European Innovation Council

2nd Online Workshop on the European Chips Act:
Response to EU semiconductor shortages and technology empowerment plan,
including opportunities for Slovenia

31 January 2023 I 10:30 - 12:00

EIC Accelerator & 2023 Challenge on "Emerging semiconductor or quantum technology components"

Andreas Lymberis, Head of Accelerator Challenge- Based Sector, EIC
Samira Nik, Programme Manager Quantum Technology and Electronics, EIC

The EIC within Horizon Europe

European Innovation Council

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

Europe's most ambitious innovation initiative

Budget

€ 10 billion

Unique

combines research & accelerator for SMEs, startups, scaleups

Largest deep-tech innovator in Europe

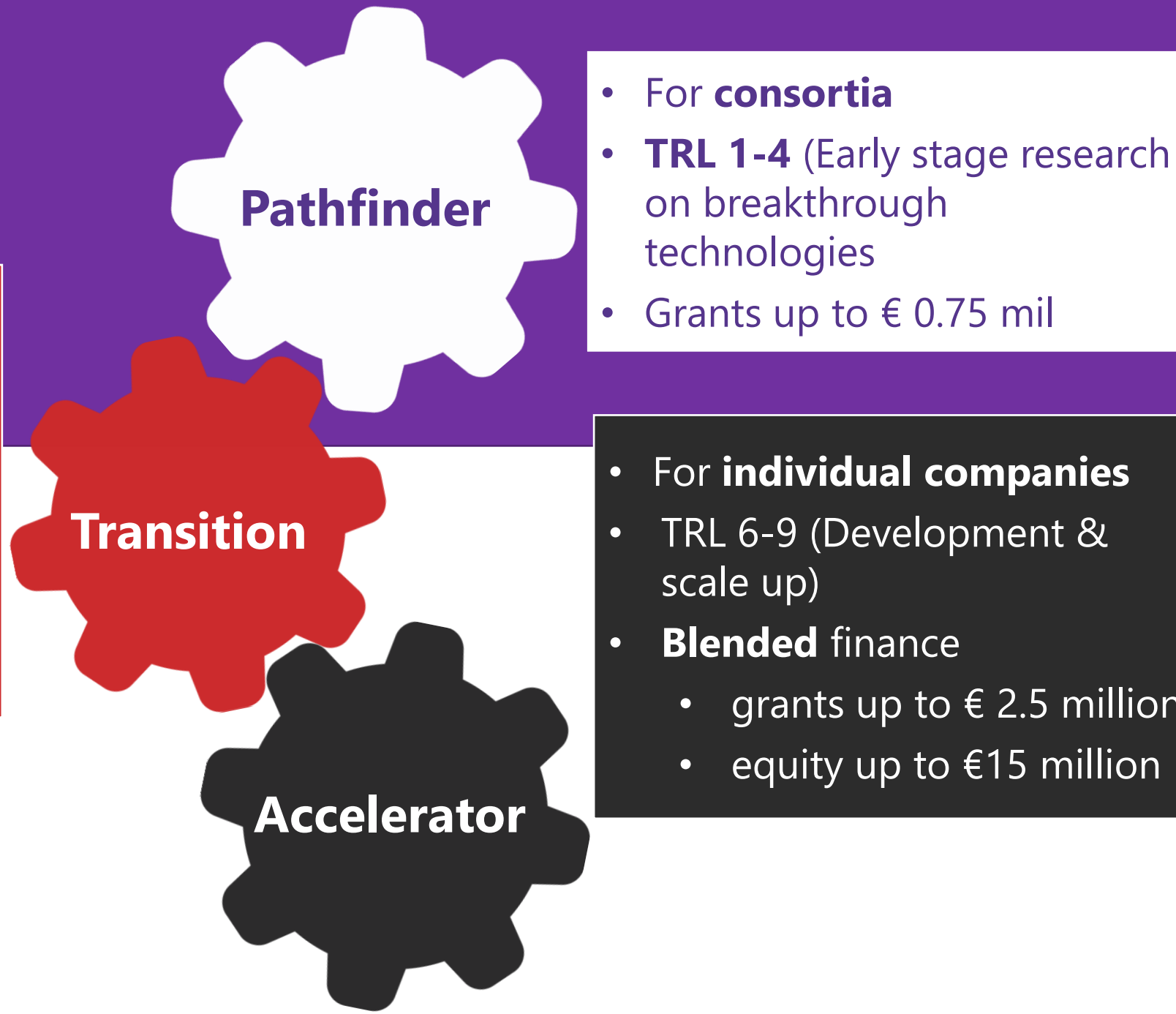
Over €3 billion

Enhances the European Innovation Ecosystems

Partnerships with ERC,EIT regions…

Annual Work Programmes (separate from Horizon Europe main WP

- First WP (2021) adopted 18 March 2021, €1.5 billion
- Second WP (2022) adopted 7 February 2022, €1.7 billion
- **Third Work Programme (2023) adopted 7 December 2022, € 1.7 billion**



- For **consortia**
- **TRL 1-4** (Early stage research on breakthrough technologies
- Grants up to € 0.75 mil

