

# Global Nanotechnology Market Size study & Forecast, by Type (Nanodevices, Nanosensors), by Industry (Electronics, Healthcare, Manufacturing, Energy & Power, Automotive, Aerospace & Defense, Food & Beverages, Others) and Regional Analysis, 2023-2030

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## Abstracts

Global Nanotechnology Market is valued approximately at USD 67.30 billion in 2022 and is anticipated to grow with a healthy growth rate of more than 17.60% over the forecast period 2023-2030. Nanotechnology is a multidisciplinary field of science and technology that involves manipulating matter at the nanoscale, typically at dimensions ranging from 1 to 100 nanometers. At this scale, the unique properties and behaviors of materials emerge, distinct from their bulk counterparts. Nanotechnology encompasses the design, manipulation, and application of nanomaterials and devices, allowing for precise control over their structure and properties. Scientists and engineers utilize various techniques, including molecular self-assembly and manipulation, to create functional structures and systems at the nanoscale. The Nanotechnology market is expanding because of factors such as surge in demand for medical diagnosis, rising demand for titanium nanoparticles and rising research and development activities.

The growing adoption of nanotechnology in medical diagnostics is driving the demand for related products. Particularly in biomedical research, nanotechnology played a crucial role in combating COVID-19, evident in various vaccines incorporating nanoparticles for treating the virus through the encapsulation of active drug ingredients. As detailed in a 2020 research article by Estefania V. R. Campos et al., published in the Journal of Nanobiotechnology, gold nanoparticles were modified with thiol-functionalized probes on their surface. These probes hybridize with the target, preventing nanoparticle aggregation induced by salts and, subsequently, inhibiting color changes. This adaptable solution holds promise for the straightforward diagnosis of

COVID-19. Moreover, As outlined in a research article titled 'Recent Advances in Nanomaterials Development for Nanomedicine and Cancer,' published in July 2021, a diverse array of engineered nanomaterials and nanoplatforms, exhibiting varying shapes, sizes, and compositions, has been created for diverse biomedical purposes. These nanomaterials and devices have been extensively employed in the development of highly sensitive, point-of-care methods for detecting cancer. Consequently, the progress in nanomedicine, particularly in cancer detection, serves as a catalyst for the market's growth. Advanced nano systems exhibit enhanced suitability for therapeutic applications compared to traditional counterparts, contributing significantly to market expansion. In addition, rising demand from aerospace industry, and government support and funding to the industry are creating new opportunity to the market growth. However, high infrastructure cost of nanomaterials stifles market growth throughout the forecast period of 2023-2030.

The key regions considered for the Global Nanotechnology Market study includes Asia Pacific, North America, Europe, Latin America, and Middle East & Africa. North America dominated the market in 2022 with largest market share owing to widespread adoption of advanced healthcare infrastructure in the region. The escalating numbers of both patients and medical professionals, coupled with the expanding range of nanotechnology applications, are key drivers of market growth. Moreover, substantial investment in nanotech research, development, and commercialization, establishing dedicated research centers and fostering collaborations with industry leaders. This strategic approach has positioned North America as a leader in the market, with continuous technological advancements further contributing to its significant market share. Asia Pacific is expected to grow at a fastest rate during the forecast period, The Asia Pacific region is poised for substantial growth in the upcoming years. Notably, there is a strong emphasis on advancing the energy and power sectors, supported by substantial government investments. This initiative is anticipated to foster a conducive environment for the increased demand for nanomaterials. Countries such as China, South Korea, India, and Japan are at the forefront, experiencing significant demand for nanomaterials, largely owing to their robust production capacities across diverse industries. The region's advantageous industrial policies, complemented by factors such as cost-effective labor and abundant manufacturing resources, are contributing to a rise in Foreign Direct Investments (FDIs). This collective momentum positions the Asia Pacific region as a key player in Nanotechnology Market.

Major market player included in this report are:

Imina Technologies SA

Nanonics Imaging Ltd

Altair Nanotechnologies Inc.

Bruker Corporation

Kleindiek Nanotechnik GmbH

eSpin Technologies, Inc.

Advanced Nano Products Co., Ltd.

Applied Nanotech, Inc.

Biosensors International Group, Ltd.

Thermo Fisher Scientific Inc. (U.S.)

Recent Developments in the Market:

In September 2023, BASF, a key player in battery materials production, joined forces with Nanotech Energy to significantly decrease the carbon footprint of Nanotech's lithium-ion batteries tailored for the North American market. This partnership enables Nanotech to introduce cells crafted from recycled metals to its North American clientele, ensuring a comprehensive regional supply chain.

In July 2023, Altair, a prominent firm specializing in artificial intelligence and computational science, completed the acquisition of OmniV. This strategic move aimed to expand Altair's open model-based systems engineering practice across various domains such as simulation, systems, test, controls engineering, and product development. The formalization of model development and integration, coupled with a focus on creating traceable ecosystems, empowers consumers with an open architecture to monitor a product's cost, performance, and mass throughout its lifecycle.

Global Nanotechnology Market Report Scope:

Historical Data – 2020 - 2021

Base Year for Estimation – 2022

Forecast period - 2023-2030

Report Coverage - Revenue forecast, Company Ranking, Competitive Landscape, Growth factors, and Trends

Segments Covered – Type, Industry, Region

Regional Scope - North America; Europe; Asia Pacific; Latin America; Middle East & Africa

Customization Scope - Free report customization (equivalent up to 8 analyst's working hours) with purchase. Addition or alteration to country, regional & segment scope\*

The objective of the study is to define market sizes of different segments & countries in recent years and to forecast the values to the coming years. The report is designed to incorporate both qualitative and quantitative aspects of the industry within countries involved in the study.

The report also caters detailed information about the crucial aspects such as driving factors & challenges which will define the future growth of the market. Additionally, it also incorporates potential opportunities in micro markets for stakeholders to invest along with the detailed analysis of competitive landscape and product offerings of key players. The detailed segments and sub-segment of the market are explained below:

By Type:

Nanodevices

Nanosensors

By Industry:

Electronics

Healthcare

Manufacturing

Energy & Power

Automotive

Aerospace & Defense

Food & Beverages

Others

By Region:

North America

U.S.

Canada

Europe

UK

Germany

France

Spain

Italy

ROE

Asia Pacific

China

India

Japan

Australia

South Korea

RoAPAC

Latin America

Brazil

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Middle East & Africa

Saudi Arabia

South Africa

Rest of Middle East & Africa

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