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Technical Assistance for Turkey in Horizon 2020 Phase-II

EuropeAid/139098/IH/SER/TR

EIC Pathfinder and EIC Transition Training (Webinar)

Erich Prem, eutema

3 November 2022

REPUBLIC OF TURKEY
MINISTRY OF INDUSTRY
AND TECHNOLOGY

COMPETITIVE SECTORS PROGRAMME

TÜBİTAK

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Understanding EIC Pathfinder

Key features of the EIC Pathfinder
- Who should apply
- Why should you apply
- How to apply (eligibility criteria)
- Size of the grants and additional grant
- Evaluation and evaluation criteria
- **5** Pathfinder Challenges

20’ Introduction
30’ EIC Pathfinder Open
30’ EIC Pathfinder Challenges

Understanding EIC Transition

Key features of the EIC Transition
- Who should apply
- Why should you apply
- How to apply (eligibility criteria)
- Size of the grants and additional grant
- Evaluation and evaluation criteria
- **3** Transition Challenges

30’ EIC Transition Open
30’ EIC Transition Challenges

Important disclaimer:
Information is based on draft EIT work program, check against final publication.

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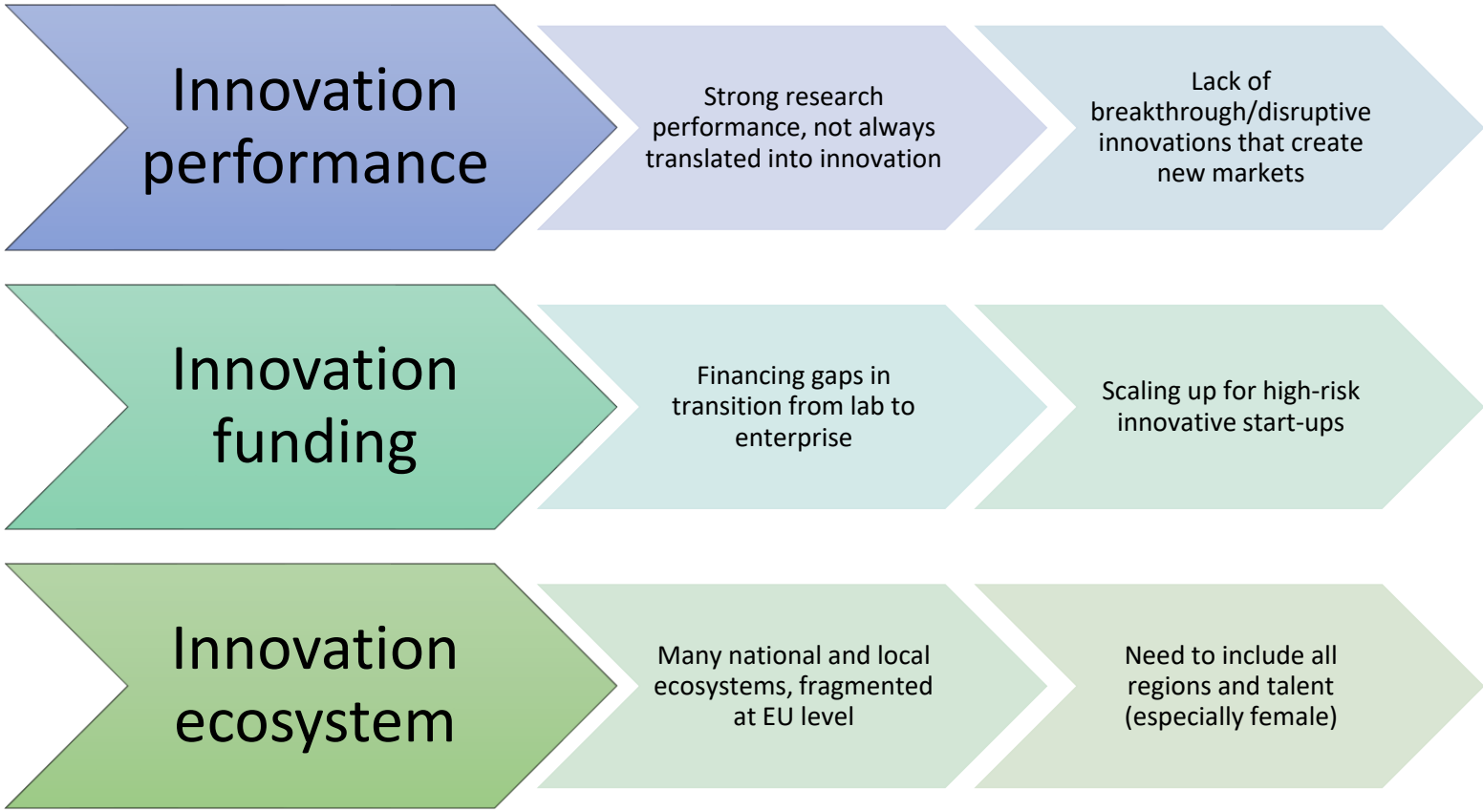
EIC Motivation



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European Innovation Council

- **€10 billion** programme to identify, develop and scale up breakthrough technologies and disruptive innovations in Europe
- **Unique** in the world to combine research on emerging technologies with accelerator for startups, SMEs and scaleups
- **EIC Fund** largest VC deep-tech investor in Europe (over €3 billion)
- **Innovator-centric** steered by Board of leading innovators
- **Pro-active approach** with flexible funding
- Enhances the **European innovation ecosystem**

EIC	EU Innovation Ecosystems	EIT (Inst. of Tech.)
Breakthrough innovations	Regional and national innovation actors	Joining key actors (industry, academia, …)
€ 10 bn	€ 520 million	€ 2.9 bn

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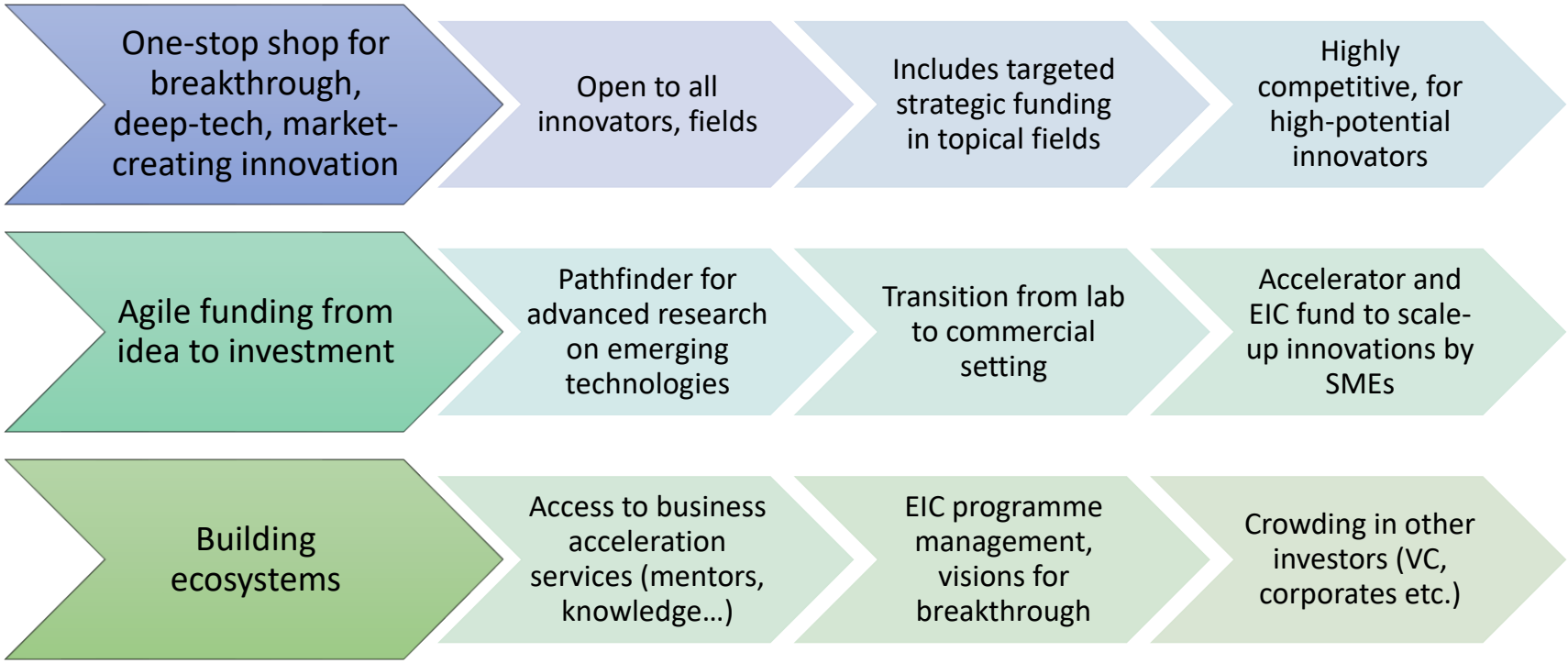
European Innovation Council



