

ET

EINSTEIN
TELESCOPE



Preparation of INFRA-DEV Horizon Proposal for ET

M. Martínez

ET INFRA-DEV Meeting, 2nd November 2021

Goals of the INFRA-DEV Initiative

[LINK](#)

In this respect, proposals should address all following aspects:

- the development of legal and financial frameworks/plans relating to the setting-up, construction and/or integration of national resources, operation and decommissioning of the research infrastructure as well as its Governance structure; the complementarities between national and EU instruments (such as the European Structural and Investment Funds or the European Investment Bank) and/or innovative financing solutions (e.g.: pre-commercial procurement; public-private partnerships);
- the preparation of legal and financial agreements, including site, governance, internal rules, financing of the new research infrastructures. These are deliverables that should be finalised before the end of the project (e.g.: through a Memorandum of Understanding; a 'signature-ready' document for the setting-up and the actual implementation of the research infrastructure);
- the establishment of plans for logistics and human resources management, in relation to the construction/integration and future operation, including RI service provision as well as for an efficient data curation and preservation and for the provision of access to data collected or produced by the future infrastructure, in line with the FAIR principles;
- the technical challenges concerning the joint development, transfer of knowledge and implementation of key RI technologies and the completion of the final technical design of the infrastructure;
- the development of plans for the provision of RI services to identified scientific user communities;
- the relevance of the RI for science and society, including its socio-economic impacts at local/regional level and links with the smart specialisation strategies at regional level.
- Environmental (including climate-related) impacts as well as the optimisation of resource and energy use should be integrated in the Preparatory phase of new research infrastructures.
- Proposals should explain any synergies and complementarities with previous or current EU grants.

Notes on INFRA-DEV Call

- **Deadline 20-01-2022 (79 days from deadline)**
- **Part A (web online)**
 - Requires some information from participants
- **Part B (template in the INDICO) Technical Description**
 - Limits of 30 pages in total
 - WPs Objectives, Deliverables, Milestones, FTEs
 - Costs, Subcontractors, in-kind contributions
 - Risk of the WP

Executive Summary

- **List of Countries participating now fixed**
 - Still pending final contacts from UK
 - Some of the institutions only include one contact (an administrative contact is also very welcomed)
- **Concluding part A**
 - Institutional information
 - Researches involved
 - Publication and short description of previous activities
 - Gender Equality Plan
 - **Need to be concluded by mid November**

List of Participants

COUNTRY	INSTITUTION	MAIN CONTACT	CONTACT
AUSTRIA	U. LEOBEN	GALLER	REHATSCHEK
BELGIUM	U. ANTWERPEN	VAN REMORTEL	
BELGIUM	U. LOUVAIN	BRUNO	
EGO	EGO	KATSANEVAS	SPAGNUOLO
FRANCE	CNRS	VERDIER	MOSSARD
GERMANY	DESY	STEGMANN	BERGHOFER
HUNGARY	WIGNER RCP	MATYAS	SZENDRAK
ITALY	INFN	FERRONI	D'ORAZIO
NETHERLANDS	NIKHEF	A. FREISE	VAN RIJN
POLAND	U. WARSAW	ROSINSKA	BULIK
SPAIN	IFAE	MARTINEZ	BALZA
SWITZERLAND	U. GENEVA	MAGGIORE	FRAGKOS
UK		ROWAN	

Some notes on Part A

Proposal number: SEP-210796662

Proposal acronym: ET-PREPARATORY-PHASE

Type of Model Grant Agreement: HORIZON Action Grant Budget-Based

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5	Other questions	Show

Participants information

Application forms

Proposal ID **SEP-210796662**

Acronym **ET-PREPARATORY-PHA**

Short name **IFAE**

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Organisation data

PIC **Legal name**
999613907 *INSTITUTO DE FISICA DE ALTAS ENERGIAS*

Short name: IFAE

Address

Street **CAMPUS DE BELLATERRA - UNIVERSIDAD**

Town **CERDANYOLA DEL VALLES**

Postcode **08193**

Country **Spain**

Webpage **http://www.ifae.es**

Specific Legal Statuses

Legal person yes

Public body yes

Application forms

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List of up to 5 publications, widely-used datasets, software, goods, services, or any other achievements relevant to the call content.

Type of achievement	Short description (Max 500 characters)	Add
	<input type="text"/>	

List of up to 5 most relevant previous projects or activities, connected to the subject of this proposal.

Name of Project or Activity	Short description (Max 500 characters)	Add
<input type="text"/>	<input type="text"/>	

Description of any significant infrastructure and/or any major items of technical equipment, relevant to the proposed work.

