

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

<https://marketpublishers.com/r/G88BEFEE0AD3EN.html>

Date: April 2024

Pages: 200

Price: US\$ 4,950.00 (Single User License)

ID: G88BEFEE0AD3EN

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 from 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 nanoplateforms, 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

Mexico

Middle East & Africa

Saudi Arabia

South Africa

Rest of Middle East & Africa

Contents

CHAPTER 1. EXECUTIVE SUMMARY

- 1.1. Market Snapshot
- 1.2. Global & Segmental Market Estimates & Forecasts, 2020-2030 (USD Billion)
 - 1.2.1. Nanotechnology Market, by region, 2020-2030 (USD Billion)
 - 1.2.2. Nanotechnology Market, by Type, 2020-2030 (USD Billion)
 - 1.2.3. Nanotechnology Market, by Industry, 2020-2030 (USD Billion)
- 1.3. Key Trends
- 1.4. Estimation Methodology
- 1.5. Research Assumption

CHAPTER 2. GLOBAL NANOTECHNOLOGY MARKET DEFINITION AND SCOPE

- 2.1. Objective of the Study
- 2.2. Market Definition & Scope
 - 2.2.1. Industry Evolution
 - 2.2.2. Scope of the Study
- 2.3. Years Considered for the Study
- 2.4. Currency Conversion Rates

CHAPTER 3. GLOBAL NANOTECHNOLOGY MARKET DYNAMICS

- 3.1. Nanotechnology Market Impact Analysis (2020-2030)
 - 3.1.1. Market Drivers
 - 3.1.1.1. Surge in demand for medical diagnosis
 - 3.1.1.2. Rising demand for titanium nanoparticles
 - 3.1.1.3. Rising research and development activities
 - 3.1.2. Market Challenges
 - 3.1.2.1. High infrastructure cost of nanomaterials
 - 3.1.2.2. Growing Environmental Concerns
 - 3.1.3. Market Opportunities
 - 3.1.3.1. Rising demand from aerospace industry,
 - 3.1.3.2. Government support and funding to the industry

CHAPTER 4. GLOBAL NANOTECHNOLOGY MARKET: INDUSTRY ANALYSIS

- 4.1. Porter's 5 Force Model

- 4.1.1. Bargaining Power of Suppliers
- 4.1.2. Bargaining Power of Buyers
- 4.1.3. Threat of New Entrants
- 4.1.4. Threat of Substitutes
- 4.1.5. Competitive Rivalry
- 4.2. Porter's 5 Force Impact Analysis
- 4.3. PEST Analysis
 - 4.3.1. Political
 - 4.3.2. Economic
 - 4.3.3. Social
 - 4.3.4. Technological
 - 4.3.5. Environmental
 - 4.3.6. Legal
- 4.4. Top investment opportunity
- 4.5. Top winning strategies
- 4.6. COVID-19 Impact Analysis
- 4.7. Disruptive Trends
- 4.8. Industry Expert Perspective
- 4.9. Analyst Recommendation & Conclusion

CHAPTER 5. GLOBAL NANOTECHNOLOGY MARKET, BY TYPE

- 5.1. Market Snapshot
- 5.2. Global Nanotechnology Market by Type, Performance - Potential Analysis
- 5.3. Global Nanotechnology Market Estimates & Forecasts by Type 2020-2030 (USD Billion)
- 5.4. Nanotechnology Market, Sub Segment Analysis
 - 5.4.1. Nanodevices
 - 5.4.2. Nanosensors

CHAPTER 6. GLOBAL NANOTECHNOLOGY MARKET, BY INDUSTRY

- 6.1. Market Snapshot
- 6.2. Global Nanotechnology Market by Industry, Performance - Potential Analysis
- 6.3. Global Nanotechnology Market Estimates & Forecasts by Industry 2020-2030 (USD Billion)
- 6.4. Nanotechnology Market, Sub Segment Analysis
 - 6.4.1. Electronics
 - 6.4.2. Healthcare

- 6.4.3. Manufacturing
- 6.4.4. Energy & Power
- 6.4.5. Automotive
- 6.4.6. Aerospace & Defense
- 6.4.7. Food & Beverages
- 6.4.8. Others