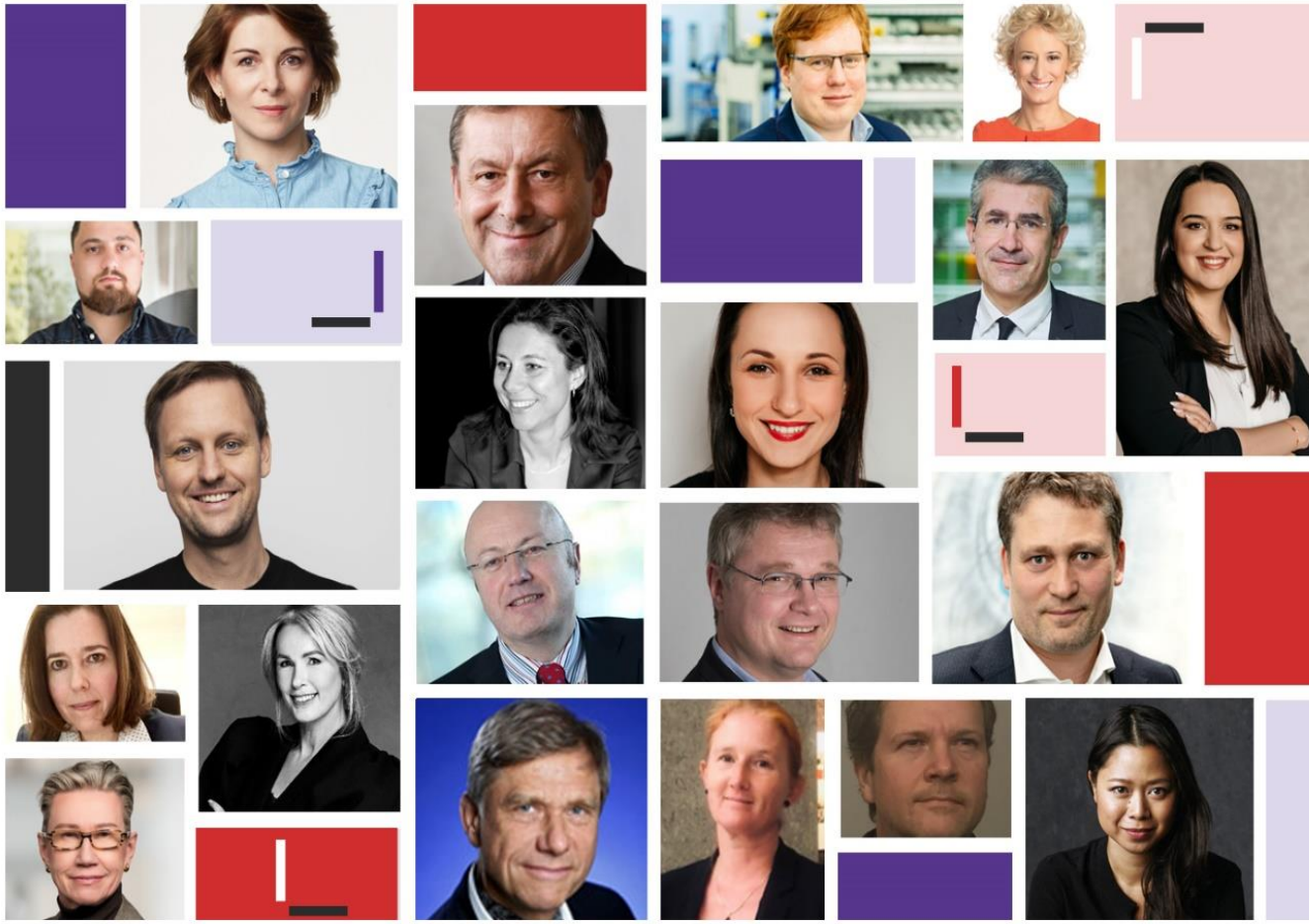
- For **consortia & single** researchers /companies
- **TRL 3-6** (Proof of concept to validation)
- Grants up to € **2.5 million**

- For **individual companies**
- TRL 6-9 (Development & scale up)
- **Blended** finance
  - grants up to € 2.5 million
  - equity up to €15 million

Strategic role of the EIC Board

European Innovation Council

- 5 plenary Board meetings (6th meeting scheduled for 9 December)
- Publication of **strategic goals and KPIs** (incorporated in Work Progamme)
- **Published** statements on EIC Fund, 2022 Work Programme, inputs to European Parliament
- Internal **advice on 2023 Work Programme**, including on challenges and new actions
- **Presence at major events**, and organisation of **joint workshop with ERC** (on Energy Storage)



Full set of EIC Programme Managers

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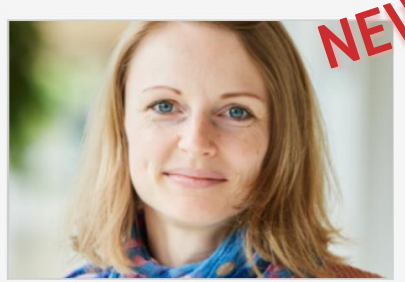
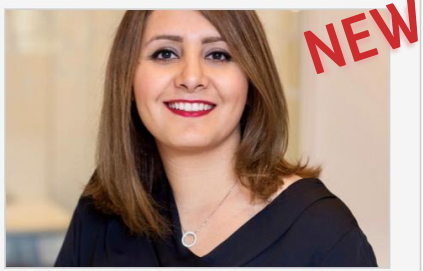


Carina Faber

Renewable energy conversion and alternative resource exploitation



Samira Nik

Quantum tech and electronics

Isabel Obieta

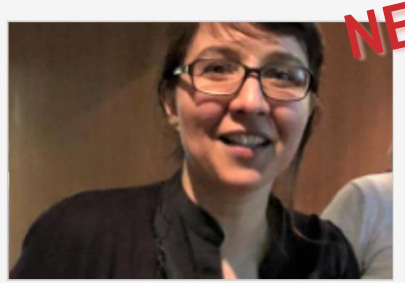
Responsible electronics

Antonio Marco Pantaleo

Energy systems and green technologies

Francesco Matteucci

Advanced materials for energy and environmental sustainability



Stella Tkatchova

Space systems and technologies

Iordanis Arzimanoglou

Health and biotechnology

Enric Claverol-Tinturé

Medical technologies and medical devices

Ivan Stefanic

Food chain technologies, novel & sustainable food

Franc Mouwen

Architecture engineering construction technologies

EIC Accelerator

Vision, Achievements and calls in 2023

https://eic.ec.europa.eu/news/eic-impact-report-2022-2022-12-07_en

What are we looking for?