Name of infrastructure of equipment	Short description (Max 300 characters)	Add
<input type="text"/>	<input type="text"/>	

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Application forms

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Researchers involved in the proposal

Title	First Name	Last Name	Gender	Nationality	E-mail	Career Stage	Role of researcher (in the project)	Reference Identifier	Type of identifier	Add
										Remove

[?](#)

List of researches will take time but lets do it ASAP

Executive Summary (cont.)

- **We have discussed in detail WPs**
 - Discussed again on 18th + 25th October meetings
 - Arrived to 10 work packages and sub packages
- **We basically fixed now co-coordinators now**
 - And then move forward

WPs headers

- **WP1 Coordination and Management**
- **WP2 Organization, Governance and Legal Aspects**
- **WP3 Financial Architecture**
- **WP4 Site Selection**
- **WP5 Project Office** (+ Rick Management)
- **WP6 Technical Design**
- **WP7 Transfer of Technology**
- **WP8 Computing and Data Access**
- **WP9 Sustainable Development Strategy**
- **WP10 Education, Outreach and Citizen Engagement**

WP details

WP1	Coordination and Management		
	1.1	Management	
		<i>1.1.1</i>	<i>Administrative activities</i>
		<i>1.1.2</i>	<i>Financial & Audit</i>
		<i>1.1.3</i>	<i>Reporting</i>
		<i>1.1.4</i>	<i>Social awareness</i>
	1.2	Coordination	
		<i>1.2.1</i>	<i>Work packages</i>
		<i>1.2.2</i>	<i>Technical activities</i>
		<i>1.2.3</i>	<i>Knowledge and information management</i>
			<i>Deliverables</i>
			<i>Deliverables</i>
WP2	Organization, Governance and Legal Aspects		
	2.1	ET Governance	
	2.2	ET Internal Organization	
	2.3	Legal Framework	
	2.4	Enlargement of the ET Consortium	
	2.5	Political convergence	
	2.6	Connection to other observatories and communities	
WP3	Financial Architecture		
	3.1	Cost evaluation	
	3.2	Cost Sharing	
	3.3	In-kind Contributions	
	3.4	Industrial returns	
	3.5	RI layout, Strategic issues and international networking	
WP4	Site Selection		
	4.1	Site scientific evaluation	
	4.2	Socio-economic impact	
	4.3	Legal/Financial aspects of the RI implementation	
	4.4	Mediation planning	

P details

WP5	Project Office								
	5.1	Technical Coordination of the Project							
	5.2	Human resources qualification							
	5.3	Strategic decisions making process							
	5.4	Planning							
	5.5	Preparation for Production							
	5.5.1	<i>Pre-production models of major components</i>							
	5.5.2	<i>Description of the production model and the assembly lines for mass production</i>							
	5.5.3	<i>QA/QC procedures</i>							
	5.5.4	<i>Identification of locations for mass production</i>							
	5.5.5	<i>Assessment and preparation of required infrastructure</i>							
	5.5.6	<i>Human resource plans for mass production</i>							
	5.5.7	<i>Contact with industry</i>							
	5.5.8	<i>Preparation of tendering procedures for ET components</i>							
	5.6	Industrial Partnerships							
	5.6.1	<i>Test</i>							
	5.6.2	<i>Definition of requirements</i>							
	5.6.3	<i>Planning of logistics</i>							
	5.6.4	<i>Cost optimization</i>							
	5.6.5	<i>Personnel training programme</i>							
	5.6.6	<i>Identification of qualified suppliers</i>							
	5.7	Risk Management							
	5.7.1	<i>Methodology</i>							
	5.7.2	<i>RI risk evaluation, monitoring & mitigation</i>							
	5.7.3	<i>Experiment technical risk evaluation and mitigation</i>							
WP6	Technical Design								
	6.1	Infrastructure Technical Design							
	6.2	Experiment Technical Design							
	6.3	Scientific impact							
	6.4	Open Data Access and Services							

Deliverables

Deliverables

WP details

WP7	Transfer of Technology
7.1	Promotion of Innovative technologies
7.2	Liason with industries
7.3	Intellectual Property

WP8	Computing and Data Access
8.1	Computing model
8.2	Computing Resources
8.3	T0 Data Center
8.4	Data Preservation

WP9	Sustainable Development Strategy
9.1	Low Carbon footprint
9.2	Liason with Climate Change and Geoscience
9.3	Landscape and Enviornmental impact
9.4	Transportation

WP10	Education, Outreach and Citizen Engagement
10.1	School Education Programme
10.2	Dissemination and communication
10.3	Mentoring and Training
10.4	Diversity and Inclusion
10.5	Early Career Scientists

Table 3.1b: Work package description

For each work package:

Work package number	Lead beneficiary
Work package title	
Participant number	
Short name of participant	
Person months per participant:	
Start month	End month

Objectives

Description of work (where appropriate, broken down into tasks), lead partner and role of participants

Lots of information in N tables to be produced by each of the work packages

Table 3.1j: 'In-kind contributions' provided by third parties

Please complete the table below for each participants that will make use of in-kind contributions (non-financial resources made available free of charge by third parties). In kind contributions provided by third parties free of charge are declared by the participants as eligible direct costs in the corresponding cost category (e.g. personnel costs or purchase costs for equipment).