CHAPTER 7. GLOBAL NANOTECHNOLOGY MARKET, REGIONAL ANALYSIS

- 7.1. Top Leading Countries
- 7.2. Top Emerging Countries
- 7.3. Nanotechnology Market, Regional Market Snapshot
- 7.4. North America Nanotechnology Market
 - 7.4.1. U.S. Nanotechnology Market
 - 7.4.1.1. Type breakdown estimates & forecasts, 2020-2030
 - 7.4.1.2. Industry breakdown estimates & forecasts, 2020-2030
 - 7.4.2. Canada Nanotechnology Market
- 7.5. Europe Nanotechnology Market Snapshot
 - 7.5.1. U.K. Nanotechnology Market
 - 7.5.2. Germany Nanotechnology Market
 - 7.5.3. France Nanotechnology Market
 - 7.5.4. Spain Nanotechnology Market
 - 7.5.5. Italy Nanotechnology Market
 - 7.5.6. Rest of Europe Nanotechnology Market
- 7.6. Asia-Pacific Nanotechnology Market Snapshot
 - 7.6.1. China Nanotechnology Market
 - 7.6.2. India Nanotechnology Market
 - 7.6.3. Japan Nanotechnology Market
 - 7.6.4. Australia Nanotechnology Market
 - 7.6.5. South Korea Nanotechnology Market
 - 7.6.6. Rest of Asia Pacific Nanotechnology Market
- 7.7. Latin America Nanotechnology Market Snapshot
 - 7.7.1. Brazil Nanotechnology Market
 - 7.7.2. Mexico Nanotechnology Market
- 7.8. Middle East & Africa Nanotechnology Market
 - 7.8.1. Saudi Arabia Nanotechnology Market
 - 7.8.2. South Africa Nanotechnology Market
 - 7.8.3. Rest of Middle East & Africa Nanotechnology Market

CHAPTER 8. COMPETITIVE INTELLIGENCE

8.1. Key Company SWOT Analysis

8.1.1. Company

8.1.2. Company

8.1.3. Company

8.2. Top Market Strategies

8.3. Company Profiles

8.3.1. Imina Technologies SA

8.3.1.1. Key Information

8.3.1.2. Overview

8.3.1.3. Financial (Subject to Data Availability)

8.3.1.4. Product Summary

8.3.1.5. Recent Developments

8.3.2. Nanonics Imaging Ltd

8.3.3. Altair Nanotechnologies Inc.

8.3.4. Bruker Corporation

8.3.5. Kleindiek Nanotechnik GmbH

8.3.6. eSpin Technologies, Inc.

8.3.7. Advanced Nano Products Co., Ltd.

8.3.8. Applied Nanotech, Inc.

8.3.9. Biosensors International Group, Ltd.

8.3.10. Thermo Fisher Scientific Inc.

CHAPTER 9. RESEARCH PROCESS

9.1. Research Process

9.1.1. Data Mining

9.1.2. Analysis

9.1.3. Market Estimation

9.1.4. Validation

9.1.5. Publishing

9.2. Research Attributes

9.3. Research Assumption

List Of Tables

LIST OF TABLES

TABLE 1. Global Nanotechnology Market, report scope

TABLE 2. Global Nanotechnology Market estimates & forecasts by region 2020-2030 (USD Billion)

TABLE 3. Global Nanotechnology Market estimates & forecasts by Type 2020-2030 (USD Billion)

TABLE 4. Global Nanotechnology Market estimates & forecasts by Industry 2020-2030 (USD Billion)

TABLE 5. Global Nanotechnology Market by segment, estimates & forecasts, 2020-2030 (USD Billion)

TABLE 6. Global Nanotechnology Market by region, estimates & forecasts, 2020-2030 (USD Billion)

TABLE 7. Global Nanotechnology Market by segment, estimates & forecasts, 2020-2030 (USD Billion)

TABLE 8. Global Nanotechnology Market by region, estimates & forecasts, 2020-2030 (USD Billion)

TABLE 9. Global Nanotechnology Market by segment, estimates & forecasts, 2020-2030 (USD Billion)

TABLE 10. Global Nanotechnology Market by region, estimates & forecasts, 2020-2030 (USD Billion)

TABLE 11. Global Nanotechnology Market by segment, estimates & forecasts, 2020-2030 (USD Billion)

