

Opportunities for Innovative Forces Engineers and Professors

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Swissphotonics

2023 09 12

Innovation

- **Market roadmap**

- We have heard from companies what solutions the consumers expect
- Swissphotonics buys also market reports and makes them available

- **Cluster**

- Switzerland is a photonics cluster

- **Innovation**

- Technology is driven by
 - Academia, i.e. Professor's
 - Advanced research
 - Education of students going into industry
 - Engineer's ingenuity
 - Execute what manager asks but
 - Empower manager to get money for innovation

Photonics Switzerland Brochure

- Highlights the strength of Switzerland in photonics.
- Is vivid and cutting-edge
- Details the Swiss photonics activities and Swiss companies across the world
- Promotes the Swiss photonics activities in Switzerland, Europe and worldwide.



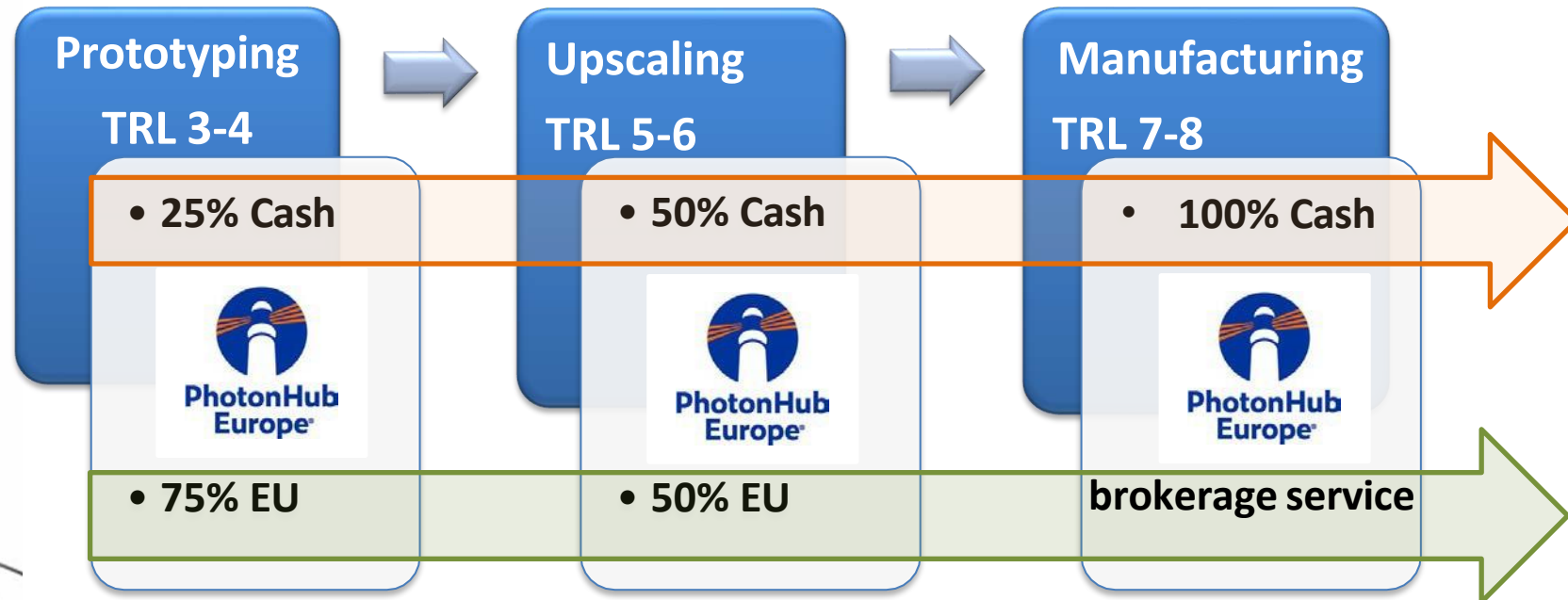
Bottom up examples:

- **Innosuisse: Matching funding for industry/academia partners**
 - For industry/academia partners towards technology development
 - Anytime, any subject up and beyond 500'000
 - High acceptance rate, Swissphonics can support application
 - Benefit:
 - Company to outsource part of research
 - Company to get to know potential employees
 - Academia to get market pull
- **Photonhub: Supporting international contract innovation**
 - Company to issue contract development to international PhotonHub technology provider
 - Benefit
 - Financial support

Focus on Deep Innovation Support to European Companies SMEs and LSC, from TRL 3 to TRL 8



**Projects are subsidized
only when Cross-Border**



Top down

- **Horizon projects**

- Switzerland can participate for free! (does not load the Horizon budget)
- Swiss activity gets paid by SERI
- Many call for Photonics across all Horizon calls

