

Photonics21 – Photonics in Horizon Europe

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PHOTONICS PUBLIC PRIVATE PARTNERSHIP



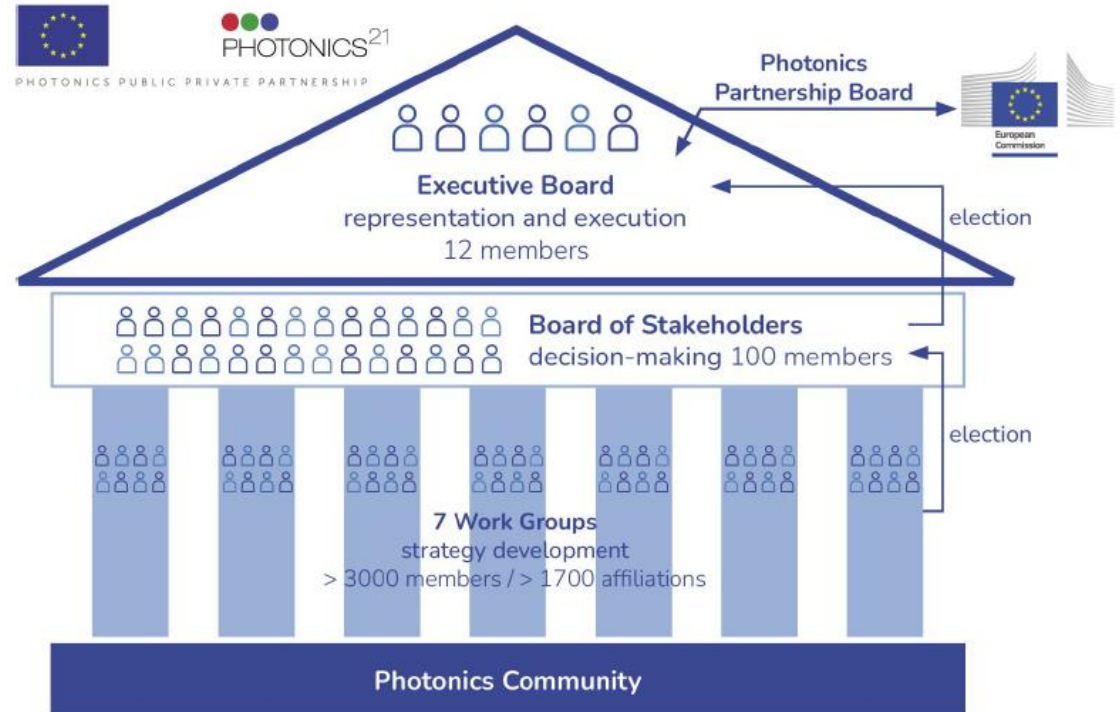
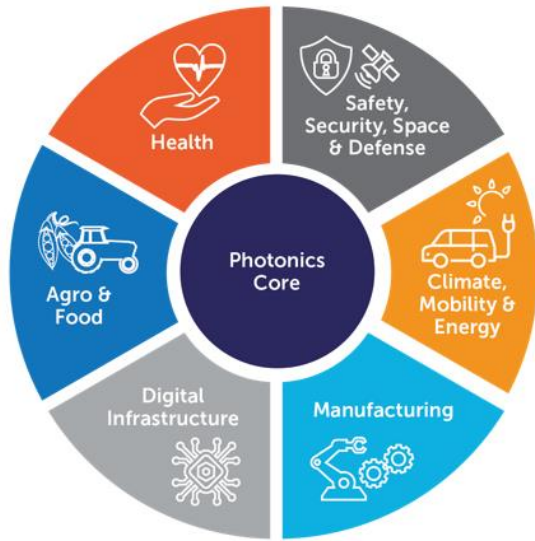
Outline

- Photonics in Horizon Europe
- Photonics and the Chips Act
- Kick-off: Photonics call priorities for Horizon Europe work programme 2025-27@Ph21 annual meeting



