



Aalto University
Media Factory

Digital_Fabrication_Studio.01

Fabbing and Fab Labs - history, concepts, fields of application

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<http://www.slideshare.net/openp2pdesign>



02.05.2012

Aalto Media Factory
Helsinki

25438 Digital Fabrication Studio (Media Lab)

May 2nd 2012, 17:00-20:00: Lecture: **Fabbing and Fab Labs:** history, concepts, fields of application and business models for the projects. Project: brainstorming for the development of a concept and business model for the group projects.

May 3rd 2012, 17:00-20:00: Lecture: **Projects and information:** how to manage, embed and retrieve information about projects from databases, websites and the object itself. Project: further development of the concept using some of the information management software covered.

May 7th 2012, 17:00-20:00: Lecture: **Software:** how to design a project for digital fabrication with 2D and 3D software. Project: development of the first blueprints from the sketches using the software covered in the lecture.

May 8th 2012, 17:00-20:00: Lecture: **Laser Cutting:** materials, finishes and features of 2D digital fabrication. Practice: exercise with laser cutting and further development of the group projects.

* **Media Lab website:** <http://mlab.taik.fi/studies/courses/course?id=1963>

* **Oodi:** link

* **Noppa:** <https://noppa.aalto.fi/noppa/kurssi/25438/etusivu>

* **Slideshare:** <http://www.slideshare.net/openp2pdesign>

* **Facebook:** <https://www.facebook.com/AaltoFablab>

* **Twitter:** <https://www.facebook.com/AaltoFablab>

25438 Digital Fabrication Studio (Media Lab)

May 14th 2012, 17:00-20:00: Lecture: **CNC Milling**: materials, finishes and features of sculpting 3D objects with subtractive manufacturing. Practice: exercise with cnc milling and further development of the projects.

May 15th 2012, 17:00-20:00: Lecture: **3D Printing / 3D scanning**: from atoms to bits and back. Practice: exercise with 3D scanning, 3D printing and further development of the group projects.

May 21st 2012, 17:00-20:00: Lecture: **Molding and Casting**: materials, finishes and processes for making small series of digitally fabricated objects. Practice: exercise with molding and casting and further development of the group projects.

May 22nd 2012, 17:00-20:00: **Final presentation:** Presentation of the group projects (physical object, blueprints and documentation of the manufacturing process). Collaborative discussion: feedback about the projects and the course from everybody.

* **Media Lab website:** <http://mlab.taik.fi/studies/courses/course?id=1963>

* **Oodi:** link

* **Noppa:** <https://noppa.aalto.fi/noppa/kurssi/25438/etusivu>

* **Slideshare:** <http://www.slideshare.net/openp2pdesign>

* **Facebook:** <https://www.facebook.com/AaltoFablab>

* **Twitter:** <https://www.facebook.com/AaltoFablab>



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Today:

- * Digital Fabrication
- * FabLabs
- * Other spaces and services
- * The business of Digital Fabrication
- * Our projects



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01.

Digital Fabrication: interactions between bits and atoms

A craft project



“This exact material (atoms) and my perception and experience (bits)”

Source: <http://www.flickr.com/photos/kellycdb/6168020183/>
<http://commons.wikimedia.org/wiki/Category:Wood>

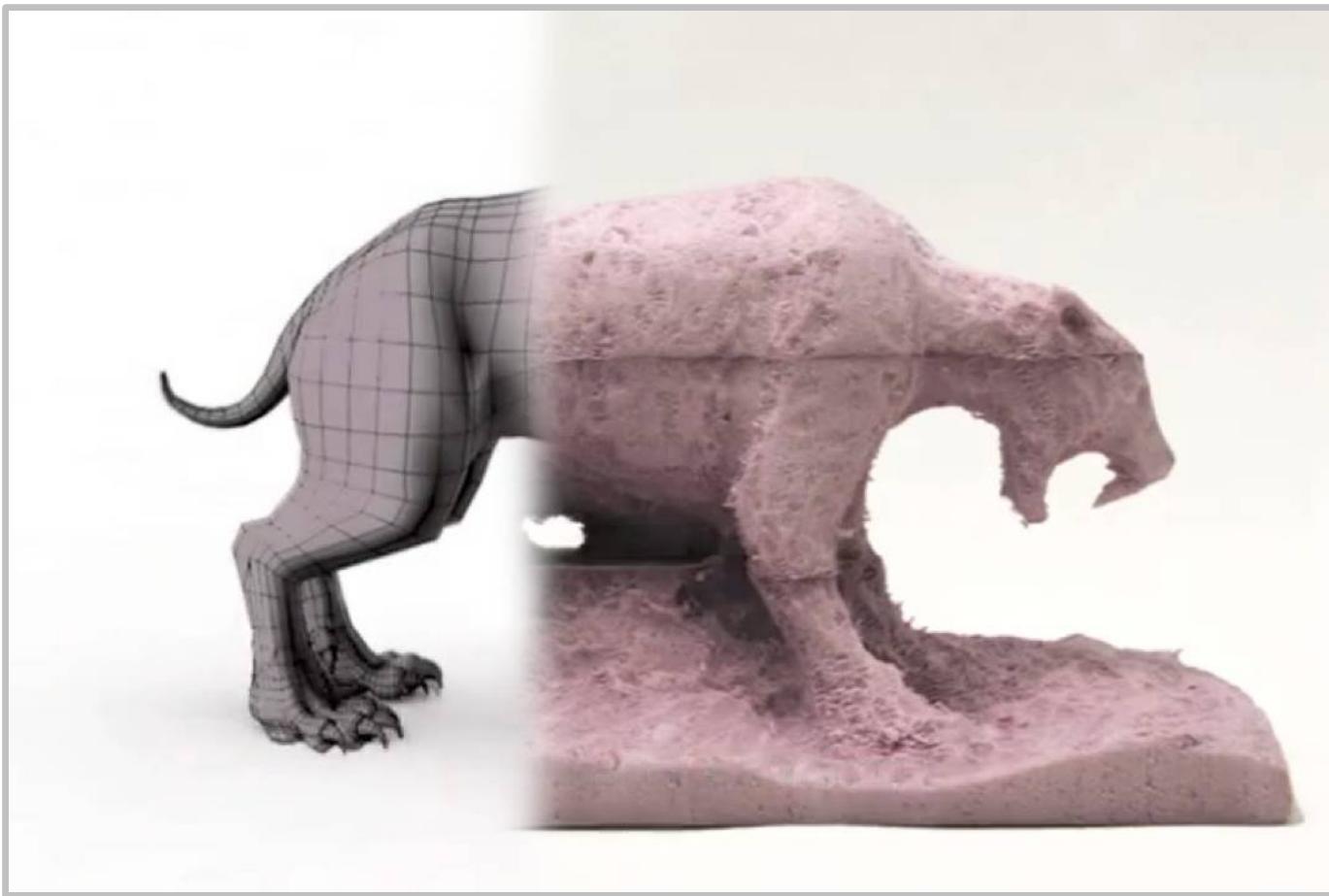
An industrial project



“A standardized material (atoms) described
only by numerical values (bits)”

Source: <http://commons.wikimedia.org/wiki/Category:KUKA>
<http://commons.wikimedia.org/wiki/Category:Polyethylene>

A digital fabrication (fabbing) project



“My experience, perception and digital information (bits) shape this exact material and its values (atoms)”

Source: http://web.media.mit.edu/~amitz/Amit_Zoran_home_page/the_freeD.html

A digital fabrication (fabbing) project



“... and I will probably design and make my own tools” [metadesign]

Source: http://web.media.mit.edu/~amitz/Amit_Zoran_home_page/the_freeD.html

A digital fabrication (fabbing) project



“... and I will probably design and make my own tools” [metadesign]

Bits + atoms = information + materials



fablab
waag society

what you can do in fablab amsterdam ▾

projects ▶

equipment ▶

embroidered speaker tryout



Fab Prosthetics

Abstract The major objective of prosthetics is to restore the functional capacity formerly held by a limb deficient person as closely as...



Fab Foos

Fab Foos is a open source Table Soccer Game, featuring 2 web cams, audio response, electronic counter system and vga out. The goal was to built the...



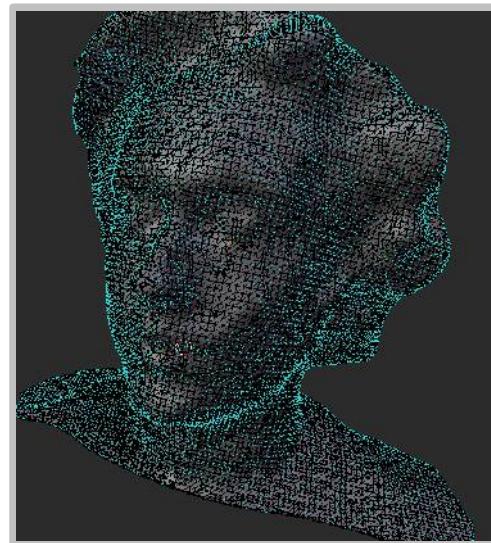
Comm. Design

During my three months at

Developing projects at the intersections
between bits and atoms

Source: <http://fablab.waag.org/node/3847>

Bits and atoms – two directions



From atoms to bits
(getting data -
representation)

From bits to atoms
(build the data -
representation)

Digital Fabrication and bits+atoms: CBA @ MIT



THE CENTER FOR
BITS AND ATOMS
Massachusetts Institute of Technology



... not the center for rapid prototyping: “investigating the interface between computer science and physical science”

Source: <http://cba.mit.edu/>
http://en.wikipedia.org/wiki/Neil_Gershenfeld

Fab.01: Machines attached to a computer

Google patents

Search Patents Advanced Patent Search

MOTOR CONTROLLED APPARATUS FOR POSITIONING MACHINE TOOL Frank L. Stulen et al

Overview Abstract Drawing Description Claims +1 0

Search in this patent Go

United States Patent Office

Patent number: 2820187
Filing date: May 5, 1952
Issue date: Jan 14, 1958

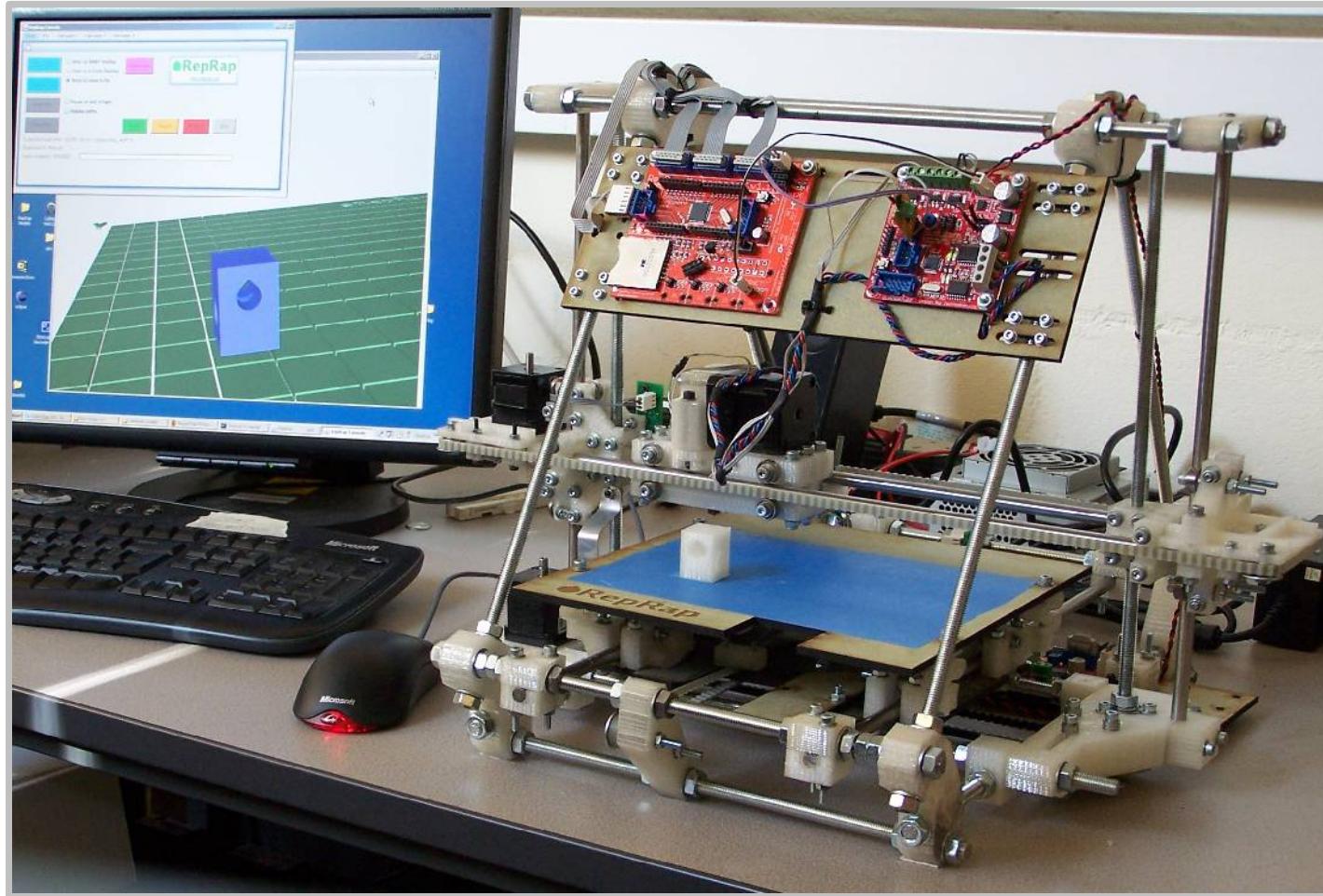
Filed May 5, 1952

7 Sheets-Sheet 1

The diagram illustrates a complex industrial machine, specifically a numerical control (CNC) system from the 1950s. It features a tall vertical column with a control panel (labeled 28) mounted on top. A horizontal worktable (labeled 16) is positioned below the column, supported by a base (labeled 10). The worktable has a track or slot system (labeled 24) for guiding a cutting tool. A small control unit (labeled 52) is located at the bottom left. Various mechanical parts are labeled with numbers such as 18, 22, 30, 32, 34, 36, 48, 50, 56, 12, 14, 15, and 16.

