School on transferable skills: managing, entrepreneurial and IPR

"How to prepare scientific proposals (international competitive calls)"

Armando J Palomar
International Research Advisor
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School on **transferable skills**: managing, entrepreneurial and IPR

Stories | SW (project manag.) | KTT | Research proposals ?

	Monday 2/JUN	Tuesday 3/JUN	Wednesday 4/JUN	Thursday 5/JUN	Friday 6/JUN
9:00 9:30		Success stories (T1)	Software project managing (T2)	Transfer / KTT (T3)	How to prepare ~~scientific projects~~ (T4) research proposals
9:30 10:00					
10:00 10:30					
10:30 11:00		Coffee break	Coffee break	Coffee break	Coffee break
11:00 11:30					
11:30 12:00		Foundations of Financial Planning & Analysis (B2)	Project Management: challenges, skills & tools (B3)	Intellectual Property Rights (B4)	How to prepare ~~scientific projects~~ II (T4) research proposals
12:00 12:30					
12:30 13:00					
13:00 13:30		Lunch break	Lunch break	Lunch break	
13:30 14:00					
14:00 14:30	Business Foundations: Innovation & Entrepreneurship/ How to start a Business (B1)				
14:30 15:00					
15:00 15:30		Creative Problem Solving to generate new business ideas (Workshop B2)	Marenostrum Visit & Team building Activity in Barcelona	Developing your communication skills (Workshop B3)	
15:30 16:00	Self Awareness & Personal Branding Getting to know oneself (W B1)				
16:00 16:30					
16:30 17:00					
	Claudio Cruz (StartUB)	*J. Portell, Ma. Monguió, Roger Mor*	*Francesc Vilardell (GMV)*	*Albert Crera (UB)*	*Armando J. Palomar*
	Elena Peinador (StartUB)	*Jaume Argerich (UB,... Ficosa)*	*Marc Ambit (freelance)*	*Sancho Mora (FBG)*	*Armando J. Palomar*
		Adriana Espinet (StartUB)		*Joanna Pousset (Demium, Impactivs)*	

Entrepreneurship | Financial | Project management | IPR | Personal Branding | Communication | New business ideas

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Researcher: competences and skills

https://research-and-innovation.ec.europa.eu/system/files/2023-04/ec_rtd_research-competence-presentation.pdf

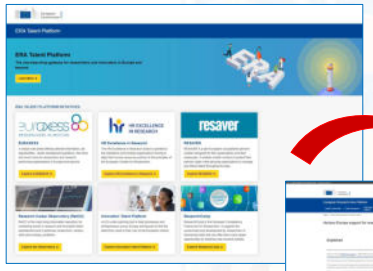
7 Competence Areas, 38 Competences

- **All** competences are **equally important & interrelated**
- Competences can be acquired via **dedicated training, on-the-job-training, peer-to-peer learning, coaching and mentoring**
- **Each stakeholder** can use the Framework as a starting point to address its **own needs**
- Researchers need to **develop competences in all 7 areas, but should not acquire the same or the highest level of proficiency for all competences**

3

Researcher: competences and skills

https://ec.europa.eu/era-talent-platform/



https://european-research-area.ec.europa.eu//

ResearchComp
The European Competence Framework for Researchers

https://european-research-area.ec.europa.eu/horizon-europe-support-research-careers

4

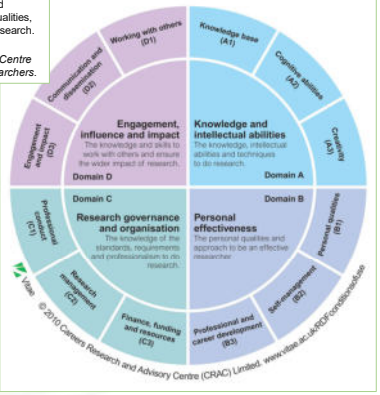
Researcher: competences and skills

The Vitae Researcher Development Framework (RDF) is structured into 4 domains covering the knowledge, behaviours and attributes of researchers.

Within each of the domains there are 3 sub-domains and associated descriptors.

It sets out the wide-ranging knowledge, intellectual abilities, techniques and professional standards expected to do research, as well as the personal qualities, knowledge and skills to work with others and ensure the wider impact of research.

Vitae is a non-profit programme, part of the Careers Research & Advisory Centre (CRAC) Ltd, with over 50 years' experience of enhancing the skills of researchers.



https://www.vitae.ac.uk/researchers-professional-development/about-the-vitae-researcher-development-framework/developing-the-vitae-researcher-development-framework

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Researcher: competences and skills

https://agaur.gencat.cat/en/internacional/suport-a-linvestigador/

Undertaking a successful and productive postdoc role is a crucial step towards an independent research career. This diagram offers some thoughts an emerging researcher might consider and weigh up, as they ponder the type of scientific career that is best suited to them.

"Words of Advice: choosing the right lab for your post-doctoral fellowship"
Trapani J.A., Voskoboinik I.

Personal traits of a good PI
1. Intellectual independence
2. Being a doer/risk taker
3. Creativity/intuition
4. Ability to debate, but see both sides
5. Excellent communicator
6. Personal ambition
7. Loyalty/fairness to colleagues

Pros of taking on research leadership
1. Freedom of choosing your own research directions
2. Building your own lab/ team of colleagues and taking responsibility for your staff/students

ON THE PATH TO INDEPENDENCE

Useful steps in the postdoc to lab head transition
1. Gather a broad research experience/knowledge base
2. Learn how to collaborate productively – give and take
3. Obtain experience in student and/or junior staff supervision
4. Propose and deliver a new initiative
5. Apply for independent funding (even a small grant)
6. Take every opportunity to give a presentation or public lecture

Cons of taking on research leadership
1. Time-consuming/highly competitive grant funding
2. Lack of financial security (unless funded internally)
3. Stress – publish or perish
4. Difficult to maintain work/life/family balance

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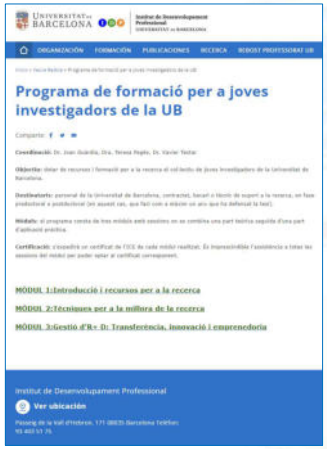
Researcher: competences and skills (training)



https://www.ub.edu/idp/web/es/node/1810

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Researcher: competences and skills (training)

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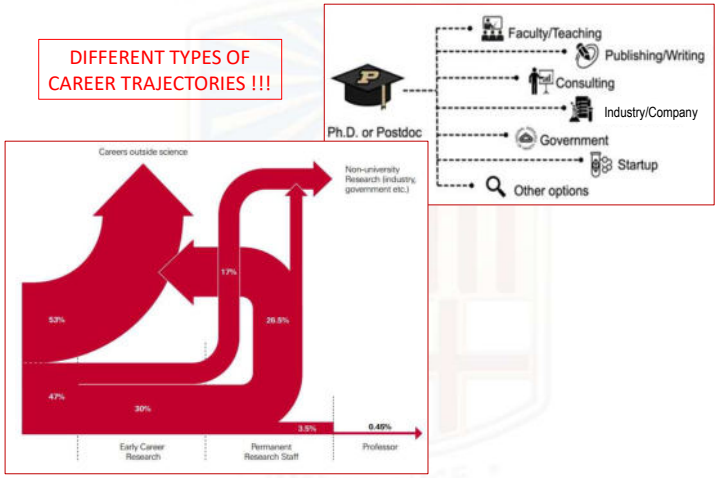
DIFFERENT TYPES OF CAREER TRAJECTORIES !!!



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Q's to participants
(*bespoke useful session*)

EXPERIENCE (9/13):	
NO (very little ; little)	5 (2 ; 2)

KNOWLEDGE (9/13):	
NO (except MSCA)	9

INTERESTS (9/13):	
Objectives	4
Comm./Dissem. (Open Science)	3
Strategy/Gral.	3
Work-plan (Methodology)	3
CV Career-track	2
Budget, Diversity, Gender, Impact	1

"Learning by doing" (*practice*)

FUNDING:
- Introduction to "Horizon Europe" (*main traits & opportunities*)

PROPOSAL:
- Objectives & Work-plan (Methodology)
- CV Career-track (*Comm./Dissem., Open Science*)

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*Session (unique): **here** and **now***

Content (info)

Exercise (practice)

Knowledge

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Thank you
Gràcies
Gracias

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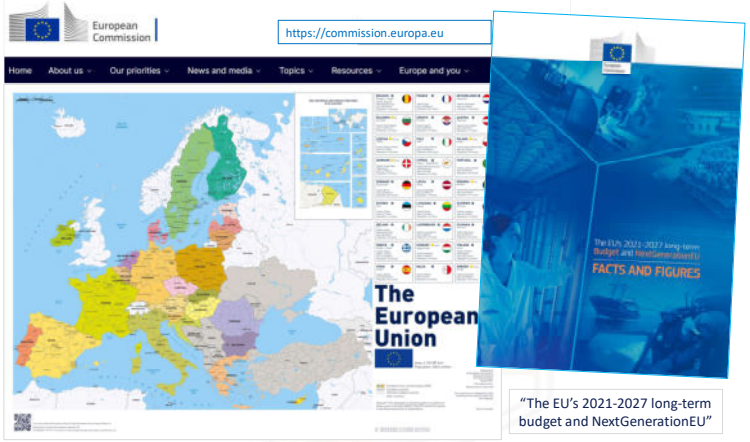
https://commission.europa.eu



"The EU's 2021-2027 long-term budget and NextGenerationEU"

https://op.europa.eu/en/publication-detail/-/publication/d3e77637-a963-11eb-9585-01aa75ed71a1/language-en

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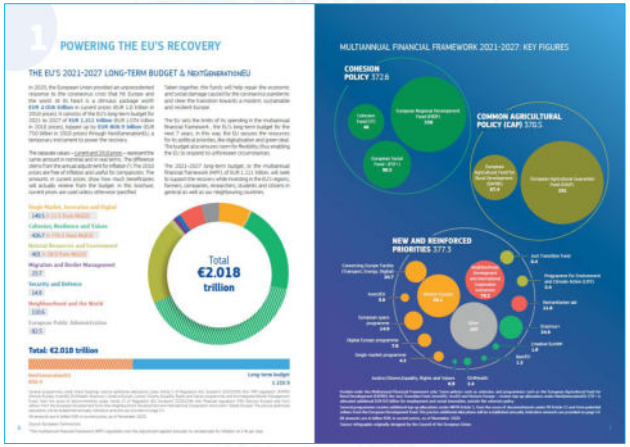
"The EU's 2021-2027 long-term budget and NextGenerationEU"



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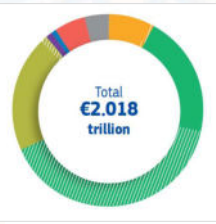
"The EU's 2021-2027 long-term budget and NextGenerationEU"

Heading 1: Single Market, Innovation and Digital... 149,5 *(+11,5)*
- **Research & Innovation**
  - Horizon Europe 86
  - Euratom Research and Training Programme 2
  - ITER
- **European Strategic Investments**
  - InvestEU
  - Connecting Europe Facility
  - Digital Europe Programme 759
- **Single Market**
  - Single Market Programme
  - EU Anti-Fraud Programme
  - Cooperation in the field of taxation (FISCALIS)
  - Cooperation in the field of customs (CUSTOMS)
- **Space**
  - European Space Programme 15

Heading 2: Cohesion and Values... 426,7 *(+776,5)*
- **Regional Development & Cohesion**
  - European Regional Development Fund (ERDF) 226
  - Cohesion Fund (CF) 48
  - REACT-EU
  - Support to the Turkish Cypriot community
- **Recovery and Resilience**
  - Recovery and Resilience Facility *(723: NGEU)*
  - Technical Support Instrument 0,9
  - Protection of the Euro Against Counterfeiting
  - Union Civil Protection Mechanism (rescEU)
  - EU4Health 2,5
- **Investing in People, Social Cohesion & Values**
  - European Social Fund+ 99
  - Erasmus+
  - European Solidarity Corps
  - Justice Programme
  - Citizens, Equality, Rights and Values Programme
  - Creative Europe



Heading 3: Natural Resources & Environment... 401 *(+18,9)*
- **Agriculture & Maritime Policy**
  - European Agricultural Guarantee Fund (EAGF)
  - 87,5 European Agricultural Fund for Rural Development (EAFRD)
  - 6 European Maritime, Fisheries and Aquaculture Fund
- **Environment & Climate Action**
  - 5,5 Programme for the Environment and Climate Action (LIFE)
  - Just Transition Fund

Heading 4: Migration & Border Management... 25,7
- **Migration**
  - Asylum, Migration and Integration Fund
- **Border Management**
  - Integrated Border Management Fund

Heading 5: Security & Defence... 14,9
- **Security**
  - Internal Security Fund
  - Nuclear Decommissioning (Lithuania)
  - Nuclear Safety and Decommissioning
- **Defence**
  - 8 European Defence Fund

Heading 6: Neighbourhood & the World... 110,6
- **External Action**
  - Global Europe: Neighbourhood, Development and International Cooperation Instrument
  - Humanitarian Aid
  - Common Foreign and Security Policy
  - Overseas Countries and Territories
- **Pre-Accession Assistance**
  - Pre-Accession Assistance

European Public Administration... 82,5

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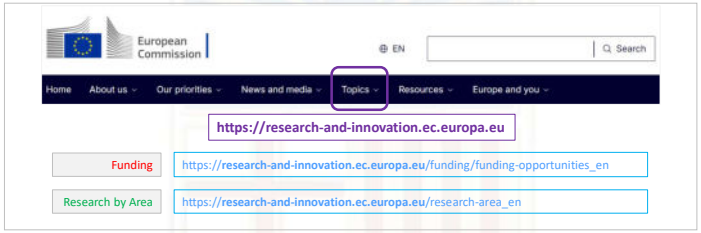
European Research & Innovation Programmes *(International competitive calls for funding)*

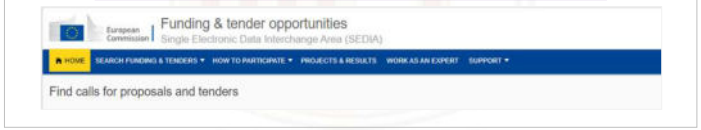


https://research-and-innovation.ec.europa.eu

Funding https://**research-and-innovation.ec.europa.eu**/funding/funding-opportunities_en

Research by Area https://**research-and-innovation.ec.europa.eu**/research-area_en

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/home



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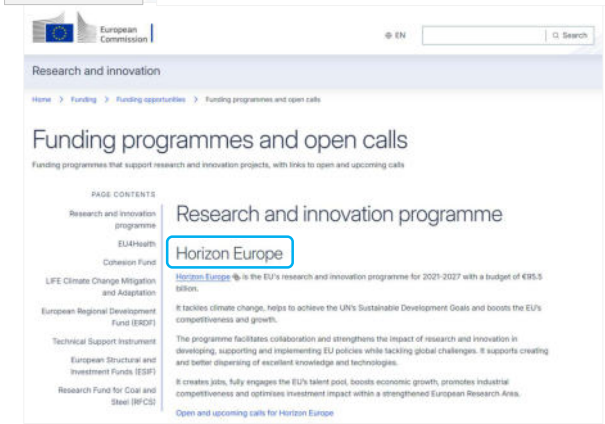
European Research & Innovation Programmes *(International competitive calls for funding)*

Funding https://research-and-innovation.ec.europa.eu/funding/funding-opportunities_en



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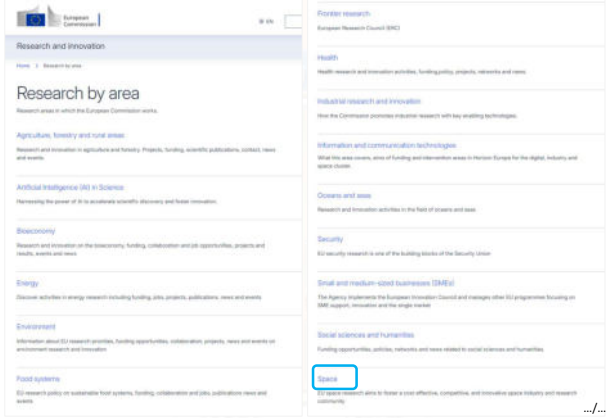
European Research & Innovation Programmes *(International competitive calls for funding)*

Research by Area https://research-and-innovation.ec.europa.eu/research-area_en



.../...

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European Research & Innovation Programmes *(International competitive calls for funding)*

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/home

HORIZON EUROPE
- **Horizon Europe** *(focus on civil applications)*
- **EURATOM: Euratom Research and Training Programme**
- **EDF: European Defence Fund** *(focus on defence)*

DIGITAL: **Digital Europe Programme**
EU4H: **EU4Health Programme**
LIFE: **Programme for the Environment and Climate Action**

RFCS: Research Fund for Coal &Steel

European Structural and Investment Funds:
- ***Cohesion Fund*** *(GNI<90%EU)**
- ***ERDF: European Regional Development Fund*** *(reg., nat., cross-b., trans-n., inter-r.)*
- ***ESF+: European Social Fund+*** *(reg., nat.)*
- ***EAFRD: European agricultural fund for rural development***
- ***EMFAF: European maritime, fisheries and aquaculture fund***

Innovation Fund *(low-C tech. demo)*

Technical Support Instrument
(Tech. expertise to support MS's reforms)

(*) Bulgaria, Croatia, Cyprus, Czechia, Estonia, Greece, Hungary, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovakia, Slovenia.

