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INNOVATION ECONOMY

Figure friendly

3-D printing migrates to consumer market

By Scott Kirsner | September 7, 2008

Z Corp. plucked a futuristic technology from the labs of MIT - a printer that can produce three-dimensional objects, in color - and built it into a \$60 million-a-year business. Companies like Reebok, [Raytheon](#), and [Avid Technology](#) use the printers to create prototypes of new products, quickly and inexpensively.

Now, Z Corp. chief executive John Kawola believes the company's next big opportunity lies in targeting a surprising customer base: not product designers and mechanical engineers, but video game players.

Starting with the release of the game Rock Band 2 this month, players will have the option of purchasing a collectible plaster figurine of the character they create - whether it's a lead guitarist with a Mohawk or a screeching lead singer sporting a skimpy bikini top. (The game is produced by Cambridge-based Harmonix Music Systems, a division of [Viacom Inc.](#)) The \$75 figures will be produced at Z Corp.'s Burlington headquarters and shipped to players about a week after an order is placed through the Rock Band website.

"3-D printing should migrate anywhere people are using 3-D data," Kawola says, envisioning the new venture as something that could generate "\$20 million, \$30 million, \$50 million in revenue" for the company. It might also encourage others to buy Z Corp.'s printers to set up similar printing operations. One Seattle-area start-up already has, and it has discovered far more demand than it can handle.

Z Corp. was founded in 1994 to commercialize a technology developed at MIT, which uses standard ink-jet printer heads - the kind you'd find in any home printer - to spray a glue or binder and colored pigment over a thin layer of a powdery substance. Do that over and over again, layer after layer, and the particles of powder (it can be a plaster or corn starch-based compound) essentially become a physical "pixel." After a few hours, you vacuum away the loose powder that hasn't been sprayed with glue, and what remains is a 3-D printed object.

Though others had marketed similar machines before, Z Corp. made a splash with its speed, its low cost, and its ability to print objects in color. The midrange printer Z Corp. will use to make the Rock Band figurines sells for about \$40,000.

In 2005, the start-up was acquired by Contex Scanning Technology, a Danish company, for an undisclosed sum, though I'm told by a former Z Corp. executive that it was "more than twice" the company's \$40 million in revenue at the time. In turn, Contex was sold to a private equity firm in Sweden last year, for about \$240 million.

While the company has been successful duking it out in the market with publicly traded rivals like 3D Systems Inc., based in South Carolina, and [Stratasys Inc.](#), based in Minnesota, Z Corp. vice president Scott Harmon says that it felt compelled to explore new markets. Only about a million people in the world, from architects to industrial designers, use the kind of computer-aided design software that creates blueprints for 3-D objects that can be printed out on a Z Corp. printer, Harmon says - even though the software has been dropping in price. (None other than Google now offers free 3-D modeling software called SketchUp.)

"If you look at video games, though, World of Warcraft has 10 million players, and Rock Band has an installed base of 2 or 3 million players, all of whom can create 3-D files - their characters, or avatars," Harmon says.

A small Washington company that owns six of Z Corp.'s printers has already started to test the market among gamers, and found the demand to be overwhelming. FigurePrints LLC started offering 3-D figurines from the

game World of Warcraft, originally priced at \$99, last December. The company has since raised the price to \$129, and instituted a lottery system - essentially, you have to win the right to buy a print-out of your avatar from the company.

"We get about 25,000 people a month signing up for our lottery," says FigurePrints founder Ed Fries, a former video game executive at [Microsoft Corp.](#) "And when we raised the price, it didn't have an impact on demand." Fries says he plans to add more production capacity soon, and may outsource some work to partners in Europe and Asia - or even to Z Corp.

Fries says Z Corp. has been open about its plans to enter the gaming market - and that his four-person company hasn't been looking to do deals with other game publishers just yet.

Fries adds that he isn't sure whether Rock Band, a video game version of karaoke in which players earn points by mimicking hit songs, inspires the same level of fanatical devotion among its players as World of Warcraft, a medieval realm in which players can not just do battle with each other, but form groups, pursue quests, and buy equipment.

"I don't think you can get people to pay \$75 or \$99 or \$129 for just any 5-inch figure," he says. "It has to have a lot of meaning invested in it, and Rock Band is not like World of Warcraft, where you work for months to get a certain dagger or a set of armor."

Z Corp. will start to find out this month whether Fries is right. The company has been developing its direct-to-consumer printing business for about a year and has two dozen printers dedicated to it.

Selling custom 3-D objects to consumers could turn into a big market, says Terry Wohlers of Wohlers Associates, a consulting firm. "It's mind-boggling, the potential," he says. But customers' 3-D data files must be reviewed and sometimes tweaked before they're printed, and there can be breakage when the finished figures are handled or shipped. "Making this profitable is another matter," says Wohlers.

But he says that other game companies are expressing interest, such as Electronic Arts, which has a game coming out this week called Spore. "The game has been designed to accommodate 3-D printing," Wohlers says.

Harmon says Z Corp.'s goal is to do printing partnerships, which typically involve a licensing fee, with at least three video games. And he's already in discussions with toy companies, too.

A custom-printed Barbie or G.I. Joe could be next.

Scott Kirsner can be reached at kirsner@pobox.com. ■