2. Presentations at science centres, science festivals and exhibitions of ET science targeted to the general public. 	<ol style="list-style-type: none"> 2. Complete financial plan and financial scenario analysis. 3. Complete characterization of sites including socio-economic impact and environmental studies, and a robust and complete cost and schedule estimates of the excavations. 4. Site selection 5. Operational Project Office and Engineering Department. 6. Updated Technical Design Reports for the infrastructure and the experiment. 7. Data Management Plan and data access policy. 8. Reports on industry engagement plan execution and on Technology Transfer and Intellectual property management in ET. 9. A model for pursuing in ET a balanced industrial return. 10. Definition of the computing and data model of ET. 11. A sustainable mentorship and training programme for early career researchers and an increased gender balance. 12. An increased social awareness of the ET project.
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TARGET GROUPS	OUTCOMES	IMPACTS
<p><i>Who will use or further up-take the results of the project? Who will benefit from the results of the project?</i></p> <ol style="list-style-type: none"> 1. The funding agencies supporting ET who are receiving the necessary documentation. 2. The ET project as a whole, becoming a legal entity with a functional governing model and a well-structured project office and engineering department in place. 3. The scientific community interested in the ET mission, 	<p><i>What change do you expect to see after successful dissemination and exploitation of project results to the target group(s)?</i></p> <ol style="list-style-type: none"> 1. Increasing interest and recognition in society on the ET project. 2. The enlargement of the ET Consortium with the required funding for ET construction and operations. 3. A timely selection process preserving the political convergence, followed by the start 	<p><i>What are the expected wider scientific, economic and societal effects of the project contributing to the expected impacts outlined in the respective destination in the work programme?</i></p> <ol style="list-style-type: none"> 1. The start of a new era in the exploration of the universe using gravitational waves. 2. Significant industrial and technological returns to society during R&D and construction phase. 3. The participation of ET on global

<p>including GW observatories and other experiments planning to exploit a multi-messenger approach using ET data.</p> <p>4. The industry in the participating countries engaged in the R&D and the construction of ET.</p> <p>5. The general public targeted with dedicated outreach and educational activities related to GW physics and the understanding of the cosmos.</p>	<p>of the construction phase.</p>	<p>sustainable goals becoming an interdisciplinary and technological hub open to a variety of collaborations with geoscientists, electromagnetic and data science experts and contributing to the studies on natural hazards and climate changes.</p>
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3. Quality and efficiency of the implementation

3.1 Work plan and resources

Figures 3 to 5 present Gantt diagrams with the project planning details, including milestones. As discussed in Section 3.2, the ET consortium, strategically complemented with this ET-PP action, has the necessary resources and the competences to carry out the objectives in due time.

3.2 Capacity of participants and consortium as a whole

The ET-PP proposal is supported by the full ET Collaboration, which is directly represented in the WP structure of the project. Here, the pan-european interest in ET is represented by 13 main participants from 12 countries, including major funding agencies and worldwide recognized leading research institutions in the field of GWs in Europe. The list of partners (and affiliated institutions) includes:

The Centre National de la Recherche Scientifique (National Centre for Scientific Research): a government-funded research organization, under the administrative authority of France’s Ministry of Research. CNRS’s annual budget represents a quarter of French public spending on civilian research. As the largest fundamental research organization in Europe, CNRS carries out research in all fields of knowledge, through its seven Institutes and three national Institutes. Among them, IN2P3 (Institut National de Physique Nucléaire et de Physique des Particules) coordinates French research and development activities in the fields of nuclear, particle and astroparticle physics on behalf of the CNRS and universities. IN2P3 is responsible for running several major national facilities including particle accelerators and also supports international research facilities (e.g., CERN, EGO, EGI). The core of the French teams involved in this EU proposal corresponds to the scientists who contributed to the construction of Virgo, AdVirgo, AdVirgo+, to the first gravitational waves detections and to the genesis of the ET project. Two essential IN2P3 structures essential for this program are: LMA in Lyon as a unique technological French platform dedicated to provide large and very low loss mirrors for frontier optical experiments, and CC-IN2P3 which provides resources and services to experiments supported by IN2P3. A copy of all Virgo data is stored at CCIN2P3. CNRS participates in the AHEAD2020 research infrastructure integration activity aiming to develop multi-messenger astronomy scenarios with gravitational waves, neutrinos and high energy gamma ray detection. CNRS is also coordinating the ESCAPE H2020-INFRAEOSC project which aims to address the Open Science challenges shared by ESFRI facilities as well as other pan-European research infrastructures in astronomy and high energy physics. The laboratories participating in this European project are: APC – IN2P3 : AstroParticule et Cosmologie, Paris; ARTEMIS : Astrophysique Relativiste, Théories, Expériences, Métrologie, Instrumentation, Signaux, Nice; CC-IN2P3 : Centre de Calcul de l’IN2P3, Lyon; IJCLab – IN2P3 : Laboratoire Irène Joliot-Curie, Orsay; IPHC – IN2P3 : Institut Pluridisciplinaire Hubert Curien, Strasbourg; IP2I – IN2P3 : Institut de Physique des 2 Infinis de Lyon; LAPP – IN2P3 : Laboratoire d’Annecy de Physique des Particules; LKB : Laboratoire Kastler Brossel, Paris; and LPCC – IN2P3 : Laboratoire de Physique Corpusculaire de Caen.

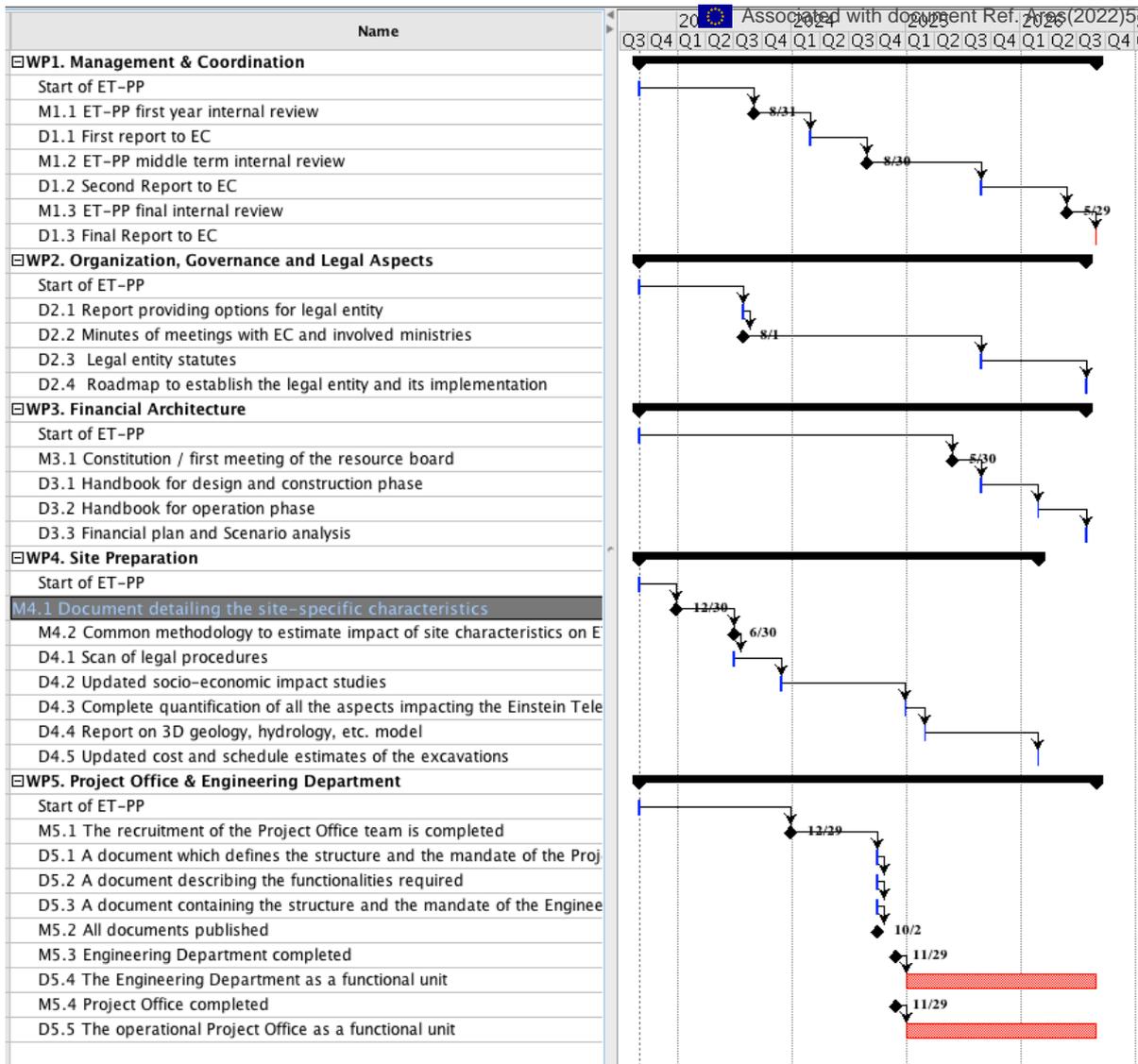


Figure 3: Gantt chart corresponding to the WP1-WP5. The starting date is assumed to be 1-Sept-2022.

Deutsches Elektronen-Synchrotron (DESY) is a world known large national research centre performing physics and astrophysics related research at two locations, Hamburg and Zeuthen near Berlin, and belongs to the Helmholtz Association of German research centres. DESY has a long tradition in planning, constructing and running large scale research infrastructure with expertise in many technological fields required to build ET. In astrophysics DESY is following a multi-messenger approach including gravitational waves physics. This application also includes contributions as third parties from scientists at the Max Planck Institute for Gravitational Physics (AEI), Aachen University (RWTH) and the Institute for Gravitational Physics at Leibniz Universität Hannover (LUH). The "Zentrum für Gravitationsphysik" in Hannover, a close collaboration of AEI and LUH has focused on research on gravitational waves for several decades now. In addition to the numerical analysis of gravitational wave detector data, its particular strengths lie in interferometry, laser physics, and the use of squeezed light states to reduce quantum noise. In addition to the GEO600 gravitational wave detector, the institution operates a 10m interferometer prototype facility with an elaborate seismic isolation system researching new technologies for the third generation of gravitational wave detectors.

