

3D Bioprinting Market Report by Component (3D Bioprinters, Scaffolds, Biomaterials), Application (Research, Clinical), End User (Hospitals, Research Organization and Academic Institutes, Biopharmaceuticals Companies), and Region 2023-2028

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Report description:

The global 3D bioprinting market size reached US\$ 1,032 Million in 2022. Looking forward, IMARC Group expects the market to reach US\$ 2,621 Million by 2028, exhibiting a growth rate (CAGR) of 16.81% during 2022-2028. The growing geriatric population, increasing focus on research and development (R&D) activities, and less disrupted market represent some of the key factors driving the market.

Rising Geriatric Population Augmenting Market Growth

The rising geriatric population currently represents one of the primary factors driving the 3D bioprinting market. There is an increase in the demand for organ transplantation among the geriatric population, as they are more prone to chronic diseases. Moreover, the wide availability of various medical technologies and the presence of competent specialists in the industry is supporting the growth of the market.

Competitive analysis such as market structure, market share by key players, player positioning, top winning strategies, competitive dashboard, and company evaluation quadrant has been covered in the report. Also, detailed profiles of all major companies have been provided. The market structure is moderately fragmented with the presence of numerous regional and global players in the industry. The volume of new entrants is moderate in the 3D bioprinting industry due to the high capital investments and excessive entry and exit barriers. Moreover, the product differentiation is moderate in the industry due to little differentiation between several manufacturers.

What is 3D Bioprinting?

Three-dimensional (3D) bioprinting refers to an additive manufacturing method designed for the development of precise anatomical tissues. It comprises various deposition and assembling processes, such as direct and laser writing, microstamping, photolithography, stereolithography, electro-printing, and inkjet deposition. It relies on the decomposition of cell-based bio-inks that are manufactured using living cells, biomaterials, and active biomolecules to create 3D structures of tissues and organs. It deposits multiple layers of biomaterials to build numerous complex bodily structures, such as bones, skin, cartilage, vascular grafts, tracheal splints, and heart tissues. As a result, 3D bioprinting is widely utilized in hospitals, research organizations, academic institutes, and biopharmaceutical companies across the globe.

COVID-19 Impact:

The COVID-19 pandemic outbreak caused severe problems for various industries and imposed unprecedented challenges on numerous countries. But 3D bioprinting has emerged as a vital technology in the healthcare industry during the COVID-19 pandemic. There was an increased demand for 3D bioprinted organs due to the unavailability or shortage of medical products. In addition to this, various companies were using state-of-the-art 3D bioprinting platforms to fabricate SARS-CoV-2-infected human airway and lung organoid models. Moreover, these models were being used to study COVID-19 disease progression and for rapid drug screening. There was an increased utilization of bioprinters on account of the rising COVID-19 cases across the globe. Apart from this, the pandemic has slightly hampered the 3D bioprinting market due to the reduction in the production process. Various key manufacturers were forced to temporarily shut down or pause their production process for the first few months of the pandemic due to the widespread of the virus.

3D Bioprinting Market Trends:

At present, the increasing awareness among consumers to minimize animal testing represents one of the major factors influencing the market positively. Besides this, the growing demand for 3D bioprinting among the geriatric population, as they are more prone to various chronic diseases, is offering a positive market outlook. In addition, various technological advancements, such as the development of organ-on-a-chip, is propelling the growth of the market. Apart from this, the increasing demand for regenerative medicines, cancer therapeutics, and stem cell solutions among the masses around the world is contributing to the growth of the market. Moreover, the rising adoption of 3D bioprinting in the healthcare industry, as it is a less disrupted market, is supporting the growth of the market. Furthermore, key manufacturers are focusing on research and development (R&D) activities to introduce bioprinted tissues to reduce the cost of new innovations and enhance the process of finding new drugs.

Key Market Segmentation:

IMARC Group provides an analysis of the key trends in each sub-segment of the global 3D bioprinting market report, along with forecasts at the global, regional and country level from 2023-2028. Our report has categorized the market based on component, application and end user.

