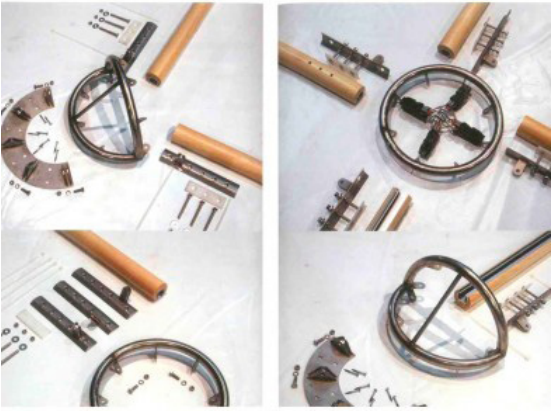
Iaac | FAB LAB BARCELONA

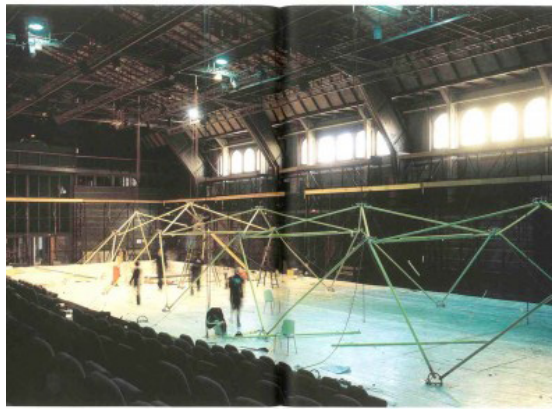
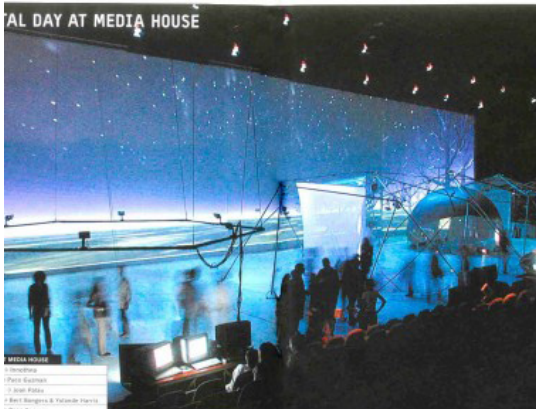
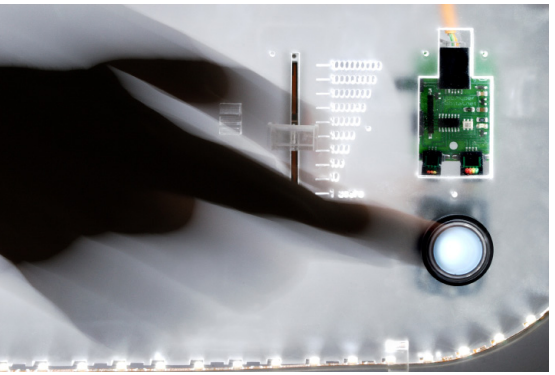
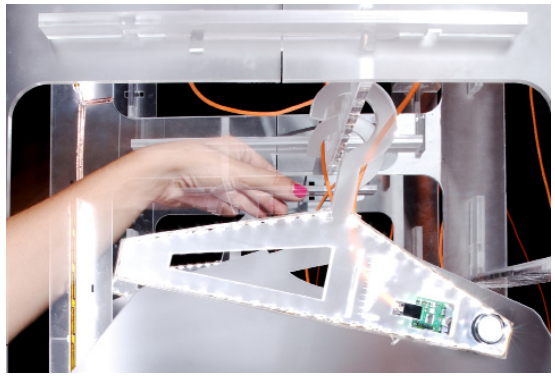
fab labs

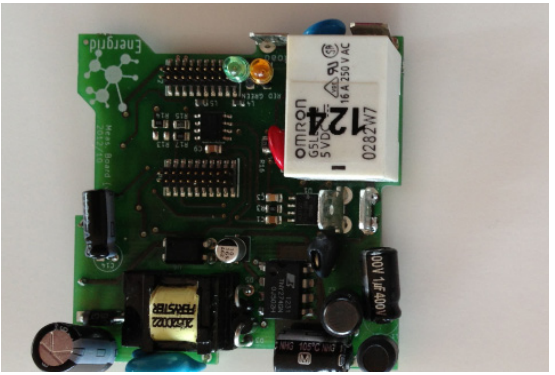
innovation in crisis societies

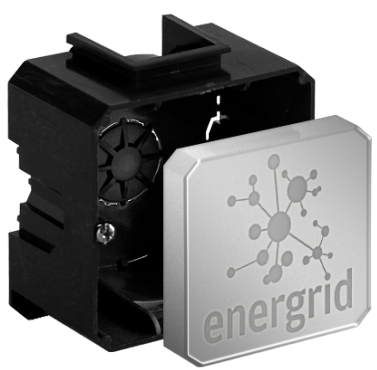
Areti Markopoulou
IAAC Masters Advanced Architecture, Director