European Innovation Council

Start-ups and SMEs seeking to **scale-up** high impact innovations with the **potential to create new markets** or disrupt exisiting one

Innovation building on **scientific discovery** or technological breakthroughs **(„deep tech“)**

Innovations where **significant funding** is needed over a **long timeframe** and are **too risky** for private investors alone

EIC Accelerator – funding options

European Innovation Council

Grant only

If you can prove that you have sufficient financial means for deployment and scale-up (TRL 9)

Grant first

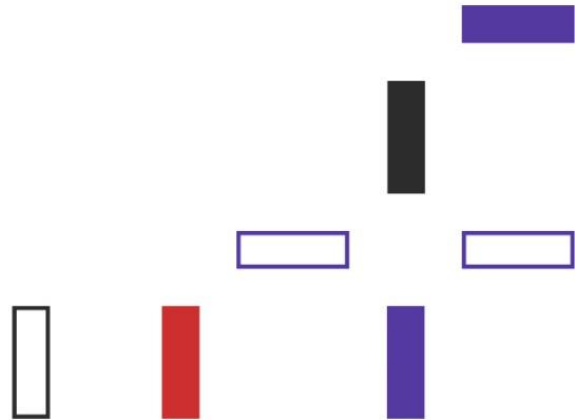
If your innovation still requires significant work to validate and demonstrate in relevant environments to assess its commercial potential

Grant & investment

If you need support for development (TRL 5/6 → 8), deployment and scale-up (TRL 9)

Investment only

If you are looking to fill the funding gap for rapid scale-up of your high-risk innovation and you don't nee a grant



EIC Accelerator– Blended Finance

European Innovation Council

Grant component

- maximum of less than **€ 2.5 million**
- eligible costs are reimbursed up to a maximum of **70%**
- small mid-caps are not eligible for a grant only

+

Investment component

- € 0.5 million and **maximum € 15 million**
- usually in the form of direct **equity** or quasi-equity
- **minority ownership** (maximum 25% of the voting shares of the company)
- **"patient capital" principle** (7-10 years perspective on average, max 15 years)

EIC Accelerator – Who can apply?

European Innovation Council

- **Single company (i.e. no consortia, but subcontracting and affiliated entities are possible)**
- SME according to EU definition: < 250 employees, < 50 million EUR turnover or < 43 million EUR total balance sheet, data from linked or partner enterprises might need to be taken into account*
- Small mid-caps (up to 499 employees) – for rapid scale up only
- Natural person(s) or legal entity
  - from Member State (MS) or Associated Country (AC) intending to establish an SME or small mid-cap in MS or AC by the time of signing the EIC Accelerator contract.
  - From a non-associated third country intending to establish an SME or to relocate an existing SME to a MS or AC (establishment prior to full proposal!)

* More details and self-assessment tool

Implementation of EIC Investment – the equity component of the EIC Blended Finance

The EIC Fund

- **Manages equity investments** in startups & SMEs selected by EIC Accelerator.
- The EIC Fund is a **venture capital fund** established in June 2020 by the European Commission.
- An **external fund manager** has been recently appointed as part of the **EIC Fund restructuring**, to make it sustainable for the number and amounts of investments expected in the period 2021-27, drawing on the lessons learned from the pilot phase and considering the legal base. This has **no impact on funding offered** by the EIC or on the **selection process**.
  - The EIC **Fund Manager** **makes investment/divestment decisions** and portfolio management.
  - The **European Investment Bank (EIB)** is investment **advisor** to the EIC Fund performing the due diligence, preparing the investment proposal and supporting the portfolio management.
  - **EISMEA**
    - conducts the **evaluation and selection** of proposals;
    - implements the **grant** component;
    - ensures **coordination** between grant and equity components.
  - Since its incorporation, the EIC Fund has **approved more than 170 deals** (+EUR 800 million) and **signed 96 investment agreements** (Pilot phase and Horizon Europe).

The evaluation process

EIC Accelerator – Evaluation in 4 steps

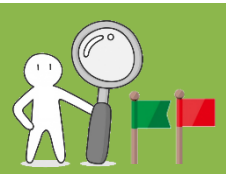
European Innovation Council

Prepare the proposal

We will help **you** to prepare your **business plan** and draft a **proposal** with AI tool and coaching

2

Submit



You submit your full **proposal** which will be **assessed** by Remote evaluators

3

You have an idea

You have a disruptive or deep tech **idea** with a potential to **scale up &** you need **financial support**

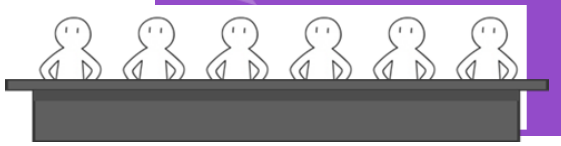
Tell us your story in 5 pages

1

4

Pitch to jury

Pitch your innovation in front of EIC Jury Members. If selected, you will sign the **contract**



How to apply – useful links

European Innovation Council

EIC Accelerator

EIC Work Programe 2023

Support for applicants (FAQs, guidelines, contacts)

Funding & tenders opportunities Portal (legal & supporting documents)

Application (EIC AI) Platform

Accelerator implementation - numbers

European Innovation Council

Horizon EUROPE

214 contracts with a grant component signed
€ **206 mil** disbursed
Remaining **67** contracts from June 2022 cut-off will be finalised by the end of the year
46 investments approved by the EIC Fund
2 companies with Investment Agreements signed and **€ 3,5 mil** disbursed

PILOT (H2020)

230 running projects from projects from H2020 EIC Accelerator Pilot
€ 345 mil disbursed
140 (88,1%) investments approved by the EIC Fund
94 companies (67,1%) with Investment Agreements signed and € **27.3 mil** disbursed

- Over **5000** short applications submitted in 2021 and over **2500** in 2022
- Almost **2000** full applications submitted in 2021 and more than **3000** in 2022
- Over **1000** projects have been invited to interview in 2021-2022

