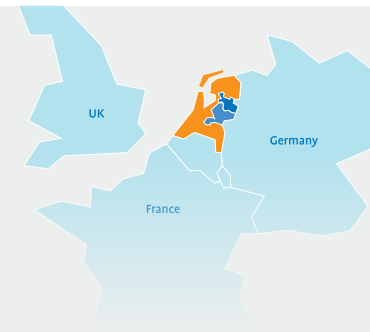




Photonics

# The Photonics Leader

Photonics, among other Key Enabling Technologies, is a funding priority from the EU: € 110 billion to date. The Netherlands is a major focus of this investment and is a strong leader in photonics research, product development, manufacturing and technology application. The ground has been prepared for you. By bringing your company to the Netherlands, you gain the benefits of this investment.



## East Netherlands: a vibrant photonic ecosystem

Only in East Netherlands you can find such a strong, vibrant representation of qualified photonics business partners, technologies, talent and government support.

This ecosystem is boosted by a funding injection from the EU of €110 billion Euros, to help companies such as yours to succeed with integrated photonics in Europe.

If your company is active in the photonics value chain, East Netherlands is the place to be.

*“Our strategic collaboration with LioniX International [in East Netherlands] is essential for us to develop the photonics business in the Asia-Pacific market including China. We will become a market-leader in the [Asia-Pacific] region in the near future.”*

**Young Mo Kim,**  
Chairman of YMK Holdings

## M Business climate



Here you will find the largest concentration of integrated photonics-related businesses in the nation. Its strengths are:



### Expertise

Optical systems, photonic devices, testing & measurement technologies, manufacturing technology.



### Markets

Industrial manufacturing, semiconductors, photonic research & education in opticals, imaging and lasers.



### Companies

LioniX International, Phoenix Software (winner of the Design & Packaging award from the Photonics Integrated Circuits International Conference 2017), Phix, Satrax, SolmateS, DEMCON Focal, Avantes, Thales, PANalytical, IDEX optics & photonics, Lightmotif, Sumipro.

**These companies offer technology platforms for shared research and development, as well as product development consortia to assist in product launch.**



## Market access

**PHIX** Photonics Assembly established its assembly and packaging production line in April 2017, targeting cost-effective fabrication of Photonic Integrated Circuit modules in large volumes. With its operations on the premises of the University of Twente, PHIX contributes to the established regional eco-system of design, engineering and development of integrated photonics solutions.

PHIX will work in close cooperation with the Fraunhofer Project Center on packaging standards for high volume manufacturing of integrated photonics modules and with Phoenix Software on developing the appropriate photonic design kits, dedicated to assembly and packaging, to secure volume scalability and fast time-to-market of novel sensors in datacom, telecom and medical applications.

**PhotonDelta** is the Dutch ecosystem in which high-tech companies, knowledge institutions and authorities have joined forces to gain a leading position in the development and commercialization of photonics. PhotonDelta is recognized as one of Europe's leading innovation hubs, amplifying existing initiatives and kick-starting new ones.



## New technologies

The business infrastructure supports a thriving technological architecture. Key enabling technologies (KETs) targeted by the EU and Dutch governments for investment and development:

- Photonics
- Micro and nanoelectronics
- Nanotechnology
- Industrial biotechnology
- Advanced materials
- Advanced manufacturing technologies

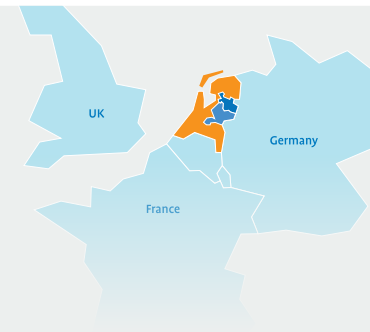
All of these technologies are being strongly developed in East Netherlands which has become internationally recognized as a global leader in fundamental and applied research in photonics.



**Most innovative  
country in the world**



# Oost NL has partnered with over **875** companies for success in Europe



## Top talent



New job opportunities in photonics are expected to double in the coming 5 years. Students are flocking to the photonics field, increasing 30% annually. The Universities and Applied Science Institutes in the Netherlands strongly support relevant scientific studies that are closely linked to this growing market.



**40,000**  
Universities



**84,000**  
Higher Professional Education



**100,000**  
Vocational Education

**Number of students, East Netherlands**

source: CBS, 2017/2018



## Funding

Innovation in photonics is one of the funding priorities within the European Union (EU). These funds are also an important vehicle to connect our photonic ecosystem to other important hot spots in Europe. The EU has made significant investments in photonics in recent years, and remains the largest investor in the technology, leading the US and Asia.

**80 billion**  
budget for cooperation in R&D through EU Horizon 2020 program



As an official partner of the Dutch and EU governments, Oost NL is a qualified intermediary in helping you to access EU, national and regional funding.

**255 million**  
regional participation fund



**100 million**  
innovation grants & incentives



## Business support

Oost NL is in a strong position to help secure new markets for you in Europe.

The **World Technology Mapping Forum** (Building the First Global Integrated Photonics Systems Roadmap) will be held in Enschede, June 20 - 22, 2018. This important forum is annually attended by scientists, researchers, government representatives and high-tech industry experts from nearly 20 countries to discuss next generation technologies. Photonics plays an important role in this forum, as particles of light (photons) rather than electrons will be the engine driving many new applications in communications and life sciences in the future.

**70**  
Start-ups

Average new technology start-up companies every year

## Oost NL - Support for your success in Photonics

Oost NL is the economic development agency for East Netherlands. We have access to resources - funding, business partners and infrastructure, technological architecture and research partners - to help you succeed in establishing and growing your European business. If your strategic vision is global growth through European business development, Oost NL is your partner for success.

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