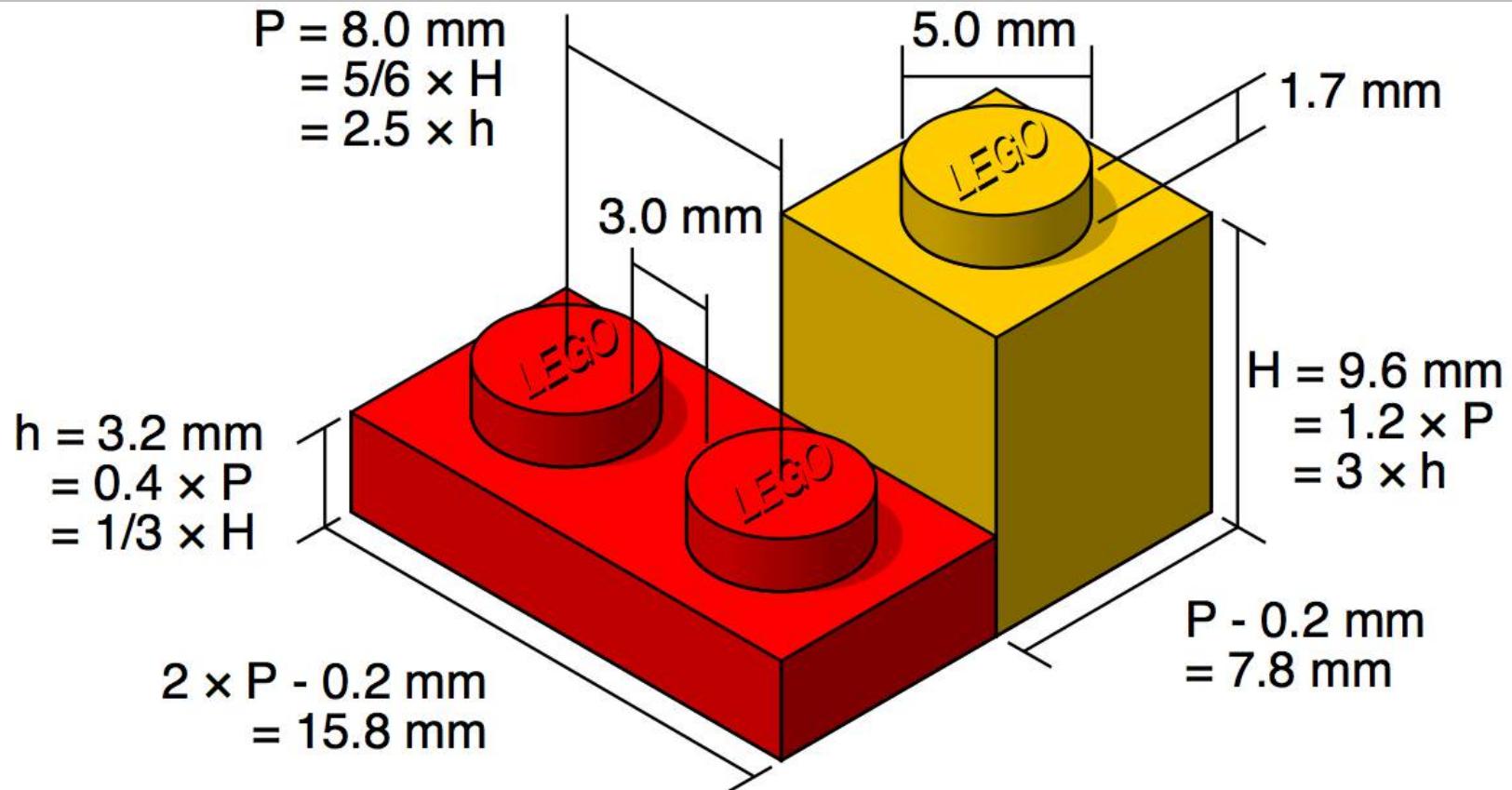
1950s: first computer numerical control (CNC) machines, attached to computers

Fab.02: Machines that make machines



2005: RepRapa (open source) 3D printer that replicates itself (and that generated an ecosystem of 3D printers)

Fab.03: Materials with embedded code



Materials with an embedded code that help shaping them.

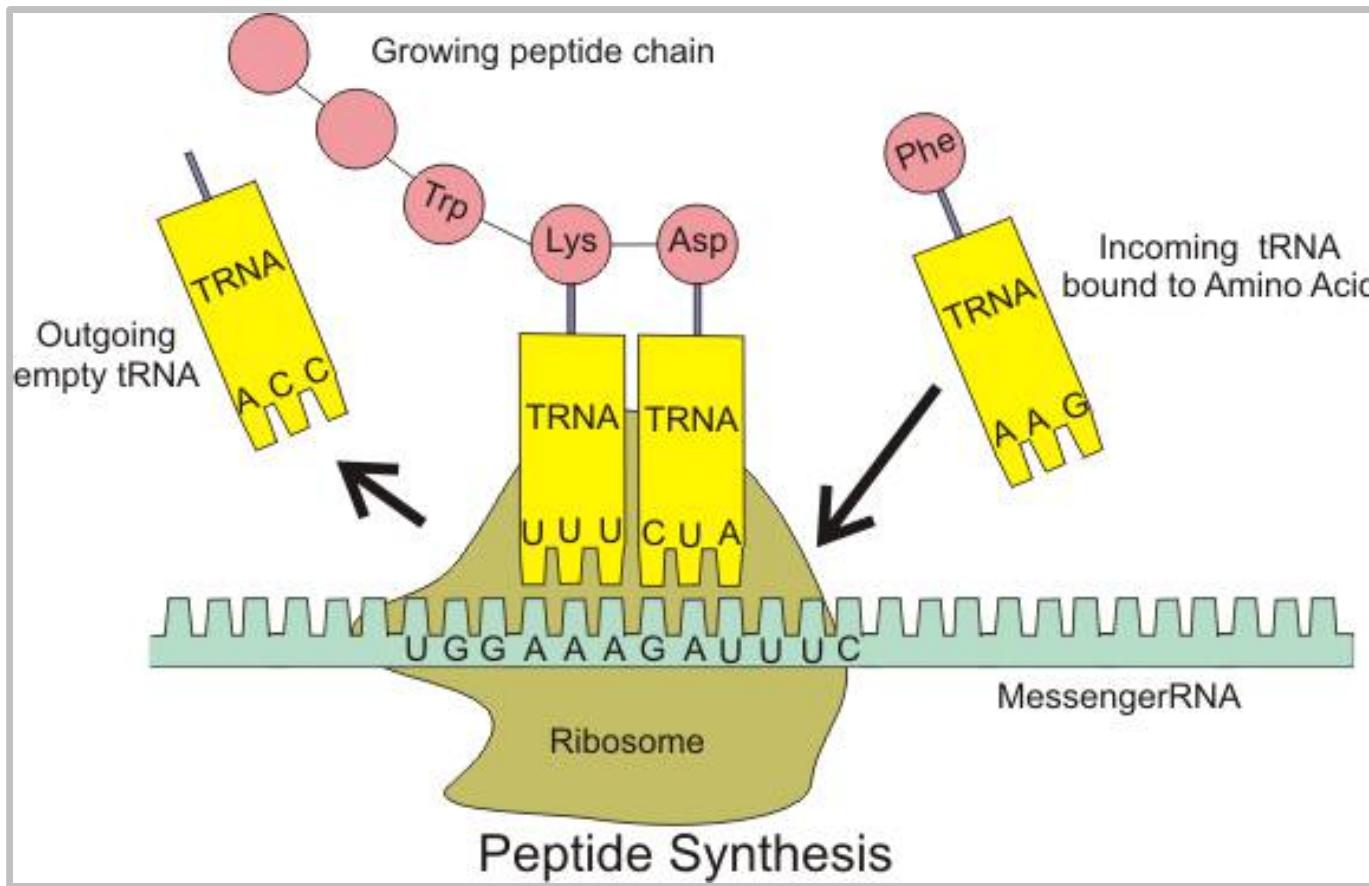
Fab.03: Materials with embedded code



North Carolina State University: a simple way to convert two-dimensional patterns into three-dimensional (3-D) objects using only light.

Source: <http://news.ncsu.edu/releases/wmsdickeyfolding/>
<http://www.youtube.com/watch?v=NKRWZG67dtQ>

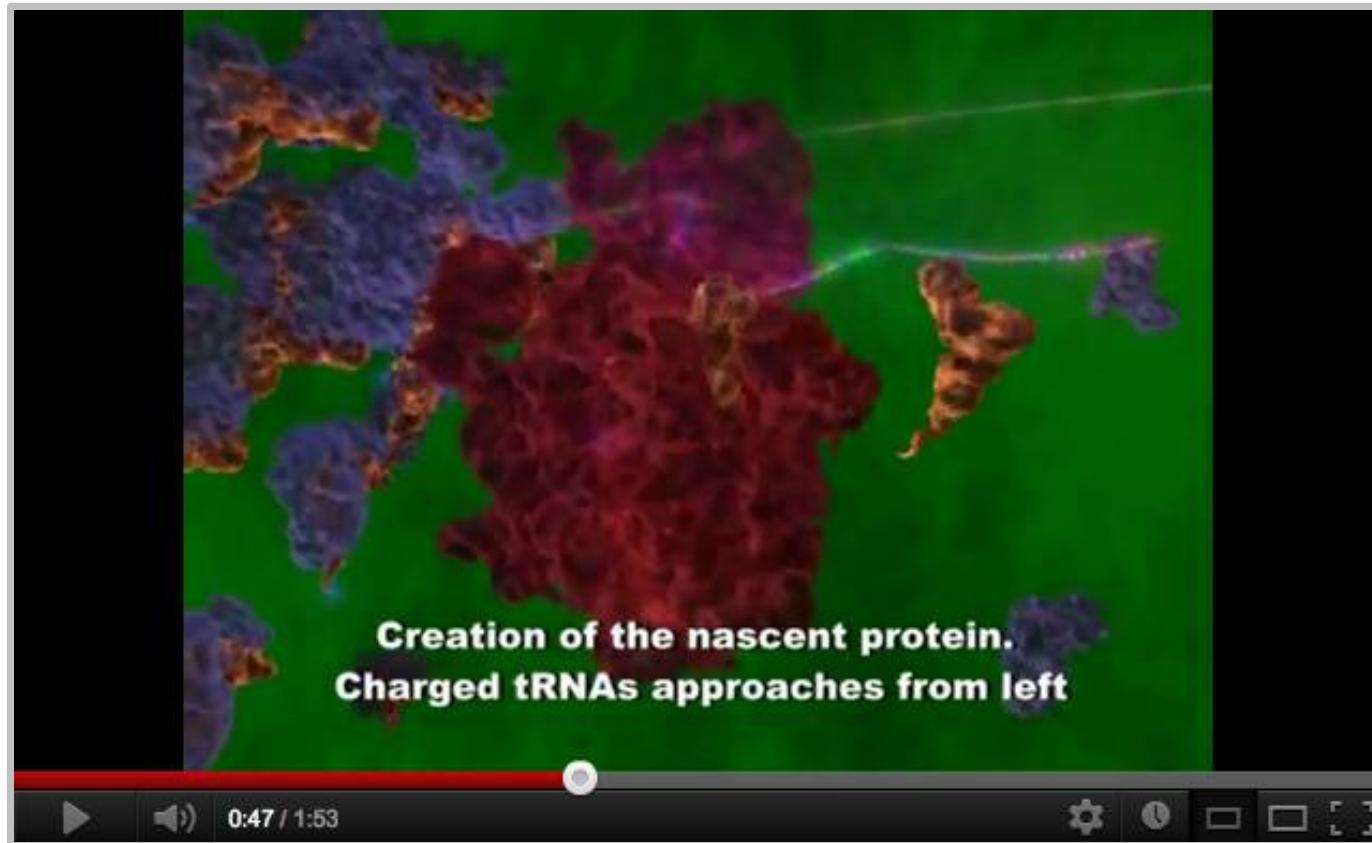
Fab.04: Materials with embedded program



Materials that have code, data and programs
for self-manufacturing / auto-assembly.

Source: <http://en.wikipedia.org/wiki/Ribosome>

Fab.04: Materials with embedded program



Materials that have code, data and programs
for self-manufacturing / auto-assembly.

Source: <http://www.youtube.com/watch?v=Jml8CFBwcds>
<http://www.youtube.com/watch?v=1PSwhTGFmxs>

Fab.04: Materials with embedded program



Materials that have code, data and programs
for self-manufacturing / auto-assembly.

Source: http://www.ted.com/talks/skylar_tibbits_can_we_make_things_that_make_themselves.html
<http://youtu.be/emW1TQ290ec?t=2m10s> <http://www.sjet.us/SJET-MIT.html>

Fab.04: coming to the Design world, soon

Training Bacteria To Grow Consumer Goods

By Christopher Mims

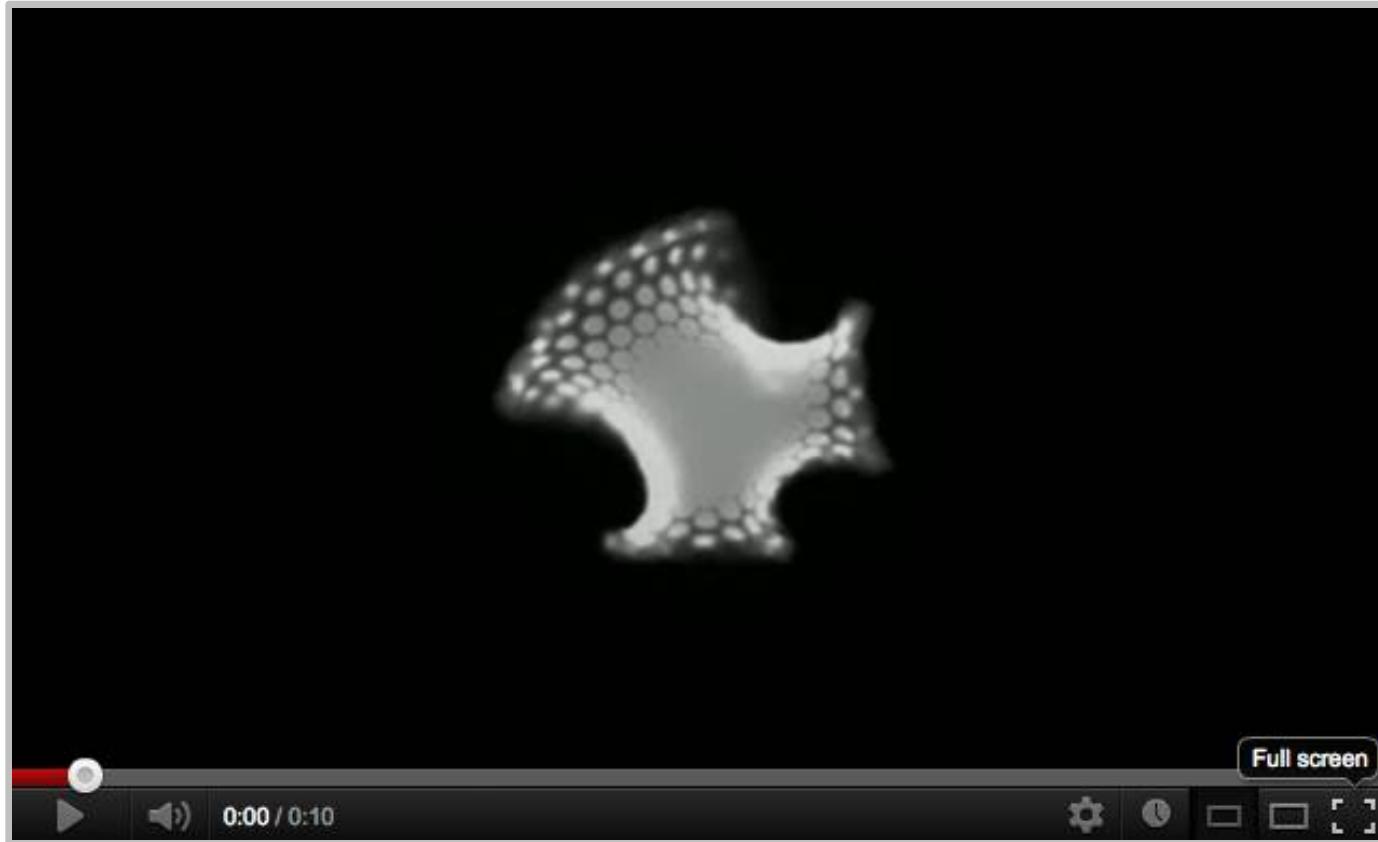
Thinkers at IDEO are working with scientists to find a way to have E. coli bacteria form objects--like a coffee cup--when exposed to light. It's nature's version of 3-D printing.