WIRE Athens, 2014






AL DAY AT MEDIA HOUSE





omron
124
16A 250V AC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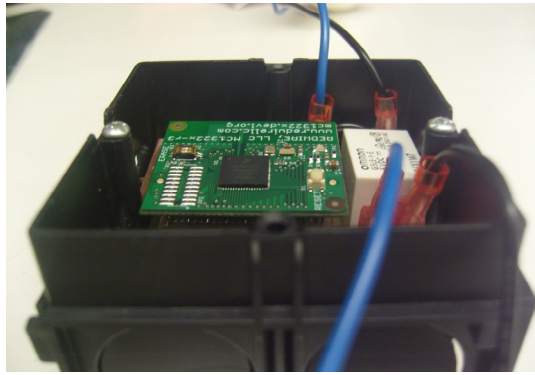
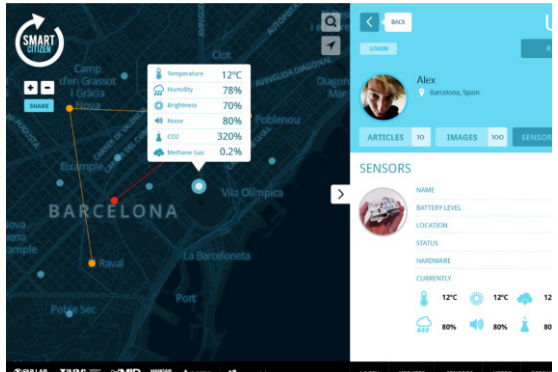
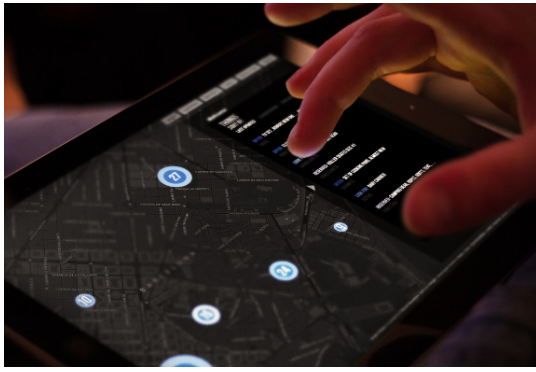
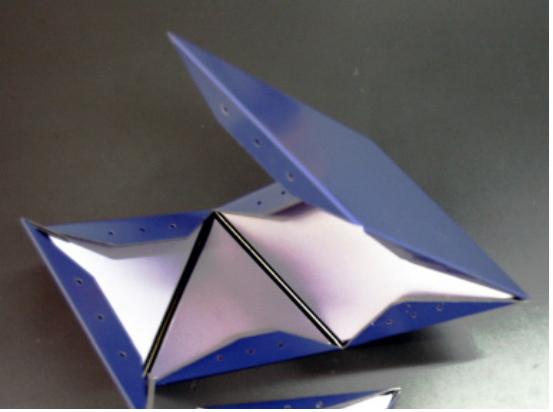
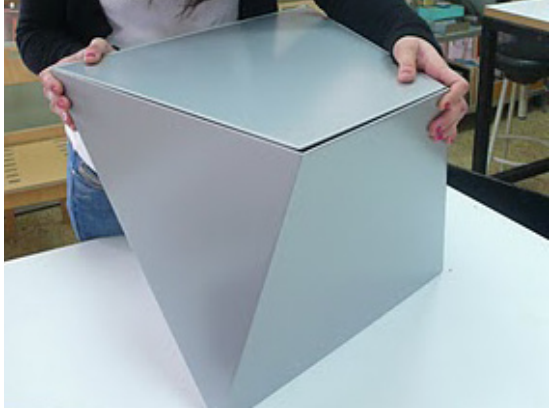