Accelerator implementation - impact

European Innovation Council

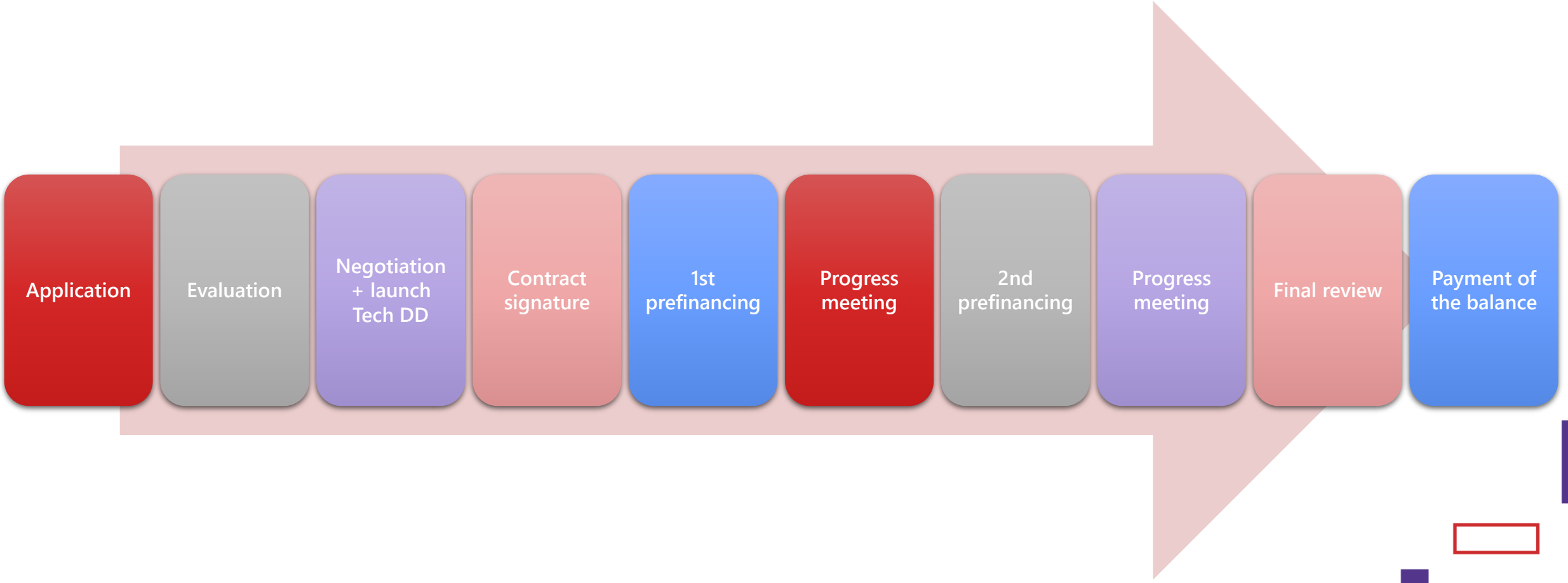
https://eic.ec.europa.eu/news/eic-impact-report-2022-2022-12-07_en

- **Incentivised over €10 billion** in follow-on investments in its portfolio companies
- **Combined valuation of €40 billion** including 12 Unicorns and 112 Centaurs
- **20%** of funding for **women-led** companies

If you are selected for funding...

Overview of project management and project lifecycle

European Innovation Council



EIC main calls in 2023 - overview

European Innovation Council

Accelarator

Open

11 January 2023
22 March 2023
7 June 2023
4 October 2023

~€613m
(~grant/equity)

Challenges

22 March 2023
7 June 2023
4 October 2023

~€525m
(~grant/equity)

Pathfinder

Open

7 March 2023

~€179.50m

Challenges

18 October 2023

~€163.50m

Transition

Open

12 April 2023

~€67.86m

Challenges

27 September 2023

~€60.5m

Overview of EIC Challenges for 2023

European Innovation Council

€163 million for five Pathfinder Challenges

- Clean and efficient cooling
- Architecture, Engineering and Construction digitalisation for a novel triad of design, fabrication, and materials
- Precision nutrition
- Responsible electronics
- In-space solar energy harvesting for innovative space applications

€60.5 million for three Transition Challenges

- Full scale Micro-Nano-Bio devices for medical and medical research applications
- Environmental intelligence
- Chip-scale optical frequency combs

€523 million for eight Accelerator Challenges

- Novel biomarker-based assays to guide personalised cancer treatment
- Aerosol and surface decontamination for pandemic management
- Energy storage
- New European Bauhaus and Architecture, Engineering and Construction digitalisation for decarbonisation
- Emerging semiconductor and
- Quantum technology components
- Novel technologies for resilient agriculture
- Customer-driven, innovative space technologies and services

EIC Accelerator - Calls

European Innovation Council

Accelerator Challenges

Novel biomarker-based assays to guide personalised cancer treatment	€ 65 million
Aerosol and surface decontamination for pandemic management	€ 65 million
Energy storage	€ 100 million
New European Bauhaus and Architecture, Engineering and Construction digitalisation for decarbonisation	€ 65 million
1) Emerging semiconductor & 2) Quantum technology components	€ 100 million
Novel technologies for resilient agriculture	€ 65 million
Customer-driven, innovative space technologies and services	€ 65 milion
Indicative call budget	€ 523.5 million

EIC Accelerator Challenges **individual workshops** organised by PM in January & February 2023