Even IDEO is already researching how to manufacture products starting from bacteria that create shapes through self-organization.

Source: <http://www.fastcompany.com/biomimicry/training-bacteria-to-grow-consumer-goods>

Fab.04: coming to the Design world, soon



[...] spreading a pattern on a responsive material to control how it deforms when exposed to a stimulus [...]

Source: <http://www.newscientist.com/blogs/nstv/2012/03/plant-mimicking-gel-could-morph-into-any-3d-shape.html>
<http://www.youtube.com/watch?v=J7MyjOTynK0>

But coming back to Fab 1.0 / 2.0 in 2012



Laser cutting



CNC milling



Vinyl cutter



3D Scanner



3D printing



Digital sewing /
embroidery
machine



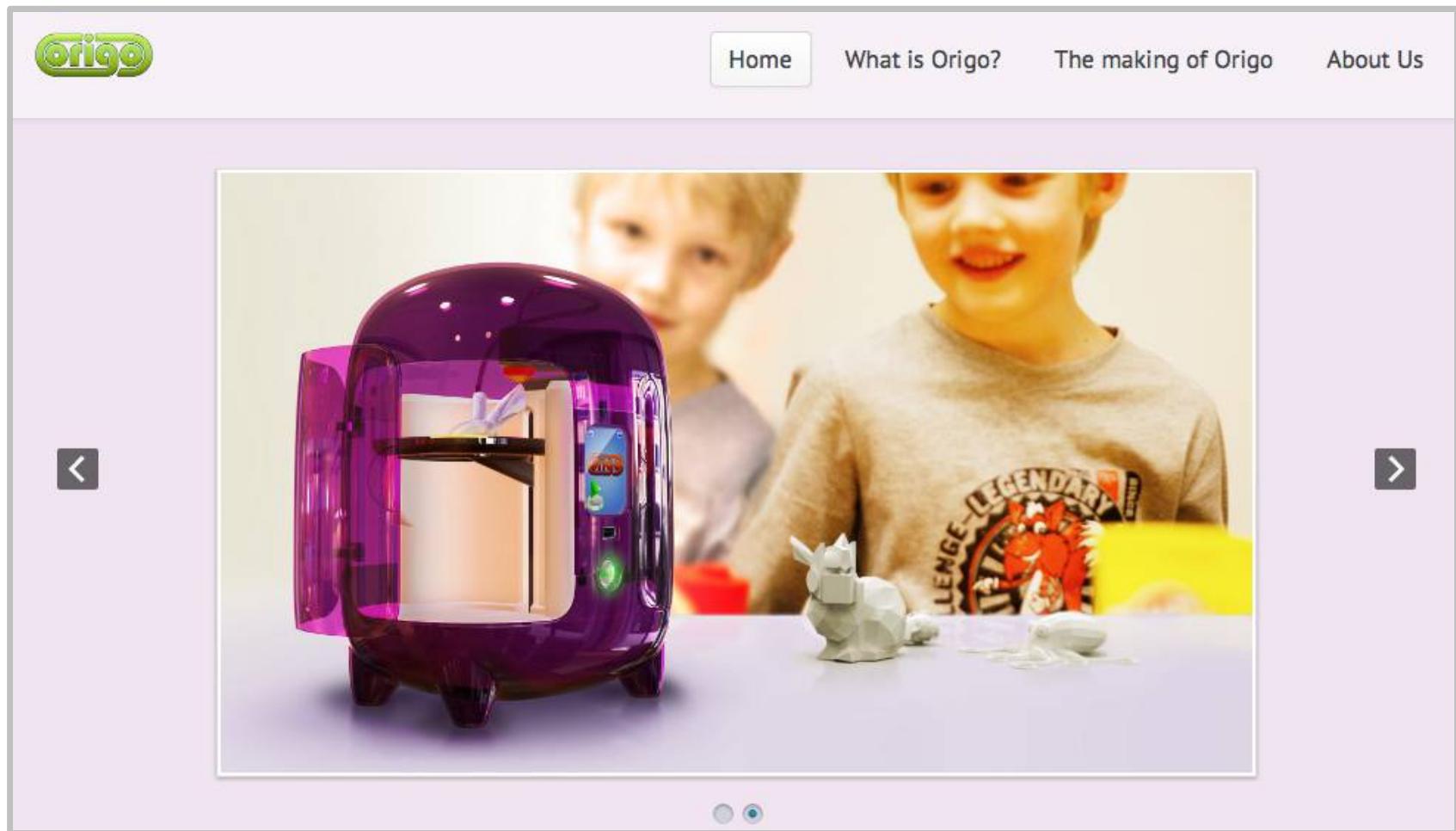
CNC milling



Electronics

This is what you usually can find in a FabLab, at the moment.

Democratization of Digital Fabrication



“Hello, I am Origo. I am a 3D printer for ten year olds.”

Source: <http://www.origo3dprinting.com/>

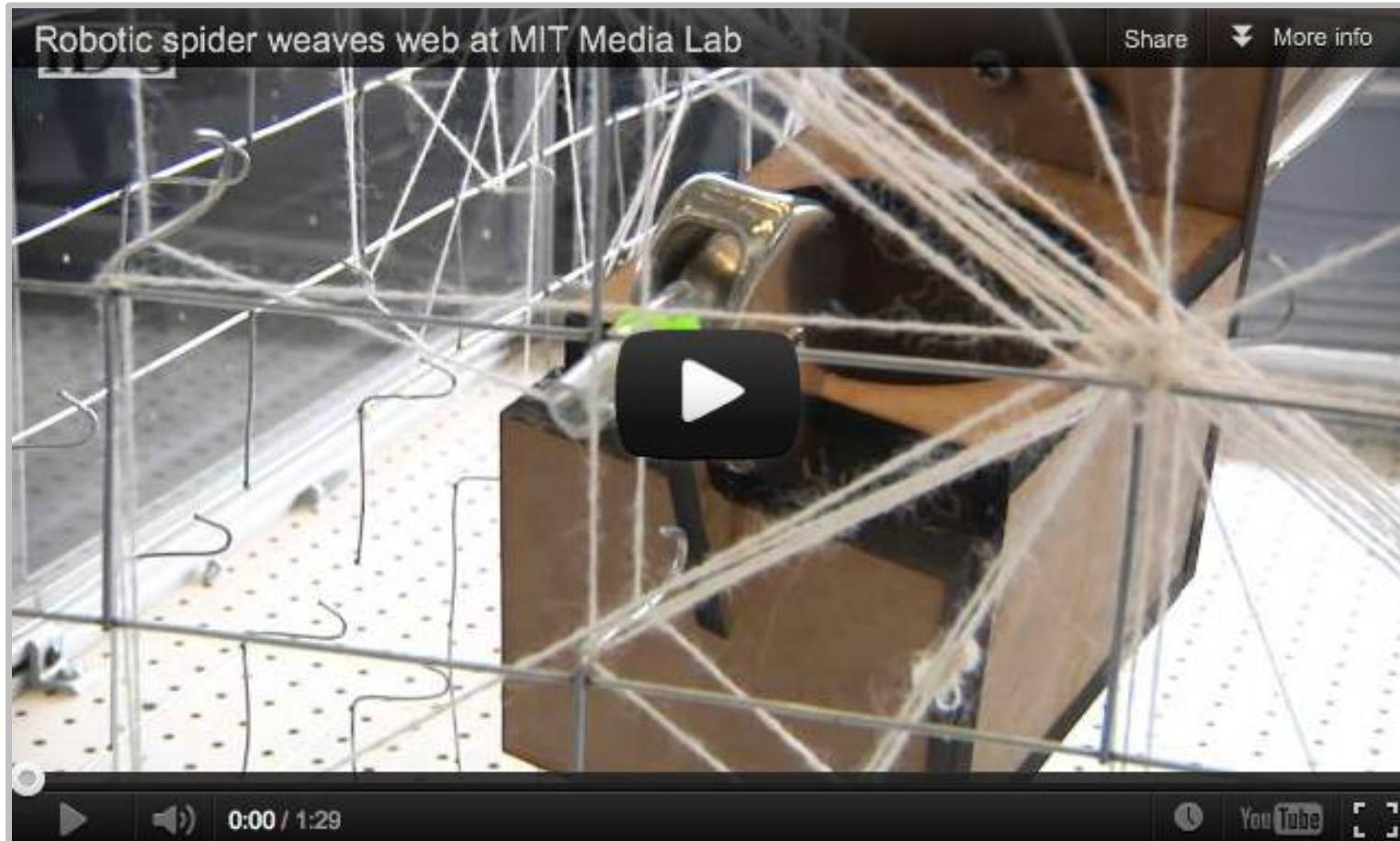
... and Digital Fabrication became famous



Digital Fabrication / distributed manufacturing as a
viable tool / strategy for business.

Source: http://www.wired.com/magazine/2010/01/ff_newrevolution/
<http://econ.st/tnr97E>

And build your own machine...



Not only cutting and printing, also weaving...

Source: <http://www.fastcodesign.com/1669627/holy-crap-this-mit-robot-might-one-day-weave-a-building>
<http://youtu.be/JgeFLGfvrEM>



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02.

FabLabs: spaces for collaborative use of digital fabrication technologies

A space that democratizes digital fabrication



Exploring collaboratively the interactions between bits and atoms, rather than making (almost) anything...

Source: <http://www.flickr.com/photos/protospace/5199454304/>

Conditions for being a FabLab

Conditions:

- * **public access** to the fab lab
- * **support and subscribe** to the fab lab charter
- * **share a common set** of tools and processes
- * **participate** in the global fab lab network (no isolation)

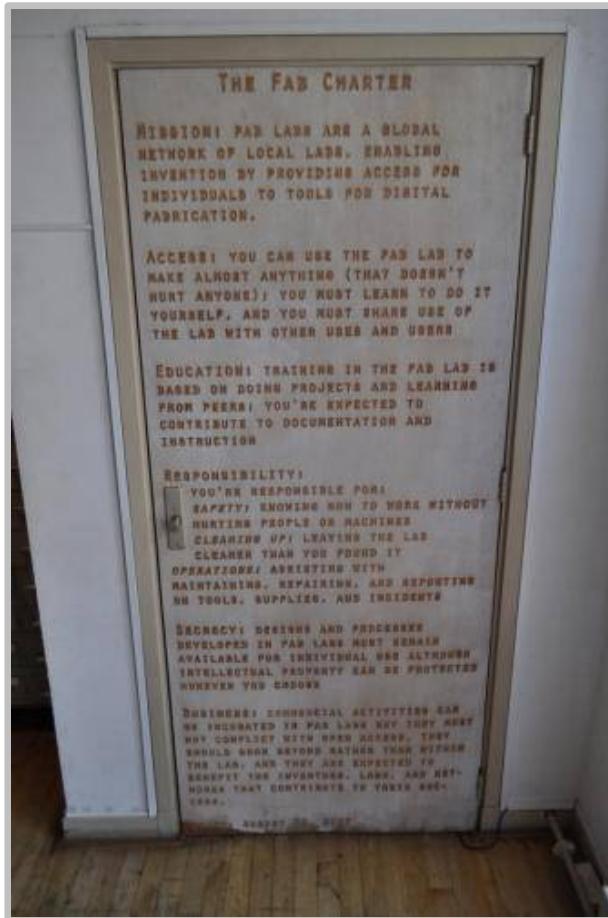
The **Fab Lab conformity rating** is a code that describes how closely a lab meets the conditions for use of the Fab Lab label. It is a quick summary of the lab "now", can change over time. The conformity rating is self-assessed or community-assessed.

Fab Charter

- * **Mission:** fab labs are a global network of local labs, enabling invention by providing access for individuals to tools for digital fabrication.
- * **Access:** you can use the fab lab to make almost anything (that doesn't hurt anyone); you must learn to do it yourself, and you must share use of the lab with other users and users
- * **Education:** training in the fab lab is based on doing projects and learning from peers; you're expected to contribute to documentation and instruction
- * **Responsibility:** you're responsible for:
 - * safety: knowing how to work without hurting people or machines
 - * cleaning up: leaving the lab cleaner than you found it
 - * operations: assisting with maintaining, repairing, and reporting on tools, supplies, and incidents
- * **Secrecy:** designs and processes developed in fab labs must remain available for individual use although intellectual property can be protected however you choose
- * **Business:** commercial activities can be incubated in fab labs but they must not conflict with open access, they should grow beyond rather than within the lab, and they are expected to benefit the inventors, labs, and networks that contribute to their success.

August 30, 2007

Fab Charter (Amsterdam, Netherlands)



The Fab Charter is always visible in a FabLab

FabN : the yearly meeting



CONFERENCE

- Profile
- Programme
- Symposium

CONTENT

- Workshops
- Speakers
- Supporters

INFO

- Travel
- Accommodation
- Wellington

FAB LAB

- The Lab
- Facilities
- Access

Profile

FAB8NZ is the 2012 incarnation of the annual international Fab Lab event which gathers field practitioners and laboratory researchers from the Fab Lab network and beyond, for a week of hands-on workshops and a one day academic symposium on the principles and applications of digital fabrication.

FAB8NZ will be hosted by The College of Creative Arts at Massey University, in conjunction with the Centre for Bits and Atoms at MIT, The Fab Lab Network and the Affect Research Centre, from 22-28 August in Wellington, New Zealand.

Every year in August in a different country:
this year New Zealand, next year Japan.

Source: <http://www.fab8nz.com/>

Fab Academy

APPLICATION FORM CONTACT FACULTY METHODOLOGY SCHOLARSHIPS VIDEOGALLERY WHAT IT IS? [f](#) [t](#) [y](#) [r](#)



FAB ACADEMY

PRINCIPLES, APPLICATIONS AND IMPLICATIONS OF DIGITAL FABRICATION



GRADUATION AT FAB CONFERENCE EVERY YEAR

The Fab Academy began as an outreach project from the CBA, and has since spread to Fab Labs around the world.

Source: <http://fabacademy.org/>

The International Fab Lab Association



The International Fab Lab Association
The public window to the international Fab Lab community.

Home

- Fab Association
- Why we are here
- Who we are
- Our board
- What we want
- How to join

Fab Lab

- Where does it come from
- What is it in essence
- The Fab Charter
- Where are they located
- How to start one

Fab Ecosystem

- Newsroom
- News
- Upcoming Events
- Newsletters
- Blog

Resources

- Reading and watching
- Past events

Members area

Home



Image by Frosti Gielasor, 2010

Welcome to the International Fab Lab Association

Fab Lab International is an association of individuals interested in and/or involved in the Fab Lab community. It is a democratic organization run by its members. Their general meeting elects a board which handles the daily business.

