



COIN-3D

Collaborative Innovation
in 3D VLSI Reliability

Proposal Development and Research Project Management in Horizon Europe

George Floros

Trinity College Dublin, IE and University of Thessaly, GR

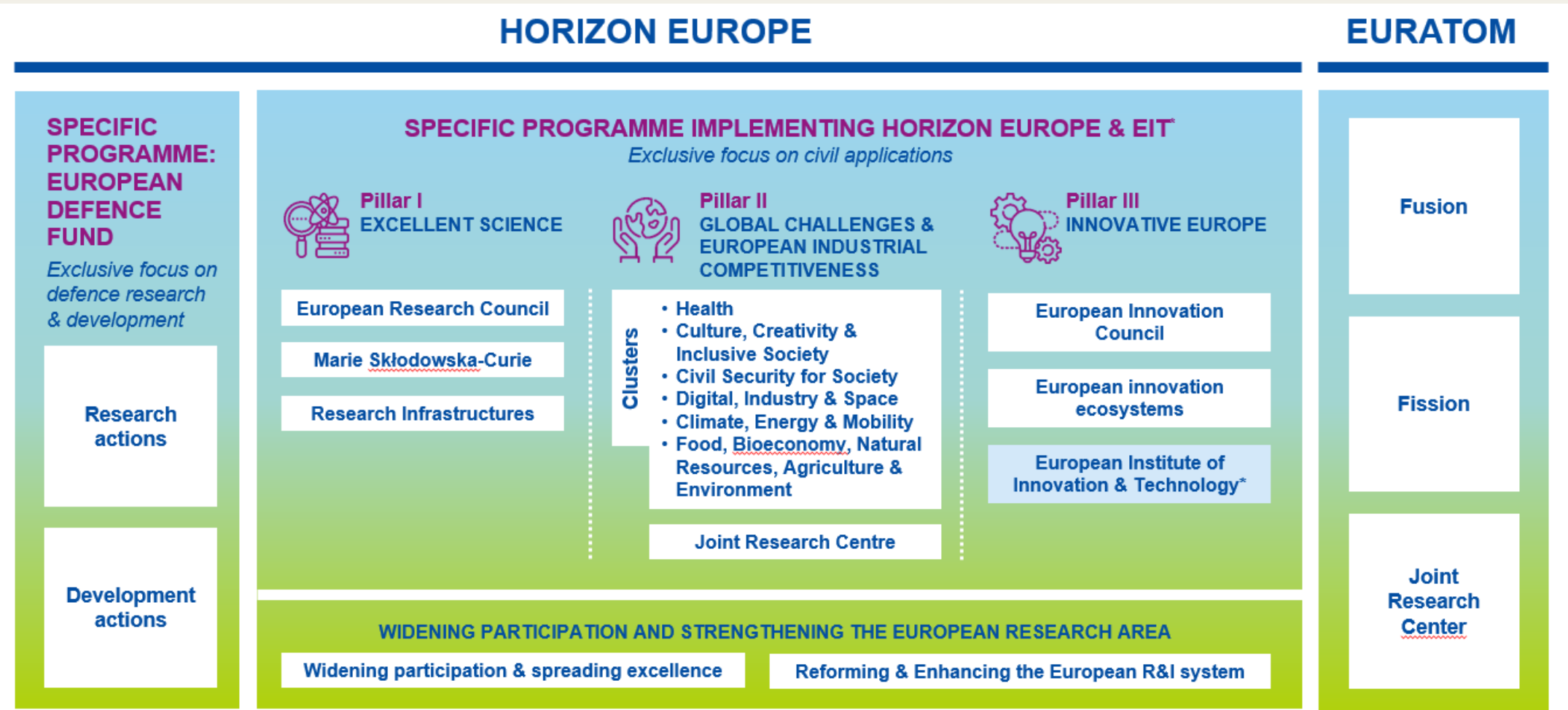
gefloros@e-ce.uth.gr

25/07/2025



Co-funded by
the European Union

Horizon Europe 2021 – 2027: Programme Structure

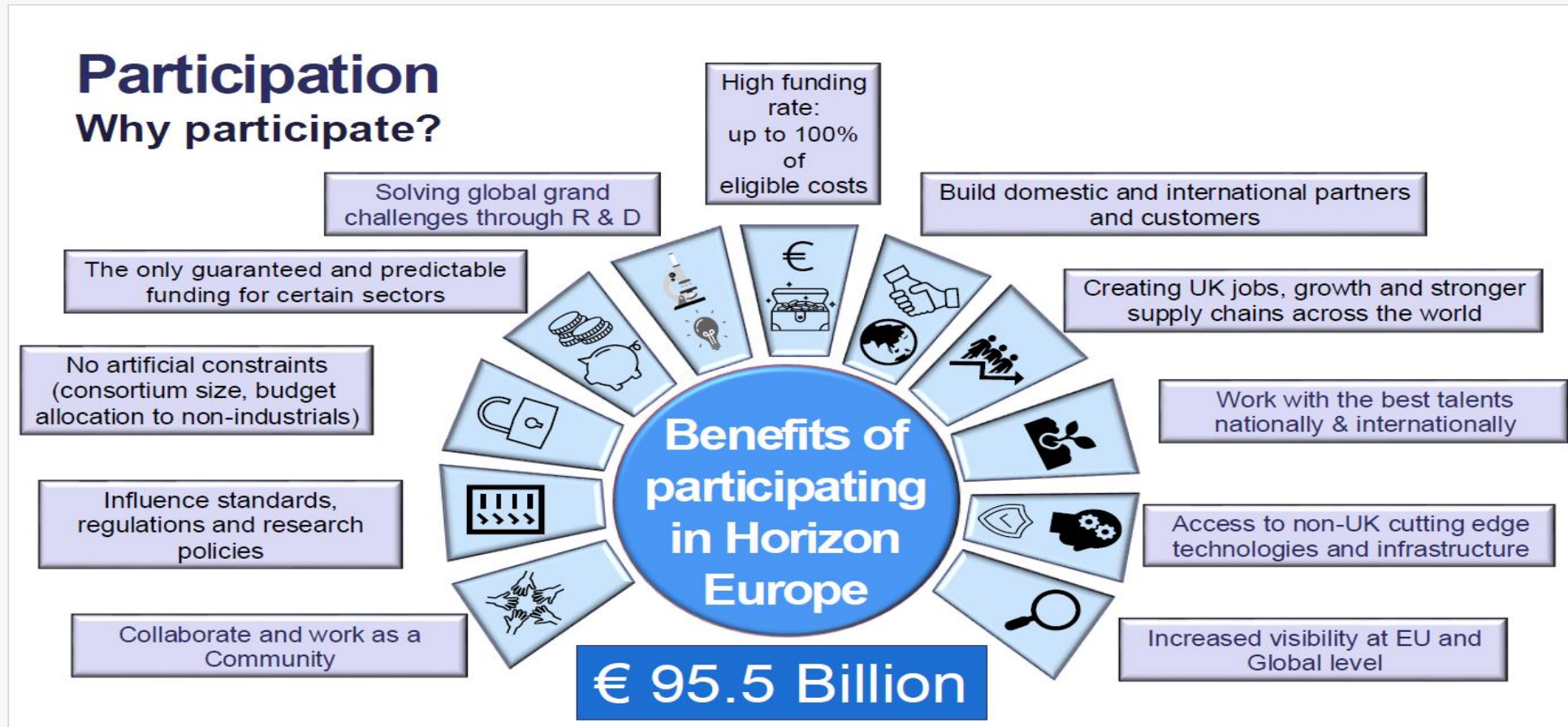


* The European Institute of Innovation & Technology (EIT) is not part of the Specific Programme



Funded by
the European Union

Why Participate in Horizon Europe?