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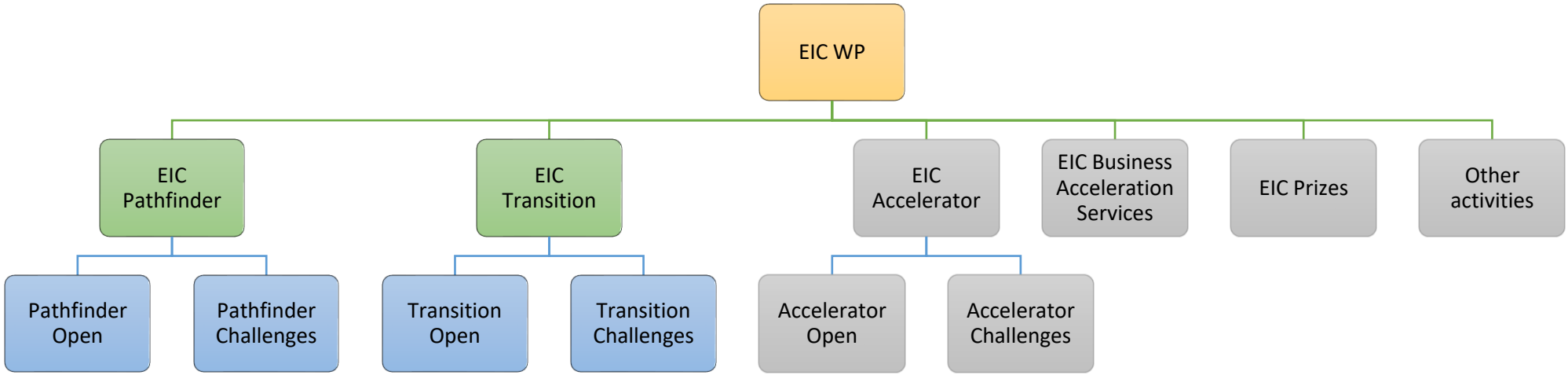
EIC Work Programme 2023

The EIC includes several different programmes supporting a broad range of different research and innovation activities



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Previous EIC activities

European Innovation Council Pathfinder Challenges

Successful proposals | Deadline 27 October 2021

403
PROPOSALS EVALUATED

27
COUNTRIES

39
PROJECTS CHOSEN

214
PARTICIPANTS

50.5% HIGHER EDUCATION,
25.2% PRIVATE ORGANISATIONS,
20.1% RESEARCH ORGANISATIONS,
3.7% OTHER
0.5% PUBLIC BODIES

€145 million
TOTAL EU CONTRIBUTION

€3.7 million
AVERAGE EU GRANT

European Innovation Council

https://eic.ec.europa.eu/news/european-innovation-council-award-eu145-million-achieve-breakthroughs-emerging-strategic-areas-2022-04-07_en

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Previous EIC projects (2021 call)

EIC Pathfinder Challenges - 2021 call					
Acronym	**Title**	**Coordinating organisation**	**Country coordinator**	**Duration (months)**	**Recommended EU Contribution**
Awareness inside					
ASTOUND	Improving social competences of virtual agents through artificial consciousness based on the Attention Schema Theory	Indeep AI SL	ES	36	3.330.898,00 €
METATOOL	A metapredictive model of synthetic awareness for enabling tool invention	UNIVERSIDAD POLITECNICA DE MADRID	ES	48	3.988.339,00 €
VALAWAI	Value-Aware Artificial Intelligence	AGENCIA ESTATAL CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	ES	48	3.927.059,00 €
SUSTAIN	Smart Building Sensitive to Daily Sentiment	AALTO KORKEAKOULUSAATIO SR	FI	42	2.550.196,00 €
EMERGE	Emergent awareness from minimal collectives	UNIVERSITA DI PISA	IT	48	3.644.196,00 €
SYMBIOTIK	Context-aware adaptive visualizations for critical decision making	UNIVERSITE DU LUXEMBOURG	LU	48	3.990.875,00 €
CAVAA	Counterfactual Assessment and Valuation for Awareness Architecture	STICHTING RADBOUD UNIVERSITEIT	NL	48	3.955.419,00 €
SymAware	Symbolic logic framework for situational awareness in mixed autonomy	UNIVERSITY OF NEWCASTLE UPON TYNE	UK	36	3.980.293,00 €

https://eic.ec.europa.eu/system/files/2022-04/PATHFINDER%20CHALLENGES%202021%20list%20of%20mailnlisted%20proposals-fv2.pdf

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Example MINIGRAPH

EIC Pathfinder Challenges grant to develop breakthrough neurotechnology for brain interfaces May 27, 2022ICN2

Granted a total of 5.2M euros, the project will be carried out by a consortium coordinated by the BIST centre ICN2 and includes INBRAIN Neuroelectronics, a spin-off company founded by researchers from ICN2, IMB-CNM-CSIC, and ICREA developing graphene-based implants to treat neurological diseases.

MINIGRAPH aims to develop ground-breaking brain neurotechnology for neuromodulation and a novel minimally invasive implantation procedure, for the treatment of neurological and neuropsychiatric diseases. The goal is to overcome some of the limitations of current clinical devices and technology, such as high invasiveness of the procedure, multiple side effects due to off-target stimulation, low signal resolution and lack of personalised and adaptive stimulation therapies.