Photonics21: Advises European Commission Positioning Photonics & R&I call priorities in the field

- > 3000 members, industry and academia
- 7 working groups
- Since 2014 – „Partnership“ with EC in Framework Programmes

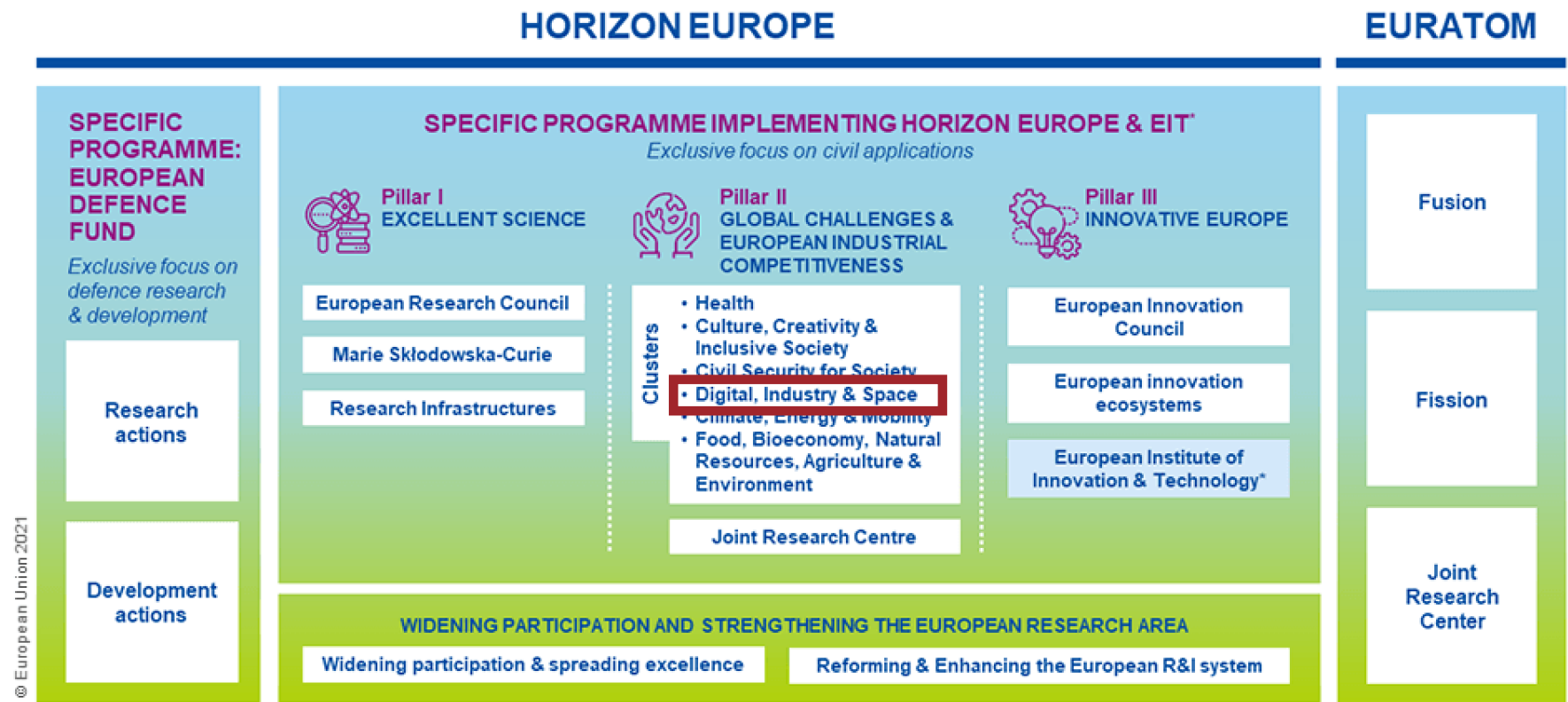


Photonics21 Work Groups

Status of Photonics in Horizon Europe

Horizon Europe – 2021-27

- € 95 bln for R&I in Europe



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



Status of Photonics in Horizon Europe Partnerships in Horizon Europe

Horizon Europe Photonics Partnership 2021-27

- ~ 480 Mio EUR EC funding
- Partnerships: only instrument to ringfence budget for an area

