



**CENTER FOR
PHOTONICS
SCIENCES**



UNIVERSITY OF
EASTERN FINLAND

Finnish photonics ecosystem collaborating with European networks

Quantum and Photonics Industry Workshop, Maastricht, the Netherlands, August 17, 2026

Jyrki Saarinen, Professor, Dr. Tech., MBA

UEF // University of Eastern Finland



Finland – Thriving Hub for Photonics

SUOMI
FINLAND

Globally, Finland is a central nucleus in photonics research, innovation, education, and commercial applications.

2,5+ billion EUR

Estimated total
turnover of the photonics
industry in Finland

7,500+

People directly employed
in the photonics business

340+

Tightly networked
photonics companies

12% [↑] 7% [↑]

Annual growth rate 2x
the global average of 7%

**FINLAND
EXCELS IN**

Optical sensing and imaging

Micro- and nanophotonics

XR/AR

Lasers and fiber optics

Silicon-based photonics

Medical sensors

Source: Photonics Industry in Finland 2023 survey

POWER OF PHOTONICS FROM FINLAND

Photonics Business Innovation Environment in Finland

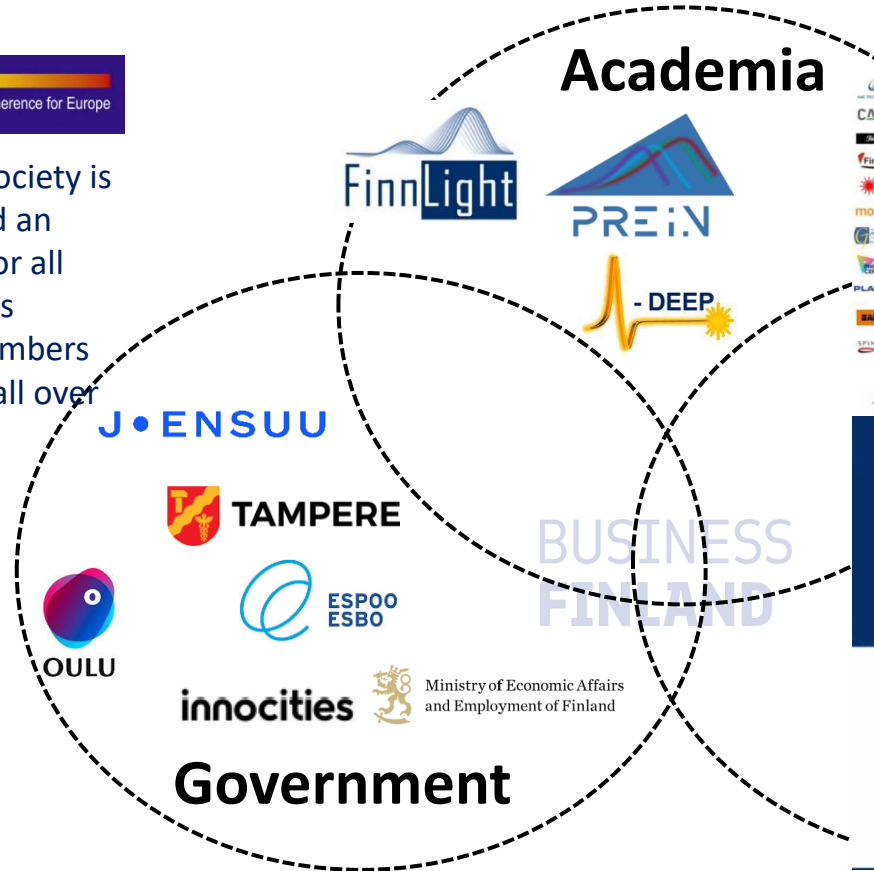


The European Optical Society is a non-profit society, and an umbrella organization for all national optical societies around Europe. Our members extend from Europe to all over the world.

**Finnish Chips Competence Center -
FiCCC**

Speed up the digitalization of industry and other fields with the help of chip technology.

The competence center will support the development of chips that create a competitive advantage for the needs of different industries and increase the European demand for advanced chip technologies.



COMPANIES	TURNOVER	EMPLOYEES
 - Total 340 companies + 40 companies / + 13% since 2023 - New companies founded + 7% annually	 - Total 2 500 million euros + 500 million euros / + 25% since 2023 - Companies turnover grew + 25% annually	 - Total 7 500 employees + 1 000 employees / + 20% since 2020 - Amount of employees grew + 25% annually

Industry



SUOMI FINLAND



Photonics Finland is a technology cluster and a scientific society that drives forward the photonics industry and research in Finland.

