PROGRESS IN THE MAKING

An Introduction to 3D Printing and Public Policy

United for Libraries
Association of Library Trustees, Advocates, Friends and Foundations
A division of the American Library Association

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ALA Office for Information Technology Policy

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How are 3D printers being used in libraries?

With the onset of the digital revolution, the library community assumed a leading role in the effort to help people of all ages build the skills and competencies they need to thrive in a high-tech world. 3D printing expands the frontier of the ongoing digital transformation of our society, and—in keeping with our reputation for digital leadership—library professionals are helping people and communities take advantage of this development. Library 3D printing is empowering people to engage in creative learning, launch business ventures and solve complex health problems.

> "A once-shuttered warehouse is now a state-of-the-art lab where new workers are mastering the 3D printing that has the potential to revolutionize the way we make almost everything. There's no reason this can't happen in other towns."
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> —President Barack Obama
> State of the Union Address
> February 2013

Using a 3D printer in the Maker Lab at the Allen County Public Library in Ft. Wayne, Indiana, a Boy Scout troop printed resin wheels for its robot team.[1] In Chattanooga, a man used a 3D printer at the public library to create a robotic device that allows his child who was born without arms or legs to eat independently.[2] In Kansas, a high school junior created a functioning prosthetic hand for a nine-year-old family friend using the 3D printer at the Johnson County Public Library.[3]

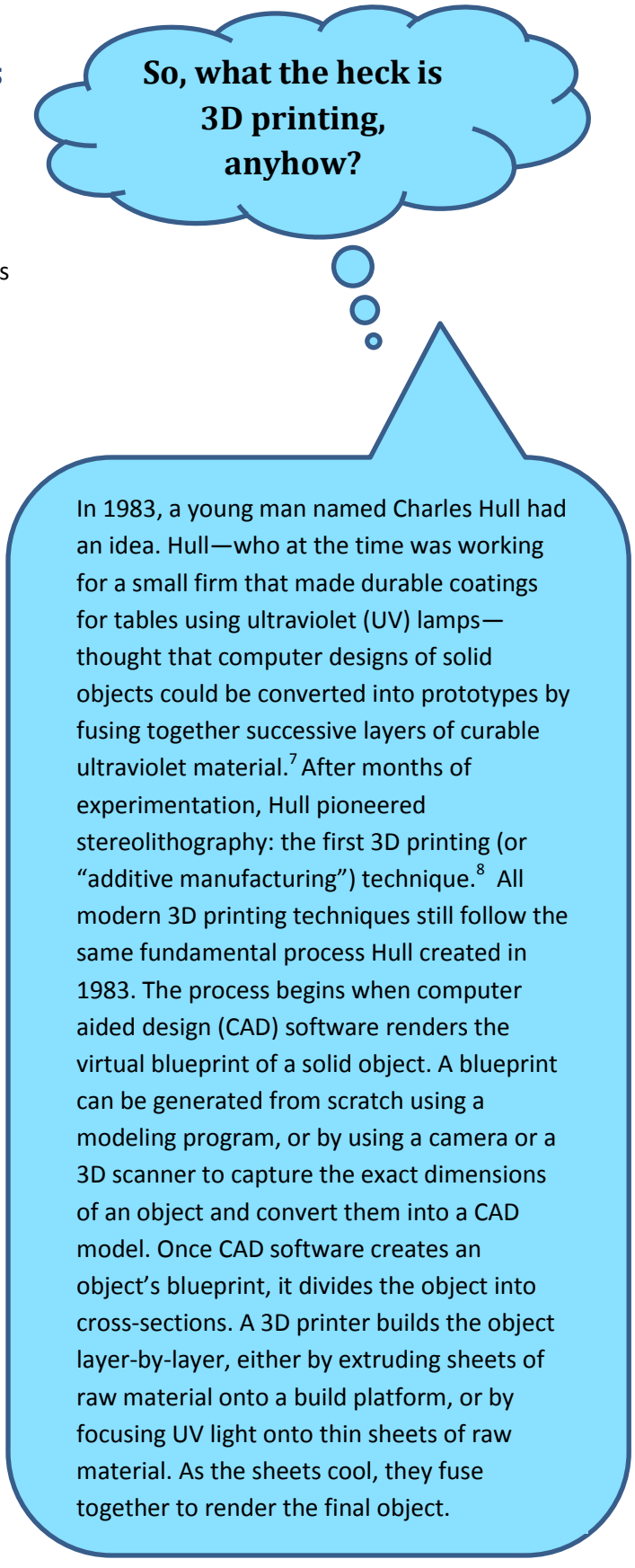
What are 3D printers capable of?

3D printers have many exciting applications. The most common materials used in 3D printing are ABS (acrylonitrile butadiene styrene) and PLA (polylactic acid) plastic. PLA, ABS and other plastics can be used to create everything from toy figurines to prosthetic limbs to handguns. The objects and structures that can be printed from materials other than plastic are even more varied. A company in Shanghai can print a ten-story house out of quick-dry cement in less than 24 hours; the San Diego-based company Organovo Holdings, Inc. is using 3D printers to create a human liver out of human cells; and this year, the National Aeronautics and Space Administration (NASA) launched a 3D printer into space to experiment with the creation of spare parts for the International Space Station.[4][5][6]

What are the legal implications of 3D printing?

