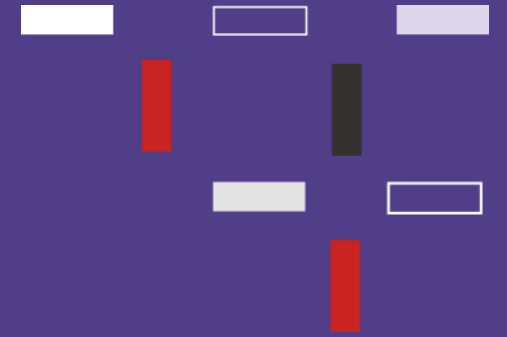
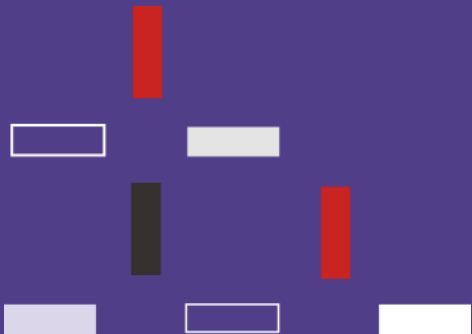


The role of the EIC in Tackling Investment in Semiconductors Startups



BACKING *VISIONARY* ENTREPRENEURS



European
Innovation
Council



Isabel Obieta

Programme Manager for Semiconductors

The European Innovation Council

HORIZON EUROPE

European Innovation Council

Support to innovations with breakthrough and market creating potential.

€10.1
BILLION

What makes *EIC UNIQUE*?

01. A European DARPA

- **Focus on disruptive** high risk breakthrough technologies
- **Innovator friendly:** flexibility to apply at any time with a short pitch (video pitch, slide deck, 5 page form)
- **EIC “Program Managers”** to develop visions, proactively manage projects, steer portfolios (based on experience of US DARPA, ARPA-E, BARDA, etc.)

02. EU Unicorn Factory

- **Focus on high risk,** disruptive startups & SMEs with scale up potential
- **EIC Fund set to become largest early stage** VC investor in Europe, crowding in other investors.
- **Flexible follow up funding** (“Transition”) to create business opportunities out of research results.



03. An upgraded Innovation Community

- **EIC Community** a box full of exciting business acceleration services and an extensive innovation ecosystem is waiting for EIC beneficiary
- **EIC Forum** bringing together innovation ecosystem actors from across Europe
- **Horizon Europe “innovation ecosystems” program** to support networking and joint initiatives between ecosystem actors
- **Partnerships** with European Institute of Innovation & Technology (EIT), European Research Council (ERC) and others.



EIC PRIZES

- Women innovators
- Capital of innovation
- Innovation procurement
- Social innovation
- Horizon
- Humanitarian Innovation



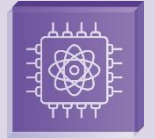
SEAL OF EXCELLENCE

Fast track to other funding



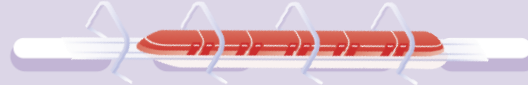
EIC ACCELERATOR SERVICES

- Mentors, coaches
- Global partners
- Innovation ecosystems
- EIC Community Platform



EIC ACCELERATOR

- For single companies
- Grants up to €2.5 million
- Equity up to €15 million or above
- To enter the market & scale-up (TRL 6-9)



EIC TRANSITION

- For consortia & single companies
- Grants up to €2.5 million To develop
- business cases (TRL 4-6)



EIC PROGRAMME MANAGERS

- In-house Leading Experts
- Identifying potential challenges in emerging deep tech areas
- Pro-actively managing EIC Pathfinder, Transition and Accelerator portfolios

