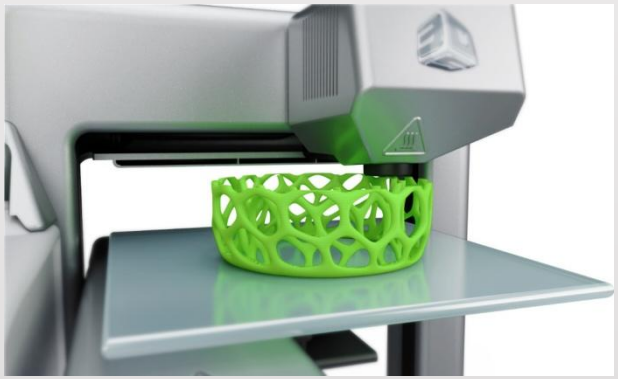
3D Printing

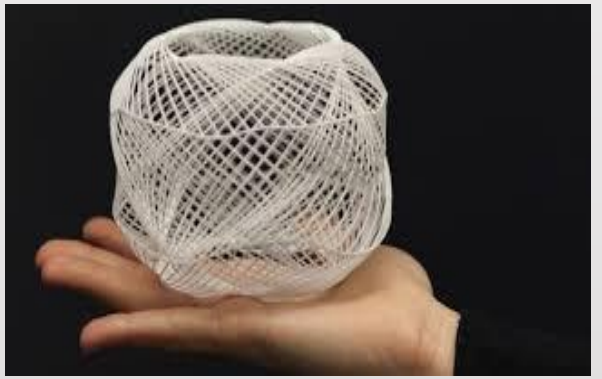
We will talk about…

- What is 3D printing?
- How does 3D printing work?
- Processes and technologies
- Examples and applications of 3D printing
- 3D printing in future
- Industry growth
- Printers from Russian producers
- Our offer and experience

What is 3D printing?

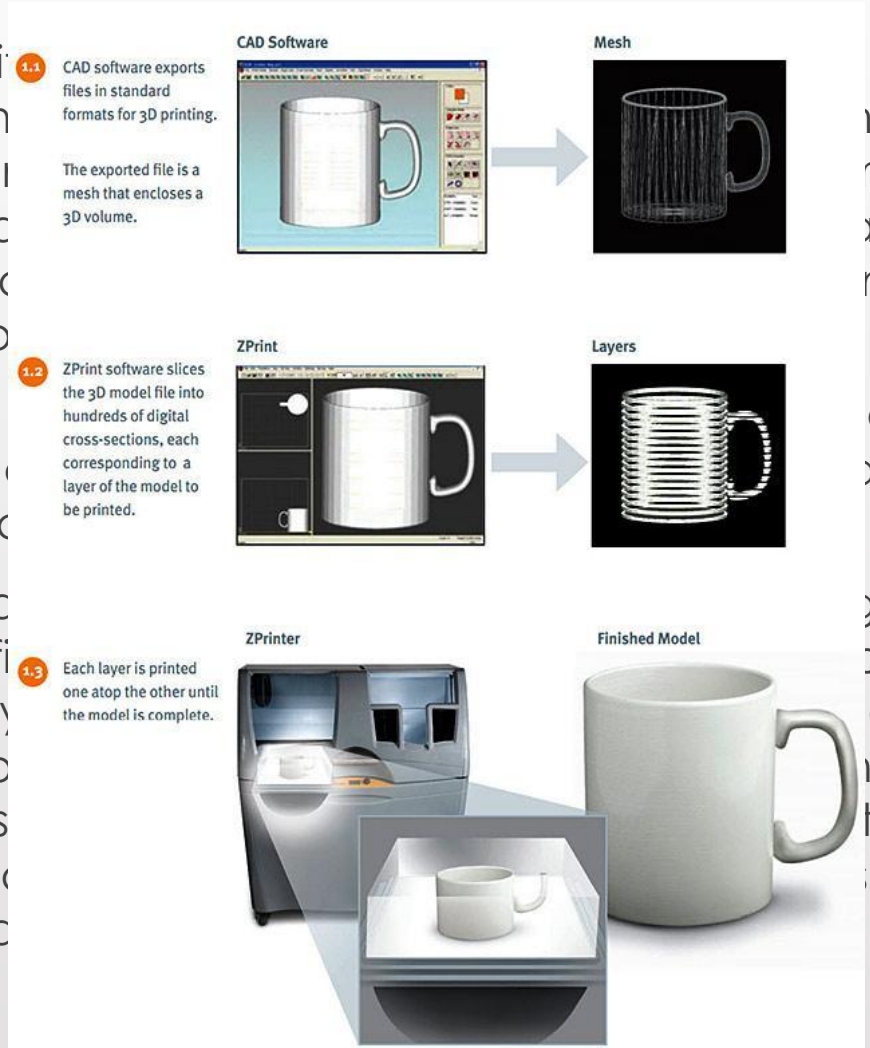
- 3D printing or additive manufacturing is a process of making three dimensional solid objects from a digital file. The creation of a 3D printed object is achieved using additive processes. In an additive process an object is created by laying down successive layers of material until the entire object is created. Each of these layers can be seen as a thinly sliced horizontal cross-section of the eventual object.