Funded by
the European Union

Pillar 1: Excellent Science

Pillar One aims to promote scientific excellence by supporting frontier research and breakthrough scientific ideas. It focuses on attracting highly-skilled researchers and innovators to Europe, fostering the development and diffusion of high-quality knowledge, methodologies, and technologies to address global challenges.



European Research Council
Established by the European Commission

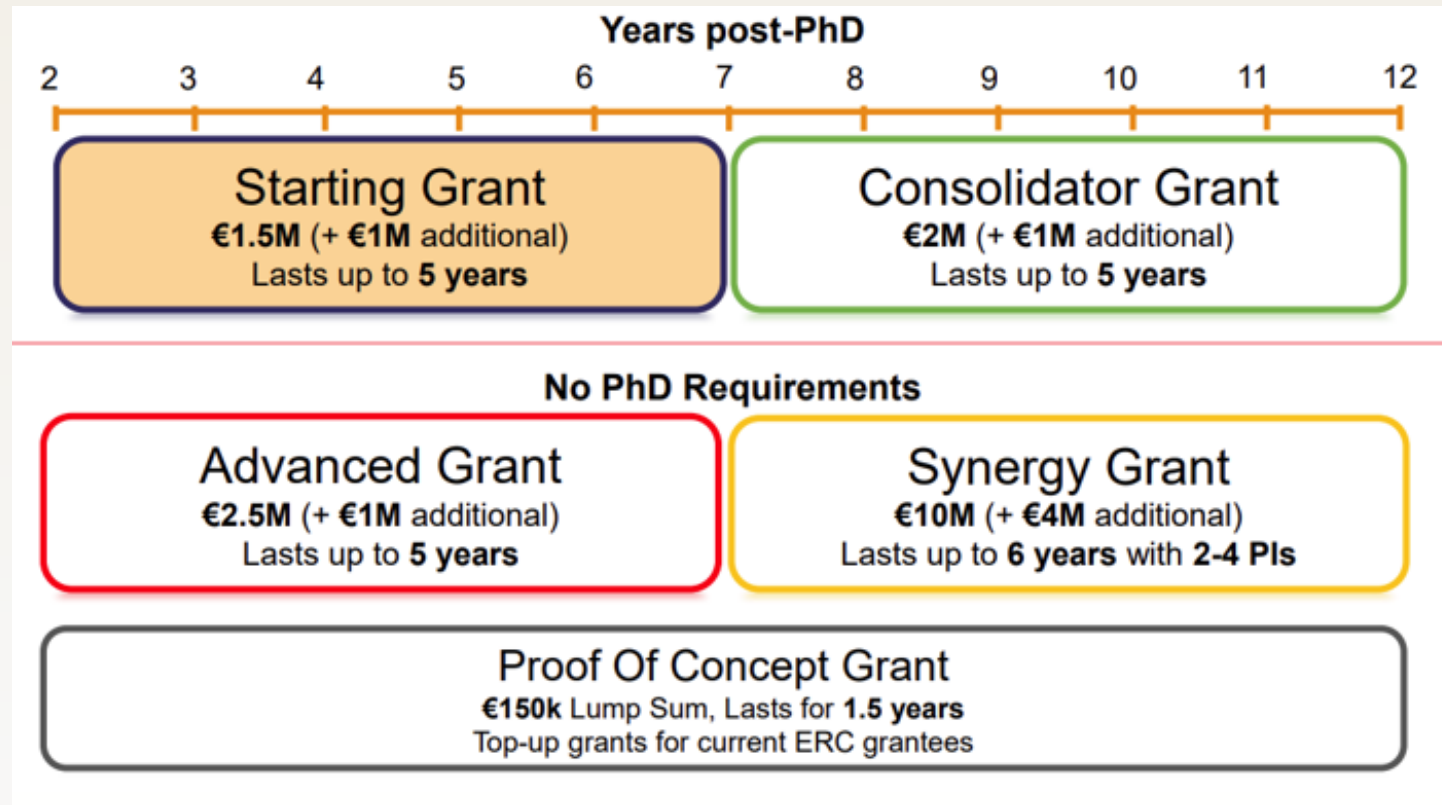
Provides attractive and flexible funding to talented and creative individual researchers and their teams. The funding is awarded based solely on the criterion of scientific excellence, enabling researchers to pursue the most promising avenues at the frontier of science. ERC grantees have made significant advances in various fields.

Designed to enhance the skills and career development of researchers through international and intersectoral mobility. These actions support researchers at all stages of their careers, from doctoral candidates to experienced researchers, by providing opportunities for training and collaboration across borders and disciplines. MSCA aims to foster a highly skilled and innovative workforce capable of addressing current and future societal challenges, thereby contributing to Europe's global scientific leadership.