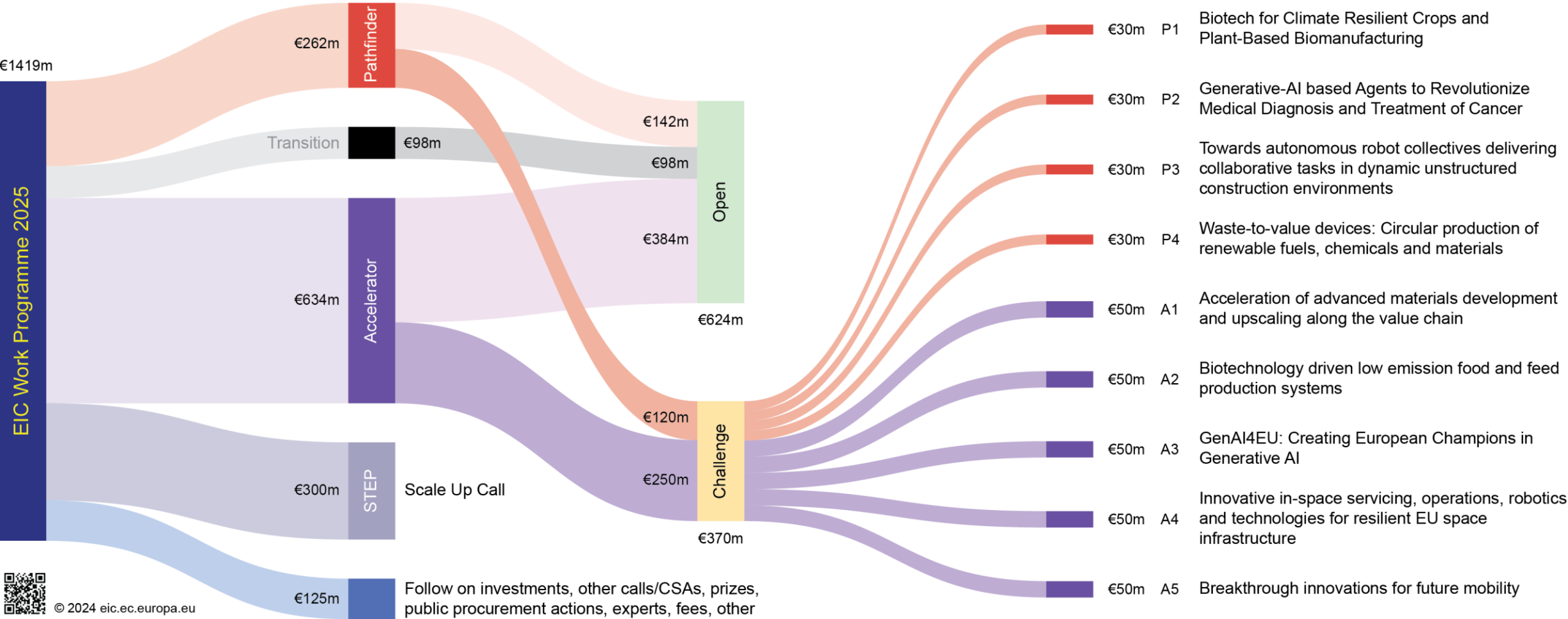


EIC PATHFINDER

- For consortia
- Grants up to €4 million
- To research technology breakthroughs (TRL 1-4)



EIC Work Programme 2025



EIC IMPACTS (From 2022)

CROWDING IN OTHER INVESTMENTS

- **€ 10 billion** follow up investments to EIC supported companies
- Leverage effect: 2.6 times private co-investment on EIC Fund investments
- **12 unicorns** - value € 1 billion+
- **112 centaurs** - value € 100 million+