Component Insights:

3D Bioprinters Syringe/Extrusion Bioprinting Inkjet Bioprinting Magnetic Levitation Bioprinting Laser-assisted Bioprinting Others

Scaffolds Biomaterials Living Cells Hydrogels Extracellular Matrices Others

The report has provided a detailed breakup and analysis of the 3D bioprinting market based on the component. This includes 3D bioprinters (syringe or extrusion bioprinting, inkjet bioprinting, magnetic levitation bioprinting, laser-assisted bioprinting, and others), scaffolds, and biomaterials (living cells, hydrogels, extracellular matrices, and others). According to the report, 3D bioprinters (syringe or extrusion bioprinting, inkjet bioprinting, magnetic levitation bioprinting, laser-assisted bioprinting, and others) represented the largest segment due to the increasing utilization of syringe or extrusion-based bioprinting technology in printing various biological compounds or devices. In addition to this, the rising awareness among individuals about the 3D bioprinters technology is bolstering the growth of the market.

Application Insights:

Research Drug Research Regenerative Medicine 3D Cell Culture Clinical Skin Bone and Cartilage Blood Vessels Others

A detailed breakup and analysis of the 3D bioprinting market based on the application has also been provided in the report. This includes research (drug research, regenerative medicine, and 3D cell culture) and clinical (skin, bone and cartilage, blood vessels, and others). According to the report, research (drug research, regenerative medicine, and 3D cell culture) accounted for the largest market share, as 3D printing technology is widely utilized among researchers to study the effects of different diseases and their progression and possible treatments. Moreover, it reduces the need to use lab animals for medical tests and dangerous trials on humans.

End User Insights:

Hospitals Research Organization and Academic Institutes Biopharmaceuticals Companies

A detailed breakup and analysis of the 3D bioprinting market based on the end user has also been provided in the report. This includes hospitals, research organization and academic institutes, and biopharmaceuticals companies. According to the report, biopharmaceuticals companies accounted for the largest market share due to the increasing number of target therapies. In addition, the rising collaborations and mergers among biopharmaceutical companies to develop 3D bioprinting is positively influencing the market.

Regional Insights:

North America United States Canada Asia-Pacific China Japan India South Korea Australia Indonesia Others Europe Germany France United Kingdom Italy Spain Russia Others Latin America Brazil Mexico Others Middle East and Africa

The report has also provided a comprehensive analysis of all the major regional markets, which include North America (the United States and Canada); Asia Pacific (China, Japan, India, South Korea, Australia, Indonesia, and others); Europe (Germany, France, the United Kingdom, Italy, Spain, Russia, and others); Latin America (Brazil, Mexico, and others); and the Middle East and Africa. According to the report, North America (the United States and Canada) was the largest market for 3D bioprinting. Some of the factors driving the North America 3D bioprinting market included the growing prevalence of various chronic diseases, presence of key players, and increasing private and government investment. Moreover, the introduction of laser bio-printing method that can make live 3D printed bio-tissues to create artificial tissues is positively influencing the market.

Competitive Landscape:

The report has also provided a comprehensive analysis of the competitive landscape in the global 3D bioprinting market. Some of the companies covered in the report include:

3D Systems Inc. Aspect Biosystems Ltd. Cellink Cyfuse Biomedical K.K. EnvisionTEC GmbH (Desktop Metal Inc.) GeSiM ? Gesellschaft fur Silizium-Mikrosysteme mbH Materialise Organovo Holdings Inc. Poietis

RegenHU Stratasys Ltd.

Please note that this only represents a partial list of companies, and the complete list has been provided in the report.

Key Questions Answered in This Report

- 1. What was the size of the global 3D bioprinting market in 2022?
- 2. What is the expected growth rate of the global 3D bioprinting market during 2023-2028?
- 3. What are the key factors driving the global 3D bioprinting market?
- 4. What has been the impact of COVID-19 on the global 3D bioprinting market?
- 5. What is the breakup of the global 3D bioprinting market based on the component?
- 6. What is the breakup of the global 3D bioprinting market based on the application?
- 7. What is the breakup of the global 3D bioprinting market based on the end user?
- 8. What are the key regions in the global 3D bioprinting market?
- 9. Who are the key players/companies in the global 3D bioprinting market?

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