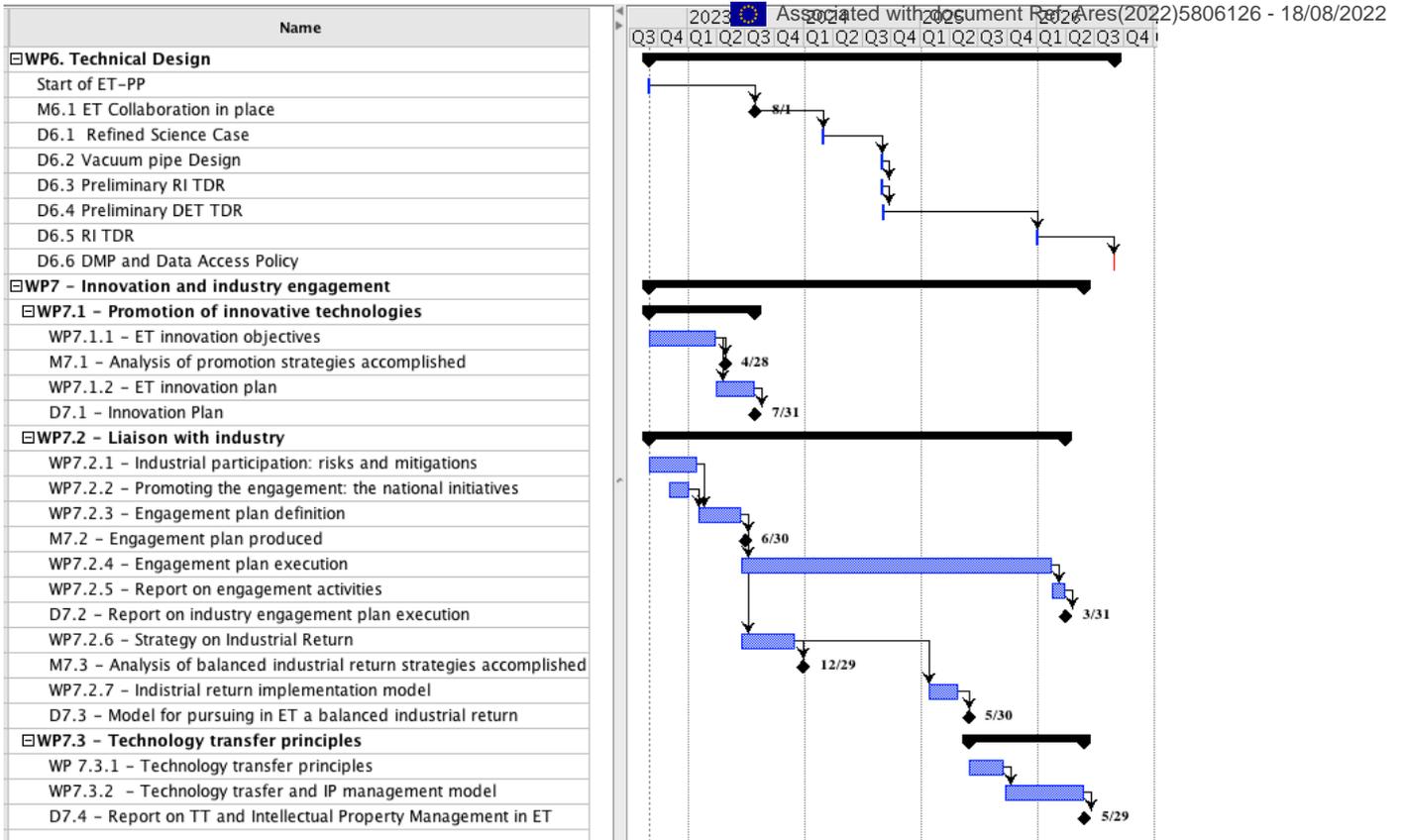


Figure 4: Gantt chart corresponding to the WP6-WP7. The starting date is assumed to be 1-Sept-2022.

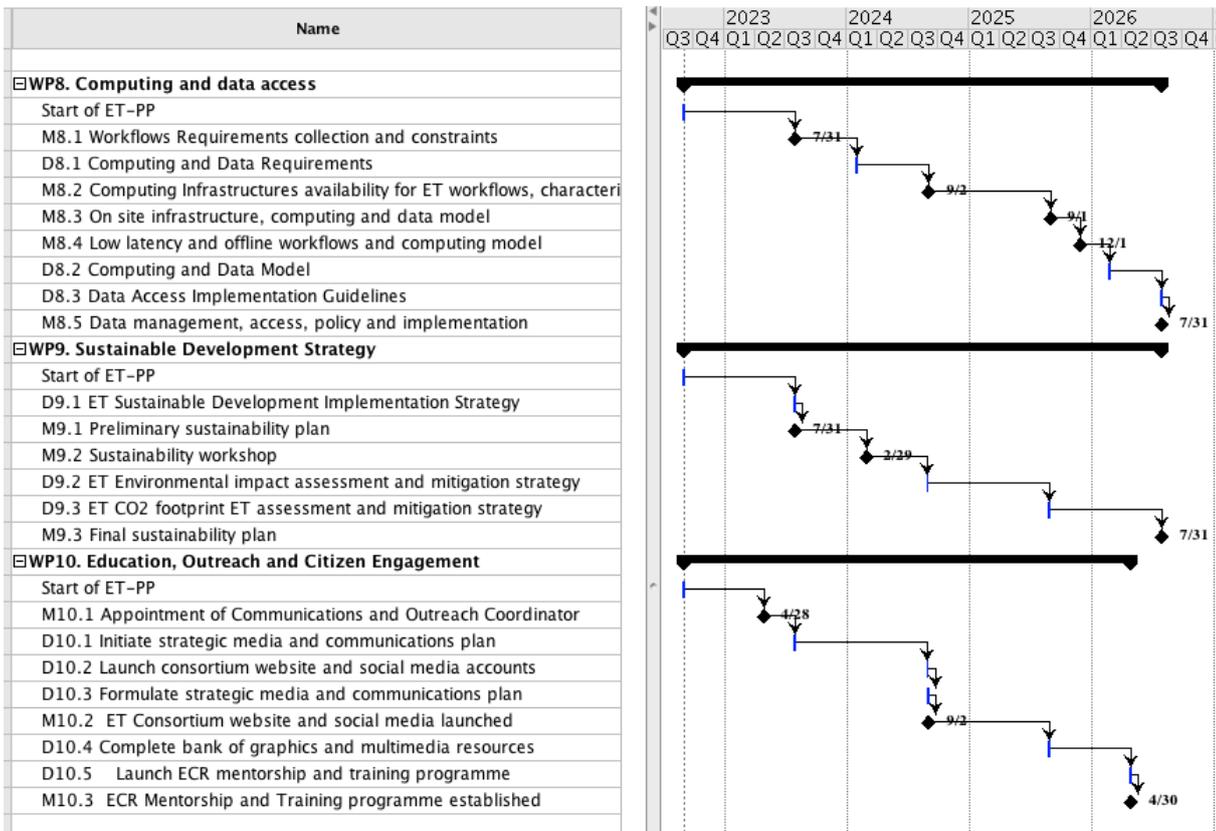


Figure 5: Gantt chart corresponding to the WP8-WP10. The starting date is assumed to be 1-Sept-2022.

EGO is a scientific consortium founded in Dec. 2000 by two national public research bodies: the CNRS (FR) and the INFN (IT). Since 2021, the NIKHEF Laboratory (NL) also joined as a member, after 14 years of observer status.

EGO has an annual budget of 10 M€ and 75 personnel, and supports the VIRGO collaboration, which counts more than 750 members from several EU and non-EU countries. It ensures the functioning of the VIRGO antenna, its maintenance, its operation and the improvements to be made; the maintenance of the related infrastructures, including a computer center and promotes an open co-operation in R&D and the maintenance of the site. EGO carries out any other research in the field of gravitation of common interest for the Members and promotes cooperation in the field of experimental and theoretical gravitational waves research in Europe. This includes support towards progress for the next-generation of gravitational wave detectors.

The University of Geneva, through the departments of Astronomy (represented here by Profs. Fragkos and Meynet) and Particle Physics (represented here by Profs. Schramm and Sanchez Nieto), has strong competencies in the development of computing, data processing & analysis, and data archiving & public access infrastructures, through the involvement in multiple space- and ground- based observatories, and large particle-physics experiments, such as the INTEGRAL, GAIA, CHEOPS, EUCLID, and ATHENA astronomical satellites, the ATLAS experiment, and the CTA observatory. Notable are also the activities of the Department of Theoretical Physics (represented here by Profs. Maggiore and Riotto) in the ET Collaboration, with leadership roles in the steering committee and the Observing Science Board. Finally, the University of Geneva maintains close ties with the Swiss National Supercomputing Center (CSCS) and the Swiss Data Science Center (SDSC), which possess valuable expertise related to this project. The University of Geneva is currently not eligible for receiving EU funding but is essential to successfully carry out the project. Funding will be provided by the State Secretariat of Education, Research and Innovation ([SERI](#)).