On the 4th of July 2011, the International Fab Lab Association was established. It is an association with members, a Board and an Academic Council, etc.

Source: <http://fablabinternational.org/>
<http://fablabinternational.blogspot.com/>

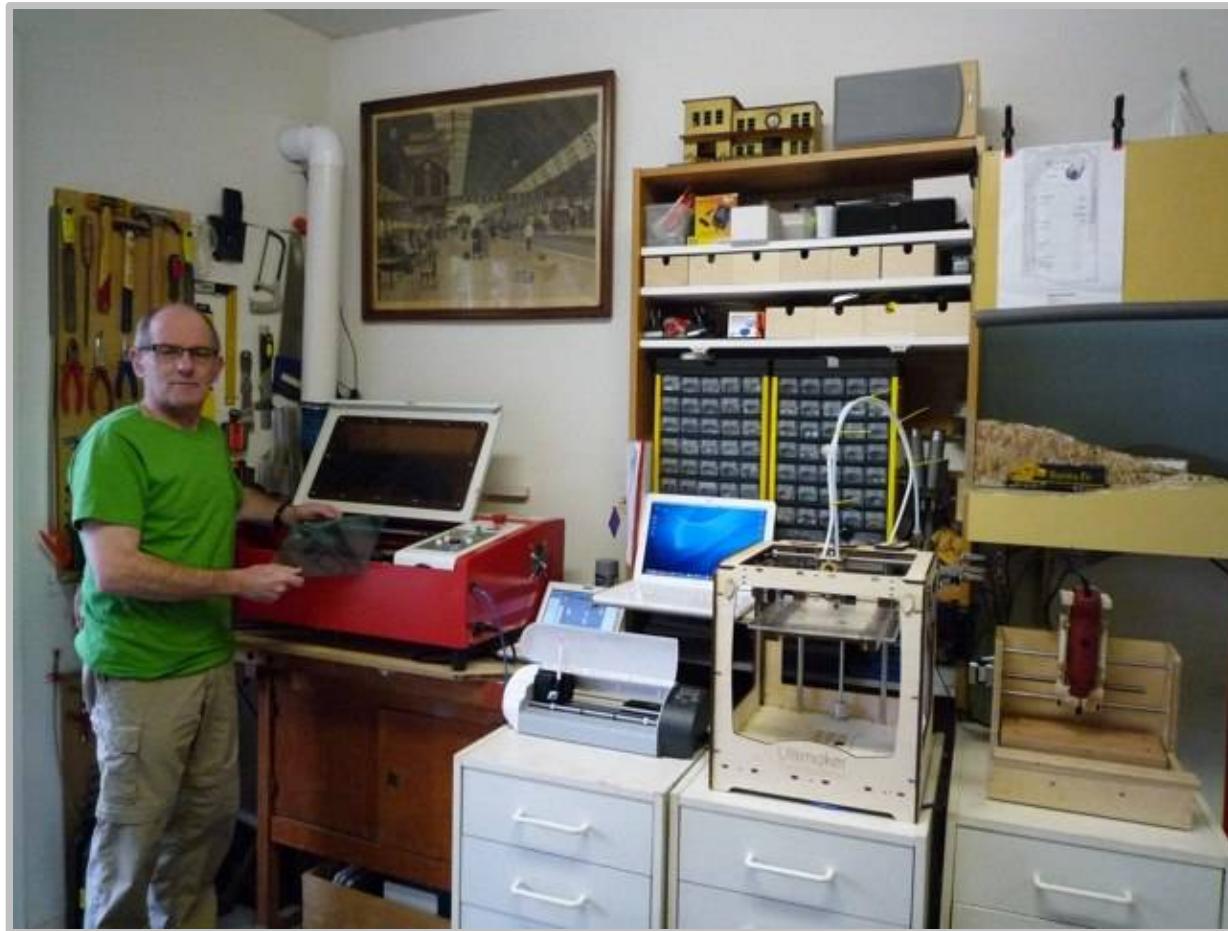
Fab Lab Amsterdam (Netherlands)



Fablab Amsterdam is hosted by Waag Society, a non profit organisation active in the field of social innovation through creative technology.

Source: <http://fablab.waag.org/>
<http://www.flickr.com/photos/37873897@N06/4973326149/>

Mini Fab Lab (Utrecht, Netherlands)



A FabLab in your room for 3500 €.

Mobile Fab Lab



In USA, Europe, South Africa...

Source: http://en.wikipedia.org/wiki/Mobile_fab_lab

Fab Lab Afghanistan (Jalalabad, Afghanistan)



Not only in USA or Europe ...

Source: <http://www.fablab.af/>

Fab Lab Afghanistan: FabFi, a project



An open-source, FabLab-grown system using common building materials and off-the-shelf electronics to transmit wireless ethernet signals.

Source: <http://fabfi.fabfolk.com/>

FabLab Barcelona (Spain)



FAB LAB BARCELONA

HOME EL FAB LAB EQUIPAMIENTO SERVICIOS VIDEOS GALERIA CONTACTO MACHINE RESERVATION WIKI

THURSDAY SEPTEMBER 22ND 2011

Search ...



Thursday, August 25, 2011

Muestra Fab Products en el Fab7 > Concurso de innovacion en el Fab Lab Bcn

Featured



Fab 7 – Lima (Peru). Séptima conferencia mundial de Fab Labs.
Cada verano, la red mundial de Fab Labs se reúne de manera "física" en un lugar del mundo para discutir [Read More]



UNIBE workshop > Fabricacion Digital en el Caribe
El taller UNIBE workshop tuvo lugar en el Fab Lab Barcelona del 26 al 30 de Abril. 14 estudiantes de primer año de [Read More]

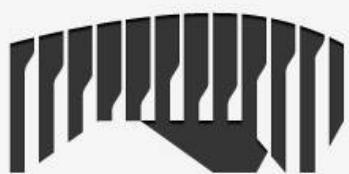


GREEN FAB LAB Project presentation at Valldaura
Last Friday the IAAC community launched the new project for the upcoming years. The GREEN FAB LAB will be a research, [Read More]

From the Institute for Advanced Architecture
of Catalonia (IAAC).

Source: <http://fablabbcn.org/>

FabLab Barcelona: FabLab House, a project



**FabLab
House**

info@fablabhouse.com

IAAC | MIT's CBA | Fab Lab



"Una casa solar debe fabricarse con un material solar, como la madera."

Salvador Rueda, ecólogo Director de

The Fab Lab House is a self-sufficient dwelling produced to take part in the Solar Decathlon Europe 2010.

Source: <http://www.fablabhouse.com/>

A FabLab and its local context



A city with a long tradition of organic / generative architecture and experimental building technologies.

Source: http://en.wikipedia.org/wiki/Casa_Batllo

Green FabLab Barcelona

**GREENFABLAB**

Naturaleza, Tecnología y Energía.

March 24, 2010

Parc de Collserola, Barcelona







GOBIERNO
DE ESPAÑA

MINISTERIO
DE INDUSTRIA, TURISMO
Y COMERCIO

plan
avanza»»

Un proyecto de

Iaac
Instituto de
arquitectura
avanzada de
Cataluña

Con el apoyo de

 THE CENTER FOR
BITS AND ATOMS
Massachusetts Institute of Technology

B
ECOLOGIA
C
OLOGIA
N

A fablab that researches sustainable technologies with and for digital fabrication.

Source: <http://greenfablab.org/>

The future: Barcelona FabCity



"Toni Vives [...], Head of the Department the Urban Habitat in the Office of the Mayor of Barcelona and member of the IAAC Board of Directors, presented the city's plan to become a "Fab City" with multiple Fab Labs in neighborhoods around Barcelona."

Source: <http://www.iaacblog.com/blog/2011/iaac-at-fab-7-in-lima-peru/>

Fab Lab Brand: no trademark



So far, and except some countries (Netherlands) where
is managed by the local association.

Source: <http://fab.cba.mit.edu/about/logos/index.html>

Fab Lab and Brand: a possible strategy?



Do you recognize this brand? It tried to open a FabLab in Madrid to show how it cares about creativity.

Source: <http://www.flickr.com/photos/journal-du-design/3895643669/>

Absolut Lab (Madrid, Spain)



A huge FabLab sponsored by Absolut Vodka, that was closed few months after its opening...

Source:<http://www.franciscosegarra.com/absolut-lab-proyecto-interiorismo/>



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03.

Other spaces and services: making digital fabrication even more accessible

Ponoko (New Zealand)

The screenshot shows the Ponoko website homepage. At the top, the Ponoko logo is displayed with the tagline "the world's easiest making system". Below the logo is a navigation bar with links: home, buy, sell, make, apps, blog, and support. A banner headline reads "The future of products is here" followed by "Personal Factory™ 5". A subtext below the headline states: "Now with App Gateway to create almost anything, and CNC routing to make big things." To the right of the text is a photograph of a woman sitting in a wooden chair, working on a small electronic device. Four callout bubbles point to different features: "Electronics" points to a red cube with an exclamation mark; "3D printing" points to a 3D-printed model; "Laser cutting" points to a piece of wood; and "CNC routing" points to a curved piece of wood. At the bottom right of the image area are two small navigation arrows.

Online service and marketplace (open your own shop) with laser cutting, cnc routing, 3D printing, electronic components through local hubs.

Source: <http://www.ponoko.com>

Shapeways (Netherlands)

The screenshot shows the Shapeways website homepage. At the top, there is a navigation bar with the Shapeways logo, a tagline "passionate about creating", a "Beta Version" badge, and links for "Sign up", "Log in", "Contact", and a search bar. Below the navigation bar, there are four small thumbnail images of 3D printed products: a rose, a horse head, a swirl, and a heart. The main content area features a large banner comparing "Old Process" and "New Process" 3D printing results, showing a color calibration chart. Below the banner, a news article titled "3D Printing a Full Color Face Lift" with the subtitle "Brighter Whites, Clearer Colors and Finer Definition" has a "READ MORE" button. To the left, a sidebar contains a newsletter sign-up form with fields for "Enter your email" and a "Sign Up" button, followed by a list of "Product categories" including Download, Art, Gadgets, Games, Home decor, Jewelry, Hobby, Seasonal, and Shipping. At the bottom, there is a search bar with "All categories" dropdown, a "Search..." input field, a "Search" button, and a link to "+ Advanced Search". A section titled "The latest and coolest products" displays four thumbnail images of 3D printed items: a bronze-colored knot sculpture, a blue cube with a geometric pattern, a black 3D printer, and a white airplane model.

Online service and marketplace (open your own shop) with 3D printing.

Source: <http://www.shapeways.com>

i.materialise (Belgium)

EMPTY CART | LOGIN | SIGN UP

HOME CREATION CORNER 3D PRINT LAB GALLERY SUPPORT ABOUT US BLOG

i.materialise



The Amaze light is more than light alone. It contains 4 functional maze games which keep me from getting bored while watching commercials.

3D print lab

WHAT IS 


Time to catch **Gold fever!**

Online service and marketplace (open your own shop) with 3D printing.

Source: <http://i.materialise.com/>

Sculpteo (France)

The screenshot shows the Sculpteo website homepage. At the top left is the Sculpteo logo with the word "sculpteo" in lowercase and "beta" in small letters. To the right are links for "Join / Login", "Facebook connect", and a shopping basket icon with the text "Your basket is empty". A navigation bar below the header includes "HOME", "GALLERY", "CREATE", "COMMUNITY", "PROFESSIONALS", and language selection buttons for English, French, and Spanish. The main banner features the text "Creative ? Make your objects customizable" and a call-to-action "Go to your personnal gallery". Below the banner is a navigation menu with numbers 1 through 8. To the right of the banner is a large image of a white mug with a black base, decorated with various 3D-printed letters and shapes. Below the banner, there are two promotional sections: one for creating custom objects and another for creating personalized figurines from photos.

News | Stradivarius 3D Printed replica – Sept. 21,

Make
your own custom objects.
Send us your 3D file :
UPLOAD

Your unique figurine
from a simple picture.
From €59.90 :
YOUR MINI-YOU IN 3 CLICKS

Fully customized figurine

Online service and marketplace (open your own shop) with 3D printing.

Hackerspaces / Makerspaces

[hackerspaces](#) [Page](#) [Discussion](#) [View source](#) [History](#)

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[Communication](#)
[Active hackerspaces](#)
[All hackerspaces](#)
[> add a hackerspace](#)

[List of events](#)
[> add an event](#)
[List of projects](#)
[> add a project](#)
[Recent changes](#)

[Go](#) [Search](#)

[What links here](#)
[Related changes](#)
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[Permanent link](#)
[Browse properties](#)

POWERED BY  [2000 m](#) [2000 km](#)

List of Hacker Spaces

This is a comprehensive, user-maintained list of all active hackerspaces throughout the world.

We have also a [list of planned Hacker Spaces](#), as well as a [list of All hackerspaces](#) around the globe - including those still in bu



Map | Satellite | Hybrid | Terrain | Overlays

If we're missing your space, or you want and/or are about to create a new one, please [add yourself](#) to the list.

<input type="checkbox"/> hackerspace	<input type="checkbox"/> Country	<input type="checkbox"/> State	<input type="checkbox"/> City	<input type="checkbox"/> Website
BAH	Argentina	Buenos Aires	Capital Federal	http://www.hackerspace.com.ar
Toylab	Argentina	Buenos Aires	Capital Federal	http://toylab.wordpress.com/
MatesLab	Argentina	Buenos Aires	Mar del Plata	http://www.mateslab.com.ar

Hackerspaces are open community labs with machine shops, workshops and/or studios where hackers can share resources and knowledge.

Source: http://hackerspaces.org/wiki/List_of_Hacker_Spaces

Helsinki Hacklab

Helsinki Hacklab

Yhteisöllinen työpaja Helsingissä

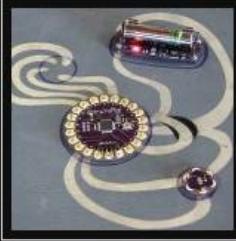
Home Helsinki Hacklab Tilan esittely Liity Jäseneksi Tapahtumat Yhteystiedot

Sunnuntaina 6.5. Ommeltavan elektroniikan työpaja

Posted on **30.4.2012** by **anacron**

Sunnuntaina 6.5. pidetään Helsinki Hacklabilla ommeltavan elektroniikan työpaja. Alkaen klo 12 osoitteessa: Nilsiänkatu 10 B.

Ohjelmassa on luvassa elektroniikan alkeita ja tarkoituksena on myös omalla johtavaa, joka sitten vilkkuu tai vaikka piipittää. Mukana menossa myös Arduino (+ Lilypad) sekä kooste kiintoisista e-textile projekteista, joita voidaan yhdessä ihmetellä ja ideoida jotain vielä hienompaa...



IN ENGLISH

- [English summary](#)
- [In English](#)

LINKS

- [!\[\]\(79483a1f2e1aa9d6cd5f43e8cc35a843_img.jpg\) Facebook](#)
- [!\[\]\(85c41870f4017eac095b080fb2e1329f_img.jpg\) GitHub](#)
- [IRC](#)
- [Kalenteri](#)
- [Kirjoitusalusta](#)
- [!\[\]\(33032c67dfac89038c82403bc6727822_img.jpg\) Muita hackerspaceja](#)
- [!\[\]\(6a36d81faaa1adc745aa6c9843ff609d_img.jpg\) Twitter](#)
- [Wiki](#)

RECENT POSTS

- [Sunnuntaina 6.5. Ommeltavan](#)
- [...](#)
- [...](#)
- [...](#)
- [...](#)

The local hackerspace...