PILLAR II - Global challenges & European industrial competitiveness

PILLAR III - Innovative Europe

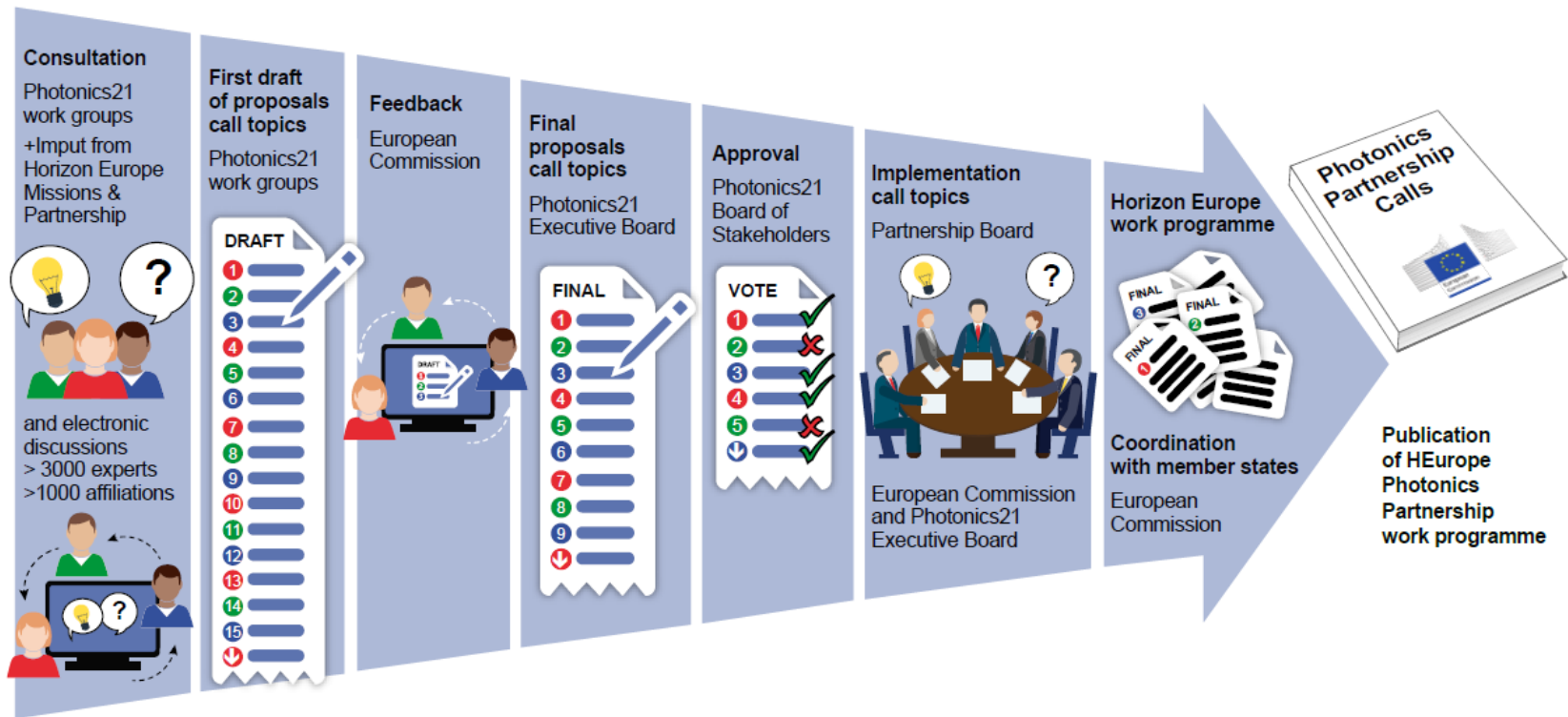
| Cluster 1: Health | Cluster 4: Digital, industry and space | Cluster 5: Climate, energy and mobility | Cluster 6: Food, bioeconomy, natural resources, agriculture and environment | EIT: The European Institute of Innovation and Technology | European innovation ecosystems |
|---------------------------------------|---|---|--|---|--------------------------------|
| Innovative Health Initiative | Key Digital Technologies | Clean Hydrogen | Circular Bio-based Europe | EIT InnoEnergy | Innovative SMEs |
| Global Health EDCTP3 | Smart Networks and Services | Clean Aviation | Biodiversa+ | Climate-KIC | |
| Transformation of Health Care Systems | High Performance Computing | Single European Sky ATM Research 3 | Blue Economy | EIT Digital | |
| Risk Assessment of Chemicals | European Metrology (Art. 185) | Europe's Rail | Water4All | EIT Food | |
| ERA for Health | AI-Data-Robotics | Connected, Cooperative and Automated Mobility | Animal Health and Welfare | EIT Health | |
| Rare Diseases | Photonics | Batteries | Accelerating Farming Systems Transitions | EIT Raw materials | |
| One-Health Antimicrobial Resistance | Made in Europe | Zero-emission Waterborne Transport | Agriculture of data | EIT Manufacturing | |
| Personalised Medicine | Clean Steel – Low-Carbon Steelmaking | Zero-emission Road Transport | Safe and Sustainable Food Systems | EIT Urban Mobility | |
| Pandemic Preparedness | Processes4Planet | Built4People | | Cultural and Creative Sectors and Industries | |
| | Globally Competitive Space Systems | Clean Energy Transition | | | |
| | | Driving Urban Transitions | | | |
| | | | | CROSS-PILLARS II and III | |
| | | | | European Open Science Cloud | |