The Instituto de Física de Altas Energías (IFAE) in Barcelona conducts research, both theoretical and experimental, on the frontier of fundamental physics: high-energy physics (ATLAS, T2K/HyperK), astrophysics (MAGIC, CTA), cosmology (DES, DESI, PAU, LSST), and GWs (Virgo, ET) and also in various areas of applied physics, such as medical imaging and quantum computing. IFAE contributes to the hardware upgrades of Virgo and participates actively in ET and the ET-pathfinder developments. In 2003, IFAE and CIEMAT founded the Port d'Informació Científica (PIC) in Barcelona, one of 13 LHC Tier-1 data centers in the world. PIC contributes significantly to LIGO/Virgo distributed computing efforts. In this proposal IFAE represents the Spanish ET consortium including also contributions from the Barcelona Supercomputing Center (BSC-CNS), specialised in high performance computing (HPC) with MareNostrum¹, one of the most powerful supercomputers in Europe, where ET became an strategic line, and CDTI, the Spanish public business entity under the Ministry of Science and Innovation and the ILO for the most relevant research infrastructures in the ESFRI domain of Physical Sciences and Engineering in which Spain is involved (CERN, ESO, ESRF, ESS, European XFEL, F4E, ILL and SKA). Other Spanish Institutions involved in GW physics with LIGO/Virgo, signatories of the ET MoU, and contributing to ET-PP phase via contributions made in the framework of the ET working groups include: the Institute of Cosmos Sciences (ICCUB), the Universitat de les Illes Balears (UIB), and the Universitat de València (UV).

INFN - Istituto Nazionale di Fisica Nucleare. The Italian support to the ET project is realised through a multiple-action scheme. The Italian Ministry for the University and the Research (MUR) supports directly the Sardinian candidature to host the ET observatory since 2018 with a special grant of 17M€, provided to INFN in three annual tranches. This support is addressed both to the candidature of the site and to the development of new technology. The site candidature is also supported by the regional government of Sardinia through a grant of 3.5M€. Furthermore a special support of about 4M€ for the development of the cryogenic technologies for ET has been provided by MUR to the “La Sapienza” University in Rome, allowing the realisation of the Amaldi research centre. Finally, four competitive grants have been attributed to ET related projects by the MUR within the PRIN programme (Progetti di Rilevanza Nazionale) in the last three years for a total of more than 2.5M€. These projects are addressed to the site characterisation, to the development of technologies for ET and to the improvement of the science case of ET with special focus on the multi-messenger astronomy.

The University of Louvain (UCL) physics research is carried out at the Research Institute in Mathematics and Physics and more particularly at the Cosmology, Particle Physics and Phenomenology (CP3) center. Presently the CP3 center counts 10 academic staff members, 7 permanent research scientists and about 50 postdoctoral researchers

¹ MareNostrum Supercomputer has more than 11PFlops of computing power. The main cluster has 3,456 nodes of 2 Intel Xeon Platinum chips and main memory of 390 TB. Although it can be used for BSC-CNS internal research activities, BSC-CNS computing infrastructures cannot be committed to external parties without the agreement of an access committee)

and PhD students. Physicists at the CP3 center are active in a number of international experimental collaborations, and in particular in the gravitational wave physics experiment VIRGO at the European Gravitational Observatory EGO. The UCL gravitational wave group is involved in two EU FEDER INTERREG projects, "Einstein Telescope EMR Site & Technology (E-TEST)" and "ETPathfinder", assigned to a consortium of German, Dutch and Belgian universities for the development of technologies for ET.

Montanuniversität Leoben (MUL) is a university in Austria known for its research focused on the "added value chain", concerning the extraction of raw materials and their processing, material & product development, production processes, manufacturing, building components/plants up to recycling and landfill. The Chair of Subsurface Engineering at Montanuniversität Leoben (MUL-SE) is part of the Department "Mineral Resources Engineering". A broad variety of research in the fields of geotechnics and underground engineering is carried out by the laboratory's civil, mining and tunneling engineers, usually in close collaboration with industry. The fields of experience cover tunnel design strategies, tunneling methodologies, safety in tunnels during construction and operation as well as the refurbishment of tunnels. MUL's international leadership in subsurface engineering serves the optimisation of the collider design with respect to feasibility, schedule and cost optimisation. It helps to reduce the quantity and optimises the types of excavated materials based on the selection of the tunneling technology. MUL's activities of comparing and evolving regulatory and legal frameworks for subsurface engineering projects at an international level serve the development of a suitable plan for the management and use of excavated materials.

NIKHEF – National Institute for Subatomic Physics. Within the Netherlands, gravitational-waves research and in particular the ET project is strongly supported. The Dutch Royal Academy lists ET as one of its 13 'must have' facilities; the National Science Agenda includes ET as a 'game changer'; and ET is part of both the 2016 and 2021 editions of the National Roadmap for Large-Scale Research Facilities. Recently, the Dutch Ministry of Education, Culture and Science submitted an application to secure the anticipated Dutch contributions towards the realization of ET in the Euregio Meuse-Rhin (EMR). Together with Italy, The Netherlands are the coordinators (NIKHEF and INFN) of the ET-ESFRI project. More concretely, often in collaboration with Belgian and German partners, various subsidies have been granted in the past years. For example, a 14,5 M€ capital investment subsidy to realize the ETpathfinder laser interferometer R&D laboratory in Maastricht focused on key ET technology innovations such as the use of cryogenically cooled silicon mirrors. Furthermore a 15 M€ subsidy (E-TEST) for instrumentation development and geological characterizations of the EMR site. And a number of national and regional subsidies (ET2SME, ETT-OpZuid, etc.) totaling more than 5 M€ to stimulate industrial collaboration on ET-related technologies. These subsidies typically are supported by national ministries, provinces and Interreg. Within The Netherlands, gravitational-waves research receives substantial funding from the Dutch Research Council and NIKHEF. As a result the group has tripled in size over the past five years and includes –besides gravitational-wave scientists– experts in for example cryogenics, computing, controls, geology and seismology. This application also included contributions as third parties from Vrije Universiteit Amsterdam (VU) and Maastricht University (UM).

The University of Warsaw is a leading educational and research institution in Poland. The Astronomical Observatory of the University is the host of the OGLE and ASAS projects, and also plays important part in Gaia, Virgo, HESS, CTA, Planck and ET. It coordinates the ET related efforts in Poland through the Polish ET Consortium. The principal members of the Polish ET Consortium are the University of Warsaw (UW), Nicolaus Copernicus Astronomical Center Polish Academy of Science (CAMK), Institute of Mathematics Polish Academy of Science (IMPAN) as well as National Center for Nuclear Research (NCBJ), University of Bialystok, and Cyfronet AGH. Members of the Consortium play important roles in the ET and VIRGO as members of the ET and Virgo Steering Committees, ET Board of Scientific Representatives and as coordinators of several ET activities. University of Warsaw and CAMK are also specializing in hardware development for gravitational wave detection which included parts of vacuum systems for Virgo, electronics for Virgo, and development and installation of the seismic Newtonian noise system, and infra-sound monitoring of the Virgo site. Additionally, the group has been active in long term seismic characterizations of several ET candidate sites for the last 8 years. These activities were supported with grants with the total value above 4M€ over the past 5 years.

UKRI- The UK has a long history of pioneering the technology and data analysis techniques essential for gravitational wave astrophysics and on the overall understanding of planning and operation of large-scale international infrastructures. This includes: the design, development and implementation of sophisticated ultra-low noise suspensions and interferometric techniques in the UK-German GEO600 GW interferometer; financial and intellectual partnership in the 'Advanced LIGO' observatories located in the US; working in close collaboration with colleagues in the Virgo collaboration; leading work packages of the initial design studies for ET and holding

University of Glasgow- The Institute for Gravitational Research at the University of Glasgow is formed around a core of research activity in the area of gravitational waves stretching over 5 decades. This includes pioneering work on interferometric topologies for gravitational wave interferometry, novel monolithic suspensions designs for low noise operation of GW detectors and leading aspects of gravitational wave data analysis and astrophysical interpretation relevant for the global detector network. Glasgow led the pan-UK contribution to the Advanced LIGO detector upgrades; leads the pan-UK contribution to 'A+'.

University of Cardiff- The Gravity Exploration Institute at Cardiff University builds on five decades of experience in gravitational physics research. Cardiff-based researchers pioneered the techniques for analysing the data from gravitational wave interferometers, and have been at the forefront of developments throughout the history of the LIGO experiment and its predecessors. Institute members also have expertise in numerical simulations and modelling of compact binary mergers, which are used in the analysis of detections; in the astrophysical implications of the observed populations of events; and in the technological advances that are critical to improving the sensitivity of the Advanced LIGO detectors through the 'A+' project and in future networks.

The UAntwerpen Particle Physics group studies the most fundamental building blocks of the universe and their interactions. We do this by performing: experimental research at the highest-energy particle colliders; exploiting other experimental opportunities, such as the search for sterile neutrino’s produced in nuclear reactors; theoretical and phenomenological research in particle physics; and experimental research in gravitational wave physics. The gravitational wave subgroup in Antwerpen consists of 11 members that take part in GW data analysis, theoretical modeling of early universe cosmological GW signals, and instrumentation development. The data analysis part focuses mainly on the search for a stochastic GW background with the LIGO-Virgo-Kagra detector network and investigates the potential for 3G detectors such as ET. The theoretical part involves particle physics inspired models of first order phase transitions, domain walls, and related early universe cosmology. Finally, the instrumentation part entails the participation as lead partner in the ETpathfinder R&D platform.

Wigner Research Centre for Physics (Wigner RCP; <https://wigner.hu/en>) is one of the research excellence flagship organisation recognised by the Hungarian Academy of Sciences and a key participant both in the national innovation system and European research cooperation. The Central Research Institute for Physics (KFKI), founded in 1950, was the predecessor of the research centre. The WIGNER RCP was founded in January 2012 merging the previous KFKI Research Institute for Particle and Nuclear Physics and the Institute for Solid State Physics and Optics. Today it is the largest research institute for scientists in physics in Hungary.

