

PhotonHub Europe

One-Stop-Shop Open Access to Photonics Innovation Support for a Digital Europe

EXECUTIVE SUMMARY

Photonics – the science and technology of light – is a key digital technology that is radically transforming the traditional industrial base. Photonics is essential to the functioning of new applications which are powering Industry 4.0 and which are also critical to our ability to fundamentally address the enormous global societal and environmental challenges of our times. Photonics technologies are being used to create and launch exciting new products in **wide-ranging end-user application domains** such as Health, Digital Infrastructure, Manufacturing, Safety, Security, Space & Defence, Agro-Food, Mobility & Energy. Most critically, photonics is also a key enabling technology for the transformation of production methods in European manufacturing for **increased competitiveness** on the global stage and the boosting of Europe's **technological sovereignty**.

In order to accelerate the uptake and deployment of photonics technologies by European industry, PhotonHub Europe will establish a **single Photonics Innovation Hub** which integrates all of the best-in-class photonics technologies, facilities, expertise and experience of **53 partners** across Europe under one roof as a **one-stop-shop solution** for delivering supports to industry. PhotonHub will provide European companies, in particular **“non-photonics” SMEs and mid-caps that are first users and early adopters** of photonics, with **open access and guided orienteering through the PhotonHub front office** across a broad range of services and capabilities covering:

- **training and upskilling** opportunities for both technology- and application-specific learning in photonics using lecture-based tutorials, hands-on lab-based training and “Train-the-Trainer” programmes within the hub's **40 Demo Centres** and **10 Experience Centres** throughout Europe, all coordinated for consistent standards of excellence under the umbrella of the **European Photonics Innovation Academy** of PhotonHub, and enhanced through PhotonHub's online tools to include extensive use of **virtual training** sessions and a **digital catalogue** of further photonics training opportunities across the wider ecosystem of academia and industry in Europe;
- **“test before invest” innovation support** capabilities such as expertise, design, prototyping, experimentation, engineering and pilot production with further guidance and seamless links to the industrial supply chain of manufacturing in Europe, all provided by Europe's top competence centres offering the broadest possible range of photonics technologies covering the full value chain from TRL3-8 and a pool of **500 experts** readily available to engage with companies on highly collaborative **Innovation Projects** aimed at **TRL acceleration** from **prototyping (TRL3-4) to upscaling (TRL5-6) to manufacturing (TRL7-8)**, and complemented by targeted **business coaching** and **IP advisory** supports to the companies to further boost the market-readiness levels of their innovation activities;
- **support to find investment** from suitable sources of venture capital or other private/public sources of investment finance in order to successfully bring new photonics and “photonics-enabled” products to market, through a comprehensive range of supports from **online guidance and orienteering** on sources of investment to more **intensive personalised investment-readiness coaching and investor matchmaking** specially developed for European **start-ups and scale-ups** innovating with photonics and organised in close collaboration with major regional and European **venture fora and deep tech Investor Days**.

PhotonHub will **uniquely support cross-border innovation** activities of European companies, while simultaneously working closely with the **local photonics hubs** representing 18 European regions as partners in the consortium to develop and roll out **best practices of the “lighthouse” regions for ongoing regional financial support** of photonics innovation activities of SMEs, and collaborating with key associations such as **ERRIN** and **AER** to disseminate the best practice model widely in order to **support the development of new innovation hubs covering most regions of Europe**. Furthermore, through its close collaboration and alignment with **Photonics21 (BestPhorm21)** on the strategy for photonics development in Europe as well as with established pan-European SME support networks such as **Enterprise Europe Network (EEN)**, and by tightly linking the activities of PhotonHub with those of other European

Digital Innovation Hubs (**EU-DIHs**) through its digital community-building platform, PhotonHub will ensure fast user-friendly access to the broadest possible range of advanced photonics expertise and technologies on the European scale, covering the entire value chain from TRL3-8, and **combining local proximity with cross-border added value** to provide a critical accelerator for innovation, digital transformation and SME business growth in Europe and an essential source for powerful networking opportunities across a pan-European innovation ecosystem.