EIC Accelerator Open
Indicative budget
€ 611.7 million

EIC Digital Challenges WP2023

Samira Nik

Programme Manager Quantum Tech and Electronics

Responsible Electronics

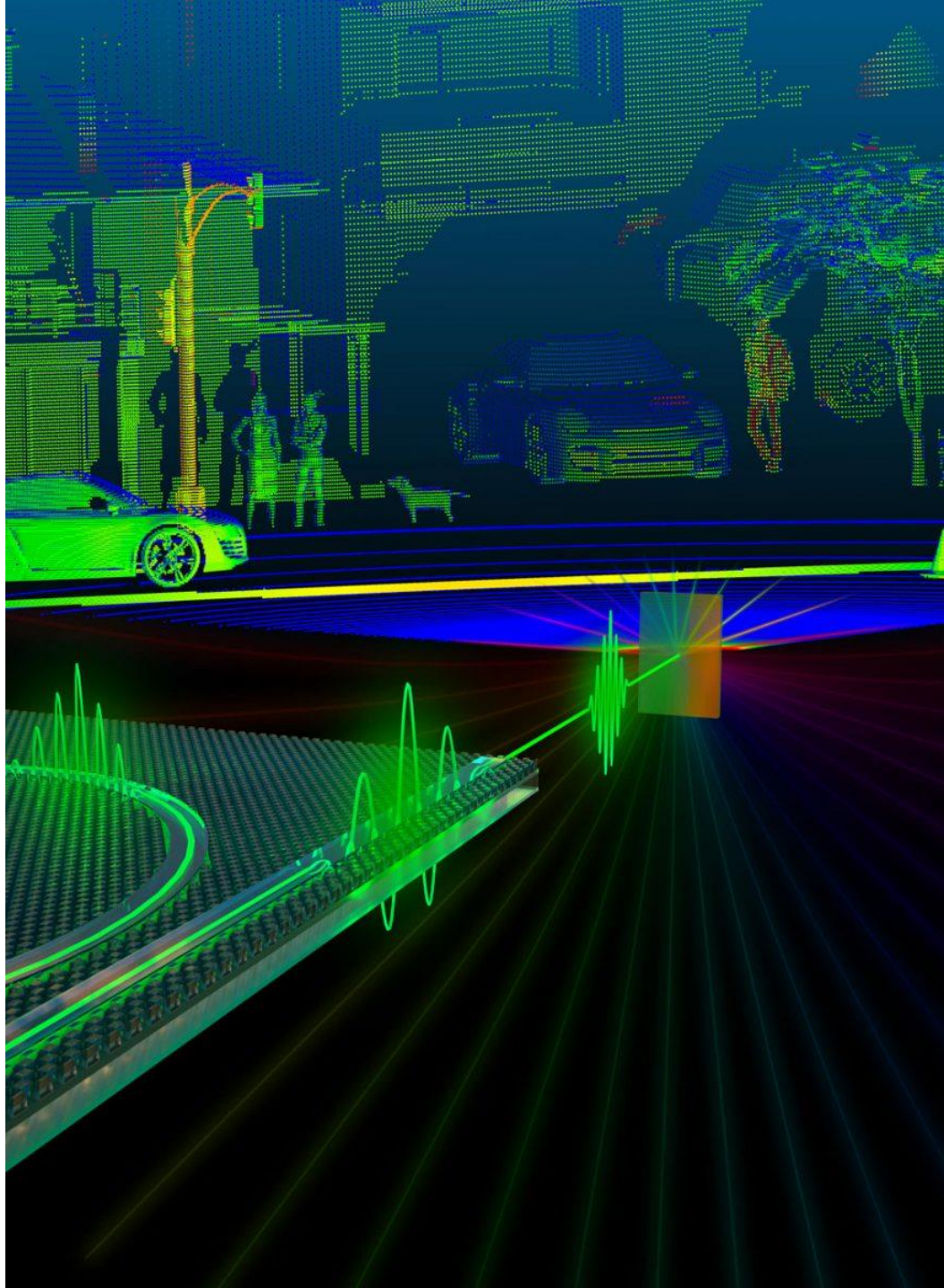
- Suitable electronics can contribute to drastically reducing the environmental load of the electronics industry by shifting from traditional manufacturing industrial methods to innovative methods and materials with lower environmental impacts.
- The overall goal of this challenge is to create opportunities for the discovery of new environmentally friendly electronic materials, thus reducing its environmental impact and the need for critical raw materials and hazardous chemicals
- Specific objectives: breakthroughs in development/discovery of:
  - Advanced electronic materials for unconventional devices
  - Advanced processes
  - Unconventional applications including e-textile/e-skin

Pathfinder

Specific objectives

- From experimental proof of concept or technology validated in lab to technology validated or demonstrated in relevant environment by:
- 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

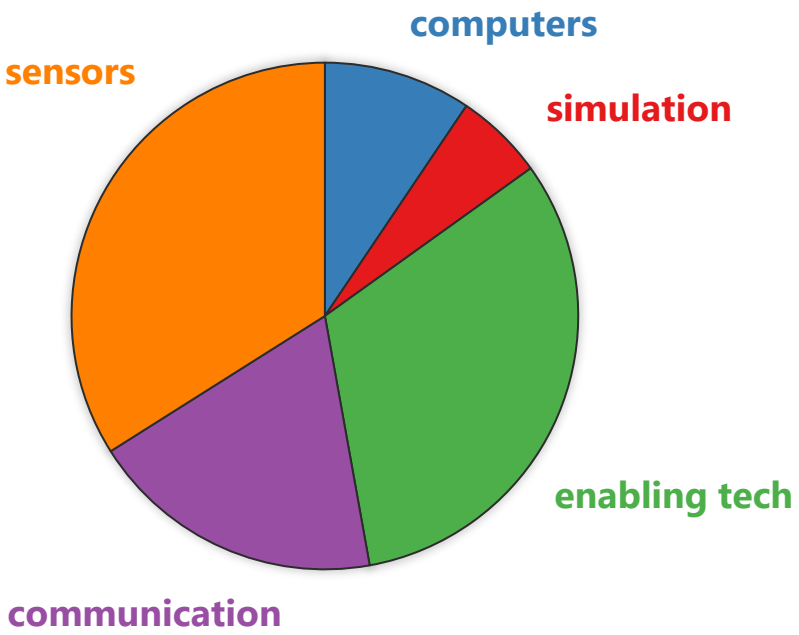
Transition



EIC Quantum Tech Activities & Accelerator Challenges

EIC Quantum Projects

Pathfinder



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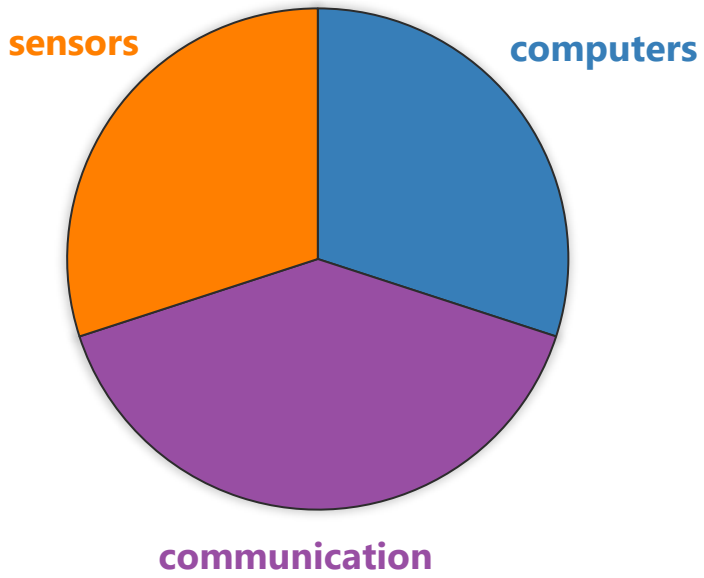
Transition



