

# Global 3D Bioprinting Market to Reach USD 10.35 Billion by 2032 with a 26.2% CAGR Due to Increasing Organ Transplants

*The global 3D bioprinting market size was USD 1.27 Billion in 2022 and is expected to reach USD 10.35 Billion in 2032, and register a revenue CAGR of 26.2%*

NEW YORK CITY, NY, UNITED STATES, May 4, 2023 /EINPresswire.com/ -- In 2022, the global [3D Bioprinting Market](#) was valued at USD 1.27 billion, and it is anticipated to increase to USD 10.35

billion by 2032, with a revenue CAGR of 26.2% during the forecast period. The market growth is being fueled by several factors, including the escalating demand for organ transplants, the rising use of 3D bioprinting in the pharmaceutical and biotechnology sectors, and the advancements in 3D printing technology. The ability of 3D bioprinting to create complex human tissues and organs using various biomaterials is expected to drive revenue growth in the market.

The increasing requirement for organ transplants is one of the key drivers for revenue growth in the 3D bioprinting market. With 3D bioprinting, functional human organs and tissues can be produced using a patient's own cells, which can lower the risk of rejection and increase transplant success rates. The healthcare sector is struggling with a shortage of organ donors, which could be addressed with the use of 3D bioprinting.

The application of 3D bioprinting technology is expanding, particularly in the pharmaceutical and biotechnology industries. 3D bioprinting can produce precise models of human organs, tissues, and cells that can be utilized for drug testing and development, reducing the need for animal testing and making medication research more precise and efficient.

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Revenue growth in the 3D bioprinting market is being driven by advancements in 3D printing technology, with the invention of new materials and methods allowing for the production of more intricate and functional human tissues and organs. For example, scientists have



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successfully 3D bioprinted liver tissue that can perform the functions of a human liver. The advancement of multi-material 3D printing technology has also enabled the creation of more complex structures, such as blood arteries and nerves, which are essential for developing functional organs.

In addition, the increasing investments in 3D bioprinting-related research and development projects by governments, academic institutions, and private businesses are driving revenue growth in the market. Such investments are anticipated to result in the creation of innovative products and services, such as a portable 3D bioprinting device for on-demand medical care on the battlefield.

Nevertheless, the high cost of 3D bioprinting technology and the scarcity of qualified professionals are significant factors that could hinder revenue growth in the market. The cost of 3D bioprinting devices is still relatively high, and the technology is still in its early stages. Additionally, there is a shortage of trained personnel who can operate 3D bioprinting devices and utilize the technology efficiently. Another factor that could slightly impede revenue growth in the market is the adoption of 3D bioprinting technology in the healthcare sector.

#### Segments Covered in the Report –

The 3D bioprinting market can be segmented based on technology outlook and application outlook. Under technology outlook, the market can be divided into inkjet-based, laser-based, magnetic-based, and others. The inkjet-based segment is expected to account for a significant share of the market due to its ability to produce high-resolution prints at low costs. Additionally, inkjet-based bioprinters are user-friendly and have the capacity to print multiple materials. The laser-based segment is anticipated to grow at a fast pace during the forecast period, primarily due to advancements in laser technology and the growing need for printing complex biological structures.

The magnetic-based segment is expected to grow at a moderate pace. The technology involves the use of magnetic fields to print biomaterials layer-by-layer, and has advantages such as high reproducibility and low cost. Other segments include hybrid 3D bioprinting, which combines multiple printing technologies to produce complex biological structures.

Based on application outlook, the 3D bioprinting market can be segmented into tissue engineering, regenerative medicine, drug discovery & toxicity testing, and others. The tissue engineering segment is anticipated to hold a significant share of the market, primarily due to the rising need for 3D printed tissues and organs for transplants. The regenerative medicine segment is expected to grow at a fast pace due to the increasing use of 3D bioprinting for regenerating damaged tissues and organs.

The drug discovery & toxicity testing segment is anticipated to witness significant growth during the forecast period. 3D bioprinting has the potential to revolutionize the drug discovery process

by enabling the production of realistic models of human organs and tissues for drug testing. This can help reduce the need for animal testing and increase the accuracy of drug testing.

Other applications of 3D bioprinting include the production of skin substitutes for burn victims, production of food using plant-based materials, and development of bio-based materials for industrial purposes. These applications are expected to contribute to the growth of the "others" segment of the market.

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Strategic development:

Several notable partnerships and acquisitions in the 3D bioprinting industry have been announced in recent years. In 2021, CELLINK AB acquired Discover Echo, a biotechnology company in Massachusetts. This acquisition aimed to expand CELLINK's offerings and enhance its expertise in developing innovative 3D bioprinting technologies.

EnvisionTEC GmbH also announced a strategic partnership with Sartorius, a German biotech company, in 2021. The partnership is focused on developing 3D bioprinting solutions for tissue engineering and regenerative medicine applications. EnvisionTEC's experience in 3D bioprinting will be combined with Sartorius's knowledge in bioprocessing and cell culture.

Another significant collaboration took place in 2020 when Organovo Holdings, Inc. announced a strategic collaboration with Japan Tissue Engineering Co., Ltd. The partnership is centered around developing 3D bioprinted human liver tissue for use in drug discovery and toxicity testing. Organovo's expertise in 3D bioprinting is expected to be leveraged with Japan Tissue Engineering's knowledge in tissue engineering and regenerative medicine.

In 2020, Rokit Healthcare announced a strategic partnership with Zibion, a South Korean biotech company. The collaboration is focused on developing 3D bioprinted skin grafts for burn patients. Rokit Healthcare's expertise in 3D bioprinting will be combined with Zibion's knowledge in stem cell therapy and regenerative medicine. These partnerships and collaborations demonstrate the industry's focus on developing new 3D bioprinting solutions for various applications in healthcare.

Competitive Landscape:

The global 3D bioprinting market is highly competitive and consists of several major players. These companies are continuously investing in research and development activities to gain a competitive advantage in the market.

Organovo Holdings, Inc. is a leading player in the 3D bioprinting market, specializing in the

development of functional human tissues for use in drug discovery and toxicity testing. EnvisionTEC GmbH is another major player, offering a range of 3D bioprinters for use in the medical and dental industries. Stratasy Ltd. is a global leader in 3D printing technology, providing innovative solutions for use in various industries, including healthcare.

CELLINK AB is a rapidly growing company that specializes in the development of 3D bioprinters and biomaterials for use in tissue engineering and regenerative medicine. Aspect Biosystems Ltd. is a Canadian-based company that focuses on the development of microfluidic 3D bioprinting technology for use in drug discovery and tissue engineering applications.

RegenHU Ltd. is a Swiss-based company that specializes in the development of 3D bioprinters and biomaterials for use in tissue engineering and regenerative medicine. Allevi Inc. is another major player in the market, offering a range of 3D bioprinters and biomaterials for use in tissue engineering and drug discovery applications.

Other significant players in the market include 3D Systems, Inc., Materialise NV, and Rokit Healthcare, which offer a range of 3D printing and bioprinting solutions for use in various industries, including healthcare. The 3D bioprinting market is expected to experience significant growth in the coming years, and these major players are likely to play a crucial role in shaping the future of the industry.

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In conclusion, the 3D bioprinting market is expected to experience significant growth during the forecast period, with advancements in technology, increasing need for organ transplants, and growing investments in research and development being major factors driving market growth.

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