

Photonics Devices Market – Global Industry Size, Share, Trends, Forecast and Opportunities, 2018-2028. Segmented By Product (LED, Lasers Sensors Detectors & Imaging Devices, Optical Communication Systems & Components, Consumer Electronics & Devices and Others), By Application (Displays, Information & Communication Technology, Photovoltaic, Medical Technology & Life Sciences, Measurement & Automated Vision, Lighting, Production Technology and Others), By End User (Building & Construction, Media Broadcasting & Telecommunication, Consumer & Business Automation, Medical, Security & Defence, Industrial and Others), By Region, Competition

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Abstracts

Global Photonics Devices Market is growing rapidly owing to the emergence of silicon-based photonics applications. Photonics is becoming the foundational technology model for the next normal. Many enterprises are adopting photonics as a cost-effective solution to bolster the need for high-speed transfer in data communication. The high usage for photonics applications across various industries has become one of the significant factors offering cutting edge services for better efficiency, scalability, and customers' experience. Moreover, the growth of the market is on account of the increasing demand for energy-efficient and green products across the globe for saving

energy and reducing pollution during the forecast period. Technology has become the key enabler of excellence and businesses are gradually becoming mobile as digitalization emerges. The increasing internet penetration and growing usage of smart display devices are further expected to boost the global photonics devices market during the forecast period.

Photonics is the technique of producing and utilizing light and other types of radiant energy, with the photon serving as the quantum unit. Instead of electrons, it uses photons to transfer information. Photonics is primarily used for light generation, which includes emission, transmission, amplification, detection, and light modification. Photonics, which is a term for the technologies created based on the light source, has supplied the market expansion. Photonics has a property that may be used to detect and treat issues, to imagine in medical sectors such as examining and studying diseases, as well as solve crimes, which has improved the use of photonics and elevated the market economy. Photonics does also play a great role in enterprise by developing potential for designing and manufacturing devices, systems, and integrated circuits for high-speed data transmission, sophisticated sensing, and imaging applications. The role of this direction is the development of methods for data transmission, reduced power consumption, large integration capacity and large bandwidth. Widely used optic fibers, lasers, and lights used in homes, hotels, computer displays, automobiles, televisions, and theatres are examples of photonics. Fiber optic telecommunications, optical data storage, displays, optical pumping of high-power lasers and laser printing are among the major used applications in photonics.

Emergence of Silicon-based Photonics Applications

The exponential growth and the massive adoption of silicon-based photonics applications are driving the photonics market globally. Silicon photonics (SiPh) is the application of photonics systems, and it is widely used for computation, communication, sensing, and imaging light for faster data transmission in both, between and within microchips. Silicon photonics is a material platform that enables the fabrication of photonic integrated circuits (PICs) utilising silicon on insulator (SOI) wafers as the semiconductor substrate material. Silicon photonics is being used more often in optical data communications, sensing, medicinal, automotive, virtual reality, and artificial intelligence (AI) applications. Nonetheless, silicon is the principal material used by the majority of the semiconductor industry to construct integrated CMOS circuits, resulting in very high yield and cheap cost. Numerous companies have developed various strategies for integrating diverse materials, such as indium phosphide, in silicon photonics. applications to create integrated lasers, modulators, and detectors that drive

the photonic circuit. Silicon-based photonics applications such as solid-state LiDAR sensors, photonic integrated circuits (PICs) are some of the common emerging technologies which are gaining traction in the autonomous vehicle and industrial automation space enabling tremendous technical, economical value, high-bandwidth, and software-configurable access to compute and storage. Furthermore, the need for high-speed transfer in data communication and heavy investment is driving the emergence of silicon-based photonics applications, which is expected to drive the growth of the global photonics devices market.

Increasing Use of Photonics in the Healthcare Sector

With applications ranging from diagnostics to surgical instruments to therapies, the healthcare and medical device business is a fast-expanding area of potential for optical and photonics technology. Biophotonics is an important diagnostic technique in gastroenterology. For decades, endoscopes have been used in gastroenterology to identify inflammations and tumors in the esophagus, stomach, and bowel. Deaths could be prevented in many cases if endoscopies were used to find the mutations sooner and remove them. Before a patient has any symptoms, diagnostic biophotonics can identify illnesses in their early stages. The rapid progress in biophotonics in medical sciences for early detection of various diseases by utilizing point-of-care applications and non-invasive imaging techniques is set to propel the global photonics market. Moreover, applications in healthcare such as medical lasers, phototherapy for treatment, bioimaging, optical coherence tomography (OCT) and many more are utilized for patient health awareness, disease diagnostics, eye surgery and enhancing real-time biological process. Furthermore, continuous research and technological advancement in medical devices are enabling the massive use of nanophotonic capabilities in healthcare and are expected to drive the global photonics devices market during the forecast period.

Increase in Demand for Energy-efficient and Green Products

The increasing demand for energy-efficient and green products has enabled potential opportunities which have altered the environment making it more sustainable, reduce greenhouse gas emission, improves public health, and reduce pollution. Green photonic technology impacts energy generation (photovoltaics), solid state lighting for energy saving and displays), decreasing energy consumption in optoelectronic systems and communications. Additionally, the photonics-enabled products offer advantages such as longer lifespan, high energy efficiency, better accuracy, and faster operation. The growing importance of this area in photonics has led to organizations such as OIDA (Opto-Electronics Industry Development Association) and OSA (Optical Society of

America) to come forward for enhancing energy efficiency. Thus, the rising demand for cost-effective energy efficient green products is expected to drive the growth of global photonics devices market during the forecast period.

Market Segmentation

The photonics devices market is segmented into product, application, end-user, and region. Based on product, the market is bifurcated into LED, lasers sensors detectors & imaging devices, optical communication systems & components, consumer electronics & devices and other. Based on application, the market is categorized into displays, information & communication technology, photovoltaic, medical technology & life sciences, measurement & automated vision, lighting, production technology and others. The end-user segment is further categorized into building & construction, media broadcasting & telecommunication, consumer & business automation, medical, security & defence, industrial and others.

Market Player

Major market players in the global photonics devices market are IPG Photonics, Innolume GmbH, Infinera Corporation, Hamamatsu Photonics, Finisar Corporation, Shin-Etsu Chemical Company, Nikon Corporation, Ohara Corporation, Signify Holding, and Corning Inc.

Report Scope:

In this report, the global photonics devices market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Photonics Devices Market, By Product

LED

Lasers Sensors Detectors & Imaging Devices

Optical Communication Systems & Components

Consumer Electronics & Devices

Others

Photonics Devices Market, By Application

Displays

Information & Communication Technology

Photovoltaic

Medical Technology & Life Sciences

Measurement & Automated Vision

Lighting

Production Technology

Others

Photonics Devices Market, By End-User

Building & Construction

Media Broadcasting & Telecommunication

Consumer & Business Automation

Medical

Security & Defence

Industrial

Others

Photonics Devices Market, By Region:

North America

United States

Canada

Mexico

Asia-Pacific

China

Japan

South Korea

India

Australia

Europe

United Kingdom

Germany

France

Italy

Spain

South America

Brazil

Argentina

Colombia

Middle East

UAE

Kuwait

Saudi Arabia

South Africa

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the global photonics devices market.

Available Customizations:

With the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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