

Home 3D Printing: The Next Innovation in Consumer Retailing?

by Elizabeth Blessing

If the terms "personal manufacturing" and "additive manufacturing" don't mean much to you now, just wait a few years. These terms refer to 3D printing, a rapidly growing field that uses modeling software and specialized printers to create solid, three-dimensional objects.

Manufacturers began using 3D printing in the 1980s to create quick prototypes of products in the research and design phase of development. Some manufacturers now use 3D printing to produce customized consumer and medical products.

For example, shoe manufacturer, Nike, created football's first [3D printed cleat](#) for use by NFL players. Forbes recently reported on [eyewear companies](#) using 3D technology to "print" individualized, on-demand glasses.

Doctors in the Netherlands used the technology to create a [plastic 3D printed human skull](#), which they then used in a surgery to replace a patient's deformed skull.

Popular Science listed the [five body parts](#) that scientists can now create using a 3D printer. These body parts are ears, kidney cells, blood vessels, skin grafts and bones. Labs are working on the technology to print human organs that they hope will save the lives of patients in need of transplants.

Coming to a Home Near You: Products on Demand

Amazingly enough, the day when the average consumer will be able to produce their own customized, on-demand products using 3D printers is closer than you might think.

Scaled-down versions of 3D printers are already available for the home consumer market. On Amazon, you can find kits containing all the parts you need to build your own 3D printer for as little as \$350. Fully assembled desktop printers cost between \$400 and \$2,000.

To get a basic understanding of how a home 3D printer works, imagine an inkjet printer affixed to a moveable carriage over a platform. As the printer moves back and forth over the platform, it deposits micro-thin layers of material (usually a plastic-type polymer) onto the platform.

The printer receives its instructions from a computer aided design (CAD) program that provides the printer with the digital blueprint of what it's producing, including the size, shape and density of the object.

While these personal printers may be for the hobbyist and early adopter groups today, there are those who predict 3D printers will someday be a common household appliance, similar to the microwave.

A study conducted by researchers at the Michigan Technological University ([and reported by CNN](#)) concluded that consumers could save thousands of dollars each year using 3D printers to home manufacture common household objects, replacement parts and toys.

The most significant savings were for customized products, such as orthotic insoles for shoes. While custom insoles can cost \$500 to \$800, the researchers found that a 3D printer could produce a pair for about \$2.

Despite the potential cost savings, not everyone will be enthusiastic or able to home produce their goods. Another approach is to have 3D printing stores (online and/or within retail stores) provide consumers with this service.

As the technology improves, Henry Ford's production line model of manufacturing might find its match in 3D printing. Large factories and mass production may soon give way to a more personalized, eco-friendly manufacturing model where the consumer's desire for customized products rules the day.