How does 3D printing work?

- It all starts wi… you want to create. Th… puter Aided Desig… the creation of … 3D scanner (to … makes a 3D digital co…
- 3d scanners … a 3d model such … light, volumetric s…
- To prepare … software "slices" the fi… of horizontal lay… a 3D printer, the … e 3D printer reads … the object, blen… ign of the layers, with …

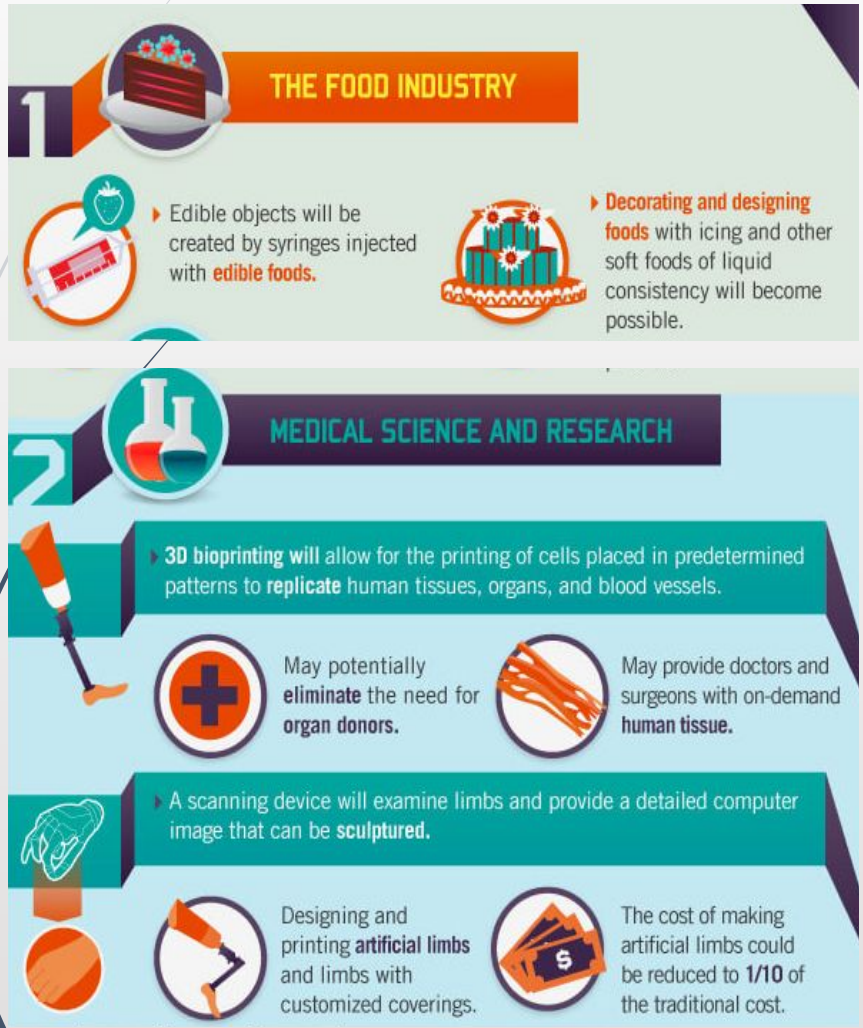


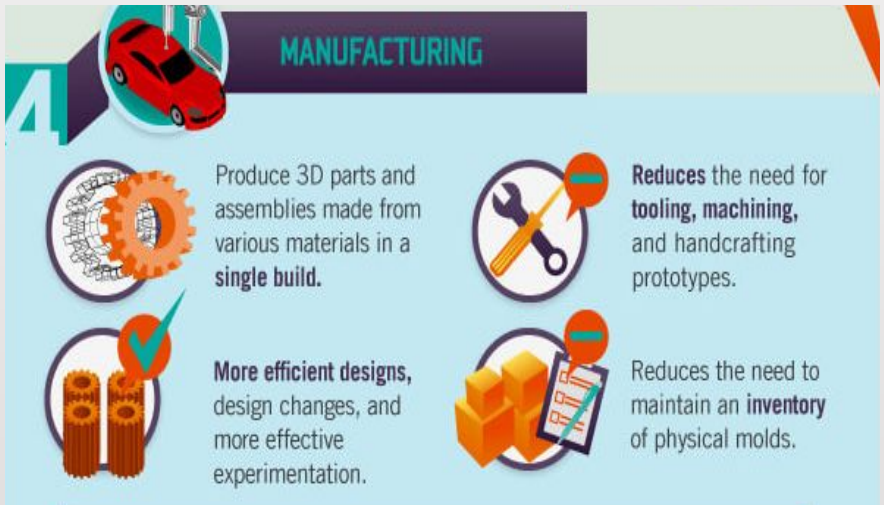
Processes and technologies

- Not all 3D printers use the same technology. There are several ways to print and all those available are additive, differing mainly in the way layers are build to create the final object.

- To be more precise: since 2010, the **American Society for Testing and Materials** (ASTM) group "**ASTM F42 – Additive