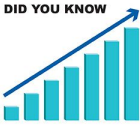
3D PRINTING & ITS IMPACT

WHAT IS 3D PRINTING?

3D printing, also recognized as Additive Manufacturing (AM), involves the making of a three-dimensional object from a digital file. The object is created through adding numerous layers of material until the desired item is created. Early additive manufacturing was first practiced in the 1980s, and has since grown into a number of industries.

DID YOU KNOW



According to a 2015 report, the 3D printing industry is expected to grow by over 31% per year from 2014 to 2020, eventually generating over $21 billion in worldwide revenue.

DID YOU KNOW

A survey revealed that 2/3 of industrial manufacturers are using 3D printing technologies.

THE PROCESS

STEP 1: CAD (COMPUTER AIDED DESIGN)

A 3D model is created using CAD software.

STEP 2: CAD CONVERSION

The CAD project is then converted to an STL (Standard Tessellation Language or Standard Triangle Language) format, which uses triangles to approximate the surfaces of the solid model being created.

STEP 3: FILE TRANSFER

The STL file is copied to the computer controlling the AM Machine/3D Printer. In this process, users can choose the size ratios and orientation for printing.

STEP 4: SETUP

The printer is filled/re-filled with the appropriate polymers, binding agents and other materials to prep for the printing process.

STEP 5: CREATION

The AM machine begins printing the 3D artwork with multiple layers of materials, each layer measuring a density of about 0.1 mm. Depending on the object being created, this process could take minutes, hours, or even days.

STEP 6: REMOVAL

The finalized printed creation is removed from the AM machine.

STEP 7: FINAL STEPS

Some post-processing is needed for the object, including brushing off excess powders or washing to remove water-soluble supports, among other needs.

STEP 8: COMPLETED PRODUCT

The 3D printed object is set and solidified, and is ready to use!

DID YOU KNOW

The top 3 most common reasons why companies pursue 3D printing are:

1. **Prototyping**
2. **Product Development**
3. **Innovation**

DID YOU KNOW

It is predicted that within the next 5 years, 3D printing will be 50% cheaper and 400% faster

INDUSTRY REVOLUTION

FOOD
Some food companies are practicing printed food techniques for creating innovative designs, shape and more.

MEDICAL SCIENCE/RESEARCH
3D bioprinting allows cells to be printed to replicate tissues, organs, blood vessels and more.

MANUFACTURING
Manufacturing processes are improving by utilizing complex 3D parts in building and allowing customized products at a cheaper cost with less required work.

CONSUMER PRODUCTS
Companies are utilizing 3D printing in electronics for more attractive designs and high production efficiency, as well as in sporting goods and children's toys.

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SOURCES:

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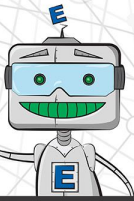

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