

Open Design is not a clear-cut ideology, but it has different manifestations

BY JEROEN JUNTE

With angular movements, but extreme precision, the laser cutter moves over a piece of fabric in the Fablab in Amsterdam. Little by little, a sharp pattern forms itself in the fabric. In front of the machine, that resembles a large copying machine, a fashion designer is standing, hands on hips. She waits patiently, as the piece of fabric is transformed into a bathing suit in just a few minutes. In her own workshop it would have taken her days to cut the pattern out of the fabric, but in the Fablab she only has to enter her design into the computer, after which the laser finds its own way. A little further down the Fablab, a designer makes an elegant decoration in a wooden plank with the digital milling machine. The graphic decoration is designed on the computer, after which the milling machine applies it to the wood, all just by pressing one button.

Next to an array of computers, the Fablab has almost ten similarly advanced appliances at its disposal- from knitting machines to laser cutters. And in front of almost every machine, someone is waiting for his or her design to be ready.

"The Fablab is a high tech open workshop where everybody can produce his/her own design or somebody else's", Bas Van Abel of Waag Society, the initiator of the first Fablab in the Netherlands, explains. The use of the machines is free, the participants only have to bring the material. And each design can only be produced once. "The Fablab isn't a factory where designers can produce their products in large quantities." Meanwhile, the Netherlands already has five of these fabrication laboratories, while worldwide, there are already more than forty. All Fablabs are connected by an enormous database. "Everyone who makes something here has to record how his/her product is manufactured. This way we build up an enormous open source database about how you can easily make self-designed products." A wall of the Fablab in Amsterdam is filled with monitors, which show live footage of foreign Fablabs. Van Abel: "If we, for instance, don't know for sure if a material is suitable to be cut with a laser, we can easily check it with a Fablab in Barcelona or Boston."

3D-PRINTER

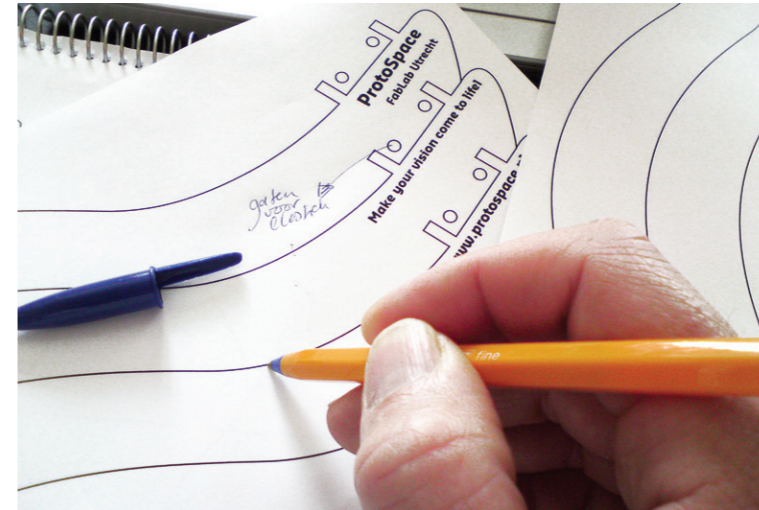
This innovative way of digital production, where knowledge is freely accessible, is called Open Design. "If someone in the Fablab has engraved a piece of soap with laser, it must be possible for everyone to read how this is done, so that not everything has to be reinvented over and over again. "The extent in which the design is really shared, depends on the designer. Van Abel: "With the peer-to-peer system, all knowledge is freely accessible. But a designer can choose to only share knowledge about the production process and not give permission to reproduce the design."

The rise of the Open Design is closely connected to the development of digital production techniques, such as computer-controlled milling machines or laser cutters.

