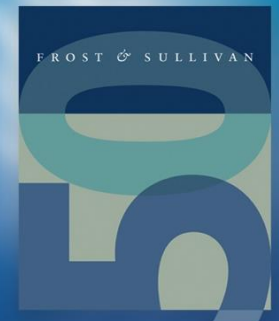


3D Printing Expected to Go Beyond Market Predictions Across Multiple Industries

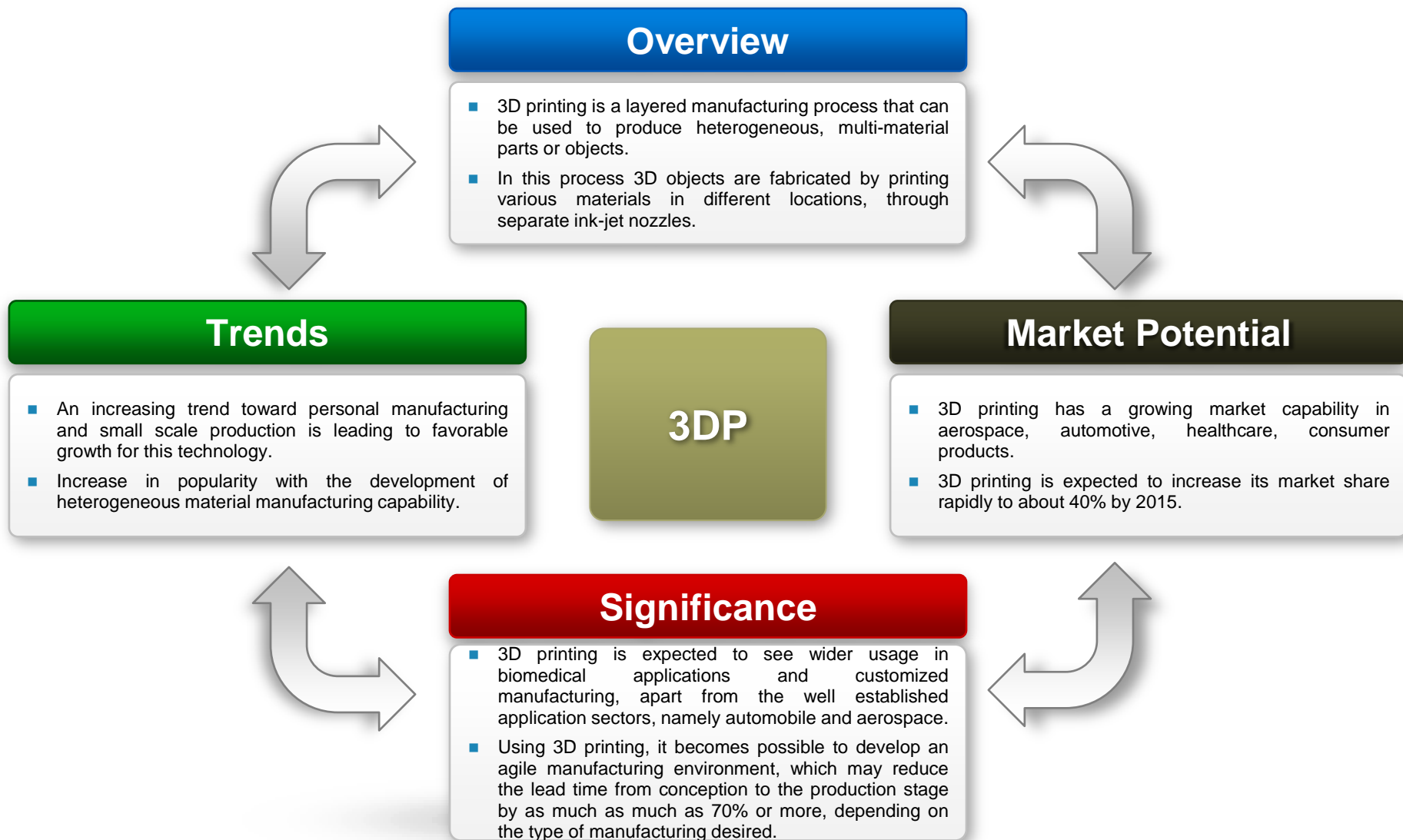
Research PREVIEW for
3D Printing Technology – 9 Dimensional Assessment

D56C-TI



Technology Landscape

Current & Future Scenario



Technology Categorization

Types of 3DP Technologies

Stereolithography (SLA)

A stereolithography apparatus uses liquid plastic, a perforated platform, and a UV laser to print 3-D objects.