Researchers will develop and validate new brain implants with closed-loop neuromodulation capabilities. A flexible electronic unit control and miniaturised, high-density arrays of graphene microelectrodes will be used to guarantee large spatial resolution and high signal-to-noise ratio…

https://bist.eu/icn2-leads-an-eic-pathfinder-challenges-grant-to-develop-breakthrough-neurotechnology-for-brain-interfaces/

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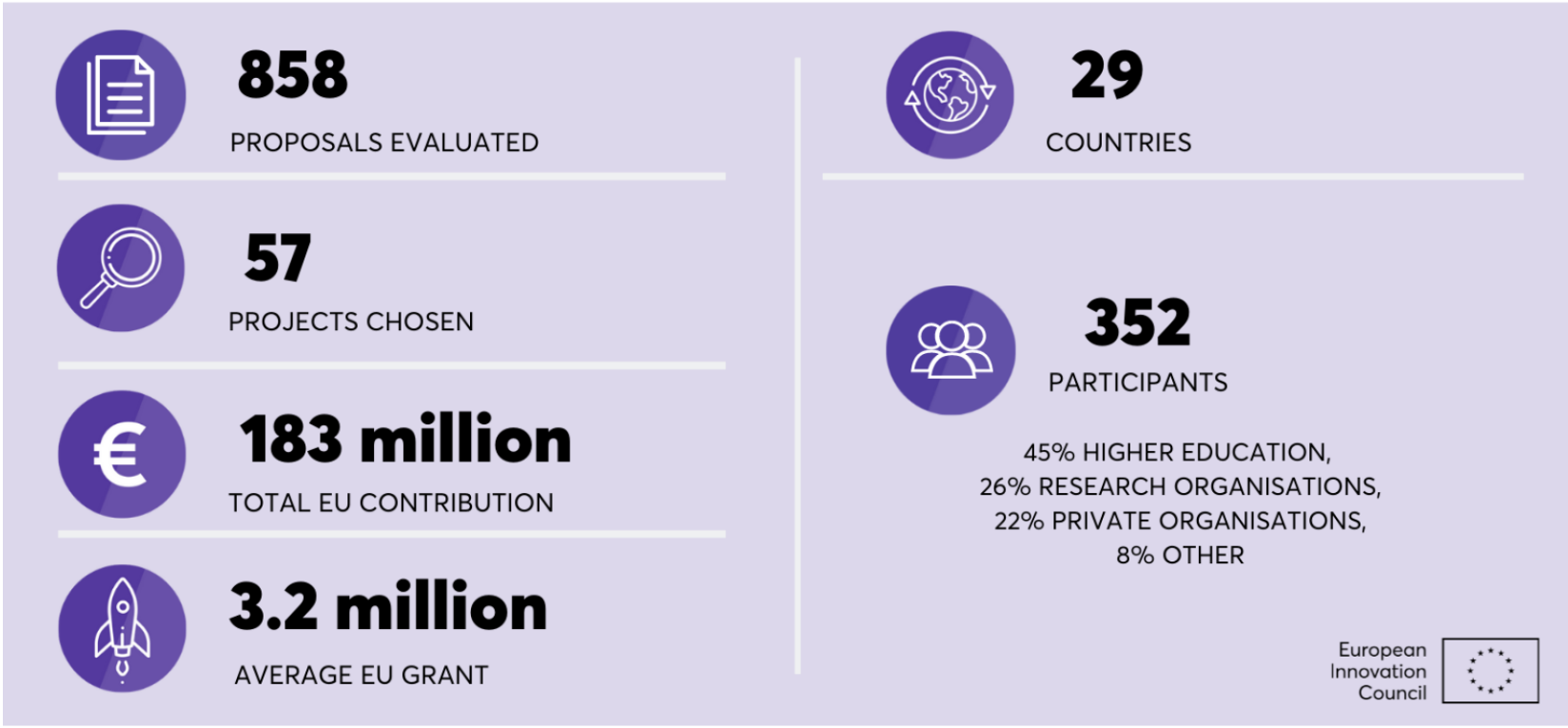
Previous EIC activities

European Innovation Council Pathfinder Open

Successful proposals | Cut-off 4 May 2022



https://eic.ec.europa.eu/news/eic-directs-more-eu180-million-cutting-edge-technologies-under-pathfinder-open-2022-call-2022-10-18_en

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EIC Information online

https://eic.ec.europa.eu/eic-funding-opportunities_en

Q&A

Time to ask your questions!

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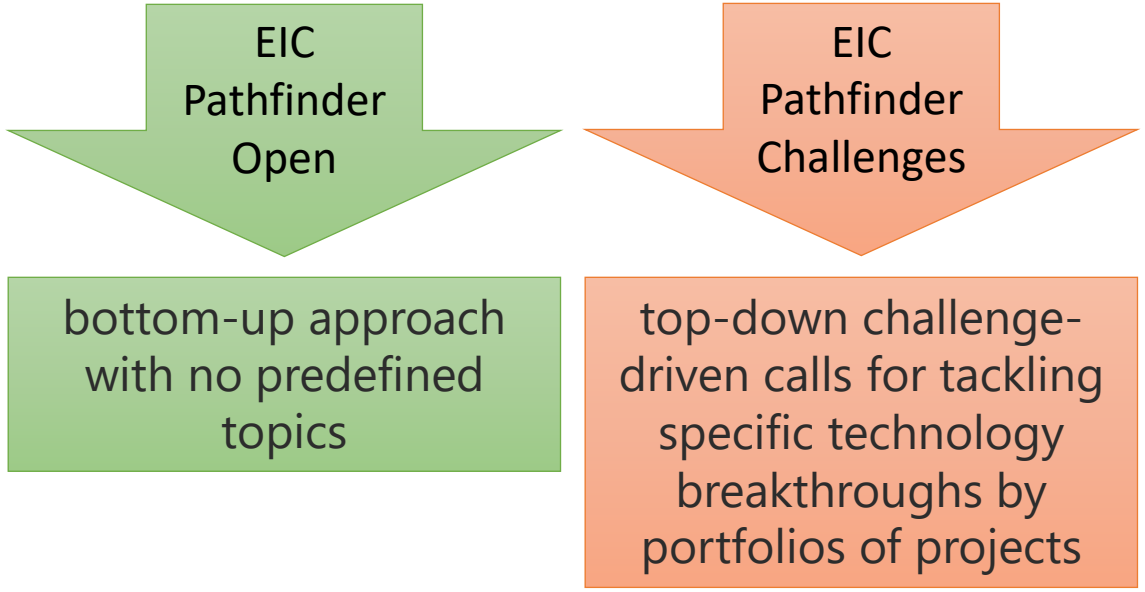
EIC Pathfinder

The EIC Pathfinder programme funds **research** to **develop the scientific basis** to underpin **breakthrough technologies**.



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Pathfinder Open – Who is it for? – “Gatekeepers"

- Do you have (convincing) **a vision of a radically new technology** that could make a real difference to our lives? (‘has transformative positive effect on economy and society’)

- Concrete, **novel and ambitious science-towards-technology breakthrough**, providing advancement towards the envisioned technology?

- **High-risk/high-gain research approach and methodology**, with concrete and plausible objectives

- Can you imagine collaborating with an **interdisciplinary team of researchers and innovators** to realise the **proof of principle** and validate the scientific basis of the future technology?

Familiar with FET?
EIC is similar but different!

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Why should you apply?

You apply for an EIC Pathfinder Open grant:

- for support to realise an ambitious vision for radically new technology, with potential to have transformative positive effect on economy and society
- for early-stage development of such future technologies (e.g. various activities at low Technology Readiness Levels 1-4),
- based on high-risk/high-gain science-towards technology breakthrough research (including 'deep-tech')
- to provide the foundations of the technology you are envisioning.