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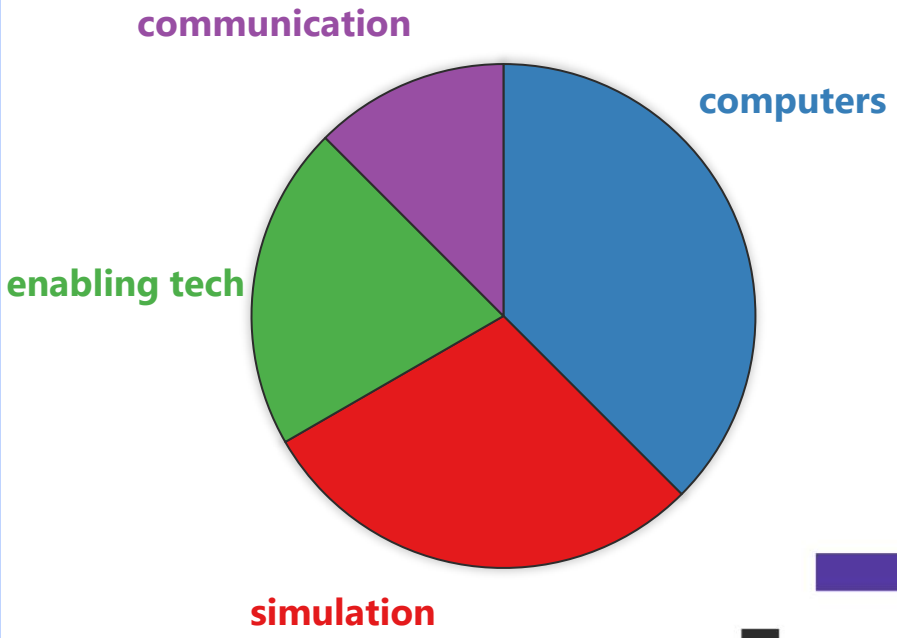
Accelerator



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EIC WP2022
Pathfinder Challenge

- **Alternative Quantum Information Processing, Communication, and Sensing**

The scope of this call is to develop innovative approaches to encoding, manipulating, or storing information in quantum objects, or to exploiting quantum phenomena for information processing, communication, and sensing in a way that differs from the mainstream approaches currently being pursued in quantum research.

Deadline: Oct 2022
Evaluation Panel: mid-Feb 2023

EIC Accelerator Challenge ‘Emerging Semiconductor or Quantum Technology Components’

This Challenge contributes to the objectives of the **Chips Act** by supporting the development of critical technologies where start-ups and SMEs with disruptive innovations have the potential to scale up and help ensure the future open strategic autonomy of the Union.

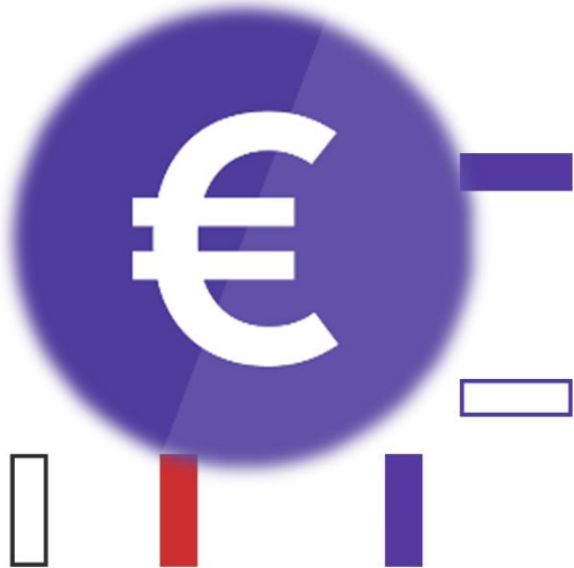
EIC Accelerator Challenge 'Emerging Semiconductor or Quantum Technology Components'

- **Specific conditions**
  - Applications to this EIC Accelerator Challenge may request an investment component of above EUR 15 million in duly justified cases.
  - In order to protect the strategic interests of the Union and its Member States, the contract may set specific conditions and milestones if this is necessary to ensure that technologies of a strategic nature for open autonomy are not directly or indirectly controlled by third countries not associated to Horizon Europe or by legal entities of non-associated third countries.
  - Any technology under this Challenge must be developed in a robust manner, paying specific attention to safety, security and ethics considerations in future applications.

EIC WP2023. IV2.5

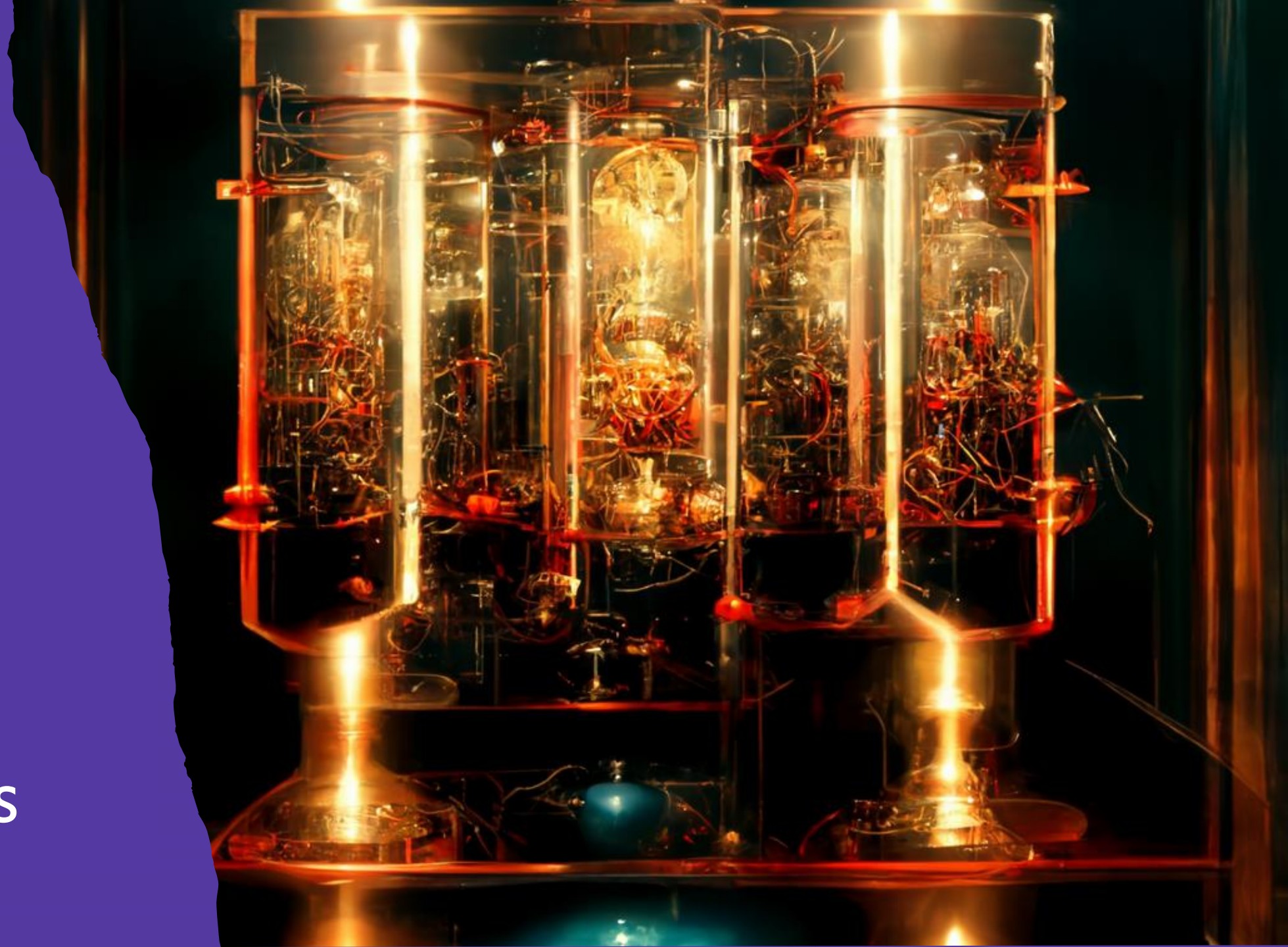
EIC Accelerator Challenge 'Emerging Semiconductor or Quantum Technology Components'