Manufacturing**", developed a set of standards that classify the Additive Manufacturing processes into **7 categories** according to **Standard Terminology for Additive Manufacturing Technologies**. These seven processes are:
- **Vat Photopolymerisation**
- **Material Jetting**
- **Binder Jetting**
- **Material Extrusion**
- **Powder Bed Fusion**
- **Sheet Lamination**
- **Directed Energy Deposition**

Examples & applications of 3D printing



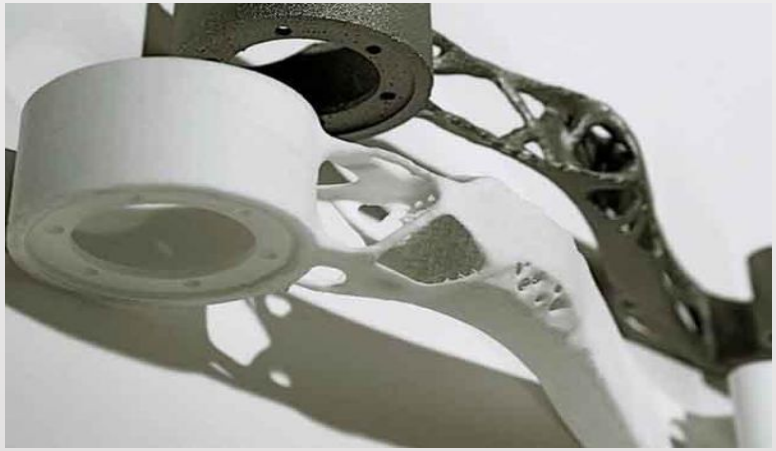


Medical industry

- The outlook for medical use of 3D printing is evolving at an extremely rapid pace as specialists are beginning to utilize 3D printing in more advanced ways. Patients around the world are experiencing improved quality of care through 3D printed implants and prosthetics never before seen.