"Novel and ambitious science-towards-technology breakthrough"

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Expected Pathfinder TRL (Technology Readiness Level)

Expected TRL for EIC Pathfinder: 1-4

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Notably…

EIC Pathfinder Open may support

- High-risk research: try out things even when they don't work
- Facing questions that nobody yet knows how to answer
- Aspects of the problem, some of which you do not yet master
- High-gain: truly "changing the game"

On the contrary

- If the approach is just incremental, EIC Pathfinder will not support the work

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EIC Pathfinder Open: Gatekeepers (should I go or not?)

Collaborative, interdisciplinary research, meeting the following:

- **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.

(Note: risk is a must, not a problem).

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Expected outcomes of EIC Pathfinder Open project

- A **proof of principle** that the **main ideas of the envisioned future technology are feasible**, thus validating its scientific and technological basis;

- 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)**

- projects are encouraged to involve and empower in their teams **key actors** that have the potential to **become future leaders** in their field such as excellent early-career researchers or promising high-tech SMEs or start-ups

Although the impacts should be far-reaching and significant, they need not be achieved during the project. However, measures to allow future uptake and securing the impacts should be taken, e.g. by protecting IP.

This should **strengthen Europe's capacity for exploiting the scientific discoveries**.

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EIC Pathfinder Open: Can you apply? Consortium composition

A consortium has to include at least **three independent legal entities**, each one established in a different Member State or Associated Country and with at least one of them established in a Member State.

- Legal entities: universities, research organisations, SMEs, start-ups, industrial partners (see details in WP Annex 2)

Note: Pathfinder projects are often necessarily interdisciplinary, and a good consortium should reflect this.

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What support will you receive if your proposal is funded?

- You will receive a grant for a **Research and Innovation Action (RIA)** to cover the **eligible costs**, necessary for the implementation of your project.

- For this call, the EIC considers proposals with a requested EU contribution of **up to EUR 4 million** as appropriate. Nonetheless, this does not preclude you to request larger amounts, if properly justified. The funding rate of this grant will be 100% of the eligible costs.

- The total indicative budget for the next call is expected at app. € 179.5 million.

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Additional opportunities for selected projects?

Projects or their beneficiaries funded through EIC Pathfinder are eligible:

- to receive additional **Booster grants** (up to 3 per project or more if duly justified) with fixed amounts of up to €50,000 :
  - for complementary activities to explore potential pathways to commercialization
  - for portfolio activities.
- to submit an **EIC Transition**
- to submit an **EIC Accelerator** proposal via the **Fast Track** scheme;
- to participate in **Next Generation Innovation Talents** scheme.

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Application and evaluation: How do you apply?

• You must submit your application via the **EU Funding & Tenders Portal** before the given deadline.

- Specific EIC Pathfinder **Open proposal** template
- Maximum **17 pages** (A4) for the sections 1-3 in part B.

• You will be informed about the outcome of the evaluation within **5 months from the call deadline** (indicative).
• If your proposal is accepted for funding, your grant agreement will be signed by **8 months after the call deadline** (indicative).
• The deadline to submit the proposal is **7 March, 2022 at 17h00** CET.

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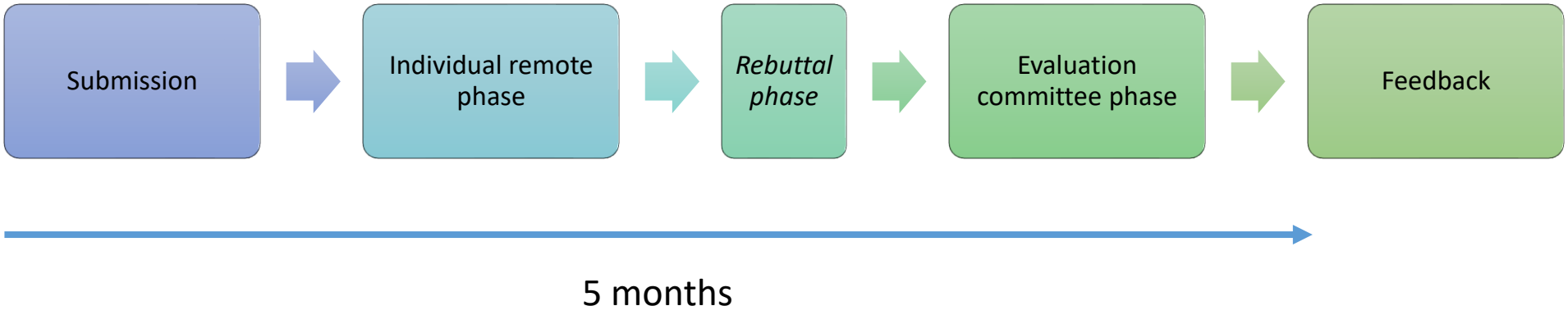
Decision procedure and timeline



After information: Grant Agreement preparation (about 3 months)

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Rebuttal phase – Right-to-react

- You will have the opportunity to **reply within 8 calendar days** to the evaluators' comments;
- your **replies cannot be used to alter or add to the content** of the proposals, but must strictly focus on providing clarifications and/or on responding to potential misunderstandings or errors by the evaluators;
- the replies will be **made available to the evaluation committee**;
- the evaluation committee will **take into consideration** the comments from the rebuttal procedure, if any, in order to arrive at their final scores for the proposals that underwent this procedure.

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Evaluation: Individual remote phase

- Expert evaluators (4) evaluate the proposals with respect to the **evaluation 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.

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1. Evaluation criterion: *Excellence*

- **Long-term vision:** How convincing is the vision of a radically new technology that has the potential to have a transformative positive effect to our economy and society?
- **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 what extent are high-risk/high-gain research approach and methodology 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?

Threshold 4/5; weight 60%

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2. Evaluation criterion: *Impact*

- **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:** 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 societal or economic impact? How suitable are the proposed measures for empowering key actors that have the potential to take the lead in translating research into innovations?
- **Communication and Dissemination:** How suitable the measures to maximise expected outcomes and impacts, including communication activities, for raising awareness about the project results' potential to establish new markets and/or address global challenges?

Threshold 3.5/5; weight 20%

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3. Evaluation criterion: *Quality and efficiency of the implementation*

- **Quality of the consortium:** To what extent do the consortium members have all the necessary high-quality expertise for performing the project tasks?
- **Work plan:** How coherent and effective are the work plan (work packages, tasks, deliverables, milestones, time-line, etc.) and risk mitigation measures in order to achieve the project objectives?
- **Allocation of resources:** How appropriate and effective is the allocation of resources (person months and equipment) to tasks and consortium members?

Threshold 3.5/5; weight 20%

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Evaluation committee phase

- The evaluation committee will be composed of **external independent experts different** than those who evaluated the proposals remotely;
- The **final score** will be decided based on the remote score and the outcome of its consensus discussions, taking into consideration the comments from the rebuttal procedure, if any;
- These discussions will **focus on controversial proposals that have a realistic chance of getting funded** (i.e. proposals from an appropriately chosen range above and below the funding threshold);
- **Expert evaluators** who evaluated and scored the proposals remotely may be **invited to the consensus discussions**, in particular for controversial proposals;
- The evaluation committee will confirm the **ranking list**.

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Feedback to applicants

Applicants will receive an **Evaluation Summary Report** that will comprise of:

- The **final score;**
- A collation of the **comments** from individual reports, or extracts from them;
- A **comment that summarises** the assessment by the evaluation committee;
- **Additional comments,** possibly including advice not to resubmit proposal.

