3D Printing 2017-2027: Technologies, Markets, Players

Description: 3D printing has received much attention in the press over recent years. Hyped as the technology to bring about a 3rd industrial revolution, 3D printing technologies were in fact invented in the early 80s. They remained a niche technology until the expiration of a key patent in 2009 allowed many start-ups to emerge offering cheap consumer-level 3D printers. A media frenzy in 2012 thrust 3D printing into the limelight and 2016 has seen Hewlett Packard and General Electric enter the 3D printing space. Even after the media hype some market sectors are still reporting huge growth rates.

3D printing encompasses a variety of different printing processes. The processes are all primarily additive in nature, as materials are deposited only where needed, and thus results in significantly less materials wastage than traditional manufacturing techniques. Each of the technologies is suitable for use with a different range of materials, which in turn defines the suitable applications of the printer.

Originally used for the rapid production of prototypes for form and fit testing, applications are transitioning towards also functional testing of prototypes under working conditions, and further, the manufacture of final products.

With 3D printing designs are not constrained by manufacturing limitations and design complexity no longer adds cost. This opens up design avenues and enables the economic production of lighter components, critical to the aerospace and automotive industries. Applications are also emerging in the medical and dental fields, where the opportunity afforded by cheap mass customisation is allowing surgeons to replicate a patient’s body based on MRI and CT scans in order to practice difficult invasive procedures, and medical and dental implants which are fully customised to a particular individual can be generated.

This report discusses all of the commercially-significant existing technologies and promising emerging technologies in depth, and analyses both the current and future markets for 3D printing. The market structure is also detailed, and we present profiles of the major players together with insights gained from in-depth interviews with a range of companies involved in 3D printing. We also present detailed forecasts for the future of the 3D printing market.

The following technologies are covered in detail including lists of all major vendors for each technology type and SWOT analyses with quantitative data and references to vendors:

- Stereolithography
- Digital Light Processing
- Inkjetted photopolymers
- Thermoplastic extrusion
- Selective Laser Sintering of plastics
- Selective Laser Melting of metals
- Blown metal powder
- Welding
- Sand binding
- Binder jetted into metal powder (by ExOne)
- Smooth Curvature Printing (by Solidscape)
- Selective Deposition Lamination (by Mcor Technologies)
- Hybrid CNC

This report gives forecasts to 2027 in the following forms:

1. Market forecast by industry (bioprinting, automotive, aerospace, consumer products, medical, oil & gas, hobbyist, dental, education and jewelry)
2. Market share by industry
3. Market forecast growth by industry
4. Market forecast by revenue stream (printer, materials, services)
5. Market forecast for printers and materials by price.
6. Market forecast for printers and materials by technology type.
7. Mapping the 3DP landscape by size, precision, speed and price.
Applications are detailed for:

- Manufacture of flight-critical production parts in metals
- Mold making for metal casting
- Edutainment
- Art
- Modelling
- Rapid prototyping
- Tooling

The aerospace industry, an established end user of 3D printing, has the highest growth rate of any end user industry. The trillion dollar oil and gas industry is an emerging user of 3D printing with the second highest forecast growth. When significant penetration has occurred into the above markets, 3D printing in these big industries will lock into the capital expenditure cycles associated with them, and, as is the case for other CNC machines, periodic fluctuations in sales will occur -growth will not be steady and monotonic.

Over 90 3D printing companies are profiled, and the report is also informed by interviews with companies and institutions throughout the value chain.
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