TABLE 12. Global Nanotechnology Market by region, estimates & forecasts, 2020-2030 (USD Billion)

TABLE 13. Global Nanotechnology Market by segment, estimates & forecasts, 2020-2030 (USD Billion)

TABLE 14. Global Nanotechnology Market by region, estimates & forecasts, 2020-2030 (USD Billion)

TABLE 15. U.S. Nanotechnology Market estimates & forecasts, 2020-2030 (USD Billion)

TABLE 16. U.S. Nanotechnology Market estimates & forecasts by segment 2020-2030 (USD Billion)

TABLE 17. U.S. Nanotechnology Market estimates & forecasts by segment 2020-2030 (USD Billion)

TABLE 18. Canada Nanotechnology Market estimates & forecasts, 2020-2030 (USD Billion)

TABLE 19. Canada Nanotechnology Market estimates & forecasts by segment
2020-2030 (USD Billion)

TABLE 20. Canada Nanotechnology Market estimates & forecasts by segment
2020-2030 (USD Billion)

TABLE 21. UK Nanotechnology Market estimates & forecasts, 2020-2030 (USD Billion)

TABLE 22. UK Nanotechnology Market estimates & forecasts by segment 2020-2030
(USD Billion)

TABLE 23. UK Nanotechnology Market estimates & forecasts by segment 2020-2030
(USD Billion)

TABLE 24. Germany Nanotechnology Market estimates & forecasts, 2020-2030 (USD
Billion)

TABLE 25. Germany Nanotechnology Market estimates & forecasts by segment
2020-2030 (USD Billion)

TABLE 26. Germany Nanotechnology Market estimates & forecasts by segment
2020-2030 (USD Billion)

TABLE 27. France Nanotechnology Market estimates & forecasts, 2020-2030 (USD
Billion)

TABLE 28. France Nanotechnology Market estimates & forecasts by segment
2020-2030 (USD Billion)

TABLE 29. France Nanotechnology Market estimates & forecasts by segment
2020-2030 (USD Billion)

TABLE 30. Italy Nanotechnology Market estimates & forecasts, 2020-2030 (USD Billion)

TABLE 31. Italy Nanotechnology Market estimates & forecasts by segment 2020-2030
(USD Billion)

TABLE 32. Italy Nanotechnology Market estimates & forecasts by segment 2020-2030
(USD Billion)

TABLE 33. Spain Nanotechnology Market estimates & forecasts, 2020-2030 (USD
Billion)

TABLE 34. Spain Nanotechnology Market estimates & forecasts by segment 2020-2030
(USD Billion)

TABLE 35. Spain Nanotechnology Market estimates & forecasts by segment 2020-2030
(USD Billion)

TABLE 36. RoE Nanotechnology Market estimates & forecasts, 2020-2030 (USD
Billion)

TABLE 37. RoE Nanotechnology Market estimates & forecasts by segment 2020-2030
(USD Billion)

TABLE 38. RoE Nanotechnology Market estimates & forecasts by segment 2020-2030
(USD Billion)

TABLE 39. China Nanotechnology Market estimates & forecasts, 2020-2030 (USD

Billion)

TABLE 40. China Nanotechnology Market estimates & forecasts by segment 2020-2030 (USD Billion)

TABLE 41. China Nanotechnology Market estimates & forecasts by segment 2020-2030 (USD Billion)

TABLE 42. India Nanotechnology Market estimates & forecasts, 2020-2030 (USD Billion)

TABLE 43. India Nanotechnology Market estimates & forecasts by segment 2020-2030 (USD Billion)

TABLE 44. India Nanotechnology Market estimates & forecasts by segment 2020-2030 (USD Billion)

TABLE 45. Japan Nanotechnology Market estimates & forecasts, 2020-2030 (USD Billion)

TABLE 46. Japan Nanotechnology Market estimates & forecasts by segment 2020-2030 (USD Billion)

TABLE 47. Japan Nanotechnology Market estimates & forecasts by segment 2020-2030 (USD Billion)

TABLE 48. South Korea Nanotechnology Market estimates & forecasts, 2020-2030 (USD Billion)

TABLE 49. South Korea Nanotechnology Market estimates & forecasts by segment 2020-2030 (USD Billion)

