



3D Printers And The Consumer – So What?!

By Dr. Ronald L. Hollis, President & CEO, Quickparts

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3D printing is the hot topic in the press today. With movies like Avatar, it is hard to read the latest news and not see 3D blasted everywhere. Turns out this topic of 3D is also very hot in the engineering world.

The proliferation of the amazing world of 3D printing has begun and moving up the exponential growth curve. Companies like Hewlett-Packard (HP) have fully entered the market with the distribution of the Stratasys (SSYS) uPrint.

They estimate a market supporting over 50,000 units per year. Of course they are just the beginning since their competition can't just stand around and miss this opportunity.

So, there will be new partnering and distribution agreements from other printer giants with other 3D printer manufacturers, such as Objet, to take their share of this hot and growing market.



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So, as the buyer of goods, consumer of products, the reason product developers have jobs, your question should be, “**So What?!**”

This is a great question, so let's address it here. 3D printers empower the designer with the ability to transform his virtual design to real parts with the click of a button. The printer is near his desk and he is able to “print” at his leisure.

Of course, the designer can already make this transformation today, however he must prepare his models and send them to an outside firm like Quickparts.com that can build his models in a couple of days and get them back. This is relatively slower than printing at your desk, and it is expensive. It is very analogous to why many of us have black and white laser printers on our desk and have access to the high end color printer elsewhere.

If you have ever written much that others will be reading, it may be common for you to write and edit, then print out a version to edit again. For me, I always see words differently in print and make many edits to the final version. Perhaps it is my generation, but I rely on the physical to get the full appreciation of the virtual.

3D printers do the same thing for the designers; however, they are assessing very complicated information that is very difficult to interpret in a 2D representation of the 3-dimensional object. Also, with the model in hand, the communication with the other experts on the team is much improved.

Back to the question...when practically every designer has a 3D printer in their office and they are printing away at their designs, what does this mean to the consumer or buyer of their products? How does the engineer or designer having more toys help me?

Well, turns out the proliferation of 3D printers in the design world will have a similar impact as that of CAD with 3D Solid Modeling did over the past two decades...in a nutshell, you will get more, better, faster.

Products will get to market faster. Designers will be able to develop more complicated designs faster. With the power of the printer being in the hands of the designer, they will be able to go through many more iterations without the impediment of others. Just as the writer can print out a draft on his printer and use the trusty red ink pen to mark it up and make it better.

All of these iterations are taking place with the designer/author without others even knowing what his happening. So, no more waiting to see what the parts look like in the real world.

Products will be designed better. Designers will be able to open the door of design communication by having the actual product in their

hands. They will be able to keep putting the design in their hands over and over again with their power of printing the designs.

The ability to design for ergonomics with complex organic shapes will expand with the risk of the design being mitigated in the design process instead of waiting for manufacturing.

The ability to fully verify interactivity between mating and non-mating parts will be easy to do the first time as well as the tenth time. The full power of CAD design will be able to be transformed into final products since the final product can be validated in the office of the designer well before the long, arduous trip to the manufacturing floor.

Products will be smarter. Since the designer will be able to fully transition from the virtual world of CAD to the real world of parts and prototypes, the power to implement more features into a simple design will be available.

Designers will be designing for more efficient manufacturing to make the product more economical, more environmentally friendly, and more aligned to the actual end users. It will not be the one-size-fits-all world of today, but a plethora of designs and options.

As the consumer, much of this topic is just gee-whiz stuff that is cool but does not apply directly to your world. This is the stuff of the Discovery channel. However, the world has evolved such that this stuff is part of the everyday for the designer working to produce the best product for their customers.

Also, for the futurist reader, we are at the beginning of the technology curve for true mass customization. A kid at home will be able to design his favorite toy of the moment in an online CAD design application and then "print" it in the family 3D Printer. How cool is that!

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problem is with 3D printing in this economy and even when times are good, it is still too expensive. we have two machines in-house that pay dividends vs. going outside for this service. but obviously, you have justify the capital and maintenance to have this very nice capability in-house.