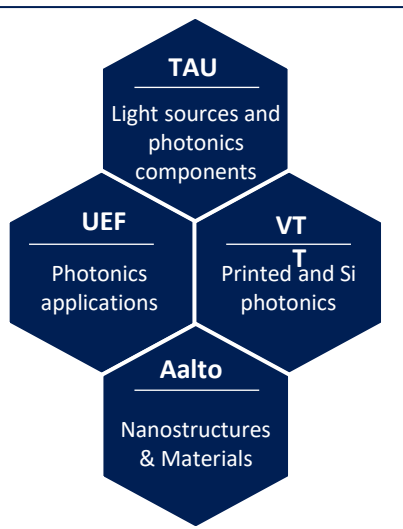
It connects photonics companies, universities, research institutes, and public authorities, as well as scientists, engineers, and students with an interest in optics and photonics.

Photonics Finland develops practices to coordinate and develop Finnish photonics internationally by working closely with other photonics clusters.

Flagship for Photonics Research and Innovation (PREIN)

National initiative bringing together the main actors of Photonics research in Finland to develop the next generation of light-based technologies

STRATEGIC PRIORITY FOR ALL PARTNERS

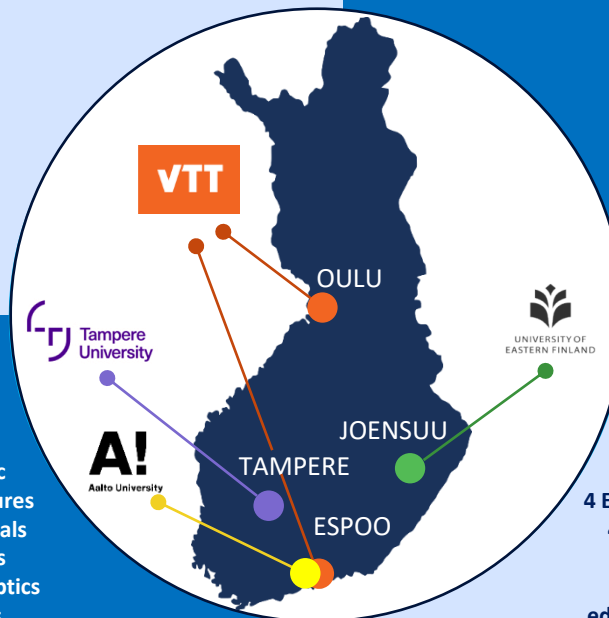


LEADING EUROPEAN PHOTONIC ECOSYSTEM

- 4 partners
- 500+ staffs
- 50+ collaborating countries and 280+ institutions
- 150+ industrial partners
- National roadmap Infrastructure network (FIRI)

GLOBAL HUB OF PHOTONICS EXPERTISE

- Silicon technology
- Optoelectronics
- Plasmonics
- Organic materials
- Lasers
- Nonlinear optics
- Spectroscopy
- Photovoltaic
- Nanostructures
- Nanomaterials
- 2D materials
- Quantum optics
- Waveguides
- Fiber-optics
- Diffractive optics
- Printed optics
- MOEMS



WORLDCLASS RESEARCH

- 250+ journal publications annually
- 40+ high impact publications annually
- Highly cited researchers
- 6 ERCs
- Multiple awards
- Various positions in international societies, industry clusters, and other stakeholders