- **Indicative budget**
  - EUR 100.0 million
  - At least 30% of this budget will be allocated to the Quantum Technology Components and at least 30% to the Semiconductor Chip Development areas.
  - The remaining will be flexibly allocated to either area in function of the successful submissions



EIC WP2023. IV2.5

A. Quantum Technology Components



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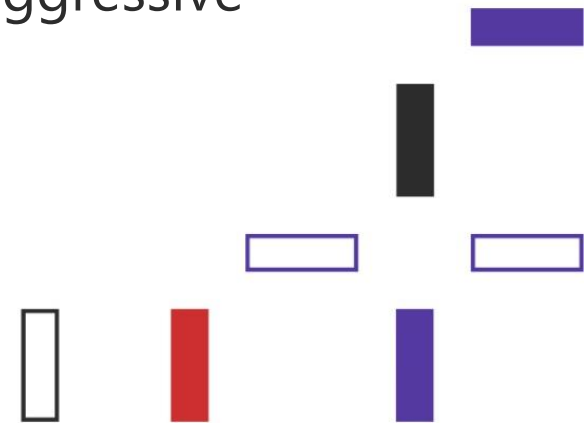
Why Quantum Technology Components?

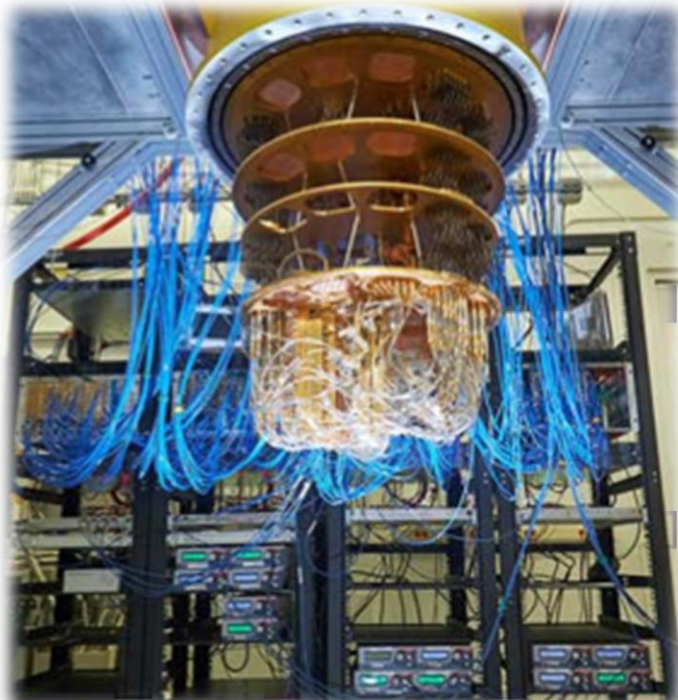
- The focus of this Accelerator Challenge is on fostering innovation in the area of quantum information processing components
- Europe is a global leader in research in quantum technologies. Translating this level of R&D excellence into market innovation is a strategic priority, but companies set up to do that mostly struggle to get the necessary funding to scale-up
- Enabling European companies to take a leading role in a market, which is expected to grow from EUR 1.7 billion in 2021 to EUR 89 billion by 2040 in an aggressive disruption scenario.



Fault tolerant quantum computing hardware components

- Quantum computing (QC) has already attracted investments from large multinational companies and governmental research and innovation programmes.
- QC hardware still suffers from large error rates during computation.
- None of today's solutions (and even proposed solutions and those demonstrated on a small scale), come close to the need for a control system that scales to many thousands of qubits

- **Specific objective**
  - Improved performance
  - Novel qubits and densely integrated control electronics
  - Scaling to tens of thousands of qubits



