

# Digital DIY – Knowledge Framework



Welcome to Digital DIY and the challenges on rights and responsibilities.

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*This module has the following learning objectives:*

- *Get an understanding of the legal complexities of patents and copyright*
- *Learn how to license your work under a free / open license*
- *Understand the (legal) opportunities and risks associated with Digital DIY*
- *Understand safety and certification issues, e.g. as pertaining to procuring equipment and consumables for 3D printing and similar activities*
- *Find out about the right to repair and reverse engineering.*

## CHALLENGES TO EXCLUSIVE INTELLECTUAL PROPERTY RIGHT (IPR) SYSTEMS

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As 3D printing, and digital fabrication in general, grows there is evidence of infringement of exclusive IP rights, such as copyright, patents, design rights and trademarks, albeit on a small scale. At the same time, current IPR systems are only partially fit to protect commons-based approaches, as free/open licences are generally based on copyright, which can protect the shared works only partially.



Example: MakerBot Industries based its initial 3D printers on the RepRap project but then during 2012 stopped sharing the designs with the community<sup>1</sup>.

## Commons-Based Hardware Projects as Alternatives to Exclusive IPR SYSTEMS

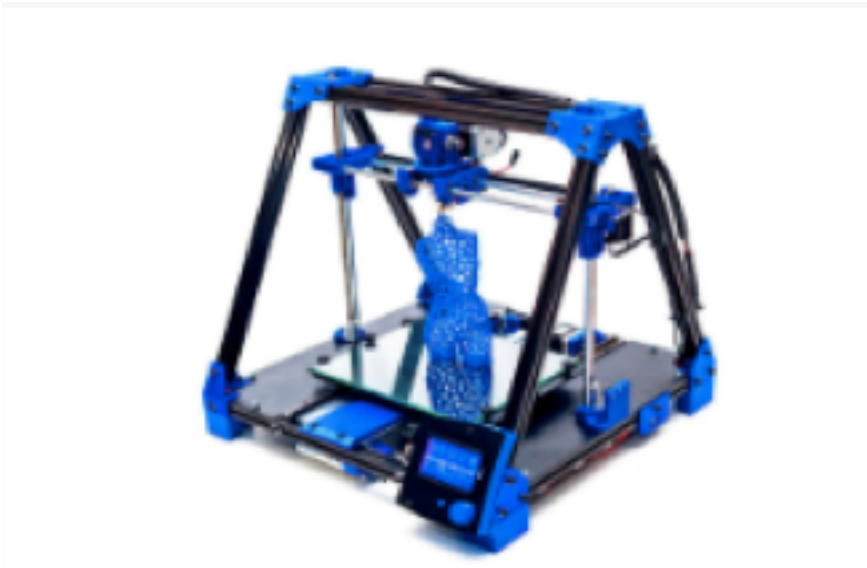
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Traditional, exclusive IPR protection like patents requires parties to request permission to contribute to the adaptation and further development of hardware designs and thus hinders collaborative development. A growing number of communities sharing their intellectual and creative DiDIY efforts under non-exclusive, free licence arrangements shows successful alternatives to the traditional exclusive IP licensing arrangements. So called Open Design, Open Source Hardware, or Free Hardware Design refer to projects that are published under free licences providing all community members the rights to build, adapt, copy and share



original or modified versions. Hundreds of thousands of such commons hardware projects can already be found on online sharing platforms such as Thingiverse, Libre3D, OpenBuilds, Open Hardware Repository, Fritzing and Wevolver. You can find many real-world examples of DiDIY in action also in the DiDIY Project blog ([www.didiy.eu/blog](http://www.didiy.eu/blog)) and resources area ([www.didiy.eu/resources](http://www.didiy.eu/resources)).

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Example: the Arduino project2.

## **BENEFITS OF IPR EXEMPTIONS FOR PRIVATE, NON-COMMERCIAL USES**

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As is the case for traditional DIY and repair activities, DiDIY activities tend to be for private, non-commercial use; sale of self-made objects is always an option, but this typically is not the original intent. Many IPR legislations include exemptions for such uses, in particular in copyright, design rights and patent rights. Trademarks are infringed by using the same mark on similar goods in the course of trade. When there is no trade involved, trademarks should not be applicable. These exemptions could be strengthened to encourage DiDIY activities, extending the life and usefulness of physical products and contributing to a more sustainable planet.

Example: the ifix-it online platform presents many repair manuals3.

## **DIFFERENT BUSINESS MODELS FOR COMMONS-BASED OPEN HARDWARE DESIGNS**

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Whereas traditional business models typically required large upfront investments, which in turn require hierarchical control structures to earn back the investments, Open Source Hardware works differently. Typically communities form around such projects where the burden of R&D is shared between various members. As the designs are shared under non-exclusive conditions, anyone can engage in the production and sale of the products resulting from these designs. Much can be learned from the Free Software and Open Source Software

ecosystems that have so successfully been producing myriad of software projects over the last 30 years. A combination of business models is used. First, the sale of physical products based on shared designs typically occurs at cost price plus margin. Second, leading developers in the community with an established track record of their skills can offer added-value services of various types.

Example: What is an Open Business Model and How Can You Generate Revenue?<sup>4</sup>

## RETHINKING PRODUCT LIABILITY

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Product liability is a consequence of the so called “duty of care”, which is a legal obligation to adhere to a standard of reasonable care when manufacturing and selling products. The advent of DiDIY, however, problematises this issue, by enabling many more individuals to make products, which may contain defects that might prove unsafe. The DiDIY practice of making artefacts oneself - as hobbyist, amateur or in-house - does not necessarily follow the same standards, typically is not certified and tends to be non-market. This ultimately has consequences for the social contract and the way we think about product responsibility and risks.

Example: The CERN Open Hardware License clearly limits warranty and liability<sup>5</sup>.

## FURTHER RESOURCES

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- ✓ Comparison of Online Platforms for Sharing Designs, at FKI Wiki.
- ✓ What's the deal with copyright and patents? (2013) by Michael Weinberg from Public Lab. (PDF, 6,3 MB)
- ✓ Introduction to Hardware Licensing, at FKI Wiki
- ✓ Ayass, M, Serrano, J. (2012). The CERN Open Hardware Licence. International Free and Open Source Software Law Review. Vol. 4, Issue 1.
- ✓ Bradshaw S., Bowyer A., Haufe P., (2010), The Intellectual Property Implications of Low-Cost 3D Printing, 7 SCRIPTed 5, 26-27.

## LEARNING ACTIVITIES

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You can choose the activities of your liking, although we recommend that you start with the first and follow the given order. Please document each of your chosen activities and publish the documentations in the appropriate location, so peers can access them and contribute feedback.

1. Have a look at one of the platforms where people share designs, pick a design project that is Open Source Hardware and explain which rights you have, what you are allowed to do with it and what not.
2. Think of a project you design yourself and discuss which license you will you choose and why. Bonus: Upload a design you made to a platform of your choice.
3. Describe which legal rights you should take into account when selling the objects you made with a 3D printer.
4. Describe the duty of care and how you can limit liability in your project.
5. When you sell an electronics product, which certifications would you need and how can you

obtain them for your product?

6. Think of a broken part that you could replicate with digital fabrication tools and describe how you acquire the digital files and what legal issues you might encounter.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 644344.

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