Participant Number/Short Name			
Third party name	Category	Cost (€)	Justification
	Select between		
	Seconded personnel		
	Travel and subsistence		
	Equipment		
	Other goods, works and services		
	Internally invoiced goods and services		

Nominations (incomplete)

Work Package	Nominations	Proposed names	Institutions/ Countries
WP1 Coordination and Management	M. Martinez M. Balza	M. Martinez (IFAE) M. Balza (IFAE)	Spain
WP2 Organization, Governance and Legal Aspects	F. Ferroni J. van den Brand P. Verdier J. de Kleuver	F. Ferroni (INFN) J. van den Brand (Nikhef)	Italy Netherlands
WP3 Financial Architecture	A. Sequi T. Berghöfer	A. Sequi T. Berghöfer	Italy Germany
WP4 Site Selection	M. Carpinelli G. Bruno T. Bulik F. Linde	M. Carpinelli F. Linde	Italy Netherlands
WP5 Project Office	R. Saban R. Flaminio A. Freise	2+1 coordinators A. Freise R. Flaminio [R. Saban] --- CERN link	France Netherlands
WP6 Technical Design	M. Punturo H. Lueck G. Bruno E. Tournefier M. Carpinelli D. Martynov	2+1 coordinators M. Punturo H. Lueck [P. Chiggiato] --- CERN link	Italy Germany

Nominations (incomplete)

Work Package	Nominations	Proposed names	Institutions /Countries
WP7 Transfer of Technology	M. Morandin R. van der Meer	M. Morandin R. van der Meer	Italy Netherlands
WP8 Computing and Data Access	S. Girona [M. Delfino] A. Stahl S. Bagnasco G. Bruno E. Porter M. Beijer S. Fairhurst	S. Girona (HPC) A. Stahl	Spain Germany
WP9 Sustainable Development Strategy	G. Bruno N. Arnaud	N. Arnaud [expert on the subject]	France
WP10 Education, Outreach and Citizen Engagement	D. Rosinska G. Vannoni V. Napolano M. Hendry	D. Rosinska M. Hendry	Poland UK

→ We need to converge on WP9 finding an expert profile

→ We might consider additions if the WP requires it

→ We will move forward now for the rest

Next Steps on Part B

→ from last two weeks !

- Reach agreement on the WP definitions
- Collect Eol of Institutions/Countries
 - I will facilitate the process with a poll system
- Define a Matrix of WPs, institutions, Countries
- Converge into a satisfactory distribution (today)
- Identify coordinators for each WP (today)

Part B overview

30 pages limit

Excellence

- 1.1 Objectives (2 pages)
- 1.2 Coordination and/or support measures and methodology (6 pages)

Impact

- 2.1 Project's pathways towards impact (4 pages)
- 2.2 Measures to maximise impact - Dissemination, exploitation and communication (5 pages including 2.3)
- 2.3 Summary

Quality and efficiency of the implementation

- 3.1 Work plan and resources (10 pages including tables)
- 3.2 Capacity of participants and consortium as a whole (3 pages)

Tables for 3.1

Next Steps on Part B

→ **this week !**

- **Meeting with coordinators this week**
 - Definition of objectives, work description, deliverables, milestones, critical risk implementation, persons months
 - If needed simplify the structure inside each WP (?)
- **Discuss relation with ESFRI recommendations**
 - Prepare the answers to ESFRI (see next slides)
 - Meeting with ESFRI representatives by 19th Nov
- **First Discussion on Budget (after 8th November)**
 - Now we know is going to be 3M€ + epsilon

Meeting with coordinators

- I will be calling (today) a meeting with coordinators on **this Friday** to start discussing the objectives, deliverables and milestones for each WP.
 - Coordinators will contact interested parties and organize the work that we will monitor in dedicated meetings with coordinators (Mondays 13:30 PM)
 - We will then have a dedicated meeting on ESFRI recommendations next week (Monday)
- Prepare a document with “official answers/reactions to each of the ESFRI recommendations” (next week)

Plan for the Proposal

- **All done by 11th January 2022 (10 days margin)**
- **Part A concluded by mid November**
 - Information from Participants
 - Budget (v1.0) (to be declared final by end November)
- **Part B**
 - version 0.0 by mid November / answers to ESFRI
 - version 1.0 by end of November
 - Version 2.0 by mid December
 - Final version by 20th December

