

## How 3D printing improves the quality of our lives

3D printing is a technology that is being used more and more effectively in various sectors of the industry. But how can we feel its positive impact?

In order to answer this question, it is good to present examples where 3D printing and the achievements of engineers have brought noticeable improvements in products, by increasing their quality, reducing their price or by giving them new innovative qualities.

When looking for sectors that we can consider as having a strong impact on human life, there is definitely the medicine and its achievements in terms of increasing the length and quality of life. 3D printing also has its place here. An interesting example of influence on this sector is its achievements in the field of orthopaedics.

However, how can prostheses, orthoses and other specialist apparatus, printed with 3D technology, be better or at least in some way competitive with those already produced?

Well, above all, their production is much faster. It is estimated that thanks to the use of 3D technology they are produced up to 35% faster than by other production techniques. Shortening the time of production is one thing. Another is the fact that the quality of this prosthesis and the way they are constructed also allows for shortening the doctors and prosthetics work time. Apart from the advantages mentioned above, it can be noticed that they are more and more economically profitable<sup>1</sup>.



*Figure 1 - Prosthesis. Source: <https://www.pikist.com/free-photo-sewqc>*

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<sup>1</sup> ORTEZY I PROTEZY DRUKOWANE W TECHNOLOGII HP MULTI JET FUSION 3D NAPRAWDĘ POPRAWIAJĄ JAKOŚĆ ŻYCIA! (n.d.). Retrieved from: <https://hp3d.pl/blog/ortezy-i-protezy-drukowane-w-technologii-hp-multi-jet-fusion-3d-naprawde-poprawiaja-jakosc-zycia/>

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Other examples that show how 3D technology affects this sector include: hearing devices, printed parts of jaws, bones or even skulls.

Essential for medicine is of course education. 3D printing in medicine education, providing students with models of body parts allows for better education and practical experience. This allows them to acquire practical skills and better understand the anatomy of organs prepared by 3D printing. Of course, there are still many limits that need to be overcome, such as, for example, those concerning the appropriate structure of products that imitate human organs (although flexible materials such as silicone are already being used in printing) and allow medical operations to be simulated on them (such as cutting and stitching)<sup>2</sup> but the pace of development of this technology is very fast and the prognosis as to what applications of this technology in the wider context of student education are very good.

If you are interested in what sectors are influenced by 3D printing and what are the next possible applications of this technology, then follow our project because it will soon appear one of our output - "3DP TEACHERS' GUIDEBOOK". Make sure you are following the "3DP TEACHER - implementation of 3D Printing in future education" project's [Facebook page](#) to be the first to know when the guidebook is published on [project's website](#).

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<sup>2</sup> Garcia J, Yang Z, Mongrain R, et al 3D printing materials and their use in medical education: a review of current technology and trends for the future *BMJ Simulation and Technology Enhanced Learning* 2018;4:27-40.