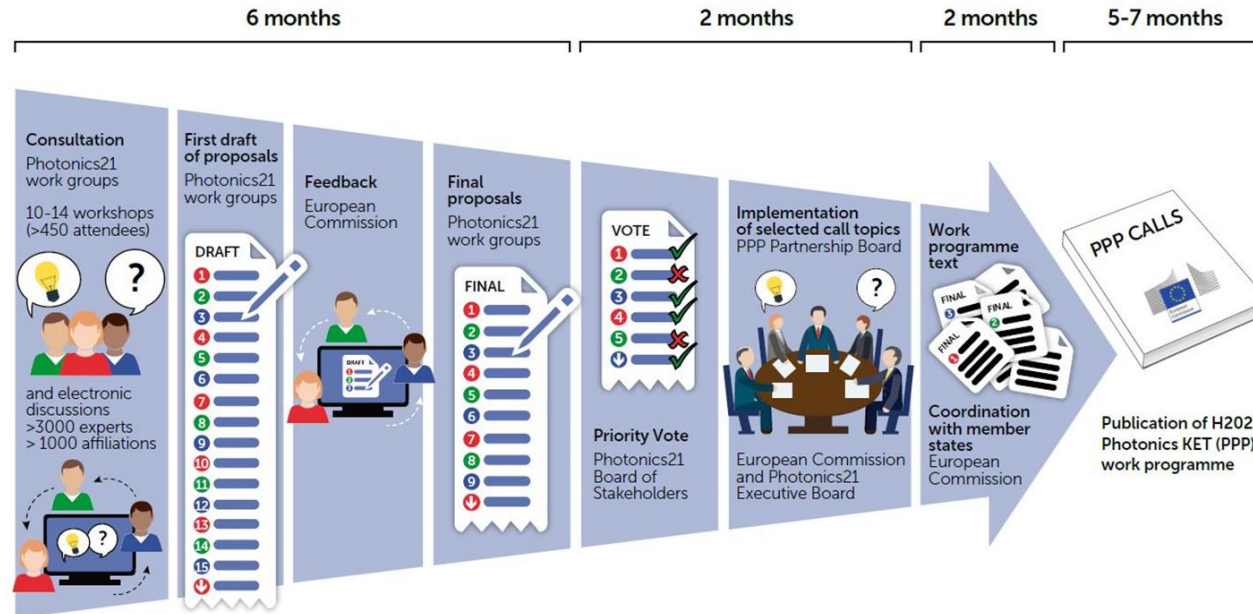
- **Photonics21 activity**

- Photonics 21 has generated a SRIA (Strategic research and innovation agenda)
- Has workshops to generate Horizon calls
 - Best way to get in “Horizon club”
- Membership is for free

Europe: Photonics21 (network, paid by SBFI)

Horizon 2020 Photonics PPP calls

Research & Innovation Priority Process



	2025–2027	2028–2030
Photonics Research (R) Challenges, TRL up to 5	<ul style="list-style-type: none"> • Sub-systems based on emerging PIC platforms with hybrid and heterogeneous integration of various materials and components, allowing operation in the MWIR to UV range, for applications in atomic clocks, communications, CBRN detection to quantification, quantum and bio-sensors • Development of efficient, high-bandwidth, low-noise single-photon detectors in the near- and mid-infrared range • Low-noise lasers for quantum technologies • 2D arrays of single-photon avalanche detectors (SPADs) • New approaches incorporating digital 	<ul style="list-style-type: none"> • Sub-systems based on PIC platforms with monolithic and heterogeneous integration of materials and components • Quantum PIC chips (QPIC) • 2D SPAD arrays with embedded processing • High power 2D phased-array semi-conductor lasers
Photonics Innovation (I) Challenges, TRL starting from 5	<ul style="list-style-type: none"> • Assembly of different technology photonic building blocks by 3D integration, on optical/electrical interposer, co-packaged or connected by passive waveguides or fibre routing systems • Micro-optical technologies (including meta-surfaces, diffractive optics, micro-lenses, filters, polarizers), eventually at the wafer-level • Photonic technologies for satellite constellations: space tolerant sensors for positioning, navigation and timing (PNT), inter-satellite distance measurements • Free-space telecom systems for the Quantum Secured Network (QSN), based on novel photonic components • SWAP-C innovative sensors for long range situational awareness, ISR⁴⁶, 3D imaging and chemical sensing (CBRN) • High power eye-safe laser developments for emerging threat countermeasures, including dazzling, jamming and neutralizing capabilities • Sensors protection against laser radiations • Growth of crucial III-V and oxide materials for photonics and exploration of advanced processing techniques 	<ul style="list-style-type: none"> • Demonstration of fused optics/electronics imaging systems • 3D stacking of sensors and photonics AI chips. • Miniaturized PNT sensors including quantum-based sensors for Quantum Information Network (QIN) • Miniaturized long range sensors exploiting quantum technologies • SWAP-C eye-safe high power laser effector systems • Large size III-V substrates and epitaxial wafers • Space hardened very high data rates transceivers (DP-QPSK)

SWISS PHOTONICS : Mission

Quantum:
Updated
Overview

Events & News

Swiss

Funding

Photonics21

Support

Jobs

About

Swissphotonics Events

- Tue, 12.09.2023 [Robotics and Automation](#)
- Tue, 12.09.2023 [Lunch Chat: The Swiss Photonics Integrator \(Swiss PIC\), online](#)
- Tue, 19.09.2023 [Lunch Chat: Laser-based micro-machining for photonics, online](#)
- Tue, 03.10.2023 [Presentation by Swiss Photonics Association, online](#)
- Tue, 17.10.2023 [Lunch Chat: Presentation by Oryl Photonics, save the date, online](#)
- Tue, 24.10.2023 [Lunch Chat: Presentation by ZHAW; save the date, online](#)
- Tue, 31.10.2023 [Lunch Chat: Next generation communication chips made from Pockels-enhanced PICs, online](#)

- [Partner Events/Calls](#)
- [Upcoming Partner Events/Calls](#)
- [Past Partner Events/Calls](#)
- [Photonics Events 2023, Europe and beyond](#)
- [EOS Annual Meeting, Dijon, France](#)
- [Industrialization of Photovoltaic Technology](#)
- [Autumn Conference of the DKF \(Offset Business\), Zürich](#)
- [Precision Technology 2023](#)
- [OST, Buchs](#)
- [Optica Quantum Industry Summit at LIGENTEC, Lausanne](#)
- [SLT 2024; save the date, Stuttgart](#)

Mission:
Improve competitiveness of our members by strengthening the innovation forces to secure and grow industrial workplaces

200 members

More:
▶ Upcoming Partner Events/Calls
▶ Past Partner Events/Calls