

3D Printing – Is 3D Printing a sustainable manufacturing method?

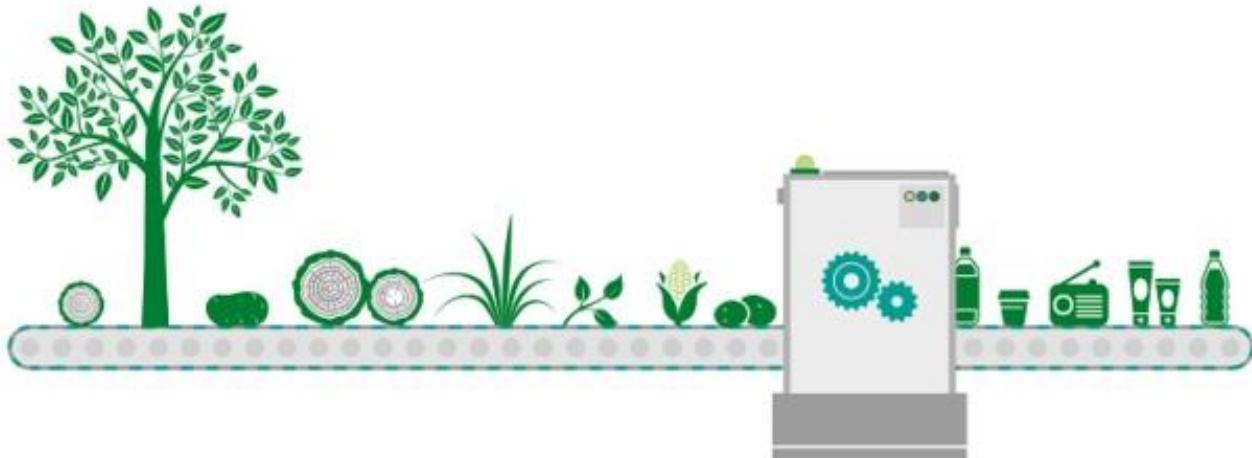


Figure 1 - 3D printing and Sustainability. Source: (S., 2018)

3D printing (3DP) is heralded as one of the technologies that will enable smart and sustainable manufacturing processes due to two reasons: the first reason is the reduction of waste and its capacity of reusing plastic waste; and the second reason the accessibility of 3D Technologies allowing manufacturers the direct production, which reduces logistic costs. 3DP suppose reduction of waste because in the production process the materials used are only the materials needed and the use of plastic is reduced because the plastic is converted into printing filaments such as the OWA filament range. However, the idea of a wasteless process is facing controversies considering that 3D printing on-demand and rapid prototyping can potentially lead to an increase in the number of disposable consumer products even if nowadays exist filaments based on hemp or biodegradable PLA.

Despite the controversies surrounding 3DP printing, it can be described as design, efficient technology including topology optimisation processes due to which is possible to create more efficient designs with optimised shape and weight. Furthermore, the 3DP process and technology liberates creativity and offers a higher range of performance to the industry that operates with it.

The 3D printing brings the following points for the sustainable development of the industry:

- ~ Reduced Shipping Needs
- ~ Reduced Waste
- ~ Sustainable Material Options

- ~ Reduced Energy Use
- ~ Environmental Challenges



Figure 2 - 3D Printing. Source: (Pexels, 2020)

In conclusion, 3D printing is becoming more popular due to the ability to create rapid prototyping, increase supply chain efficiency, reduction in production costs, and manufacture unique items. In addition, regarding its impact on the environment is important to consider the type of materials used.

It is possible to find more information about 3D printing, including applications, trends and its benefits for Education in the “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](#).