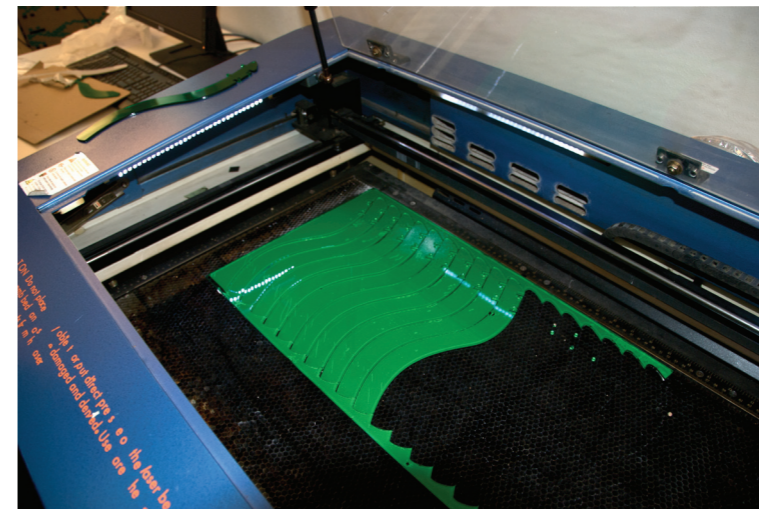
The cost price of such machines has dropped to less than a thousand Euros. The most extreme example of this is the 3D-printer, an advanced machine that builds up products layer by layer by 'burning' synthetic fabrics to each other with a laser beam. This makes it possible to realize almost every design with one push on a button, on condition that the design is digitally filed. This way, the production of goods shifts from manufacturer to consumer. "Imagine there is a digital printer in every post office, or DIY stores like Gamma, where you can download your design, print it and take it home with you." One step further would be that consumers have their own printer at home. According to Van Abel, that's only a question of time. "Already there is a RepRap out there, a digital 3D-printer that can reproduce itself. It won't be long before everybody knows somebody with a 3D-printer to make their own 3D-printer with."

The advantages of this Open Design are evident. Van Abel: "In principle, everybody can make products themselves, without interference from the industry. A consumer, say, in Japan can manufacture a product from a designer in Norway using a technique that has been developed by someone in Brazil. Just think about the amount of energy saved in transport and distribution of raw material. With this, the process of innovation will be accelerated; creativity and knowledge will be shared. After all, two know more than one." Another asset of this personal fabrication is that products can be better adjusted to the individual wishes of the consumer. By way of illustration: someone with extremely big hands can very easily produce gloves in size XXXL, thanks to Open Design. "Nowadays,

FABLAB DESIGN PROCESS



Consider what you want to make. Create a digital design. Go to a Fablab.



Make your design on one of the digital machines.



Assemble your product and upload your design.

companies produce bulk to recover the investments made in moulds and machines".

INSTRUCTABLES RESTAURANT

The rise of Open Design is closely connected with the Internet, which has expanded the possibilities to express and share creativity tremendously. Millions of people build websites, edit pictures or post clips on YouTube. This do-it-yourself-culture is now crossing over to the physical world. Already on the website Instructables.com, more than a million people post their ideas, varying from culinary tips to the design of new products.

During PICNIC, the annual media and technology conference that takes place in the Westergasfabriek in Amsterdam, a restaurant is built that is entirely composed on the basis of ideas on Instructables.com. One of the supporting themes of PICNIC this year is Open Design. "Just as people freely swap recipes so that everybody can prepare a course, you can find all information on how to equip a restaurant yourself on websites like www.instructables.com" says Arne Hendriks, co-initiator of the Instructables Restaurant. "The Instructables Restaurant is really a metaphor for Open Design. Presently we find it's totally normal to download recipes. Why wouldn't it be self-evident to make a chair using a design from the Internet?" Of course Hendriks has put the manual for the Instructables Restaurant on the site too. "The beauty of it is that everyone can adapt the restaurant to their own wishes. A vegetarian in Berlin will make a slightly different restaurant than a meat-eater in Rio de Janeiro."

