



Photonics21 Press Release

European photonics industry growing at more than double global GDP rate, new analysis finds

New research published today shows European photonics is growing at more than double the rate of global GDP – outperforming EU GDP and EU industrial production by three and five times, respectively. Present in many high-end, next-generation products, photonics technologies have proved to be long-term drivers of growth through their indispensable role in future markets.

Photonics – the technology and science of light – is one of the most resilient and fast-growing industries in Europe, outperforming many other market segments [according to the new 'Market Research Study – Photonics 2020'](#) by deep technology research group [Tematys](#). Key to several mega markets – including Industry 4.0, Digitisation, Quantum, AI, IoT – European photonics have enabled many market segments and applications to flourish ranging from Space, Healthcare, Environment, and Defence to Security Telecoms.

The study delivered a glowing report on European photonics from 2015 to 2019: the industry grew at a CAGR of 7% per year and was worth €103 billion at the latest count in 2019.

Generating Jobs, Solving Societal Challenges

Adding over 30,000 jobs to its workforce, the European photonics' industry outperformed the manufacturing sector across the entire European continent in terms of employment. With more than 390,000 employees – an annual growth rate of 2.1% - EU photonics grew twice as fast as European Manufacturing for the EU28 (around a 1% CAGR).

Revenue growth for this same period in Europe (7% per year) was three times that of the entire European GDP (2.3%/year) and almost five times the growth of the European industrial production (1.5%/year).

Photonics21 Vice President Giorgio Anania said: "The European photonics industry is thriving, and this study confirms that light technologies have a proven track record as a long-term driver of growth not only in Europe but also across the world.

"With a global growth rate of CAGR 7 %, photonics is growing faster than many other high-tech industries, for example, the IT industry (4.5%), Medtech (4.9%), and Microelectronics (4%).

Thierry Robin from Tematys said: "Our analysis shows that European photonics is currently seeing the transformation of its manufacturing processes with significant impact on jobs and skills."

"While it may not be immediately apparent, photonics is a key enabling technology present in every next-generation innovation, in almost every industry. Not only is photonics dramatically improving our next generation health diagnostic tools and manufacturing



industries but also enabling green technologies that operate with non-invasive, clean, harmless particles of light.”

Global Competitor

From 2015 to 2019, Europe maintained a clear second position in the global photonics market against fierce international competition. Although Europe and North America had held a joint 16% global market share in 2015, the new research showed Europe had nudged slightly ahead to 16%, with North America on 15%. China continued to dominate with 29% of the global market share – Europe (16%), North America (15%), Japan (13%).

The study revealed several core market segments where Europe has a firm market share. While Europe had an average market share of 16% for all markets, in Industry 4.0 for example, Europe had a CAGR of 40%. In Optical Instrumentation, Europe had a CAGR of 38%, while in large instruments & space the CAGR was 33%.

Industries with smaller CAGR, but still above the 16% EU average, included Defence and security 22%, Agriculture and Foods 21%, Healthcare and Wellness 20%, components and materials 19%, Mobility, Environment, Energy & Energy Lighting, and Telecommunications all with 17%.

R&D spending was considerably high in the European photonics industry: looking at a selection of large and medium-sized companies from several different countries that operate in all market segments, the average R&D intensity was 10.4% investment. This R&D intensity was more than double the 4% standard (from 1,000 EU and UK companies with the most extensive R&D). For EU photonics SMEs, the R&D intensity was even higher at around 15%.

The Global Picture

Currently outperforming several high-tech industries, photonics is growing at twice the rate of global GDP.

Growing to a global market size of €654 (~\$790) billion in 2019, the research shows photonics managed to grow at a CAGR of 7%. Following this continual CAGR at a conservative 6% projection forward, the Tematys study shows that the global photonics industry will reach €900 billion (\$1 trillion) by 2025.

The expansion and continual growth in light science are partly due to its ability to serve many related and unrelated products like sensors, camera and imaging systems, communication, displays, smart lighting, photovoltaic systems and laser production.

The study shows that photonics is participating directly in future societal challenges across the world, such as digitalisation of production and society, Health and well-being, Sustainable development and Environment, Photonics for Consumers IT, Medicine & Biology, Environment, Lighting & Energy Industry 4.0.

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About Photonics21

Photonics21 is the European Technology Platform (ETP) for photonics, a technology encompassing all of the products and processes around the emission, manipulation and detection of light. Photonics technologies are integral to many industries, including the medical, healthcare, transport, manufacturing, and telecommunications sectors.

"Photonics21" was set up in December 2005 to bring the community of photonics researchers and industries together. The European Commission defined photonics as one of five European Key Enabling Technologies (KET's) in September 2009. Shortly after, the European Research & Innovation Program "Horizon 2020" invited Photonics21 to become a "Public-Private Partnership" (PPP). The "Photonics 21 Association", a legal entity under Belgium law, became the private contract partner in November 2013 in a Public-Private Partnership (PPP) in conjunction with the EU Commission and will become a Photonics partnership during the current framework programme Horizon Europe.

Today Photonics21 represents more than 3,000 personal members from across Europe and abroad. Our members and stakeholders are experts in the photonics industry, research and innovation organisations, universities, and value chain partners who actively engage with us to develop a joint photonics strategy for future research and innovation in Europe.

With the global photonics market growing from €499 in 2015 to €654 in 2019, light technologies represent an industry with long-term growth potential. Valued at €103 billion in 2019, the European photonics industry has been growing at a solid CAGR of 7 % since 2015 and currently employs around 390,000 people directly.

With optimistic growth forecasts, current industry trends like digitalisation, resource efficiency, individual and zero failure production will further drive the photonics industry.

Photonics plays a significant role in Europe's Digitisation and Technological Sovereignty. It has the enormous potential for solving Europe's societal challenges, such as the instant diagnosis of major diseases, quality food from farm to fork, accident and congestion-free transport, and a truly circular economy.

As a breakthrough key enabling technology that is increasing the competitiveness of European industry, photonics can make a significant contribution to the over-arching European Union objectives, such as the digital transformation of European industry, achieving the European Green deal and a sustainable EU future, and the establishment of a future sovereign and resilient European digital infrastructure.

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