Tables for section 3.1

Table 3.1g: ‘Subcontracting costs’ items

Participant Number/Short Name IFAE		
	Cost (€)	Description of tasks and justification
Subcontracting	2500	Legal consultations (2,5k€)

Participant Number/Short Name INFN		
	Cost (€)	Description of tasks and justification
Subcontracting	100000	Assessment of the Socio-economic impact of the Einstein Telescope. Existing studies have focused mainly on the short and long - run effects induced by the demand of goods and services associated with the construction and the functioning of the research site. The purpose of the project is to provide a comprehensive assessment of the following: <ol style="list-style-type: none"> 1. Perceived value of the infrastructure (and its evolution over time) as perceived by the local community by means of survey based evaluation methods 2. Provision of a comprehensive ex evaluation of the potential long-term societal footprint of the Einstein Telescope 3. Provision of a tailored framework, consisting of methods to identify and

		acquire the relevant data and process them, to assess the contribution of the infrastructure ex post, i.e. to evaluate and inform about its contribution to society once ET reaches the operating stage.
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Participant Number/Short Name UW		
	Cost (€)	Description of tasks and justification
Subcontracting	20000	Professional graphics design services (10k€) Professional web design services (10k€)

Participant Number/Short Name NIKHEF		
	Cost (€)	Description of tasks and justification
Subcontracting	100000	Review of civil construction costs by professional organization (100k€)

Table 3.1h: ‘Purchase costs’ items (travel and subsistence,  equipment and other goods, works and services) Associated with document Ref. Ares(2022)5806126 - 18/08/2022

Participant Number/Short Name IFAE		
	Cost (€)	Justification
Travel and subsistence	120000	Covering travel costs for Workshops and Coordinating Meetings during ET-PP
Other goods, works and services	26000	Communication and Outreach materials (5k€) Access to patents DBs (related to using information for evaluating the use of patents for Technology Transfer/Intellectual Property protection) (5k€) Preparation of ET-PP internal review meetings (16k€)
Total	146000	

Participant Number/Short Name INFN		
	Cost (€)	Justification
Travel and subsistence	244500	Covering travel costs for Workshops and Coordinating Meetings during ET-PP
Other goods, works and services	162000	Organization of meetings with industrial partners and costs related to financial audits (12k€); Support of the CERN vacuum activity (150k€)
Total	406500	

Participant Number/Short Name UW		
	Cost (€)	Justification
Travel and subsistence	42000	Covering travel costs for Workshops and Coordinating Meetings during ET-PP
Other goods, works and services	20000	Communication and Outreach materials
Total	62000	

Participant Number/Short Name WIGNER		
	Cost (€)	Justification
Travel and subsistence	12000	Covering costs for Outreach and Dissemination Coordination Meetings
Total	12000	

Table 3.1i: ‘Other costs categories’ items (e.g. internally invoiced goods and services)

None

ANNEX 2

ESTIMATED BUDGET FOR THE ACTION

Forms of funding	Estimated eligible ¹ costs (per budget category)									Estimated EU contribution ²				
	Direct costs						Indirect costs			Total costs	EU contribution to eligible costs			Maximum grant amount ⁶
	A. Personnel costs		B. Subcontracting costs	C. Purchase costs			D. Other cost categories	E. Indirect costs ³	Funding rate % ⁴		Maximum EU contribution ⁵	Requested EU contribution		
	A.1 Employees (or equivalent)	A.2 Natural persons under direct contract	A.3 Seconded persons	A.4 SME owners and natural person beneficiaries	B. Subcontracting	C.1 Travel and subsistence	C.2 Equipment	C.3 Other goods, works and services	D.2 Internally invoiced goods and services	E. Indirect costs				
Actual costs	Unit costs (usual accounting practices)	Unit costs ⁷	Actual costs	Actual costs	Actual costs	Actual costs	Actual costs	Unit costs (usual accounting practices)	Flat-rate costs ⁸					
a1	a2	a3	b	c1	c2	c3	d2	e = 0,25 * (a1 + a2 + a3 + c1 + c2 + c3)	f = a + b + c + d + e	U	g = f * U%	h	m	
1 - IFAE	849 100.00	0.00	0.00	2 500.00	120 000.00	0.00	26 000.00	0.00	248 775.00	1 246 375.00	100	1 246 375.00	328 750.00	328 750.00
1.1 - BSC CNS	286 800.00	0.00	0.00	0.00	11 000.00	0.00	0.00	0.00	74 450.00	372 250.00	100	372 250.00	231 250.00	231 250.00
2 - INFN	1 761 040.00	0.00	0.00	100 000.00	244 500.00	0.00	162 000.00	0.00	541 885.00	2 809 425.00	100	2 809 425.00	735 000.00	735 000.00
3 - UW	307 907.00	0.00	0.00	20 000.00	42 000.00	0.00	20 000.00	0.00	92 476.75	482 383.75	100	482 383.75	167 500.00	167 500.00
4 - CNRS	1 900 651.00	0.00	0.00	0.00	106 000.00	0.00	0.00	0.00	501 662.75	2 508 313.75	100	2 508 313.75	907 500.00	907 500.00
5 - NIKHEF	2 049 958.00	0.00	0.00	100 000.00	40 000.00	0.00	223 000.00	0.00	578 239.50	2 991 197.50	100	2 991 197.50	728 750.00	728 750.00
6 - UCL	195 000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48 750.00	243 750.00	100	243 750.00	56 250.00	56 250.00
7 - UAntwerpen	483 200.00	0.00	0.00	0.00	12 000.00	0.00	0.00	0.00	123 800.00	619 000.00	100	619 000.00	15 000.00	15 000.00
8 - EGO	250 000.00	0.00	0.00	0.00	23 000.00	0.00	0.00	0.00	68 250.00	341 250.00	100	341 250.00	120 000.00	120 000.00
9 - DESY	45 000.00	0.00	0.00	0.00	5 000.00	0.00	0.00	0.00	12 500.00	62 500.00	100	62 500.00	62 500.00	62 500.00
10 - Wigner RCP	68 500.00	0.00	0.00	0.00	12 000.00	0.00	0.00	0.00	20 125.00	100 625.00	100	100 625.00	15 000.00	15 000.00
11 - MUL	105 000.00	0.00	0.00	0.00	6 000.00	0.00	0.00	0.00	27 750.00	138 750.00	100	138 750.00	82 500.00	82 500.00
12 - UNIGE														
13 - UKRI														
14 - UCAR														
15 - UGLA														
Σ consortium	8 302 156.00	0.00	0.00	222 500.00	621 500.00	0.00	431 000.00	0.00	2 338 664.00	11 915 820.00		11 915 820.00	3 450 000.00	3 450 000.00

¹ See Article 6 for the eligibility conditions. All amounts must be expressed in EUR (see Article 21 for the conversion rules).

² The consortium remains free to decide on a different internal distribution of the EU funding (via the consortium agreement; see Article 7).

³ Indirect costs already covered by an operating grant (received under any EU funding programme) are ineligible (see Article 6.3). Therefore, a beneficiary/affiliated entity that receives an operating grant during the action duration cannot declare indirect costs for the year(s)/reporting period(s) covered by the operating grant, unless they can demonstrate that the operating grant does not cover any costs of the action. This requires specific accounting tools. Please immediately contact us via the EU Funding & Tenders Portal for details.

⁴ See Data Sheet for the funding rate(s).

⁵ This is the theoretical amount of the EU contribution to costs, if the reimbursement rate is applied to all the budgeted costs. This theoretical amount is then capped by the 'maximum grant amount'.

⁶ The 'maximum grant amount' is the maximum grant amount decided by the EU. It normally corresponds to the requested grant, but may be lower.

⁷ See Annex 2a 'Additional information on the estimated budget' for the details (units, cost per unit).

⁸ See Data Sheet for the flat-rate.

ANNEX 2a

ADDITIONAL INFORMATION ON UNIT COSTS AND CONTRIBUTIONS

SME owners/natural person beneficiaries without salary (Decision C(2020) 7115¹)

Type: unit costs

Units: days spent working on the action (rounded up or down to the nearest half-day)

Amount per unit (daily rate): calculated according to the following formula:

{EUR 5 080 / 18 days = **282,22**}
multiplied by
{country-specific correction coefficient of the country where the beneficiary is established}

The country-specific correction coefficients used are those set out in the Horizon Europe Work Programme (section Marie Skłodowska-Curie actions) in force at the time of the call (see [Portal Reference Documents](#)).

HE and Euratom Research Infrastructure actions²

Type: unit costs

Units³: see (for each access provider and installation) the unit cost table in Annex 2b

Amount per unit^{*}: see (for each access provider and installation) the unit cost table in Annex 2b

* Amount calculated as follows:

For trans-national access:

$$\frac{\text{average annual total trans-national access costs to the installation (over past two years}^4\text{)}}{\text{average annual total quantity of trans-national access to the installation (over past two years}^5\text{)}}$$

For virtual access:

$$\frac{\text{total virtual access costs to the installation (over the last year}^6\text{)}}{\text{total quantity of virtual access to the installation (over the last year}^7\text{)}}$$

Euratom staff mobility costs⁸

Monthly living allowance

Type: unit costs

¹ Commission [Decision](#) of 20 October 2020 authorising the use of unit costs for the personnel costs of the owners of small and medium-sized enterprises and beneficiaries that are natural persons not receiving a salary for the work carried out by themselves under an action or work programme (C(2020)7715).

² [Decision](#) of 19 April 2021 authorising the use of unit costs for the costs of providing trans-national and virtual access in Research Infrastructure actions under the Horizon Europe Programme (2021-2027) and the Research and Training Programme of the European Atomic Energy Community (2021-2025).

³ Unit of access (e.g. beam hours, weeks of access, sample analysis) fixed by the access provider in proposal.

⁴ In exceptional and duly justified cases, the granting authority may agree to a different reference period.

⁵ In exceptional and duly justified cases, the granting authority may agree to a different reference period.

⁶ In exceptional and duly justified cases, the granting authority may agree to a different reference period.

⁷ In exceptional and duly justified cases, the granting authority may agree to a different reference period.

⁸ [Decision](#) of 15 March 2021 authorising the use of unit costs for mobility in co-fund actions under the Research and Training Programme of the European Atomic Energy Community (2021-2025).