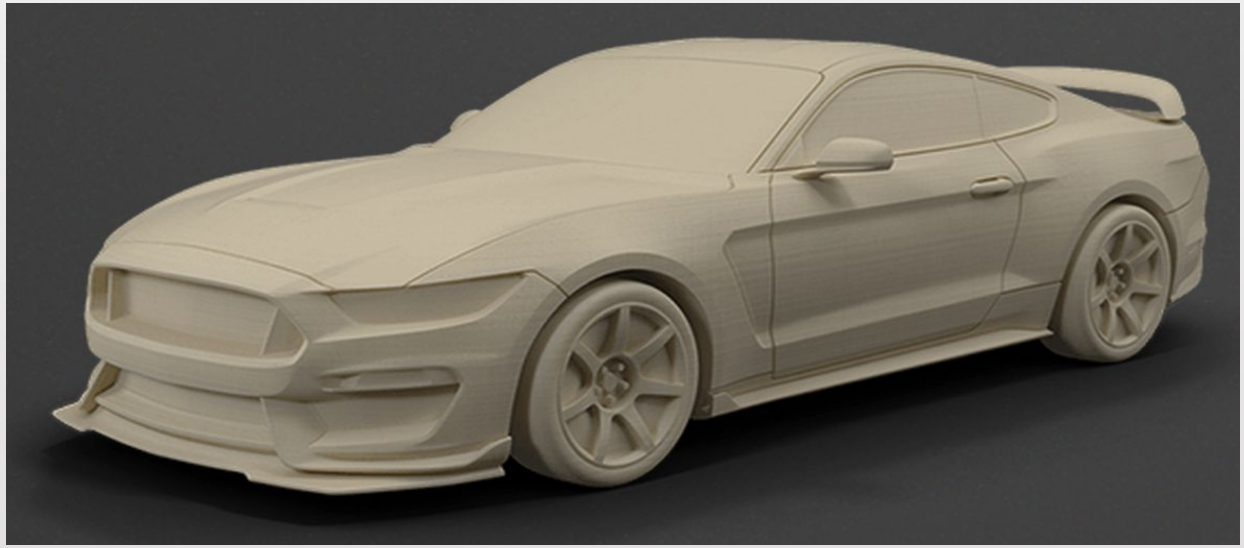
Aerospace & aviation industries

- The growth in utilisation of 3D printing in the aerospace and aviation industries can, for a large part, be derived from the developments in the metal additive manufacturing sector.



Automotive industry

- Although the automotive industry was among the earliest adopters of 3D printing it has for decades relegated 3d printing technology to low volume prototyping applications.
  Nowadays the use of 3D printing in automotive is evolving from relatively simple concept models for fit and finish checks and design verification, to functional parts that are used in test vehicles, engines, and platforms. The expectations are that 3D printing in the automotive industry will generate a combined $1.1 billion dollars by 2019.