ESFRI recommendations 1/3

R1. It is recommended to assess the expected physics performance of the ET for different failure scenarios where the detector could not achieve designed performances and to develop mitigation plans. In the event that the funding does not proceed as planned or the cost of the detector increases, it might become necessary to set a priority in physics programme and to descope the detector. The collaboration should be prepared for such processes. **(WP6.3)**

R2. It is recommended to make sure that contributions by the industries are directly and visibly acknowledged, providing ET industry awards for example. It will be also useful to keep record of the impact made by the ET project in boosting the economy and improving society locally, in Europe and globally. **(WP 5.6, 7)**

R3. No detail is given about the difference between the released data and sub-threshold data, and about how this specific access to data will be organised and granted. This should be better elaborated to ensure a fair process, and if for instance some tools or data are kept inside the collaboration this should be explained. **(WP 6.4, 8.1)**

R4. If some data and/or tools are kept inside the Collaboration, clarification is needed on which ones, and the criteria on which the decision to open or not is taken should be spelled out. A summary of the expected liaison and collaboration with the current ESFRI projects and landmarks is desired. **(WP 6.4, 8.1)**

R5. E-NEEDS: Developments in ongoing projects such as ESCAPE regarding interoperability need to be assessed for adoption and reuse. **(WP8)**

ESFRI recommendations 2/3

R6. Certain computational tasks are characterized as “embarrassingly parallel” which is quite fortunate as it will allow for the exploitation of massively parallel computational infrastructures. *Other tasks, however, may impose different requirements that need to be catered for by specific architectures.* **(WP8)**

R7. A continuous process of risk analysis for the progress in the critical technological developments is recommended. **(WP5)**

R8. In order to ensure the follow-up measurements by the other facilities, in particular by the optical telescopes, some changes in their operation model might be required since they would need to interrupt the running observation programme. *Therefore, a management level consultation among the facilities is recommended, in addition to already well-established interactions among scientists.* **(WP2)**

R9. **My wording:** ESFRI supports the view of decommission 2G once ET is fully operational and recommends to network with other 3G as becoming available rather than with 2G+. **(WP 2.6)**

R10. The ESFRI recommends that a strong emphasis is placed on enlarging the circle of countries supporting ET both politically and financially. **(WP 2.4)**

ESFRI recommendations 3/3

R11. The ESFRI considers it imperative that the timeline for site selection is met. Regarding the process for site selection, the ESFRI strongly recommends that an appropriate mediation plan is also put in place and that updates are provided to the ESFRI on this process up until site selection. **(WP 4 & 2)**

R12. The ESFRI recommend that a mitigation plan is put in place if site selection cannot be completed by 2024. **[decided we do not mention in the WPs]**

R13. Much effort is still necessary to meet the required financial costs. The ESFRI recommend that extra effort is afforded to meet these targets and that regular progress updates are provided to the ESFRI. **(WP2 & 3).**

Final remark: Einstein Telescope is a very ambitious project, which has a keen interest from a growing research community. It will be a single-sited infrastructure that aims to establish a European Third-Generation Gravitational Wave Observatory and has a broad global GW scientific community behind it. However, some key requirements necessary for a project on the ESFRI roadmap are lacking. ***The focal point being the lack of clarity.***

Backup slides

Some notes on Part A (cont.)

Proposal ID SEP-210796662

Acronym ET-PREPARATORY-PHA

3 - Budget

?

No.	Name of beneficiary	Country	Role	Personnel costs/€	Subcontracting costs/€	Purchase costs - Travel and subsistence/€	Purchase costs - Equipment/€	Purchase costs - Other goods, works and services/€	Internally invoiced goods and services/€ (Unit costs-usual accounting practices)	Indirect costs/€	Total eligible costs	Funding rate	Maximum EU contribution to eligible costs	Requested EU contribution to eligible costs/€	Max grant amount	Income generated by the action	Financial contributions	Own resources	Total estimated income
1	Ifae	ES	Coordinator							0.00	0.00	100	0.00	0	0.00				0.00
2	Infn	IT	Partner							0.00	0.00	100	0.00	0	0.00				0.00
3	Uniwersaw	PL	Partner							0.00	0.00	100	0.00	0	0.00				0.00
4	Cnrs	FR	Partner							0.00	0.00	100	0.00	0	0.00				0.00
5	Nwo-i	NL	Partner							0.00	0.00	100	0.00	0	0.00				0.00
6	Ucl	BE	Partner							0.00	0.00	100	0.00	0	0.00				0.00
7	Uantwerpen	BE	Partner							0.00	0.00	100	0.00	0	0.00				0.00
8	European Gravitational Observatory(ego) (Osservatorio Gravitazio Naleuropeo)	IT	Partner							0.00	0.00	100	0.00	0	0.00				0.00
	TOTAL			0	0	0	0	0	0	0.00	0.00		0.00	0	0.00	0	0	0	0.00

We are still in the process of adding partners

→ Will rely on the information from Part B on financial details