TABLE 50. South Korea Nanotechnology Market estimates & forecasts by segment 2020-2030 (USD Billion)

TABLE 51. Australia Nanotechnology Market estimates & forecasts, 2020-2030 (USD Billion)

TABLE 52. Australia Nanotechnology Market estimates & forecasts by segment 2020-2030 (USD Billion)

TABLE 53. Australia Nanotechnology Market estimates & forecasts by segment 2020-2030 (USD Billion)

TABLE 54. RoAPAC Nanotechnology Market estimates & forecasts, 2020-2030 (USD Billion)

TABLE 55. RoAPAC Nanotechnology Market estimates & forecasts by segment 2020-2030 (USD Billion)

TABLE 56. RoAPAC Nanotechnology Market estimates & forecasts by segment 2020-2030 (USD Billion)

TABLE 57. Brazil Nanotechnology Market estimates & forecasts, 2020-2030 (USD Billion)

TABLE 58. Brazil Nanotechnology Market estimates & forecasts by segment 2020-2030 (USD Billion)

TABLE 59. Brazil Nanotechnology Market estimates & forecasts by segment 2020-2030 (USD Billion)

TABLE 60. Mexico Nanotechnology Market estimates & forecasts, 2020-2030 (USD Billion)

TABLE 61. Mexico Nanotechnology Market estimates & forecasts by segment 2020-2030 (USD Billion)

TABLE 62. Mexico Nanotechnology Market estimates & forecasts by segment 2020-2030 (USD Billion)

TABLE 63. RoLA Nanotechnology Market estimates & forecasts, 2020-2030 (USD Billion)

TABLE 64. RoLA Nanotechnology Market estimates & forecasts by segment 2020-2030 (USD Billion)

TABLE 65. RoLA Nanotechnology Market estimates & forecasts by segment 2020-2030 (USD Billion)

TABLE 66. Saudi Arabia Nanotechnology Market estimates & forecasts, 2020-2030 (USD Billion)

TABLE 67. South Africa Nanotechnology Market estimates & forecasts by segment 2020-2030 (USD Billion)

TABLE 68. RoMEA Nanotechnology Market estimates & forecasts by segment 2020-2030 (USD Billion)

TABLE 69. List of secondary sources, used in the study of global Nanotechnology Market

TABLE 70. List of primary sources, used in the study of global Nanotechnology Market

TABLE 71. Years considered for the study

TABLE 72. Exchange rates considered

List of tables and figures and dummy in nature, final lists may vary in the final deliverable

List Of Figures

LIST OF FIGURES

- FIG 1. Global Nanotechnology Market, research methodology
 - FIG 2. Global Nanotechnology Market, Market estimation techniques
 - FIG 3. Global Market size estimates & forecast methods
 - FIG 4. Global Nanotechnology Market, key trends 2022
 - FIG 5. Global Nanotechnology Market, growth prospects 2023-2030
 - FIG 6. Global Nanotechnology Market, porters 5 force model
 - FIG 7. Global Nanotechnology Market, pest analysis
 - FIG 8. Global Nanotechnology Market, value chain analysis
 - FIG 9. Global Nanotechnology Market by segment, 2020 & 2030 (USD Billion)
 - FIG 10. Global Nanotechnology Market by segment, 2020 & 2030 (USD Billion)
 - FIG 11. Global Nanotechnology Market by segment, 2020 & 2030 (USD Billion)
 - FIG 12. Global Nanotechnology Market by segment, 2020 & 2030 (USD Billion)
 - FIG 13. Global Nanotechnology Market by segment, 2020 & 2030 (USD Billion)
 - FIG 14. Global Nanotechnology Market, regional snapshot 2020 & 2030
 - FIG 15. North America Nanotechnology Market 2020 & 2030 (USD Billion)
 - FIG 16. Europe Nanotechnology Market 2020 & 2030 (USD Billion)
 - FIG 17. Asia pacific Nanotechnology Market 2020 & 2030 (USD Billion)
 - FIG 18. Latin America Nanotechnology Market 2020 & 2030 (USD Billion)
 - FIG 19. Middle East & Africa Nanotechnology Market 2020 & 2030 (USD Billion)
- List of tables and figures and dummy in nature, final lists may vary in the final deliverable

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