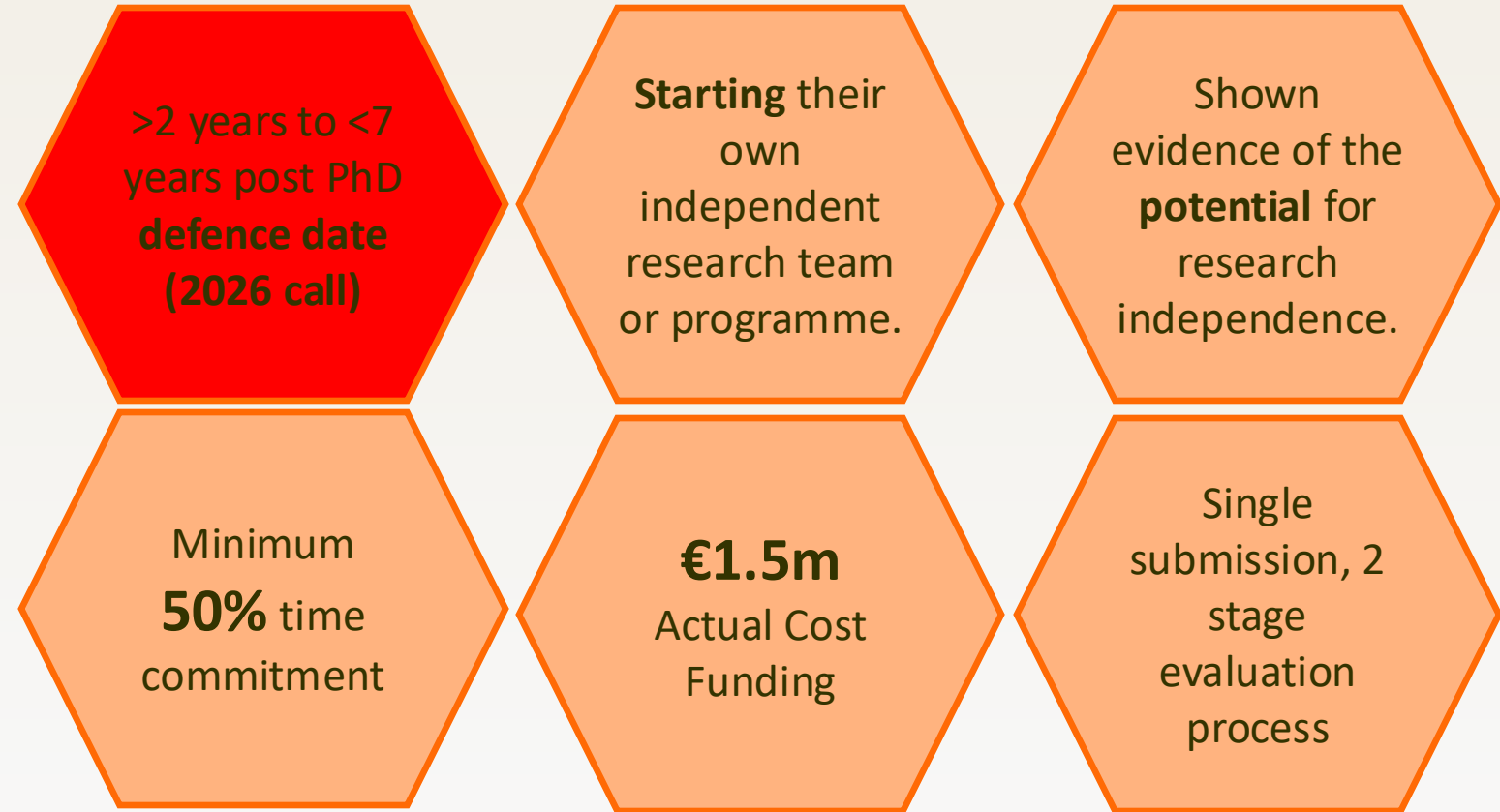


**Funded by
the European Union**

Pillar 1: European Research Council (ERC) Overview



Pillar 1: ERC Starting Grants

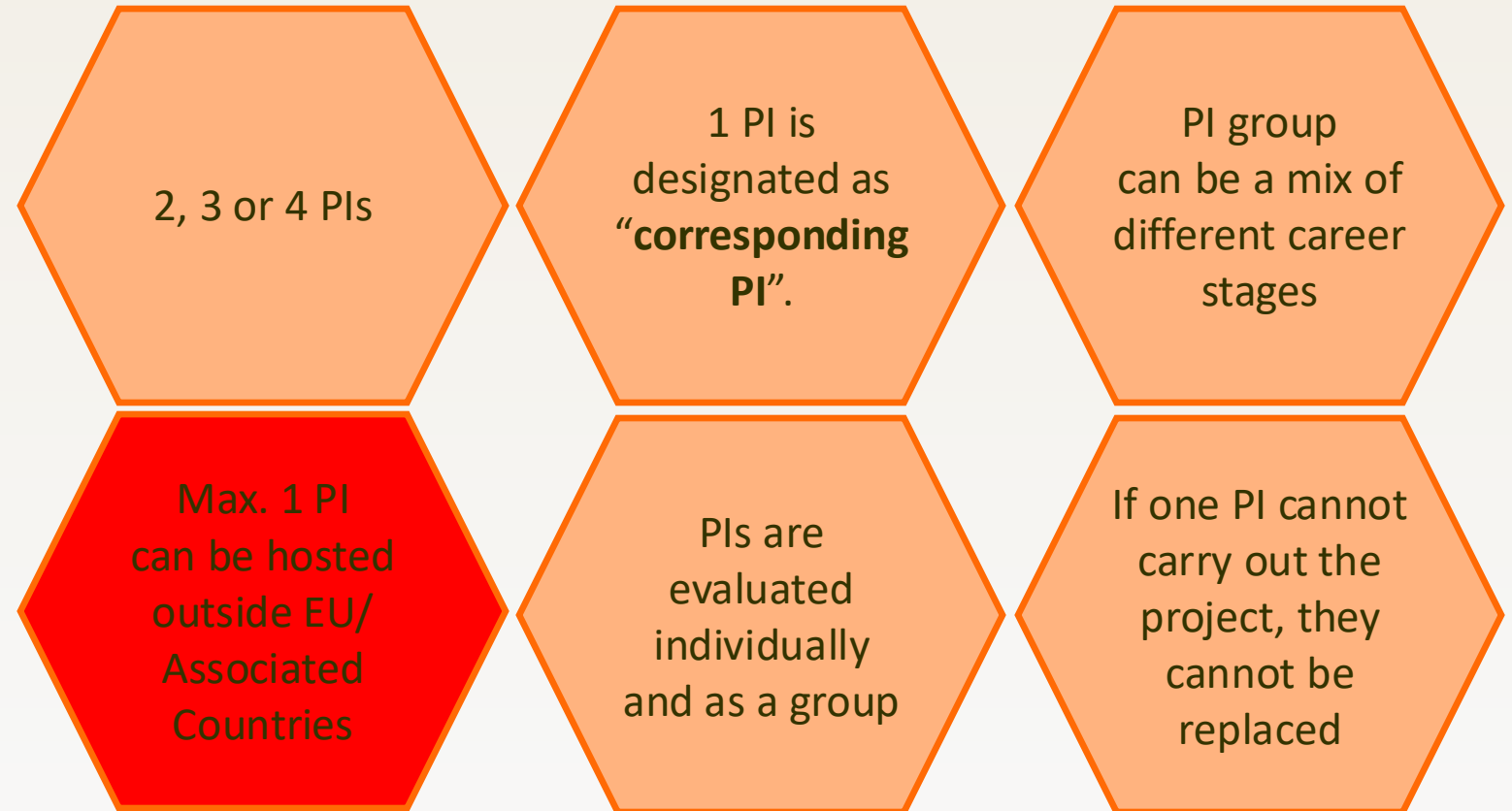


* 2026 defence dates : 1st January 2019 to 31st December 2023 (inclusive)



Funded by
the European Union

Pillar 1: ERC Synergy Grants



The 'non-EU PI' cannot be the Corresponding PI.



Funded by
the European Union

Pillar 1: ERC Synergy Grants

“It is of utmost importance not to confuse the term 'synergy' and its requirements with the concepts and the terminology of other parts of the Horizon Europe Framework Programme

...”



SYNERGY GROUP IS:

PIs (and their teams) that are capable of tackling bold research themes requiring novel approaches

Research teams are typically characterised by exceptional combinations of knowledge and skills

The collaborative element is expected to add a creative layer of excellence making the group greater than sum of its parts



SYNERGY GROUP IS NOT :

Loose cooperation: e.g. essentially separate projects with networking links/event

Simply passing data or information from one team to another

Long-established approaches to collaborating

Agreement between organisations with staff participating. It must be led by each PI, who can still move the grant elsewhere



Funded by
the European Union

Eligible Costs on ERC Grants

The ERC funds up to **100%** of the total eligible costs with a **25% flat rate of indirect costs** on top.