3D printers can be used to create both artistic and non-artistic objects. Therefore, understanding the intellectual property issues associated with 3D printing requires us to broaden our focus beyond copyright. We must also consider patent, design patent, trade dress and trade secrets. 3D printing also raises product liability questions. As this technology takes off, a growing number of people will gain the ability to create and market complex and potentially dangerous products.

Inevitably, some 3D-printed products that are brought to market will be faulty and will result in consumer injuries. Librarians should understand who might be held liable for injuries that are sustained by defective products produced by their 3D printers. Three parties could clearly be held liable: 1) The hobbyist/inventor who printed and sold the item; 2) The company that manufactured the 3D printer; 3) The programmer who wrote the code for the product's design.[9] Whether or not libraries could themselves be held liable is currently an open question. The courts have yet to interpret product liability in the context of 3D printing. **While there is no way of predicting the magnitude of the intellectual property and/or product liability disputes over 3D-printed items that will occur in the future, this uncertainty should not deter us from continuing to use 3D printers in innovative and exciting ways.** Libraries everywhere are expanding the creative, entrepreneurial and educational



applications of library 3D printing, and the specter of legal action should not discourage librarians from searching for new ones. **Additionally, we should not be intimidated by the task of familiarizing ourselves with new areas of intellectual property law.** We can use the digital copyright jurisprudence, and, perhaps most importantly, common library practices that have developed since the late 1990s to help ourselves formulate user policies that take these areas of the law into account.

A Model Warning Notice

Did you know that the library community is already thinking about ways to minimize the legal risks of 3D printing? Tomas Lipinski, Dean and Professor at the University of Wisconsin—Milwaukee School of Information Studies adapted a library photocopier warning notice to anticipate the intellectual property issues that may result from the 3D printing process. View it here.

What other concerns does 3D printing raise?

The growth of the 3D printing industry has raised a number of questions related to intellectual freedom and individual liberties. To date, most of these questions have been debated in the context of 3D-printed firearms. To what extent should the government limit access to CAD files for firearms and components of firearms? Should an individual have to obtain a license for a firearm he or she builds using a 3D printer? What constitutes a 3D-printed gun? Policymakers have recently begun to consider these sorts of questions.

Despite high-profile debate surrounding 3D-printed guns, the intellectual freedom and individual liberty implications of 3D printing extend far beyond questions of firearm regulation. Scientists have already begun to apply 3D printing to the process of making pharmaceuticals. Lawmakers and the FDA will have to find a way to regulate the chemical uses of 3D printers if these uses become more common. Another danger of the chemical applications of 3D printing is that those engaged in the illicit drug trade will begin to use 3D printers to create narcotics. 3D printers also have the potential to render material that, while legal and unregulated, may not comply with the acceptable use policies of certain libraries. For example, 3D printing has reached the sex toy industry, and schematics to create these products are available online. This raises product safety concerns for consumers and hobbyists.[10]

The big picture: What's the role of libraries as 3D printing takes off?

Given the many policy questions 3D printing gives rise to, libraries will need to do more than provide their patrons with instruction in the basics of printer mechanics and CAD modeling and scanning. There is a growing understanding among library professionals that the library community needs to develop a set of best practices to guide patron printing behavior. There is currently no body of law and little to no jurisprudence that interprets intellectual property, intellectual freedom or product liability concepts in the context of 3D printing. Therefore, in developing any such set of practices, it is in our best interest to think chiefly about what is practicable and consistent with the mission of libraries, and secondarily

about what might eventually be held by Congress, the state legislatures or the courts to be outside the bounds of the law.

Tips for library professionals

- Begin to familiarize yourself with the basics of patent and trade dress law.
- Don't be afraid! Develop a user policy that addresses the potential legal risks of 3D printing but—most importantly—encourages patrons to be creative and have fun.
- Communicate with other libraries offering 3D printing services. Share your user policy and discuss emerging applications of your 3D printer(s) with others in the field.

Further reading

- Two white papers from Public Knowledge's Michael Weinberg: It Will Be Awesome If They Don't Screw It Up: 3D Printing, Intellectual Property, and the Fight over the Next Great Disruptive Technology and What's the Deal with Copyright and 3D Printing
- Forthcoming: An OITP Perspectives Report on the policy implications of 3D printing

About the Office for Information Technology Policy: The Office for Information Technology Policy advocates for public policy that supports and encourages the efforts of libraries to ensure access to electronic information resources as a means of upholding the public's right to a free and open information society.

About the Public Library Association: Founded in 1944, the Public Library Association is a member-driven organization that exists to provide a diverse program of communication, publication, advocacy, continuing education, and programming for its members and others interested in the advancement of the public library.

About United for Libraries: United for Libraries is a national network of enthusiastic library supporters who believe in the importance of libraries as the social and intellectual centers of communities and campuses. No one has a stronger voice for libraries than those who use them, raise money for them, and govern them. By uniting these voices, library supporters everywhere will become a real force to be reckoned with at the local, state, and national levels.

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