SMART CITIZEN
BARCELONA
Temperature 12ºC
Humidity 78%
Brightness 70%
Noise 80%
CO2 320%
Methane Gas 0.2%
Alex
Barcelona, Spain
ARTICLES 10
IMAGES 100
SENSORS
NAME
BATTERY LEVEL
LOCATION
STATUS
HARDWARE
CURRENTLY


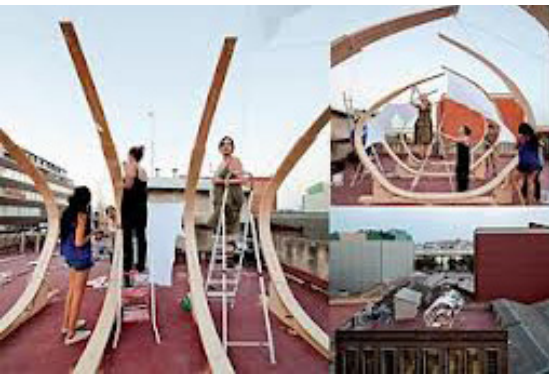











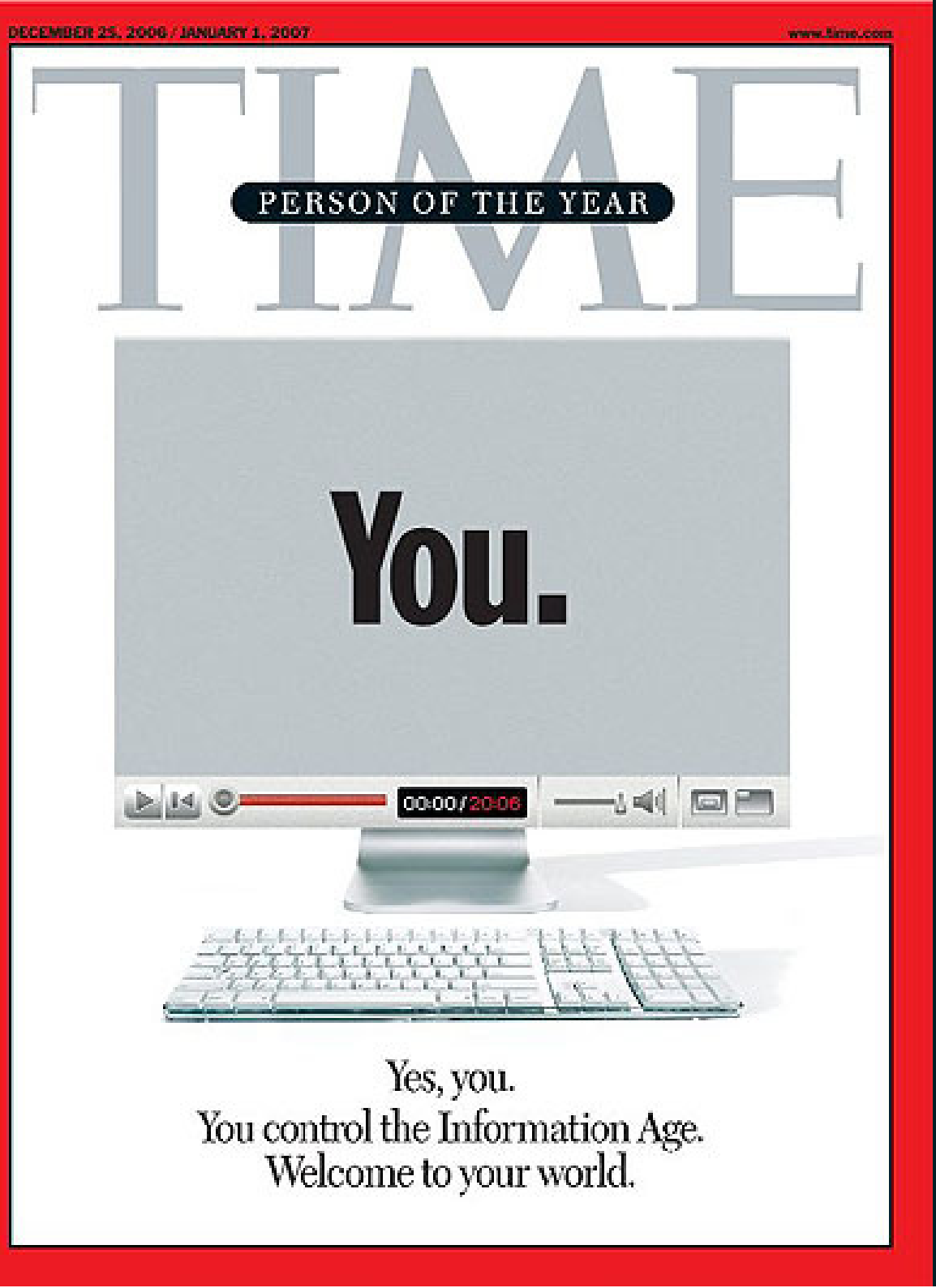

The recent growth of the Internet from a passive source of information to the active Web 2.0 global social community has shown us how we can change many of the paradigms of production systems and the distribution of digital information. In this Web 2.0 structure users are both consumers and producers of content. The formerly directional relationship we had with the TV or the computer has now been transformed