Personnel costs permitted for **Team Members** but the scheme doesn't permit "Co-Investigators".

What costs are eligible under '**Additional Funding**'

€1m (StG, CoG, AdG)
€4m (SyG)

- (a) "**start-up**" costs for Principal Investigators moving to the EU or an AC from elsewhere as a consequence of receiving the ERC grant
- (b) the purchase of **major equipment**
- (c) access to **large facilities**
- (d) other **major experimental and field work costs**, excluding personnel costs



Funded by
the European Union

Practical Steps to Prepare for ERC



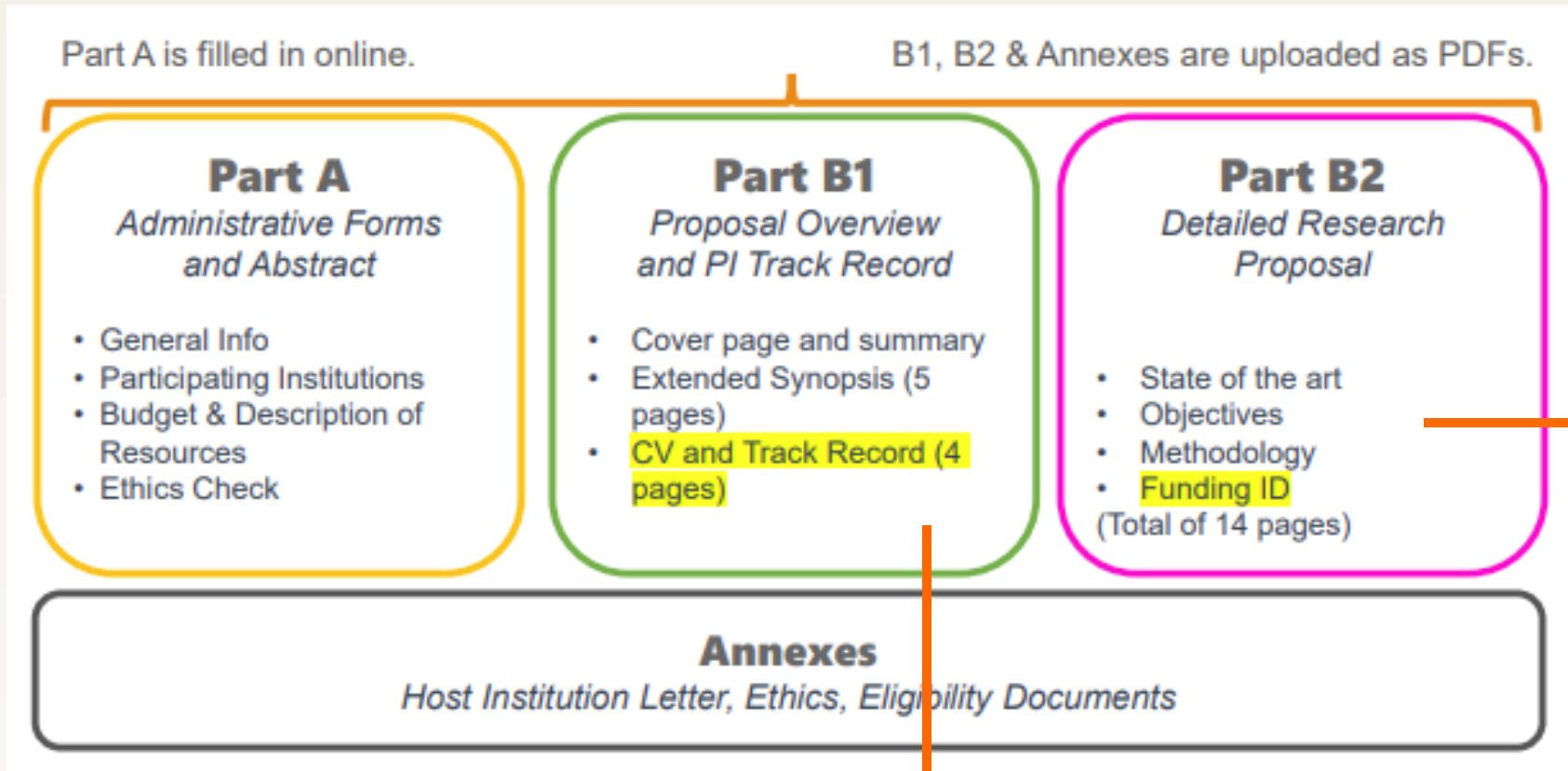
*Understand ERC Funding You can refine your search by criteria such as researcher, host institution, research domain, funding scheme, country, year, or keyword

*Align with ERC Criteria List of funding opportunities on left, click on that then look at the right of the page for “Info for applicants” document.



**Funded by
the European Union**

Application Structure



Part B2 – Evaluated at Step 2 (14 pages)

**Part B1 – Evaluated at Step 1
(5 pages plus 4 page CV & track record)**



Funded by
the European Union

ERC Timelines

	ERC Proof of Concept ERC-2025-PoC	ERC Advanced Grant ERC-2025-AdG	ERC Starting Grant ERC-2026-StG	ERC Synergy Grant ERC-2026-SyG	ERC Consolidator Grant ERC-2026-CoG	ERC Proof of Concept ERC-2026-PoC	ERC Advanced Grant ERC-2026-AdG
Estimated Opening Date	Open	Open	Jul 2025	Jul 2025	Sep 2025	Nov 2025	May 2026
Estimated Deadline	18/09/25	28 th August 2025	Oct 2025	Nov 2025	Jan 2026	Mar 2026 Sep 2026	Aug 2026
Eligibility Window	PI in an ongoing ERC main grant, or PI in an ERC main grant that has ended after 01/01/24	No PhD requirement (<i>but if > 12 years post-PhD defence, you will apply for Advanced</i>)	2-7 yrs post-PhD defence <i>Successful defence between 01/01/2019 & 31/12/23</i>	-	7-12 yrs post PhD defence <i>Successful defence between 01/01/2014 & 31/12/2018</i>	PI in an ongoing ERC main grant, or PI in an ERC main grant that has ended after 01/01/25	No PhD requirement (<i>but if > 12 years post-PhD defence, you will apply for Advanced</i>)
Funding available	€0.15m 12-18 months	€2.5m 5 years	€1.5m 5 years	£10m 6 years	€2m 5 years	€0.15m 12-18 months	€2.5m 5 years
PI Min. Time Commitment	-	30%	50%	30% (per PI)	40%	-	30%



Funded by **ERC WP 2025**
the European Union

ERC WP 2026

Marie Skłodowska-Curie Actions Overview



MSCA are the EU's flagship funding programme for doctoral education and postdoctoral training

Objectives:

- Excellence
- Mobility – Interdisciplinary, Intersectoral, International
- Bottom-up and open to the world
- Excellent recruitment, working conditions and inclusiveness
- Effective supervision and career guidance
- Open science and responsible research and innovation
- European Green Deal
- Synergies