As such, there are **two important levels on which PhotonHub expects to deliver its impact** – firstly, on the digitisation and competitiveness of **end-user industry** in Europe in particular SMEs through the uptake of photonics, and secondly on the **wider ecosystem** of local innovation hubs and in particular the leverage factor on regional and national funding for photonics innovation and the business plan for sustainability of the innovation hub which will continue to operate as the **PhotonHub Europe Association** long after the end of the project. Most importantly, PhotonHub will implement a comprehensive Impact Measurement Framework specifically designed to facilitate the accurate and timely measurement of its impact across all of its activities using a broad set of carefully chosen **quantified KPIs** calculated on the basis of the partners' deep experience and best practice from previous EU projects. The KPI targets that PhotonHub expects to achieve across all of its activities over the lifetime of the project and indeed beyond as a result of its business plan are summarised in the Tables below.

Increased Awareness & Orienteering

 100,000+ European companies with raised awareness of photonics innovation potential	 8,000 companies benefiting from one-to-one discussions with photonics experts	 5,600 companies orienteered for training, innovation and investment support across the EU photonics ecosystem
 90% of the companies benefiting from expert personalised orienteering are SMEs	 80% of the companies benefiting from expert personalised orienteering are non-photonics companies	 70% of the companies benefiting from expert orienteering are first-time users / early adopters of photonics

Increased Photonics Training & Skills

 5,800 companies visiting the Demo and Experience Centres including those for guided introductory tours on photonics for industry	 3,570 companies participate in the dedicated ½-day online training course as an introduction to photonics for non-photonics SMEs
 2,800 companies receive onsite 1-day training in a specific photonics application domain at Demo Centres, from which 280 companies take up photonics components in their application domain as first users/early adopters	 560 companies receive deep 3-day immersion in a key photonics technology at Experience Centres, from which 180 companies take up photonics technologies in their product manufacturing as first users/early adopters
 150 trainers from EU VET colleges receive deep immersion in a key photonics technology through the “Train-the-Trainer” programme	 3,000 newly certified trainees in photonics (re)skilled by their local VET college with practical competences in photonics

Increased Technology Experimentation & Test Before Invest Innovation Activity

 640 qualified industry leads are scouted by photonics experts under NDA for deep cross-border innovation support	 150 companies directed to local hubs for local innovation support and funding following the expert scouting	 255 companies from 27 EU member states successfully advance for cross-border photonics innovation support
 90 companies receive cross-border photonics prototyping support; each innovation project on average advances 1 TRL within a 6-month duration	 45 companies receive cross-border photonics upscaling support; each innovation project on average advances 1 TRL within a 12-month duration	 120 companies receive fast-track brokerage support to link up with suitable European photonics manufacturing companies
 170 new photonics-enhanced products developed and manufactured in the EU directly linked to innovation support	 160 companies benefiting from additional expert business/IP coaching which complements the business plans of their photonics innovation projects	

 All 6 key “photronics-enabled” application domains represented by the cross-border innovation projects covering at least 12 different end-user industry sectors		 x 2,7 Overall weighted R&I expenditure leverage factor of 2.7
 €742M new company revenues directly linked to innovation support	 €100M new business for EU photronics manufacturers directly linked to innovation support	 1,080 new high-tech EU jobs directly linked to innovation support

Improved Access to Suitable Investment & Growth Finance

 600 companies receive online first-level investment-readiness coaching and orienteering	 280 companies receive intensive coaching and investor matchmaking for raising early stage funding	 32 companies receive additional coaching and investor matchmaking suited to scale-up funding
 93M€ new venture capital raised by EU start-ups directly linked to photronics prototyping and investor matchmaking supports	 36M€ new growth capital raised by EU scale-ups directly linked to photronics upscaling / manufacturing and investor matchmaking supports	

Achieving Sustainability with Strong Leverage from Regional Collaboration and Pan-EU Ecosystem & Networking

 40 founding partners establish the PhotonHub Europe Association by 2024 that seamlessly and durably continues the photronics innovation support offerings of PhotonHub with strong links to complementary EU-DIHs	 Business plan that underpins the long-term sustainability of PhotonHub Europe with breakeven status already in Y1 and annual income of €800K / profit of €120K by Y3 to support further growth and impact
 7 EU regions each commit €500K annually from 2025 onwards for the financial support of cross-border photronics innovation projects	 5 new local photronics innovation hubs created across the European regions by 2025
 €75M allocated in regional grants for local photronics innovation support to 100 companies directly linked to PhotonHub coaching and scouting support, of which €50M to the local companies and €25M to the local RTOs	