

A flexible, reliable and efficient service organization which operates round the clock is very much in demand by purchasers of high-quality, innovative machinery and equipment. This is frequently the only differentiation which sets a company apart from the competition, and in addition, is also a profitable contributor to the bottom line. This is why spare parts logistics is considered to be one of the core competencies in the field of logistics.

## 3D-printers will have a significant impact on spare parts logistics of the future

What began with the filing of a patent application by the American inventor Charles Hull in 1986 has triggered enormous momentum over the last few years and the phases of development are becoming shorter and shorter. The 3D-printer has arrived in the field of logistics and places a large question mark over existing spare parts concepts for the next few years. And the possibilities which this technology opens out go even further. Products can now be individually customized to the requirements of the consumers. The consequences are less transportation, lower inventories, lower safety requirements, less waste, higher flexibility and lower complexity in the Supply Chain to mention just a few points.

(Gartner's Hype Cycle for Emerging Technologies August 2013: Enterprise 3D Printing 2-5 years; Consumer 3D Printing 5-10 years)

## Products

The discussion as to which products are suitable is controversial. At the present time it may not even be appropriate to answer this question conclusively. In addition to plastics, current printers are in a position today, to print metals, rubber, and ceramics and the quality keeps getting better.



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For example, at the ABB Technical College budding designers are working on various 3D-printer applications ranging from CAD design to production. What is being created here - functional while still in its preliminary stages - is a development phase for the future of "Spare Parts Logistics on Demand".

What can put the brakes on its development is the trend toward low-cost printing but with expensive materials, as we already know from conventional printers.

## Supply Chains of the Future

The pressure on traditional supply chains will increase. The focus will no longer be on mass production, but rather on local production with customization to customer requirements, with short lead times and lower administrative expenses.

Local 3D print shops will come up wherever SMEs, developers, consumers, architects etc. operate.

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The roles of logistics service providers and freight forwarders will change. UPS has already reacted to this new development. In the United States the company offers printing facilities to start-ups and SMEs as a pilot project at some locations.

### Challenges

There are people who say that this technology will change the world to an even greater extent than the Internet. But there are numerous challenges which must be overcome first.

In addition to quality standards which can no longer be independently verified, there are patent issues, product piracy issues and security concerns, since even weapons have been produced with 3D-printers. Even the World Customs Organization (WCO) is seized of this topic. The issues include loss of revenue, export control, public safety and illegal use of blueprints.

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