Source: <http://helsinki.hacklab.fi/>

Sewing Café

The screenshot shows the homepage of The Sewing Café website. At the top left is the logo featuring a sewing machine icon and the text 'THE SEWING CAFÉ' with 'the social sewing emporium.' underneath. To the right are contact details: email 'hello@thesewingcafe.co.uk' and phone 'T: 01455 698034'. Below the logo is a navigation menu with links: Home, Sew by the Hour, Workshops, Sew help me!, Shop at the Sewing Café, About Us, How to get in Touch, and Register. The main content area features several images: a brown tag with the 'THE SEWING CAFÉ' logo; a large image of spools of colorful thread in various colors (yellow, green, blue, orange, red, pink); a close-up of a pink fabric with a rose pattern; and a smaller image of a red and white patterned fabric. A teal circular graphic in the center says 'WELCOME to THE SEWING CAFÉ'. At the bottom right are social media icons for Flickr, Facebook, and Twitter.

E: hello@thesewingcafe.co.uk
T: 01455 698034

Home | Sew by the Hour | Workshops | Sew help me! | Shop at the Sewing Café | About Us | How to get in Touch | Register

VISIT US FOR...

- Sewing Workshops
- Sew by the hour
- Social Sewing
- Sewing Parties
- Inspiration & Advice

Plus a shop full of beautiful fabrics and haberdashery

WELCOME to THE SEWING CAFÉ

flickr f twitter

A coworking space with sewing and embroidery machine (usually pay per hour)

Source: <http://www.thesewingcafe.co.uk/>

Techshop (USA)



WHAT DO YOU
WANT TO MAKE?™



CAREERS

Click here for more information

Welcome

Membership

Classes

Events

Facilities & Amenities

TechShop Locations ➔

- Menlo Park
- San Francisco
- San Jose

Equipment Reservation Calendars Services

Member Project Gallery

FAQs

TechShop News

Contact Us

Feedback

TechShop Locations

There are several TechShop locations currently open or opening soon to serve you. Please click on the name of the store you are interested in for more information including address, contact information, and hours of operation:

- [TechShop Menlo Park](#) (Menlo Park CA)
Open Now
- [TechShop RDU](#) (Raleigh NC)
Open Now
- [TechShop San Francisco](#) (San Francisco CA)
Open Now
- [TechShop San Jose](#) (San Jose CA)
GRAND OPENING SATURDAY SEPT 24, 10 AM - 6 PM
- [TechShop Detroit](#) (Detroit, MI)
Under Construction Fall 2011
- [TechShop Portland](#) (Portland OR)
In Planning
- [TechShop New York](#) (Brooklyn, NY)
In Planning
- [TechShop Los Angeles](#) (Los Angeles, CA)
In Planning

UPCOMING EVENTS @ TechShop

San Jose

300 South 2nd Street
San Jose, CA 95113



September 24:
TechShop San Jose Grand Opening!

[Click for More Details](#)

Learn how to use Autodesk Inventor FOR FREE

A network of commercial spaces with many tools and technologies and paid support services (only in USA).

Source: <http://techshop.ws/>

100k Garages (USA)

The screenshot shows the homepage of 100kGarages.com. At the top left is a 3D illustration of a garage with a person inside. Next to it is the website's logo, "100kGarages.com", with the tagline "connect. collaborate. create." below it. To the right is a horizontal row of small 3D house icons. In the top right corner are links for "sign up or log-in". Below the header is a yellow navigation bar with links for Home, About, Participate, Create/Design, Inspiration, Connect, Find Designers, Find Fabbers, Request Project Bids, Google Custom Search, and a Search button. A ruler icon is on the far right of the bar. The main content area features a large image of several colorful, modern-looking wooden tables and chairs. Below this image is a text block: "Be inspired. Take a look at these cool creations from 100kGarages users. And sample the work of designers who make their plans available for use. It's all at our [Inspiration gallery](#)." To the right of this is a section titled "Got an idea? Get it made." with the subtext: "100kGarages connects you with Fabbers who can turn your thoughts into things." It includes a circular graphic with a cartoon character, a heart, and a table, with the text "100kGarages.com" and "How it Works" around it, and a "learn more" link. Below this is a paragraph about the service: "100kGarages.com is a place for people who have designs, or just ideas for things they want to make, to connect with digital fabricators ("Fabbers") who can help make these ideas become real." Another paragraph explains that participating Fabbers use digital fabrication tools to cut, machine, drill, sculpt, or "print" in 2-D or 3-D, and that the service helps find local fabbers for free, with a "Learn more and get started" link. At the bottom right is a "created by" section featuring the ShopBot logo, and a "our sponsors" section featuring the Make: logo.

sign up or log-in

100kGarages.com
connect. collaborate. create.

Find Designers Find Fabbers Request Project Bids

Home About Participate Create/Design Inspiration Connect

Google Custom Search Search

100kGarages.com

How it Works

learn more

Got an idea? Get it made.

100kGarages connects you with Fabbers who can turn your thoughts into things.

100kGarages.com is a place for people who have designs, or just ideas for things they want to make, to connect with digital fabricators ("Fabbers") who can help make these ideas become real.

Our participating Fabbers work with 2-D or 3-D digital fabrication tools to cut, machine, drill, sculpt, or "print" in 3-D. Our "matchmaking" service can help you find a Fabber near you, and it's free. [Learn more and get started.](#)

I have an idea. What's Next?
I need an idea. Show me cool stuff.

created by

ShopBot

our sponsors

Make:

100kGarages is a place for people who have designs (or just ideas) to connect with digital fabricators ("Fabbers") who can help make these ideas.

Source: <http://100kgarages.com/>

Maker Factory

The screenshot shows the homepage of the Maker Factory website. At the top left is the logo 'MAKER FACTORY' with an orange factory icon. To the right are 'LOGIN' and 'LOGOUT' buttons, and links for 'POST A JOB' and 'FIND A JOB'. Below the header is a photograph of a geodesic dome made from 3D printed connectors, with two people working on it in a garden. A caption below the photo reads: 'GEODESIC DOME MADE FROM 3D PRINTED CONNECTORS PRINTED WITH MAKERFACTORY'. To the right of the photo is a text box: 'MAKERFACTORY is a free service for connecting the emerging network of localized fabrication technologies with people like you who need stuff 3d printed, CNC'ed, or otherwise made.' Below this is a yellow button labeled 'REGISTER HERE'. A call-to-action text follows: 'Need something made? Willing to make things for other people? Click here to register for an account. It's totally free!' At the bottom is a world map with a red location pin over North America.

The same service as 100kgarages, but open source ...

Seoul (South Korea)



No FabLabs or similar places, but many small manufacturers that will produce you small-scale series very quickly.

Living Labs (USA, Europa)

European Network of Living Labs

The European Network of Living Labs
– the first step towards a new Innovation System!

Login or Sign up!

news

ENoLL 6th Wave is open – Join our growing community!

SUBMITTED BY ENoLL ON MON, 2011-10-24 17:53

All organisations public and private from all countries in the world, actively committed to engage and empower users and citizens to take part in sustainable innovation processes, are once again invited to apply for membership in the European Network of Living Labs (ENoLL) as of October 24th, 2011. The announcement was made at the Future Internet Conference in Poznan (Poland).

You can see the session 'User Driven Innovation – Shaping the Future Internet for a Better Society' including the announcement of the 6th Wave here.

[Read more](#)

on the map

A map of Europe with country borders. Various colored circles (white, grey, red, yellow) are placed on the map to represent the locations of different waves of living labs. A legend on the left side of the map area defines these colors: white for First Wave Living Labs, grey for Second Wave Living Labs, red for Third Wave Living Labs, and yellow for Fourth Wave Living Labs. The circles are scattered across most of the continent, indicating a widespread presence of living labs.

Spaces for co-designing products and services with users... not necessarily with digital fabrication.

Source: <http://www.openlivinglabs.eu/>



Aalto University
Media Factory

04.

The business of Digital Fabrication: interactions between bits and atoms

A space for DIY projects



The first value offer is a space for people to develop (and learn) their own projects.

Source: Scott Beale / Laughing Squid <http://laughingsquid.com>
<http://www.flickr.com/photos/laughingsquid/133324021/>

Generative Design

nervous system [SHOP](#) [BLOG](#) [ABOUT US](#) [TOOLS](#) [STOCKISTS](#) [JOBS](#) [CONTACT](#) [login](#) [cart: 0 items](#)

[JEWELRY](#) [HOUSEWARES](#) [CONCEPTS](#)

vessel pendant and spiral bracelet model photography by Natalia Borecka

featured products

SILVER VESSEL PENDANT \$275.00

HIVE TRIVET \$12.00

Generative Design projects need digital fabrication technologies for being manufactured.

Source: <http://www.n-e-r-v-o-u-s.com/>

Mass Customization



Mass customization can be enabled in an easier way with digital fabrication technologies (and places for interacting with customers).

Source: <http://nikeid.nike.com/nikeid/>

(Open) Design competitions

(UN)LIMITED Design Contest **2011**

form food fashion fusion

Shades of Wood

Product view Manual view

Designer: **John van Eck & Overtreders-W.**
Published: Sep 15, 2010
Number of designs: 1
Rating: 4.4 (12 votes)

 [Download blueprint](#)



Contest winners

Shades of Wood
John crée een grote schommellamp van zijn opa...
by John van Eck & Overtreders-W

Cocoplus micro-knitted shawl with transfer flock fabric
Future vision on the production of...
by Marinka Peters

2 teaspoons // tablespoons at once!
In cooking recipes we often...
by Eulàlia Llave i Vidal

Magic Box (entirely new)
Last year Magic Box was a tool that helped you to make custom boxes...
by Studio Ludens

Related products

Flo's Bag
The idea was to make a bag using the laser cutter only. The art of...
by Floo

Emergency Coat Rack
Never Have A Coat Hanging Emergency Again! Just Break Apart...
by D.E. Sellers

ClickBag
The ClickBag is based upon the beautiful Floo's Bag I wanted to design a...by Jens

Most viewed products

Digital fabrication and FabLabs open new possibilities for Design competitions and Open Design.

Source: <http://unlimiteddesigncontest.org/>

(Open) Design competitions

The screenshot shows a web page from the domus website. At the top, there is a navigation bar with the logo "domus" in blue, followed by links for "Sections", "Magazine", "Network", "Store", and "Events". There is also a search bar "Search Domus..." and a "Sign up" button. A small Italian flag icon is visible. The main content features a large, intricate geometric model, possibly a 3D-printed or digitally fabricated object, displayed in perspective. An inset circular view provides a close-up look at a specific part of the model. Below the model, a dark grey banner contains the text "Autoprogettazione 2.0: on display—" in white. Underneath the banner, a smaller text block reads: "The selection committee has decided: here are the seven projects which will be on display at *The Future in the Making*, in Palazzo Clerici. A news report from Milan".

Digital fabrication and FabLabs open new possibilities
for Design competitions and Open Design.

Source: <http://www.domusweb.it/en/upcoming-event/call-for-ideas-autoprogettazione-20--/>
<http://www.domusweb.it/en/news/autoprogettazione-20-on-display/>

Develop (open) products and services



OpenMoko was the first product to be completely open:
open hardware, open source software, open design.

Source: http://wiki.openmoko.org/wiki/Main_Page

Open: Hardware, Software, Design



BugLabs has been much more successful in offering completely open products.

Source: <http://www.buglabs.net/>

BugLabs + Ford

Ford + Bug Labs Press Release

login
sign up


bug labs

Bug System
Apps
Store
Support
Community

Businesses
Education
Developers



Mailing List
Feed 



Ford



Ford and Bug Labs explore open innovation and crowd sourced, community-driven development

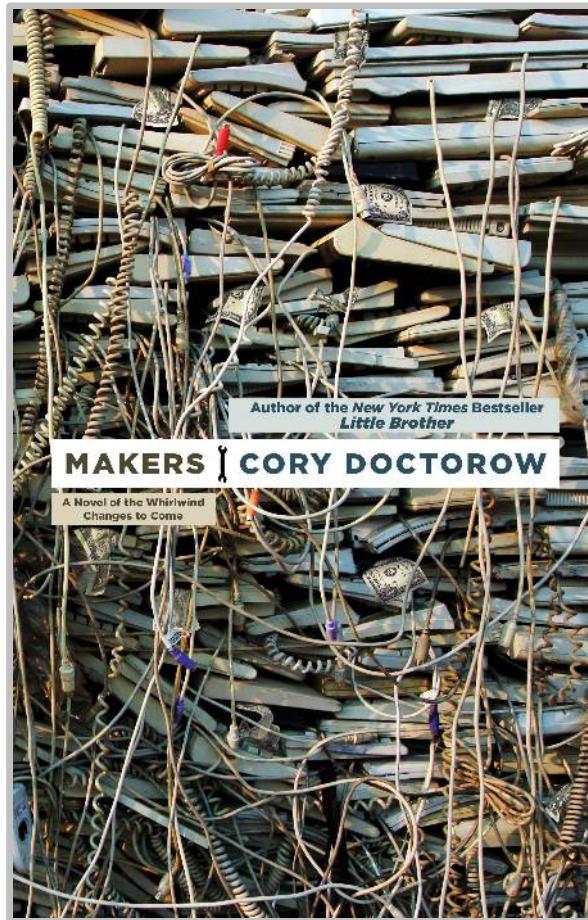
Ford and Bug Labs Develop Open-Source R&D Platform for Socially-Networked In-Car Connectivity Innovation

- Ford and Bug Labs, an open-source hardware and software provider, announce a joint development project to research, develop and distribute open-source developer tools to advance in-car connectivity innovation

So successful that they just announced a partnership with Ford Car.

Source: <http://www.buglabs.net/ford-buglabs>

Open Design: (almost) already successful



When you have a sci-fi novel from a popular autor about open design and makers, they are not underground any longer.

Source: <http://craphound.com/makers/download/>

Open Design: (almost) already successful

The screenshot shows the Instructables website. At the top is the yellow robot logo and the word "instructables" with the tagline "share what you make". Below the header is a navigation bar with categories: Food, Living, Outside, Play, Technology, Workshop, and three decorative bat icons. The main content area features a red header for a blog post titled "Community : forums : community blog" followed by the title "Instructables Joins Autodesk". The post discusses the impact of the community and the announcement of the acquisition by Autodesk. A second paragraph continues the narrative.

Instructables Joins Autodesk

The Instructables community is incredible: you build, bake, and create amazing things, then share your projects and ideas with the world. I think it's great when someone builds a project using instructions from our site, but it's even more amazing when we inspire someone to start (or finish) that project they've always dreamed of. This has been my vision for Instructables: to have a positive impact on the world by giving passionate people great publishing tools to document their projects, and connect them to a community full of like-minded people.

Today I'm able to share my plan for accelerating that vision, and making Instructables an even better place to be. I'm proud to announce that **Instructables is becoming part of Autodesk**. Everyone here at Instructables HQ is absolutely thrilled, because this is going to be awesome for the entire Instructables community.

