

Generative Artificial Intelligence (AI) in Material Science Market: Trends & Segment Forecasts to 2030

The Business Research Company's Generative Artificial Intelligence (AI) in Material Science Global Market Report 2026 - Market Size, Trends & Forecast 2026-2035

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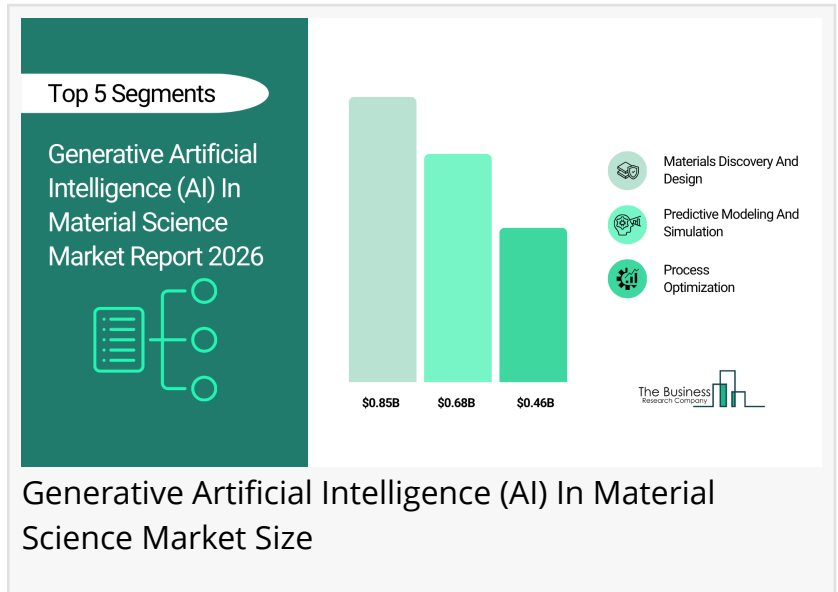
/EINPresswire.com/ -- [Generative Artificial Intelligence \(AI\) In Material Science market](#) to surpass \$5 billion in 2030. In comparison, the Generative AI market, which is considered as its

parent market, is expected to be approximately \$130 billion by 2030, with Generative Artificial Intelligence (AI) In Material Science to represent around 4% of the parent market. Within the broader Information Technology industry, which is expected to be \$13,807 billion by 2030, the Generative Artificial Intelligence (AI) In Material Science market is estimated to account for nearly 0.04% of the total market value.



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The Business Research Company



Which Will Be The Biggest Region In The [Generative Artificial Intelligence \(AI\) In Material Science Market In 2030?](#)

North America will be the largest region in the generative artificial intelligence (AI) in material science market in 2030, valued at \$2.1 billion. The market is expected to grow from \$0.6 billion in 2025 at a compound annual growth rate (CAGR) of 28%. The exponential growth can be attributed to increasing adoption of AI-driven material discovery

platforms, rising investments in advanced research and development, strong presence of technology companies and research institutions, growing demand for high-performance materials across industries such as electronics and healthcare, and expanding collaborations

between academia and industry for accelerated innovation.

Which Will Be The Largest Country In The Global Generative Artificial Intelligence (AI) In Material Science Market In 2030?