Researchers' training, skills and career development (all stages of career)



Excellent research in all domains (bottom-up approach)



International, cross-sectoral & interdisciplinary mobility



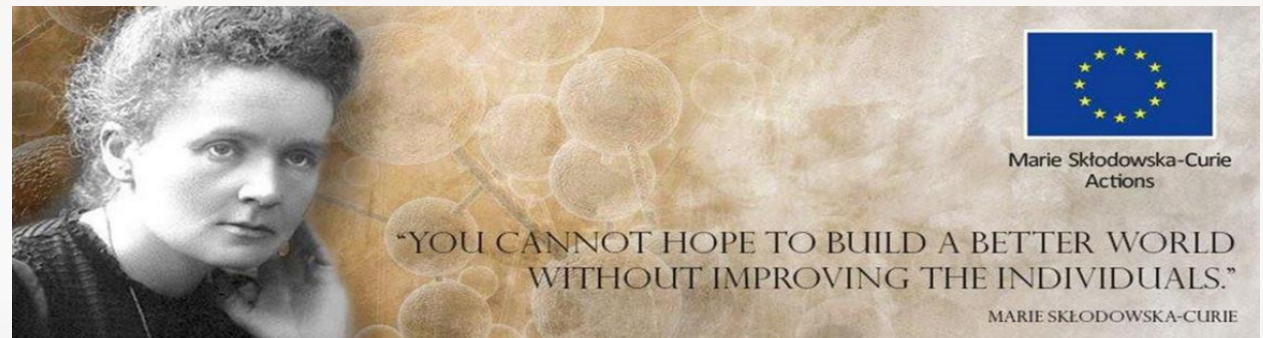
Attractive working and employment conditions



Structuring impact on organisations through excellent programmes



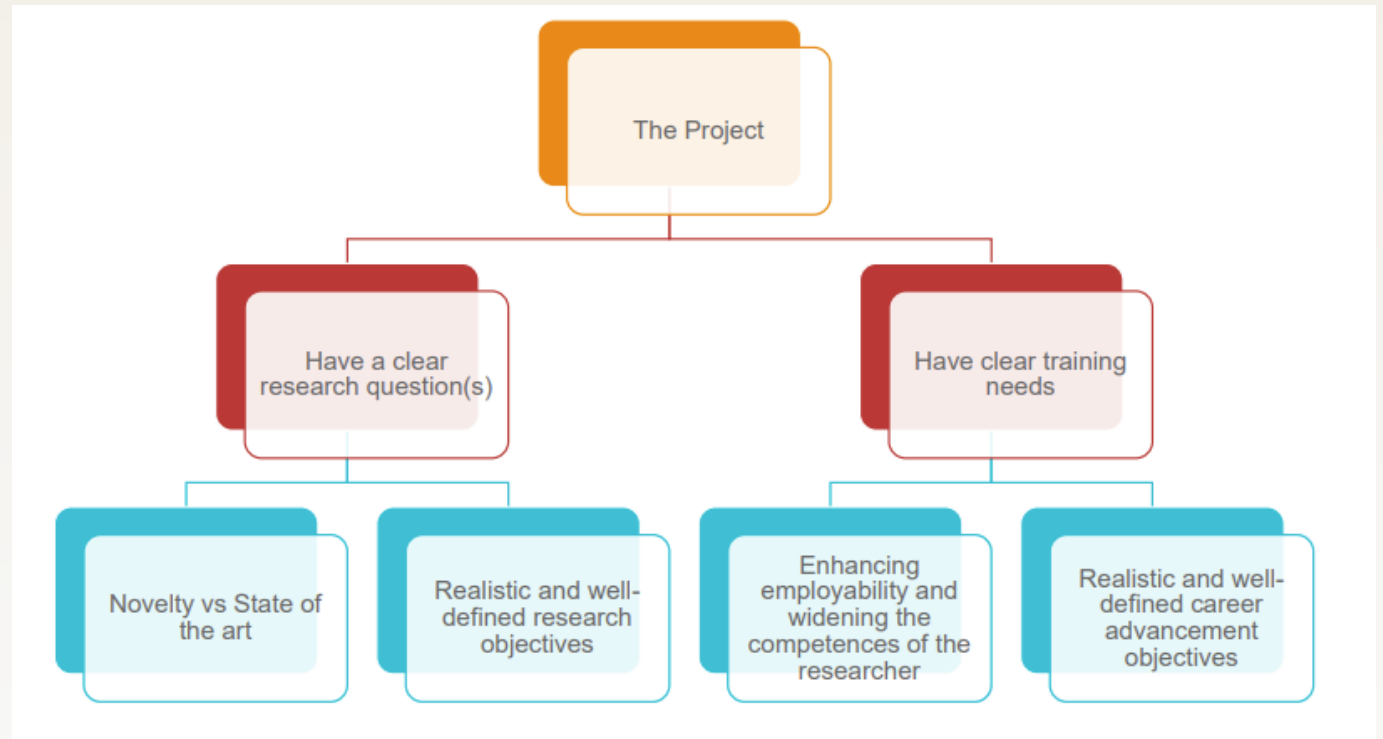
Strong collaboration with industry and SMEs



Pillar 1: MSCA Postdoctoral Fellowships – Overview

Postdoctoral Fellowships : Training through Research

- Enhance the creative and innovative potential of postdoctoral researchers
- Funds all research areas
- Fellowships last between 12-36 months depending on the type of fellowship (European Fellowship or Global Fellowship)
- All fellowships can include short stays, research trips, field work, secondments and placements in the non-academic sector - all are optional
- Fellows can be recruited to either the academic or non-academic sector
- No nationality requirements for European Fellowships



