Product Development 2.0

Internet-based tools are democratizing making and distribution

by Blaine Brownell

Until recently, making and distributing a new product have remained costly and difficult parts of the design process for new, individual designers. But a new crop of digital fabrication technologies and online distribution channels has the potential to upend the economics of bringing products to market. The result may be a "long tail" effect: new internet-based product development tools potentially will allow some designers to gain unprecedented market penetration.

Making Made Easy

Laser-cutting, 3D printing, CNC routing, and other computer-aided manufacturing (CAM) technologies have been warmly embraced by designers, extending the power and accuracy of design software into the material domain. As these systems have become more affordable over time, they have also become an accepted part of designers' prototyping toolkit. These processes bring complex geometries within reach and save time and money compared with hand-tooling techniques.

Modeled after increasingly popular do-it-yourself and self-publishing services, "make-it-yourself" sites that utilize these technologies have become powerful allies to emerging designers. Rather than paying expensive setup costs involving dies and jigs (not to mention large-volume material procurement and storage), designers can produce small quantities of products more independently and at relatively low cost.

One such site is Ponoko, the self-labeled "world's easiest making system." Ponoko is a digital portal for designers, digital fabricators, material suppliers, and consumers. Designers can upload their creations in the form of laser-cut templates that are priced, processed, and shipped. Not only can this service facilitate prototyping and testing, but it can also serve as a vehicle for designers who wish to sell their works online. Since its 2007 inception, the New Zealand-based company has produced over 30,000 fabrications for "makers."

Nervous System is a design company that uses Ponoko to manufacture and market a series of experimental jewelry inspired by patterns from nature and computation. Their delicate designs are often made from nontraditional materials and the results are quite beautiful: a stainless steel pendant that looks like coral, a honeycomb-like bracelet of silicone rubber that distorts and stretches as you wear it.

According to Nervous System co-founder Jesse Louis-Rosenberg, Ponoko's greatest strength is its focus on the needs of designers. The clarity of their business model and willingness to meet evolving manufacturing needs are huge benefits when compared with more traditional and less-flexible laser-cutting manufacturers.

For example, Ponoko agreed to laser cut felt at their request even though it had never done it before. While felt traditionally would be die cut, laser cutting offers a more affordable but challenging alternative given felt's flammability. The agreement allowed Nervous System to create its Radial Necklace, which has a lace-like pattern based on a model of a radial spring mesh under tension. Now, Ponoko offers felt as a material option to all designers.

"Laser-cutting manufacturers have been around for a while," explains Louis-Rosenberg, "but they are often traditionally minded, harder to work with, and not focused on the consumer. At the core, Ponoko is just a manufacturer, but instead of focusing on engineers or professionals they focus on making it easy for anyone to access the technology."

Services like Ponoko potentially allow designers to reach a wider audience as it enables them to cater and optimize small batches of products. With no overhead costs, Nervous System can manufacture its products as demand dictates instead of committing to quantities in the hundreds or thousands.

Although Louis-Rosenberg does not envision Ponoko becoming a versatile marketplace on par with online stores like Etsy, he claims that the service

does enhance the designer/consumer relationship. As he puts it, "For some things mass production will always be more appropriate, but what I really hope to see in the future is designers and producers being closer to consumers… [as] consumers [get] a better understanding of where their products come from and how they are made."

Ponoko has also recently joined forces with CNC router company ShopBot to launch the 100kGarages project, a platform that will harness the power of 100,000 fabricators, welders, sculptors, and other small-scale builders throughout the world to make products for designs submitted through Ponoko's web portal. This concept not only turns centrally based manufacturing on its head; it also promises to reduce transportation costs for products sold to designers located near each "garage." Such a model would have been unthinkable with traditional mass production, in which specialized machines and well-trained labor have helped to ensure quality control. With 100kGarages, precision is controlled largely by machine-driven processes, allowing fabricators to be more involved with assembly and finishing.

Crowdsourcing Product Development

Another notable service is Cuusoo, a Japanese company ("dream life" in English) founded by industrial designer and businessman Kohei Nishiyama that provides a bridge between budding designers and large manufacturers. Users upload designs that are seen and voted upon by a growing designer and consumer community. Designs that receive enough votes move to a second round in which manufacturers begin evaluating the products' economic viability. The works determined by Cuusoo's online network of 20,000 members to be the most promising are ultimately picked up by large retail chains—avoiding the hefty investments required by conventional product development and market research methods. Cuusoo thus taps the collective energy of a burgeoning online community to test and validate designs.

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Cuusoo presents other economic benefits as well. According to Nishiyama, "The cost of inventory doesn't exist anymore because the products are all virtual until they are ordered. Also, the resources are endless—because in this case, the resources are the brains of the users, which are unlimited in their capacity to generate ideas." The users in this case are the designers as well as the potential customers, who are all actively involved in the design development process.

While this crowdsourcing model has already proven successful with sites like Threadless, the open T-shirt design community, Cuusoo demonstrates that it is viable with other products as well, with close to 600 currently waiting to be commercialized. By 2007, Cuusoo had brought 20 products to market and five generate stable revenues.

No longer are designers limited by mass production, required to single out one idea from many, leaving countless untested alternatives on the table. Although it is still early to make a comprehensive assessment of these services, the change is already palpable. A broadening spectrum of creative artists, craftspeople, and industrial designers are participating in a compelling new form of production that may ultimately transform established methods of product conception and realization.

For more information visit:
http://www.ponoko.com
http://www.cuusoo.com