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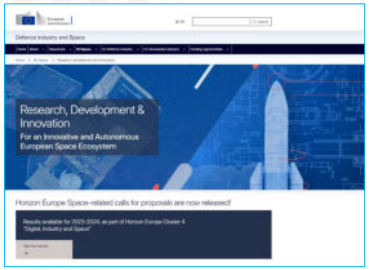
Horizon EUROPE (2021-2027), the most ambitious EU R&I programme ever

https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe_en

Directorate-General for Defence Industry and Space



https://defence-industry-space.ec.europa.eu/index_en

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Horizon EUROPE (2021-2027), the most ambitious EU R&I programme ever

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Horizon EUROPE (2021-2027), the most ambitious EU R&I programme ever

(Source: European Commission)

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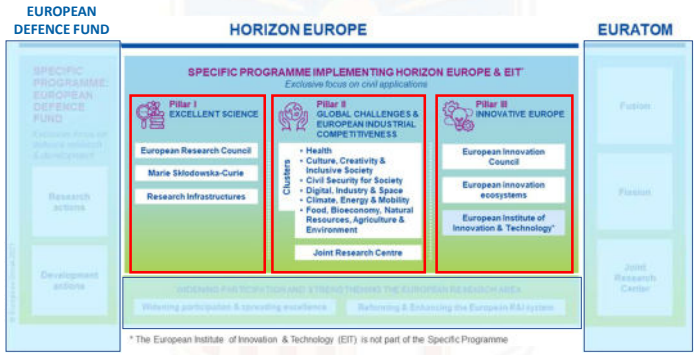
Horizon EUROPE (2021-2027), the most ambitious EU R&I programme ever



(Source: European Commission)

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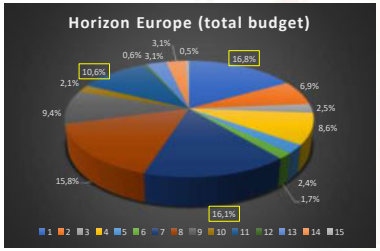


(Source: European Commission)

PILLAR 1			(%)
EXCELLENT SCIENCE	25.012	(%)	26,2%
European Research Council (ERC)	16.004	64,0%	16,8%
Marie Skłodowska-Curie Actions (MSCA)	6.602	26,4%	6,9%
Research Infrastructures	2.406	9,6%	2,5%

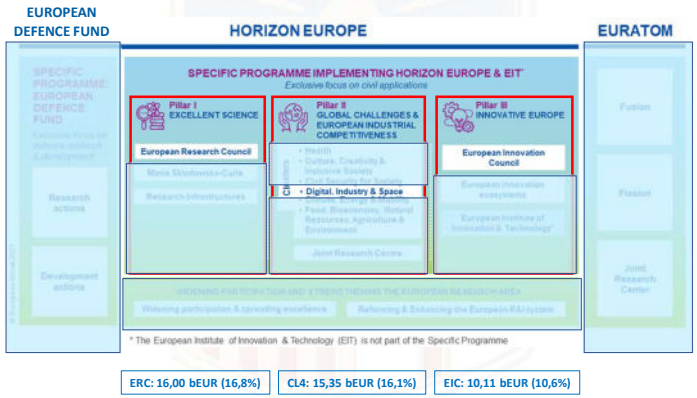
PILLAR 2			(%)
GLOBAL CHALLENGES and EUROPEAN INDUSTRIAL COMPETITIVENESS	53.516	(%)	56,0%
Clusters:	51.546	96,3%	54,0%
• Health	8.246	15,4%	8,6%
• Culture, Creativity and Inclusive Society	2.280	4,3%	2,4%
• Civil Security for Society	1.596	3,0%	1,7%
• Digital, Industry and Space	15.349	28,7%	16,1%
• Climate, Energy and Mobility	15.123	28,3%	15,8%
• Food, Bioeconomy, Natural Resources, Agriculture and Environment	8.952	16,7%	9,4%
Joint Research Centre (JRC) non-nuclear direct actions	1.970	3,7%	2,1%

PILLAR 3			(%)
INNOVATIVE EUROPE	13.597	(%)	14,2%
European Innovation Council (EIC)	10.105	74,3%	10,6%
European innovation ecosystems	527	3,9%	0,6%
European Institute of Innovation and Technology (EIT)	2.965	21,8%	3,1%

Horizontal			(%)
WIDENING PARTICIPATION and STRENGTHENING the EUROPEAN RESEARCH AREA	3.393	(%)	3,6%
Widening Participation and Spreading Excellence	2.955	87,1%	3,1%
Reforming and Enhancing the European R&I system	438	12,9%	0,5%
TOTAL:	95.518		

13

Horizon EUROPE (2021-2027), the most ambitious EU R&I programme ever



ERC: 16,00 bEUR (16,8%) | CL4: 15,35 bEUR (16,1%) | EIC: 10,11 bEUR (10,6%)

(Source: European Commission)

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Proposal: new features (Horizon Europe)

NEW FIELDS IN PART A

- Researchers table – needed to follow up researchers careers (HE indicator)
- Role of participating organisation
- Self-declaration on gender equality plan

FIELDS MOVED FROM PART B TO PART A

- Ethics self-assessment
- Security questionnaire (*NEW*! in all HE proposals)
- Information on participants' previous activities related to the call

NEW FIELDS IN PART B

- Glossary of terms
- Consistency on the use of terminology is ensured in all project phases (from WP to proposal and reporting)
- Extensive explanations on what exactly should be included in each section

Open Science across the programme
Pathway to impact
Do no significant harm principle (DNSH)
Gender dimension in R&I content
Measures to maximise impact (KIP)
Artificial intelligence

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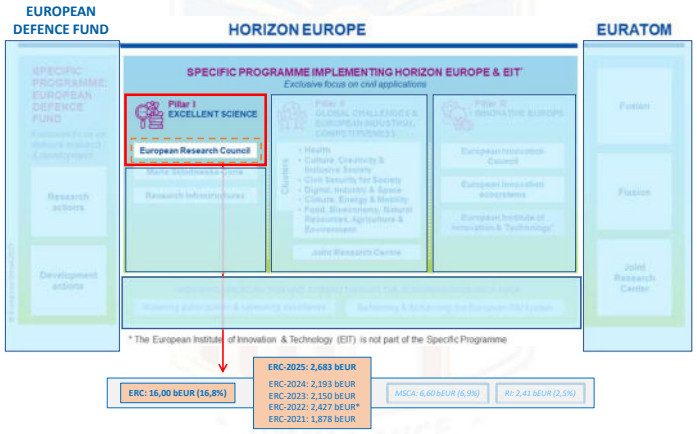
European Research Council

European Research Council (ERC)

2

European Research Council (ERC)

Pillar I - Excellent Science: ERC, *MSCA, RI*



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European Research Council (ERC)

European Research Council: what is it?

Legislation

Commission Decisions: L 57/14, 24.02.2007; C 373/23, 20.12.2013; ***C 234 I/5, 17.06.2021***

- Public body, **established in 2007 (18y)**
- **Scientific governance** (independent) by the **European Scientific Council** (ESC, composed of 22 elected eminent scientists/scholars, including the President and 3 Vice-Presidents; 4 years term, renewable once); with full authority over funding strategy
- Supported operationally by the **ERC Executive Agency** (ERCEA: *autonomous*, implementing, based in BXL)

Mission

to encourage the highest quality research in Europe through **competitive funding** and to support **investigator-driven frontier research across all fields**, based on scientific **excellence**

Strategy

- **Excellence** as the only criterion
- Support for **individual** scientists (anywhere in the world) – *no networks/consortia*!
- Support of **frontier research in all fields** of science and humanities (no predetermined subjects: *"bottom-up"*)
- Global **peer-review evaluation** (28 ERC panels: 11xPE, 9xLS, 8xSH)
- **Restrictions** on resubmission of proposals

Thematic Working Groups (4): ●"Gender and Diversity", ●"Innovation", ●"Widening European Participation", and ●"Open Science"

Standing Committees (3): ●"Conflict of Interests, Scientific Misconduct and Ethics", ●"Panels", and ●"Programme Impact Monitoring and Evaluation

The ERC supports excellence in frontier research through a bottom-up, individual-based, pan-European competition

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European Research Council (ERC)

ERC Scientific Council

Life Sciences

Geneviève Almouzni, Molecular Cell Biology
Liselotte Hejgaard, Medicine
Leszek Kaczmarek, Neurobiology
Dirk Inzé, Plant Biology
Luke O'Neill, Biochemistry and Immunology

Social Sciences and Humanities

Harriet Bulkeley, Geography
Mercedes García-Arenal, History
Torsten Persson, Economics
Giovanni Sartor, Law
Milena Žic Fuchs, Linguistics

Physical Sciences and Engineering

Tom Henzinger, Computer Science
Maarit Karppinen, Chemistry
Sylvie Lorente, Mechnical Engineering
Björn Otterstan, Electrical Engineering
Tomaž Prosen, Physics
Nicola Spaldin, Materials Theory
András Stipicz, Mathematics

Jesper Svejstrup, Vice-President, Biochemistry
Maria Leptin, ERC President, Cell Biology
Gerd Gigerenzer, Vice-President, Psychology
Eystein Jansen, Vice-President, Earth Science

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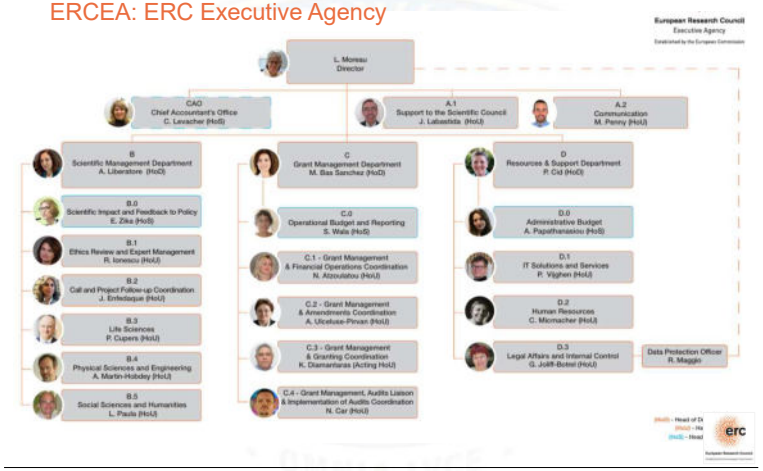
European Research Council (ERC)

ERCEA: ERC Executive Agency



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European Research Council (ERC)

… it's been part of all FPs for R&I: **FP7/*Ideas*** (2007-2013), **H2020** (2014-2020) and **Horizon Europe** (2021-2017)

Over **17,000** projects top researchers funded since the ERC creation in 2007

Over **250,000** articles from ERC projects published in scientific journals

Over **110,000** researchers and other professionals employed in ERC research teams

Over **900** research institutions hosting ERC grantees – universities, public or private research centres in the EU or Associated Countries

Over **2,400** patents and other IPR applications generated by ERC funding

97 nationalities of grant holders

Over **400** start-ups identified as founded or co-founded by ERC PIs

14 Nobel Prizes, **7** Fields Medals, **11** Wolf Prizes and other prizes (Kavli, Lasker, Holberg, Balzan, Shawn) awarded to ERC grantees

Source: ERC Annual Report 2024

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European Research Council (ERC)

What do ERC grants offer?

ERC grants offer **independence, recognition and visibility:**

- to gain true **financial autonomy** for 5 (6) years
- to work on a **research topic of your own choice**,
- to work with a **team of your own choice**,
- to attract **top team members** (EU and non-EU) and **collaborators**

- to agree/*negotiate* with the host institution (HI) **the best conditions of work**
- to move with the grant to any place in Europe, if necessary (**portability of grants**)
- to attract **additional funding** and **gain recognition** (ERC is a quality label)

The conditions of work offered by the HI, including the 'portability' of the grant, are the subject of a supplementary agreement between the PI and the HI and is described in the ERC Model Grant Agreement. These conditions are consistent with "The European Charter for Researchers" and "The Code of Conduct for the Recruitment of Researchers".

Additional funding: up to… M€1,0 (StG, CoG, AdG) and M€4,0 (SyG)
Start-up costs (moving to EU/AC) / Purchase of major equipment / Access to large facilities / Other major experimental costs

8

European Research Council (ERC)

Funding schemes *(actual costs/lump sum)*

Individual

Starting Grants
2-7 years after PhD
(≥ 50% commitment)
up to €1.5 million*
for 5 years

Consolidator Grants
7-12 years after PhD
(≥ 40% commitment)
up to €2 million*
for 5 years

Advanced Grants
no specific criteria
(≥ 30% commitment)
up to €2.5 million*
for 5 years

Synergy Grants
2-4 PIs *(no specific criteria)*
(≥ 30% commitment)
up to €10 million*
for 6 years

Complementary

Proof-of-Concept (*)
for ERC grant holders only
bridging gap between research - earliest stage of marketable innovation
€150,000
for 18 (12) months

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European Research Council (ERC)

Funding schemes: Objectives and PIs

Grants:	Starting	Consolidator	Advanced/Synergy*
PI working time	≥ 50% (proposal) ≥ 50% (EU member state)	≥ 40% (proposal) ≥ 50% (EU member state)	≥ 30% (proposal) ≥ 50% (EU member state)
Competitive candidate	Transition to independence	Establishing independence	Research leader
	• potential for research independence • evidence of maturity… • ≥ 1 important publication as main author or without PhD supervisor	• shown research independence • evidence of maturity… • several important publications as main author or without PhD supervisor	• Significant research achievements during last 10y • exceptional leader (originality and significance of research) • ≥ 10 publications as main author in major international journals, keynote/plenary invitations, conference organizer, launched career of researchers
	Track record of achievements (*early* for StG/CoG and *10y* for AdG) appropriate to field and career stage: publications, monographs, patents, invited presentations, prizes, awards,…		

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European Research Council (ERC)

https://erc.europa.eu/

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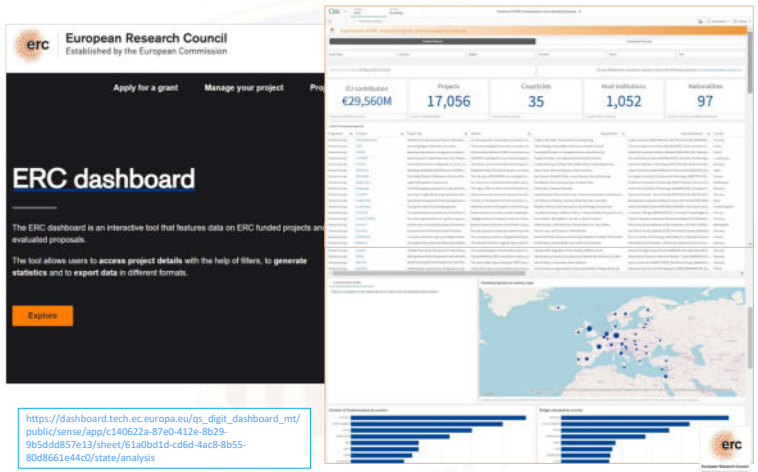
European Research Council (ERC)



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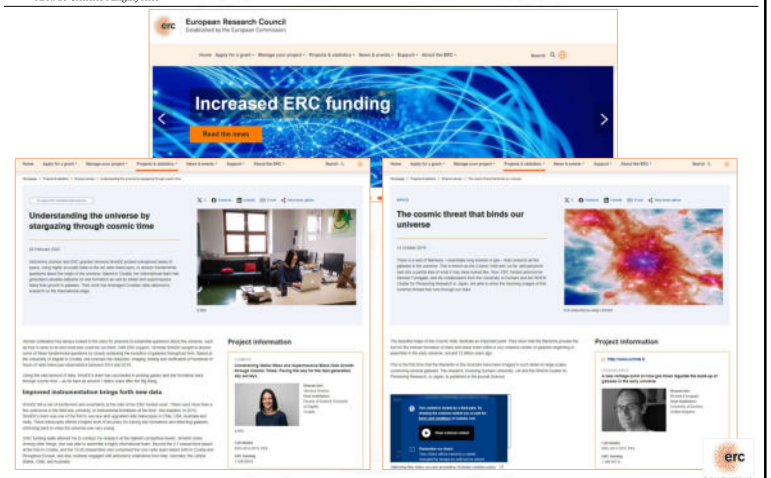
European Research Council (ERC)



