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3D PRINTING: THE FUTURE OF DESIGN

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Introduction In the last few years, the great popularity and great expectations brought by 3D printing and digital manufacturing have caused a lot of questions. On one side, there are those looking at it at the "Holy Grail" which is going to positively change the future of designers forever. On the other side, there are those who deem it a frontal attack against craft skills and a human-oriented design.

The purpose of this study Find out how the 3D printer will help the designer in the future. Find information on the subject of research and all the possibilities 3D printing.

Object and subject of research 3D printing refers to processes in which the material is attached or solidified under computer control to create a three-dimensional object, usually by sequentially adding material layer by layer.[1]

Presentation of the main material Together with the 3D printer, designers have received the perfect tool for turning viral computer models into voluminous real objects. In the further development of such printing will help architects and designers to show a small volume model of apartment, furniture, design items for better understanding of customers.[2]

3D printers are actively used to create design models. Making a design model (layout), unlike the prototype, involves creating a small copy of the future product. Typically, the main task of such a model - to convey the appearance of the object, emphasize the features of design. Design models help to demonstrate the features of your solution. Such an opportunity is required in virtually in any industry. One of the most effective applications of layouts and design models is their use for educational purposes. Given the fact that in the field of materials for printing 3D printers are constantly being developed new developments, and the printing itself becomes much faster and cheaper, it is beginning to be used in a wide variety of design spheres.

If 3D printing of large-volume products is currently in its infancy, in the next future things could be different, particularly for plastic and synthetic objects manufacturing. If costs of equipment and materials will decrease, it will be indeed possible to produce items "on demand" without the need of molds, warehouses for spare parts, and large factories, since production could be disseminated into a myriad of smaller manufacturing units, substantially cutting design-to-shelf time, and almost workerless. An example of upcoming transformations in manufacturing triggered by new production technologies is that of Adidas, that is making soles for its Futurecraft 4D shoe though digital light synthesis printing units in Europe and the United States, instead of producing them traditionally in Asian factories.

The most immediate impact of 3D printing comes via modern prototyping. Using 3D printers allows designers to translate visually stunning plans into prototypes at extremely low costs. Opportunities come into play in a variety of industries; a prosthetic match, for example, can be created for an existing limb by using digital design, cutting down on multiple prototyping steps. This is a remarkable advance in sustainable design and a giant leap for healthcare. It's no secret that fuel emissions lead to great environmental costs; by using 3D printers, manufactures are able to create designs without relying on gas-guzzling transportation vehicles. Digital design and 3D printing have the potential to all but eliminate those associated fuel costs and streamline the prototyping process. About 20% of the ouput of 3D printers is now final products rather than prototypes, leaving room for even more

efficiency and impact within the manufacturing industry. Final products that would typically require large amounts of time are able to be brought to the marketplace quickly and efficiently. The introduction of 3D printers to the marketplace has profoundly revolutionized the way we view technology, labor, transportation and manufacturing. Localization of goods and services has been a hot topic in almost every part of the world—whether through the Slow Food movement or the push to bring manufacturing back to US communities. If we review the potential for raw printed materials such as metals, we predict building projects and homes will be completed with higher efficiency and speed.

Therefore, in the near future, we expect a significant rethinking of many processes of production. Obviously, things will become more accessible and unique. And this can completely change both the world economy of consumption, and actually our life.

Conclusions In my opinion, the future of manufacturing is bold, bright, connected and highly efficient. As the world becomes more integrated and data-driven, companies will be able to adopt new technologies at a pace that the world has never seen. Custom design, localized manufacturing and distributed supply chains will drive us into the future. People from all walks of life with an idea will be able to make their dreams into a reality. New and advanced companies will populate at a rapid pace, and their drive to get it done will be more accessible than ever. Thus, 3D printing can provide great freedom to independent designers and small businesses, which will be able to go from concept to production almost in real time; 3D printing will prove capable to enhance creativity and provide new opportunities to open-minded designers.

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