ADDRESSING SUSTAINABLE DEVELOPMENT GOALS

- Main thematic in:
 - ✓ **Green Deal**
 - ✓ **Digital**
 - ✓ **Health**

GROWING SUPPORT TO STARTUPS & SMEs

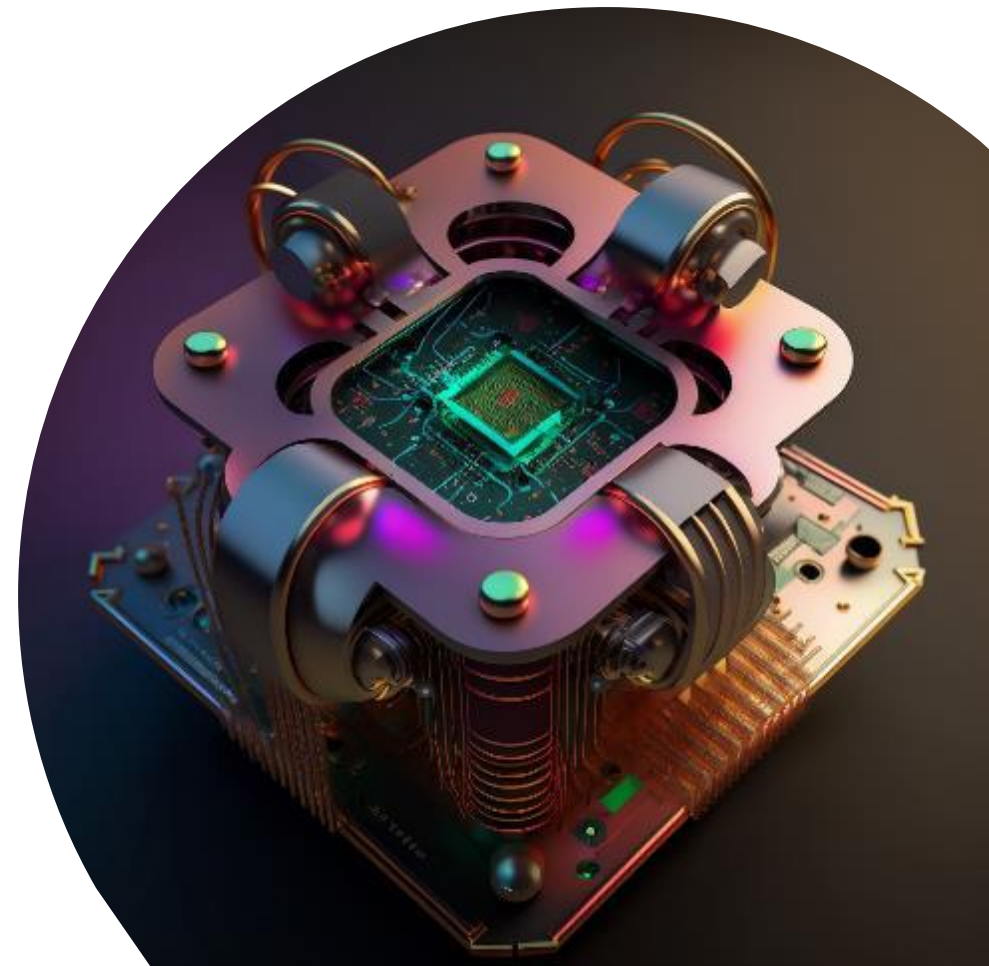
- **1600** supported since 2014
- **410** selected for **blended finance** with **€ 2.18 billion equity proposed**
- Increase in startups with female CEOs

A PIPELINE OF BREAKTHROUGH TECHNOLOGIES

- **400** research projects
- **800** innovations tracked
- **Pilot of Transition funding** to follow up research results into applications



