

## A problem in 3D

The UK IPO is wary, designers are worried and the EU is embracing the tech, **Stella Wong** examines the awkward relationship between 3D printing and IP

**A 3D printer enables the copying of an object without the authorisation of those who hold IP rights in that object.** Nowadays it is possible to simply use a 3D scanning application on a mobile phone to take photographs and then send the electronic file produced to a 3D printing service for it to be manufactured.

So what are the opportunities and IP risks businesses should prepare for? Are current IP laws prepared for this technology?

### Opportunities

3D printing provides several advantages over conventional manufacturing, including that it can eliminate the need for assembly of an object; there is less scrap material since only the material needed is used (no cut-outs etc); it allows goods to be customised; and it can reduce delivery and storage costs because a product can be manufactured at the location where it is needed.

Companies should carefully weigh up the pros and cons and consider how their business may benefit from the technology.

There doesn't have to be an all-or-nothing adoption of 3D printing – increasingly it is used to complement a company's existing manufacturing techniques. For example, as goods can readily be customised, a prototype is quicker and cheaper to manufacture and to evaluate and the final product can reach the market faster. The potential for other cost savings using this technology should also be considered – could it reduce wasted material and labour costs (no need for assembly)?

There may be a way to use 3D printing to improve a company's existing portfolio of products – and file new IP rights in doing so. For example, a toy manufacturer with trademarks could provide customers with the option of customising particular products and charge a premium for this. The customised product (which is 3D-printed) could have new IP rights associated with it, for example, a new brand name or design right, or a patent relating to the technology used.

Another example is in the pharmaceutical industry; could an existing medicine be enhanced using this technology? The first 3D printed pill to be FDA-approved was a known drug that patients found too difficult to swallow. 3D printing overcame this problem by enabling layers of the active ingredient to be packed more tightly and precisely making it rapidly disintegrate in a patient's mouth – literally making it an easier pill to swallow. In the process several patents were said to have been filed in respect of this 3D printed pill.

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### Risks

**Counterfeit and IP infringing products:** As outlined above, 3D printers can be seen as sophisticated copying machines that facilitate the manufacture of counterfeit and IP infringing goods. However, in practice, certain objects are more likely to be copied using this technology than others. For example, a complex-shaped plastic character figure from a movie that is trademark-protected is perhaps more likely to be copied by 3D printing than other objects because it is made from cheap, readily available material. 3D printing may overcome any additional burden of its assembly and reduce the cost of materials as there are no scraps.

Other products that have IP protection may not be commercially viable to produce using 3D printing. For example, drugs are probably cheaper to manufacture using traditional, compression or extrusion techniques. Some companies have already adopted anti-counterfeiting/anti-IP infringement measures to prevent copying by 3D printing, for example by using a reflective material on the surface of their product that prevents it from being 3D-scanned.

Where a 3D printer is used to copy a patented object without the patentee's consent, suppliers of the CAD file may be liable for indirect patent infringement. However, proving liability could be challenging in view of the double territoriality requirement and the need to show that the supply of the "means essential" (CAD file) and the infringement (3D printing the object using the CAD file) actually took place in the UK. Note that CAD file sharing is unlikely to amount to copyright infringement unless the CAD file is for an object that is itself copyright protected in that it is an artistic work.

**CAD files could cross borders undetected:** Whereas physical goods that infringe IP rights can be seized by Customs, CAD files complicate the enforcement of IP rights because they can be transported across borders undetected.

**Potential for multiple defendants:** Typically in a patent infringement/revocation action there are only a few alleged infringers, usually the manufacturers and distributors who have mass produced the infringing products. 3D printing technology could lead to an increase in the number of infringers due to the products being manufactured on demand and at the location where they are needed. So, instead of having a central hub mass producing products which are then distributed to several locations, we could see a shift towards "decentralised manufacturing". This could lead to a situation where there are hundreds of alleged infringers in litigation, increasing the cost of asserting the relevant patent. Even before that, finding all the infringers may prove challenging. When they have been identified, it may not be worth asserting an IP right against them because they may only be producing a small number of goods for commercial use and therefore an injunction against them and/or damages would have little overall impact on the market.

**Private use defence:** Anyone 3D printing a copy of an IP protected object at home, for private, non-commercial use will not infringe a patent, trademark or design right. However, although 3D printers are cheaper and more widely available since the expiry of key patents in the technology, they have not yet made it into most households (unlike document printers). In fact, several 3D printer manufacturers have scaled back or even withdrawn from the consumer market. A likely reason for this is that 3D printing at home lacks application for most people; it can be arduous and slow and require multiple materials. Therefore, having a 3D printer at home is, at least today, still a novelty item for hobbyists. The widespread availability of 3D printing services may mean that there will never be the need to have a 3D printer at home. However, providers of such services could be held liable for infringement if used to copy protected objects, since they would be printing for their own commercial purposes.

**Does your existing IP cover it?** Existing patent claims for the manufacture of the object may have been drafted to encompass conventional manufacturing techniques rather than 3D printing. A company should consider what IP rights could be filed in respect of their 3D printed product (for example, could patent claims be aimed at manufacturing their products using 3D printing – if so, what are the chances of such a claim being invalid for obviousness?) and how their crown jewel, the CAD file to the object, should be protected.

**Shift from physical to virtual value:** For a company that decides to adopt 3D printing to manufacture its products, there may be a shift in its value chain from a physical object to a digital/virtual file – with the latter becoming the crown jewel. In the past the music industry encountered numerous IP issues when it shifted from physical records/CDs to digital music files. If a company is faced with the possibility of counterfeit CAD files being used/shared to 3D print counterfeit products, it should consider adapting its business model to deal with this, perhaps by providing a reasonably priced licensed CAD file to its consumers to enable them to 3D print genuine products.

### Existing laws v 3D printing

Following a report commissioned by the UK Intellectual Property Office (UK IPO), the government policy on the law relating to 3D printing is to "wait and see". The Annual IP Crime Report 2016/17 published by the UK IPO voiced the concerns of the Anti Copying in Design (ACID) group, which represent thousands of UK designers with a collective turnover of over £6bn.

On the topic of whether IP law is fit for purpose to deal with enforcement of IP through 3D printing, it states:

"Currently there are no criminal penalties for unregistered design rights infringement and there is a need to implement this. In 2014, in the UK, intentional copying with immaterial differences of a UK or EU registered design became a criminal offence... 3D printing is proving a boon to organised criminals who are exploiting this ground-breaking technology to counterfeit on an industrial scale in near perfect quality... Accordingly, Government needs to plug this gap in the law which will have the same impact on manufacturing as the internet did on the creative industries."

The Queensland University of Technology has been commissioned by the UK IPO to deliver research into the future of 3D printing, in respect of the impact of 3D printing on all IP rights. The results are due to be delivered in autumn 2018.

In addition, the European Union has made 3D printing one of its priority areas of technology, recognising it as, "one of the main factors in bringing about industrial transformation."<sup>1</sup>

Similarly, the European Parliament concluded that "3D printing has not had a dramatic impact on copyright...in the short and medium term the main challenge is to involve professional copyright intermediaries more closely. A future revision of Directive 2004/48/EC on the enforcement of intellectual property rights will be particularly important in this respect."

We are yet to see how 3D printing will be regulated, but in the meantime, businesses should consider the points above to ensure they are fully prepared whatever the outcome.

### Footnote

1. See the *Working Document on three dimensional printing, a challenge in the fields of intellectual property rights and civil liability*, published by the European Parliament, 23 November 2017.

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