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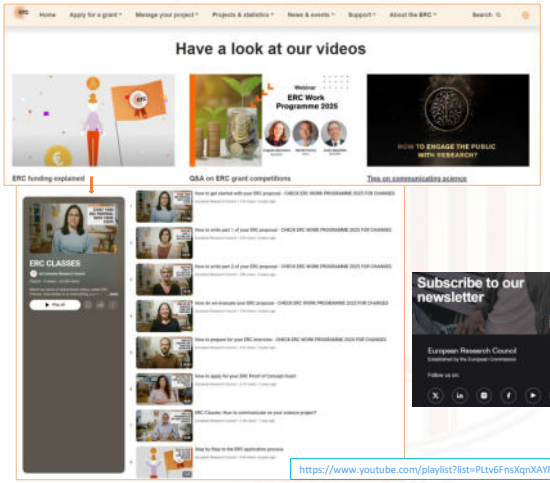
European Research Council (ERC)



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European Research Council (ERC)

ERC annual calls

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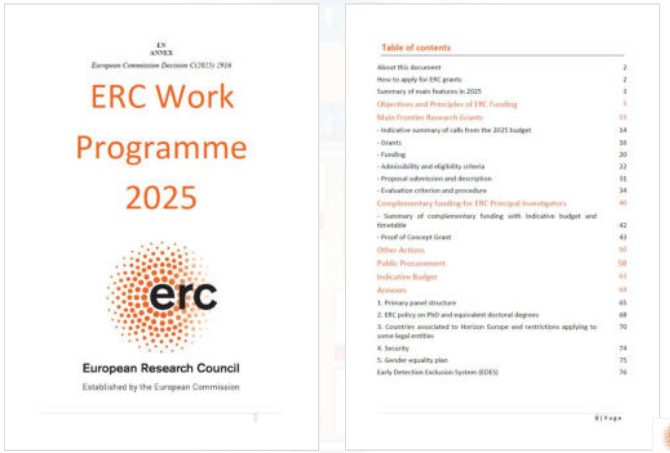
European Research Council (ERC)



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European Research Council (ERC)

Indicative summary of calls from the 2025 budget[21,22]

	Starting Grant	Consolidator Grant	Advanced Grant	Synergy Grant
Call identifier	ERC-2025-StG	ERC-2025-CoG	ERC-2025-AdG	ERC-2025-SyG
Call opens	10 July 2024	26 September 2024	22 May 2025	11 July 2024
Call deadline	15 October 2024 CLOSED	14 January 2025 CLOSED	28 August 2025	6 November 2024 CLOSED
Budget million EUR[23] (estimated number of grants)	751 (483)	719 (354)	683 (276)	500 (48)
Planned dates to inform applicants after each step	5 May 2025 22 August 2025	18 July 2025 12 December 2025	30 January 2026 12 June 2026	14 April 2025 15 August 2025 27 October 2025
Indicative date for signature of grant agreements	21 December 2025	12 April 2026	17 November 2026	24 March 2026

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European Research Council (ERC)

Summary of complementary funding with indicative budget and timetable[67]

	Proof of Concept Grant (call)
Call identifier	ERC-2025-PoC
Type of action	ERC frontier research grant
Opening of the call	13 November 2024
Cut-off dates or deadline(s) for application	13 March 2025 18 September 2025
Budget EUR (estimated number of grants)	30 000 000 (200)
Planned dates to inform applicants	26 June 2025 14 January 2026
Indicative date for signature of grant agreements	24 October 2025 14 May 2026

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European Research Council (ERC)

Indicative Budget

	2025 budget in EUR million		
Main Frontier Research Grants	2,652.30	2.652,30	97,9%
ERC-2025-StG	751.10	751,10	27,7%
ERC-2025-CoG	718.70	718,70	26,5%
ERC-2025-AdG	682.50	682,50	25,2%
ERC-2025-SyG	500.00	500,00	18,4%
Complementary funding for ERC Principal Investigators	30.00	*30,00*	*1,1%*
ERC-2025-PoC	30.00	*30,00*	*1,1%*
Other Actions	23.82	*23,82*	*0,9%*
Experts	21.02[69]	*21,02*	*0,8%*
Coordination and support actions	2.80	*2,80*	*0,1%*
Public procurement	4.10	*4,10*	*0,2%*
Estimated total budget	2,710.22	**2.710,22**	**100,0%**

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European Research Council (ERC)

	2021	2022	2023	2024	2025	TOTAL	(%)
Main frontier grants	1.878,00	2.377,00	2.120,00	2.163,00	2.653,00	**11.191,00**	98,76%
StG	619,00	749,00	628,00	601,00	751,00	**3.348,00**	29,55%
Estimated number	*413*	*502*	*407*	*387*	*483*	*2.192*	
CoG	633,00	776,00	595,00	584,00	719,00	**3.307,00**	29,19%
Estimated number	*317*	*388*	*300*	*291*	*354*	*1.650*	
AdG	626,00	555,00	597,00	578,00	683,00	**3.039,00**	26,82%
Estimated number	*250*	*223*	*246*	*237*	*276*	*1.232*	
SyG		297,00	300,00	400,00	500,00	**1.497,00**	13,21%
Estimated number		*33*	*30*	*39*	*48*	*150*	
Complementary funding	*0,00*	*50,00*	*30,00*	*30,00*	*30,00*	**140,00**	1,24%
PoC		50,00	30,00	30,00	30,00	**140,00**	1,24%
Estimated number		*334*	*200*	*200*	*200*	*934*	
	1.878,00	**2.427,00**	**2.150,00**	**2.193,00**	**2.683,00**	**11.331,00**	**100,00%**

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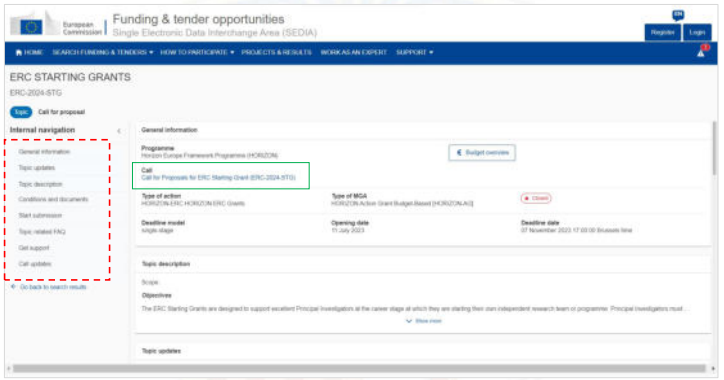
European Research Council (ERC)



- Applications submitted by a **Principal Investigator (PI)** in agreement with a **Host Institution (HI)** which is the applicant legal entity.
- Submission is accepted only via the web-based **Participant Portal Submission Service (PPSS)**

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European Research Council (ERC)

ERC proposal (2025)

- The application procedure consists of a **single submission stage (through a Host Institution).**
- A complete ERC proposal consists of three separate components:
  - **The online administrative 'Proposal submission forms'**
  - **The research proposal (Parts B1 and B2), and**
  - **The supporting documentation (Annexes)**

Part A - Administrative form
1 - General information (Proposal, panel, abstract)
2 - Participants (Host Institution: legal, gender eq. plan; PI, contacts)
3 - Budget (Costs, Resources)
4 - Ethics and security (self-assessments)
5 - Other questions

Part B1 - Proposal details
Cover page, with proposal summary
a) Extended synopsis (5 pages)
b) CV and Track record (4 pages)

Part B2 - Research proposal (14 pages)
a) State-of-the-art and objectives
b) Methodology

Annexes
Letter of commitment (HI); PhD certificate (date of defence); Evidence of extensions

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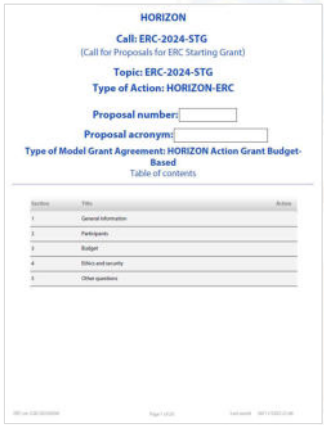
European Research Council (ERC)

ERC proposal (2025)



Part A - Administrative form (on line)*

1 - General information
(Title, acronym, duration, panel, keywords, abstract/2k, resubmission, declarations)

2 - Participant(s)
(Host Institution: legal, gender eq. plan; PI, other contacts)

3 - Budget
(Costs, Resources/8k)

4 - Ethics and security
(Ethics issues table, ethics self-assessment; Security issues table)

5 - Other questions
(PhD date/defence, time commitment,..., reviewers)

(*) Validation function

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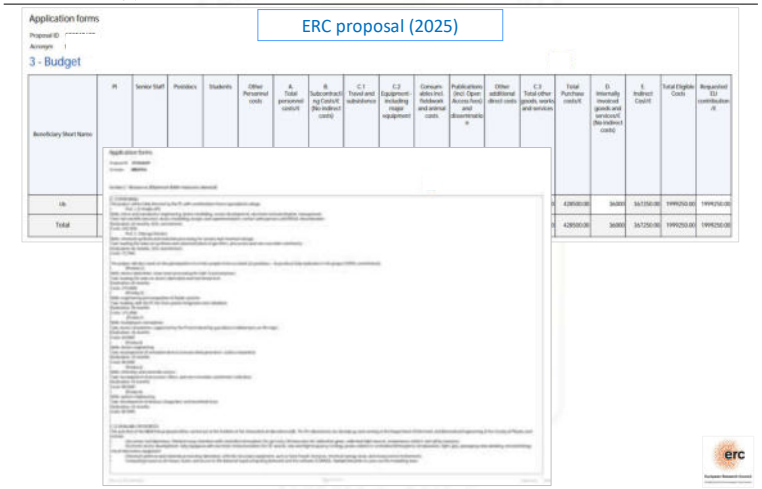
European Research Council (ERC)

ERC proposal (2025)



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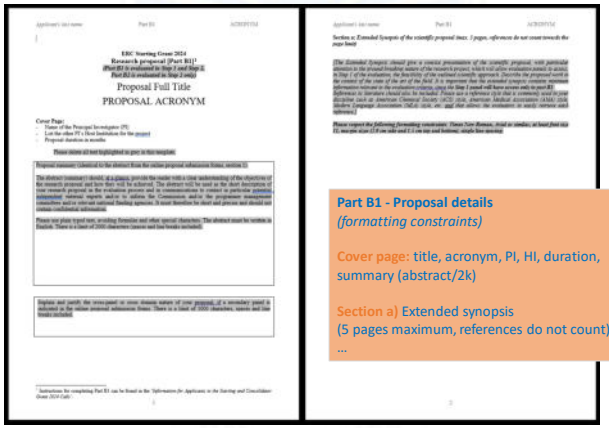
European Research Council (ERC)

ERC proposal 2025 (part B1)



Part B1 - Proposal details
(formatting constraints)

Cover page: title, acronym, PI, HI, duration, summary (abstract/2k)

Section a) Extended synopsis
(5 pages maximum, references do not count)
…

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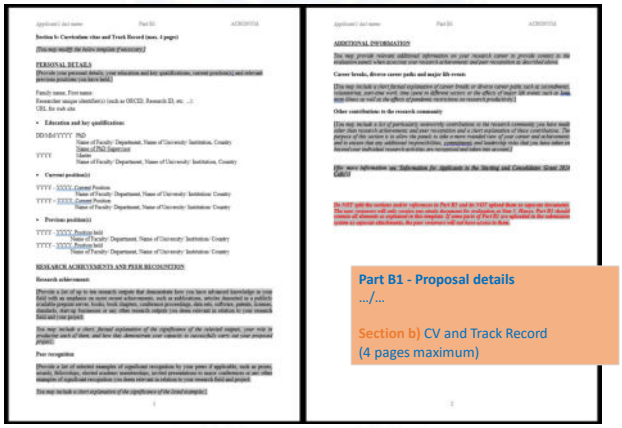
European Research Council (ERC)

ERC proposal 2025 (part B1)



Part B1 - Proposal details
…/…

Section b) CV and Track Record
(4 pages maximum)

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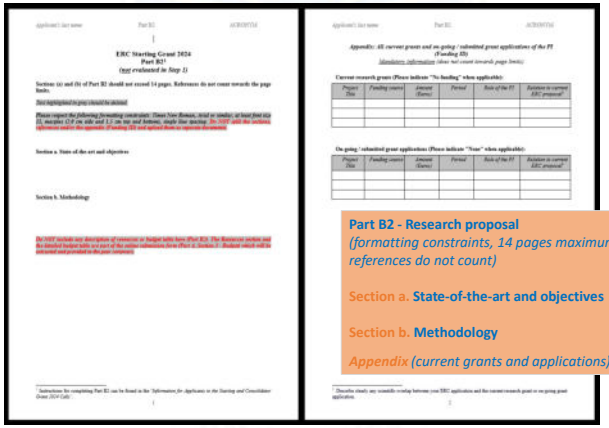
European Research Council (ERC)

ERC proposal 2025 (part B2)



Part B2 - Research proposal
(formatting constraints, 14 pages maximum, references do not count)

Section a. **State-of-the-art and objectives**

Section b. **Methodology**

Appendix (current grants and applications)

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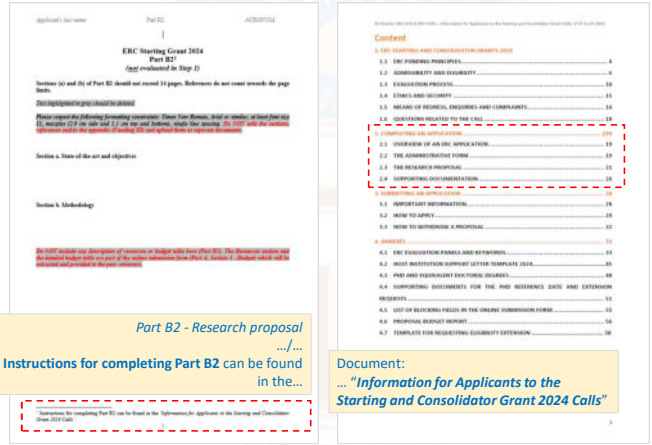
European Research Council (ERC)

ERC proposal 2025 (part B2)



Part B2 - Research proposal
…/…
Instructions for completing Part B2 can be found in the…

Document:
… "***Information for Applicants to the Starting and Consolidator Grant 2024 Calls***"

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European Research Council (ERC)

Elegibility

		Horizon Europe (2021-2027)							
	WP20	WP21	WP22	WP23	WP24	WP25	WP26	WP27	WP28
	2020	2021	2022	2023	2024	2025	2026	2027	2028
	2019	2020	2021	2022	2023	2024	2025	2026	2027
	2018	2019	2020	2021	2022	2023	2024	2025	2026
StG	2017	2018	2019	2020	2021	2022	2023	2024	2025
	2016	2017	2018	2019	2020	2021	2022	2023	2024
	2015	2016	2017	2018	2019	2020	2021	2022	2023
	2014	2015	2016	2017	2018	2019	2020	2021	2022
	2013	2014	2015	2016	2017	2018	2019	2020	2021
CoG	2012	2013	2014	2015	2016	2017	2018	2019	2020
	2011	2012	2013	2014	2015	2016	2017	2018	2019
	2010	2011	2012	2013	2014	2015	2016	2017	2018
	2009	2010	2011	2012	2013	2014	2015	2016	2017
	2008	2009	2010	2011	2012	2013	2014	2015	2016
AdG	2007	2008	2009	2010	2011	2012	2013	2014	2015
	2006	2007	2008	2009	2010	2011	2012	2013	2014
	...	...	...	...	...	...	...	...	...

** The date of the PhD considered for the calculation of the eligibility period is the date of the successful defence of the first PhD degree.*

Extensions of eligibility window:

(only possible for **StG** and **CoG**, for **properly documented** circumstances*, provided they **started before the call deadline**)

- **Maternity** - 18 months per child (before or after PhD)
- **Paternity** - leave time taken (before or after PhD)
- **National service** - actual time taken (after PhD)
- **Long-term illness**** - actual time taken (after PhD)
- **Disability** - reduced working time and/or degree of disability (after PhD)
- **Clinical training** - time received/4y maximum (after PhD)
- **Major Disaster***** - time unable to work/90d minimum (after PhD)
- **Seeking Asylum** - time unable to work/application (after PhD)

** For applicants whose first eligible degree is their medical degree such incidents can be considered from the date of completion of their medical degree.*

*** Over 90 days for the Principal Investigator or a close family member (child, spouse, parent or sibling).*

**** Natural (earthquakes, floods,...) or human-caused (armed conflicts)*

No limit to the total extension

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European Research Council (ERC)

ERC proposal (WP-2024)

Elegibility: restrictions on resubmissions

Call to which the Principal Investigator applied under previous ERC Work Programmes and proposal evaluation outcome		2024 ERC calls to which a Principal Investigator is *not* eligible
2022 and 2023 Starting, Consolidator, Advanced Grant, or Synergy Grant	Rejected on the grounds of a breach of research integrity	Starting, Consolidator, Advanced, and Synergy Grant
2022 Starting, Consolidator, or Advanced Grant	C at Step 1	Starting, Consolidator, and Advanced Grant
2023 Starting, Consolidator, or Advanced Grant	A or B at Step 2	No restrictions
	B or C at Step 1	Starting, Consolidator, and Advanced Grant
2022 and 2023 Synergy Grant	A or B at Step 3	No restrictions
	B at Step 1 or 2	No restrictions
	C at Step 1	Synergy Grant

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European Research Council (ERC)

Physical Sciences & Engineering

- PE1 Mathematics (22)
- PE2 Fundamental Constituents of Matter (18)
- PE3 Condensed Matter Physics (16)
- PE4 Physical and Analytical Chemical Sciences (18)
- PE5 Synthetic Chemistry and Materials (18)
- PE6 Computer Science and Informatics (14)
- PE7 Systems and Communication Engineering (12)
- PE8 Products and Process Engineering (14)
- PE9 Universe Sciences (13)
- PE10 Earth System Science (21)
- PE11 Materials Engineering (14)

Life Sciences

- LS1 Molecules of Life: Biological Mechanisms, Structures and Functions (14)
- LS2 Integrative Biology: From Genes and Genomes to Systems (16)
- LS3 Cell Biology, Development, Stem Cells and Regeneration (17)
- LS4 Physiology in Health, Disease and Ageing (13)
- LS5 Neuroscience and Disorders of the Nervous System (18)
- LS6 Immunity, Infection and Immunotherapy (11)
- LS7 Prevention, Diagnosis and Treatment of Human Diseases (15)
- LS8 Environmental Biology, Ecology and Evolution (15)
- LS9 Biotechnology and Biosystems Engineering (12)

Social Sciences and Humanities

- SH1 Individuals, Markets and Organisations (16)
- SH2 Institutions, Governance and Legal Systems (9)
- SH3 The Social World and its Interactions (12)
- SH4 The Human Mind and Its Complexity (11)
- SH5 Texts and Concepts (11)
- SH6 The Study of the Human Past (14)
- SH7 Human Mobility, Environment, and Space (10)
- SH8 Studies of Cultures and Arts (9)

Evaluation Panels (each): Chair and 10 - 16 Members

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European Research Council (ERC)


Annex 1

Primary panel structure

Physical Sciences & Engineering

PE1 Mathematics
All areas of mathematics, pure and applied, plus mathematical foundations of computer science, mathematical physics, and statistics.