Meanwhile, next to peer-to-peer platforms such as Instructables.com there are also websites that offer professional designers and amateurs the possibility to commercialize their ideas. On Ponoko.com designers can find a manufacturer for their products. On Etsy.com they can sell their self produced designs. Hendriks: "Open Design is not a clear-cut ideology, but it has different manifestations. As long as knowledge is shared, there will be a case of Open Design. The only difference per case will be what is shared and what is not."

GYM SHOES

If soon everybody is a designer, the professional product-designer should re-educate him/herself. "It won't come to that", predicts designer Frank Tjepkema. "Anyone can design a vase. It only needs a water reservoir and a hole to put the flowers in. But a gym shoe for example, takes years of research by Nike or Adidas.

After all, when everybody can copy a design for free, how will a designer make money?



Fablamp II by Joris

That's not something you design just like that in your attic room." According to Tjepkema, it's mainly that the production will shift to the consumer, not the designing. "The concept of the product with which consumers can get to work, will always be devised by a professional designer." But developments go fast. This summer, the first Fablab House was built in Madrid. This flexible house is energy-neutral and can be reproduced in fifteen days. "No-one knows better than an architect how to build a house. But a thousand people know more than one architect." Although, Hendriks also wonders who will monitor the safety of

the Fablab House when there is no longer one architect with final responsibility. "These are interesting questions to which there is no answer at this moment."

Of course it's a small group of pioneers that want to build a do-it-yourself house. Even the number of consumers that will make the effort to design products and produce them afterwards, will always be the minority. Tjepkema: "When the DIY stores shot up like mushrooms in the eighties, that didn't mean everyone started building their own house. Someone who isn't creative will not feel the need to spend a lot of time and effort to invest in a self-made

product. In practice it will usually be about customizing, the adaptation of mass products to individual wishes of the consumer."

Still, there are various designers that flirt with Open Design. Last March, Joris Laarman presented a concept in New York where 5 different robots folded a chair within a few seconds. "The consumer him/herself can change the sizes. If you're somewhat smaller, you can make the seat smaller, for instance. Unfortunately, his furniture manufacturer Vitra isn't interested in developing this prototype until further notice."

So Laarman experiments with his own studio about the possibilities of digital manufacturing. A few years ago he invented the Bone Chair. This chair is designed and produced with the aid of advanced software from the automotive industry and could be produced digitally anywhere around the world. The problem, according to Laarman, is the monitoring on the production and the as yet limited choice of material.

"Maybe the manufacturers use inferior raw materials, or maybe they make a stack which they sell illegally, after you're gone." With the design platform Droog Design and Waag Society, Laarman is devising a way in which this production can be regulated. He has already decided to make advance use of this development: "I hope that in a few years time I will have a workshop in which I produce designs for others. Not ashtrays or doormats, but cool products that I wished I had thought of myself."

MYSPACE.COM

Even though, Laarman is also still sceptical about the blessings of Open Design. His main concern being 'how do I prevent my design from being copied illegally if I release it?'

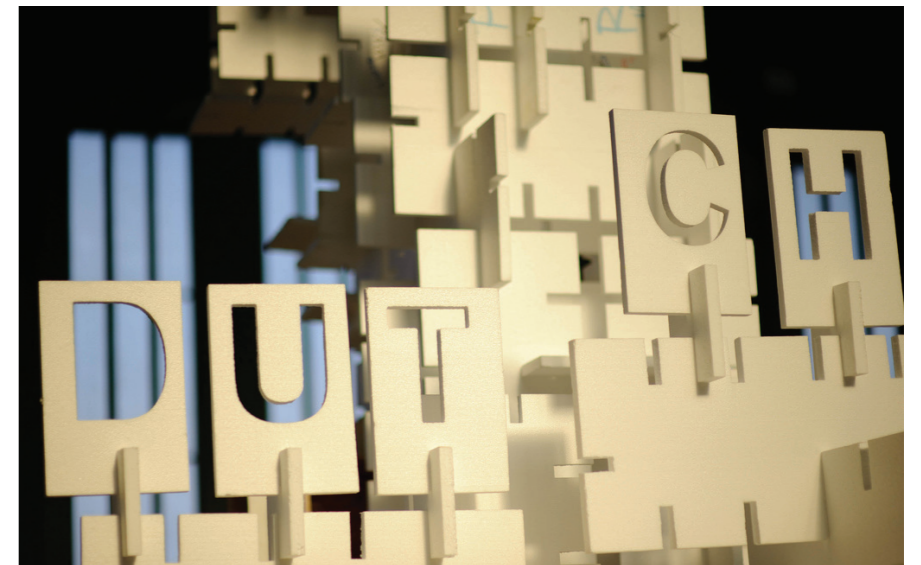
By protecting it with Creative Commons, says Lucas Evers of Waag Society, that together with the think tank Nederland Kennisland and the Institute for Information law, makes a case for the promotion of this new system of license. "With Creative Commons a designer can indicate whether his/her design can be adapted unlimited, or reproduced,

