

# POTENTIAL FOR CREATIVE TRANSFORMATION

More than just gimmicks – the use of 3D printing components in industry

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Passengers with Dutch airline KLM can enjoy a very special service. Up in the skies the cabin crew serves ice-cold beer from a beer trolley that was made by a 3D printer. However, the “BrewLock Keg” the will remain a “3D printing gimmick” for the foreseeable future due to its high cost of manufacture. It remains to be seen whether series production will be cost-efficient.

However, this example of use demonstrates quite clearly how the subject of “additive manufacturing” is perceived today. While the public often see exotic printed products like mini portrait statues, or now beer kegs, as expensive one-off fabrications without the potential for series production, industry has already moved significantly farther. For example, the cabins of two A350 XWB passenger airliners that Airbus delivered to Qatar Airways at the end of 2014 each contain over 1,000 parts made from thermoplast that were produced by 3D printing. Besides making the supply chain more flexible, this is meant to significantly cut production times and costs.

These and other benefits are of course attractive not just for aerospace companies alone. The semiconductor industry, the automotive sector and medical engineering are already among the growth markets for 3D printing methods. “3D printing has the potential for the creative transformation of traditional engineering and manufacturing processes – even in key industries that have so far seen the subject as exotic or of limited

interest,” says Anselm Magel, expert for 3D printing at ROI Management Consulting AG. “There are various scenarios of application along the value chain that may be a suitable point of entry. Two areas of application can be profitable in particular – design optimization and lightweight construction design of components, as well as shortening paths in the supply chain.”

It is crucial to focus on the functional benefits and cost drivers for components. What superior functionality can be designed? What parts are particularly complex and therefore expensive to manufacture or maintain? Are there high fixed costs, e.g. for tools? Which components are produced in small numbers? How can individual customer requirements be met? Switching to additive manufacturing can open up significant opportunities in all

these areas – opportunities that you will recognize when you are open for change and prepared to experiment.

Additive manufacturing also shortens the supply chain. Critical parts for the manufacturing process may be produced in house instead of purchasing them from a single source of supply. With just-in-time production of parts using a 3D printer on premise may in future avoid long delivery times for spare parts that cause high downtime costs.

“Current developments entailing repeatable manufacturing processes, reproducibility on other machinery and higher-quality results will trigger further market growth,” Magel points out. The future viability of the technology is confirmed by the market entry of a global company like General Electric (GE). The industrial giant plans to generate annual sales of a billion dollars with products from 3D printing processes within the next four years. In addition, the technology is supposed to reduce the corporation’s material costs by up to five billion dollars until 2026 – which is anything but a “gimmick” in terms of the bottom line.



3D-printed components from the ROI IoT Fab