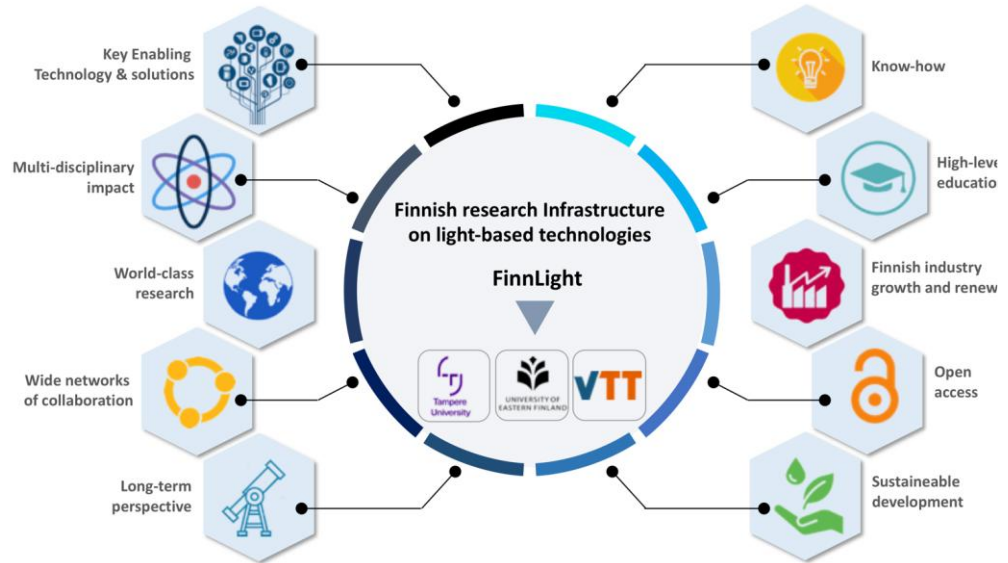
LARGE EDUCATION NETWORKS

- 2 international MSc programs
- 4 Erasmus Mundus joint degree programs
- 4 double-degree programs with foreign universities
- Partnership program with the science education network of Finnish universities

Research infrastructure



finnlight.fi

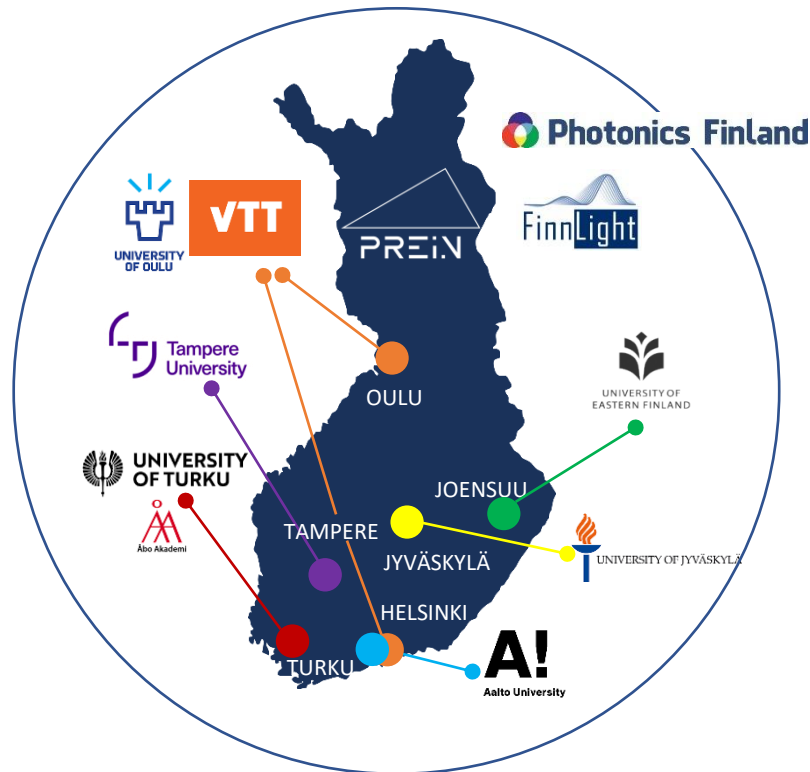


National Research Infrastructure – micro- and nanotechnology:
OtaNano/Micronova (Aalto) and VTT/Micronova (VTT)

I-DEEP Consortium

R&D Fields

- Optoelectronics
- Lasers
- Nonlinear optics
- Waveguides & optical fibre
- Photovoltaic
- Integrated optics
- Communication
- Plasmonics
- Printed optics
- Organic materials
- Quantum optics
- Biophotonics
- Spectroscopy
- Nanostructures & nanomaterials
- MOEMS
- Imaging



- Tampere University : 26
- University of Eastern Finland: 15
- Aalto: 14
- Åbo Akademi: 3
- University of Oulu: 4
- University of Jyväskylä: 6
- University of Turku: 4

Associated partners: VTT and Photonics Finland



International education in photonics

- International Master's Degree Programme in Photonics
- European Master's programmes and self-standing modules in photonics: Phortify
- Erasmus+ Master's Degree Programmes:
 - Intelligent Photonics for Security, Reliability, Sustainability, and Safety, iPSRS
 - Computational Color and Spectral Imaging, COSI
 - Imaging and Light in Extended Reality, IMLEX



innocities

Innovating Cities and Communities

Creating for Finland the world's most effective environment for experiments and innovations by 2030 as part of the InnoCities community!

