

Materials

[Engineering](#)



Engineering and Construction Materials Markillie highlights the role of digital transition in the manufacturing sector and the third industrial revolution. Manufacturing tools are undergoing changes in a manner that will transform the nature of work in the sector. Past engineers used drills and moulding machines in manufacturing processes. Current engineers, however, apply automated machines in undertaking manufacturing works. Old machines are no longer applicable in the manufacturing process; automated machines outdo the role of old machines. Markillie emphasizes on the introduction of 3D printers among other new automated set of machines applied in manufacturing (1). 3D printers are efficient and simplifies most processes during manufacturing; they can easily build things compared to old machines. Consequently, introduction of automatic machines will increase the cost of production. Automated milling machines have rendered factories efficient in their manufacturing processes. Most modern products cannot be manufactured using old machineries (Markillie 1). There is a corresponding change in the materials used in making modern products such as carbon-fiber composites. Software use in factories is increasingly gaining precedence in modern societies. Social manufacturing is equally gaining prominence in the modern world. The third industrial revolution will benefit developed countries, according to Markillie.

Application of 3D printers renders most industrial processes simple and easy to undertake. 3D printing functions through progressive processes of layers based on information provided by computer programs. Different designs supported by software applied in 3D printers work by piling materials in successive layers. In other situations, 3D printers may use powder as the materials applied in manufacturing. The process involves spreading powder

on thin layers of build trays and an additional squirt of semi-liquid or liquid binders. The process may also involve laser sintering; melting into the required shape. Other additional materials or unfused powder is applicable to strengthen complicated structured built using 3D printers. Diverse materials can be printed using 3D technology including ceramics, metals and plastics. 3D printers can also combine materials to enhance their strength and rigidity. 3D printers are also applicable in the production of living tissues. It is possible to print food, as well, using 3D technology. Based on research, it will be possible to make other large body organs in the future using 3D printers. Additive manufacturing using 3D printers continues to gain prominence in different industries. 3D printers require few personnel to control and monitor the processes. Only two people can monitor several processes involving the manufacture of different products using 3D printers. Since its invention, 3D printing continues to gain use in making different products because of technological advancements. Additive manufacturing is becoming robust and of extensive application because of advancements in technology. 3D printing cuts cost of on-off prototypes. 3D printing is cost-effective for both large-scale and low-volume production processes in the manufacturing sector. Additive manufacturing simplifies the production of other things previously considered as complex. It saves on material costs. In addition, products produced through 3D printers have organic and natural appearances. Additive manufacturing technology applied in 3D printers is likely to encounter challenges with structural metals. Additive manufacturing is cost effective and has high likelihood for preference by companies over structural metals. Products made through additive manufacturing have outstanding appearances compared to those made by structural metals. Companies are <https://assignbuster.com/materials-essay-samples/>

likely to prefer additive technology to structural metals because it is fast. Additive manufacturing saves on material costs hence many companies may prefer it to structural metals. While structural metals are not economical for low-volume production, additive manufacturing is highly suitable. Additive manufacturing, therefore, is preferable. Contrary to structural metals, additive manufacturing allows customization of products.

Work Cited

Markillie, Paul. A Third Industrial Revolution. *The Economist*. April 21, 2012. Web. June 27, 2014. Accessed from: <http://www.economist.com/node/21552901>