provided that his/her name will be mentioned. But the designer can also indicate that the design can't be adapted or that reproduction for commercial purposes is forbidden. In total there are six of these kinds of restrictions." And that, according to Evers, is the difference with the existing copyright, where a design is always fully protected. "With Creative Commons a designer can decide the extent to which the design is released. If someone infringes on the limitations that are registered with Creative Commons, you can go to court for a production ban or damages, just as you can with the traditional copyright. In this respect, nothing changes." But, Evers warns, there is also a downside to Creative Commons. "Once a design has been released, there's no way back." Another dilemma with which Laarman – and many other designers with him – struggles is how Open Design can generate income. After all, when everybody can copy a design for free, how will a designer make money? "Open Design forces designers to choose a different business model", says Van Abel of the Fablab. "If a design is frequently downloaded and produced, the designer can make money by selling a limited or signed edition of that product. Open Design acts as a stage on which designers can make themselves known." Moreover, a manufacturer will often present itself, wanting to take a popular design in production. The designer will receive royalties – provided a design is protected by a Creative Commons license of course. As Van Abel is convinced there will always be a demand for traditional ways of production and distribution. "Open Design is no replacement, but an alternative. You can compare it to bands that offer a free song on Myspace.com to download, hoping that a consumer will pay for the rest of the album on iTunes."

Evers of Creative Commons feels that even companies can profit from Open Design. "A manufacturer of prams can put the sketch of the wheels or the spring system on the Internet. If that part breaks down, the consumer can simply download a sketch and print the wheel or the spring system. The manufacturer can simply have a once-only increase of the purchase price in place for this service and doesn't have to maintain an intensive system of distribution and sale of spare parts, which makes the company more efficient and more lucrative."

(UN)LIMITED DESIGN CONTEST

In the end the manufacturer, as well as the consumer and the designer will profit from Open Design. But, Van Abel also has to admit, it's not that far down the road yet. "The communication between



MakerLab at DMY Berlin

the Fablabs isn't optimal either, because there is no universal code yet with which the knowledge can be documented. Just as for software, a new language has to be invented for digital fabrication." Besides that, most digital production machines are valuable and not easy to use. No wonder that only a select company of students, artists and other creative professionals have found their way to the Fablab.

To promote the use of Open Design, the (Un)limited Design Contest has been organized together with design platform Prensela and Creative Commons NL. "As everybody has to be able to participate, we have kept the procedure very simple," Van Abel says. "Make a digital design, print it and put it together. That's it." Participants can send in their own design or use an existing design from the database of Fablab as a starting point. Categories vary from Form, Food, Fashion and Fusion. Entirely in style, the best design will be awarded with a 3D-printer.

The only condition is that contributions are all actually made in the Fablab and can also be imitated or adapted. The (Un)limited Design Contest is the only design contest in which all participant can be sure that their design will actually be taken into production. Van Abel: "They can even offer their design for sale on Etsy.com. This is Open Design in optima forma!"

waag.org/opendesign
unlimiteddesigncontest.org
instructablesrestaurant.com

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