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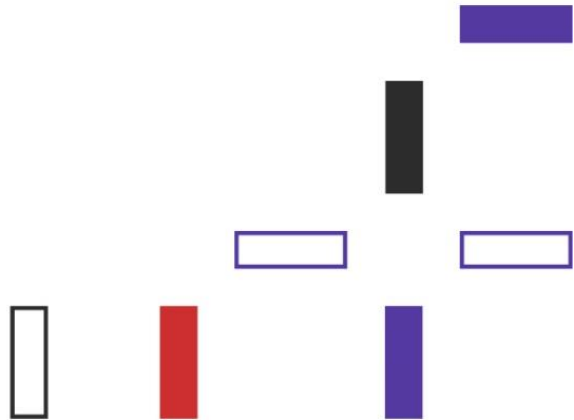
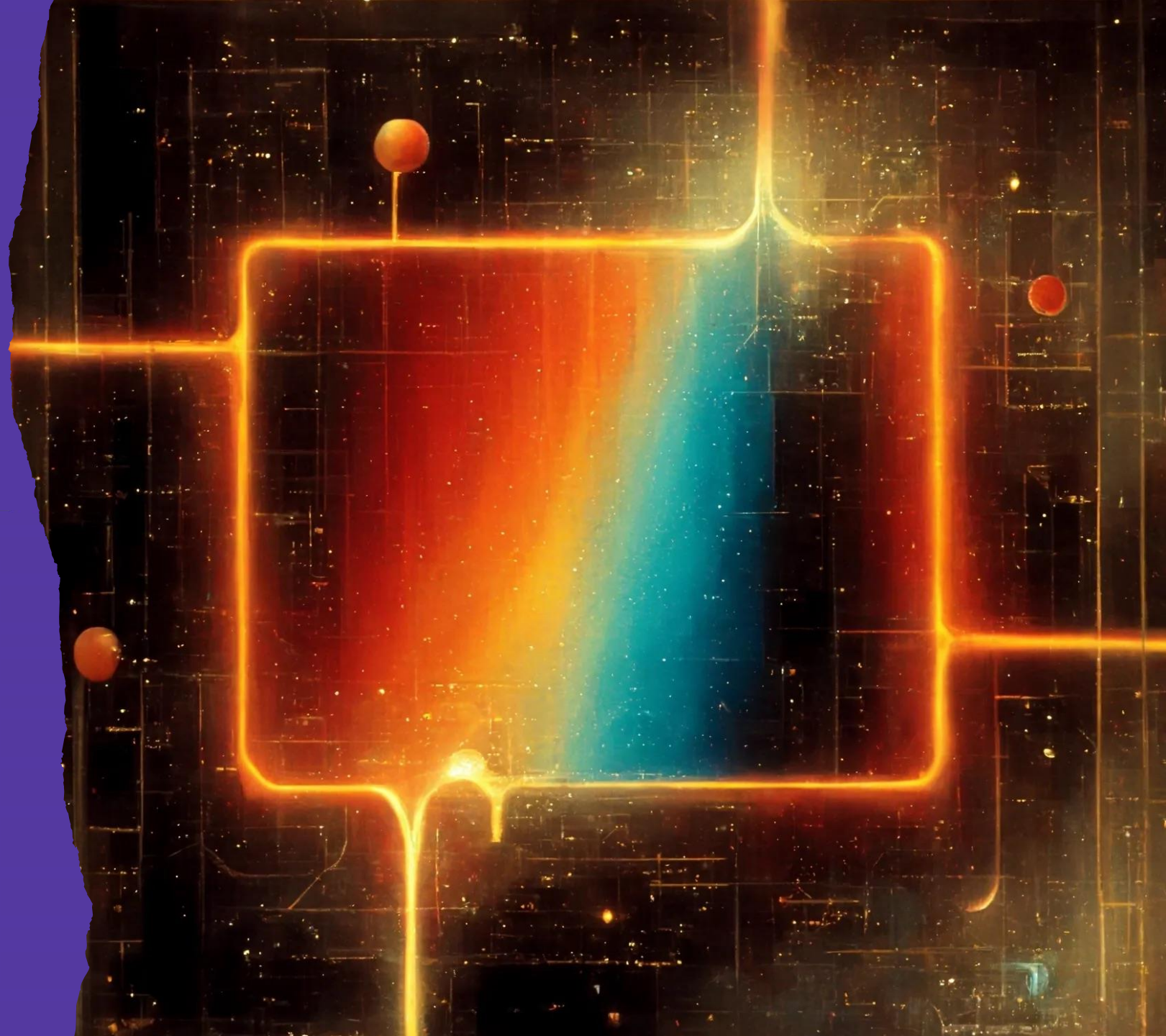
Quantum Technology Components

- **Quantum sensing components for real-environment applications**
  - e.g. for pharmaceuticals, biomedical, space, medical imaging, automotive…
- **Quantum communication devices for real-environment applications**
  - e.g. quantum repeaters and quantum-based cryptography



EIC WP2023. IV2.5

B. Semiconductor Chip Development

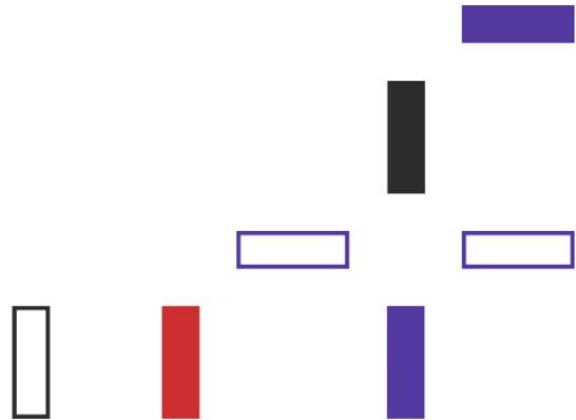


Emerging Semiconductor Components

European Innovation Council

- The aim of this Challenge is to support the design and development of innovative semiconductor components and intellectual property for analogue and digital integrated circuits and systems including memory, logic, optical components, and sensors, in relevant technology fields such as: Artificial Intelligence, edge computing, Internet of Things, electric and autonomous vehicles, 5G/6G communication, cybersecurity, health and wellness, environmental sustainability.

- The proposing entities should demonstrate ground-breaking innovation in the respective applications fields and high potential for commercial deployment in important EU industry sectors such as automotive, industry automation, information and communication, healthcare, aerospace, security, energy.



Expected outcomes and impacts

- This Challenge is expected to support innovative semiconductor start-ups in bringing their innovations to higher level of maturity and closer to commercial deployment, addressing the funding gap that deep-tech companies in this space have been facing in the last couple of decades.

- In the mid to long term, this Challenge is expected to foster the development of the semiconductor chip design ecosystem in Europe by increasing the number of innovative fabless start-ups and semiconductor IP companies in the EU, thereby contributing to the 2030 Digital Compass target of doubling EU's production of advanced sustainable chips and Europe's digital autonomy

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Thank you !

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