- Institutionalised partnerships (Art 185/7, EIT KICs)
- Co-programmed
- Co-funded
- Not covered in the BMR 2022 due to a later start date



Photonics21 – member consultations for setting Photonics Partnership call priorities

Photonics21 Strategic Research Agenda



Result: Photonics Partnership calls in Horizon Europe Work Programme 2023-24



| Name | Call topic | Year | Action Type | TRL start | TRL end | Lump sums | Indicative Budget [mill. Euro] | Expected EU contribution per project [mill. Euro] |
|---|------------------|------|-------------|-----------|---------|-----------|--------------------------------|---|
| Photonic integration | DigE 01-51 | 2023 | RIA | 2 | 5 | Yes | 18 | 3-5 |
| Imaging and sensing | DigE 01-52 | 2024 | IA | 3 | 6-7 | Yes | 20 | 5-7 |
| Versatile light sources | DigE 01-53 | 2023 | RIA | 2 | 5 | Yes | 18 | 3-5 |
| Photonics for communication | DigE 01-54 | 2024 | RIA | 2 | 5 | Yes | 18 | 3-5 |
| Innovation Factory | DigE 01-55 | 2024 | IA | 2-5 | 4-7 | No | 15 | 7.5 - 15 |
| Photonic strategies and skills development | DigE 01-56 | 2023 | CSA | NA | NA | No | 4 | 1-3 |
| Photonics for manufacturing | Part of TT 01-02 | 2023 | IA | 5 | 7 | No | Part of 48 | 5-6 |
| Quantum PICs | DigE 01-47 | 2024 | RIA | 2-3 | 4-5 | Yes | 12 | 4-6 |



Photonics and the Chips Act



The European Chips Act in a nutshell

The European Chips Act will ensure that the EU strengthens its semiconductors ecosystem, increases its resilience, as well as ensure supply and reduce external dependencies.