And when probably the biggest CAD design software house buys an open design community, there must be money ahead!

Source: <http://www.instructables.com/community/Instructables-Joins-Autodesk/>
<http://techcrunch.com/2011/08/01/autodesk-acquires-diy-community-instructables/>

Open Design: (almost) already successful

The screenshot shows the Autodesk 123D Beta 7 website. At the top, there's a dark blue header bar with the Autodesk 123D logo on the left, followed by navigation links: "About 123D", "Get Content", "Gallery", "Make It", "My Corner" (which is highlighted in blue), and "Get 123D" on the right. Below the header, the main content area features a large title "Autodesk 123D Beta 7" and a subtitle "Laser cutting workflows plus in-app access to fabbing services and free 3D models." To the right of the text is a photograph of several wooden laser-cut parts, including a large wheel and some smaller components, arranged on a light surface.

Autodesk 123D Beta 7

Laser cutting workflows plus in-app access to fabbing services and free 3D models.

Download

And when probably the biggest CAD design software house offers freeware software for makers, there must be money ahead!

Source: <http://www.123dapp.com/>

And designers can be entrepreneurs

TikTok+LunaTik Multi-Touch Watch Kits

Project by Scott Wilson • [send message](#)

PROJECT HOME UPDATES 39 BACKERS 13512 COMMENTS 4140



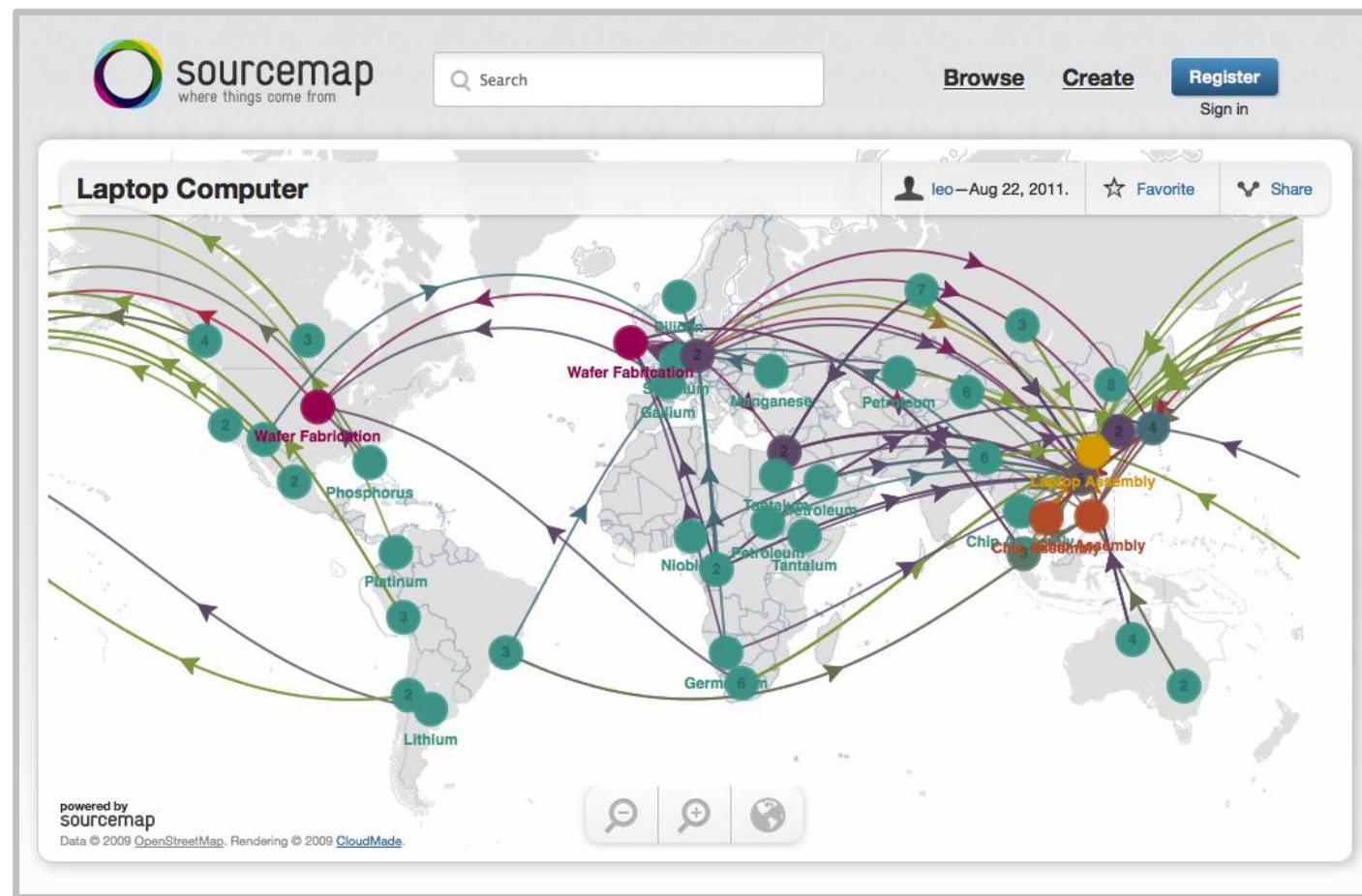
13,512
BACKERS
\$941,718
PLEDGED OF \$15,000 GOAL
0
SECONDS TO GO

FUNDING SUCCESSFUL
This project successfully raised its funding goal on ✓ December 16.

New platforms for crowdsourcing allow you to fund your projects, and digital fabrication and FabLabs could be useful for manufacturing them.

Source: <http://www.kickstarter.com/projects/1104350651/tiktok-lunatik-multi-touch-watch-kits>

Shorter and more sustainable supply chains

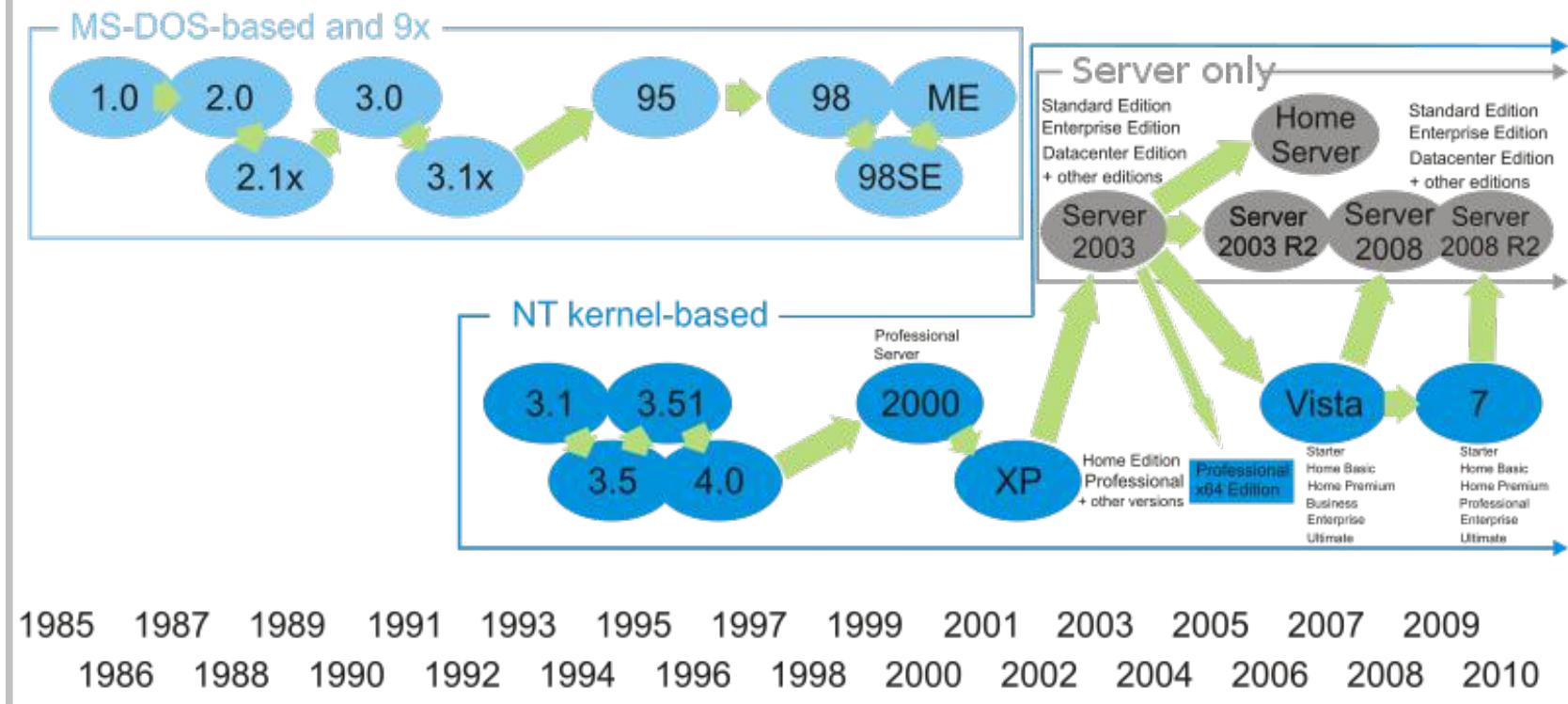


Visualizing and redesigning supply chains, through open source and open data software.

Source: <http://www.sourcemap.com>

A typical closed innovation system

Microsoft Windows family tree



This is the typical evolution of a closed company...

Source: http://en.wikipedia.org/wiki/Timeline_of_Microsoft_Windows

1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007

Linux distro timeline

Version 7.2 by NPJ (ncplusx@gmail.com)

For the latest vers on [Vt-kde-les.org](http://t-kde-les.org)

Please free to modify and spread. Mail me for updates, corrections and source files.

Based on "Linea del tempo di distribuzioni Linux" by A. Sandretto (microtechnologies.it)
Additional info: distrowatch.com wikipedia.org

An open innovation system



GNU/Linux

And newer pictures are too big for a slide :-)

Source: <http://futurist.se/gldt/>

1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007

But “Open” alone is not enough

100K Stray Toasted Pull Toys

Project by C. Sven Johnson • [send message](#)

PROJECT HOME

UPDATES 2

BACKERS 13

COMMENTS 2



100K Stray Toasted Pull Toys

13

BACKERS

\$765

PLEDGED OF \$7,500 GOAL

0

SECONDS TO GO

FUNDING UNSUCCESSFUL

This project reached the deadline without achieving its funding goal on November 1, 2009.



PLEDGE \$5 OR MORE

Open Source is a good strategy, but your project needs to be meaningful for enough people!

Source: <http://www.kickstarter.com/projects/1833785894/100k-stray-toasthed-pull-toys>

You need to interact with the market

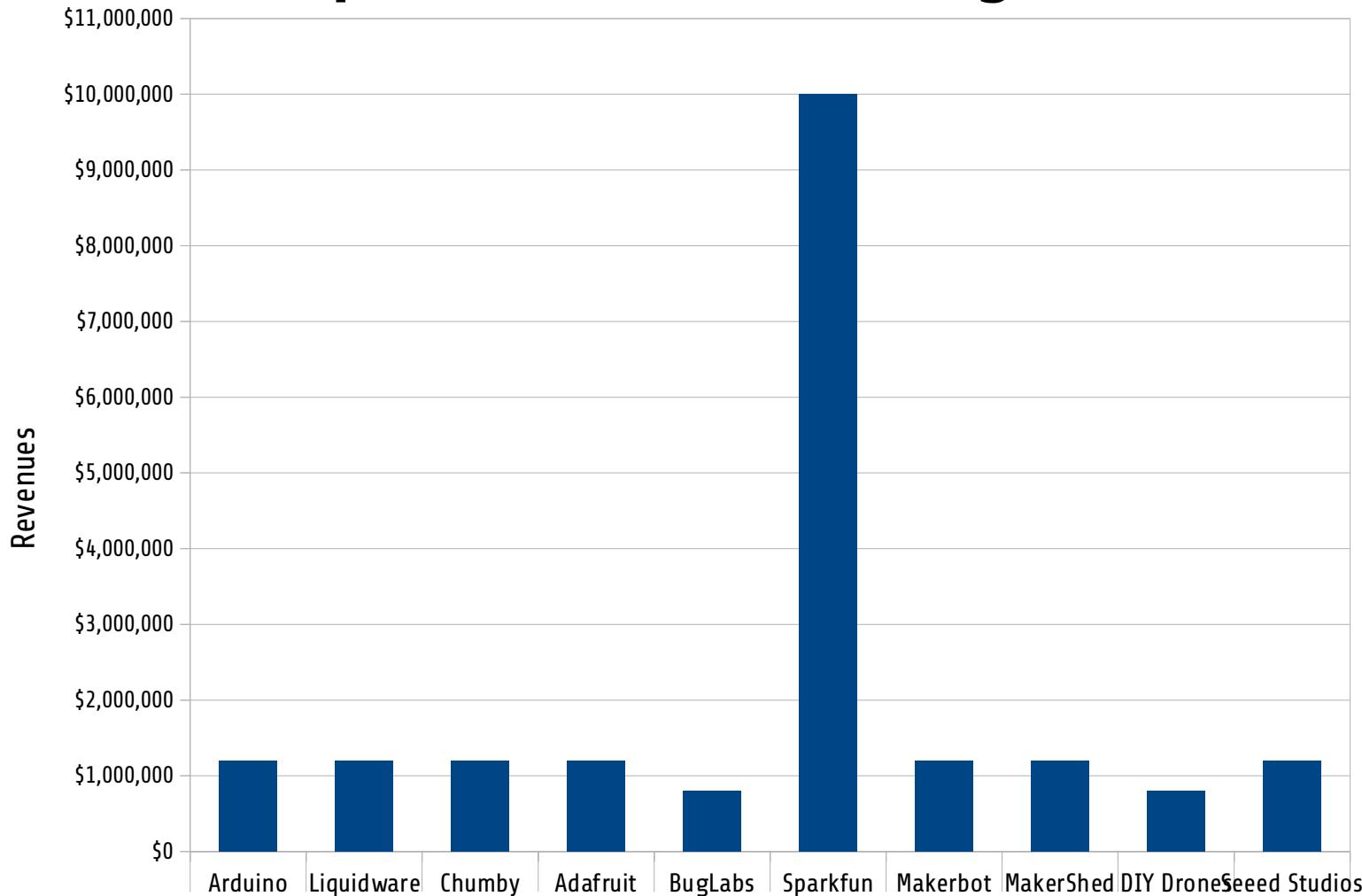
The screenshot shows the Threadless website homepage. At the top, there's a navigation bar with the "threadless Tees" logo and links for "Shop", "Participate", "Community", and "Info". A prominent yellow banner in the center says "\$10,000!" and "Submit your idea for a chance at 10K! ▶". To the right, it says "Score 300 designs fo" and has a "LEARN MORE" button. Below the banner, there's a section titled "Good Shirts" featuring four models wearing t-shirts with unique designs. Each model has a price tag below them: \$300,000, \$75,000, \$3,064.82, and \$1,939.96. The designs include a green airplane, a colorful caterpillar, a red motorbike, and a white emergency tent.

