

3D Printing and Intellectual Property

At one time, the concept of 3D printing may have seemed like science fiction. These days, however, the technology is revolutionising how companies across a variety of industries—engineering, medical, biotechnology, education and manufacturing—are able to design, develop and distribute their products.

An additive manufacturing technique, 3D printing is the process of printing layers of material on top of one another to ‘grow’ a product. This product creation relies on computer-aided design (CAD) files. Stereolithography (STL) software reads the CAD file and uses a material—such as paper, powder or metal—to print the shape. As the technology has evolved, the number of printing materials has evolved with it and currently includes thermoplastics, edible materials, rubber, clay, porcelain, metal, ceramic powders, plaster, paper and even human tissue.

As the cost of 3D printers has steadily dropped, the technology has become more accessible to companies as well as to individuals for personal use in their homes. Whilst this has spurred beneficial innovation, the distribution of independent and professional design files for STL models can expose both the model’s creator and the user to risks—especially with regards to intellectual property (IP).

How 3D Printers Decentralise Manufacturing

3D printers provide companies and individuals with the ability to produce their own materials and/or products in-house. However, as a consequence of the increased accessibility and growing popularity of the technology, manufacturing has started to become decentralised. The reason for this is that a company or individual has the ability to download a design file for a common product—such as a wood screw—or one that is more unique—like a replica of a name-brand product. That

company or individual can then ‘print’ their own copy without having to rely on a regulated, centralised location—such as a manufacturer’s factory—to supply the product.

3D printing will result in the annual global loss of at least £70 billion in intellectual property by 2018, according to Gartner Inc., an international research firm.

However, the design files that companies and individuals access may be illegal or unauthorised—for example, a company or individual may choose to download a free, unlicensed copy of a design file for a patented product rather than pay the developer for the licensed version of the model. The potential to access those types of files is one of the chief risks to IP.

What is intellectual property?

The World Intellectual Property Organisation defines IP as ‘creations of the mind, such as inventions, literary and artistic works, designs, symbols, names and images used in commerce.’ But, the UK government clarifies that IP is ‘something unique that you physically create. An idea alone is not intellectual property...an idea for a book doesn’t count, but the words you’ve written do.’

For example, the design plan for a modified spanner would be considered IP. However, just the concept—without any physical representation—would not.

If a company or individual were to use, sell, reproduce or distribute a material or product without first receiving the express consent of the IP owner(s), that

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company or individual could be found guilty of infringement. For example, if an individual were to design an STL model for a pre-existing patented spanner and sell it to the general public, that would be considered infringement.

To protect IP rights, the government passed the Intellectual Property Act 2014. The Act introduces the Unitary Patent—a patent recognised and valid in nearly every EU member state—and the Unified Patent Court, which will eventually handle all litigation involving European patents. For information on protecting your IP at the EU level rather than just the UK level, click [here](#).

If individuals or companies are found guilty of intentionally duplicating a registered copyright, design, patent or trade mark, they could receive a fine and up to 10 years in prison. The value of the fine and prison sentence would be determined by the severity of the case as well as whether the case was heard in a Magistrates' or Crown court. For help registering your IP rights at the UK level, click [here](#).

Intellectual Property Risks

3D printers promise the ability to create nearly anything. However, this nearly unlimited potential introduces equally unlimited IP risks, such as the following. This list is not exhaustive.

- Users could illegally copy and distribute licensed design files—for example, when a user distributes an official design file through a pirated website.
- Users could create unauthorised design files of licensed materials and/or products. For example, an individual could upload a design file of Doctor Who's TARDIS without the BBC's approval.
- Users could slightly modify designs of licensed materials in a way that circumvents your IP rights.
- Users could develop unauthorised or counterfeit copies of licensed company products with a purposeful defect and distribute them. By retaining the company's logo and/or branding,

users could tarnish the company's reputation based on the quality of the pirated copy.

Mitigating Intellectual Property Risks

Although the potential risks associated with 3D printers can severely damage the finances and reputation of the IP rights' owner(s), there are several methods that you can use to mitigate those risks, such as the following. This list is not exhaustive.

- Adopt a secure streaming of your design files through an Application Programming Interface. This sends the build instructions directly to the 3D printer and only prints the number of copies that have been purchased.
- Register your [patent](#), [design](#), [trade mark](#) or [copyright](#). Review the terms of each piece of IP as they will need to be periodically renewed. Also, you may want to register your IP in other countries.
- Review your IP protection to ensure that it is robust enough to safeguard against the potential of an individual or company attempting to circumvent your rights.
- Monitor the online market for any materials and/or products being sold or distributed that resemble your IP.
- Discuss with Robison & Co Ltd your insurance options for defending your organisation against product liability.

Share and Design With Confidence

3D printing is a revolutionary technology—it allows companies and individuals to rethink traditional processes, reimagine the common and encourage innovation. Yet, its unbridled potential is matched by its expansive risk. But with the proper preparations and guidance, your company can protect its IP. For more information about shielding your company from risk, contact Robison & Co Ltd today.