

Quantum Dots Market - Forecasts from 2021 to 2026

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Abstracts

The Quantum Dots market is expected to grow at a compound annual growth rate of 18.44% over the analyzed period to reach a market size of US\$10.843 billion in 2026 from US\$3.316 billion in 2019. Quantum Dots are artificial nanoparticles that have semiconductor properties. The size of the dot, which ranges from 2 to 10 nanometres, influences the wavelength of light emission. Their shape, structure, and composition also affect their light emission capabilities. Based on these electronic properties, they can be an active material in the single-electron transistors. Quantum dots are widely used in electronics, information storage, imaging, catalysis, sensing devices, and medicines. Further, its capability of churning large quantities of nanocrystals in batches based on exact parameters increases the demand for the technology.

The Consumer Electronics segment of the market is anticipated to provide the huge market potential for the Quantum Dots Technology.

Based on product type, the global Quantum Dots market is segmented into healthcare, telecommunication, military and defense, consumer electronics, and others. The consumer electronics segment of the market is anticipated to grow at a significant rate owing to the rising demand for technologically advanced consumer electronic goods. A surging disposable income along with increased awareness will also boost the demand for technologically updated consumer electronic goods, which employ Quantum Dot technology, especially in the developing economies. The advertisement also plays a significant role in the growth of this market, as it helps in attaining awareness. Moreover, increased standard of living involves the adoption of advanced technology, such as Quantum Dots, for a better viewer experience. The increased adoption of smart devices also plays a significant role in the market.

The healthcare sector as well is predicted to show a noteworthy growth during the forecasted period, owing to rising health and safety standards, along with technological

up-gradation for better diagnosis and treatment.

OLED technology may hinder the market growth of QLED technology, constraining the Quantum Dots Market.

OLED technology or the Organic Light Emitting Diode may hinder the growth of QLED or the Quantum Dots Light Emitting Diode. While both the technologies provide a range of colors, successfully delivering an eye-popping vision, QLED has an advantage over OLED as it can deliver a full range of colors at peak brightness. OLED technology fails to deliver 30% of colors at full brightness, therefore compromising the color quality. However, when it comes to raw material availability and accessibility, QLED gets beaten up by OLED technology. Materials such as Silicon and Cadmium are employed in the production of QLED or Quantum Dots. While Silicon is abundantly available, be the 2nd most available element on the Earth, it rarely occurs in a pure form of the element. Cadmium, on the other hand, is a quite toxic element. It is listed in the European Restriction of Hazardous Substance Directives. Carbon nanodots could be used to produce Quantum Dots, but they emit less light. OLED technology deploys thin sheets of glass, plastics, and other metals, which are sandwiched in between electrodes and are easily available and accessible. Hence, OLED technology can be an alternative for QLED technology, which may decrease the market for Quantum Dots technology.

The Asia Pacific region to hold a significant market during the forecasted period.

Based on geography, the market is segmented into North America, South America, Europe, the Middle East and Africa, and the Asia Pacific regions. The Asia Pacific region is predicted to grow at the fastest rate during the forecasted period. The prime driver of the market in the region is growing technological advancement and innovation. Surging disposable income along with increasing awareness will also drive in a significant market. Moreover, the emerging of the region as a manufacturing hub, especially for consumer goods and telecommunication, will significantly impact the market. The developing healthcare sector will also play a key role in the diversification of the market. Especially in the countries such as India, China, Japan, and South Korea.

The North American region is anticipated to hold dominating share of the market, owing to the region's state-of-art infrastructure and early adoption of advanced technology. The European region holds a noteworthy share and is anticipated to grow at a notable rate during the forecasted period.

COVID pandemic and Quantum Dots industry.

The coronavirus pandemic had a positive impact on the Quantum Dots industry, particularly the adoption of Quantum Dots technology in the healthcare sector for early location and treatment of the virus. However, toxic and expensive raw material used in production may increase the cost of healthcare equipment, increasing the healthcare cost and hence constraining the market.

Segmentation:

By Product Type

Quantum Dots Solar Cells

Quantum Dots Display

Quantum Dots Medical Device

Quantum Dots Laser

Others

By Material

Cadmium-based Quantum Dots

Silicon

Graphene

Lead Sulfide

By End-User Industry

Telecommunication

Healthcare

Military and Defense

Consumer Electronics

Others

By Geography

North America

United States

Mexico

Canada

South America

Brazil

Argentina

Others

Europe

Germany

France

Spain

United Kingdom

Others

Middle East and Africa

Saudi Arabia

South Africa

Others

Asia Pacific

China

Japan

India

South Korea

Others

*Note: The report will be dispatched in 2 business days.

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