

The impact of 3d printing on supply chain and logistics research papers examples

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3D printer, is a unique printer that prints each layer of the material until a product is created. It builds up layers of different materials such as ceramics, plastic and metal powder. His main goal of its crating in 80s was the maximum relief of working process at the stage of prototyping and product design, as with its help a tangible example of something could be easily created. (Manners-Bell et al. 2014). As time goes by, technology does not stand still, and now 3D printers are considered to be a serious revolutionary breakthrough that can change the operation of the supply chain.

Here is an example: a major ship-owner company operates several dozens of ships. These ships have a bad habit to break at the most inopportune moment. But what if an important detail broke down in the open ocean?

There is an option to carry a stock of spare parts, missing the profit, because instead of parts you could plunge the precious cargo. The express delivery of the item by air is a loss of time and money for the maritime logistics. Here is a solution how the 3D printer can help. Each ship has an installed printer that is remotely connected with the main office. If any damage to the ship occurs, the the drawings of the broken part i sent to the printer, this part " grows" and then gets replaced. Of course it seems like something that is hard to believe in, but, Maersk has already officially stated that it began to test this technology for solving complicated problems with the logistics of spare parts for their ships. (Krassenstein, 2014).

Purchase of spare parts as a challenge for 3D printing

What do spare parts and printers have in common? Purchase of spare parts is one of the most difficult areas in logistics and supply chain management.

Downtime (approx. the time without work) of the equipment, machine or

mechanism due to lack of spare parts in stock can be calculated as loss of millions of dollars! What to do in order to always have the needed part in stock?

Often, while conducting tenders for the supply of major equipment or machinery, the existence of a set of basic components and spare parts for the warranty period is separately specified in the contract. The manufacturer takes care of the smooth and unstoppable operation of expensive equipment, but only for a while. After 3-5 years, they are left alone with the problem of how to ensure the equipment/machine/machinery spare parts", and then the manufacturer starts using its often uncontested position.

Purchase of spare parts is a complex process. Recently, an innovative method of solving this problem to the existing ones – production of parts using 3D printers.

Airbus, the manufacturer of commercial airplanes is already saving millions of dollars on production of parts using 3D printing. However, the plans of this company go far beyond the production of spare parts. They say they are considering the development of the aircraft entirely on the technology of 3D printing. (Simmons, 2015)

Formula1 teams claim that 3D printers are the future of racing, when they will be able to print any damaged part of the car.

Maersk, Boeing, General Electric – the list goes on!

If to believe the figures, a golden era for metal 3D printers is coming.

Compared with 2013, 2014 shows the 70% growth of metal 3D printing.

Metal 3D printing is interesting because it helps to achieve substantial savings, primarily in supply chain management. There is no need to order

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parts in advance, to keep a stock of spare parts, and then try to effectively manage them. If the part is required – just print it!

This is what should be expected from the major players on 3D printers market in the real sector of the economy.

3D printers that produce metal products, become reality. Shift production scale is only a matter of time and the optimization of existing technologies. Right now it is a very interesting decade, full of inventions, and it will definitely show more than one technological method of reducing costs and streamlining of logistics.

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