PE2 Fundamental Constituents of Matter
Particle, nuclear, plasma, atomic, molecular, gas, and optical physics.

PE3 Condensed Matter Physics
Structure, electronic properties, fluids, nanosciences, biological physics.

PE4 Physical and Analytical Chemical Sciences
Analytical chemistry, chemical theory, physical chemistry/chemical physics.

PE5 Synthetic Chemistry and Materials
New materials and new synthetic approaches, structure-properties relations, solid state chemistry, molecular architecture, organic chemistry.

PE6 Computer Science and Informatics
Theoretical and experimental computer science, information processing, intelligent systems.

PE7 Systems and Communication Engineering
Electrical, electronic, communication, optical and systems engineering.

PE8 Products and Processes Engineering
Product and process design, chemical, civil, environmental, mechanical, vehicle engineering, energy processes and relevant computational methods.

PE9 Universe Sciences
Astro-physics/-chemistry/-biology; solar system; planetary systems; stellar, galactic and extragalactic astronomy; cosmology; space sciences; astronomical instrumentation and data.

PE10 Earth System Science
Physical geography, geology, geophysics, atmospheric sciences, oceanography, climatology, cryology, ecology, global environmental change, biogeochemical cycles, natural resources management.

PE11 Materials Engineering
Advanced materials development: performance enhancement, modelling, large-scale preparation, modification, tailoring, optimisation, novel and combined use of materials, etc.

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European Research Council (ERC)

PE9 Universe Sciences

Astro-physics/-chemistry/-biology; solar system; planetary systems; stellar, galactic and extragalactic astronomy; cosmology; space sciences; astronomical instrumentation and data

PE9_1	Solar physics – the Sun and the heliosphere
PE9_2	Solar system science
PE9_3	Exoplanetary science, formation and characterization of extrasolar planets
PE9_4	Astrobiology
PE9_5	Interstellar medium and star formation
PE9_6	Stars – stellar physics, stellar systems
PE9_7	The Milky Way
PE9_8	Galaxies – formation, evolution, clusters
PE9_9	Cosmology and large-scale structure, dark matter, dark energy
PE9_10	Relativistic astrophysics and compact objects
PE9_11	Gravitational wave astronomy
PE9_12	High-energy and particle astronomy
PE9_13	Astronomical instrumentation and data, e.g. telescopes, detectors, techniques, archives, analyses

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European Research Council (ERC)

Evaluation criteria (WP-2025)

1. Research Project : Ground-breaking nature, ambition and feasibility

Ground-breaking nature and potential impact of the research project

- To what extent does the proposed research address **important scientific challenges**?
- To what extent are the objectives **ambitious and beyond the state of the art**?
  (*e.g. novel concepts and approaches or development between or across disciplines*)

Scientific Approach

- To what extent is the outlined scientific approach **feasible bearing in mind the ground-breaking nature and ambition of the proposed research**? *(based on the Extended Synopsis, B1)*
- To what extent are the proposed research methodology and working arrangements **appropriate to achieve the goals** of the project? (*based on the research proposal, B2*)
- To what extent are the proposed **timescales, resources and PI commitment** adequate and properly justified? (*based on the research proposal, B2*)

2. Principal Investigator : Intellectual capacity and creativity

Starting, Consolidator, Advanced and Synergy

- To what extent has/have the PI(s) demonstrated the **ability to conduct ground-breaking research**?
- To what extent does/do the PI(s) provide evidence of **creative and original thinking**?
- To what extent does/do the PI(s) have the required **scientific expertise and capacity to successfully execute** the project?

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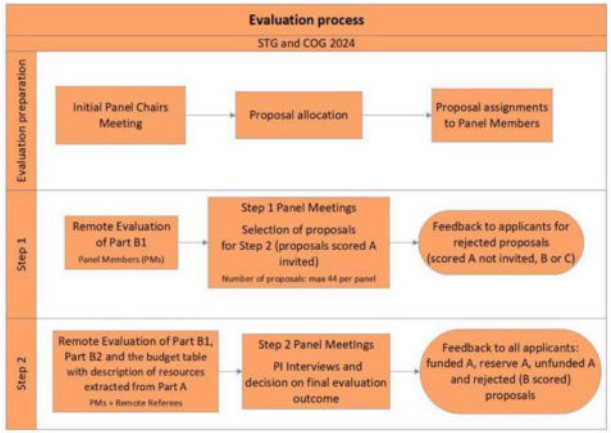
European Research Council (ERC)



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European Research Council (ERC)

Some suggestions:

- Allow **sufficient time** to prepare your application
- Make full use of **all the support available (Institutional, personal,…)**
- …/…
- Read the **guidelines** (several documents) and consider when to apply
- Review the **funded proposals** (within a particular call/topic/panel)
- Respect the page limits and **proof-read** your proposal well
- **Easy to read** proposal -consider structure and layout
- **Accessible and convincing** to specialists and non-specialists:
  - What is the problem that needs to be solved?
  - Why is it significant?,… Be specific
  - What makes your approach ground-breaking?,… sell your proposal
  - Provide "irrefutable evidence" of excellence and impact
  - Plan to mitigate the risk
- Get **feedback from peers**
- **Double and triple check** that all documents are correct and have been submitted
- Submit **well in advance** of the deadline -*you can overwrite any version with a new one*

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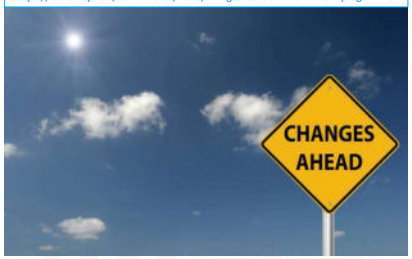
European Research Council (ERC)

Changes to the 2026 and 2027 Work Programmes
(ERC Press release, 02/06/2025)

https://erc.europa.eu/news-events/news/changes-2026-and-2027-work-programmes



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Thank you
Gràcies
Gracias

Armando J Palomar
International Research Advisor
a.palomar@ub.edu

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School on transferable skills: managing, entrepreneurial and IPR

"How to prepare scientific proposals (international competitive calls)"

Armando J Palomar
International Research Advisor
Area of Sciences and Engineering, University of Barcelona

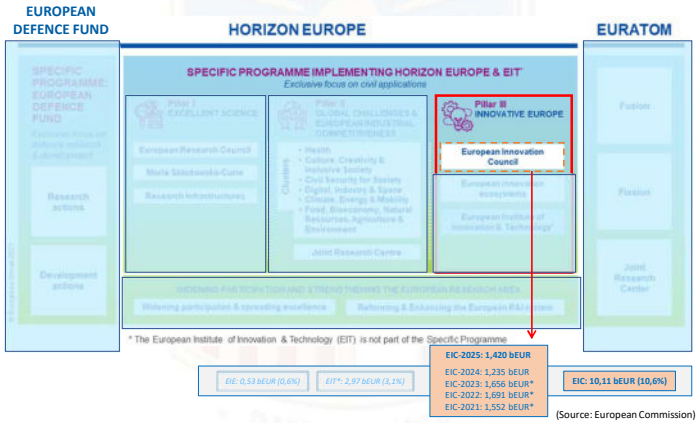
1

European Innovation Council

European Innovation Council (EIC)

2

Horizon EUROPE (2021-2027), the most ambitious EU R&I programme ever



(Source: European Commission)

3

European Innovation Council (EIC)

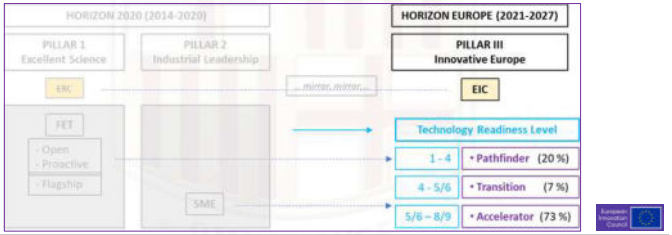
EIC: **H2020 pilot phase** (2018-2020) and **Horizon Europe** (2021-2027)

The **EIC pilot phase (2018-2020)**, incorporated in a single work programme instruments existing under the **H2020** programme, to provide direct support to innovators throughout Europe, in particular:

- the **Future & Emerging Technology (FET)** programme **(pilar 1 - H2020)** and
- the **SME** instrument **(pilar 2 - H2020)**

The **EIC pilot phase, together with the existing instruments**:

- supported **430+ projects on FET**, involving **2700+ partners**, and
- generated **3000+** peer reviewed scientific articles, **600+** innovations, and **100+** patents.
- also **5700+** start-ups and SMEs, who have raised over **€5 billion** in follow up investments (3 euro for every euro from the EU budget) and on average, more than doubled the number of employees in a year period.



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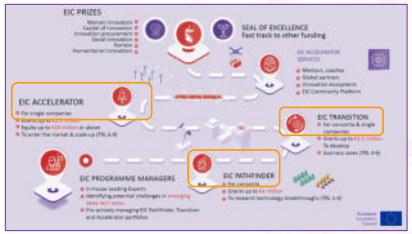
European Innovation Council (EIC)

Under **Horizon Europe (2021-2027)**, the EIC provides financial support through **three main instruments**:

- **'Pathfinder'** for advanced research on breakthrough/game-changing technologies,
- **'Transition'** for transforming research results into innovation opportunities,
- **'Accelerator'** for single companies to develop and scale up breakthrough innovations with high risk and high impact.



https://eic.ec.europa.eu/index_en

5

European Innovation Council (EIC)

European Innovation Council: what is it?

The **EIC Board** is established by the Horizon Europe legislation, with a mandate to advise on:

- Overall **strategy** for the EIC
- The EIC **Work Programme** for implementation
- Identification of strategic **portfolios of projects** and the profile of EIC **Programme Managers**
- Other actions to improve the **European innovation ecosystem**

The members of the **EIC Board,** including a President, are selected by an open call for expressions of interest.
They are **20 independent members** appointed from the world of innovation (entrepreneurs, researchers, investors, corporates and others from the innovation ecosystem).

The **EIC and SME Executive Agency (EISMEA)** responsible for supporting the EIC Board and its President, and for implementing the EIC's activities which are set out in an annual **EIC Work Programme**.

The EIC aims to identify and **support breakthrough technologies** and **game changing innovations** to create new markets and scale up internationally

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European Innovation Council (EIC)

EIC Portfolios and Programme Managers

Programme Managers (PMs) have two overarching **priorities**:

- Identify **potential challenges** for emerging technologies and disruptive innovations, stakeholder/expert engagement and strategic intelligence.
- Pro-active management of **selected portfolios and projects**.

For Pathfinder Open, PMs may draw relevant projects into portfolio discussions. For Pathfinder challenges, PMs develop with the portfolio projects a common roadmap with activities that benefit all, such as data sharing, market analysis and contacts with investors.

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European Innovation Council (EIC)

EIC annual Work Programme

8

European Innovation Council (EIC)

EIC annual budgets (2021-2025)

	2021	2022	2023	2024	2025	TOTAL	(%)
Main funding	1.505,40	1.674,30	1.606,20	1.027,00	994,00	**6.806,90**	89,47%
Pathfinder Open	180,20	197,20	179,00	138,00	142,00	**836,40**	10,99%
Estimated number	*60*	*66*	*62*	*45*	*47*	*280*	
Pathfinder Challenges	146,80	178,20	163,50	120,00	120,00	**728,50**	9,58%
Estimated number	*42*	*49*	*43*			*134*	
Pathfinder	327,00	375,40	342,50	258,00	262,00	**1.564,90**	20,57%
Transition Open	59,60	70,90	67,90	94,00	98,00	**390,40**	5,13%
Transition Challenges	40,50	60,10	60,50	0,00	0,00	**161,10**	2,12%
Transition	100,10	131,00	128,40	94,00	98,00	**551,50**	7,25%
Accelerator Open	582,50	631,00	611,80	375,00	384,00	**2.584,30**	33,97%
Accelerator Challenges	495,80	536,90	523,50	300,00	250,00	**2.106,20**	27,69%
Accelerator	1.078,30	1.167,90	1.135,30	675,00	634,00	**4.690,50**	61,65%
Complementary funding	*73,30*	*42,50*	*49,50*	*210,00*	*425,50*	**800,80**	10,53%
	1.578,70	**1.716,80**	**1.655,70**	**1.237,00**	**1.419,50**	**7.607,70**	**100,00%**

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European Innovation Council (EIC)

EIC annual Work Programme 2025

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European Innovation Council (EIC)

EIC annual Work Programme 2025

Table 1. Summary of main calls in 2025 12

Call	Who can apply	What for
EIC Pathfinder	Open call: only consortia can apply. Challenges call: smaller consortia (at least two eligible entities) or single applicants as well as larger consortia.	Open Call: Grants up to EUR 3 million. Challenge Call: Grants up to EUR 4 million. Higher amounts if duly justified. Projects to achieve the proof of principle and validate the scientific basis of breakthrough technologies (starting from early TRLs aiming at achieving TRL3 or 4)
EIC Transition	Single applicants (SMEs, spin-offs, start-ups, research organisations, universities) or small consortia (minimum 2, maximum 5 eligible entities)	Grants of up to EUR 2.5 million to validate and demonstrate technology in application-relevant environment (starting at TRL 3/ 4 aiming at achieving TRL 5/ 6) and develop business and market readiness.
EIC Accelerator	Single start-ups and SMEs (including spin-offs), individuals (intending to launch a start-up/ SME) and in some cases small mid-caps (fewer than 499 employees).	Grant component below EUR 2.5M for innovation activities (TRL 6 to 8) Investment component of EUR 0.5 up to 10 million for scaling up and other activities. Grant only and investment only component under certain conditions.
EIC Accelerator – STEP scale-up call	Single startups and SMEs, small mid-caps, investors on behalf of eligible companies	Investment component of EUR 10 up to 30 million for scaling up strategic technologies for Europe.