Units: months spent by the seconded staff member(s) on research and training in fission and fusion activities (person-month)

Amount per unit*: see (for each beneficiary/affiliated entity and secondment) the unit cost table in Annex 2b

* Amount calculated as follows from 1 January 2021:

{**EUR 4 300** multiplied by country-specific correction coefficient** of the country where the staff member is seconded}⁹

**Country-specific correction coefficients as from 1 January 2021¹⁰

EU-Member States¹¹

Country / Place	Coefficient (%)
Bulgaria	59,1
Czech Rep.	85,2
Denmark	131,3
Germany	101,9
Bonn	95,8
Karlsruhe	98
Munich	113,9
Estonia	82,3
Ireland	129
Greece	81,4
Spain	94,2
France	120,5
Croatia	75,8
Italy	95
Varese	90,7
Cyprus	78,2
Latvia	77,5
Lithuania	76,6
Hungary	71,9
Malta	94,7
Netherlands	113,9
Austria	107,9
Poland	70,9
Portugal	91,1
Romania	66,6
Slovenia	86,1

⁹ Unit costs for living allowances are calculated by using a method of calculation similar to that applied for the secondment to the European Commission of seconded national experts (SNEs).

¹⁰ ⚠ For the financial statements, the amount must be adjusted according to the actual place of secondment. The revised coefficients were adopted in the Decision authorising the use of unit costs for the Fusion Programme co-fund action under the Research and training Programme of the European Atomic Energy Community 2021-2025. They are based on the 2020 Annual update of the remuneration and pensions of the officials and other servants of the European Union and the correction coefficients applied thereto (OJ C 428, 11.12.2020) to ensure purchasing power parity. The revised coefficient are applied as from 1 January 2021 through an amendment to the grant agreement.

¹¹ No correction coefficient shall be applicable in Belgium and Luxembourg.

Slovakia	80,6
Finland	118,4
Sweden	124,3

Third countries

Country/place	Coefficient (%)
China	82,2
India	72,3
Japan	111,8
Russia	92,7
South Korea	92,3
Switzerland	129,2
Ukraine	82,3
United Kingdom	97,6
United States	101,4 (New-York) 90,5 (Washington)

Mobility allowance

Type: Unit costs

Units: months spent by the seconded staff member(s) on research and training in fission and fusion activities (person-month)

Amount per unit: **EUR 600** per person-month; see (for each beneficiary/affiliated entity and secondment) the unit cost table in Annex 2b

Family allowance

Type: unit costs

Units: months spent by the seconded staff member(s) on research and training in fission and fusion activities (person-month)

Amount per unit: **EUR 660** per person-month; see (for each beneficiary/affiliated entity and secondment) the unit cost table in Annex 2b

Education allowance

Type: Unit costs

Units: months spent by the seconded staff member(s) on research and training in fission and fusion activities (person-month)

Amount per unit*: see (for each beneficiary/affiliated entity and secondment) the unit cost table in Annex 2b

*Amount calculated as follows from 1 January 2021:
{**EUR 283.82** x number of dependent children¹²}

¹² For the estimated budget (Annex 2): an average should be used. (⚠ For the financial statements, the number of children (and months) must be adjusted according to the actual family status at the moment the secondment starts.)

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

ISTITUTO NAZIONALE DI FISICA NUCLEARE (INFN), PIC 999992789, established in Via Enrico Fermi 54, FRASCATI 00044, Italy,

hereby agrees

to become beneficiary

in Agreement No 101079696 — ET-PP ('the Agreement')

between INSTITUTO DE FISICA DE ALTAS ENERGIAS (IFAE) **and** the **European Research Executive Agency (REA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

UNIWERSYTET WARSZAWSKI (UW), PIC 999572294, established in KRAKOWSKIE PRZEDMIESCIE 26/28, WARSZAWA 00 927, Poland,

hereby agrees

to become beneficiary

in Agreement No 101079696 — ET-PP ('the Agreement')

between INSTITUTO DE FISICA DE ALTAS ENERGIAS (IFAE) **and** the **European Research Executive Agency (REA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE CNRS (CNRS), PIC 999997930,
established in RUE MICHEL ANGE 3, PARIS 75794, France,

hereby agrees

to become beneficiary

in Agreement No 101079696 — ET-PP ('the Agreement')

between INSTITUTO DE FISICA DE ALTAS ENERGIAS (IFAE) and the European Research Executive Agency (REA) ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

STICHTING NEDERLANDSE WETENSCHAPPELIJK ONDERZOEK INSTITUTEN (NIKHEF), PIC 999624092, established in WINTHONTLAAN 2, UTRECHT 3526 KV, Netherlands,

hereby agrees

to become beneficiary

in Agreement No 101079696 — ET-PP ('the Agreement')

between INSTITUTO DE FISICA DE ALTAS ENERGIAS (IFAE) and the European Research Executive Agency (REA) ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

UNIVERSITE CATHOLIQUE DE LOUVAIN (UCL), PIC 999980664, established in PLACE DE L UNIVERSITE 1, LOUVAIN LA NEUVE 1348, Belgium,

hereby agrees

to become beneficiary

in Agreement No 101079696 — ET-PP ('the Agreement')

between INSTITUTO DE FISICA DE ALTAS ENERGIAS (IFAE) and the European Research Executive Agency (REA) ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

UNIVERSITEIT ANTWERPEN (UAntwerpen), PIC 999902870, established in PRINSSTRAAT 13, ANTWERPEN 2000, Belgium,

hereby agrees

to become beneficiary

in Agreement No 101079696 — ET-PP ('the Agreement')

between INSTITUTO DE FISICA DE ALTAS ENERGIAS (IFAE) **and the European Research Executive Agency (REA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

EUROPEAN GRAVITATIONAL OBSERVATORY(EGO) (OSSERVATORIO GRAVITAZIONE EUROPEO) (EGO), PIC 999540672, established in VIA EDOARDO AMALDI SANTO STEFANO A MACERATA, CASCINA 56021, Italy,

hereby agrees

to become beneficiary

in Agreement No 101079696 — ET-PP ('the Agreement')

between INSTITUTO DE FISICA DE ALTAS ENERGIAS (IFAE) **and** the **European Research Executive Agency (REA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

DEUTSCHES ELEKTRONEN-SYNCHROTRON DESY (DESY), PIC 999986969, established in NOTKESTRASSE 85, HAMBURG 22607, Germany,

hereby agrees

to become beneficiary

in Agreement No 101079696 — ET-PP ('the Agreement')

between INSTITUTO DE FISICA DE ALTAS ENERGIAS (IFAE) **and** the **European Research Executive Agency (REA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

WIGNER FIZIKAI KUTATOKOZPONT (Wigner RCP), PIC 954722113, established in Konkoly Thege Miklos ut 29-33, Budapest 1121, Hungary,

hereby agrees

to become beneficiary

in Agreement No 101079696 — ET-PP ('the Agreement')

between INSTITUTO DE FISICA DE ALTAS ENERGIAS (IFAE) **and** the **European Research Executive Agency (REA)** ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

ANNEX 3

ACCESSION FORM FOR BENEFICIARIES

MONTANUNIVERSITAET LEOBEN (MUL), PIC 999898117, established in FRANZ JOSEF STRASSE 18, LEOBEN 8700, Austria,

hereby agrees

to become beneficiary

in Agreement No 101079696 — ET-PP ('the Agreement')

between INSTITUTO DE FISICA DE ALTAS ENERGIAS (IFAE) and the European Research Executive Agency (REA) ('EU executive agency' or 'granting authority'), under the powers delegated by the European Commission ('European Commission'),

and mandates

the coordinator to submit and sign in its name and on its behalf any **amendments** to the Agreement, in accordance with Article 39.

By signing this accession form, the beneficiary accepts the grant and agrees to implement it in accordance with the Agreement, with all the obligations and terms and conditions it sets out.

SIGNATURE

For the beneficiary

ANNEX 4 HORIZON EUROPE MGA — MULTI + MONO

FINANCIAL STATEMENT FOR [PARTICIPANT NAME] FOR REPORTING PERIOD [NUMBER]

Eligible ¹ costs (per budget category)																	EU contribution ²				Revenues
Direct costs															Indirect costs	Total costs	EU contribution to eligible costs			Total requested EU contribution	Income generated by the action
A. Personnel costs			B. Subcontracting costs	C. Purchase costs			D. Other cost categories						E. Indirect costs ²	Funding rate % ³	Maximum EU contribution ⁴		Requested EU contribution				
Forms of funding	Actual costs	Unit costs (usual accounting practices)	Unit costs ⁵	Actual costs	Actual costs	Actual costs	Actual costs	/ Actual costs	Unit costs (usual accounting practices)	/ Unit costs ⁵	/ Unit costs ⁵	/ Actual costs	/ Unit costs ⁵	/ Actual costs	/ Actual costs	Flat-rate costs ⁶	U	g = f*U%	h	m	n
	a1	a2	a3	b	c1	c2	c3	[d1a]	d2	[d3]	[d4]	[d5]	[d6]	[d7]	[d8]	e = 0,25 * (a1 + a2 + a3 + b + c1 + c2 + c3 + d1a + d2 + d3 + d4 + d5 + d6 + d7 + d8)					
XX - [short name beneficiary/affiliated entity]																					

The beneficiary/affiliated entity hereby confirms that:
 The information provided is complete, reliable and true.
 The costs and contributions declared are eligible (see Article 6).
 The costs and contributions can be substantiated by adequate records and supporting documentation that will be produced upon request or in the context of checks, reviews, audits and investigations (see Articles 19, 20 and 25).
 For the last reporting period: that all the revenues have been declared (see Article 22).

¹ Please declare all eligible costs and contributions, even if they exceed the amounts indicated in the estimated budget (see Annex 2). Only amounts that were declared in your individual financial statements can be taken into account later on, in order to replace costs/contributions that are found to be ineligible.

² See Article 6 for the eligibility conditions. All amounts must be expressed in EUR (see Article 21 for the conversion rules).
³ If you have also received an EU operating grant during this reporting period, you cannot claim indirect costs - unless you can demonstrate that the operating grant does not cover any costs of the action. This requires specific accounting tools. Please contact us immediately via the Funding & Tenders Portal for details.
⁴ See Data Sheet for the reimbursement rate(s).
⁵ This is the *theoretical* amount of EU contribution to costs that the system calculates automatically (by multiplying the reimbursement rates by the costs declared). The amount you request (in the column 'requested EU contribution') may be less.
⁶ See Annex 2a 'Additional information on the estimated budget' for the details (units, cost per unit).
⁷ See Data Sheet for the flat-rate.