into a bidirectional relationship in which each one of us (user/consumer) can produce (producer) the content for other users. The model of distributed production and distributed information has led to a greater democratization of content. It is here that a new definition emerges, and the user is no longer just a user or a consumer but a prosumer (producer+consumer)

[internet 2.0]

new ways of distributing information

new models of production

producer + consumer = prosumer



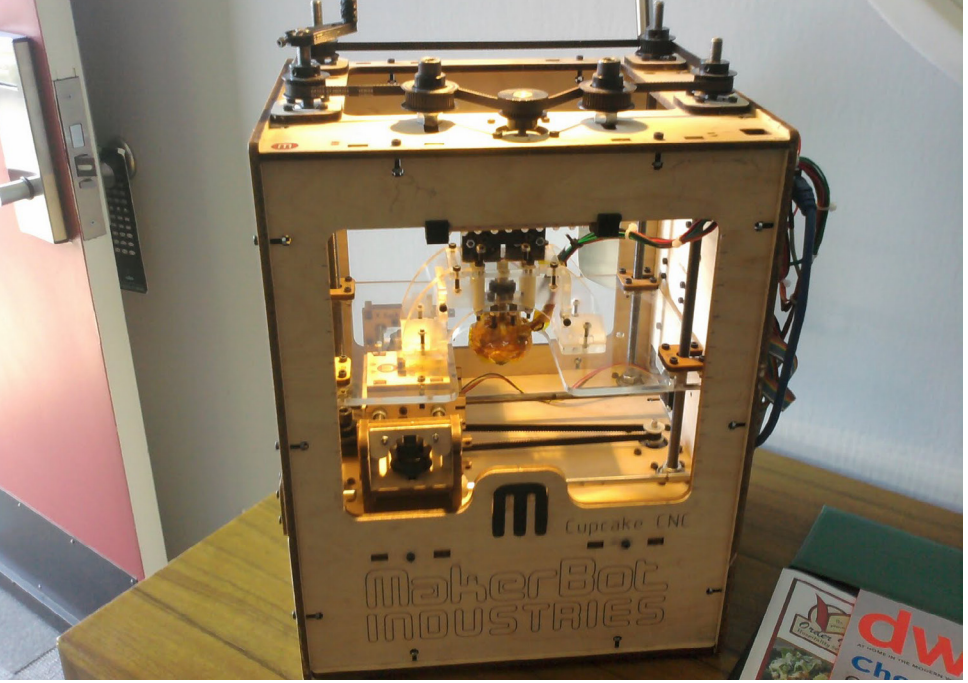
Time Magazine, 2006

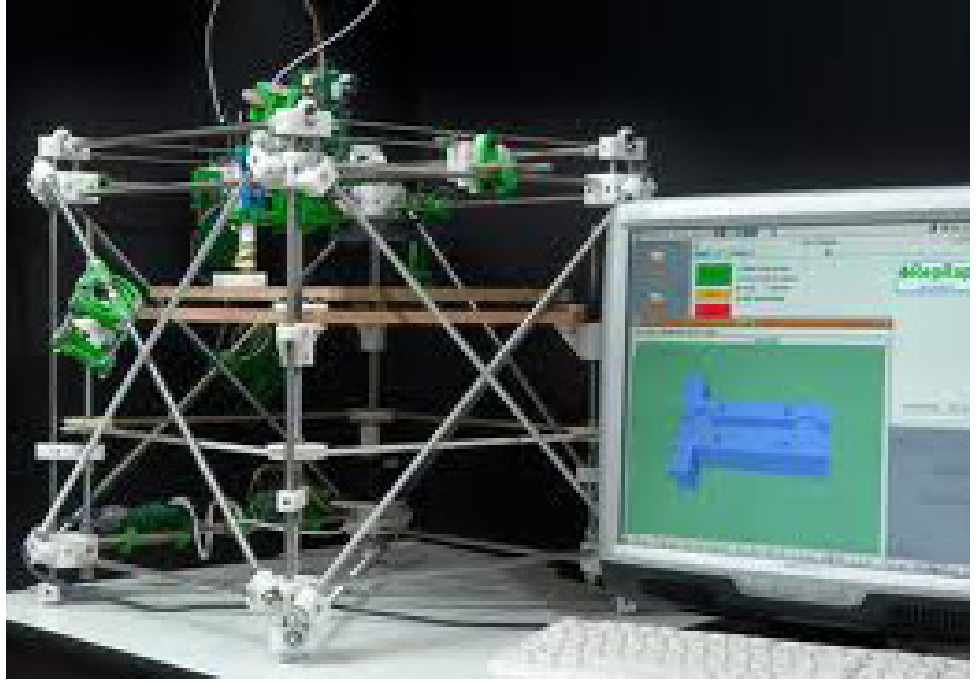
Wiki websites/Technology for the development and management of new content enabling collaborative, interactive and engagement among users