Technology Readiness Level

1 - Basic principles observed
2 - Technology concept formulated
3 - Experimental proof of concept
4 - Technology validated in lab

4 - Technology validated in lab
5 - Technology validated in relevant environment
6 - Technology demonstrated in relevant environment

5 - Technology validated in relevant environment
6 - Technology demonstrated in relevant environment
7 - System prototype in operational environment
8 - System complete and qualified
9 - Actual system proven in operational environment

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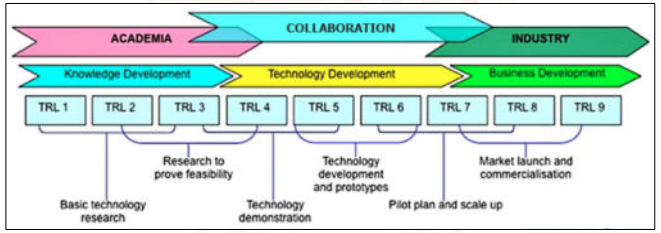
Technology readiness levels (TRL)

TRL 1 – Basic **principles observed**
TRL 2 – Technology **concept formulated**
TRL 3 – Experimental **proof of concept**
TRL 4 – Technology **validated in lab**
TRL 5 – Technology **validated in relevant environment**
(industrially relevant environment in the case of key enabling technologies)
TRL 6 – Technology **demonstrated in relevant environment**
(industrially relevant environment in the case of key enabling technologies)
TRL 7 – **System prototype demonstration** in operational environment
TRL 8 – **System complete** and qualified
TRL 9 – Actual **system proven in operational environment**
(competitive manufacturing in the case of key enabling technologies; or in space)



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Universitat de Barcelona – Àrea de Ciències i Enginyeries

Technology readiness levels (TRL)

Bosch i Gimpera – Universitat de Barcelona

Annex 1: TRLs Overview Table

Cluster	TRL	H2020 terminology	EARTO reading	EARTO definition and description
Invention	TRL1	Basic principles observed	Basic principles observed	Basic scientific research is translated into potential new basic principles that can be used in new technologies
	TRL2	Technology concept formulated	Technology concept formulated	Potential application of the basic (technological) principles are identified, including their technological concept. Also the first manufacturing principles are explored, as well as possible markets identified. A small research team is established to facilitate assessment of technological feasibility.
Concept validation	TRL3	Experimental proof of concept.	First assessment of feasibility of the concept and technologies	Based on preliminary study, now actual research is conducted to assess technical and market feasibility of the concept. This includes active R&D on a laboratory scale and first discussions with potential clients. The research team is further expanded and early market feasibility assessed.
	TRL4	Technological validity in a lab	Validation of integrated prototype in a laboratory	Basic technological components are integrated to assess early feasibility by testing in a laboratory environment. Manufacturing is actively researched, identifying the main production principles. Lead markets are engaged to ensure connection with demand. Organisation is prepared to enter into scale up, possible services prepared and a full market analysis conducted.
Prototyping and incubation	TRL5	Technology validated in relevant environment (industrially relevant environment in the case of KETs)	Testing of the prototype in a user environment	The system is tested in a user environment, connected to the broader technological infrastructure. Actual use is tested and validated. Manufacturing is prepared and tested in a laboratory environment and lead markets can test pre-production products. Fist activities within the organisation are established to further scale up to pilot production and marketing
Pilot production and demonstration	TRL6	Technology demonstrated in relevant environment (industrially relevant environment in the case of KETs)	Pre-production of the product, including testing in a user environment	Product and manufacturing technologies are now fully integrated in a pilot line or pilot plant (low rate manufacturing). The interaction between the product and manufacturing technologies are assessed and fine-tuned, including additional R&D. Lead markets test the early products and manufacturing process and the organisation of production is made operational (including marketing, logistics, production and others).
	TRL7	System prototype demonstration in an operational environment.	Low scale pilot production demonstrated	Manufacturing of the product is now fully operational at low rate, producing actual commercial products. Lead markets test these finai products and organisational implementation is finalized (full marketing established, as well as all other production activities fully organized). The product is formally launched into first early adopter markets.
Initial market introduction	TRL8	System completed and qualified	Manufacturing fully tested, validated and qualified	Manufacturing of the product, as well as the product final version is now fully established, as well as the organisation of production and marketing. Full launch of the product is now established in national and general early majority markets.
Market expansion	TRL9	Actual system proven in operational environment (competitive manufacturing in the case of KETs; or in space)	Production and product fully operational and competitive	Full production is sustained, product expanded to larger markets and incremental changes in the product create new versions. Manufacturing and overall production is optimized by continuous incremental innovations to the process. Early majority markets are fully addressed.

Source: EARTO (European Association of Research and Technology Organisations)

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Universitat de Barcelona – Àrea de Ciències i Enginyeries

European Innovation Council (EIC)

Bosch i Gimpera – Universitat de Barcelona

EIC annual Work Programme 2025

Table 1. Summary of main calls in 2025 [2]

Call	Who can apply	What for	EIC Open: Deadlines	EIC Open: Indicative Budget (EUR million)	EIC Challenge	EIC Challenges: Deadlines/ Cut-offs	EIC Challenges: Indicative Budget (EUR million)
EIC Pathfinder	Open call: only consortia can apply. Challenges call: smaller consortia (at least two eligible entities) or single applicants as well as larger consortia	Open Call: Grants up to EUR 3 million. Challenge Call: Grants up to EUR 4 million. Higher amounts if duly justified. Projects to achieve the proof of principle and validate the scientific basis of breakthrough technologies (starting from early TRLs aiming at achieving TRL3 or 4)	21 May 2025	142	Biotech for Climate Resilient Crops and Plant-Based Biomanufacturing Generative-AI based Agents to Revolutionize Medical Diagnosis and Treatment of Cancer Towards autonomous robot collectives delivering collaborative tasks in dynamic unstructured construction environments Waste-to-value devices - circular production of renewable fuels, chemicals and materials	29 October 2025	120
EIC Transition	Single applicants (SMEs, spin-offs, start-ups, research organisations, universities) or small consortia (minimum 2, maximum 5 eligible entities).	Grants of up to EUR 2.5 million to validate and demonstrate technology in application-relevant environment (starting at TRL 3/ 4 aiming at achieving TRL 5/ 6) and develop business and market readiness.	17 September 2025	98			
EIC Accelerator	Single start-ups and SMEs (including spin-offs), individuals (intending to launch a start-up)/ SME) and in some cases small mid-caps (fewer than 499 employees).	Grant component below EUR 2.5M for innovation activities (TRL 6 to 8) Investment component of EUR 0.5 up to 10 million for scaling up and other activities. Grant only and investment only component under certain conditions.	Short applications: any time (continuous) Full applications: 12 March 2025, 1 October 2025	384	Acceleration of advanced materials development and upscaling along the value chain Biotechnology -driven low emission food production systems GenAI4EIC Creating European Champions in Generative AI Innovative in-space servicing, operations, space-based robotics and technologies for resilient EU space infrastructure Breakthrough innovations for future mobility	12 March 2025, 1 October 2025	250
EIC Accelerator – STEP scale-up call	Single startups and SMEs, small mid-caps, investors on behalf of eligible companies	Investment component of EUR 10 up to 30 million for scaling up strategic technologies for Europe.	Any time (continuous)	300			

[2] This table provides a simplified overview. All applicants need to read the relevant sections for the full information on eligibility and conditions for funding, including Annex 2. As affiliated entities do not sign the grant agreement, they do not count towards the minimum eligibility criteria for consortium composition (if any). The Director-General responsible for the call may decide to open the calls up to one month prior to or after the envisaged date(s) of opening. The Director-General responsible may delay the call deadline(s) by up to two months.

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European Innovation Council (EIC)

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EIC Pathfinder

What is the EIC Pathfinder?

The **EIC Pathfinder**

- funds **research** to develop the **scientific basis** to underpin breakthrough technologies
- supports the **earliest stages** of scientific, technological or deep-tech R&D
- aims to build on new, **cutting-edge directions in science and technology** to disrupt a field and a market or create new opportunities
- realises innovative technological solutions to identify, develop and scale up **breakthrough technologies** and **disruptive innovations** in Europe

Funding schemes

EIC Pathfinder Open to support projects in any field of science, technology or application without predefined thematic priorities ('bottom-up')

EIC Pathfinder Challenges to support coherent portfolios of projects within predefined thematic areas with the aim to achieve specific objectives for each Challenge

EIC Pathfinder Open: Gatekeepers

Collaborative, **interdisciplinary research**, meeting the following Gatekeepers:

- **convincing, long-term vision of a radically new technology** that has the potential to have a transformative positive effect to our economy and society;
- **concrete, novel and ambitious science-towards-technology breakthrough**, providing advancement towards the envisioned technology;
- **high-risk & high-gain research approach & methodology**, with concrete and plausible objectives.

Expected output | Open projects

- **Proof of principle** that the **main ideas of the envisioned future technology are feasible**, thus validating its scientific and technological basis
- Project results should include **top-level scientific publications** in open access
- Projects are expected to take the necessary measures to **allow future uptake to take place**, for instance through an **adequate formal protection of the generated Intellectual Property (IP)** and **an assessment of relevant aspects related to regulation, certification, and standardization.**
- Projects are encouraged to involve and empower **key actors in their teams** that have the potential to **become future leaders** in their field such as excellent early-career researchers or promising high-tech SMEs including start-ups
- Projects are also encouraged to **empower female researchers** and to achieve gender balance among the work package leaders

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Universitat de Barcelona – Àrea de Ciències i Enginyeries

European Innovation Council (EIC)

Bosch i Gimpera – Universitat de Barcelona

Pathfinder **Challenges:** EIC annual Work Programmes 2021-2025

For the identification of EIC Challenges, **yearly EIC Emerging Technologies reports** will be published to provide a multi-annual perspective and an overall assessment of opportunities stemming from the latest scientific, technological and innovative advancements as well as relevant policy, industrial, societal and market drivers. These reports will provide **important considerations** for the process of identifying EIC Challenges for future Work Programmes. It is however important that the EIC can react quickly to new developments and hence the selection of EIC Challenges will **not be restricted** to the areas identified by these reports.

2021 (132M; 41)
- Awareness inside (8)
- Tools to measure & stimulate activity in brain tissue (10)
- Emerging Technologies in Cell & Gene Therapy (8)
- Novel routes to green hydrogen production (9)
- Engineered living materials (6)

2022 (167M; 49)
- Carbon dioxide & Nitrogen management and valorisation (8)
- Mid-long term, systems-integrated energy storage (8)
- Cardiogenomics (7)
- Healthcare Continuum tecnologies (9)
- DNA-based digital data storage (9)
- Alternative Quantum Information Processing, Communication, and Sensing (8)

2023 (164M; 43)
- Clean and efficient cooling (...)
- Construction digitalisation (...)
- Precision nutrition (...)
- Responsible electronics (...)
- In-space solar energy (...)

2024 (120M; *40*)
- "Solar-to-X" devices Towards cement and concrete as a carbon sink (...)
- Nature inspired alternatives for food packaging and films (...)
- Nanoelectronics for energy-efficient smart edge devices (...)
- Protecting EU space infrastructure (...)

2025 (120M; *40*)
- Biotech for Climate Resilient Crops and Plant-Based Biomanufacturing
- Generative-AI based Agents to Revolutionize Medical Diagnosis and Treatment of Cancer
- Towards autonomous robot collectives delivering collaborative tasks in dynamic unstructured construction environments
- Waste-to-value devices - Circular production of renewable fuels, chemicals and materials

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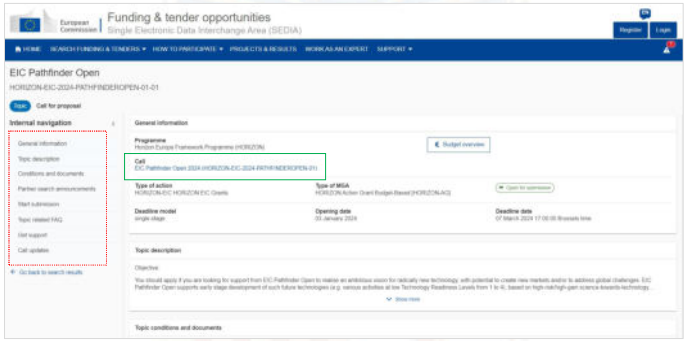
European Innovation Council (EIC)

EIC Pathfinder Open calls: EC Funding & Tender Portal



- Applications submitted by a **Principal Investigator (PI)** of a **Coordinating Institution** which is the applicant legal entity, on behalf of a **Consortium**.
- Submission is accepted only via the web-based **Participant Portal Submission Service (PPSS)**

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European Innovation Council (EIC)

EIC Pathfinder Open calls: application form

- A complete EIC proposal consists of:
- **The online administrative forms (Part A)**
- **the research proposal (Part B), and**
- **the supporting documents (Annexes)**

Part A - Administrative form

1 - **General information** (Acronym, title, duration, keywords, abstract, declarations)
2 - **Participants** (Institutions: legal, contacts, role, gender eq. plan, researchers, publications, projects, infrastructures)
3 - **Budget** (Cost items)
4 - **Ethics and security** (tables, self-assessments)
5 - **Other questions**

Annexes to Part B
(most common, with standard templates):
- CLINICAL TRIALS
- CALLS FLAGGED AS SECURITY SENSITIVE
- ETHICS *(additional to A-form)*

Part B - Technical description (20 pages max.)

1. EXCELLENCE
1.1 Long-term vision
1.2 Science-towards-technology breakthrough
1.3 Objectives
1.4 Interdisciplinarity

2. IMPACT
2.1 Long-term impact
2.2 Innovation potential
2.3 Communication and dissemination

3. QUALITY AND EFFICIENCY OF THE IMPLEMENTATION
3.1 Work plan and allocation of resources
- *Table 3.1a: List of work packages*
- *Table 3.1b: Work package description*
- *Table 3.1c: List of deliverables*
- *Table 3.1d: List of milestones*
- *Table 3.1e: Critical risks for implementation*
- *Table 3.1f: Summary of staff effort*
- *Table 3.1g: 'Subcontracting costs' items*
- *Table 3.1h: 'Purchase costs' items (travel and subsistence, equipment and other goods, works and services)*
- *Table 3.1i: 'Other costs categories' items (e.g. internally invoiced goods and services)*
- *Table 3.1j: 'In-kind contributions' provided by third parties*

3.2 Quality of the consortium

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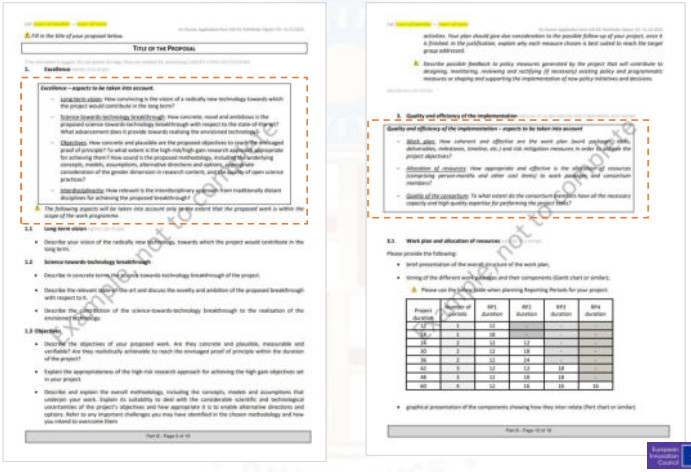
EIC Pathfinder Open: template (part B)



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EIC - Pathfinder Open Award criteria 2025

Excellence	Impact	Quality and efficiency of the implementation
Long-term vision: How convincing is the vision of a radically new technology and relevant potential solutions, towards which the project would contribute in the long term? **Science-towards-technology breakthrough:** How concrete, novel and ambitious is the proposed science-towards-technology breakthrough with respect to the state-of-the-art? What advancement does it provide towards realising the envisioned technology? **Objectives:** How concrete and plausible are the proposed objectives to reach the envisaged proof of principle? To what extent is the high-risk/high-gain research approach appropriate for achieving them? How sound is the proposed methodology, including the underlying concepts, models, assumptions, alternative directions and options, appropriate consideration of the gender dimension in research content, and the quality of open science practices? **Interdisciplinarity:** How relevant is the interdisciplinary approach from traditionally distant disciplines for achieving the proposed breakthrough?	**Long-term impact:** How significant are the potential transformative positive effects that the envisioned new technology would have to our economy, environment and society? **Innovation potential:** To what extent does the envisioned new technology have potential for generating disruptive innovations in the future and for creating new markets? How adequate are the proposed measures for protection of results and any other exploitation measures to facilitate future translation of research results into innovations? How suitable are the proposed measures for involving and empowering key actors that have the potential to take the lead in translating research into innovations in the future? **Communication and Dissemination:** How suitable are the measures to maximise expected outcomes and impacts, including scientific publications, communication activities, for raising awareness about the project results' potential to establish new markets and/or address global challenges?	**Work plan:** How coherent and effective are the work plan (work packages, tasks, deliverables, milestones, timeline, etc.) and risk mitigation measures in order to achieve the project objectives? **Allocation of resources:** How appropriate and effective is the allocation of resources (comprising person-months and other cost items) to work packages and consortium members? **Quality of the consortium:** To what extent do all the consortium members have the necessary capacity and high-quality expertise for performing the project tasks?
Threshold: **4/5** Weight: **60%**	Threshold: **3,5/5** Weight: **20%**	Threshold: **3/5** Weight: **20%**

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EIC - Pathfinder Challenges Award criteria 2025

Excellence	Impact	Quality and efficiency of the implementation
Objectives and relevance to the Challenge: How clear are the project's objectives? How relevant are they in contributing to the overall goal and the specific objectives of the Challenge? **Novelty:** To what extent is the proposed work ambitious and goes beyond the state-of-the-art? **Plausibility of the methodology:** How sound is the proposed methodology, including the underlying concepts, models, assumptions, appropriate consideration of the gender dimension in research content, and the quality of open science practices?	**Potential Impact:** How credible are the pathways to achieve the expected outcomes and impacts of the Challenge? To what extent would the successful completion of the project contribute to this? **Innovation potential:** How realistic is the proof of principle for demonstrating the potential impact of the technology for the challenge? How adequate are the proposed measures for protection of results and any other exploitation measures to facilitate future translation of research results into innovations with positive societal, economic or environmental impact? How suitable are the proposed measures for involving and empowering key actors that have the potential to take the lead in translating research into innovations in the future? **Communication and Dissemination:** How suitable are the proposed measures, including communication activities, to maximise expected outcomes and impacts for raising awareness about the project results' potential to establish new markets and/or address global challenges?	**Work plan:** How coherent and effective are the work plan (work packages, tasks, deliverables, milestones, timeline, etc) and risk mitigation measures in order to achieve the project objectives? **Allocation of resources:** How appropriate and effective is the allocation of resources (comprising person-months and other cost items) to work packages and consortium members? **Quality of the applicant /consortium** (*depends if mono or multi-beneficiaries*): To what extent does the applicant / do all consortium members have the necessary capacity and high-quality expertise for performing the project tasks?
Threshold: **4/5** Weight: **60%**	Threshold: **3,5/5** Weight: **20%**	Threshold: **3/5** Weight: **20%**

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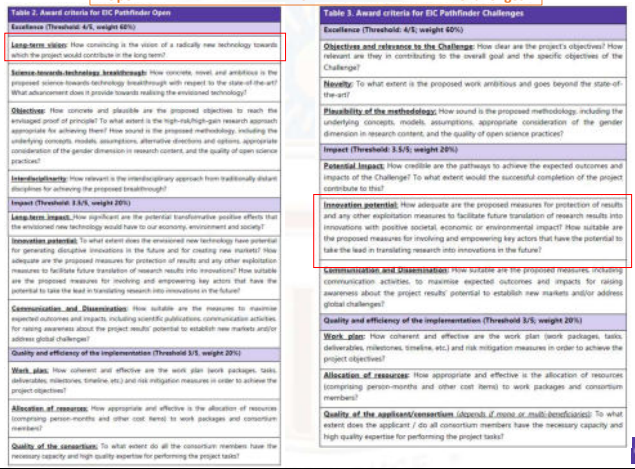
EIC - Pathfinder Award criteria 2024

Open vs Challenges



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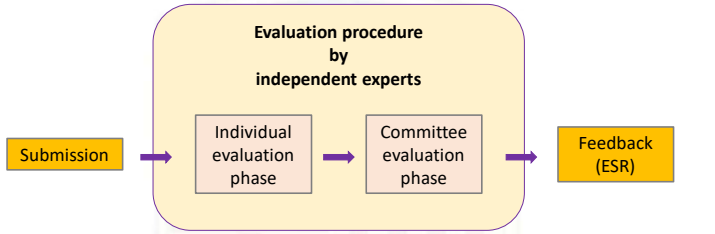
EIC Pathfinder Open: Evaluation procedure



Individual Remote phase:

- EIC expert evaluators (at least four).
- Award criteria: Excellence, Impact, Quality and efficiency of the implementation.
- The remote score for each evaluation criterion will be the median of the evaluators' scores.
- The overall remote score will be the weighted sum of the three median scores from the three evaluation criteria.