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Draft EIC Pathfinder and Transition Planning for 2023

Funding scheme	Deadlines
EIC Pathfinder Open	**7 March 2023, 5pm**
EIC Pathfinder Challenges	18 October 2023
EIC Transition Open and Challenges	12 April 2023 27 September 2023

Disclaimer: Dates need to be checked against final 2023 version of the work programme!

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EIC Information Hub

Funding scheme	Documents
EIC Pathfinder Open	EIC Work Programme FAQ Proposal Template
+ for Challenges:	Challenge descriptions
EIC Transition Open	EIC Work Programme FAQ Guide for applications
+ for Challenges	Challenge descriptions

https://eic.ec.europa.eu/eic-funding-opportunities/eic-pathfinder_en

TURKEY in HORIZON 2020
COOPERATION, INNOVATION, COMPETITIVENESS

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Pathfinder Challenges

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Pathfinder Challenges

EIC Pathfinder Challenges aim to **build on new, cutting-edge directions in science and technology** to disrupt a field and a market or create new opportunities **by realizing innovative technological solutions** grounded in high-risk/high-gain research and development.

Top-down, based on given vision for each Challenge
Indicative: TRL 2-4.

RIA -100% of eligible costs
Grants of up to **EUR 4 million**
Total expected budget: € **163.5** Million

One cut-off date: **18 Oct 2023**

Sections 1 to 3 of the Part B – maximum of **25** pages

Information 5 months after submission, signature of grant months after submission.

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Pathfinder Challenges

- **Specific outcomes** defined in the respective **challenge chapter**
- The **Challenge Guides** are published when the call opens
- They will provide **more information** about the specific objectives of the challenge, e.g.:
  - a detailed assessment of the **state of the art** and related (existing) projects in the field
  - **technical information** to underpin the objectives
  - potential societal, economic, environmental **impacts** if the objectives are achieved
  - relevant **references**
- Project results should include **top-level scientific publications** in open access
- Adequate formal **protection of the generated Intellectual Property** (IP)

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Do you have what EIC are looking for?

You have an **ambitious idea** to realise or significantly contribute to the vision of a specific Pathfinder Challenge.

- EIC is particularly interested in **new deep-tech:** technology that becomes possible thanks to cutting-edge science in an area of the specific Challenge.
- We are seeking **new technological solutions at early stage of development** that can disrupt the standard practice and create new opportunities.
- In order to **secure this high innovation potential**, project outcomes must include top-level scientific publications as well as an adequate formal protection of the generated (and often unexpected) intellectual property (IP).
- Be prepared to become part of a **Challenge portfolio**, overseen and pro-actively managed by **EIC Programme Managers.**

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Pathfinder Challenges Eligibility

Consortia or single legal entities (unless stated otherwise for the specific challenge*):
In case of consortium, they have to include **at least two** independent legal entities:

- consortia of two must have independent legal entities from two different Member States or Associated Countries;
- consortia of three or above follow standard rules i.e. at least one legal entity must be from a Member State;

In the case of single entity, **mid-caps and larger companies will not be permitted**.

(Disclaimer: check the final program document, also for the chosen challenge.)

II.2.1 EIC Pathfinder Challenge: Clean and efficient cooling

II.2.2 EIC Pathfinder Challenge: Architecture, Engineering and Construction digitalisation for a novel triad of design, fabrication, and materials

II.2.3 EIC Pathfinder Challenge: Precision nutrition

II.2.4 EIC Pathfinder Challenge: Responsible electronics

II.2.5 EIC Pathfinder Challenge: In-space solar energy harvesting for innovative space applications

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II.2.1 Clean and efficient cooling

Objectives

Explore the potentials of new devices, processes, components and materials for clean cooling generation, storage and/or transport, such as:

- Transformational research that could displace existing technologies (e.g. Phase Change Materials, thermophotonic cooling, reversible combustion materials.), Integration of renewable energy, waste heat recovery or energy harvesting for cooling (passive cooling, radiative and solar cooling, etc). Store and transport cold (decoupling demand/generation) and system level integration opportunities. Integration of innovative and low-CO2 cooling concepts in particular in hard to abate industrial sector
- computational modelling and validation of energy-intensive low-temperature heat transfer processes, materials and components including their dynamic performance and system component design, including heat exchangers topological optimization;
- net zero cooling technologies for industrial and residential sector
- ultra-energy efficient operations and logistics along the cold supply chain and decoupling generation and use of cooling via thermal carriers, including systems integration opportunities;
- new designs and concepts for food processing and medical applications;
- unconventional refrigeration principles, mixed refrigerants, novel cycles configurations.

Expected outcomes

- Increase the EU technological leadership in the cooling sector and in strategic productive fields strongly linked to cold production (such as food),
- Give broad access to building comfort and health in living environment,
- Increase operational security of server and computing facilities,
- Reduce carbon footprint of energy systems and address climate change mitigation
- Address climate change adaptation (in particular in semi-deserted areas) and food security, including possibilities of international outreach,
- Reduce EU dependency from, and diversify EU sourcing of, critical materials supply.

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II.2.2 Architecture, engineering, and construction digitalisation for a novel triad of design, fabrication, and materials

Objectives

- Computational design. This relates to the development of tools and techniques that advance the state of the art on physical simulation including through the use of interconnected digital representations (digital twins) or nature inspired solutions;
- Digital fabrication. This relates to novel concepts for 3D-printing, robotics and automation.
- Alternative materials. This relates to the adoption of novel materials, including engineered materials or those that are capable of removing carbon (i.e. cross laminated timber, engineered timber derivatives, densified wood composites, biochar materials).

Expected outcomes

This AEC Pathfinder Challenge ideally attracts a range of novel design, fabrication and material R&I developments that can mutually benefit from a portfolio approach and collaborative paradigms during project execution within the EIC.

Proof of principle and validation of scientific basis of the breakthrough technology. The development and expression of techno-economic views on geometric and economic scalability of the technology itself, coupled with an entrepreneurial path towards commercialisation and future adoption by the AEC value chain are strongly encouraged.

Demonstrate interdisciplinary and collaborative processes to create critical interactions between disciplines, economic sectors, and other partners with relevant skills as appropriate. The overall goal is to support the formation of new partnerships with innovative approaches and unique solutions that foster new R&I communities and ecosystems to nurture long term changes in the AEC sector.

Inspire an ambition for the AEC sector to create higher quality jobs in a more progressive and appealing business culture that is ready to deliver a transformation of the built environment in line with the European Green Deal and the New European Bauhaus.

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II.2.3 Precision nutrition

Objectives

- Confirm and quantify causal relationships among diet, microbiome and glycans, with strong emphasis on factors with significant stratifying effect on human diet. Provide scientific evidence to stratify dietary recommendations for obesity and particular NCDs such as but not limited to diabetes, hypertension, osteoarthritis, rheumatic arthritis, Parkinson's- and Alzheimer's disease.
- Identify food ingredients, food technology processes, additives and dietary patterns that have detrimental effects on human health, aging, the microbiome and the glycome so appropriate measures can be implemented during the design of novel foods and dietary patterns.
- Identify food ingredients, food technology processes and additives that have beneficial effect on human health, aging, the microbiome, the glycome and later expression of NCDs.
- Provide scientific evidence to stratify dietary recommendations for targeted microbiome modulation.
- Provide scientific evidence and process/product development recommendations for the reformulation of processed food with no- or less additives.
- Provide scientific evidence and process/product development recommendations for the design of novel foods tailored to stratified/ individual dietary needs.