Design Description	Price
Cargo Flight for UNICEF by Justin & Christine Gignac	\$300,000
100 Metric Tons Of Corn Soy Blend for UNICEF by Justin & Christine Gignac	\$75,000
Motorbike for UNICEF by Justin & Christine Gignac	\$3,064.82
Emergency Tent for UNICEF by Justin & Christine Gignac	\$1,939.96

... and this is exactly what new services and platforms enable!

Source: <http://www.threadless.com/>

Open Hardware: a rising market



2009: 13 companies above \$ 1 m. (totale: \$ 50 m.). \$ 1 billion by 2015.

Source: <http://blog.makezine.com/archive/2010/05/million-dollar-baby-businesses-de.html>

SparkFun



“In 2010, SparkFun had revenues of about \$18.4MM. As of April of 2011, we have around 120 employees, up from 87 a year ago.”

“We hope to grow by 50% this year (2011) to around \$28MM in sales. We expect to be in the 30-50MM range in the next 3-5.”

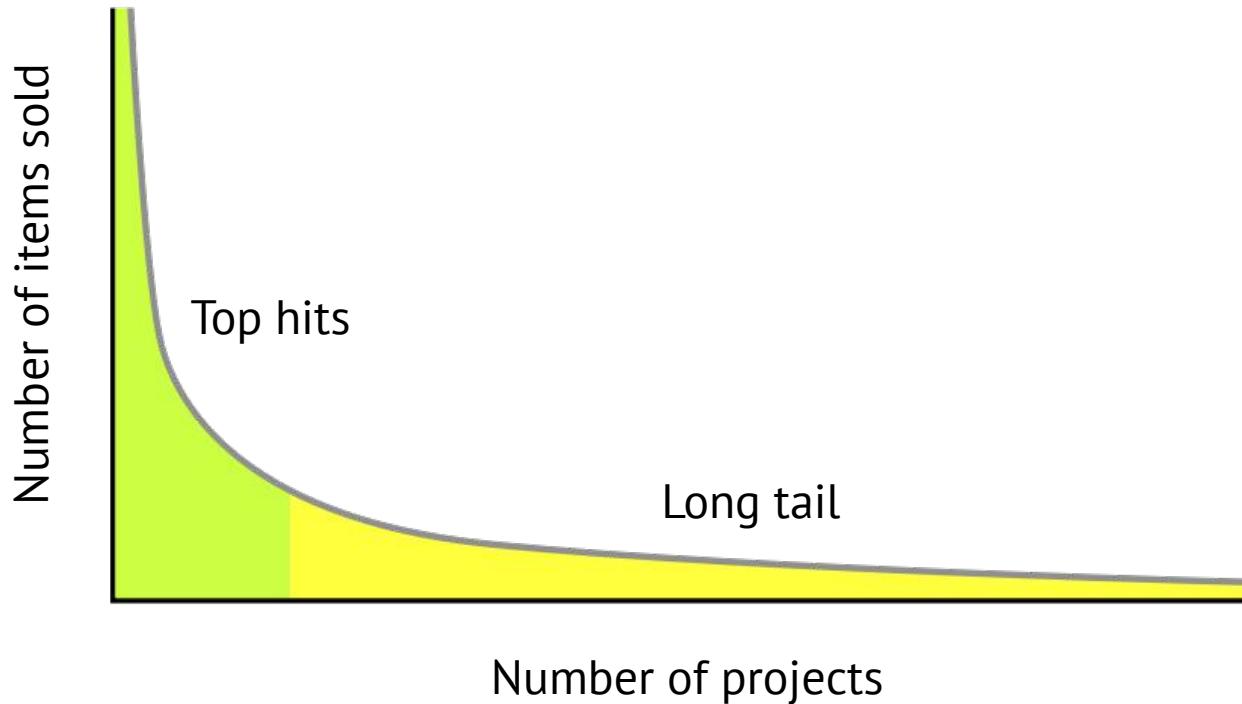
And Etsy for DIY / Crafts

The screenshot shows the homepage of the Etsy website. At the top, there is a navigation bar with links for 'Cart 0', 'Your Etsy', 'Help', 'Register', and 'Sign In'. Below the navigation bar, there is a search bar with the word 'Handmade' and a dropdown arrow, followed by a 'Search' button. To the left of the search bar, there is a large orange 'Etsy' logo button. Below the search bar, there are three promotional boxes: 'Showcase' (Fresh picks from sellers), 'Treasury' (Browse member picks), and 'Graduation Showcase' (Sellers' top picks for grads). On the left side, there is a sidebar titled 'Categories' with a list of various craft and hobby categories: Accessories, Art, Bags and Purses, Bath and Beauty, Books and Zines, Candles, Ceramics and Pottery, Children, Clothing, Crochet, Dolls and Miniatures, Everything Else, Furniture, Geekery, Glass, Holidays, Housewares, Jewelry, Knitting, Music, Needlecraft, and Paper Goods. The main content area features a grid of 'Handpicked Items' with titles and prices: 'Love Tamil-Hand Painted...' (\$270.00 USD), 'I KILL PXLS Bangle' (\$50.00 USD), 'mix'n'match com...' (\$49.00 USD), 'Shopping Day Earrings' (\$85.00 USD), a colorful fish figurine, a chainmaille bracelet, a stained glass wheel, and a red pouch.

Another big player, a marketplace for your DIY / Crafts projects (exploiting the long tail effect).

Source: <http://www.etsy.com/>

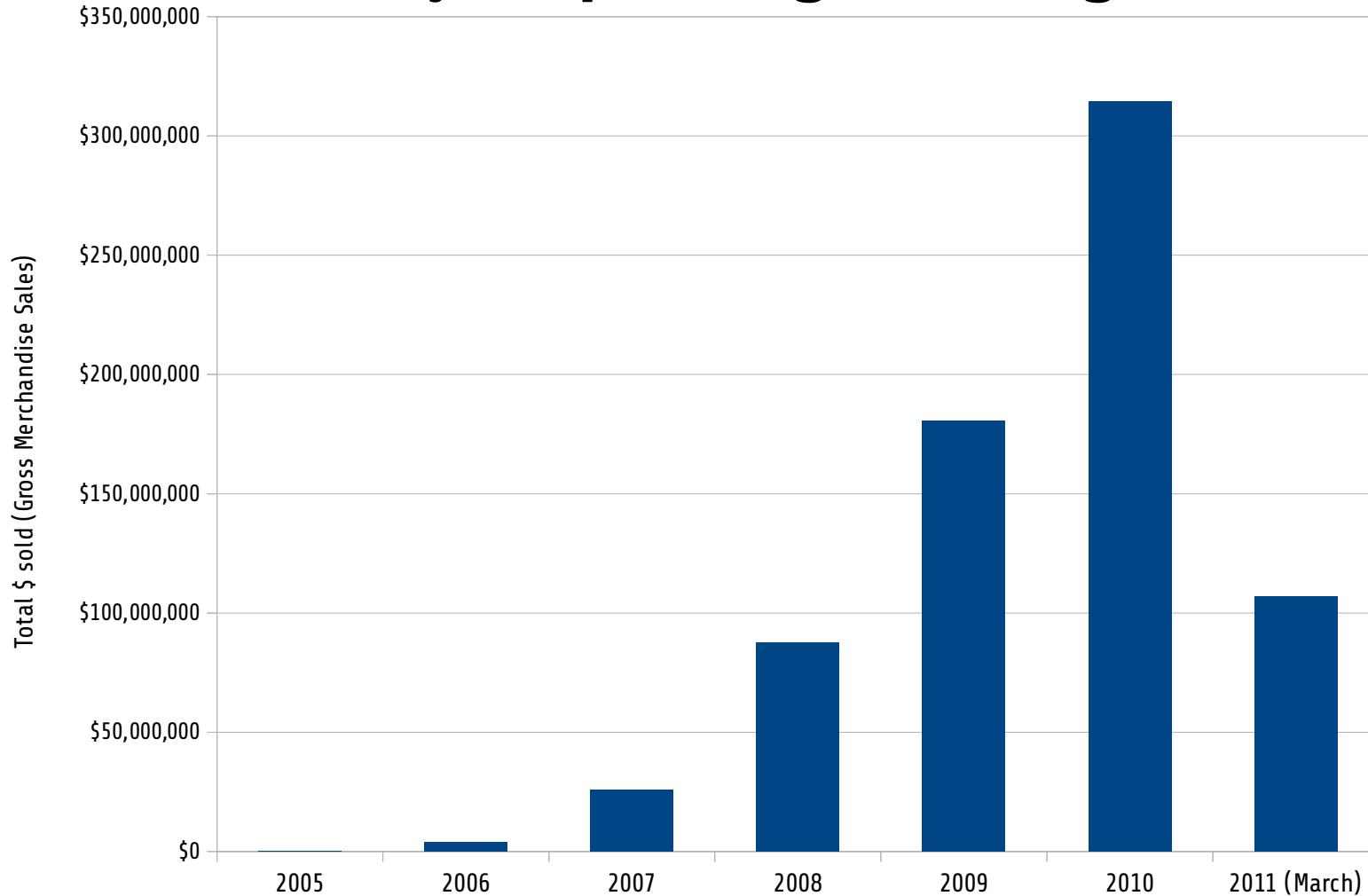
A long tail of users / projects...



Another big player, a marketplace for your DIY / Crafts projects (exploiting the long tail effect).

Source: http://en.wikipedia.org/wiki/Power_law

Etsy: exploiting the long tail



Users: +8 milioni / Active shops: +800,000
Products: 8.5 millions.

Source: <http://www.etsy.com/press/kit/>

Makers can create a startup: Makerbot



Started from an hackerspace (and from
RepRap, even financially).

Source: <http://www.flickr.com/photos/kellycdb/6168020183/>
<http://commons.wikimedia.org/wiki/Category:Wood>

The market of 3D printing

3D printing market has grown by 24.1% in 2011.
Forecasts: \$3.1 billions (2016) \$5.2 billions (2020).
(Wohlers Associates, 2011)



Sustainable business
--> \$10 Millions from VC



Not yet sustainable
--> \$5 Millions from VC

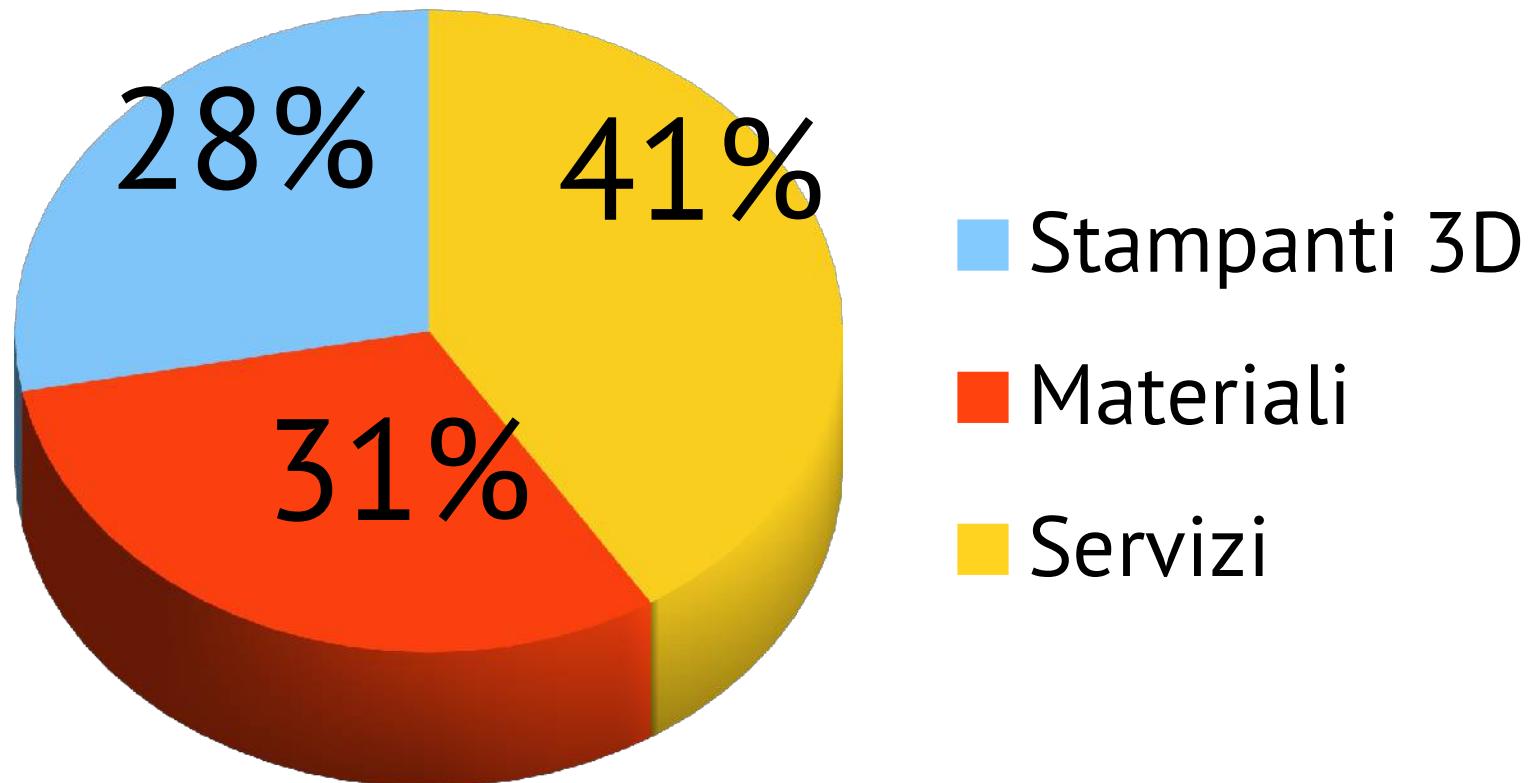
Big corporations: 3D Systems

The screenshot shows the homepage of the 3D Systems website. At the top, there's a navigation bar with links to About Us, Newsroom, Support, Investor Relations, Where to Buy, Contact, and a phone number (803.326.3900). There's also a language selection for English and a Google Custom Search bar. Below the header is a main menu with categories: Personal Printers, Professional Printers, Production Printers, On Demand Parts, Digital Content, and Design Productivity. The main content area features a large image of a hand holding a handheld 3D printer, with the word "Liberate" overlaid. Below this image is a sub-headline: "Innovation that empowers ... complete freedom of design" and a "Read more »" button. To the right of the main image is a sidebar titled "Announcements" which includes a section about a "Corporation Acquisition Completed". It also features a small profile picture of a man and a bulleted list of benefits: "Innovation To Manufacturing", "High Speed To High Resolution", and "Full Color To Fully Functional Parts". Further down the sidebar are sections for "News" and "Connect With Us". At the bottom of the page, there are links to Home, Contact, Sales Terms, Terms And Conditions, Privacy Statement, and Investor Relations. Social media icons for RSS, Facebook, YouTube, Twitter, LinkedIn, and Google+ are also present. The footer contains a copyright notice: "Copyright ©1997-2011 3D Systems, Inc. All rights reserved." and a page number indicator: "20".

Not only hackers or startups are in this field,
but even big and old companies.

Source: <http://www.3dsystems.com/>

Digital Fabrication: not just machines



There are many ways for making money with
digital fabrication...