Committee evaluation phase:

- EIC expert evaluators (other than those from individual remote phase).
- The final score decided based on the score from the individual evaluation phase and the outcome of the consensus discussions.

EIC evaluators who evaluated and scored the proposals individually may be invited to the consensus discussions (i.e. to clarify diverging evaluators' opinions).

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EIC - Evaluation: award criteria

Same **criteria as in H2020:**
'**Excellence**', '**Impact**' and '**Quality and efficiency of the implementation**'

Adapted, following lessons learnt:

- The number of '**aspects to be taken into account**' have been **reduced**, ensuring that the same aspect is not assessed twice
- Assessment of **management structures** has been **removed**
- **Open Science** practices assessed as part of the scientific methodology in the 'excellence' criterion
- **New approach to impact**: Key Impacts Pathways (**KIPs**)
- The **quality of applicants** is assessed **under 'implementation'**, rather than as a separate binary assessment of operational capacity
- **REMOVED !!!**
  PILOT: **Right-to-react** (**Rebuttal** phase)
  (in Pathfinder evaluation)

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EIC Pathfinder (Open / Challenges)

Some suggestions:

- Allow **sufficient time** to prepare your application
- Make full use of **all the support available (OPIR,…)**
- Consider the **consortium** and your role (**coordinator**?, **partner**?)
- …/…
- Read the **WP and the guidelines** (additional documents) and consider when to apply
- Review the **funded proposals** (within a similar call/topic/challenge)
- Respect the page limits and **proof-read** your proposal well
- **Easy to read** proposal (structure, layout); **accessible and convincing** to innovators
- **Pathfinder"Gatekeepers":**
  - Convincing long-term vision of a **radically new technology**
  - Concrete, **novel and ambitious science-towards-technology breakthrough**
  - **High-risk/high-gain research approach and methodology**, with concrete and plausible objectives
- Get **feedback from peers**
- **Double and triple check** that all documents are correct and have been submitted
- Submit **well in advance** of the deadline -*you can overwrite any version with a new one*

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Thank you
Gràcies
Gracias

Armando J Palomar
International Research Advisor
a.palomar@ub.edu

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School on transferable skills: managing, entrepreneurial and IPR

"How to prepare scientific proposals (international competitive calls)"

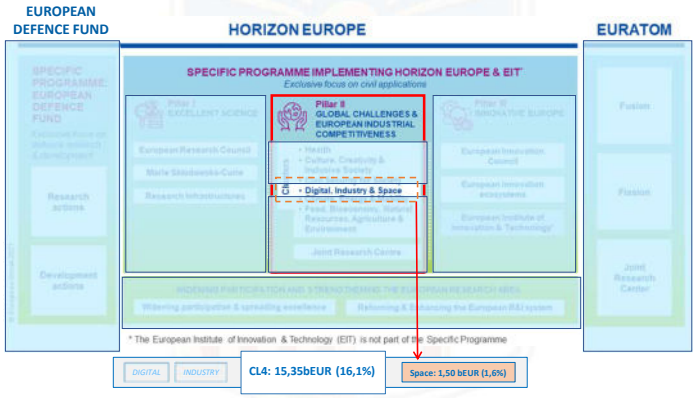
Armando J Palomar
International Research Advisor
Area of Sciences and Engineering, University of Barcelona

1

Cluster 4: Digital, Industry and Space

2

Horizon EUROPE (2021-2027), the most ambitious EU R&I programme ever



(Source: European Commission)

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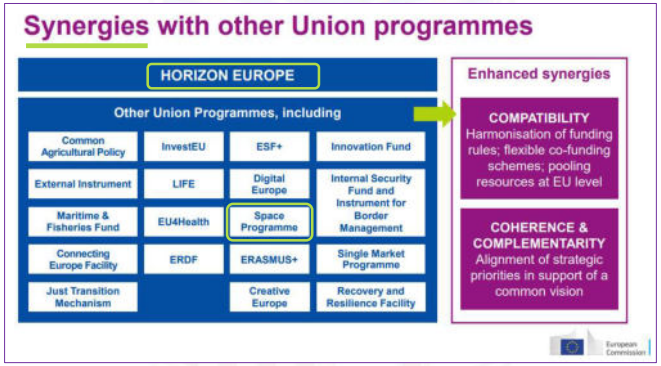
Synergies with other Union programmes



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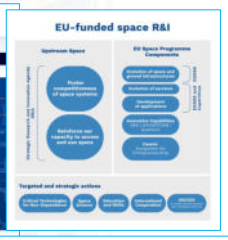
Directorate-General for Defence Industry and Space (DG DEFIS)

https://defence-industry-space.ec.europa.eu/index_en

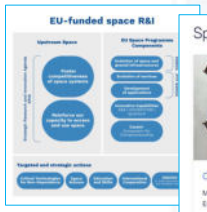


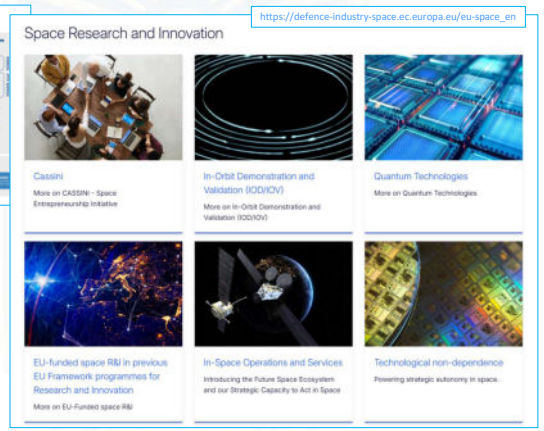
European Union Agency for the Space Programme

5

Directorate-General for Defence Industry and Space (DG DEFIS)

https://defence-industry-space.ec.europa.eu/eu-space_en





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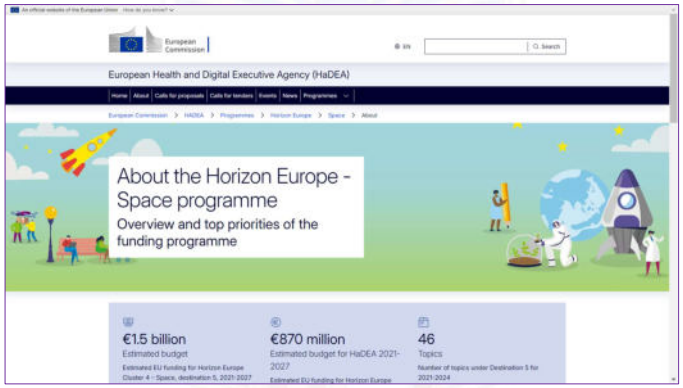
Space Executive Agency: HaDEA



https://hadea.ec.europa.eu/programmes/horizon-europe/space/about_en

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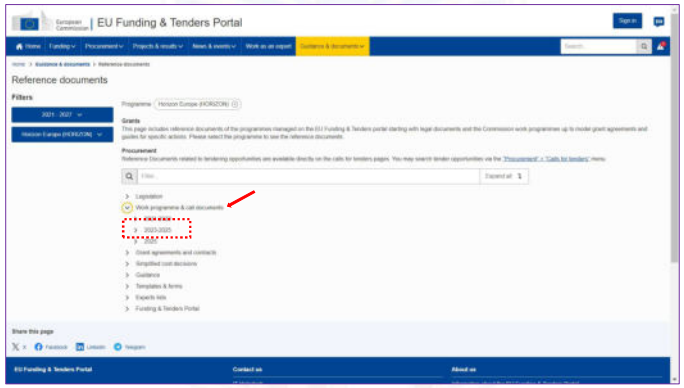
Horizon Europe: Reference Documents



https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/how-to-participate/reference-documents?programmePeriod=2021-2027&frameworkProgramme=43108390

8

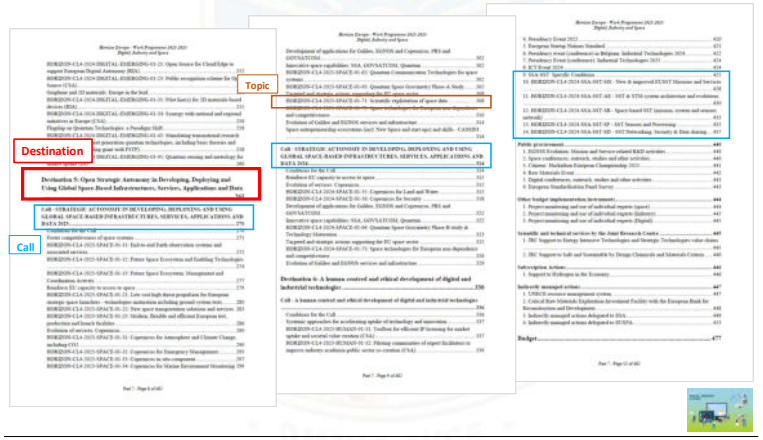
Cluster 4: Digital, Industry and Space

Multiannual Work Programmes

9

Cluster 4: Digital, Industry and Space

Work Programme 2023-2024: **Destination 5 (SPACE)**



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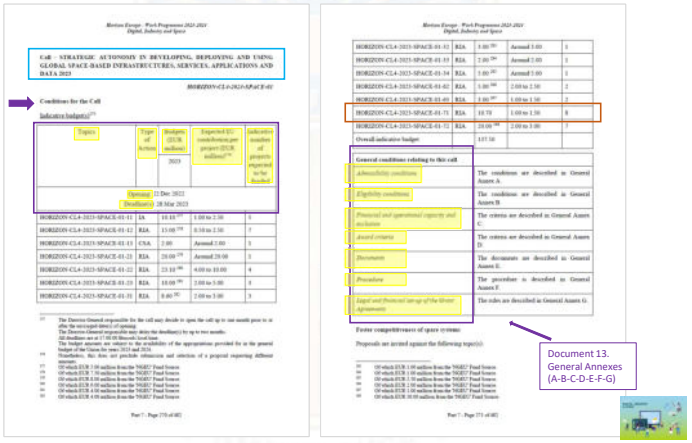
Cluster 4: Digital, Industry and Space

WP 2023-2024: Destination 5 / **Call 2023**



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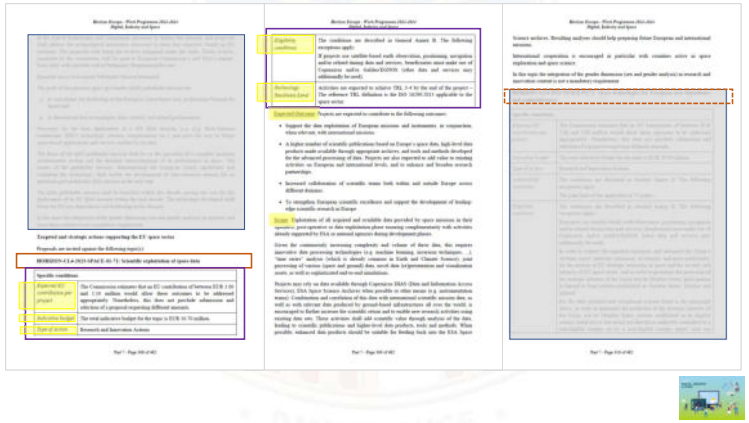
Cluster 4: Digital, Industry and Space

WP 2023-2024: Destination 5 / Call 2023 / **Topic 01-71**



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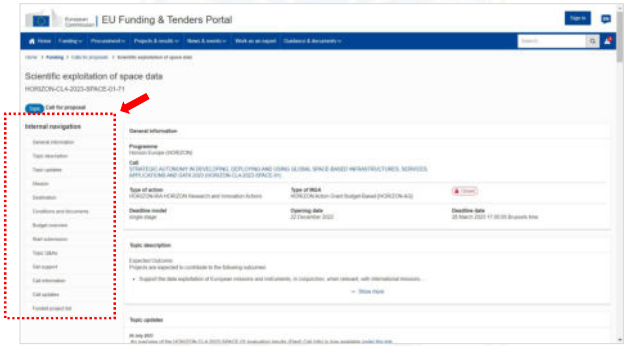
Cluster 4: Digital, Industry and Space

WP 2023-2024: Destination 5 / Call 2023 / **Topic 01-71**



- Applications submitted by a **Principal Investigator (PI)** of a **Coordinating Institution** which is the applicant legal entity, on behalf of a **Consortium**.
- Submission is accepted only via the web-based **Participant Portal Submission Service (PPSS)**

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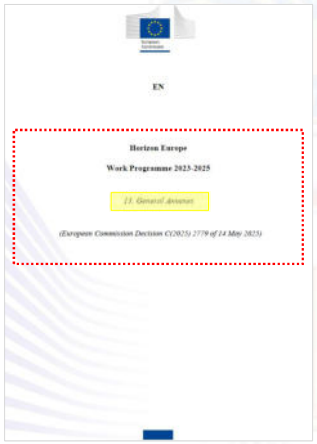
Cluster 4: Digital, Industry and Space

WP 2023-2024: Destination 5 / Call 2023 / Topic 01-71



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Cluster 4: Digital, Industry and Space

GENERAL CONDITIONS

ANNEX A. Admissibility
- *Admissibility*
- *Page limits*

ANNEX B. Eligibility
- *Entities eligible to participate (Affiliated, Associated, without legal personality, EU bodies, JRC, Associations and interest groups, restrictions to be considered)*
- *Entities eligible for funding (Affiliated, Associated, CSA, EU bodies, International organisations)*
- *Consortium composition*
- *Eligible activities*
- *Research and innovation actions (RIA)*
- *Innovation actions (IA)*
- *Coordination and support actions (CSA)*
- *Programme co-fund actions (CoFund)*
- *Innovation and market deployment actions (IMDA)*
- *Training and mobility actions (TMA)*
- *Pre-commercial procurement actions (PCP)*
- *Public procurement of innovative solutions actions (PPI)*
- *Technology Readiness Levels (TRLs)*
- *Ethics*
- *Security - EU classified and sensitive information*
- *Gender equality plans and gender mainstreaming*
- *Financial support to third parties*
- *OTHER TYPES OF ACTIONS AND FORMS OF FUNDING (identified beneficiaries, Prizes, Experts, Services,...)*

ANNEX C. Financial and operational capacity and exclusion
- *Financial capacity*
- *Operational capacity*
- *Exclusion*

(../...)

