## HOW PHOTONICS CAN **SUPPORT YOU**

Fibre optic communication systems are the basis for the internet and modern wireless communication systems. Photonics is also used everywhere in ICT, from optical fibres to photonic integrated circuits (PICs), ultra-compact cameras, laser-machining, smart displays and micro-optics. The smartphone would simply not exist without photonics.

Photonics technologies used for digital infrastructure are being harnessed to reduce power consumption, footprint and cost. This makes their use in other applications very competitive.

**Start your photonics innovation journey with our support.**

## **DEMO & EXPERIENCE** CENTRES

In addition to providing innovation support, PhotonHub Europe acts as a one-stop-shop matchmaker between European SMEs and the existing European ecosystem of photonics training providers. This extensive training offering is presented as a single online catalogue of the European Photonics Innovation Academy.

### **ONSITE** TRAINING OPPORTUNITIES

Discover photonics at the one-day Demo Centres and become fully immersed at the three-day hands-on Experience Centres situated across Europe.

**Silicon Photonics**
Experience Centre by UGent – ePIXfab

**Graphene Photonics for mm-Wave Wireless Links**
Demo Centre by CNIT

**Photonics for Telecom & Datacom Applications**
Demo Centre by ICCS

### **FREE ONLINE** INTRODUCTORY TRAINING OPPORTUNITIES

Half-day online sessions are delivered throughout the year.

View our complete training schedule and register your interest at ecosystem.photonhub.eu or by scanning the QR code.

**DISCOVER**
how PhotonHub can support your business with photonics

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## DISCOVER HOW YOU CAN

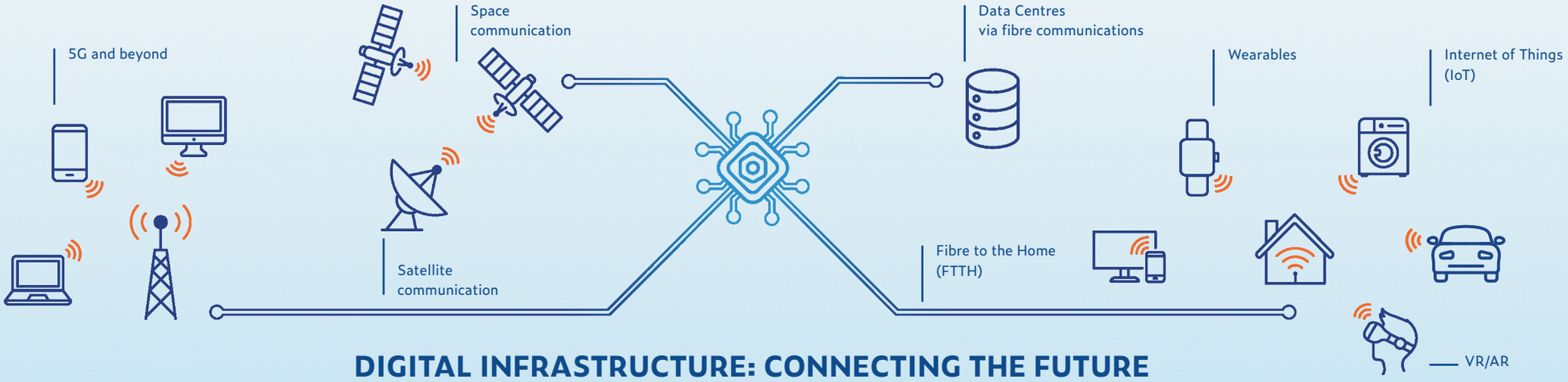
- ✓ **Reduce energy consumption** of digital systems using photonics ICT solutions
- ✓ **Communicate securely** using ultra-broadband optical fibre networks and quantum solutions
- ✓ **Enhance IoT and VR solutions** through photonics sensors and consumer products

Explore all possibilities on photonhub.eu

Avail of a **free initial assessment by top experts** for European SMEs

Delve into how your business could minimise the risk and expense of deep technology innovation through "test-before-invest" support from PhotonHub.

# PHOTONICS IN **DIGITAL INFRASTRUCTURE**




## DIGITAL INFRASTRUCTURE: CONNECTING THE FUTURE

# EXAMPLES OF COMPANIES SUPPORTED WITH PHOTONICS INNOVATION PROJECTS

FIND MORE ON PHOTONHUB.EU

## NEXT-GENERATION ENTROPY SOURCE FOR SECURE SPACE APPLICATIONS USING QUANTUM KEY DISTRIBUTION


Secure communication is essential in space to protect important data. To meet this need, Antwerp Space is developing an InP-based entropy source for a quantum random number generator. This new entropy source is essential for secure space applications, in particular Quantum Key Distribution (QKD). QKD ensures that communications cannot be tapped by using reliable sources of private randomness. Antwerp Space worked with Eindhoven University of Technology (TU/e) in the Netherlands to design and model this innovative entropy source, which will help secure future space missions.

## IMPROVING DATA TRANSMISSION IN LONG DISTANCE TELECOMMUNICATIONS

Pilot Photonics worked on developing an optical comb source and an integrated demultiplexer based on high alpha-factor high-speed distributed-feedback (DFB) lasers. This technology was crucial for fibre optical communication, particularly in high data rate coherent transmission systems used in long-haul telecommunication. The optical comb source and indium phosphide photonic integrated circuit (InP PIC) demultiplexer increased the efficiency and capacity of data transmission. To achieve this, Pilot Photonics partnered with Eindhoven University of Technology (TU/e) in the Netherlands to design, manufacture and package these components.


## ADVANCED OPTICAL SOLUTIONS FOR LIVE SPORTS VIDEO PROCESSING


Digit Arena worked on advanced optical methods for banner advertisement and moving object separation from video signals, crucial for optical data processing in live sports. The project included an image replacement solution using computer vision for object detection and a hyperspectral imaging system for background subtraction in LED advertising replacement. This system addressed the challenge of segmenting objects at close range. Digit Arena partnered with Technical Research Centre of Finland (VTT) for the design, manufacture and packaging of these solutions.