

IN PRACTICE



Trendy 3-D printing sure to produce more IP fights

Longstanding technology may be on cusp of ubiquity

Intellectual Property

Commentators have hailed it as ushering in a Third Industrial Revolution. President Obama cited it as having the potential to create new waves of job growth. Media outlets report on its new applications—from commercial manufacturing to organ transplantation to weapons production—on a daily basis. Three-dimensional printing is finally coming center stage.

What implications does 3-D printing hold for intellectual property rights? A closer look suggests that, while 3-D printing is having its greatest impact in commercial applications, widespread consumer adoption is still a ways off. In the short term, this will likely blunt the degree of intellectual property theft and limit most disputes to those between companies designing and manufacturing the printers, as opposed to battles between intellectual property holders and consumers. As the technology becomes more sophisticated and as adoption becomes more widespread, though, intellectual property fights between companies and consumers will accelerate.

WHAT IS 3-D PRINTING?

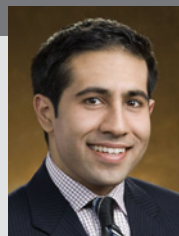
Three-dimensional printing, also known as additive manufacturing, involves a process of creating physical objects through the use of digital design files and printers. Unlike the more commonly used desktop and office printer, which print a 2-D image on a page (such as the printing of this article on news-

print), 3-D printers have the capability of creating three-dimensional objects. They do this through a variety of techniques, including layering molten materials on top of each other, fusing powders into solid shapes, and solidifying layers of liquid materials with light. In order to print a solid object, 3-D printers rely upon a set of blueprints, also known as computer-aided design files or digital design files, that guide the printers into making the object. These files can be created by imaging an existing object with a 3-D scanner, creating a new design using computer-aided design software or through a mix of the two.

Three-dimensional printing is not new. Additive manufacturing processes have existed for at least 30 years and are widely used in the automotive, aerospace, health care and defense fields to make new and spare parts. The most dominant use of 3-D printing commercially is for rapid prototyping, which has been estimated to account for 70 percent of its commercial use today. Three-dimensional printers enable manufacturers to quickly design and print prototypes without having to incur the time and expense of fabricating full-scale models.

Given its long history, why is 3-D printing garnering so much attention now? At least a few factors are at play.

First, 3-D printing has seen an explosion in applications in recent years. Nearly every day



Paven Malhotra

Paven Malhotra is a partner at Kecker & Van Nest in San Francisco, where his practice focuses on intellectual property disputes and complex commercial litigation matters. He can be reached at pmalhotra@kvn.com or at 415-391-5400.

the technology appears in the headlines with news of tantalizing advances. In just the past few months, researchers have announced plans to print human organs, synthetic reefs, and even entire homes using 3-D printers.

Second, consumers now have access to 3-D printing technology. Three-dimensional printers designed for the home are now available for less than \$3,000. Websites such as Thingiverse contain thousands of design files that can be used to print objects. Even Microsoft has built a 3-D printing application that can operate with its Windows 8.1 operating system.

Although these advances nudge us closer to a world where 3-D printers are as ubiquitous as the desktop printer, we are not there yet. Consumer adoption of 3-D printers is currently hampered by price, limitations in printing capabilities, and a dearth of printing materials that can be used. As a result, while consumer printers are being widely used for smaller items like jewelry, figurines and sculptures, they have yet to see broader applications.

So, although the specter of widespread and undetected copying is striking fear in

boardrooms, the limited consumer adoption of 3-D printers will likely blunt the impact of intellectual property theft—but only in the short run.

In the long run, the economic impacts will be striking. Indeed, the research firm Gartner Inc. recently estimated that within four years, 3-D printing may result in a loss of at least \$100 billion *per year* in intellectual property globally. The biggest fights are likely to take place in the patent and copyright realms.

PATENT SUITS ON THE HORIZON

Unlike copyright holders who saw their movies and songs digitized and distributed over the Internet beginning in the late 1990s, patent holders now face the possibility that their patented products may be manufactured within the home. What is a patent holder to do?

Although consumers who print patented items are potential targets, the difficulty of locating such consumers, the low damages at issue and the high cost of litigation will make such lawsuits impractical. Patent holders might go after some consumers to make an example of them—similar to what some music companies did in going after consumers who downloaded copyrighted movies and music—but widespread suits are unlikely.

Patent holders may look upstream to the printer manufacturer or to the websites that host design files, but pursuing these targets will prove challenging as well. **To prevail on a theory of induced infringement, the patent holder would have to prove actual infringement, for example, that the end user not only downloaded a file but also printed the patented item. At the same time, to prevail on a theory of contributory infringement, the patentee must prove the website or printer has no substantial non-infringing use.** Given the fact a website can host an infinite number of files and a printer can be used to print non-patented items, this will likely limit any liability.

Unsurprisingly, there have only been a handful of patent lawsuits involving 3-D

printing technology so far. Existing litigation is largely limited to disputes between printer manufacturers. Indeed, two of the industry's largest manufacturers—3D Systems and Stratasys—have recently filed lawsuits against consumer printer manufacturing companies. The current dearth in litigation, though, may be short-lived.

There is currently a gold rush underway as applicants sprint to the U.S. Patent and Trademark Office to stake claims on 3-D printing techniques and systems. Since 2003, 3,500 patents relating to 3-D printing have been granted. Since 2007, nearly 700 applications have been filed a year, a 40 percent jump over the number of applications filed in 2002. As these applications are processed—and approved—the number of patent lawsuits is likely to rise.

COPYRIGHTS AND THE DMCA

In addition to patent disputes, 3-D printing will give rise to copyright fights.

Many initial disputes are likely to be resolved through the framework established by the Digital Millennium Copyright Act. While entertainment and media companies have seized upon the DMCA to pursue illegal sharing of copyrighted movies and music, the Act also has application in the 3-D printing realm.

Under the DMCA, copyright holders can send takedown notices to service providers. After removing the content at issue, the service provider then notifies the party that uploaded the allegedly infringing materials about the copyright claim. That party can elect to accept the copyright assertion or to challenge it. If the poster chooses to challenge the claim, the service provider can reload the material, and the copyright holder can decide whether to pursue legal action.

Parties asserting that their copyrighted materials are available on 3-D printing websites are already resorting to the DMCA to assert their rights. Companies like Shapeways, which resembles an eBay for 3-D printed goods, have established takedown proce-

dures consistent with the DMCA. In one prominent example, Square Enix, the Japanese company behind Final Fantasy VII, recently issued a takedown notice to Shapeways after a user of the site began selling 3-D printed figurines resembling the characters from the Final Fantasy game. Before that, HBO issued a takedown notice when a designer began selling a Game of Thrones-inspired iPhone dock.

As the number of websites and online marketplaces offering digital design files and 3-D printed items increases, companies holding copyrights will need to spend additional time monitoring such sites for potential infringement of their intellectual property.

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As they survey the possibilities 3-D printing offers to their business models, companies will also need to pay greater attention to the intellectual property issues that arise.

To date, most of the disputes in the 3-D printing space have been limited to patent litigation between printer manufacturers, and copyright assertions by rights holders against individuals and small-scale businesses. But as 3-D printing technology becomes more sophisticated, and as deployment of 3-D printers accelerates, the stakes will rise and so will the number of intellectual property disputes.

In Practice articles inform readers on developments in substantive law, practice issues or law firm management. Contact James Cronin with submissions or questions at jcronin@alm.com.