Source: <http://investor.3dsystems.com/>

Fabbing + designers = \$\$\$ + Open Design

3D SYSTEMS ACQUIRES FREEDOM OF CREATION
FOC GENERAL 12.MAY.2011

3D Systems Corporation (NASDAQ: TDSC) announced today that it has acquired Freedom Of Creation (FOC), the pioneering 3D printing design company based in Amsterdam, The Netherlands. Click here for the official 3D Systems press release.



Big corporations love shopping Design companies for selling their content with 3D printers.

Source: <http://www.freedomofcreation.com/home/3d-systems-acquires-freedom-of-creation>

But even makers may be giving content away...

a MakerBot Industries website

THINGIVERSE

THINGS TOOLS TAGS BLOG

Welcome, friend.
Please [REGISTER](#) or [LOGIN](#) to rock.

Thingiverse is a place to share digital designs that can be made into real, physical objects. Let's create a better universe, together!

[!\[\]\(0e26656e56c1dfbadd420d91b43e01be_img.jpg\) UPLOAD A THING](#)

FEATURED



Botmobile Dune Buggy

 Created by **makerbot**

Created on Nov 24, 2011

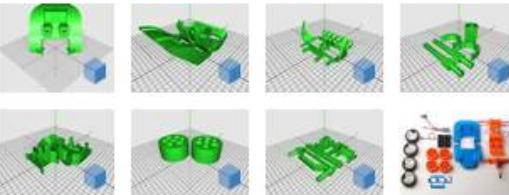
Featured on Nov 25, 2011

Order the Botmobile Kit from the MakerBot Store at store.makerbot.com/makerbot-botmobile.html and you'll have all the parts you need to get your printed Dune Buggy going in no time!

The wind in your hair... The sun on your face... The sand in your teeth... Everyone loves a day out cruising the dunes in their trusty Botmobile Dune Buggy!

The Botmobile Dune Buggy is an open source 3d printed remote control car that you can build at home. Using the Botmobile chassis the Dune Buggy was built from the ground up as a completely new type of remote control car

See video of the Botmobile Dune Buggy in action:
www.youtube.com/watch?v=JLjwOQVZTTI



The same strategy of giving content to the users of the 3D printers has been adopted by Makerbot.

Source: <http://www.thingiverse.com/>

Fabbing + designers = \$\$\$ + Open Design

The screenshot shows the Alibre website homepage. At the top, there's a navigation bar with links for "3D Software", "3D Printers", "Downloads", "Training & Support", "Successes", and "How to Buy". The main content area features a grid of images showing various 3D CAD models, including a motorcycle, a green car, and a blue mechanical assembly. Below this grid, there's a section titled "3D CAD Software" with the subtext "Comprehensive 3D & 2D Design, Simulation, Rendering, and more...". To the right, there are several promotional boxes: one for "3D & 2D CAD Software" (described as professional and inexpensive), one for "3D Printers" (personal and professional printers starting at \$1699), one for "CAM Software" (completely integrated into our CAD software), one for "User Gallery & Community" (showcasing customer projects), and one for "CAD for Hobbyists" (described as powerful, inexpensive, and perfect for home users). The Alibre logo, featuring a stylized 3D cube icon, is located in the top left corner of the page.

But even anybody could become a user, so let's buy
a design software and offer it to them.

Source: <http://blog.3dsystems.com/2011/05/3d-systems-partners-with-alibre.html>
<http://www.alibre.com/>

And users innovate (even in non open way)



Not developed by a company...

Source: <http://en.wikipedia.org/wiki/Skateboard>

Users innovate – a lot!

“We find this previously unmeasured type of household sector innovation to be quite large: 6.2% of UK consumers - 2.9 million individuals - have engaged in consumer product innovation during the prior 3 years. In aggregate, consumers’ annual product development expenditures are 2.3 times larger than the annual consumer product R&D expenditures of all firms in the UK combined.”

Eric A. Von Hippel, Jeroen De Jong, Steven Flowers

Comparing Business and Household Sector Innovation in Consumer Products: Findings from a Representative Study in the UK

http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1683503

Business models for FabLabs

- * **Enabler:** launch new Labs and support services
 - * **Education:** a global distributed model of education through Fab Labs (Fab Academy + peer-to-peer learning)
 - * **Incubator:** provide infrastructure for entrepreneurs to turn their Fab Lab creations into sustainable local businesses.
 - * **Replicated / Network:** provide a product, service or curriculum that operates by utilizing the infrastructure, staff and expertise of a local Fab Lab
-



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06.

Our projects:
let's start developing them and their
business model!

Assignment for this course

The course consists of lectures and **a group project to be digitally fabricated**, be it a project **already designed** but not yet realized or be it the **modification of an existing project**. Every lecture (3 hours) includes time for testing the technologies covered (1 hour) and for developing part of the group project and for receiving feedback about it (1 hour).

- * form **groups**
 - * learn the **process, tools and context**
 - * also develop **a business model** for your project
 - * **prototype, test, explore, share, collaborate**
-

Suggestions for this course

- * Think about **a simple project**: it doesn't have to save the world, just make you learn digital fabrication and it has to be completed on time
 - * **fail early, fail often**: we are all prototyping (your projects, this course, this lab...)
 - * **explore**: a 100% original project is not required (does it exist?), learn from others and just don't reinvent the wheel
 - * you can **use the lab** even outside of the course hours
 - * **you decide** how much time to spend for testing and how much time for developing the project; I will help you, don't worry!
-

Business Model Design (democratized)

You're holding a handbook for visionaries, game changers, and challengers striving to defy outmoded business models and design tomorrow's enterprises. It's a book for the...

Business Model Generation

WRITTEN BY
Alexander Osterwalder & Yves Pigneur

CO-CREATED BY
An amazing crowd of 470 practitioners from 45 countries

DESIGNED BY
Alan Smith, The Movement

Systematically understand, design & differentiate your business model.

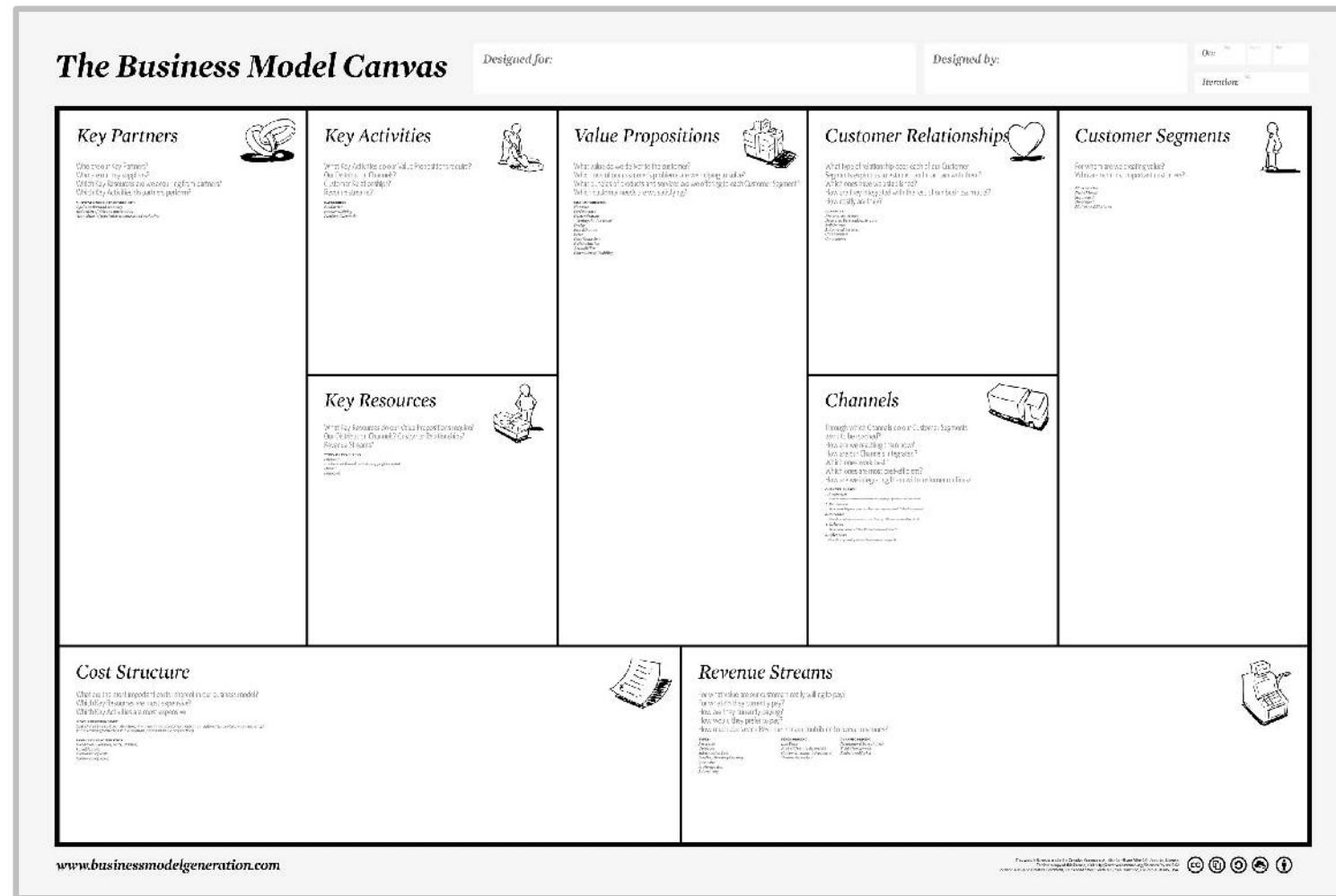
A handbook for visionaries, game changers and challengers. The global best-selling phenomenon, available in 18 languages.

Order now

Not a business plan, no numbers, don't worry:
prototype ideas!

Source: <http://www.businessmodelgeneration.com/book>

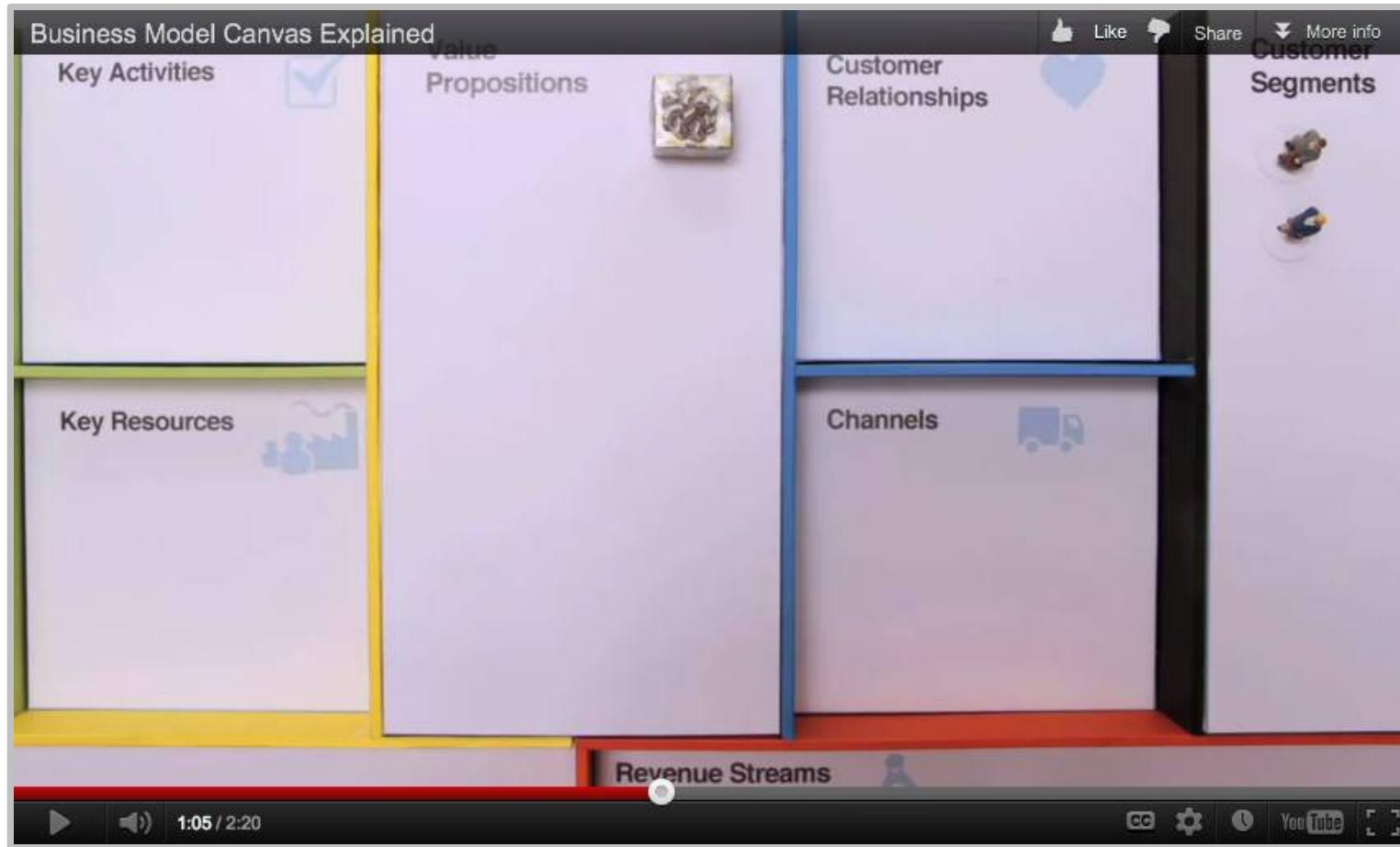
Business Model Canvas: prototype



Not a business plan, no numbers, don't worry:
prototype ideas!

Source: <http://www.businessmodelgeneration.com/canvas>
http://en.wikipedia.org/wiki/Business_Model_Canvas

Business Model Canvas: prototype



Not a business plan, no numbers, don't worry:
prototype ideas!

Source: <http://www.businessmodelgeneration.com/canvas> <http://youtu.be/QoAOzMTLP5s>
http://en.wikipedia.org/wiki/Business_Model_Canvas

No idea for a project? Hack one!

The screenshot shows the homepage of the IKEA Hackers website. The logo "IKEA HACKERS" is prominently displayed, with "IKEA" in yellow and "HACKERS" in blue. To the right of the logo is a cartoon illustration of a person holding a wrench, looking up at a glowing lightbulb. Below the logo is a navigation bar with links for "Home", "About", "Start here", and "Post a hack".

Mirrored luxe

A photograph of two side-by-side cabinets. Each cabinet has a large rectangular mirror on the left door and a solid gold-colored door on the right. They are supported by thin, curved gold-colored legs. The cabinets are placed on a rug with a dark brown background and light-colored circular patterns.

Extendable bedside lamp

A photograph of a lamp with a unique, flexible metal arm that can be bent into various shapes. The lamp head is a clear, spherical globe. It is positioned next to a white chair and a small wooden table with a bowl on it.

Aneboda chest makeover

A photograph of a tall, narrow white cabinet with multiple vertical drawers and doors. It is standing next to a smaller, wider wooden chest. A golden statue is placed on the floor to the right of the cabinet.

IKEA products are cheap enough, there are many options and components that can be reused.

Source: <http://www.ikeahackers.net/>

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Thank you!!

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