

Why is 3D printing more appropriately called additive manufacturing?

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3D printing is called additive manufacturing because 3D printing is an additive procedure that forms items one coating at one time from the bottom-up. The accurate equipment is contingent on the supplies, aesthetics, machine-driven properties and enactment that one requires.

Additive Manufacturing is a procedure by which a digital 3D design data is used to figure up a module in layers by depositing substances. The word “3D printing” is progressively termed as a substitute for Additive Manufacturing. Though, the latter is further precise in that it defines a specialized manufacturing method which is evidently illustrated from conservative approaches of substance elimination. Despite crushing a working part from a compact solid block, for instance, Additive Manufacturing shapes up mechanisms coating by layer consuming supplies which are accessible in good powder form. A diversity of different plastics, metals and complex ingredients could be used¹

This technology has particularly been functional in combination with Fast Proto-typing, the production of graphics and practical proto-types. Additive Industrial is currently used progressively in Sequential Production. It offers Unique Equipment Industrialists in the furthestmost diverse sectors of manufacturing the prospect to build an idiosyncratic outline for them grounded on novel client welfare, cost reducing prospective and the capability to encounter sustainability objectives²

Is 3D printing better suited for high or low volumes of production? Explain your answer.

3D printing (additive manufacturing) was originally intended for fast prototyping. Then now, it is used for real manufacturing. Engineers not only use this procedure for samples, but they are also using 3D printing for real manufacturing processes. The 3D procedure permits easier assembly, customization, and design liberty, and for the minor industrialist, it permits for less price, less capacity manufacturing.

An old-style procedure, for instance, inoculation molding, is used further for huge scale production. 3D printing is further cost-effective for lesser capacities. 3D printing is reforming manufactured goods progress and its manufacturing. With the use of 3D printing procedure, inventors and designers save both time and resources, while abstracting and analyzing samples. This is priceless, as it takes less time while giving the chance to make an enormously precise prototype of how innovative manufactured goods will appear³

For a minor industrialist, the furthestmost expensive and workforce concentrated portion of product manufacturing is the manufacturing of the tooling. 3D printing eradicates these expenses, as it eliminates the necessity for instrument fabrication, which also cuts leading time and labor cost.

A side advantage of using the 3D procedure is protecting the atmosphere, as additive manufacturing is energy efficient. The process usages up to 90% of typical resources thus reduce the wastage.

3D printed tooling reductions the inoculation molding process timeline from months and weeks to days and hours. It is now possible to get functional, testable inoculation molded prototypes, and low volume manufacture shares quicker than ever beforehand. When rapidity is significant, practical samples can be castoff for analyzing influence resistance, chemical confrontation, water interruption, and suppleness. Additive manufacturing is fast and multipurpose because the tackles can be 3D printed in a very short time(less than a day).

In what situations is 3D printing most valuable?

If a producer manufactures fewer than 1,000 pieces, 3D engineering will enhance manufacturing and in industrializing, the further that you manufacture, the lesser the price will be. This is particularly correct when producing plastic products. Injection molding is very costly when the manufacturing is less. In this case, 3D printing suits to be practicable, as the manufacturing proportion upsurges for up to twenty times and the cost is getting lower. A corporation can buy about 20 3D printers for the price of just one injection molding machine. Not only can the corporation increase its manufacturing proportion, but it can use the workforce further resourcefully⁴

3D printing is most valuable when there is a possibility of the human error if made with the workforce. 3D technology makes it sure that the product is manufactured with great accuracy and without any error. 3D technology is highly valuable in manufacturing the mechanical parts of airplanes and cars. In the manufacturing of airplanes, a small Crack on a part can lead to the crash of the airplane and results in the death of the individuals. 3D printing technology makes it sure that each product is made with great accuracy and without any flaw in it.