- What's the EIC doing in Semiconductors

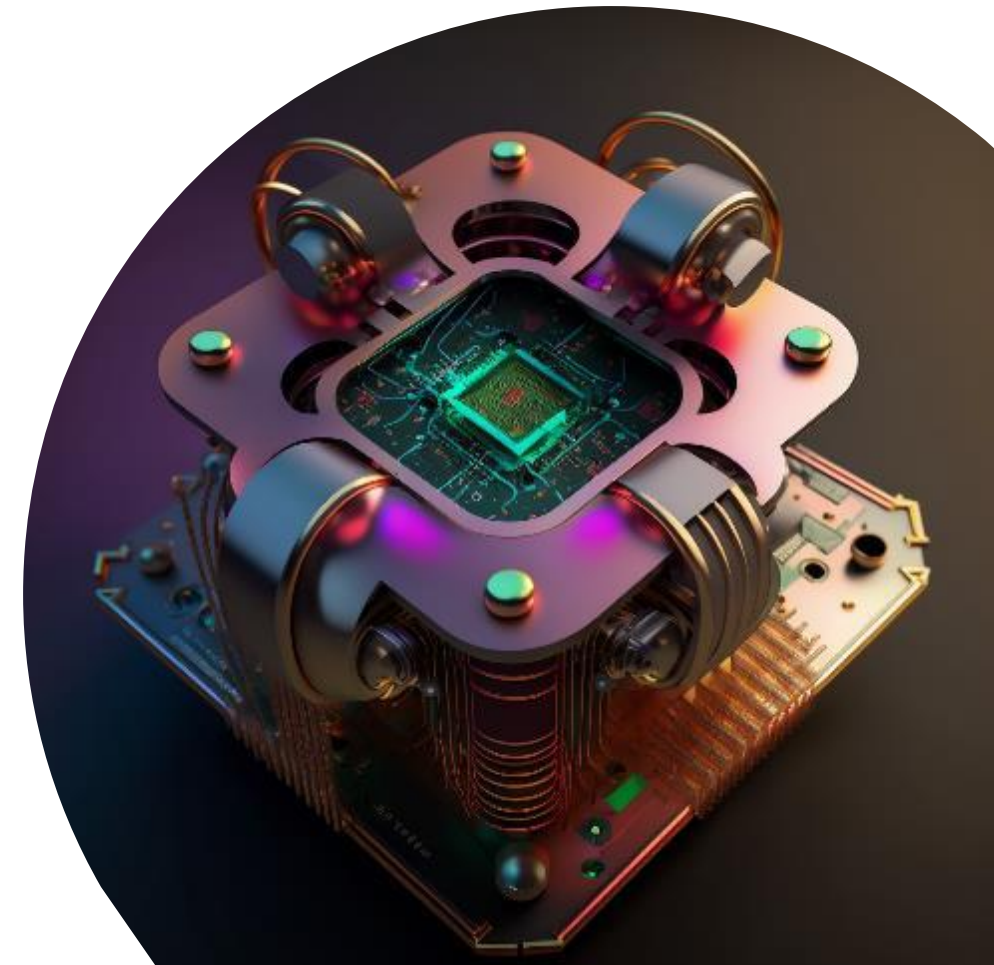


EIC and Chips Act



EIC has a mandate of dedicating **€ 300 million** to contribute to the Chips Act in 5 years:

- In 2023 spent more than **€155 million** under the **Accelerator Challenge 'Emerging Semiconductor or Quantum Technology Components'** and
- In 2024, **€50 million** are allocated under the **Accelerator Challenge 'Enabling the smart edge and quantum technology components'**



Some data on VC investment in Semiconductors (Europe)

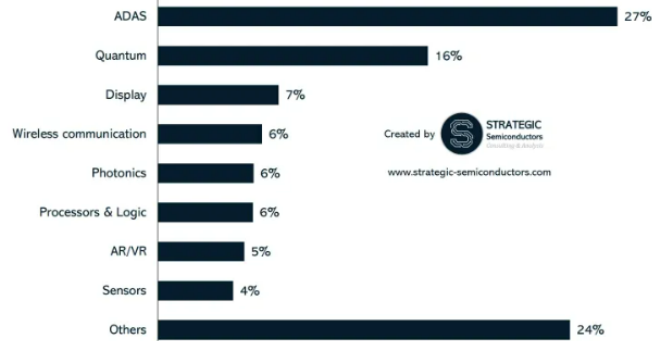


etimes.eu/semiconductor-market-rebound-expected-in-2024-but-challenges-lie-ahead/?utm_source=newsletter&utm_campaign=link&utm_medium=EETimesDail

Europe also witnessed a surge in investment activity in 2023, with over US\$3.4 billion poured into innovative startups across various sectors. The most notable investments were directed toward applications in advanced driver-assistance systems (ADAS) and EVs, accounting for 27% of the total funding. Quantum applications garnered significant attention, attracting 16% of investments, followed by displays (7%), wireless communications (6%) and photonics (6%).

European's semiconductor investment by application

2023 total investment: US\$ 3.4 billion



Others include: Security, materials, equipment, AI hardware, IC design, EDA, Memory, Power, test and analog IC

(Source: *Strategic Semiconductors*)

Among the standout startups, Aledia (France) secured US\$127 million to develop and manufacture microLED chips for display applications. Smart Photonics (Netherlands) raised US\$110 million to establish itself as a pureplay indium phosphide (InP) foundry provider, catering to datacom/telecom and sensing applications. Pasqal (France) made a significant breakthrough with a US\$108.7 million investment to build a neutral-atom-based quantum computer. SiPearl (France) garnered US\$82 million to produce microprocessors specifically designed for HPC applications. Kandou (Switzerland) emerged as a leader in data center connectivity with a US\$72 million investment, introducing a multiprotocol retimer capable of supporting PCIe 5.0 and CXL 2.0 standards. The quantum computing landscape in Europe also gained momentum, with Oxford Quantum Circuits (U.K.) raising US\$100 million to establish itself as a leading provider of quantum compute as a service. Quandela (France) further expanded the horizon of quantum computing with a US\$53 million investment, focusing on developing photonic qubit generators and entanglement systems.

These investments in European startups showcase the continent's vibrant innovation ecosystem and its commitment to driving semiconductor advancements across diverse applications. As the demand for semiconductors continues to grow, Europe is poised to play a pivotal role in shaping the future of this critical technology.