Expected outcomes

- By laying the foundation for microbiome restauration strategies and understanding the links between diet and human health and pathology, this Challenge aims to prevent and alleviate the consequences of obesity and NCDs on health and wellbeing by providing scientific evidence to upgrade the current dietary guidelines.
- The expected impact of this Challenge is a decreased incidence of NCDs and obesity among the general population, and a better quality of life for the individuals affected by these conditions.

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II.2.4 Responsible electronics

Objectives

- Advanced materials:
  - small-molecule and polymeric organic materials,
  - organic-inorganic hybrid materials,
  - polymer-matrix nano-composite materials,
  - bio-based and nature-inspired materials for the manufacturing of n- and p-semiconductors, dielectrics, conductors, including transparent conductors, particularly suitable to make functional inks, encapsulation/packaging materials, flexible substrates, etc.
- Advanced processes:
  - production methods based on solution processing such as blade coating, slot
  - die coating, spray coating, screen printing, inkjet printing, offset, gravure and flexo printing, or other techniques particularly suitable for sheet-to-sheet or roll-to-roll manufacturing.
- Advanced applications:
  - Logic circuits, sensors, power supplies, wireless transmitters/receivers, etc.

Expected outcomes

This challenge is expected to contribute to the development of materials with new properties or replacing current materials for electronics with materials, which:

- reduce dependency on critical raw materials,
- are sustainable: having a low environmental footprint and developed recurring to the life cycle thinking approach.

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II.2.5 In-space solar power harvesting and novel propulsion approaches

Objectives

- Scalable solutions (e.g., solar energy harvesting antennas) for in-orbit efficient solar power collection.
- Conversion of the harvested energy in a form, appropriate for transmission at long distances in empty space.
- Efficient wireless and secure power transmission of the transformed energy between in-space harvesting devices on spacecraft and re-translation stations or other final receivers. This may require a grid of re-transmitting stations, which not only amplify the wireless transmission but also redirect the transmission as necessary.
- Novel technologies for propulsion in space.

Expected outcomes

- Design and laboratory validation of concepts to develop technologies for energy harvesting in space e.g. in-space utilisation of this energy for transportation and other related research and innovation activities, in particular for cleaning space debris;
- Development and laboratory validation of breakthrough technologies for wireless power transmission of energy, e.g. through power grid, for energy beam pointing and control;
- Development of eco-friendly and innovative green propulsion solutions for in-space applications (e.g., spacecraft orbital corrections, in orbit satellite servicing, active debris removal, end-of-life services, etc.).

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Pathfinder challenge evaluation

Excellence - 60%
Threshold - 4/5

- Relevance to the Challenge
- Novelty
- Plausibility of methodology

Impact - 20%
Threshold - 3.5/5

- Potential Impact
- Innovation potential
- Communication and Dissemination

Implementation – 20%
Threshold - 3/5

- Quality of the applicant/consortium
- Work plan
- Allocation of Resources

Scores: median of individual evaluator scores. Proposal score: weighted sum of median scores. In 2nd step: choice depending on portfolio considerations – i.e. also depending on categories or components.

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Pathfinder challenge guides

Challenge portfolio approach:

- a **coherent set of projects** exploring different perspectives, competing approaches or complementary aspects of the Challenge;
- multidisciplinary interactions and exchanges for synergies and serendipity;
- contributing to an overarching medium to long-term business goal and technology-based strategic plan, under the supervision of an **EIC Programme Manager.**

Projects will participate in relevant portfolio activities.

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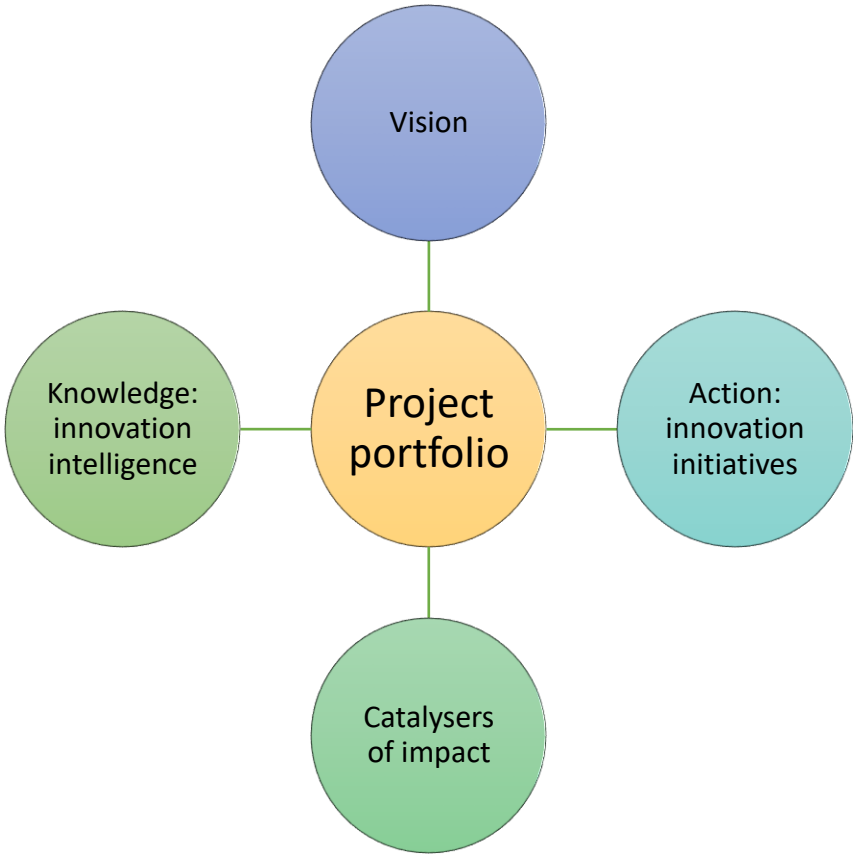
EIC Programme Managers

Bringing together cutting-edge expertise and visionary drive to turn new technological breakthroughs into relevant and responsible innovations for Europe and for the world: ready to work with others, to accelerate where possible, to be patient where needed, to learn from mistakes and, ultimately, to share the success.



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Proactive management - impact

Engagement and interaction among projects to seed new ideas and facilitate cross-sectorial contamination: impact on specific research

Vision to integrate projects towards ambitious targets and address broader research challenges (portfolio goals)

Nurture the transition to innovation by balancing dissemination and IP protection, and networking with key players

Bridging EIC projects and other EU programmes, i.e. Horizon Missions, ERC, EIT, societal challenges, national/regional programmes

Identify regulatory or legislative gaps and propose opportunities to bridge them

Steer the research and innovation towards EU policy orientations: take strategic directions and influence policy

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Draft EIC Pathfinder and Transition Planning for 2023

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EIC Transition Open and Challenges	12 April 2023 27 September 2023

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Q&A

Time to ask your questions!

REPUBLIC OF TURKEY
MINISTRY OF INDUSTRY
AND TECHNOLOGY

COMPETITIVE SECTORS PROGRAMME

TÜBİTAK

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EIC Transition

The EIC Transition programme funds **innovation activities** that go beyond the experimental proof-of-principle: maturation and validation of novel technology.