ANNEX D. Award criteria
- *Award criteria*
- *Scores and weighting*
- *Two-stage calls*

ANNEX E. Mandatory documents
- *Submission*

ANNEX F. Evaluation procedure
- *Evaluation procedure and ranking*
- *Evaluation review procedure*
- *Indicative timetable for evaluation and for signature of the grant agreement*

ANNEX G. Legal and financial set-up of the grant agreements
- *Starting date & project duration*
- *Milestones and deliverables*
- *Form of grant, funding rate and maximum grant amount*
- *Budget categories and cost eligibility rules (actual costs, units, flat-rate, lump-sum)*
- *Reporting & payment arrangements*
- *Certificates*
- *Liability regime for recoveries*
- *Provisions concerning project implementation*
- *Non-compliance and breach of contract*
- *IMPORTANT (advice/suggestions)*

SPECIFIC CONDITIONS FOR ACTIONS WITH PCP/PPI

ANNEX H. Specific conditions for actions implementing pre-commercial procurement or procurement of innovative solutio

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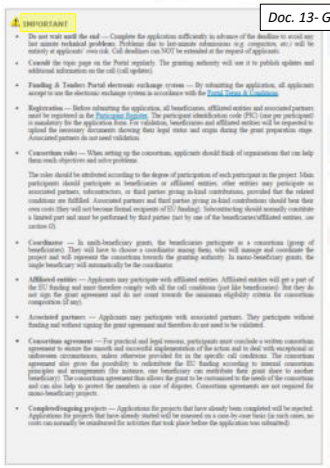
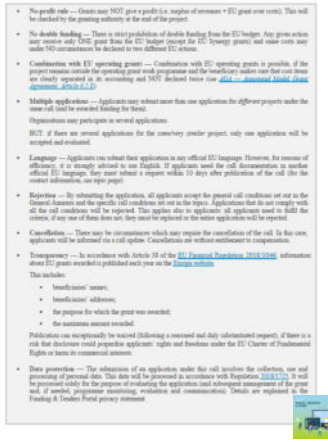
Cluster 4: Digital, Industry and Space

Doc. 13- General Annexes





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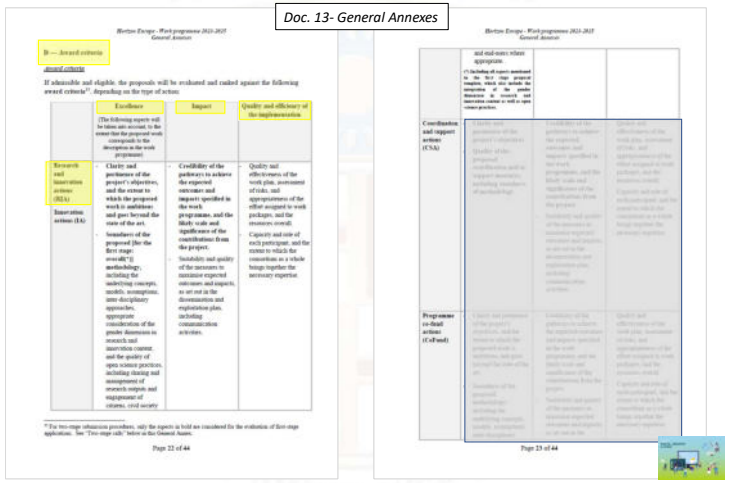
Cluster 4: Digital, Industry and Space

Doc. 13- General Annexes



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Cluster 4: Digital, Industry and Space

WP 2023-2024: Destination 5 / Call 2023 / Topic 01-71

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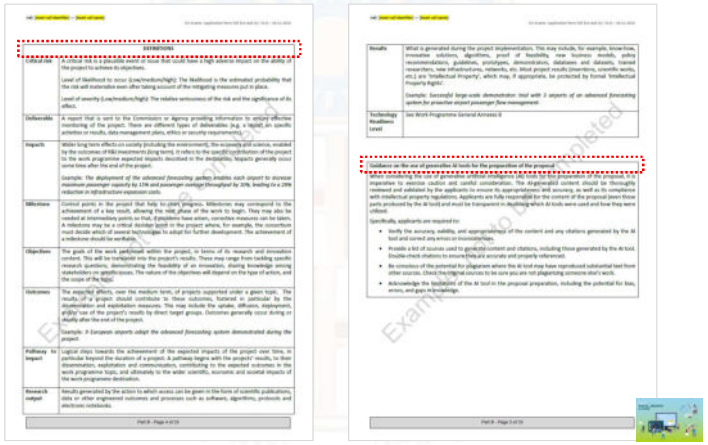
Cluster 4: Digital, Industry and Space

WP 2023-2024: Destination 5 / Call 2023 / Topic 01-71



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Cluster 4: Digital, Industry and Space

WP 2023-2024: Destination 5 / Call 2023 / Topic 01-71

- A complete proposal consists of:
- **The online administrative forms (Part A)**
- **the research proposal (Part B), and**
- **the supporting documents (Annexes)**

Part A - Administrative form

1 - **General information** (Acronym, title, duration, keywords, abstract, declarations)
2 - **Participants** (Institutions: legal, contacts, role, gender eq. plan, researchers, publications, projects, infrastructures)
3 - **Budget** (Cost items)
4 - **Ethics and security** (tables, self-assessments)
5 - **Other questions**

Annexes to Part B
(most common, with standard templates):
- CLINICAL TRIALS
- CALLS FLAGGED AS SECURITY SENSITIVE
- ETHICS *(additional to A-form)*

Part B - Technical description *(# pages)*

1. EXCELLENCE
1.1 Objectives and ambition
1.2 Methodology

2. IMPACT
2.1 Project's pathways towards impact
2.2 Measures to maximize impact – Dissemination, exploitation and communication
2.3 Summary (KEY ELEMENT OF THE IMPACT SECTION)

3. QUALITY AND EFFICIENCY OF THE IMPLEMENTATION
3.1 Work plan and resources
- *Table 3.1a: List of work packages*
- *Table 3.1b: Work package description*
- *Table 3.1c: List of deliverables*
- *Table 3.1d: List of milestones*
- *Table 3.1e: Critical risks for implementation*
- *Table 3.1f: Summary of staff effort*
- *Table 3.1g: 'Subcontracting costs' items*
- *Table 3.1h: 'Purchase costs' items (travel and subsistence, equipment and other goods, works and services)*
- *Table 3.1i: 'Other costs categories' items (e.g. internally invoiced goods and services)*
- *Table 3.1j: 'In-kind contributions' provided by third parties*

3.2 Capacity of participants and consortium as a whole

Award criteria

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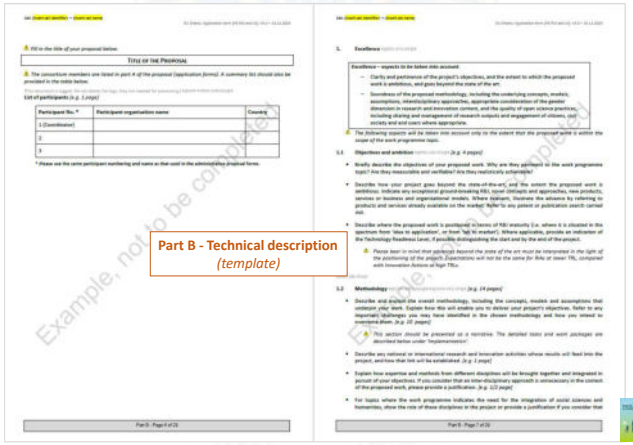
Cluster 4: Digital, Industry and Space

WP 2023-2024: Destination 5 / Call 2023 / Topic 01-71



Part B - Technical description
(template)

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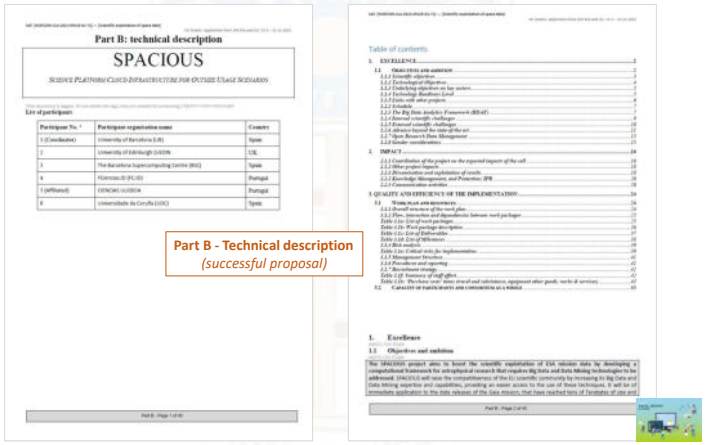
Cluster 4: Digital, Industry and Space

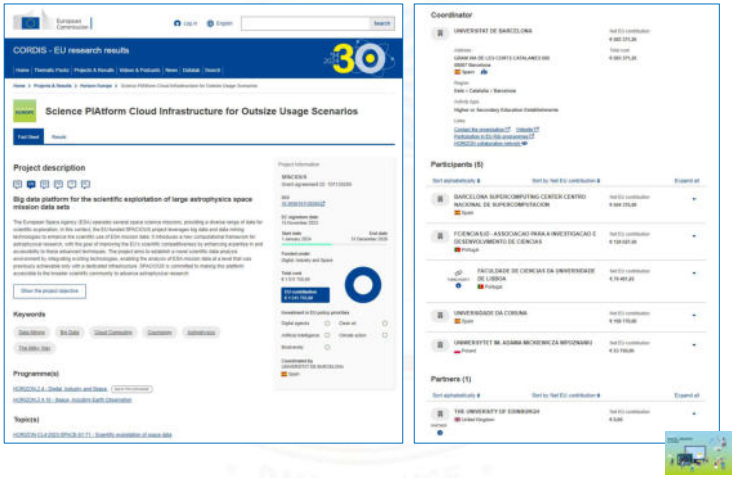
WP 2023-2024: Destination 5 / Call 2023 / Topic 01-71



Part B - Technical description
(successful proposal)

22

CORDIS: information about EU R&D projects



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Thank you
Gràcies
Gracias

Armando J Palomar
International Research Advisor
a.palomar@ub.edu

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School on transferable skills: managing, entrepreneurial and IPR

"How to prepare scientific proposals (international competitive calls)"

Armando J Palomar
International Research Advisor
Area of Sciences and Engineering, University of Barcelona

1

A research proposal

Plenty of support !!

Video: "ERC funding explained" (NOV-DEC/2020)
https://www.youtube.com/playlist?list=PLtv6FnsXqnXAYRk6HCErwMxwML0ZKoMcy

Webinar: "How to prepare a successful proposal in Horizon Europe" (MAR/2021)
https://ec.europa.eu/research/participants/docs/h2020-funding-guide/other/event210324.htm

Webinar: "A successful proposal for Horizon Europe: Scientific-technical excellence is key, but don't forget the other aspects" (APR/2021)
https://ec.europa.eu/research/participants/docs/h2020-funding-guide/other/event210421.htm

Webinar: "Training on Horizon Europe proposal writing - Part 1 of 2" (OCT/2021)
https://www.youtube.com/watch?v=PvBMCsAInAw

Webinar: "Recipe for success. Tips and tricks to writing your Horizon Europe proposal" (OCT/2022)
https://www.youtube.com/watch?v=DeY8RSucJwI

MOOC on Horizon Europe: "Chapter 3. Successful proposal writing" (SEP/2023)
https://ec.europa.eu/research/participants/docs/h2020-funding-guide/other/event210324.htm

2

A research proposal

Example: an ERC (2025) application form

- The application procedure consists of a **single submission stage (through a Host Institution).**
- A complete ERC proposal consists of three separate components:
  - **The online administrative 'Proposal submission forms'**
  - **The research proposal (Parts B1 and B2), and**
  - **The supporting documentation (Annexes)**

Part A - Administrative form
1 - General information (Proposal, panel, abstract)
2 - Participants (Host Institution: legal, gender eq. plan; PI, contacts)
3 - Budget (Costs, Resources)
4 - Ethics and security (self-assessments)
5 - Other questions

Part B1 - Proposal details
Cover page, with proposal summary
a) Extended synopsis (5 pages)
b) CV and Track record (4 pages)

Part B2 - Research proposal (14 pages)
a) State-of-the-art and objectives
b) Methodology

Annexes
Letter of commitment (HI); PhD certificate (date of defence); Evidence of extensions

3

A research proposal

Example: an EIC Pathfinder Open (2025) application form

- A complete EIC proposal consists of:
- **The online administrative forms (Part A)**
- **the research proposal (Part B), and**
- **the supporting documents (Annexes)**

Part A - Administrative form

1 - **General information** (Acronym, title, duration, keywords, abstract, declarations)
2 - **Participants** (Institutions: legal, contacts, role, gender eq. plan, researchers, publications, projects, infrastructures)
3 - **Budget** (Cost items)
4 - **Ethics and security** (tables, self-assessments)
5 - **Other questions**

Annexes to Part B
(most common, with standard templates):
- CLINICAL TRIALS
- CALLS FLAGGED AS SECURITY SENSITIVE
- ETHICS *(additional to A-form)*

Part B - Technical description (20 pages max.)

1. EXCELLENCE
1.1 Long-term vision
1.2 Science-towards-technology breakthrough
1.3 Objectives
1.4 Interdisciplinarity

2. IMPACT
2.1 Long-term impact
2.2 Innovation potential
2.3 Communication and dissemination

3. QUALITY AND EFFICIENCY OF THE IMPLEMENTATION
3.1 Work plan and allocation of resources
- *Table 3.1a: List of work packages*
- *Table 3.1b: Work package description*
- *Table 3.1c: List of deliverables*
- *Table 3.1d: List of milestones*
- *Table 3.1e: Critical risks for implementation*
- *Table 3.1f: Summary of staff effort*
- *Table 3.1g: 'Subcontracting costs' items*
- *Table 3.1h: 'Purchase costs' items (travel and subsistence, equipment and other goods, works and services)*
- *Table 3.1i: 'Other costs categories' items (e.g. internally invoiced goods and services)*
- *Table 3.1j: 'In-kind contributions' provided by third parties*

3.2 Quality of the consortium

Award criteria

4

A research proposal

Example: an CL4-2023 application form

- A complete RIA/IA proposal consists of:
- **The online administrative forms (Part A)**
- **the research proposal (Part B), and**
- **the supporting documents (Annexes)**

Part A - Administrative form

1 - **General information** (Acronym, title, duration, keywords, abstract, declarations)
2 - **Participants** (Institutions: legal, contacts, role, gender eq. plan, researchers, publications, projects, infrastructures)
3 - **Budget** (Cost items)
4 - **Ethics and security** (tables, self-assessments)
5 - **Other questions**

Annexes to Part B
(most common, with standard templates):
- CLINICAL TRIALS
- CALLS FLAGGED AS SECURITY SENSITIVE
- ETHICS *(additional to A-form)*

Part B - Technical description ***(# pages)***

1. EXCELLENCE
1.1 Objectives and ambition
1.2 Methodology

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

3.2 Capacity of participants and consortium as a whole

Award criteria

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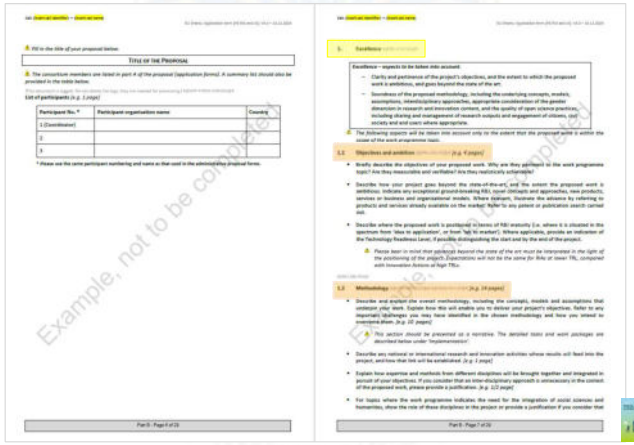
Cluster 4: Digital, Industry and Space

Example: an CL4-2023 application form *(Topic 01-71)*



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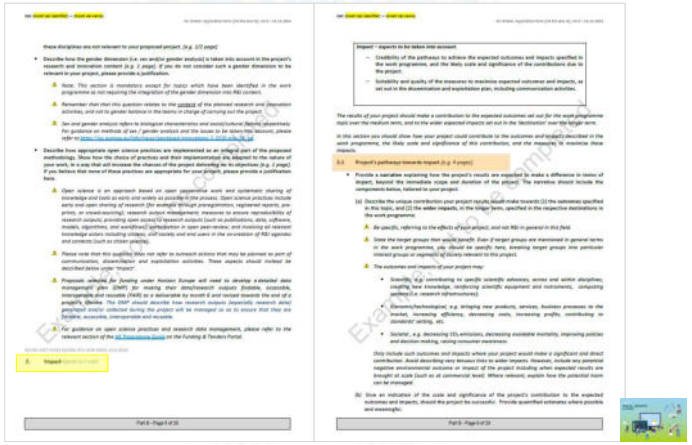
Cluster 4: Digital, Industry and Space

Example: an CL4-2023 application form *(Topic 01-71)*



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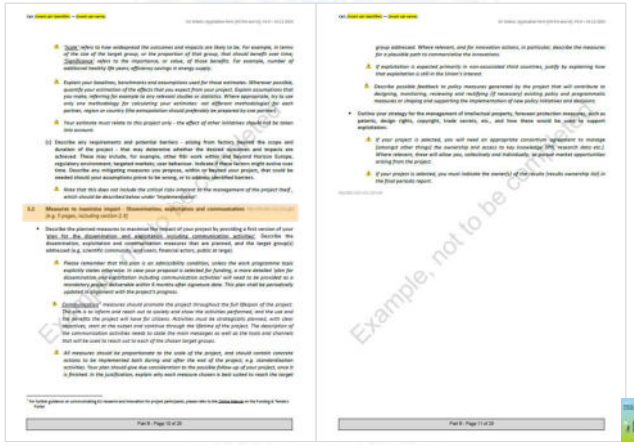
Cluster 4: Digital, Industry and Space

Example: an CL4-2023 application form *(Topic 01-71)*



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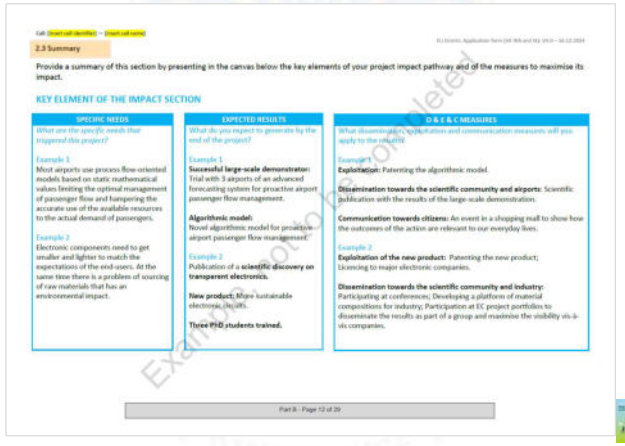
Cluster 4: Digital, Industry and Space

Example: an CL4-2023 application form *(Topic 01-71)*



2.3 Summary

Provide a summary of this section by presenting in the canvas below the key elements of your project impact pathway and of the measures to maximise its impact.