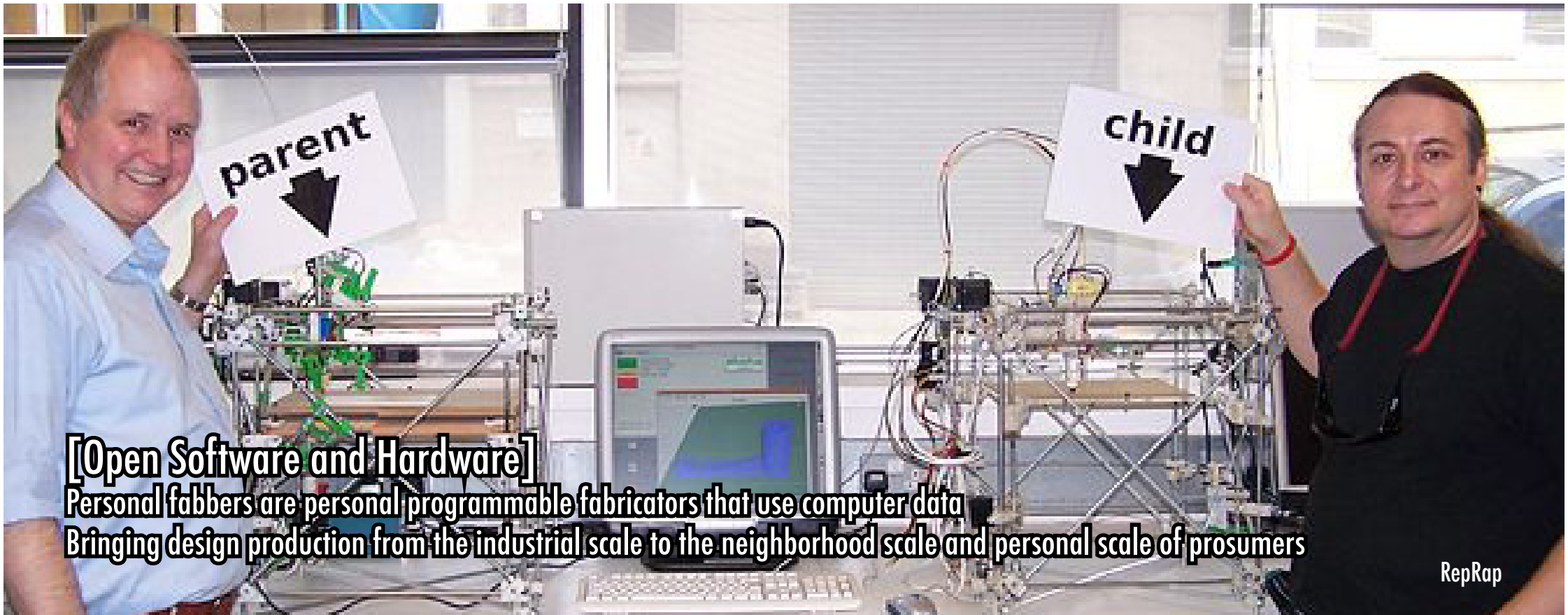
open source™

Open Source Design: Access to the source code/used
copied,studied,modified,freely redistributed
Collaboration for improving usefullness of digital content