It is a Research and Training project



Funded by
the European Union

Pillar 1: MSCA Postdoctoral Fellowships - Eligibility

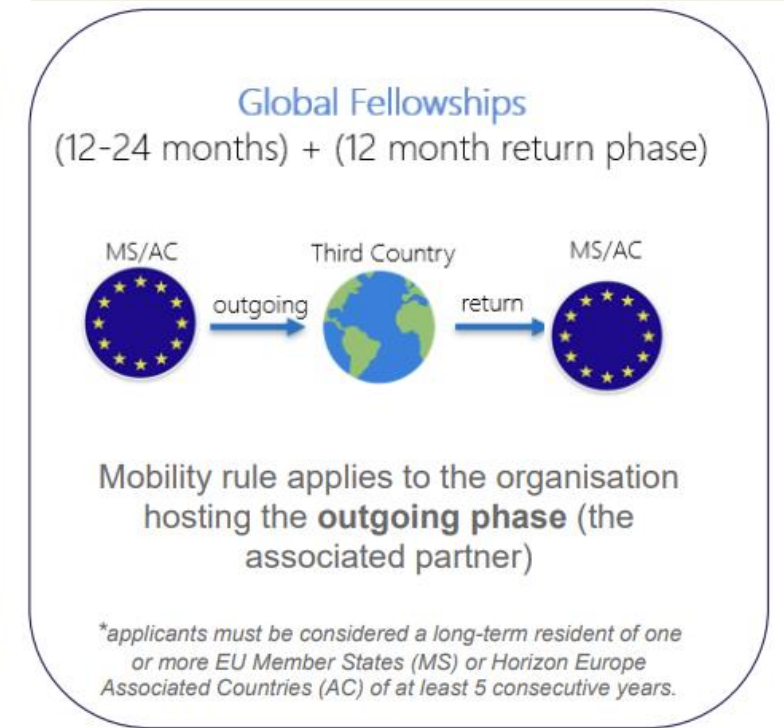
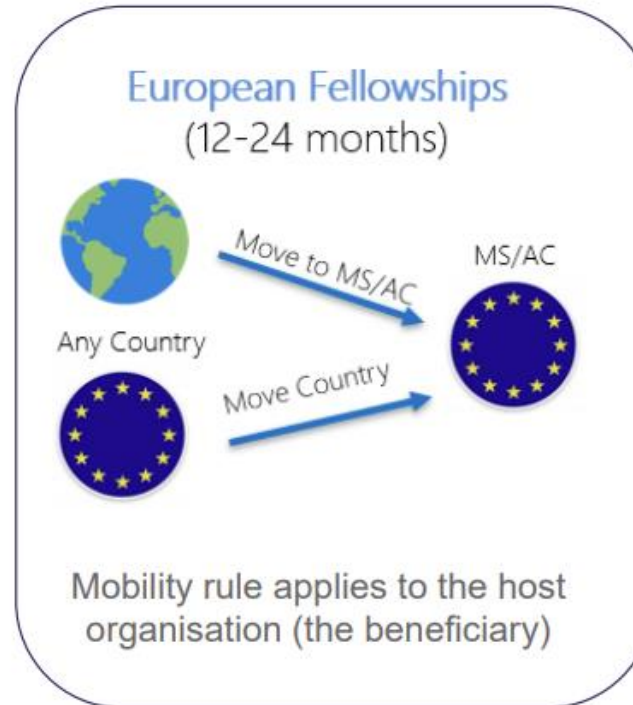
Eligibility Criteria (Fellows)

- Must be in possession of a doctoral degree (or have successfully defended one's doctoral thesis)
- Have a maximum of 8 years full-time equivalent research experience
- No nationality requirements

Global Postdoctoral Fellowship or researchers who wish to reintegrate to Europe from a third country (TC) must be nationals or long-term residents of MS or AC

- Mobility rule: Cannot have resided or carried out his/her main activity (work, studies, etc.) in the country of the host institution (European Fellowship), or host of the outgoing phase for a Global Fellowship) for more than 12 months in the 3 years immediately before the call deadline

Researchers wishing to reintegrate from a TC must have direct mobility to a MS or AC within the last 12 months before the call deadline or be in the TC at the call deadline



Eligibility of the Fellow must be checked by the Overseas Team as soon as possible. The fellow will be asked to provide documentation which will be used for an eligibility check.



Funded by
the European Union

MSCA Postdoctoral Fellowship Host Eligibility

Beneficiary

- Host of the European Fellowship and return phase of Global Fellowship
- Must be located in a MS / AC / Euratom AC
- Any legal entity within or outside academia
- Recruits the postdoctoral researcher

Associated Partner

- Host of the outgoing phase of the Global Fellowship
- Secondment and placement host
- Any legal entity within or outside academia
- Located anywhere in the world

Fellows will consider why a Host Institution is the best place to undertake their project :

Does the host have the necessary skills and experience to help meet the project objectives (research & training)?
Looking beyond the potential supervisor – departmental & institutional level matters as well

How will the Fellow be integrated into the institution?

The institution needs to be aware of the submission! Fellows should work closely with colleagues to set expectations and avoid surprises (during proposal development and project implementation)



Funded by
the European Union

MSCA Postdoctoral Fellowships – Finding the right fit

The Researcher

- Does the researcher have the potential to reach or re-enforce professional maturity/independence during the fellowship?
- Is the researcher able to clearly demonstrate their experience, competences and skills (relative to their career stage)?
- The track record is evaluated against other researchers in the same career stage, discipline and sector
- What are the future career prospects of the researcher?
- Does the researcher have clear scientific and training goals?
- How will the researcher be integrated into the team(s)/institution(s)?
- What knowledge is the researcher bringing and what will be gained during the project?

The Supervisor

- Appropriate level of supervision depends on the career stage of both parties, and the expectations of the project
- **The best proposals are constructed where the Supervisor has an active role in their development!**
- Think about/explain how the relationship will work day-to-day.
- Can be built on an existing collaborative relationship, but justify this in the application
- For less experienced supervisors, highlight any mentorship/ support for the supervisor; justify their involvement
- Additional individuals can take on a mentor/co-supervisor role
- Supervisor needs to be committed and involved for the full duration of the fellowship – evaluators must be convinced of this!
- Check out the [Guidelines for Supervision](#)



Secondments, short stays and placements

Secondments, short stays & placements

(all are optional, and proposals will not be penalised for not including a secondment or non-academic placement)

MSCA Postdoctoral Fellowship Project

MSCA European Fellowship: 12-24 months
MSCA Global Fellowship: 36 months

Non-academic Placement:

Up to 6 months at the end of the fellowship at a **non-academic institution**



Secondments (academic or non-academic)	Short Stays (academic or non-academic)	Non-academic Placements (NAPs)
Integral part of the proposal - must add significant value/impact to the fellowship. Will be assessed during evaluation, but organisation does not need to be named in the proposal	Can be planned in advance, or in line with the research and training needs of the fellow	Must be an integral part of the proposal and will be assessed during evaluation.
Must be in line with the project objectives and training needs of the research	Must be in line with the project objectives and training needs of the research	Must have added-value for the project and career development of the researcher
Must have clear supervisory arrangements	No defined supervisor arrangements	Must have clear supervisory arrangements



Funded by
the European Union

MSCA Actions – Evaluation

Key Elements for Excellence, Impact & Implementation

- Gender
- Open Science
- Dissemination
- Exploitation
- Communication
- Public engagement
- Impact (scientific, societal and economic)
- Quality of the supervision
- Integration in the team/institution and knowledge exchange

These aspects must **ALL** be addressed in the proposal!

Excellence (50%)	Impact (30%)	Quality and efficiency of the implementation (20%)
Quality and pertinence of the project's research and innovation objectives (and the extent to which they are ambitious , and go beyond the state of the art)	Credibility of the measures to enhance the career perspectives and employability of the researcher and contribution to his/her skills development	Quality and effectiveness of the work plan, assessment of risks and appropriateness of the effort assigned to work packages
Soundness of the proposed methodology (including interdisciplinary approaches, consideration of the gender dimension and other diversity aspects if relevant for the research project, and the quality of open science practices)	Suitability and quality of the measures to maximise expected outcomes and impacts , as set out in the dissemination and exploitation plan, including communication activities	Quality and capacity of the host institutions and participating organisations, including hosting arrangements
Quality of the supervision, training and of the two-way transfer of knowledge between the researcher and the host	The magnitude and importance of the project's contribution to the expected scientific, societal and economic impacts	
Quality and appropriateness of the researcher's professional experience, competences and skills		



Rest actions from Horizon EU



Research and innovation action (RIA)

Activities to establish new knowledge or to explore the feasibility of a new or improved technology, product, process, service or solution.