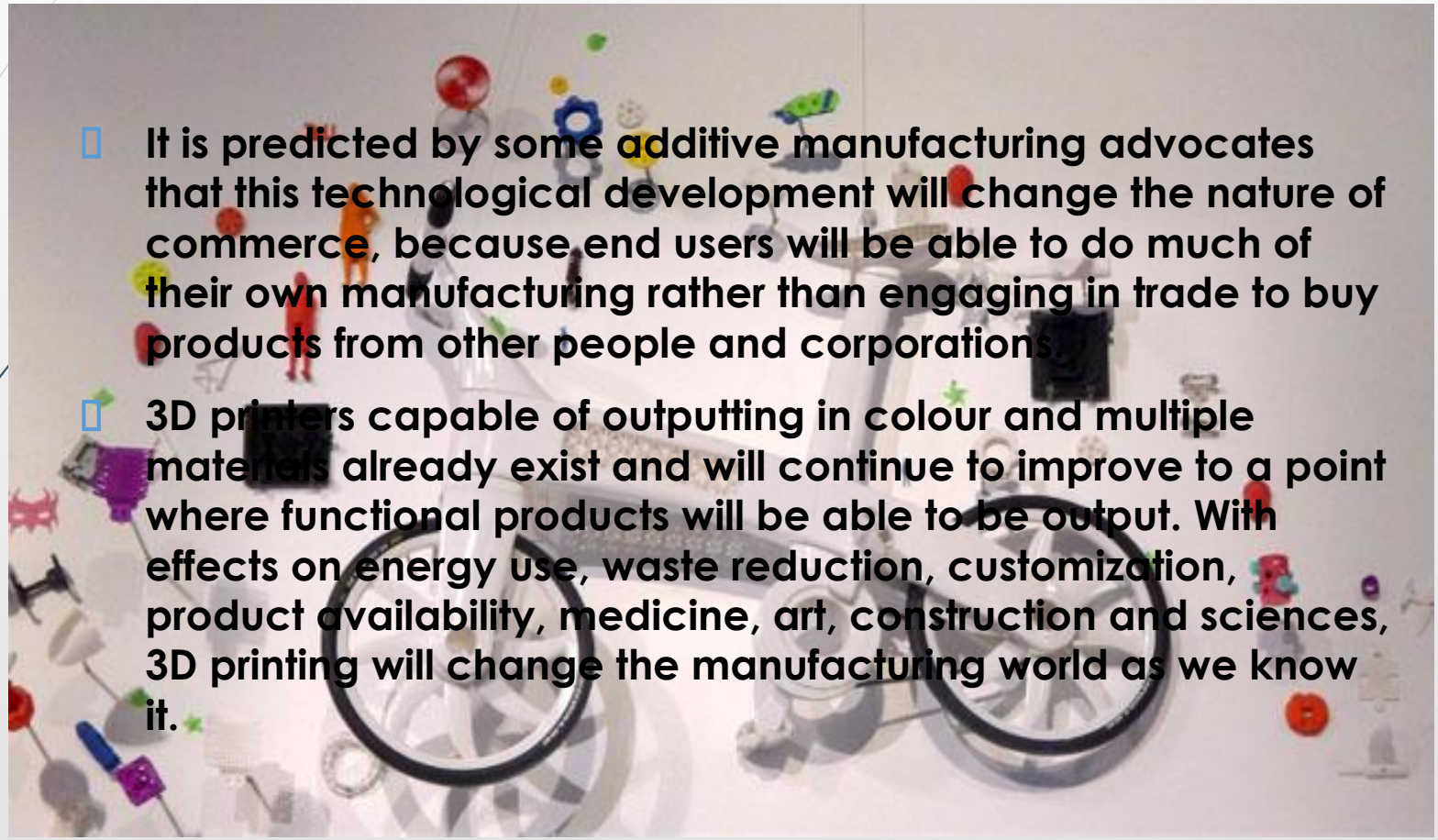
Industrial printing

- In the last couple of years the term 3D printing has become more known and the technology has reached a broader public. Still, most people haven't even heard of the term while the technology has been in use for decades. Especially manufacturers have long used these printers in their design process to create prototypes for traditional manufacturing and research purposes. Using 3D printers for these purposes is called **rapid prototyping**.

