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3D printers – a host of possibilities but not entirely without problems

The technology to “print” three dimensional objects with a 3D printer is not new, but as prices for the technology fall it becomes more readily available for private individuals. The possibilities that open up when individuals get access to 3D printers trigger the imagination, but the accompanying issues are not without complications. The technology, and the new areas of use to which it is put, also raises many questions, particularly regarding intellectual property rights. What should right holders think about?

The industrial sector has produced objects using 3D printers for more than 20 years. What makes 3D printers more widely discussed now than before is that both the material and the technology have progressed, so that it is now possible to manufacture printers which are cheap enough to be sold to private individuals. Even if standard models still cost over SEK 10 000, the price is constantly falling and at the same time interest and demand are rising. On 8 April this year, Veckans Affärer online, va.se, reported that the small American manufacturer M3D, projected to be able to offer a printer for SEK 1 500 next year. The low price probably contributed to making the company’s crowd funding through Kickstarter a great success, when it raised over USD 860 000 in less than 24 hours.

The technology behind 3D printers

The technology behind printing three dimensional objects in 3D printers is not difficult to understand. The objects are produced in plastic, which is stored as a thread on a spool (for industrial use, other materials are also used). The thread is fed onto the moving writer head, where it is heated so it melts and is rolled out on the bottom surface of the printer. There it forms a thin layer, a few tenths of a millimetre or less, with the shape of the bottom surface of the desired object. On top of this, a new layer is built and thereafter subsequent layers, all as thin and with the cross section of the desired object, until the final layer is laid and the object is completed. The technology makes it possible to create three dimensional objects with cavities and moving parts which would be expensive, difficult or impossible to manufacture in any other way. The appearance of the printed object is determined by a model, a so-called CAD

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drawing (Computer Aided Design), as a data file. There are many different CAD program to create three dimensional objects, and it is thus possible for people themselves to create objects which can be produced by the 3D printer. However, CAD technology also makes it possible to produce copies of existing objects by using models collected from others, e.g. by downloading from the Internet.

What intellectual property rights apply?

An object may contain or constitute a technical solution which is an invention protected by a patent. The patent protection is of importance as regards 3D print-outs, if the object produced constitutes or contains a patent-protected invention.

At the same time, the object may have an appearance or design which is protected. The model itself, or the CAD drawing, which is downloaded to instruct the 3D writer is also a digital file which is subject to copyright as such. In addition, there may be protection for the graphic expressions which the CAD drawing creates if you open it on a computer.

Copyright is, as regards objects, a copy protection for applied arts. As with patent protection, the copyright protection applies as soon as the object is produced, and may thus always be of significance in 3D printing. It is permitted to produce single examples of copyright protected objects for personal use, but the right is severely restricted.

Design protection is a protection for a registered design. Design protection applies to the production of the protected object since the manufacturing constitutes a design infringement, and thus the protection may always be relevant to 3D printing.

It is also possible to receive trademark protection for the appearance of an object. However, the trademark protection does not come into play until the producer, as a business activity, markets or sells the objects. That means that trademark protection does not necessarily apply in the case of 3D printing.

Finally, market law may also offer protection for the appearance of an object. It is not permitted to market or sell an object which may be confused with someone else's known and distinctive product. Market law protection only applies if the party who has produced an object with a 3D print-out also markets the object commercially.

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How does one know if a product has intellectual property protection?

Patent protection, design protection and trademark protection can be registered, but the possibilities of finding out whether protection exists for a certain product are limited if you do not have special experience of searching these registers. Copyright arises automatically and cannot be registered in any public register in Sweden. This makes it very difficult for the inexperienced to determine whether the design of an object is protected by copyright. Nor is it possible to register the protection afforded by market law and in order to determine whether protection may be deemed to exist, one needs in depth knowledge of whether the "originals" on the market are known and distinctive. Thus, it may be very difficult for the "printer" to determine whether patent or design protection exists for a printed object or not.

Some sort of labelling would reduce the risk of objects being produced without the permission of the right holder, and would be of importance in the issue of damages, should such production nevertheless take place.

What should right holders take into consideration?

