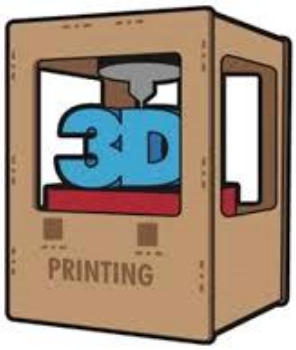
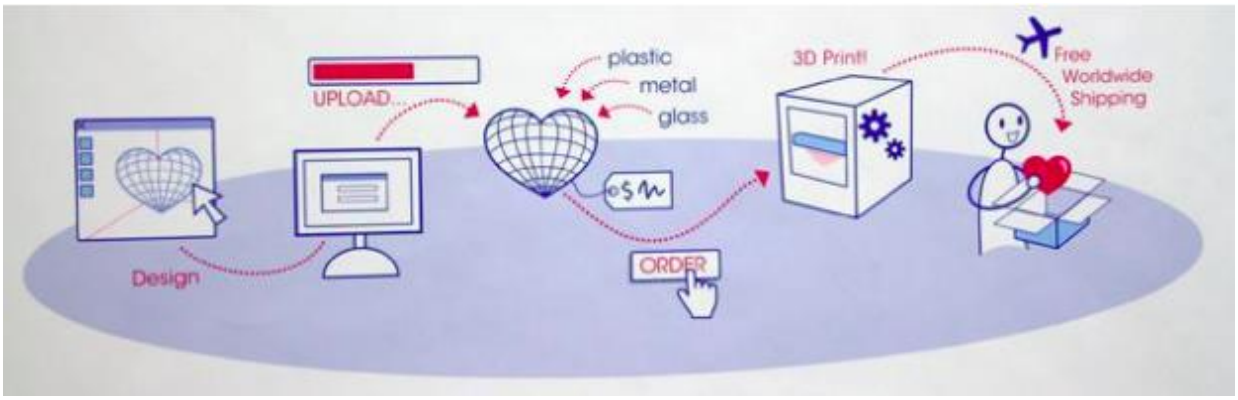
3D Printing Limitations



3D printing (3DP), also known as additive manufacturing (AM), refers to the process of making or creating a three-dimensional object wherein multiple layers are laid upon one another to create an object under the control of a computer system.



It was created in the late ’80s and has been utilized broadly for prototyping. In 1981, Hideo Kodama of Nagoya Municipal Industrial Research Institute concocted two added substance techniques for creating three-dimensional plastic models with photograph solidifying thermoset polymer, where the UV introduction region is controlled by a cover design or an examining fiber transmitter. What’s new is that the innovation is never again saved for huge organizations lately, it has at last influenced the hop to the standard customer to advertise.

A few people say that 3D printing wouldn’t reform the assembling division, rendering conventional industrial facilities out of date. The straightforward truth is the financial aspects of 3D printing now and for a long time to come make it an unfeasible approach to create by far most of the parts made today. So as opposed to taking a gander at it as a substitute for existing assembling, we should look to new territories where it can exploit its interesting capacities to supplement customary assembling forms. Additive manufacturing, or “3D printing” as it is commonly known, has understandably captured the popular imagination. Exciting applications have already been demonstrated across all sectors-from aerospace and medical applications to biotechnology and food production.

3D Printing is becoming more popular day by day. It is also known as Additive manufacturing because the 3D printer builds any object by laying down layers upon layers of material until it's finished. This process is less wasteful like any other manufacturing process because you don't need to carve or cut away material to build any object. With the advancement of 3D printing, it is now capable of building a house on its own just by its blueprint. 3D printing will also reduce the cost of manufacturing anything by 50% or even more. Still, it is inevitable to overlook its negative impacts on our lives: -

1. HEALTH HAZARDS

Recent studies by Illinois Institute of Technology tested a few samples and found out that these 3D printers emit 200 million to 200 billion tiny toxic particles per minute. These particles when inhaled can penetrate to our lungs, cause irritation, and also can reach our brain.

The printers use elements like Nylon filament that emits Caprolactam which can cause serious neurologic, stomach and heart conditions. Some printers using ABS filament emits Styrene that could cause Cancer also.

2. ECO-UNFRIENDLY

Most of the printers use Plastic filaments to produce the objects which in turn leave behind plastic by products that are harmful for the environment. With the rapidly growing technology, it is certain to cause much more damage than visible today.

3. HIGH ENERGY CONSUMPTION

It is quite evident that the printers that can construct houses will need a huge amount of energy. With the growing population, the power consumption is already so high that it will become a more challenging task to produce energy for the operation of such machines.

4. UNEMPLOYMENT

As we are becoming dependent on machines, automating everything for better jobs and with minimal chances of error, the need of humans to perform a task is getting affected which will directly impact the employment rate. More and more people will become unemployed as less manpower is required.

3D Printing Limitations at a glance:

- Surface texture is generally too rough.
- Materials have low heat deflection temperatures.
- Materials generally have low strengths.
- Material prices are far too high restricting the growth of the market.
- Parts are generally not as dense as parts made by CNC and other processes.
- Color is only possible with Mcor and Corp and these do not provide for functional parts.
- It is too difficult to design for 3D printing.
- The software toolchain is too complex.
- It is too difficult to 3D model.
- Manufacturing complex parts or organic parts needs a lot of 3D modeling training.
- 3D scanners are not good enough and create holes in final files.
- Re-meshing software is not good enough.

- Printers are not large enough.
- Printers are not fast enough.
- Build quality and up-time on desktop systems is terrible.
- Industrial AM machines are too expensive.
- Machines are generally too slow.
- Very little R&D is done in 3D printing.
- Every process is different, so silos are being developed, not one common development effort.
- The AMF file format has not been widely adopted by software tools leaving us stuck with STL.
- Many desktop people are over-promising and using overclaim to sell their products.
- The media is saying "with a 3D printer you can make anything on the desktop" which is untrue.
- There is a reality distortion field whereby people assume that all the inventions done by many companies over many decades are simultaneously happening now.
- Many industrial 3D printing vendors are prisoners of their own patents, developing only technologies that fit squarely into their portfolio.
- There is too much manual labor in manufacturing with 3D printing, 30% of the cost.
- Certification of materials is taking too long, and not enough materials are certified for many uses.
- There is no closed loop control on machines. It is difficult to obtain surface finishes and looks of parts that are comparable to mass production parts.

Though 3D has a future on a mass scale, it still needs more research and innovation to combat its negative impacts.

Author
Kanishak Sharma

About TTC
We've constantly identified the value of new technology carried out by our pretty skilled executive crew with backgrounds as our professionals. Like the IP professionals we empower, our starvation for development is never-ending. We IMPROVISE, ADAPT, and IMPLEMENT in a strategic manner.

You also can CONTACT US to set up a consultation.

TT Consultants is a leading partner in intellectual property (IP) management. Our worldwide service range comprises both legal and portfolio services, as well as strategic IP consulting and cutting-edge software solutions for effective IP management.

The TT Consultants offers a range of efficient, high-quality solutions for your intellectual property management ranging from Patentability Search, Invalidation Search, FTO (Freedom to Operate), Patent Portfolio Management, Patent Monetization, Evidence of Use, Claim Chart Mapping, and much more. We provide both law firms and corporations in many industries with turnkey solutions.