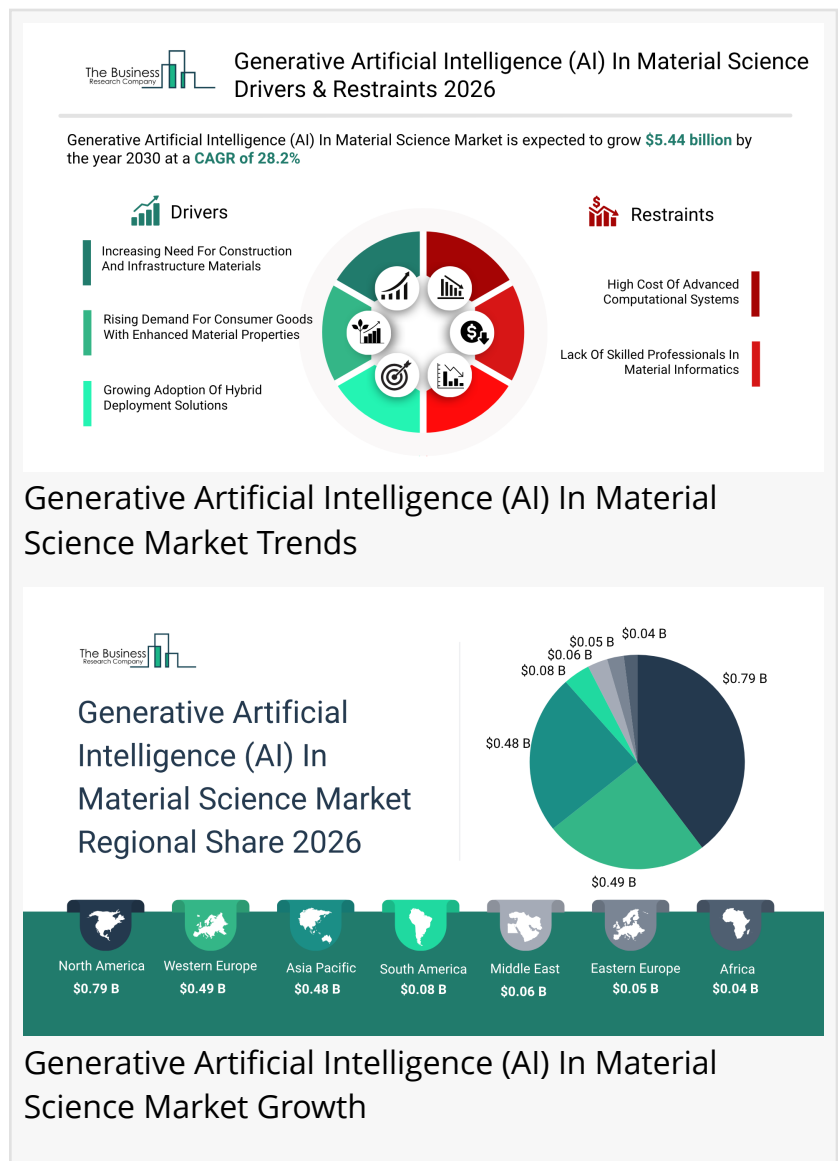
The USA will be the largest country in the generative artificial intelligence (AI) in material science market in 2030, valued at \$1.8 billion. The market is expected to grow from \$0.5 billion in 2025 at a compound annual growth rate (CAGR) of 27%. The exponential growth can be attributed to increasing adoption of AI-driven material discovery and design, strong investments in advanced research infrastructure, rising demand for high-performance and sustainable materials across industries, and the country's leadership in integrating AI technologies within scientific and industrial innovation ecosystems.

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What Will Be The Largest Segment In The Generative Artificial Intelligence (AI) In Material Science Market In 2030?

The generative artificial intelligence (AI) in material science market is segmented by type into materials discovery and design, predictive modeling and simulation, and process optimization. The materials discovery and design market will be the largest segment of the generative artificial intelligence (AI) in material science market segmented by type, accounting for 42% or \$2.3 billion of the total in 2030. The materials discovery and design market will be supported by its ability to accelerate innovation cycles, reduce research and development costs, enable rapid identification of novel materials, increasing adoption of generative artificial intelligence in pharmaceuticals and chemicals, rising demand from electronics and energy storage industries, expanding investments in advanced materials research, and strong focus on high-performance and sustainable material development.



The generative artificial intelligence in material science market is segmented by deployment into cloud-based, on-premises, and hybrid.

The generative artificial intelligence in material science market is segmented by application into pharmaceuticals and chemicals, electronics and semiconductors, energy storage and conversion, automotive and aerospace, construction and infrastructure, consumer goods, and other applications.

What Is The Expected CAGR For The Generative Artificial Intelligence (AI) In Material Science Market Leading Up To 2030?

The expected CAGR for the generative artificial intelligence (AI) In material science market leading up to 2030 is 28%.

What Will Be The Growth Driving Factors In The Global Generative Artificial Intelligence (AI) In Material Science Market In The Forecast Period?