Ronen Kadushin, Open Design Chairs

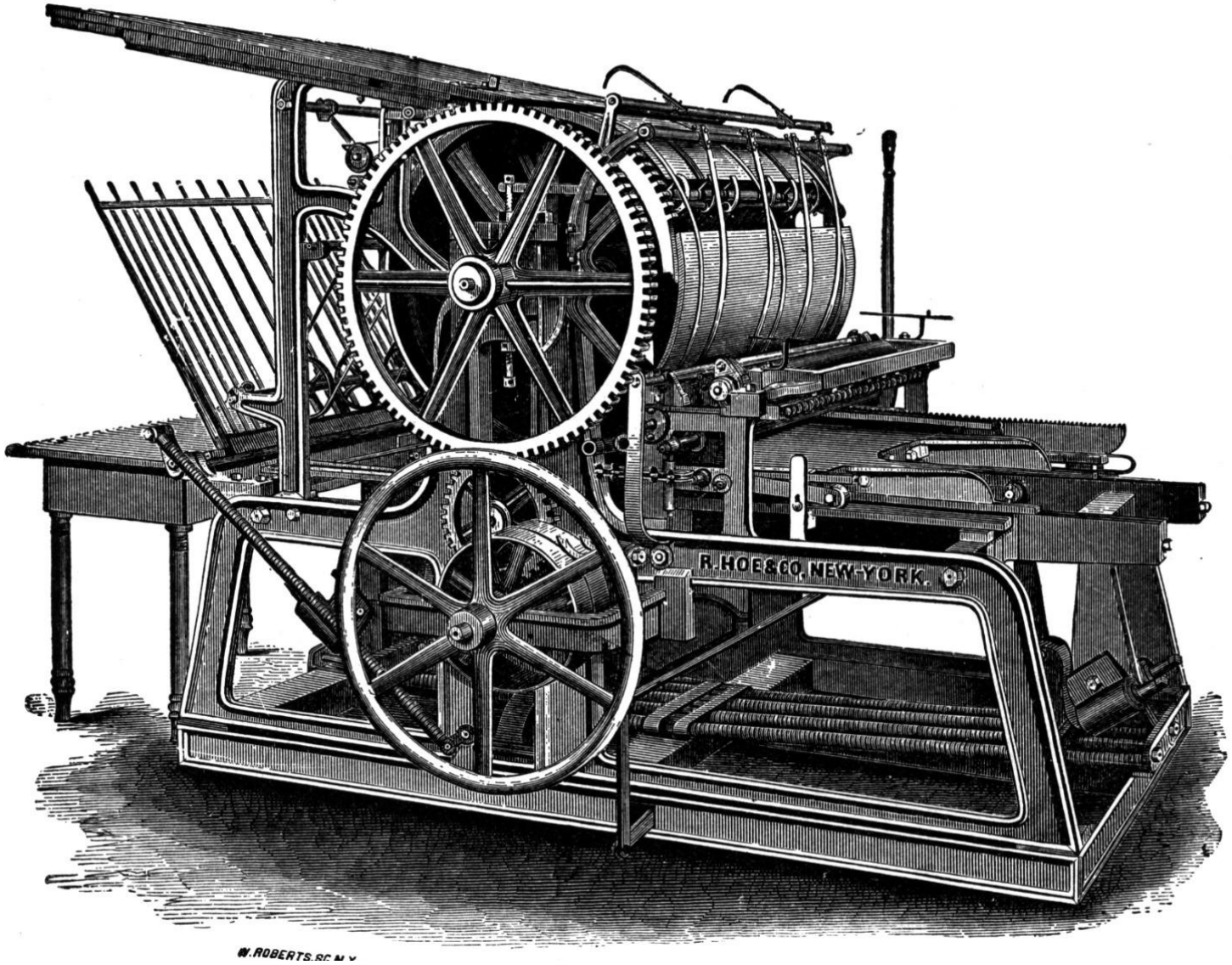






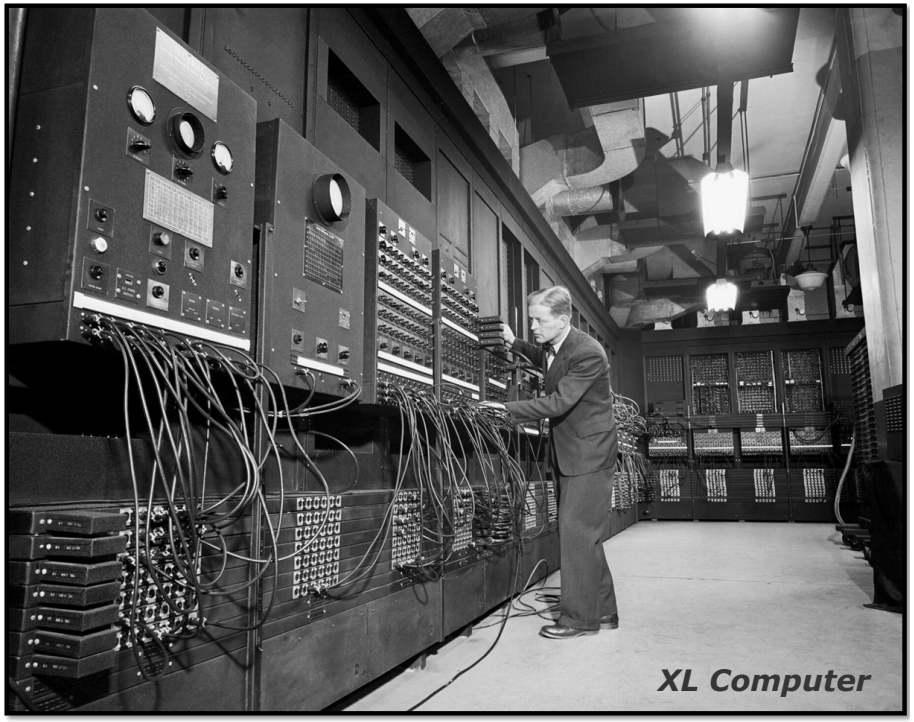
[Open Software and Hardware]
Personal fabbers are personal programmable fabricators that use computer data
Bringing design production from the industrial scale to the neighborhood scale and personal scale of prosumers

RepRap



[Personal fabrication]

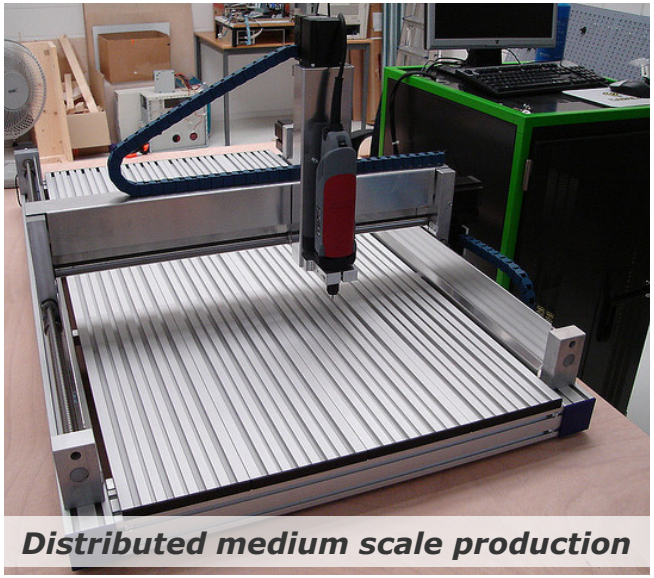
From Desktop publishing revolution to Desktop Manufacturing revolution/ 3rd Industrial Revolution


XL Computer


M Computer

S Computer


Central Mass Production


Distributed medium scale production


Local Personal Production

From Personal Computation(PC) to Personal Fabrication
3rd industrial revolution

New production model/ Personal manufacturing where networks of prosumers develop, share, and promote DIY concepts
CAM technology: rapid production of non-standard objects/ From mass production to personal and customized fabrication