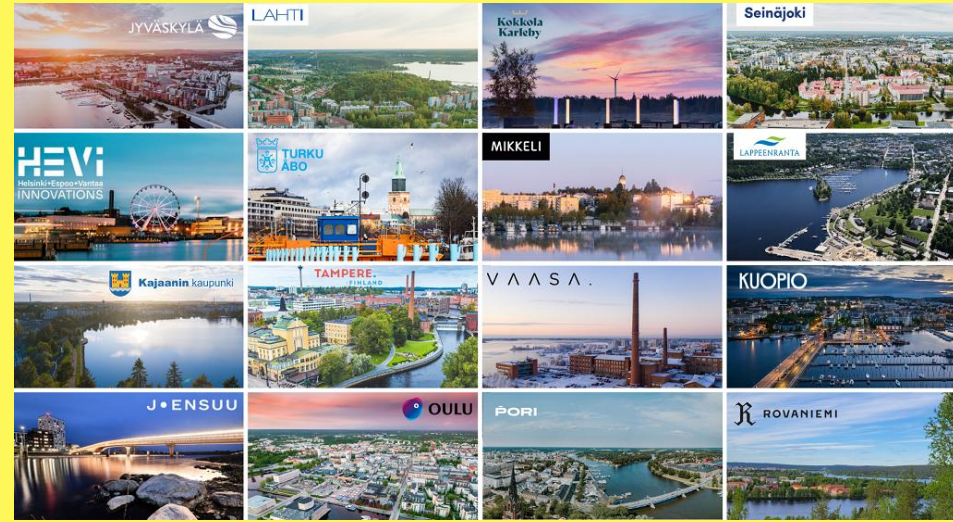
InnoCities covers all Finnish university and university consortium cities.

Cities take the lead in strengthening innovation ecosystems in Finland

The idea behind the lead projects is to supplement and strengthen the common competence and joint development of the regions. Cooperation increases the international visibility of Finnish competence as cities and operators compete for foreign experts and RDI investments.

Lead projects:

- Expertise network of battery chemistry, Kokkola and partners
- Digital health knowledge network, Oulu and partners
- **Photonics innovation ecosystem in cities, Joensuu, Tampere and Oulu (and Espoo)**
- Green electrification and hydrogen ecosystem stewardship, Lappeenranta and partners
- Sport Finland ecosystem – platform for RDI of sport and wellbeing growth, Jyväskylä and partners
- Platform of excellence for Finnish knowhow in the twin transition of mobile work machines (SIXPoE)



InnoCities are university cities and towns. There are 16 urban areas, 19 cities and 1 municipality.

innocities



Co-funded by
the European Union

Collaboration and matchmaking in Photonics, Microelectronics, and Quantum



Institute





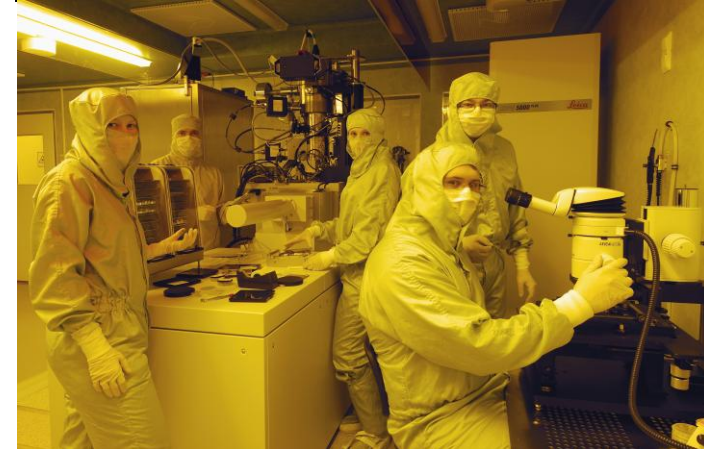
UNIVERSITY OF
EASTERN FINLAND



CENTER FOR
PHOTONICS
SCIENCES

- Approximately 110 researchers, incl. 27 professors and research directors. 130+ bachelor's and master's students
- Facilities
 - Clean room (ISO 5...7) 264 m²
 - Laboratories approx. 1,000 m²
 - Office approx. 1,000 m²
- Research Topics
 - Optical components and their precision manufacturing
 - 3D-printed photonics and freeform optics (e.g. gradient-index optics GRIN), metalenses, micro- and nanophotonics
 - Coherence and polarization optics
 - Optical sensing and imaging
 - Optical materials
 - Quantum photonics
- Metrology & Characterization
- Photonics Center – Collaboration for Business and Research