ANNEX 5

SPECIFIC RULES

CONFIDENTIALITY AND SECURITY (— ARTICLE 13)

Sensitive information with security recommendation

Sensitive information with a security recommendation must comply with the additional requirements imposed by the granting authority.

Before starting the action tasks concerned, the beneficiaries must have obtained all approvals or other mandatory documents needed for implementing the task. The documents must be kept on file and be submitted upon request by the coordinator to the granting authority. If they are not in English, they must be submitted together with an English summary.

For requirements restricting disclosure or dissemination, the information must be handled in accordance with the recommendation and may be disclosed or disseminated only after written approval from the granting authority.

EU classified information

If EU classified information is used or generated by the action, it must be treated in accordance with the security classification guide (SCG) and security aspect letter (SAL) set out in Annex 1 and Decision 2015/444¹ and its implementing rules — until it is declassified.

Deliverables which contain EU classified information must be submitted according to special procedures agreed with the granting authority.

Action tasks involving EU classified information may be subcontracted only with prior explicit written approval from the granting authority and only to entities established in an EU Member State or in a non-EU country with a security of information agreement with the EU (or an administrative arrangement with the Commission).

EU classified information may not be disclosed to any third party (including participants involved in the action implementation) without prior explicit written approval from the granting authority.

ETHICS (— ARTICLE 14)

Ethics and research integrity

The beneficiaries must carry out the action in compliance with:

- ethical principles (including the highest standards of research integrity)

¹ Commission Decision 2015/444/EC, Euratom of 13 March 2015 on the security rules for protecting EU classified information (OJ L 72, 17.3.2015, p. 53).

and

- applicable EU, international and national law, including the EU Charter of Fundamental Rights and the European Convention for the Protection of Human Rights and Fundamental Freedoms and its Supplementary Protocols.

No funding can be granted, within or outside the EU, for activities that are prohibited in all Member States. No funding can be granted in a Member State for an activity which is forbidden in that Member State.

The beneficiaries must pay particular attention to the principle of proportionality, the right to privacy, the right to the protection of personal data, the right to the physical and mental integrity of persons, the right to non-discrimination, the need to ensure protection of the environment and high levels of human health protection.

The beneficiaries must ensure that the activities under the action have an exclusive focus on civil applications.

The beneficiaries must ensure that the activities under the action do not:

- aim at human cloning for reproductive purposes
- intend to modify the genetic heritage of human beings which could make such modifications heritable (with the exception of research relating to cancer treatment of the gonads, which may be financed)
- intend to create human embryos solely for the purpose of research or for the purpose of stem cell procurement, including by means of somatic cell nuclear transfer, or
- lead to the destruction of human embryos (for example, for obtaining stem cells).

Activities involving research on human embryos or human embryonic stem cells may be carried out only if:

- they are set out in Annex 1 or
- the coordinator has obtained explicit approval (in writing) from the granting authority.

In addition, the beneficiaries must respect the fundamental principle of research integrity — as set out in the European Code of Conduct for Research Integrity².

This implies compliance with the following principles:

- reliability in ensuring the quality of research reflected in the design, the methodology, the analysis and the use of resources
- honesty in developing, undertaking, reviewing, reporting and communicating research in a transparent, fair and unbiased way

² European Code of Conduct for Research Integrity of ALLEA (All European Academies).

- respect for colleagues, research participants, society, ecosystems, cultural heritage and the environment
- accountability for the research from idea to publication, for its management and organisation, for training, supervision and mentoring, and for its wider impacts

and means that beneficiaries must ensure that persons carrying out research tasks follow the good research practices including ensuring, where possible, openness, reproducibility and traceability and refrain from the research integrity violations described in the Code.

Activities raising ethical issues must comply with the additional requirements formulated by the ethics panels (including after checks, reviews or audits; see Article 25).

Before starting an action task raising ethical issues, the beneficiaries must have obtained all approvals or other mandatory documents needed for implementing the task, notably from any (national or local) ethics committee or other bodies such as data protection authorities.

The documents must be kept on file and be submitted upon request by the coordinator to the granting authority. If they are not in English, they must be submitted together with an English summary, which shows that the documents cover the action tasks in question and includes the conclusions of the committee or authority concerned (if any).

VALUES (— ARTICLE 14)

Gender mainstreaming

The beneficiaries must take all measures to promote equal opportunities between men and women in the implementation of the action and, where applicable, in line with the gender equality plan. They must aim, to the extent possible, for a gender balance at all levels of personnel assigned to the action, including at supervisory and managerial level.

INTELLECTUAL PROPERTY RIGHTS (IPR) — BACKGROUND AND RESULTS — ACCESS RIGHTS AND RIGHTS OF USE (— ARTICLE 16)

Definitions

Access rights — Rights to use results or background.

Dissemination — The public disclosure of the results by appropriate means, other than resulting from protecting or exploiting the results, including by scientific publications in any medium.

Exploit(ation) — The use of results in further research and innovation activities other than those covered by the action concerned, including among other things, commercial exploitation such as developing, creating, manufacturing and marketing a product or process, creating and providing a service, or in standardisation activities.

Fair and reasonable conditions — Appropriate conditions, including possible financial terms or royalty-free conditions, taking into account the specific circumstances of the request for access, for example the actual or potential value of the results or background to which access is requested and/or the scope, duration or other characteristics of the exploitation envisaged.

FAIR principles — ‘findability’, ‘accessibility’, ‘interoperability’ and ‘reusability’.

Open access — Online access to research outputs provided free of charge to the end-user.

Open science — An approach to the scientific process based on open cooperative work, tools and diffusing knowledge.

Research data management — The process within the research lifecycle that includes the organisation, storage, preservation, security, quality assurance, allocation of persistent identifiers (PIDs) and rules and procedures for sharing of data including licensing.

Research outputs — Results to which access can be given in the form of scientific publications, data or other engineered results and processes such as software, algorithms, protocols, models, workflows and electronic notebooks.

Scope of the obligations

For this section, references to ‘beneficiary’ or ‘beneficiaries’ do not include affiliated entities (if any).

Agreement on background

The beneficiaries must identify in a written agreement the background as needed for implementing the action or for exploiting its results.

Where the call conditions restrict control due to strategic interests reasons, background that is subject to control or other restrictions by a country (or entity from a country) which is not one of the eligible countries or target countries set out in the call conditions and that impact the exploitation of the results (i.e. would make the exploitation of the results subject to control or restrictions) must not be used and must be explicitly excluded from it in the agreement on background — unless otherwise agreed with the granting authority.

Ownership of results

Results are owned by the beneficiaries that generate them.

However, two or more beneficiaries own results jointly if:

- they have jointly generated them and
- it is not possible to:
 - establish the respective contribution of each beneficiary, or
 - separate them for the purpose of applying for, obtaining or maintaining their protection.

The joint owners must agree — in writing — on the allocation and terms of exercise of their joint ownership (**‘joint ownership agreement’**), to ensure compliance with their obligations under this Agreement.

Unless otherwise agreed in the joint ownership agreement or consortium agreement, each joint owner may grant non-exclusive licences to third parties to exploit the jointly-owned results (without any right to sub-license), if the other joint owners are given:

- at least 45 days advance notice and
- fair and reasonable compensation.

The joint owners may agree — in writing — to apply another regime than joint ownership.

If third parties (including employees and other personnel) may claim rights to the results, the beneficiary concerned must ensure that those rights can be exercised in a manner compatible with its obligations under the Agreement.

The beneficiaries must indicate the owner(s) of the results (results ownership list) in the final periodic report.

Protection of results

Beneficiaries which have received funding under the grant must adequately protect their results — for an appropriate period and with appropriate territorial coverage — if protection is possible and justified, taking into account all relevant considerations, including the prospects for commercial exploitation, the legitimate interests of the other beneficiaries and any other legitimate interests.

Exploitation of results

Beneficiaries which have received funding under the grant must — up to four years after the end of the action (see Data Sheet, Point 1) — use their best efforts to exploit their results directly or to have them exploited indirectly by another entity, in particular through transfer or licensing.

If, despite a beneficiary's best efforts, the results are not exploited within one year after the end of the action, the beneficiaries must (unless otherwise agreed in writing with the granting authority) use the Horizon Results Platform to find interested parties to exploit the results.

If results are incorporated in a standard, the beneficiaries must (unless otherwise agreed with the granting authority or unless it is impossible) ask the standardisation body to include the funding statement (see Article 17) in (information related to) the standard.

Additional exploitation obligations

Where the call conditions impose additional exploitation obligations (including obligations linked to the restriction of participation or control due to strategic assets, interests, autonomy or security reasons), the beneficiaries must comply with them — up to four years after the end of the action (see Data Sheet, Point 1).

Where the call conditions impose additional exploitation obligations in case of a public emergency, the beneficiaries must (if requested by the granting authority) grant for a limited period of time specified in the request, non-exclusive licences — under fair and reasonable conditions — to their results to legal entities that need the results to address the public emergency and commit to rapidly and broadly exploit the resulting products and services at fair and reasonable conditions. This provision applies up to four years after the end of the action (see Data Sheet, Point 1).

Additional information obligation relating to standards

Where the call conditions impose additional information obligations relating to possible standardisation, the beneficiaries must — up to four years after the end of the action (see Data Sheet, Point 1) — inform the granting authority, if the results could reasonably be expected to contribute to European or international standards.

Transfer and licensing of results

Transfer of ownership

The beneficiaries may transfer ownership of their results, provided this does not affect compliance with their obligations under the Agreement.

The beneficiaries must ensure that their obligations under the Agreement regarding their results are passed on to the new owner and that this new owner has the obligation to pass them on in any subsequent transfer.

Moreover, they must inform the other beneficiaries with access rights of the transfer at least 45 days in advance (or less if agreed in writing), unless agreed otherwise in writing for specifically identified third parties including affiliated entities or unless impossible under the applicable law. This notification must include sufficient information on the new owner to enable the beneficiaries concerned to assess the effects on their access rights. The beneficiaries may object within 30 days of receiving notification (or less if agreed in writing), if they can show that the transfer would adversely affect their access rights. In this case, the transfer may not take place until agreement has been reached between the beneficiaries concerned.