1. Strengthen Europe's research and technology leadership towards smaller and faster chips



2. Build and reinforce capacity to innovate in the design, manufacturing and packaging of advanced chips



3. Put in place a framework to increase production capacity to 20% of the global market by 2030



4. Address the skills shortage, attract new talent and support the emergence of a skilled workforce



5. Develop an in-depth understanding of the global semiconductor supply chains

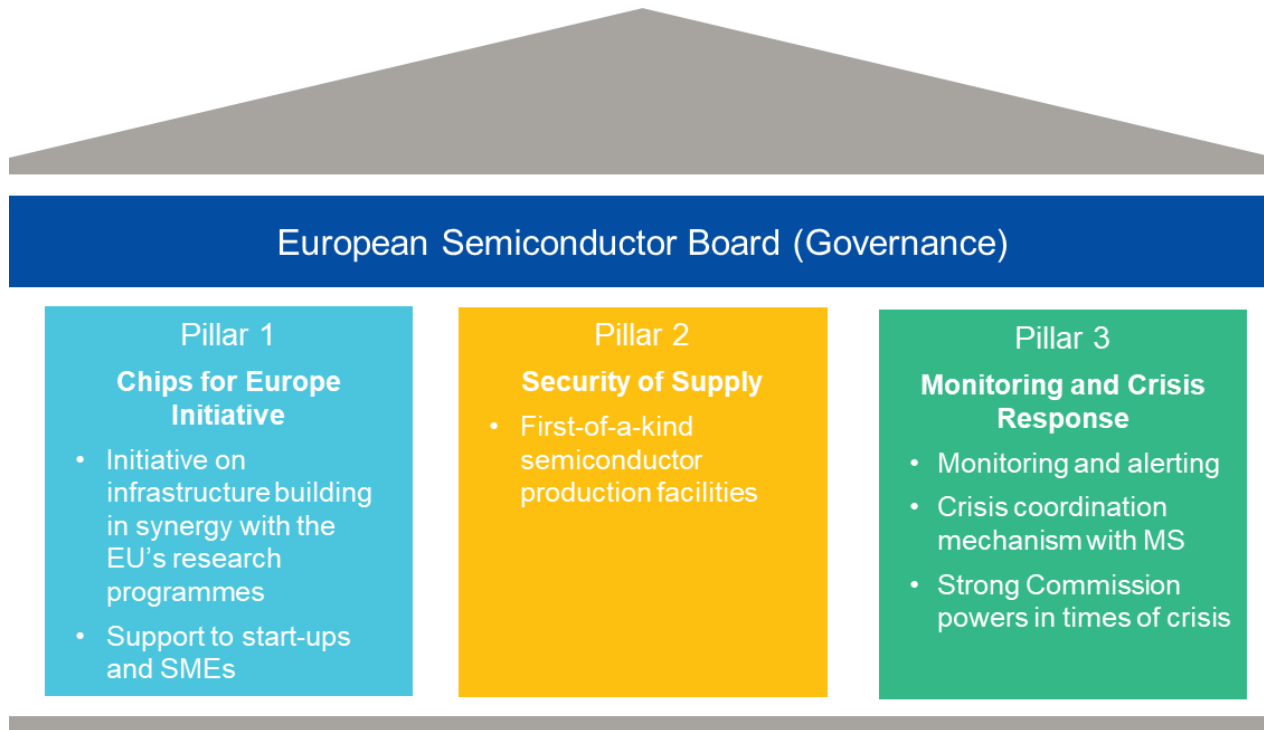
The Chips Act should result in additional public and private investments of more than **€15 billion**.

These investments will complement:

- **existing programmes** and actions in research & innovation in semiconductors (Horizon Europe, Digital Europe programme)
- **announced support** by Member States.

In total, **more than €43 billion of policy-driven investment will support the Chips Act until 2030**, which will be broadly matched by long-term private investment.