Coordination and support actions (CSA)

Activities that contribute to the objectives of Horizon Europe. This excludes R&I activities, except for 'Widening participation and spreading excellence'



Innovation action (IA)

Activities to produce plans and arrangements or designs for new, altered or improved products, processes or services.



Programme co-fund actions (CoFund)

A programme of activities established or implemented by legal entities managing or funding R&I programmes, other than EU funding bodies.



Evaluation criteria (RIAs and IAs)

EXCELLENCE

- ✓ Clarity and pertinence of the **project's objectives**, and the extent to which the proposed work is ambitious, and goes beyond the state-of-the-art.
- ✓ Soundness of the proposed **methodology**, including the underlying concepts, models, assumptions, interdisciplinary approaches, appropriate consideration of the **gender dimension** in research and innovation content, and the quality of **open science practices** including sharing and management of research outputs and engagement of citizens, civil society and end users where appropriate.

IMPACT

- ✓ Credibility of the **pathways** to achieve the expected **outcomes and impacts** specified in the work programme, and the likely scale and significance of the contributions due to the project.
- ✓ Suitability and quality of the **measures to maximize expected outcomes and impacts**, as set out in the dissemination and exploitation plan, including communication activities.

QUALITY AND EFFICIENCY OF THE IMPLEMENTATION

- ✓ Quality and effectiveness of the **work plan**, assessment of risks, and appropriateness of the effort assigned to work packages, and the resources overall.
- ✓ Capacity and role of each **participant**, and extent to which the **consortium** as a whole brings together the necessary expertise.



Key principles



Your proposed work must be within the scope of a work programme topic



You need to demonstrate that your idea is ambitious and goes beyond the state of the art



Your scientific methodology must take into account interdisciplinary, gender dimension and open science practices.



You should show how your project could contribute to the outcomes and impacts described in the work programme (the pathway to impact)



You should describe the planned measures to maximise the impact of your project ('plan for the dissemination and exploitation including communication activities')

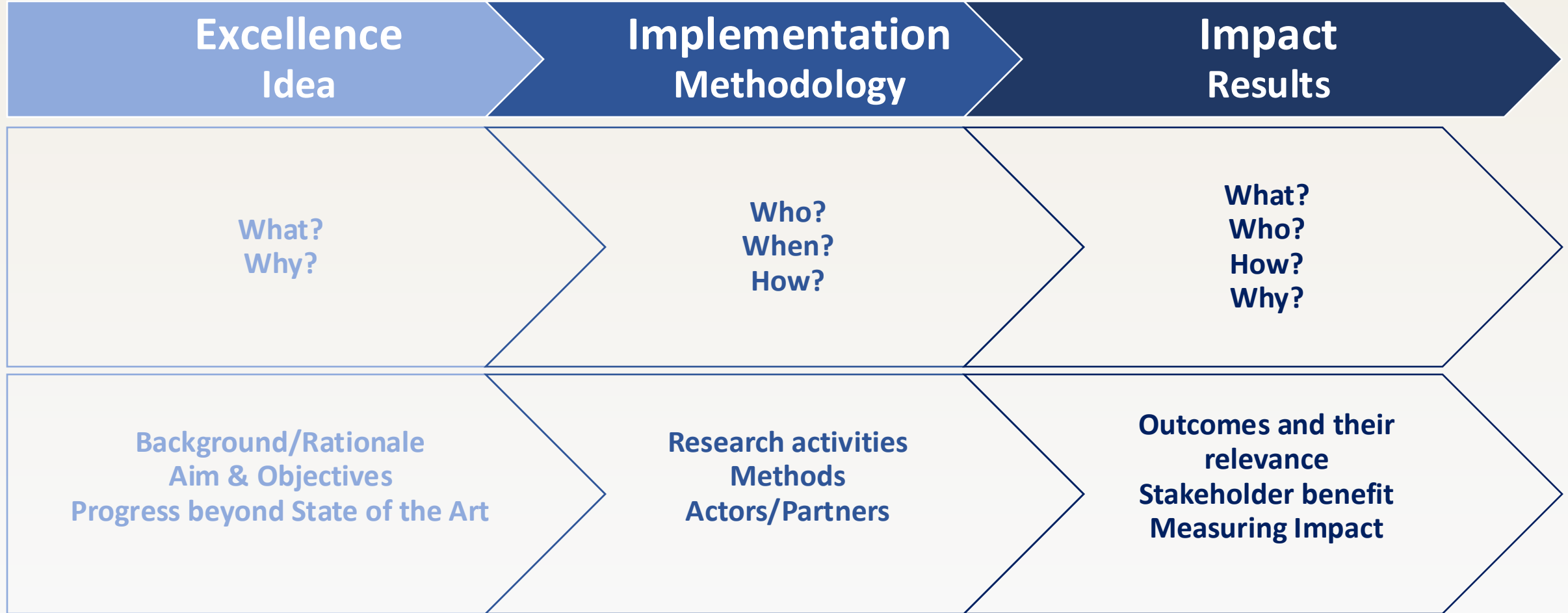


You should demonstrate the quality of your work plan, resources and participants



**Funded by
the European Union**

Customize your writing style



Customize your writing style

Do

- Respect page limits & formatting rules
- Keep guidelines handy & refer to relevant policies
- Be specific, but keep it simple and clear
- Answer the questions
- Make it easy to remember
- Use diagrams and chart

Don't

- Use abbreviations, acronyms, jargon
- General references to policies
- Use academic English (you are not writing a paper!)
- Concentrate on a specific section (i.e. science) → every section counts
- Make assumptions or take info for granted



Manage your time strategically

Do

- Plan ahead
- CV development (in some cases)
- Identify funding pipelines
- Take the time to understand the funder and the call

Don't

- Leave it to the last minute
- Start writing immediately



Funded by
the European Union

Matching EU Vision

The EU's key funding programme for research and innovation:

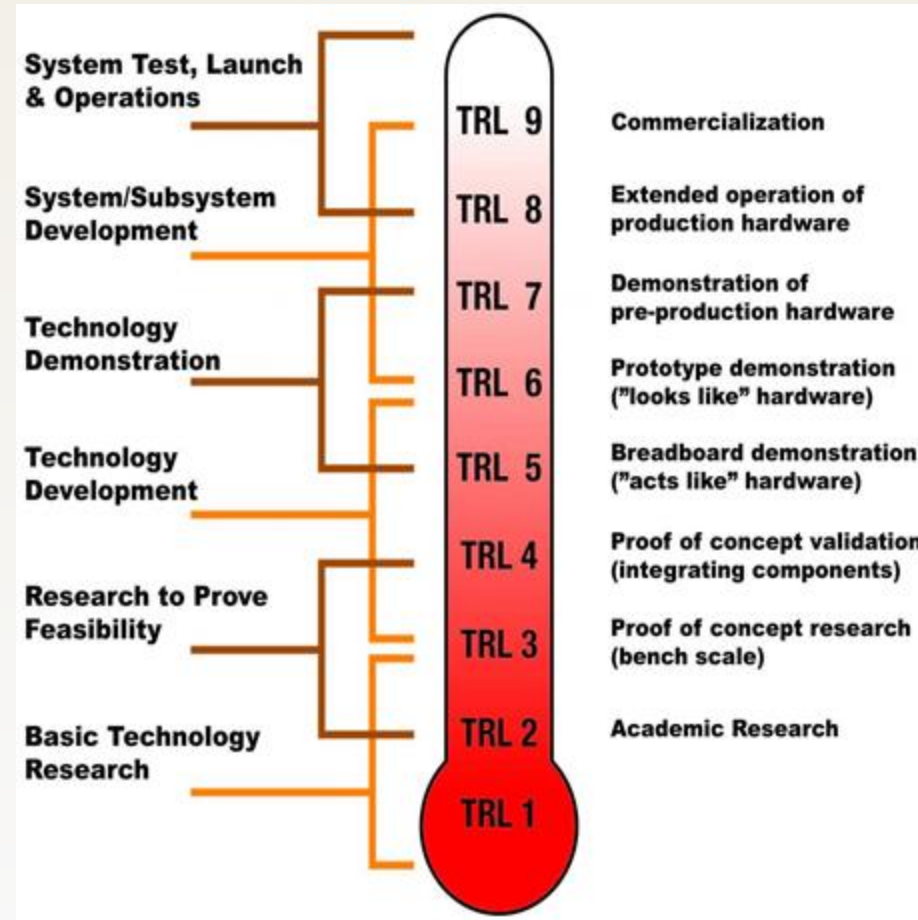
- Tackles climate change
- Helps to achieve the UN's Sustainable Development Goals
- Boosts the EU's competitiveness and growth
- Facilitates collaboration and strengthens the impact of research and innovation in developing, supporting and implementing EU policies while tackling global challenges
- Supports the creation and better diffusion of excellent knowledge and technologies
- Creates jobs, fully engages the EU's talent pool, boosts economic growth, promotes industrial competitiveness and optimises investment impact within a strengthened European Research Area.



Funded by
the European Union

Technology Readiness Level

- ✓ Technology Readiness Levels (TRLs) is used as a measurement of the maturity level of particular technologies in Horizon Europe.
- ✓ Many of the call topics have a defined TRL at which the implementation of the proposal is intended to start, as well as a target TRL.



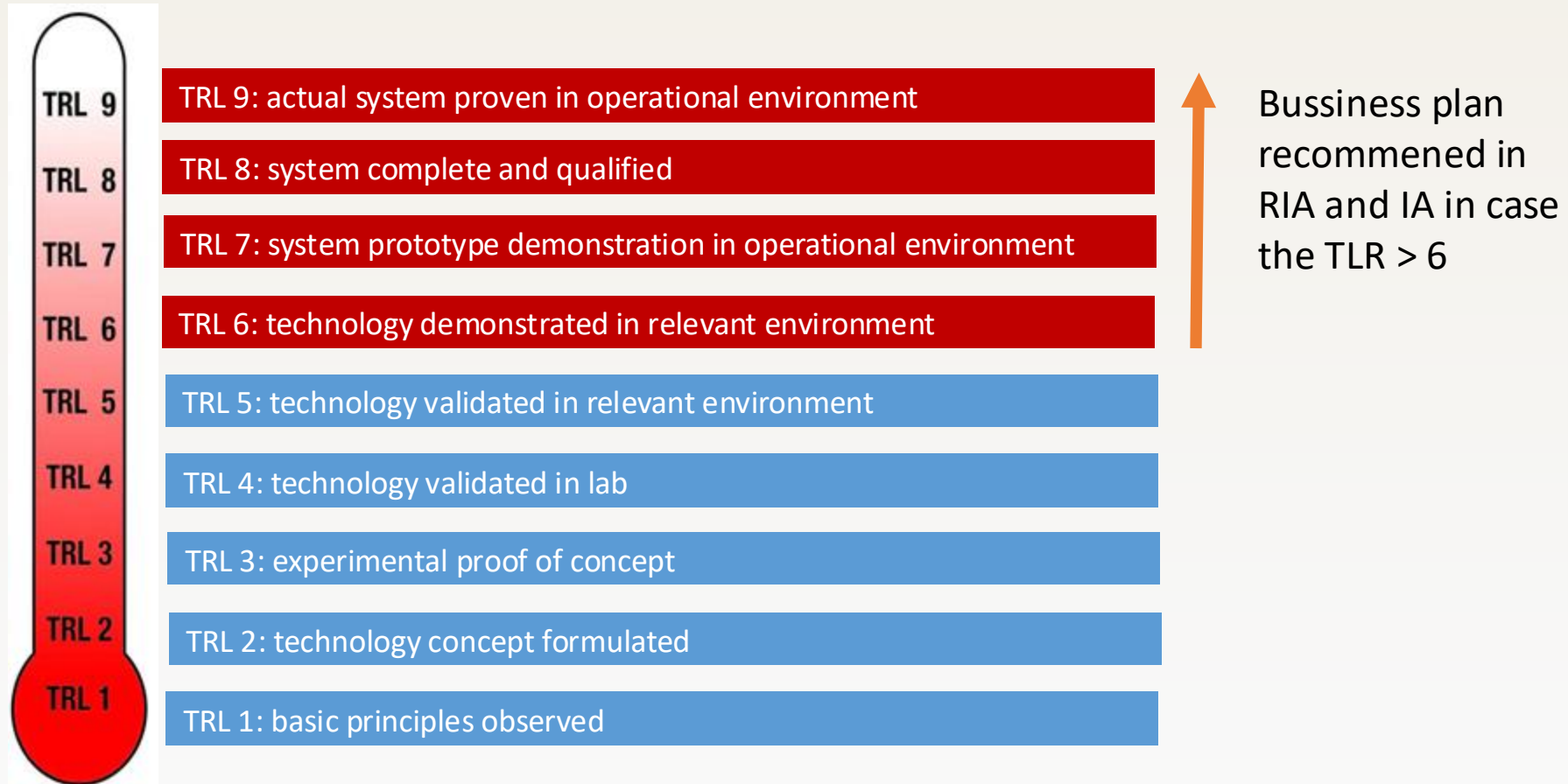
Technology Readiness Level

- This measurement system provides a common understanding of technology status and addresses the entire innovation chain.
- By evaluating a technology project against the parameters for each Technology Readiness Level one can assign a TRL rating to the project based on its stage of progress.
- There are nine technology readiness levels; TRL 1 being the lowest and TRL 9 the highest.



Technology Readiness Level

The higher Technology Readiness Level (TRL) means a more business- oriented project, close-to-market activities (TRL 6 till TRL 9) => RIA (if higher than TLR6)



Funded by
the European Union



COIN-3D

Collaborative Innovation
in 3D VLSI Reliability

Thank you!

George Floros

Trinity College Dublin, IE and University of Thessaly, GR

gefloros@e-ce.uth.gr



coin3d-project.eu/



Co-funded by
the European Union