Granting licences

The beneficiaries may grant licences to their results (or otherwise give the right to exploit them), including on an exclusive basis, provided this does not affect compliance with their obligations.

Exclusive licences for results may be granted only if all the other beneficiaries concerned have waived their access rights.

Granting authority right to object to transfers or licensing — Horizon Europe actions

Where the call conditions in Horizon Europe actions provide for the right to object to transfers or licensing, the granting authority may — up to four years after the end of the action (see Data Sheet, Point 1) — object to a transfer of ownership or the exclusive licensing of results, if:

- the beneficiaries which generated the results have received funding under the grant
- it is to a legal entity established in a non-EU country not associated with Horizon Europe, and
- the granting authority considers that the transfer or licence is not in line with EU interests.

Beneficiaries that intend to transfer ownership or grant an exclusive licence must formally notify the granting authority before the intended transfer or licensing takes place and:

- identify the specific results concerned
- describe in detail the new owner or licensee and the planned or potential exploitation of the results, and
- include a reasoned assessment of the likely impact of the transfer or licence on EU interests, in particular regarding competitiveness as well as consistency with ethical principles and security considerations.

The granting authority may request additional information.

If the granting authority decides to object to a transfer or exclusive licence, it must formally notify the beneficiary concerned within 60 days of receiving notification (or any additional information it has requested).

No transfer or licensing may take place in the following cases:

- pending the granting authority decision, within the period set out above
- if the granting authority objects
- until the conditions are complied with, if the granting authority objection comes with conditions.

A beneficiary may formally notify a request to waive the right to object regarding intended transfers or grants to a specifically identified third party, if measures safeguarding EU interests are in place. If the granting authority agrees, it will formally notify the beneficiary concerned within 60 days of receiving notification (or any additional information requested).

Granting authority right to object to transfers or licensing — Euratom actions

Where the call conditions in Euratom actions provide for the right to object to transfers or licensing, the granting authority may — up to four years after the end of the action (see Data Sheet, Point 1) — object to a transfer of ownership or the exclusive or non-exclusive licensing of results, if:

- the beneficiaries which generated the results have received funding under the grant
- it is to a legal entity established in a non-EU country not associated to the Euratom Research and Training Programme 2021-2025 and
- the granting authority considers that the transfer or licence is not in line with the EU interests.

Beneficiaries that intend to transfer ownership or grant a licence must formally notify the granting authority before the intended transfer or licensing takes place and:

- identify the specific results concerned
- describe in detail the results, the new owner or licensee and the planned or potential exploitation of the results, and
- include a reasoned assessment of the likely impact of the transfer or licence on EU interests, in particular regarding competitiveness as well as consistency with

ethical principles and security considerations (including the defence interests of the EU Member States under Article 24 of the Euratom Treaty).

The granting authority may request additional information.

If the granting authority decides to object to a transfer or licence, it will formally notify the beneficiary concerned within 60 days of receiving notification (or any additional information requested).

No transfer or licensing may take place in the following cases:

- pending the granting authority decision, within the period set out above
- if the granting authority objects
- until the conditions are complied with, if the granting authority objection comes with conditions.

A beneficiary may formally notify a request to waive the right to object regarding intended transfers or grants to a specifically identified third party, if measures safeguarding EU interests are in place. If the granting authority agrees, it will formally notify the beneficiary concerned within 60 days of receiving notification (or any additional information requested).

Limitations to transfers and licensing due to strategic assets, interests, autonomy or security reasons of the EU and its Member States

Where the call conditions restrict participation or control due to strategic assets, interests, autonomy or security reasons, the beneficiaries may not transfer ownership of their results or grant licences to third parties which are established in countries which are not eligible countries or target countries set out in the call conditions (or, if applicable, are controlled by such countries or entities from such countries) — unless they have requested and received prior approval by the granting authority.

The request must:

- identify the specific results concerned
- describe in detail the new owner and the planned or potential exploitation of the results, and
- include a reasoned assessment of the likely impact of the transfer or license on the strategic assets, interests, autonomy or security of the EU and its Member States.

The granting authority may request additional information.

Access rights to results and background

Exercise of access rights — Waiving of access rights — No sub-licensing

Requests to exercise access rights and the waiver of access rights must be in writing.

Unless agreed otherwise in writing with the beneficiary granting access, access rights do not include the right to sub-license.

If a beneficiary is no longer involved in the action, this does not affect its obligations to grant access.

If a beneficiary defaults on its obligations, the beneficiaries may agree that that beneficiary no longer has access rights.

Access rights for implementing the action

The beneficiaries must grant each other access — on a royalty-free basis — to background needed to implement their own tasks under the action, unless the beneficiary that holds the background has — before acceding to the Agreement —:

- informed the other beneficiaries that access to its background is subject to restrictions, or
- agreed with the other beneficiaries that access would not be on a royalty-free basis.

The beneficiaries must grant each other access — on a royalty-free basis — to results needed for implementing their own tasks under the action.

Access rights for exploiting the results

The beneficiaries must grant each other access — under fair and reasonable conditions — to results needed for exploiting their results.

The beneficiaries must grant each other access — under fair and reasonable conditions — to background needed for exploiting their results, unless the beneficiary that holds the background has — before acceding to the Agreement — informed the other beneficiaries that access to its background is subject to restrictions.

Requests for access must be made — unless agreed otherwise in writing — up to one year after the end of the action (see Data Sheet, Point 1).

Access rights for entities under the same control

Unless agreed otherwise in writing by the beneficiaries, access to results and, subject to the restrictions referred to above (if any), background must also be granted — under fair and reasonable conditions — to entities that:

- are established in an EU Member State or Horizon Europe associated country
- are under the direct or indirect control of another beneficiary, or under the same direct or indirect control as that beneficiary, or directly or indirectly controlling that beneficiary and
- need the access to exploit the results of that beneficiary.

Unless agreed otherwise in writing, such requests for access must be made by the entity directly to the beneficiary concerned.

Requests for access must be made — unless agreed otherwise in writing — up to one year after the end of the action (see Data Sheet, Point 1).

Access rights for the granting authority, EU institutions, bodies, offices or agencies and national authorities to results for policy purposes — Horizon Europe actions

In Horizon Europe actions, the beneficiaries which have received funding under the grant must grant access to their results — on a royalty-free basis — to the granting authority, EU institutions, bodies, offices or agencies for developing, implementing and monitoring EU policies or programmes. Such access rights do not extend to beneficiaries' background.

Such access rights are limited to non-commercial and non-competitive use.

For actions under the cluster 'Civil Security for Society', such access rights also extend to national authorities of EU Member States for developing, implementing and monitoring their policies or programmes in this area. In this case, access is subject to a bilateral agreement to define specific conditions ensuring that:

- the access rights will be used only for the intended purpose and
- appropriate confidentiality obligations are in place.

Moreover, the requesting national authority or EU institution, body, office or agency (including the granting authority) must inform all other national authorities of such a request.

Access rights for the granting authority, Euratom institutions, funding bodies or the Joint Undertaking Fusion for Energy — Euratom actions

In Euratom actions, the beneficiaries which have received funding under the grant must grant access to their results — on a royalty-free basis — to the granting authority, Euratom institutions, funding bodies or the Joint Undertaking Fusion for Energy for developing, implementing and monitoring Euratom policies and programmes or for compliance with obligations assumed through international cooperation with non-EU countries and international organisations.

Such access rights include the right to authorise third parties to use the results in public procurement and the right to sub-license and are limited to non-commercial and non-competitive use.

Additional access rights

Where the call conditions impose additional access rights, the beneficiaries must comply with them.

COMMUNICATION, DISSEMINATION, OPEN SCIENCE AND VISIBILITY (— ARTICLE 17)

Dissemination

Dissemination of results

The beneficiaries must disseminate their results as soon as feasible, in a publicly available format, subject to any restrictions due to the protection of intellectual property, security rules or legitimate interests.

A beneficiary that intends to disseminate its results must give at least 15 days advance notice to the other beneficiaries (unless agreed otherwise), together with sufficient information on the results it will disseminate.

Any other beneficiary may object within (unless agreed otherwise) 15 days of receiving notification, if it can show that its legitimate interests in relation to the results or background would be significantly harmed. In such cases, the results may not be disseminated unless appropriate steps are taken to safeguard those interests.

Additional dissemination obligations

Where the call conditions impose additional dissemination obligations, the beneficiaries must also comply with those.

Open Science

Open science: open access to scientific publications

The beneficiaries must ensure open access to peer-reviewed scientific publications relating to their results. In particular, they must ensure that:

- at the latest at the time of publication, a machine-readable electronic copy of the published version or the final peer-reviewed manuscript accepted for publication, is deposited in a trusted repository for scientific publications
- immediate open access is provided to the deposited publication via the repository, under the latest available version of the Creative Commons Attribution International Public Licence (CC BY) or a licence with equivalent rights; for monographs and other long-text formats, the licence may exclude commercial uses and derivative works (e.g. CC BY-NC, CC BY-ND) and
- information is given via the repository about any research output or any other tools and instruments needed to validate the conclusions of the scientific publication.

Beneficiaries (or authors) must retain sufficient intellectual property rights to comply with the open access requirements.

Metadata of deposited publications must be open under a Creative Common Public Domain Dedication (CC 0) or equivalent, in line with the FAIR principles (in particular machine-actionable) and provide information at least about the following: publication (author(s), title, date of publication, publication venue); Horizon Europe or Euratom funding; grant project name, acronym and number; licensing terms; persistent identifiers for the publication, the authors involved in the action and, if possible, for their organisations and the grant. Where applicable, the metadata must include persistent identifiers for any research output or any other tools and instruments needed to validate the conclusions of the publication.

Only publication fees in full open access venues for peer-reviewed scientific publications are eligible for reimbursement.