Three pillars of the Chips Act



R&I part Implemented via
Chips Joint Undertaking

Battlelines for Pillar 1 in negotiation between EC, Member states and European Parliament

- Budget: MS vs EC
- Scope and focus:
 - Focus: larger nodes vs. smaller nodes
 - Areas covered? Quantum Chips, Integrated Photonics
 - TRL: high vs. low-high
 - Level of industry involvement in program priorities? (calls)

➤ **Adoption expected by Q2-3/2023**

EU Chips Act and the photonics ecosystem



1

Pillar 1

- **Chips JU** will carry on funding of research activities related to photonics as KDT JU does now
- **Pilot lines:** heterogenous integration and photonics is a candidate area, next to MEMS and other specialty chips; integration aspects and packaging could be addressed
- **Design:** Competence Centers could address photonic chip design, facilitate access to pilot lines.

2

Pillar 2

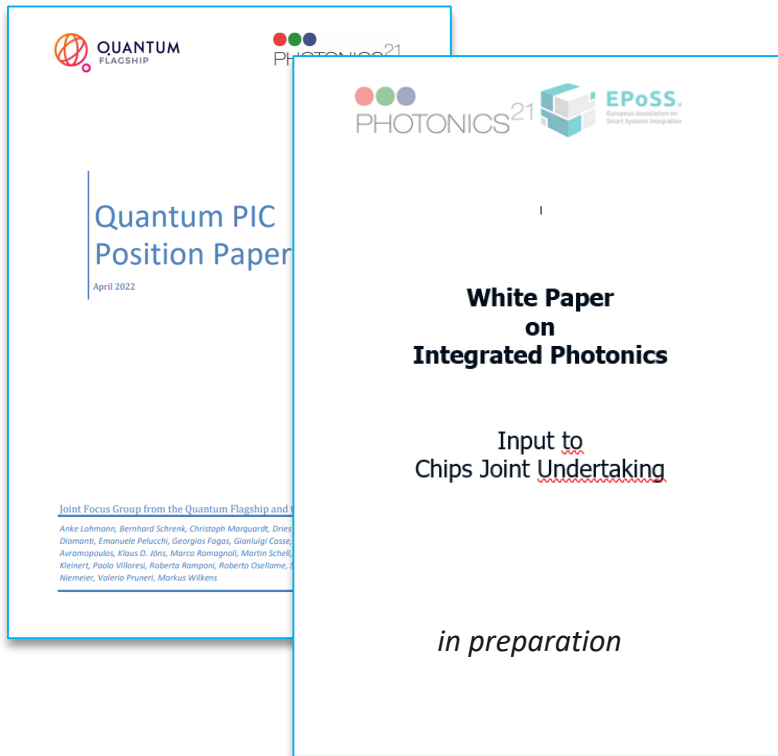
- Photonic chip foundries can be supported (mature node sizes) within the state aid regime addressed by the Chips Act if they are innovative
- Aspect of innovation can be demonstrated e.g., in advanced functionality, new production methods etc.

3

Pillar 3

- Monitoring of photonics industry supply chain
- Photonic chips are used in critical sectors:
 - Industrial automation
 - Data-communication
 - Medical technologies
 - Defence

Position Integrated Photonics in future Chips Joint Undertaking initiative



Focus groups between Photonics Partnerships and partnerships /policy initiatives from other areas:

- **Quantum Flagship:** Quantum PICs
 - Quantum PIC Call in Horizon Europe work programme 2023-24
- **KDT (=Chips) Joint Undertaking – Joint White Paper (draft)**
 - HORIZON-KDT-JU-2022-1-IA-Focus-Topic-2- Industrial supply chain for silicon photonics (IA)
 - Under negotiation: Integrated Photonics Call in Chips Joint Undertaking 2024 Work programme



Have your say!

Photonics Partnership Annual Meeting 2023

26 – 27 April 2023

Radisson Collection Hotel, Grand Place Brussels

Register now!

Early bird rates and sponsoring opportunities
available at www.photonics21.org

Why attend

- Help to determine **Photonics Partnership call priorities** for the **Horizon Europe Work Programme 2025-27!**
- Get latest information on the Photonics calls in Horizon Europe
- Learn about Photonics in key strategic value chains critical for Europe's autonomy
- Network and develop new ideas for future Photonics R&I projects



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Thank you!!

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PHOTONICS²¹