Europe witnessed a surge in investment in 2023, with over US\$3.4 billion poured into innovative startups across various sectors

SmartPhotonics, Aledia, Pasqal, SiPearl, Quandela,...

Do Startups Have a Place in the Semiconductor Supply Chain? (eetimes.eu)



Where?

Sensors/ Metrology

New Materials and processes:

- Materials handling, packaging and assembly
- Disrupt manufacturing

Sustainability:

- Innovations to replace solvents, acids,.. Manufacturing process
- Energy

Still, the innovations that drive transistor scaling are the domain of major industry players who can justify the massive R&D investments needed to develop the next process step. For example, Dutch company ASML, which specializes in the production of advanced lithography systems, invested a total of €3.1 billion in R&D in 2020. That figure represented approximately 14% of the company's net sales for the year—clearly not an appropriate place for startups to play.

I believe this perception is what keeps investors cautious when they hear “semiconductor” (or even “hardware” or “deep tech”) in a startup pitch. Nevertheless, there are several subdomains in the semiconductor industry where startups can still thrive, play a pivotal role and provide outsized returns.

Generative AI. The bar is lowest for this one, as investors are already predisposed to appreciate the category. In the semiconductor space, AI tools have the potential to design more efficient chips as well as chips that are purpose-built for specific functions. AI can also assist in placing and routing transistors and interconnects to optimize for size, cost and power. Finally, AI tools have a role to play in fault prediction, isolation and diagnosis, which should improve yields and lower costs.

Test and measurement. New categories of semiconductors will increasingly combine devices and components in ways that have never been tried before. An IoT device may have analog sensors, digital processors, RF transmitters, thin-film batteries and a mix of passives. Optical interconnects are being incorporated into new products, along with components based on new materials like silicon carbide or gallium arsenide. To reach commercial scale, new methods of collecting and analyzing test and yield data will need to be developed.

New materials and processes. Some of the materials and processes used in semiconductor manufacturing have remained relatively unchanged for more than 50 years. But today's increasingly complex chip designs—which may incorporate 3D stacking of thinned semiconductors, components that are vanishingly small, heterogeneous integration, chiplets and fragile materials like SiC—create difficulties in material handling, packaging and assembly. Combined with rising demand for manufacturing precision and cleanliness, these complexities bring opportunities for innovative materials and processes to disrupt manufacturing.

Sustainability. The semiconductor industry uses many chemicals and materials that are hazardous to the environment and generate tons of non-recyclable waste annually. The industry is also a major consumer of electricity, accounting for an estimated 1% to 2% of global electricity consumption. Innovations that replace existing solvents, acids and non-recyclable by-products of the manufacturing process with more environmentally friendly equivalents will be in demand by the industry, particularly given society's growing sensitivity around sustainability and environmental, social and governance initiatives. New factory growth will create opportunities for startups to innovate ways to reduce the energy used directly in the manufacturing of semiconductor chips, as well as the energy used in the production of the equipment and materials used in the manufacturing process.

For startups ready to innovate and participate in this exciting growth market, raising funds will continue to be difficult. Early investors must understand that deep tech means patient money, with longer times to return.