EIC Transition Open

no predefined thematic priorities – of to (nearly) any field of science, technology or application

EIC Transition Challenges

in predefined thematic areas of emerging and strategic technologies

Building on results of previous EIC and related projects.

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EIC Transition

EIC Transition funds innovation activities that go **beyond the experimental proof of principle** in laboratory to supports both:

- the **maturation and validation** of your novel technology in the lab and in relevant application environments
- the **development of a business case** and (business) model towards the innovation's future commercialisation.

Grants of up to €2.5million and more are available to validate and demonstrate technology in application-relevant environment and develop market readiness.

Analogous to Pathfinder:

- EIC Transition Open: no predefined thematic priorities – open to any field of STI
- EIC Transition Challenge: predefined thematic areas of emerging, **strategic** technologies

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EIC Transition

Results generated by:

- EIC Pathfinder projects, EIC pilot Pathfinder
- H2020 FET Projects (FET Open, FET Proactive, FET Flagships)
- ERANET calls under the FET work programme (e.g. FLAGERA, QUANTERA & CHISTERA)
- ERC Proof of Concept projects
- EDF research projects, but only for civil focus
- For Transition challenge only: all H2020 and Horizon Europe projects

The "mother" project:

Should at least run 12 months, or

Should not have finished more than 24 months ago

You do not need to be a participant, PI or result owner of the previous project, but you must specify in your application the result and relevant IP to be developed and include written evidence from the relevant owner(s) of the result(s), which confirms the existence of the necessary agreements with you, including on IPR.

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EIC Transition

Specific terms (Open & Challenges):
RIA: 100% of eligible costs
Grants between 500 000 up to **EUR 2.5 million**
Typical duration: 1 to 3 years

- Open: EURO 67.86 Million
- Challenges: EURO 60.5 Million

Cut-off dates: **12 April 2021** and **27 September 2021**

Sections 1 to 3 of the Part B –maximum of **20** A4 pages
A small consortium of **two to five independent legal entities** (‘multi-beneficiary’), or
A **single legal entity** (‘mono-beneficiary’)
Larger companies are not eligible.

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EIC Transition

New funding scheme tested in 2021

Bridging the gap from proof of concept to viable business case (TRL 4-6 and business/ market readiness):

- Increase **maturity of the technology** to TRL 5-6 (research, technology development and validation activities)
- Develop **business plans** for specific applications (market research, business case, intellectual property protection, ...)

Making the solution **investment ready** (regulation, certification, standardisation, …) towards **Entrepreneurship/Licensing**

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Transition to increase TRL (Technology Readiness Level)

Expected TRL for EIC Transition: 5-6

Expected TRL for EIC Pathfinder: 1-4

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Expected outcomes and objectives

A technology that is demonstrated to be effective for its intended application
A business model and business plan for its development to market
Allow future uptake to take place, for instance through an adequate formal protection of the generated **Intellectual Property (IP)**
At the end of your Transition project, you should be **ready for the next stage**, which can be:

- to apply for **EIC Accelerator** (if you are a SME, including start-ups or spin-offs)
- to seek other investors or **sources of funding**
- to enter **licensing or collaboration agreements** with third parties, or
- other **routes to market deployment**

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Some illustrative examples

RTD project

- A focused collaborative project to further develop strategic and high impact technologies towards **specific applications** while **improving also the market readiness**: a collaboration among several applicants

Maturing previous resarch

- An SME (e.g. start-ups) identifies **a market opportunity to apply the results** of an EIC Pathfinder or ERC Proof of Concept project towards a specific market application. Uses licensing arrangement and could involve a collaboration

Product creation

- A team of entrepreneurial researchers within a RTI organisation want to **turn selected project results into a viable product**. Develop business model or creating a start-up. Can be relatively close to market or ready for investment (e.g. often with higher TRLs) and would therefore not need significant further technological development and lower funding.

End of project: ready for next stage, e.g. EIC Accelorator to seek investors or funding.

Transition evaluation – Step 1

Excellence (Th 4/5)

- Technological breakthrough: Does the technology have a high degree of novelty compared to other technologies available or in development? Does the technology indicate high potential business application?
- Objectives: How credible and feasible are the objectives for the planned technology development? How credible and feasible are the objectives (and KPIs) for the planned business development process?
- Additional Consideration for EIC Transition Challenges ONLY: How relevant are the proposal objectives in contributing to the specific objectives of the Challenge?
- Methodology: Is the timing right for this technology/innovation (i.e., feasibility, technological readiness, unique selling points)?

Impact (Th 4/5)

- Credibility of the impacts Are the described expected impacts credible and realistic in the project and beyond?
- Additional Consideration for EIC Transition Challenges ONLY: Does the proposed application contribute to the expected outcomes and impacts, set out in the Challenge?
- Economic and/or societal benefits: Does the proposed innovation have scale-up potential including high capacity to gain or create new European or global markets? Is the proposed innovation expected to generate other pos. impacts (strategic autonomy, employment, societal, environmental etc.)?
- Investment readiness and go to market strategy: Does the proposal and its activities make the technology and the team investment-ready (including through IP protection and market validation)? Is there a convincing go-to market pathway/strategy, including what regulatory approvals may be needed (if relevant), time to market, possible business and revenue model?

Implementation (Th 3/5)

- Quality and motivation of the team: To what extent does the (project) team have the necessary high-quality capabilities and motivation to move decisively towards market. To what extent do the applicant(s) have the necessary expertise to create a unique commercial value from the emerging technology and develop an attractive business and investment proposition?
- KPIs and Milestones: Are both milestones and KPIs present, relevant and clearly defined (measurable, timed, comparable etc.) to track progress along the pathway towards objectives? Have the main risks (e.g., technological, market, financial etc.) been identified, together with measures to mitigate in order to achieve the project objectives?
- Workplan and allocation of resources: How appropriate and effective is the allocation of resources (person-months and equipment) in the workplan and work packages and project partners?

Transition evaluation – Step 2 after hearing

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Table 5. Award criteria for EIC Transition Open and Challenges at second evaluation step (Jury interview)

Excellence (GO/NO GO)
Technological breakthrough: Does the technology/innovation – through its degree of novelty/disruptiveness and/or added value/value proposition for the users/customers – have the potential to create important new markets or significant impact in existing ones?
Objectives: How credible and feasible are the objectives for the planned technology development? How credible and feasible are the objectives (and KPIs) for the planned business development process? Additional Consideration for EIC Transition Challenges ONLY: How relevant are the proposal objectives in contributing to the specific objectives of the Challenge?
Methodology: Is the timing right for this technology/innovation (i.e., feasibility, technological readiness, unique selling points)?
Impact (GO/NO GO)
Credibility of the impacts: Is the incipient proposed business model sound? To what extent the expected impacts described are credible and realistic within the project and beyond? Additional Consideration for EIC Transition Challenges ONLY: To what extent the proposed application contributes to the expected outcomes and impacts set out in the Challenge?
Investment readiness and go to market strategy: How appropriate are the plans to ensure the subsequent financing of the technology/ innovation (applying for an EIC Accelerator, private investment, patenting/licensing, etc.)?
Quality and efficiency of the implementation (GO/NO GO)
Quality and motivation of the team: Does the team have the capability and motivation to implement the proposed technological innovation and market-related activities? Risk assessment: Have the risk that might prevent the validation of the innovation in relevant application environment and/or market success been appropriately considered?

