

Photonics Market Size, Share & Trends Analysis Report By Products (Waveguides, Optical Modulators, Optical Interconnects, LED, Lasers), By Application (Consumer Electronics, Displays, Communication, Metrology), By Region, And Segment Forecasts, 2025 - 2030

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Abstracts

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Photonics Market Growth & Trends

The global photonics market size is expected to reach USD 1301.49 billion by 2030, registering a CAGR of 4.8% from 2025 to 2030, according to a new report by Grand View Research, Inc. The prospects for market growth can be attributed to rapid innovations in the industry for the development of technologically-enhanced products and related services, as well as growing opportunities for the new market development.

Photonics is regarded as one of the Key Enabling Technologies (KETs) in the recent past, leading to the development of new products and services with substantial economic benefits. The broad diversity of devices with photonic-based components is expected to impact the global demand for this technology positively. Photonics is a technologically advanced field, being at the forefront of innovation and R&D and is thus presumed to incorporate substantial growth prospects over the forecast period.

The industry encompasses a broad scope of applications based on photonic-based products, which are anticipated to drive the dynamic emergence of new economic activities in the potential markets. The emergence of green and sustainable photonic-

based solutions, such as Photovoltaic (PV) solar cells, is envisioned to drive the industry over the forecast period, owing to the increasing support by both local governments and consumers.

The industry encompasses substantial opportunities for growth over the next eight years. The key impact of photonics technology on energy supply is presumed to offer enhanced PV efficiency in the next-generation solar cells to make PV cost-competitive with fossil fuel electricity generation. Advanced products, such as polycrystalline silicon PV, thin film PV, dye-sensitized PV, and further new developments, such as embedding nanoparticles in solar cells and nanostructure substrates, are expected to boost the demand for photonic components in renewable energy sources over the forecast period.

However, significant initial investments and absence of proper international standards in the technology are expected to challenge the industry growth over the forecast period. The high cost of technology and risk of thermal effect have led to the limited commercialization of this technology worldwide. Moreover, technology obsolescence and growing presence of counterfeit technologies across the globe are anticipated to challenge the industry growth in the near future.

Photonics Market Report Highlights

The photodetectors segment dominated the market with a revenue share of 18.8% in 2024. This dominance can be attributed to the growing demand for efficient light detection technologies across various applications, including telecommunications, consumer electronics, and industrial automation.

The display segment dominated the market with the highest share in 2024, reflecting a robust demand for high-quality visual technologies. Innovations in display technologies, including organic light-emitting diodes (OLEDs) and liquid crystal displays (LCDs), have enhanced consumer electronics and industrial applications.

The North America photonics market dominated the global market with a revenue share of 35.5% in 2024, driven by the region's strong technological infrastructure and extensive investment in research and development.

The Asia Pacific photonics market is anticipated to grow at the highest CAGR during the forecast period, driven by rapid technological

advancements and increasing investments in research and development.

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