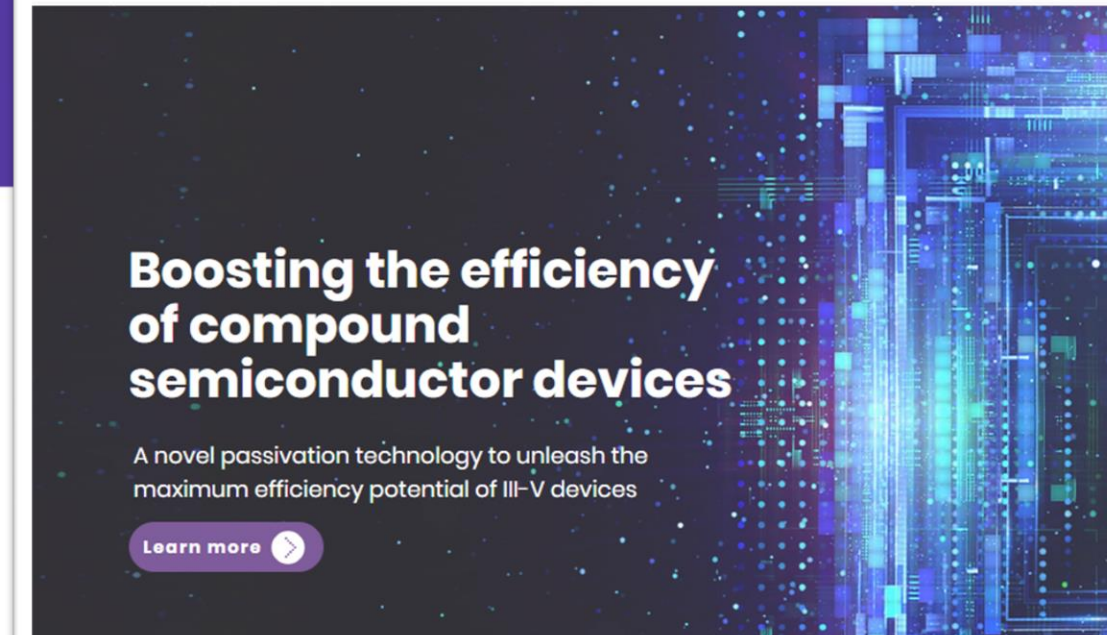
If you're a startup in this space, you will need to attract the interest of major industry players, as there is only a limited number of buyers. Take confidence in the fact that any traction in the supply chain is a sign that you have something of value. Furthermore, once your innovation is vetted and supported by the industry leaders, the barriers to entry for competitors become significant.

Some EIC startups in Semiconductors Booth EWE 126 (Entrance West)



Shaping Transparent Glass is Made Fast, Affordable, and Energy-Efficient

3D printing is shaping the future manufacturing. In 2020 about 2 million 3D printers were sold. They print plastics, metals, and ceramics, but none could print glass. However, the demand of complex glass products grows continuously in medical, optics, solid state battery, art, jewelry, and other markets. Nobula® glass 3D printer allows complex 3D structures to be produced in a fast and energy-efficient way.



How Wooptix can help? Through WFPI (Wavefront Phase Imaging)



Wooptix has developed a system called Phemet®, that uses WFPI, a proprietary wavefront sensing technique.

Phemet® introduces a new semiconductor wafer geometry technique that measures: shape uniformity, nanotopography, and roughness of the entire silicon wafer in a single image. By collecting more than 10 million data points with subnanometer height resolution, Phemet® is the industry leader in speed and resolution.

Some EIC startups in Semiconductors
Booth EWE 126 (Entrance West)

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Why to choose our PMICs/AEMs



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Programmable MPPT



Innovative buck-boost architecture



Very small footprint

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Next-Gen Hybrid High-Performance Computing

Inspired by the principles of the human brain, the SpiNNcloud platform offers unparalleled parallelism, energy efficiency, and real-time capability for the third wave of AI

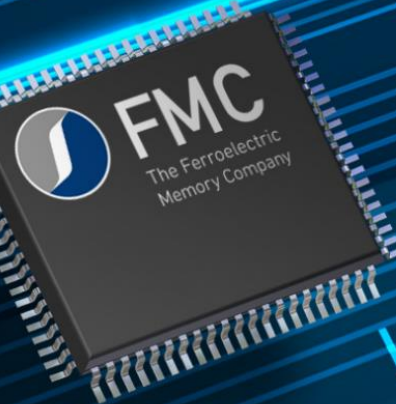
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Empowering the Evolution of AI

With our platform we build a bridge to the future of AI by enabling seamless integration of deep

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Low power
High speed
Low cost

Ferroelectric hafnium oxide:
The ideal memory material

Conclusions and Introduction to the Panel



- EIC Portfolio in Semiconductors is very rich with many relevant innovations and startups
- Challenges in this field are very much in line with EU strategies. Let's hear directly for the Startups and Investors:

12:45 Panel discussion: **Challenges faced when investing in Semiconductors from the point of view of startups and investors**

- Moderator, Thomas Ferre; Investor, EIC Division **at European Investment Bank (EIB)**
- Panelists:
 - Christian Reitberger: **Founding Partner at Matterwave Ventures**
 - Tore Irgens Kuhnle **CEO at Nanopower Semiconductors**
 - Matthias Lohrmann **Cofounder and CTO at Spinncoud Systems**
 - Thomas Rueckes **COO and Managing Director at Ferroelectric Memory**
 - Isabel Obieta, **Programme Manager at EIC**

13:25 Closing Remarks, Thomas Ferre; Investor, EIC Division **at European Investment Bank (EIB)**

Thank You

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