Open science: research data management

The beneficiaries must manage the digital research data generated in the action ('data') responsibly, in line with the FAIR principles and by taking all of the following actions:

- establish a data management plan ('DMP') (and regularly update it)

- as soon as possible and within the deadlines set out in the DMP, deposit the data in a trusted repository; if required in the call conditions, this repository must be federated in the EOSC in compliance with EOSC requirements
- as soon as possible and within the deadlines set out in the DMP, ensure open access — via the repository — to the deposited data, under the latest available version of the Creative Commons Attribution International Public License (CC BY) or Creative Commons Public Domain Dedication (CC 0) or a licence with equivalent rights, following the principle ‘as open as possible as closed as necessary’, unless providing open access would in particular:
 - be against the beneficiary’s legitimate interests, including regarding commercial exploitation, or
 - be contrary to any other constraints, in particular the EU competitive interests or the beneficiary’s obligations under this Agreement; if open access is not provided (to some or all data), this must be justified in the DMP
- provide information via the repository about any research output or any other tools and instruments needed to re-use or validate the data.

Metadata of deposited data must be open under a Creative Commons Public Domain Dedication (CC 0) or equivalent (to the extent legitimate interests or constraints are safeguarded), in line with the FAIR principles (in particular machine-actionable) and provide information at least about the following: datasets (description, date of deposit, author(s), venue and embargo); Horizon Europe or Euratom funding; grant project name, acronym and number; licensing terms; persistent identifiers for the dataset, the authors involved in the action, and, if possible, for their organisations and the grant. Where applicable, the metadata must include persistent identifiers for related publications and other research outputs.

Open science: additional practices

Where the call conditions impose additional obligations regarding open science practices, the beneficiaries must also comply with those.

Where the call conditions impose additional obligations regarding the validation of scientific publications, the beneficiaries must provide (digital or physical) access to data or other results needed for validation of the conclusions of scientific publications, to the extent that their legitimate interests or constraints are safeguarded (and unless they already provided the (open) access at publication).

Where the call conditions impose additional open science obligations in case of a public emergency, the beneficiaries must (if requested by the granting authority) immediately deposit any research output in a repository and provide open access to it under a CC BY licence, a Public Domain Dedication (CC 0) or equivalent. As an exception, if the access would be against the beneficiaries’ legitimate interests, the beneficiaries must grant non-exclusive licenses — under fair and reasonable conditions — to legal entities that need the research output to address the public emergency and commit to rapidly and broadly exploit the resulting products and services at fair and reasonable conditions. This provision applies up to four years after the end of the action (see Data Sheet, Point 1).

Plan for the exploitation and dissemination of results including communication activities

Unless excluded by the call conditions, the beneficiaries must provide and regularly update a plan for the exploitation and dissemination of results including communication activities.

SPECIFIC RULES FOR CARRYING OUT THE ACTION (— ARTICLE 18)

Implementation in case of restrictions due to strategic assets, interests, autonomy or security of the EU and its Member States

Where the call conditions restrict participation or control due to strategic assets, interests, autonomy or security, the beneficiaries must ensure that none of the entities that participate as affiliated entities, associated partners, subcontractors or recipients of financial support to third parties are established in countries which are not eligible countries or target countries set out in the call conditions (or, if applicable, are controlled by such countries or entities from such countries) — unless otherwise agreed with the granting authority.

The beneficiaries must moreover ensure that any cooperation with entities established in countries which are not eligible countries or target countries set out in the call conditions (or, if applicable, are controlled by such countries or entities from such countries) does not affect the strategic assets, interests, autonomy or security of the EU and its Member States.

Recruitment and working conditions for researchers

The beneficiaries must take all measures to implement the principles set out in the Commission Recommendation on the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers³, in particular regarding:

- working conditions
- transparent recruitment processes based on merit, and
- career development.

The beneficiaries must ensure that researchers and all participants involved in the action are aware of them.

Specific rules for access to research infrastructure activities

Definitions

Research Infrastructures — Facilities that provide resources and services for the research communities to conduct research and foster innovation in their fields. This definition includes the associated human resources, and it covers major equipment or sets of instruments; knowledge-related facilities such as collections, archives or scientific data infrastructures; computing systems, communication networks, and any other infrastructure, of a unique nature and open to external users, essential to achieve excellence in research and innovation. Where relevant, they may be used beyond research, for example

³ Commission Recommendation 2005/251/EC of 11 March 2005 on the European Charter for Researchers and on a Code of Conduct for the Recruitment of Researchers (OJ L 75, 22.3.2005, p. 67).

for education or public services, and they may be ‘single-sited’, ‘virtual’ or ‘distributed’⁴:

When implementing access to research infrastructure activities, the beneficiaries must respect the following conditions:

- for transnational access:

- access which must be provided:

The access must be free of charge, transnational access to research infrastructure or installations for selected user-groups.

The access must include the logistical, technological and scientific support and the specific training that is usually provided to external researchers using the infrastructure. Transnational access can be either in person (hands-on), provided to selected users that visit the installation to make use of it, or remote, through the provision to selected user-groups of remote scientific services (e.g. provision of reference materials or samples, remote access to a high-performance computing facility).

- categories of users that may have access:

Transnational access must be provided to selected user-groups, i.e. teams of one or more researchers (users).

The majority of the users must work in a country other than the country(ies) where the installation is located (unless access is provided by an international organisation, the Joint Research Centre (JRC), an ERIC or similar legal entity).

Only user groups that are allowed to disseminate the results they have generated under the action may benefit from the access (unless the users are working for SMEs).

Access for user groups with a majority of users not working in a EU Member State or Horizon Europe associated country is limited to 20% of the total amount of units of access provided under the grant (unless a higher percentage is foreseen in Annex 1).

- procedure and criteria for selecting user groups:

The user groups must request access by submitting (in writing) a description of the work that they wish to carry out and the names, nationalities and home institutions of the users.

The user groups must be selected by (one or more) selection panels set up by the consortium.

⁴ See Article 2(1) of the Horizon Europe Framework Programme Regulation 2021/695.

The selection panels must be composed of international experts in the field, at least half of them independent from the consortium (unless otherwise specified in Annex 1).

The selection panels must assess all proposals received and recommend a short-list of the user groups that should benefit from access.

The selection panels must base their selection on scientific merit, taking into account that priority should be given to user groups composed of users who:

- have not previously used the installation and
- are working in countries where no equivalent research infrastructure exist.

It will apply the principles of transparency, fairness and impartiality.

Where the call conditions impose additional rules for the selection of user groups, the beneficiaries must also comply with those.

- other conditions:

The beneficiaries must request written approval from the granting authority for the selection of user groups requiring visits to the installations exceeding 3 months (unless such visits are foreseen in Annex 1).

In addition, the beneficiaries must:

- advertise widely, including on a their websites, the access offered under the Agreement
- promote equal opportunities in advertising the access and take into account the gender dimension when defining the support provided to users
- ensure that users comply with the terms and conditions of the Agreement
- ensure that its obligations under Articles 12, 13, 17 and 33 also apply to the users
- keep records of the names, nationalities, and home institutions of users, as well as the nature and quantity of access provided to them

- for virtual access:

- access which must be provided:

The access must be free of charge, virtual access to research infrastructure or installations.

‘Virtual access’ means open and free access through communication networks to digital resources and services needed for research, without selecting the users to whom access is provided.

The access must include the support that is usually provided to external users.

Where allowed by the call conditions, beneficiaries may in justified cases define objective eligibility criteria (e.g. affiliation to a research or academic institution) for specific users.

- other conditions:

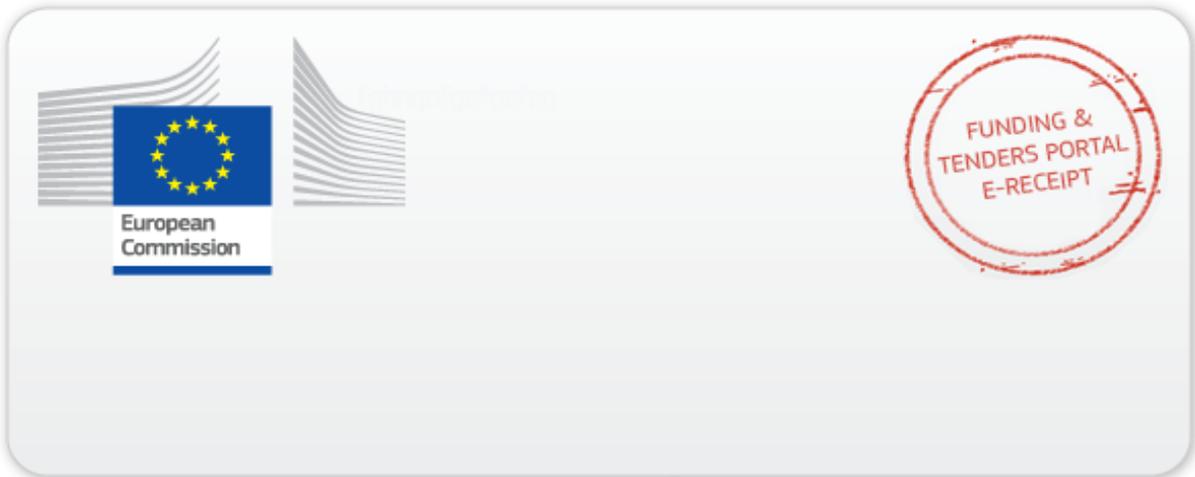
The beneficiaries must have the virtual access services assessed periodically by a board composed of international experts in the field, at least half of whom must be independent from the consortium (unless otherwise specified in Annex 1). For this purpose, information and statistics on the users and the nature and quantity of the access provided, must be made available to the board.

The beneficiaries must advertise widely, including on a dedicated website, the access offered under the grant and the eligibility criteria, if any.

Where the call conditions impose additional traceability⁵ obligations, information on the traceability of the users and the nature and quantity of access must be provided by the beneficiaries.

These obligations apply regardless of the form of funding or budget categories used to declare the costs (unit costs or actual costs or a combination of the two).

⁵ According to the definition given in ISO 9000, i.e.: “Traceability is the ability to trace the history, application, use and location of an item or its characteristics through recorded identification data.” The users can be traced, for example, by authentication and/or by authorization or by other means that allows for analysis of the type of users and the nature and quantity of access provided.



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