The rapid growth of the global generative artificial intelligence (AI) In material science market leading up to 2030 will be driven by the increasing need for construction and infrastructure materials, rising demand for consumer goods with enhanced material properties, growing adoption of hybrid deployment solutions, accelerate advanced material discovery, improve product performance, and enhance computational efficiency across construction, manufacturing, electronics, and research ecosystems.

Increasing Need For Construction And Infrastructure Materials - The increasing need for construction and infrastructure materials is expected to be a key driver of the generative artificial intelligence (AI) in material science market by 2030. Rapid urbanization, population expansion, and large-scale infrastructure development are creating strong demand for high-performance, durable, and sustainable construction materials. Generative AI enables researchers to design and optimize advanced materials by analyzing extensive datasets and predicting performance prior to physical testing. This accelerates the discovery of innovative materials such as advanced concrete, lightweight alloys, and eco-friendly composites that enhance structural integrity and reduce environmental impact. Additionally, it shortens development cycles and lowers R&D costs, making material innovation more efficient. Increasing reliance on data-driven approaches by governments and construction firms further strengthens adoption. As global infrastructure investments continue to rise, the demand for AI-enabled material design solutions is also increasing, supporting market expansion. Consequently, the increasing need for construction and infrastructure materials is projected to contribute approximately 2.8% annual growth to the market.

Rising Demand For Consumer Goods With Enhanced Material Properties – The rising demand for consumer goods with enhanced material properties is anticipated to drive substantial growth in the generative artificial intelligence (AI) in material science market by 2030. Industries such as electronics, automotive, packaging, and consumer goods are increasingly seeking materials with

superior strength, flexibility, thermal stability, and lightweight characteristics. Generative AI allows researchers to evaluate numerous material combinations rapidly and identify optimal solutions with desired properties. Through digital simulations, companies can enhance product performance, improve durability, and reduce manufacturing costs. These innovations support advancements such as improved battery efficiency, stronger automotive components, and high-performance everyday products. Faster material discovery also enables quicker product commercialization, helping companies stay competitive. With rising consumer expectations for advanced and reliable products, the adoption of AI-driven material innovation tools is accelerating. As a result, the rising demand for consumer goods with enhanced material properties is expected to contribute around 2.5% annual growth to the market.

Growing Adoption Of Hybrid Deployment Solutions - The growing adoption of hybrid deployment solutions is set to be a major growth catalyst for the generative artificial intelligence (AI) in material science market by 2030. Hybrid models integrate cloud computing with on-premise infrastructure, enabling organizations to efficiently handle large datasets and perform complex simulations required for material discovery. Generative AI applications demand high computational power, and hybrid environments provide the scalability and flexibility needed while ensuring data security for sensitive research. This setup allows organizations to optimize resource utilization, accelerate model training, and enhance collaboration across geographically dispersed teams. By combining cloud scalability with local control, companies can overcome infrastructure limitations and improve research efficiency. As enterprises increasingly adopt hybrid computing to support AI workloads, the utilization of generative AI in material science is expanding steadily. Consequently, the growing adoption of hybrid deployment solutions is projected to contribute approximately 2.3% annual growth to the market.

Access The Detailed Generative Artificial Intelligence (AI) In Material Science Market Report Here https://www.thebusinessresearchcompany.com/report/generative-artificial-intelligence-ai-in-material-science-global-market-report?utm_source=EINPresswire&utm_medium=Paid&utm_campaign=Apr_PR

What Are The Key Growth Opportunities In The Generative Artificial Intelligence (AI) In Material Science Market In 2030?

The most significant growth opportunities are anticipated in the materials discovery and design market, the predictive modeling and simulation market, and the process optimization market. Collectively, these segments are projected to contribute over \$4 billion in market value by 2030, driven by increasing demand for advanced and sustainable materials, rising adoption of artificial intelligence in research and development, growing need for faster and cost-effective material innovation, expanding applications across industries such as pharmaceuticals, electronics, and energy, and increasing investments in digital transformation and computational technologies. This growth reflects the accelerating focus on enhancing material performance, reducing development timelines, and improving efficiency in industrial processes, fuelling transformative growth within the broader generative artificial intelligence (AI) in material science market.

The materials discovery and design market is projected to grow by \$2 billion, the predictive modeling and simulation market by \$1 billion, and the process optimization market by \$1 billion over the next five years from 2025 to 2030.

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