UEF // University of Eastern Finland



Photonics Center - Collaboration for Business and Research



EXPERTS & TRAINING

- Photonics professionals from all levels of education
- PhDs in industry
- Customised recruitment services
- Tailored training
- Trainees



FACILITIES

- Clean rooms
- Laboratory facilities
- Small series production facilities
- Office facilities



SERVICES & EQUIPMENT

- Rental equipment and equipment expert services
- Manufacturing and measurement
- Marketing and communications
- Presentation and event room





Photonics Industry in Finland 2025
Survey results

**BOOST
BROTHERS**
Developing construction

Photonics industry survey for research
centers and universities in Finland 2025
Survey results

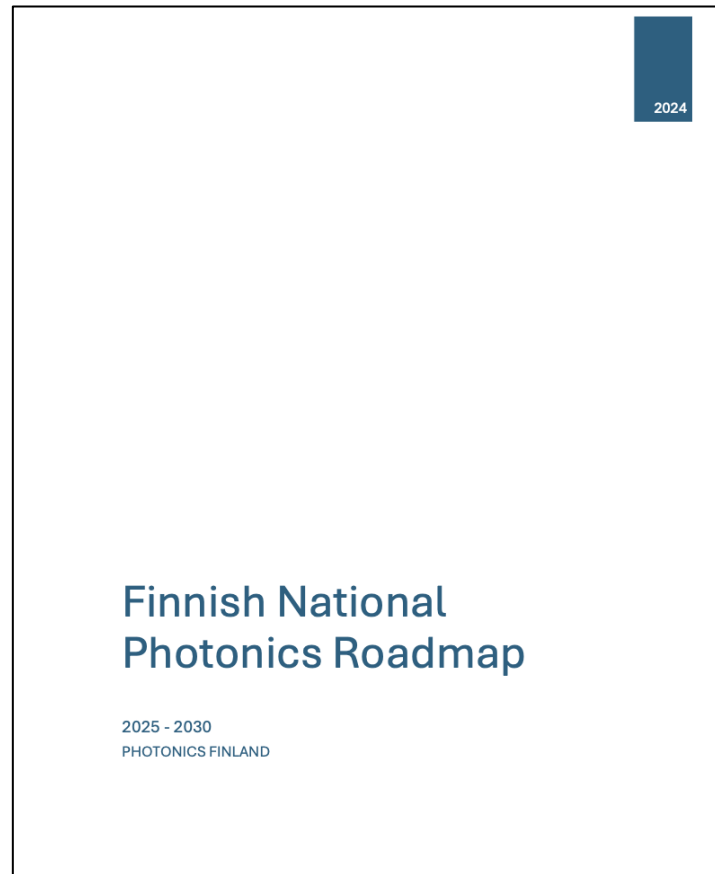
**BOOST
BROTHERS**
Developing construction

<https://www.photonics.fi/media-2/surveys-brochures/>

Photonics Roadmap 2025-2030

Doubling the industry

- Revenue 2 Billion to 4 Billion & Employees 6k to 12k
- **Required actions**
 - National Photonics Pilot Line
 - Continuing and Expanding the PREIN Flagship Program
 - National Photonics Growth Engine
 - Workforce Growth and Development
 - Enhancing Finland's International Influence and Export in Photonics
 - Strengthening the Photonics Ecosystem



Follow photonics from

Center for Photonics Sciences <https://sites.uef.fi/photonics/>

PREIN [PREIN.fi](https://prein.fi)

European Optical Society europeanoptics.org

FinnLight finnlight.fi

Photonics Finland photonics.fi

Jobs in photonics

photonics.fi/jobboard/

linkedin.com/groups/9046550

Photonics Center photonicscenter.fi

Photonics Joensuu businessjoensuu.fi/en/photonicsjoensuu

Thank you!



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