Personal printing

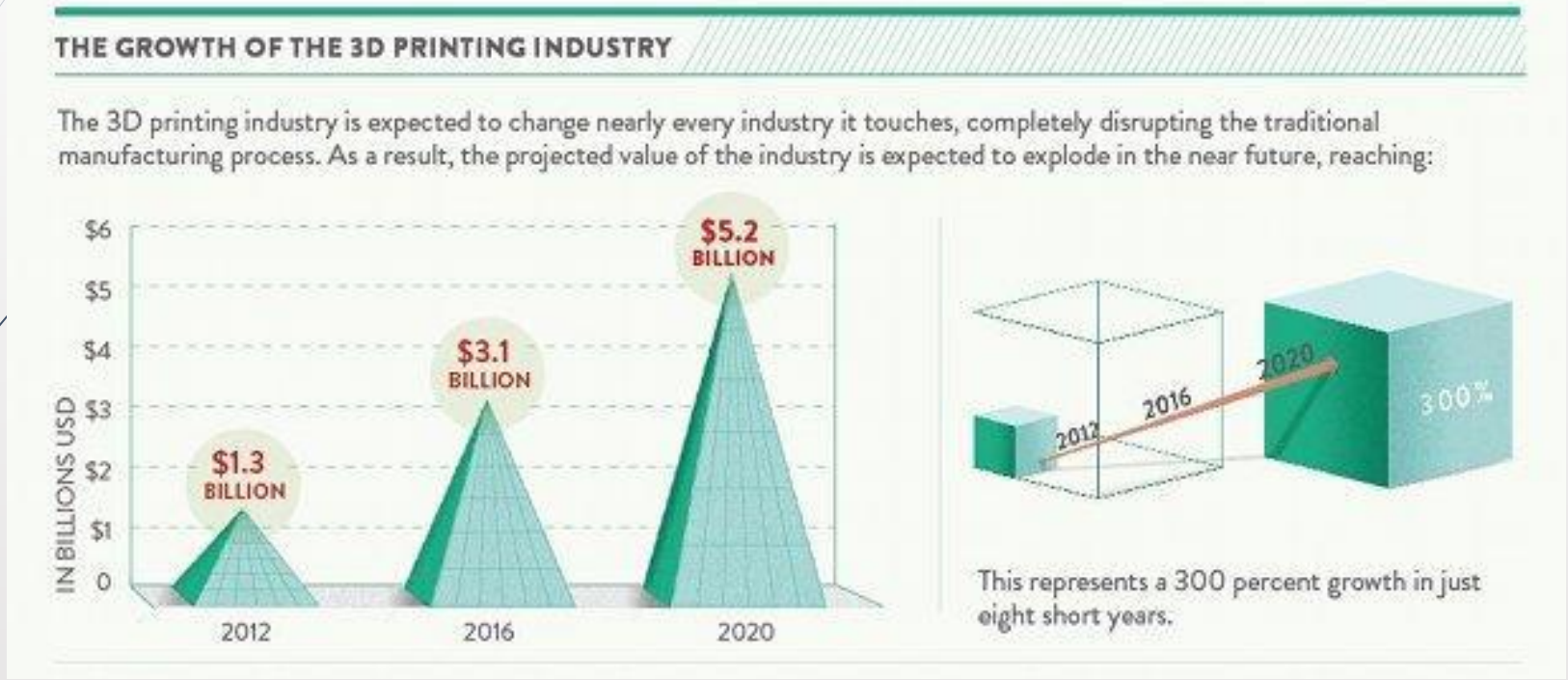
- Personal 3D printing or domestic 3D printing is mainly for hobbyists and enthusiasts and really started growing in 2011.

Future



- It is predicted by some additive manufacturing advocates that this technological development will change the nature of commerce, because end users will be able to do much of their own manufacturing rather than engaging in trade to buy products from other people and corporations.
- 3D printers capable of outputting in colour and multiple materials already exist and will continue to improve to a point where functional products will be able to be output. With effects on energy use, waste reduction, customization, product availability, medicine, art, construction and sciences, 3D printing will change the manufacturing world as we know it.

Industry growth

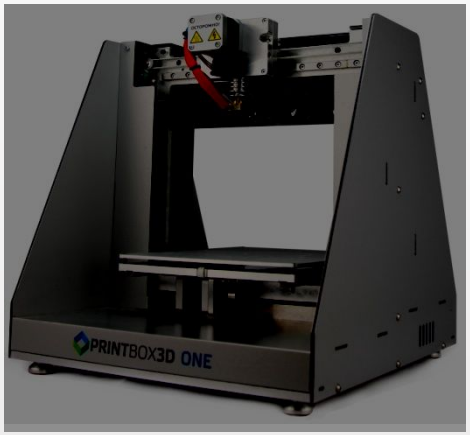


Printers from Russian producers

- Full metal construction
- The possibility to use the plastic of any quality
- High speed of printing without loosing of product quality
- Easy in service

- No name brand

We offer…



Models for Home

Our own experience in Russia

Роллтон

СБЕРБАНК РОССИИ

3D printing = all spheres of future life

https://www.youtube.com/watch?feature=player_embedded&v=UCI7BgLrk-4