KEY ELEMENT OF THE IMPACT SECTION

SPECIFIC NEEDS	EXPECTED RESULTS	D & E & C MEASURES
What are the specific needs that triggered this project? Example 1 Most airports use process flow-oriented models based on static mathematical values limiting the optimal management of passenger flow and hampering the accurate use of the available resources to the actual demand of passengers. Example 2 Electronic components need to get smaller and lighter to match the expectations of the end-users. At the same time there is a problem of sourcing of raw materials that has an environmental impact.	*What do you expect to generate by the end of the project?* Example 1 **Successful large-scale demonstrator:** Trial with 3 airports of an advanced forecasting system for proactive airport passenger flow management. **Algorithmic model:** Novel algorithmic model for proactive airport passenger flow management. Example 2 Publication of a **scientific discovery on transparent electronics.** **New product:** More sustainable electronic circuits. **Three PHD students trained.**	*What dissemination, exploitation and communication measures will you apply to the results?* Example 1 **Exploitation:** Patenting the algorithmic model. **Dissemination towards the scientific community and airports:** Scientific publication with the results of the large-scale demonstration. **Communication towards citizens:** An event in a shopping mall to show how the outcomes of the action are relevant to our everyday lives. Example 2 **Exploitation of the new product:** Patenting the new product; Licencing to major electronic companies. **Dissemination towards the scientific community and industry:** Participating at conferences; Developing a platform of material compositions for industry; Participation at EC project portfolios to disseminate the results as part of a group and maximise the visibility vis à vis companies.

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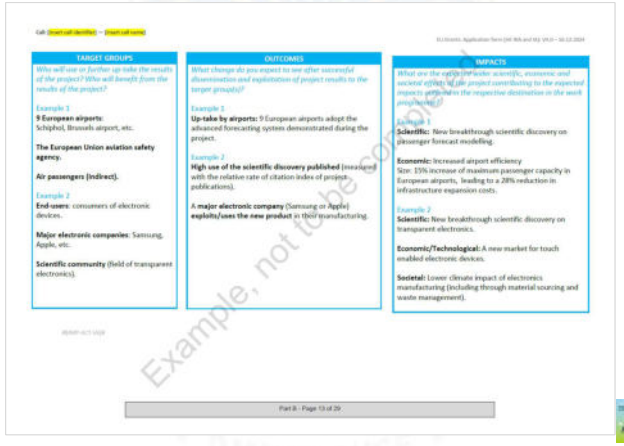
Cluster 4: Digital, Industry and Space

Example: an CL4-2023 application form *(Topic 01-71)*



TARGET GROUPS	OUTCOMES	IMPACTS
Who will use or further up take the results of the project? Who will benefit from the results of the project? Example 1 **9 European airports:** Schiphol, Brussels airport, etc. **The European Union aviation safety agency.** **Air passengers (indirect).** Example 2 **End-users:** consumers of electronic devices. **Major electronic companies**: Samsung, Apple, etc. **Scientific community** (field of transparent electronics).	*What change do you expect to see after successful dissemination and exploitation of project results to the target group(s)?* Example 1 **Up-take by airports:** 9 European airports adopt the advanced forecasting system demonstrated during the project. Example 2 **High use of the scientific discovery published** (measured with the relative rate of citation index of project publications). A **major electronic company** (Samsung or Apple) **exploits/uses the new product** in their manufacturing.	*What are the expected wider scientific, economic and societal effects of the project contributing to the expected impacts mentioned in the respective destination in the work programme?* Example 1 **Scientific:** New breakthrough scientific discovery on passenger forecast modelling. **Economic:** Increased airport efficiency Size: 15% increase of maximum passenger capacity in European airports, leading to a 28% reduction in infrastructure expansion costs. Example 2 **Scientific:** New breakthrough scientific discovery on transparent electronics. **Economic/Technological:** A new market for touch enabled electronic devices. **Societal:** Lower climate impact of electronics manufacturing (including through material sourcing and waste management).

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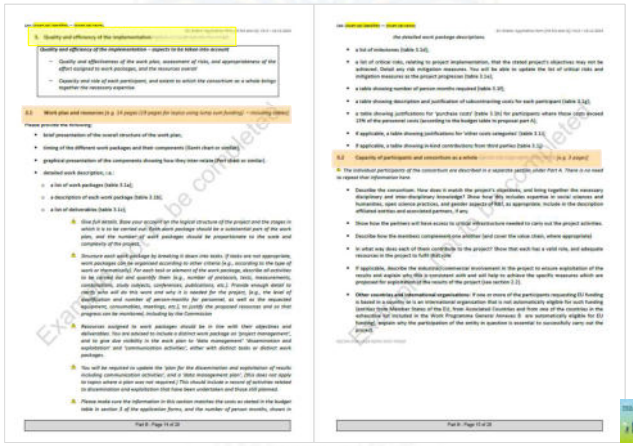
Cluster 4: Digital, Industry and Space

Example: an CL4-2023 application form *(Topic 01-71)*



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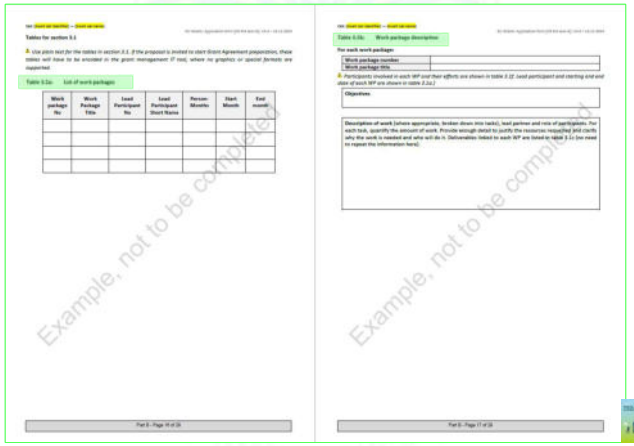
Cluster 4: Digital, Industry and Space

Example: an CL4-2023 application form *(Topic 01-71)*



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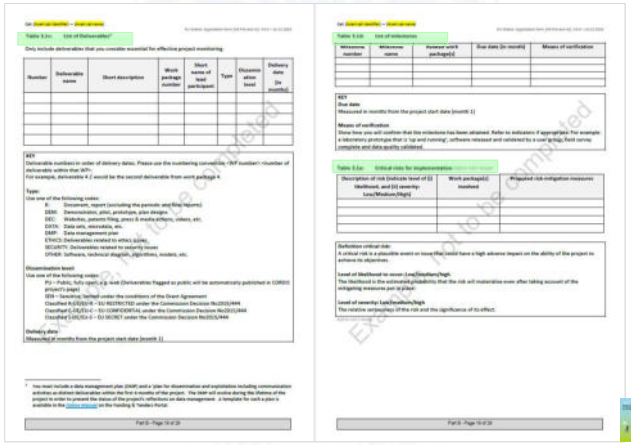
Cluster 4: Digital, Industry and Space

Example: an CL4-2023 application form *(Topic 01-71)*



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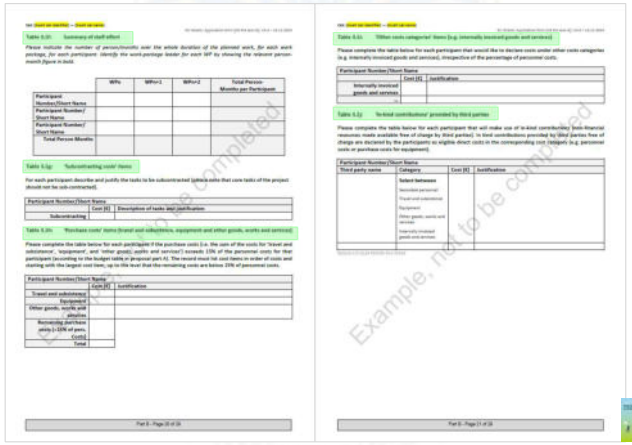
Cluster 4: Digital, Industry and Space

Example: an CL4-2023 application form *(Topic 01-71)*



14

A research proposal

Example of an awarded proposal *(ERC-2020-CoG)*

Abstract / Summary *(2000 characters)*

Extreme events often cause local-initial damage to the critical elements of building structures, followed by a cascade of further failures in the rest of the building; a phenomenon known as "progressive collapse". Current design philosophies are based on giving buildings extensive continuity, so that when a critical element fails its load can be re-distributed among the rest of the structure. However, in certain situations (e.g. initial failure of several columns) this extensive continuity introduces undesirable effects and actually increases the risk of progressive collapse.

Segmenting a building into individual units connected only by means of fuses would avoid a failure in one zone propagating to others. While such fuses would provide continuity for normal loads or small local-initial failure, they would "isolate" the different parts of the building when otherwise the forces generated by the initial failure would pull down the rest of the structure. Although fuse segmentation is probably the only alternative that can fill the gaps in the present design philosophies, so far, no studies have been carried out on the possibility of applying it to buildings.

Endure's overall aim is to develop a novel fuse-based segmentation design approach to limit or arrest the propagation of failures in building structures subjected to extreme events.

The project will be multidisciplinary and highly ambitious, and will achieve its overall aim by: 1) Developing a performance-based approach for the design of fuse-segmented buildings; 2) Designing, manufacturing and testing fuses for segmenting buildings; and 3) Implementing fuses in segmented realistic building prototypes and testing and validating the new fuse-based approach in these structures.

Endure will open up a new research area and design approach, and also deliver novel construction procedures. The project will lead to safer buildings, especially in the case of extreme events with severe consequences for building integrity.

https://cordis.europa.eu/project/id/101000396 https://b-resilient.webs.upv.es/endure-home/

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A research proposal

Example of an awarded proposal *(ERC-2020-CoG)*

Abstract / Summary *(2000 characters)*

CHALLENGE

Extreme events often cause local-initial damage to the critical elements of building structures, followed by a cascade of further failures in the rest of the building; a phenomenon known as "progressive collapse". Current design philosophies are based on giving buildings extensive continuity, so that when a critical element fails its load can be re-distributed among the rest of the structure. However, in certain situations (e.g. initial failure of several columns) this extensive continuity introduces undesirable effects and actually increases the risk of progressive collapse.

APPROACH

Segmenting a building into individual units connected only by means of fuses would avoid a failure in one zone propagating to others. While such fuses would provide continuity for normal loads or small local-initial failure, they would "isolate" the different parts of the building when otherwise the forces generated by the initial failure would pull down the rest of the structure. Although fuse segmentation is probably the only alternative that can fill the gaps in the present design philosophies, so far, no studies have been carried out on the possibility of applying it to buildings.

AIM

Endure's overall aim is to develop a novel fuse-based segmentation design approach to limit or arrest the propagation of failures in building structures subjected to extreme events.

OBJECTIVES

The project will be multidisciplinary and highly ambitious, and will achieve its overall aim by: *1) Developing a performance-based approach for the design of fuse-segmented buildings; 2) Designing, manufacturing and testing fuses for segmenting buildings; and 3) Implementing fuses in segmented realistic building prototypes and testing and validating the new fuse-based approach in these structures.*

Endure will open up a new research area and design approach, and also deliver novel construction procedures. The project will lead to safer buildings, especially in the case of extreme events with severe consequences for building integrity.

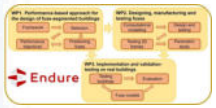
16

A research proposal

Example of an awarded proposal *(ERC-2020-CoG)*

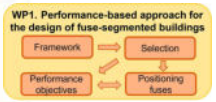
Objectives

- To **develop a performance-based approach** for the **design of fuse-segmented buildings**.
- To **design, manufacture and test fuses** for segmenting buildings.
- To **implement fuses in segmented building structures** and to **validate and test** the new **fuse-based approach** in **realistic building prototypes**.

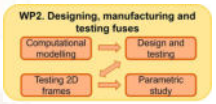


Methodology

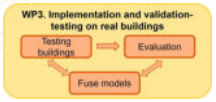
WP 1. Performance-based approach for the design of fuse-segmented buildings
Mainly concerned with the development of **novel methodologies** for identifying buildings in which segmentation would be advantageous, for **structural robustness design using**, and for the positioning **positioning of fuses**. The proposed approach will involve a **risk segmentation-based evaluation of robustness** which considers the probability of different events and their **associated consequences**.



WP 2. Designing, manufacturing and testing fuses
Fuse requirements will be defined through **advanced computational simulations** before proceeding to their design, manufacturing and assembly. This involves a series of **lab-tests** both prior and posterior to the definition of the **required detailing** for theirimplementation in buildings. A computational **parametric study** will also be undertaken to extrapolate the fuse-based segmentation design to a range of different design situations.



WP 3. Implementation and validation-testing on real buildings
This WP includes the ambitious task of **testing two full-scale fuse-segmented buildings** to validate the new design philosophy in real situations. **Computational simulations** of **different event scenarios** will then be performed to check that the fuses will only trigger in extreme situations (large initial failure) while the building's overall behaviour remains unaffected under normal loads or small initial failure. **Simplified calculation models** will then be defined to facilitate the inclusion of fuses in everyday building design.



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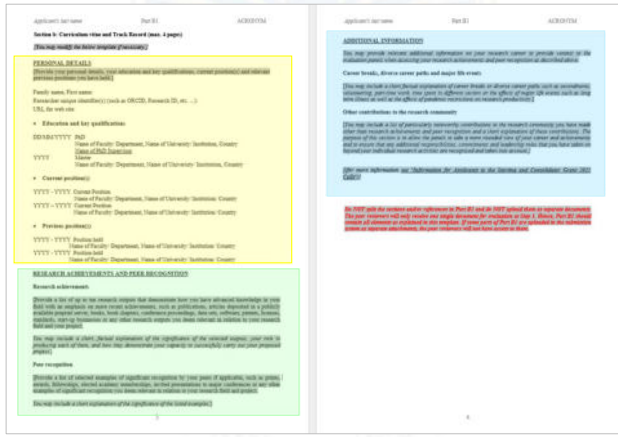
A research proposal

CV and Track record *(ERC, individual,…)*



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A research proposal

CV and Track record *(ERC, individual,…)*

PERSONAL DETAILS

PI's education and key qualifications, current position(s) and relevant previous positions held.

RESEARCH ACHIEVEMENTS AND PEER RECOGNITION

Research achievements
Provide a list of **up to 10 research outputs** that demonstrate how you have advanced knowledge in your field with an emphasis on more recent achievements (publications, articles deposited in a publicly available preprint server, books, book chapters, conference proceedings, data sets, software, patents, licenses, standards, start-up businesses or other research outputs you deem relevant in relation to your field and your project)
*You may include a **short, factual explanation of the significance** of the selected outputs, your role in producing each of them, and how they demonstrate your capacity to successfully carry out your proposed project.*

Peer recognition
Provide a list of **selected examples** of significant recognition by your peers if applicable (*prizes, awards, fellowships, elected academy memberships, invited presentations to major conferences or other examples of significant recognition relevant in relation to your research field and project)*
You may include a short explanation of the significance of the listed examples.

ADDITIONAL INFORMATION

*Relevant additional information on your research career **to provide context** when assessing your research as described above.*

Career breaks, diverse career paths and major life events
You may include a short factual explanation of career breaks or diverse career paths (secondments, volunteering, part-time work, time spent in different sectors or the effects of major life events such as long-term illness as well as the effects of pandemic restrictions on research productivity).

Other contributions to the research community
*You may include a list of particularly noteworthy contributions to the research community you have made other than research achievements and peer recognition and a short explanation of these contributions. The purpose of this section is to allow the panels to take a more rounded view of your career and achievements and to ensure that any **additional responsibilities, commitments and leadership roles** that you have taken on beyond your individual research activities are recognised and taken into account.*

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Thank you
Gràcies
Gracias

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