Experience from other discussions about downloading show us that the battle between new and old business models concerns intellectual property rights. For the music industry, it took a very long time to develop business models that made simple use of new technology possible without copyright infringements. For the film industry, it was considerably quicker once the technological development made reasonably fast downloading and streaming possible. Business models for objects concern production, sale and distribution. Production for private use of an object which someone else has designed and made available is surely manufacturing, but may also be regarded as distribution. Such distribution does not even have to reach the end user, but only the level before, e.g. resellers or service suppliers which produce objects for sale to end users.

To know for what use one grants one's rights, especially in licensing agreements, will become a great challenge for right holders in the future. Persons owning the right to objects which may be of interest to produce or distribute through 3D printing should therefore think about their attitudes as regards this possibility.

It is not a very bold guess that hardly any licensing agreements concerning manufacturing, sale or distribution of products today contain provisions which regulate 3D printing. What first and foremost needs to be regulated in licensing agreements is the right to produce and disseminate CAD drawings for 3D printing of such objects which may be comprised by the granting of rights in the licensing agreement. The issue which needs regulating is primarily whether it will

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be permissible to produce and disseminate CAD drawings or not and, if so, who is to be entitled to this and what restrictions are to apply to the production and dissemination. Naturally, after this come questions regarding on what commercial terms dissemination may be carried out. Further, a licence needs to regulate the possible copyright to the CAD drawing itself and the graphic expressions it may have if you open it on a computer which controls the 3D printer.

This in turn gives rise to questions of labelling and information. Are CAD drawings to be labelled with information regarding the intellectual property rights which apply to the object and who holds the rights? What would that labelling look like? Is the printed object to be labelled with the same information or parts of it?

Questions regarding labelling and information also become relevant for such user licences as one may want to apply regarding parties who download a CAD drawing. Such user licences, which may be of the “click wrap” type, can perhaps contain more or less detailed restrictions on the use of a produced object. The restrictions may, within the framework of the intellectual property regulations, determine what is to be deemed as private use, what applies regarding copy production for persons other than the downloader and in what way – if any – printed objects may be marketed or sold, or in other ways be used commercially.

A licence may also contain extensive waivers from the right holder’s liability for losses and other consequences arising out of an object being circulated beyond the right holder’s and regular distributor’s control. One must bear in mind that an object printed by a 3D printer gets the same shape as the “original”, but that factors such as material, colour and surface may differ considerably. The choice of material for 3D printing today is fairly limited. This means that for the foreseeable future it will be unusual for a buyer to confuse a printed object with an original product. At the same time, one may anticipate that a buyer would have approximately the same expectations as regards quality and fitness for purpose. To the extent that this may be expected to be a problem, a licensing agreement should contain provisions on risk limitation and allocation in these respects.

This, of course, gives rise to the issue of product liability. Product liability is not always easy to elucidate as regards products manufactured and distributed in a traditional way. The scope and the focus of this article does not allow for an in-depth discussion, but one can rest assured that the product liability issue will be just a bit more complicated for products which are printed and distributed in new ways.

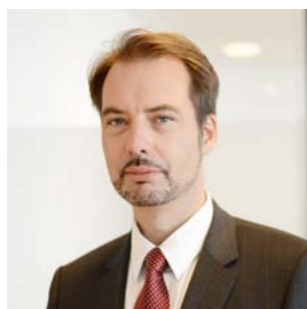
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Conclusion

A person who downloads a CAD drawing from the Internet and uses it to produce an object in a 3D printer runs the risk of being liable for one or more intellectual property rights infringements. Therefore, as a right holder there may be cause to think about how the labelling of products and CAD drawings can be made in order to reduce the risk that objects are produced without the right holder's permission and to increase the possibility of receiving damages should such production nevertheless be carried out.

Based on the experiences from the music and film industries, one can draw the conclusion that it has proved expensive and complicated for right holders, and hardly profitable, to go after infringements of this kind with legal actions. Therefore, we believe that it is better for many right holders to help private individuals with the legitimate production of objects with the aid of new business models for the manufacturing, sale and distribution rights. There are already examples of distribution of CAD drawings for 3D printing through downloading, and several different business models for this will be tested in the near future.

Right holders should review their licensing agreements right away in order, to the extent possible, to regulate the possibilities and restrictions for 3D printing which one can anticipate today. The challenge is to make a sufficiently accurate prediction regarding this need, and to create business models which take account of the interest of both the right holders and licensees. Delphi's lawyers are well prepared to assist in this task.



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