Some of the products which are manufactured with 3D technology are

- RAF Tornado fighter jet parts
- Arms for children
- Honda concept cars
- Houses
- Toys from children
- Music boxes ⁵

What do the leading research and investment firms forecast for 3D printing?

Producers through a comprehensive range of businesses including aerospace, high-tech, dental, automotive, discrete, high-tech, and health goods are all energetically directing and exhausting 3D printing technologies nowadays. Prototyping endures ruling the details why initiatives follow 3D printing, with the prospect of refining new product expansion and time-to-market being long-lasting objectives.

These and numerous additional takeaway are from the following list of 3D printing marketplace predictions and estimations below:

Wohlers' figures were forecasts made from a 2013 baseline for 2018 and 2020. Both target dates have passed, so the \$13 billion and \$21 billion estimates should be treated as historical projections rather than current market values.

General Electric Company is planning to manufacture (mass-production) 26,000 LEAP engine nozzles with Additive Manufacturing (AM) (3D printing), and it now has \$22B in pledges.

Sampling (23.5%), product growth (17.1%) and modernization (12.1%) are the three most communal cause's corporations are chasing 3D printing.

Gartner's estimate that the worldwide 3D-printing market would rise from \$1.6 billion in 2015 to \$13.4 billion in 2018 was a historical forecast whose target date has passed.

3D Systems' deals into enterprise and producing raised 27% from 2013 to 2014, rising to \$609.8M in trades.

PwC approximations 67% of producers are now using 3D printing technologies.

Siemens' prediction that 3D printing would become 50% cheaper and 400% faster "in the next five years" was tied to the source period and has expired.

The estimate that the worldwide 3D-printing market would reach \$8.6 billion by 2020 was a source-period forecast whose deadline has passed.

CSC has produced a roadmap of 3D printing technology acceptance in 7 businesses which includes overall industrializing and supply chain organization.

The U.S. Postal Service (USPS) approximates that the rotating postal dispensation hubs into 3D printing technology hubs could produce an incremental \$646M in profitable platform income.

The automotive 3D-printing projection from \$365.4 million in 2015 to \$1.8 billion in 2023 was a

historical forecast and should not be presented as a current growth outlook.

How can 3D printing make some types of traditional manufacturing obsolete and how could it affect you?

3D printing has made some of the traditional manufacturing obsolete. This technology is reforming our lives by introducing low-cost products that are efficient in use. Last year a 3D printer was designed that construct a complete house in 24 hours. This is the very big achievement as the traditional way of constructing a house takes time up to 1 month. The products that are manufactured with 3D printing technology have high accuracy level. They are the finest products being manufactured by any of the machines. 3D manufacturing requires less labor, and it will be dominant in the whole world soon. 3D printers are also used in ISS (International space station). The 3D printer in International space station has reduced the time of producing certain products and researchers from month to just one or two days.⁷

Following are the few industries in which 3D technology is emerging fastly

Automotive and Industrial manufacturing

- Associating many mechanisms into a particular compound part
- Make manufacturing tools
- Create spare parts of a product and its different components
- Quicker manufactured goods growth cycle with fast prototyping. Procedure and fit analysis

Aerospace

- Make multifaceted geometry parts of a product that not likely to make with old-style engineering.
- Regulate concentration. Arduousness and other physical properties of any product also mark such stuff over a part
- Make lighter products

Pharmacy/Healthcare Retail Sports

- Organization operation by exact anatomical replicas grounded on CT scan.
- Grow tradition orthopedic grafts and prosthetics
- Use 3D printed corpses for medical exercise

- Bio print living skins for analysis in medication improvement

Retails

- Make tradition figures, jewels, sports, home-based ticker tapes, and other different products
- Print replacement or extra portions for an automobile or home-based reparation.

Sports

- Make compound geometry and figure not imaginable with old-style engineering
- Make tradition defensive tackle for improved fit and protection
- Make tradition barb plates for soccer shoes founded on biomechanical figures
- Make many colors and many factual samples for product analysis

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