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The importance of 3D Printing in Libraries: an introduction.

Jerald Cavanagh Institute Librarian/INNO3D Project Leader
Limerick Institute of Technology

Padraig Kirby
Research Development and Innovation Project Officer/INNO3D Project
Coordinator
Limerick Institute of Technology.



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Introduction

The seemingly magical property of three-dimensional (3D) printing is one of the draws libraries have to implementing the service.



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Introduction

Libraries have always been at the edge of new technologies.

Starting from ancient times and the invention of the printing press, library patrons turned to librarians for instructions on how to access and acquire new knowledge and expertise, how to use and troubleshoot innovative tools and techniques.



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Introduction

The appearance of 3D printers wasn't an exception.

This major innovation has been applied in many industries, such as engineering, manufacturing, art, and medicine, and it quickly became popular among librarians.



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Literature review - Origins

Charles Hull, an engineer, is credited with developing the idea of 3D printing in 1985 (Horton 2017).

David Edward Hugh Jones- It is often claimed that the invention of 3D printing, was by Charles Hull, but Jones laid out the concept on paper in New Scientist in 1974.



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Origins

Others say the history of 3D printing begins in 1981 with Dr. Hideo Kodama's patent application for a rapid prototyping device. Dr. Kodama was the first person ever to apply for a patent in which laser beam resin curing system is described.

<https://all3dp.com>



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Why is 3D Printing a good fit for academic libraries?

- Libraries have the space and capabilities for training patrons about 3D printing
- Libraries also offer a unique space and tradition of collaboration which is beneficial to learning new technologies.
- Libraries have long been on the forefront of providing their users access to technologies such as computers, printers, copiers, and the Internet



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Why is 3D Printing a good fit for academic libraries?

Many 3D Printing Policies Departments on college and university campuses have 3D printers.

But a library is a way to offer them to the entire campus population and, in many cases, the surrounding community (Chen, 2012).



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Why is 3D Printing a good fit for academic libraries?

Library makerspaces that offer 3D printing services provide people with the ability to create essentially any object they can imagine.

Libraries serve as labs of innovation and experimentation for aspiring entrepreneurs looking to bring new products to market—and for everyone to advance learning and creativity



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How are 3D Printers being used in Libraries?

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



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Introduction

But there is a lot of work involved in actually bringing 3D printers into use at an academic library.

Perhaps one of the most important tasks library staff will embark on in this process is developing a policy.



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The importance of Library Policy for 3D Printing

Establishing a thoughtful policy is an important step in the process of coordinating a 3D printing program anywhere, including an academic library.

A good policy lays the framework for using the technology, and it outlines the expectations of the library and the patron alike



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The importance of Library Policy for 3D Printing

The American Libraries Association (ALA) has been providing guidance to libraries when it comes to 3D printing and in particular ways to develop a working policy.

According to Jones (2015), along with advocacy and professional and leadership development, determining information policies is one of the “key strategic areas for the profession” (p. 37).



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The importance of Library Policy for 3D Printing

In September 2014, ALA issued a press release announcing the launch of “Progress in the Making”, an educational campaign to assist libraries in the challenges of adopting 3D technology
(American Library Association, 2014)

The tipsheet discussed such issues as the legal implications of 3D printing, particularly copyright law, and intellectual freedom concerns.



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The importance of Library Policy for 3D Printing

One of the main concerns about 3D printing is that its use makes it technically possible to copy almost any object, with or without the authorization of those who hold rights in that object (Malaty 2017)

https://www.wipo.int/wipo_magazine/en/2017/01/article_0006.html



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The importance of Library Policy for 3D Printing

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 (American Library Association 2015).



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The importance of Library Policy for 3D Printing

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 (American Library Association).



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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 3Dprinted firearms. To what extent should the government limit access to CAD files for firearms and components of firearms? (American Library Association 2015)



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What other concerns does 3D Printing raise?

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 (American Library Association 2015)



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What other concerns does 3D Printing raise?

Some argue that in light of the dramatic consequences for music copyright as a result of the convergence of the Internet, digitised music and media players, 3D printing technology may have similar implications for artistic copyright, design right, trademarks and patents, but in a rather more diverse legal framework (IFLA 2020)



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What other concerns does 3D Printing raise?

Existing reproducing technologies in libraries can of course raise issues of liability based on copyright law but a 3D printer allows patrons to print 3-dimensional objects from a replacement part for a home appliance like a toaster oven to container shapes of your favorite beverage be it Coca-Cola bottle or the distinctive Haig Pinch-bottle scotch (IFLA 2018).



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What other concerns does 3D Printing raise?

The copyright laws of many countries contain specific protection from secondary liability for unsupervised use of reproducing technologies, in qualifying libraries, often requiring the library to post a copyright warning notice.

As not all countries have this limitation on liability, IFLA through its efforts at WIPO (World Intellectual Property Association) and elsewhere advocates for such protection across the globe. such provision should apply to 3D printing technologies (IFLA 2018)



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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.



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

All libraries providing access to 3-D printers should adopt written policies governing the use of their 3-D printers. Such policies should:

identify those eligible to use the library's 3-D printer;

outline all rules and regulations concerning user access, fees, and training requirements;

bar use of the library's 3-D printing facilities for illegal activities;

include a statement informing users that all other library policies apply when using the library's 3-D printer or printing services, including policies addressing user behavior, acceptable use, cybersecurity, copyright, intellectual freedom and user privacy.



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

Policies should also reflect the library's commitment to learning and the exploration of ideas. A mission statement or statement of purpose should encourage users to learn about new technologies, exercise their imaginations, and assure their freedom to create, and design new projects within the parameters imposed by the technology.



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Resources for 3D Printing Policy Development

<https://libguides.bodleian.ox.ac.uk/c.php?g=423237&p=2889931>

<https://fdu.libguides.com/3Dprinting>

<https://libguides.library.nuigalway.ie/3Dprinting>

<https://www.wexfordcoco.ie/libraries/more-library-services/computer-and-printing-services/3d-printing>



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Thank you



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