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First step of evaluation

First step: 3 or more expert evaluations to score against criteria.
Overall score: sum of the average of scores on individual criteria.

Then, a list of the highest scoring proposals is created – for twice the budget available.
Further ranking adaptations based on

- a correction for applications submitted by women-led SMEs or consortia (target min.: 30%)

If a proposal is below threshold in one of the three criteria, a resubmission in the following 12 months is possible. If two or more thresholds are missed, no resubmission is permitted within the following 12 months.

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Second step of evaluation

The second step is a **face-to-face interview** with an EIC jury
At the interview you may be represented by a **maximum of five persons**
Only individuals mentioned in the proposal and involved in the future project implementation can represent your proposal at the interview
The jury will be composed of a **maximum of six members**, which may include an EIC programmemanager in charge of your area or managing one of the portfolios your project could be allocated to
During the interview you should **convincingly pitch your proposal to the jury**, who will ask you **questions aimed at clarifying various aspects of your proposal** in line with any of the evaluation criteria (in particular those regarding the quality of the team and the milestones)
The jury will recommend your application for funding or not (**'GO' or 'NO GO'**) and will not provide a separate scoring against the criteria
You will receive **feedback from the jury**, as well as the ESR

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Seal of Excellence

If your application is from an **individual SME** and meets all evaluation criteria at the first step but is **not selected for funding**, it may be awarded a 'Seal of Excellence'

To be eligible to receive a 'Seal of Excellence' you must give consent in your application that your **data can be shared with other funding bodies** (ESR, contact information)

EIC juries may recommend that your application does not receive a 'Seal of Excellence' if they find **weaknesses in your proposal** which were not identified by the expert evaluators.

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Transition through IPR agreement

Proposals must build on results from an ongoing or finished project, funded as a result of a call in any relevant topic and clearly identified in the proposal. Proposals must include a declaration by the coordinator or the IP owner(s) of the necessary rights and ownership of results to be exploited, as described in the proposal.

Applicants that are not the owner of the result to be further developed in the proposal must provide a letter from the relevant beneficiary or beneficiaries of the previous relevant project that own(s) the result that confirms the existence of the necessary agreements with the applicants, including on IPR.

You do not need to be a participant of the previous project.

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Transition open

No predefined thematic priorities.

Balanced approach to technology and market/business dimensions. This may e.g. include iterative learning from customers.

Suitable mix of RTDI, validation, demonstrators etc.

Transition challenge

Pre-defined areas

III.2.1 EIC Transition Challenge: Full scale Micro-Nano-Bio devices for medical and medical research applications

III.2.2 EIC Transition Challenge: Environmental intelligence

III.2.3 EIC Transition Challenge: Chip-scale optical frequency combs…

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III.2.1 Full scale Micro-Nano-Bio devices for medical and medical research applications

Objectives

- To realise and validate a fully functional integrated Micro-Nano-Bio device or system hinging on Micro-Nano-Bio modules developed under previous EU-funded projects. Focus is on integration and/or refinement (e.g. further miniaturisation, production scaling etc.) of the existing modules to realise, within the limited time-span of the project, a transitionable investment-ready product.
- The development of devices or systems under this Challenge should lead to a high-impact technological development driven by market needs. Examples of these include:
  - the acceleration of the discovery of the principles underlying cell, or pathogen, biology by means of advanced milli/micro-fluidics (e.g., complex 3D flows, organ- or body-on-chip, nanopores/nanocavities), integrated bio-sensing (e.g., using MEMS/NEMS, photonics and imaging, surface functionalisation, arrays), novel biomaterials and chemistries and others.
  - the automation of clinical workflows, reducing sample volumes, offering unique data sets aiding in diagnostic, therapy optimisation and follow-up, miniaturising assays and displacing execution to point-of-care settings if advantageous, etc.

- the streamlining of therapy discovery or production, while minimising animal testing. To this end proposers can rely on high-performance computing and advanced Artificial Intelligence (AI) / Machine Learning (ML), experiment parallelisation enabled by array microarchitectures, embedded closed-loop control for autonomous process optimisation and so on.

Expected outcomes

- The expected outcome of this Challenge is the realisation of significant progress in Micro-Nano-Bio systems to a level of technological maturity suitable for exploitation.
- The long-term expected impact includes positioning the European Micro-Nano-Bio ecosystems at the leading edge of product innovation, supporting global market leadership.
- An exploitation strategy (including the formal IP protection) and a credible business model, its initial validation and a business plan are also expected outcomes of the project with the goal of attracting private investors and industrial partners.

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III.2.2 Environmental intelligence

Objectives

- Materials, processes, and systems – such as chemical, biological, and physical technologies-solutions, including bio-inspired and nature-based – aimed at detecting/monitoring, preventing, reducing, or eliminating environmental recalcitrant and/or emerging contaminants present in air, soil, or hydrosphere.
- Technologies that, without using critical raw materials or ensuring their full reuse and/or recycling (sorting and refining), will enable the onset of synergies between sensors and artificial intelligence, at the interface of environment/sustainability and data science, so allowing the implementation of environmental monitoring and/or remediation actions.
- Solutions that detect, combine, analyse, and interpret data (environmental intelligence) including signals of ecosystem stress caused by a broad range of factors (i.e. water scarcity, habitat disruption, global warming, etc), also coming from different sources – in situ (e.g., biological, chemical, or physical sensors) or remotely (e.g., satellite).
- Technologies with minimised carbon footprint, measured through a full life-cycle analysis, in order to ultimately protect/clean the environment from contaminations and to avoid the exposure of people to contaminants as well as to mitigate or reverse the effects of climate change.

Expected outcomes

- Reduction of environmental pollution through technologies demonstrated by means of safe and sustainable pilot-scale prototypes able to perform environmental monitoring and/or remediation actions;
- Enabling an evidence-based environmental policy as well as improving and simplifying the environmental policy making through environmental intelligence;
- Promotion of the development of an EU "environmental monitoring/ remediation-based" economy;
- an exploitation strategy (including the formal IP protection) and a credible business model for the deployment and use of the novel device, sensor or technology in the relevant environment.

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III.2.3 Chip-scale optical frequency combs

Objectives

- Advancing or maturing novel technologies for chip-scale frequency combs for applications that require multiple frequencies of coherent laser light, with higher than the currently mainstream conversion efficiencies and with extensions to wavelength ranges, across all spectral regions with integrated photonic technologies.
- Mature the frequency combs technologies to include integration options for other functional elements, compatible with wafer scale manufacturing. Use of new nonlinear materials such as Gallium Phosphide, Lithium Niobate and others may be considered as well.
- Exploit the precision of optical frequency combs by developing concepts for new industrial applications such as:
  - Integrated multi-channel light sources for optical communication in datacentres,
  - Highly efficient sensors that measure mid-infrared molecular spectra,
  - Optical atomic clocks on a chip.

Expected outcomes

- This Challenge aims to foster skills, talent, and innovation in semiconductor technologies, specifically for using advanced materials and the integration of photonics and microelectronics in cutting-edge chips.
- This Challenge should lead to novel results deep-tech innovations for next-generation chip technologies that will enable new applications, providing strong competitive advantage for future innovative start-ups and SMEs that the EIC can further support towards scaleup through its Accelerator scheme.
- An exploitation strategy (including the formal IP protection) and a credible business model, its initial validation and a business plan are also expected outcomes of the project with the goal of attracting private investors and industrial partners.

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