North America 3D 4D Technology Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

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Report description:

The North America 3D 4D Technology Market is expected to reach a CAGR of 15.5% during the forecast period. The market is generating growth as a result of the gaming and entertainment industry's expanding market. The rising need for computer-based graphics and conventional special effects filmmaking methods for movies with 3D and 4D motion pictures and interactive impact will drive the demand for 3D and 4D technology.

Key Highlights
The necessity for 3D printing to aid the disrupted supply chain, firms' moves to improve the variety and range of products to be printed in the long term, and companies' moves toward developing a digital inventory are all factors that will drive the post-COVID-19 3D printing market growth. In a long time, businesses will have to adopt new strategies and make dramatic adjustments to ensure that they do not find themselves in a scenario similar to what they are currently facing due to a future pandemic. As a result, 3D printing is an essential aspect of enterprises' digitalization initiatives, which are expected to speed up in the future.
The strong presence of market leaders, such as Autodesk Inc. and PhotoModeler Technologies in North America, gave the region a dominant position in the global market. In the healthcare segment, with the increasing health issues, researchers and players continuously develop discoveries in the membrane protein, with inventions through 3D reconstruction and new theories in the anatomy part.?
Similarly, the technological advancements in 4D printing are resulting in the development of technologies in the medical sector. For instance, doctors use 4D printing to minimize surgery procedures to place self-transforming components into the patient's body. Owing to the COVID-19 outbreak, the rate of new hospitalizations declined by 50% in the United States.?
Realistic movies with 3D and 4D motion images and interactive effects are increasingly popular in the entertainment sector. With recent advancements in 3D animation and computer-based graphics, 3D has become the industry standard for special effects. In

recent years, 3D animation in films has surpassed both physical products and hand-drawn animation in terms of popularity. Visual effects (VFX) are also commonly utilized in films to create a more realistic setting. Movies increasingly employ 4D technology to provide an immersive, multi-sensory cinematic experience.
3D and 4D imaging devices, such as 3D and 4D sensors and cameras, are sensitive to dust, microparticles, and impurities. A slight disturbance affects the quality of the image; hence, these devices require special care, and the 3D and 4D costs depend on the size and complexity of the image, which might challenge the market growth.
According to the US Department of Defence, the outbreak of COVID-19 is affected the cost, schedule, and performance of many DoD contracts, and such impact is beyond the contractor's control. As the USAF and the US military are investing in 4D printing technology, mainly to bolster infrastructure, while establishing American airpower as a prominent player in the industry, the COVID-19 outbreak is projected to impact the development of 4D printing in the region.?

North America 3D 4D Technology Market Trends

Healthcare is Expected to Hold Prominent Market Share

With the increasing technology integration in the medical field and the growing manufacturing industry, the demand for 3D reconstruction is expected to increase significantly. Furthermore, with new inventions in the field of spatial recognition by the players, and the application usage in media and films, 3D reconstruction inhibits profitable growth. The market is supported by end-users ready to pay premium prices for upgraded services, which support the initial adoption rate.?
It is expected that in the United States alone, close to 200,000 amputations are performed each year, with prosthetics priced from USD 5,000-USD 50,000; replacement or alterations can be time-consuming and expensive. AM technology is regularly used to produce patient-specific components of prosthetics that match perfectly with the user's anatomy. The ability to produce complex geometries from various materials has resulted in AM being adapted at the locations where prosthetics are in contact with a patient.
Growing incidences of chronic illnesses leading to organ and tissue transplants and the limited number of organ donors are some of the primary factors driving the market growth. According to the US Food and Drug Administration (US FDA), 3D printers are already being relied on to manufacture medical equipment and surgical devices that match a patient's unique body type or anatomical requirements. The specialized surgical equipment enables doctors to treat the individual needs of their patients more effectively and efficiently. ?
Moreover, US medical device expansion opportunities come from specific key ongoing policies and activities. For example, the Radiological Society of North America (RSNA) launched the 3D Printing Special Interest Group (SIG). It had set up several committees to work in different areas to support radiology-centered, hospital-based, point-of-care 3D printing to impact more patients. The rooms include prosthetics, anaplastology, regulatory and compliance, and simulations.?

3D Printer is One of the Factor Driving the Market

3D printers are utilized in a wide range of industries, including aerospace, health, education, and non-custom prototyping. Both the commercial sector and the federal government have backed these 3D printing uses. The National Science Foundation has provided financing for basic and applied research and research and development from mission organizations such as the Department of Defense, the National Institutes of Health, and the National Aeronautics and Space Administration.
The National Additive Manufacturing Innovation Institute (also known as America Makes) is the flagship institute of the Manufacturing USA initiative and has provided substantial federal funding for additive manufacturing. This collaboration between industry, academia, and the government aims to "[accelerate] the adoption of additive manufacturing technology in the United

States to boost American manufacturing competitiveness." Hundreds of millions of dollars have been invested in both public and private 3D printing-related firms and research and development in recent years.
Medical research and the outcomes of complex operations and particularly difficult cases can benefit from 3D printing. Both Chinese and American researchers have 3D-printed models of dangerous tumors to aid in the discovery of novel anti-cancer medications and better understand how tumors develop, grow, and spread. "Bioprinted cancer models can even approximate the 3D heterogeneity of real tumors.
In comparison to other manufacturing techniques, 3D printing is unusual in that the time and expenses involved in fabrication are independent of the complexity of the product. Instead, the weight of the materials being deposited in the device determines the lead time. As a result, prototype and completed product fabrication timeframes are extremely predictable. 3D printing reduces repetitive etching, pressing, drilling, and finishing operations during the production of complicated electrical devices, notably multilayer PCBs. A fully working board can be printed in less time than a traditional technique with the correct additive manufacturing technology and process.

North America 3D 4D Technology Market Competitor Analysis

North America is the leading market as it has many new investments in the research and development of 3D/4D technology and therefore is a moderately fragmented market. The key market participants of this technology are Dolby Laboratories Inc., Sony Corporation, Panasonic Corporation, 3D Systems, and Stratasys Inc.

November 2022 - 3D Systems Corporation & ALM announced they have entered into a partnership to expand access to industry-leading 3D printing materials. With this partnership, ALM will add 3D Systems' DuraForm PAx material to its portfolio, providing its customers access to a unique copolymer designed explicitly for use with available Selective Laser Sintering (SLS) technologies to accelerate materials adoption, and drive additive in the manufacturing industry growth.

Additional Benefits:

The market estimate (ME) sheet in Excel format
3 months of analyst support

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