Fused Deposition Modeling (FDM)

The system uses thermoplastic material, which is melted to a semi-liquid state and extruded according to computer-controlled paths.

Selective Laser Sintering (SLS)

Small particles of plastic, glass, or ceramics are fused together from a high-powered laser to form a solid 3-D object.

Electron Beam Melting (EBM)

A focused beam of high-energy electrons is used to melt the metal powder layer by layer in the vacuum as per the pre-defined dimensions.

Major 3D Printing Technologies

Selective Laser Melting (SLM)

Similar to electron beam melting, this method creates complex objects by completely melting the metal powder using a high-powered laser beam.

Laminated Object Manufacturing (LOM)

An economic process in which layers of adhesive-laminated paper or plastic sheets are glued together and cut to create complex shapes.

Market Opportunity

Key Trending Markets & Applications Landscape

Consumer and Commercial

As popularity of retail owners adopting 3-D printing business model increases, the industry will witness technology and 3-D printer manufacturers collaborating with retail giants.



Architecture

3-D printing is being used for both personal and commercial purposes to develop architectural models for buildings; however, the sector is also witnessing intensive research on building entire houses using 3-D printing.

Automotive

The industry has seen the use of 3-D printing for mass production of critical components that go into an automobile, reducing the processing time and operational and supply chain cost.



Aerospace and Defense

3-D printing is being used popularly in the production of both prototypes and final components for space crafts, commercial and defense aircrafts, engine components, and ammunition parts.

Industrial

Rapid prototyping has proven advantageous in many industries, and the quantity and quality of the prototypes that replicate the features of the original material is showing a steep rise.



Medical and Dental

Development technologies for digital medicine will further aid 3-D printing to penetrate the sector. With access to digital data, the task of 3-D printing of artificial limbs, prosthetics, knee implants, and dental implants becomes easier.

Tax Incentives Across the Globe for Manufacturing Sector

Benefits Favouring Adoption of 3DP

North America - USA



❖ In the USA, government has announced various tax benefits and credits in addition to providing incentives for the domestic manufacturing companies in a bid to increase the domestic manufacturing capacity.

❖ The government is also providing R&D tax credit for small and medium manufacturers for improving their research activities in various manufacturing sectors.

Asia Pacific



❖ Australia provides a tax credit equal to 40% or 45% of eligible R&D expenditure, with the excess refundable to small and medium sized entities.

❖ China offers a 150% deduction for eligible research and development expenditures for a list of 8 selected technology areas in which manufacturing is one among them.

❖ In the APAC, the governments are seen to offer tax benefits for key players from other countries trying to establish their manufacturing plants in this region.

Europe



❖ The United Kingdom government offers two volume based incentives, one that is available to companies that fall within the Small or Medium Sized Enterprise (SME) and the other for large companies.

❖ In Germany the government offers tax benefits in terms of grants for SME which excel in innovations pertaining to the Manufacturing sector thereby increasing the R&D activities in the country.

Tax Benefits can support adoption of emerging manufacturing technologies as 3DP

1

Conducting Futuristic R&D

2

Increasing Manufacturing Capacity

3

Bolstering R&D Activities

4

R&D Expenses

5

**Establishment of R&D Hubs/
Manufacturing Units**

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Global Perspective

40+ Offices Monitoring for Opportunities and Challenges



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Comprehensive Industry Coverage Sparks Innovation Opportunities



Aerospace & Defense



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Consumer Technologies



Information & Communication Technologies



Automotive Transportation & Logistics



Energy & Power Systems



Environment & Building Technologies



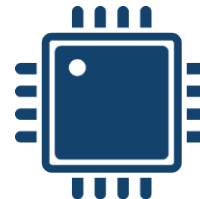
Healthcare



Minerals & Mining



Chemicals, Materials & Food



Electronics & Security



Industrial Automation & Process Control