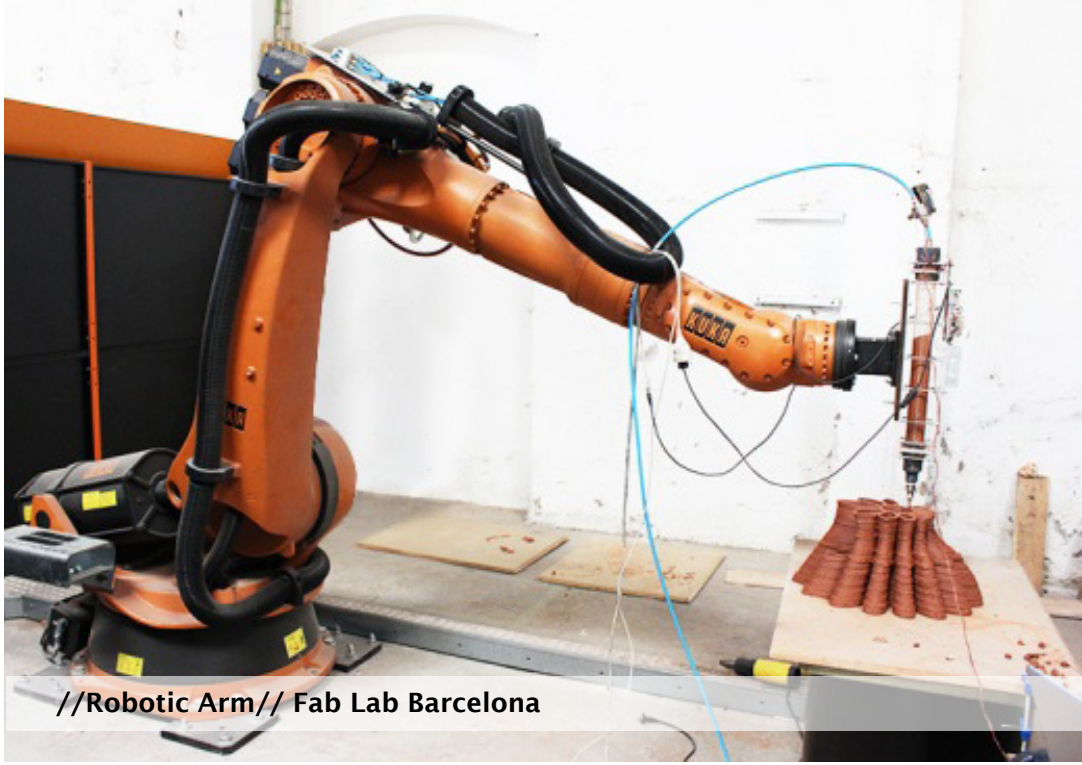
[Fab Labs]

In order that prosumers are able to produce, they must have access to the means of production

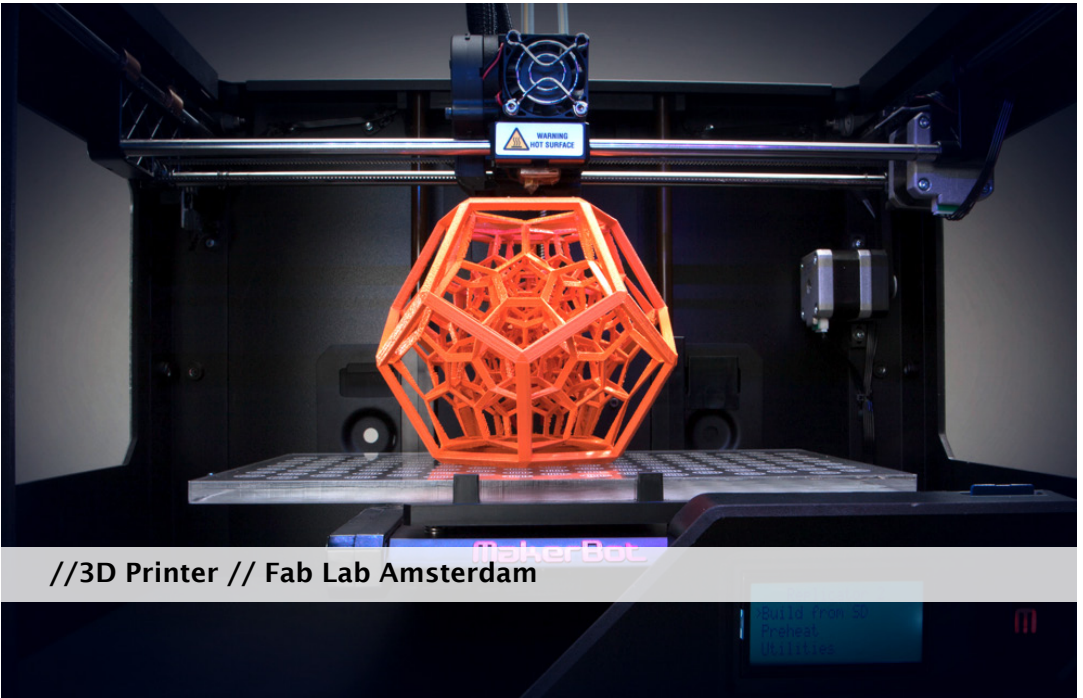
Fab Labs: small-scale accessible platform that allow individuals to bring fabrication to a local scale


//CAM Equipment
//CNC Milling Machines
//Laser Cutters
//3D Printers and Scanners
//Electronic Circuits
//Robotic Arms
Fab Lab Barcelona

//Milling Machine // Fab Lab Elyria, Greater Cleveland

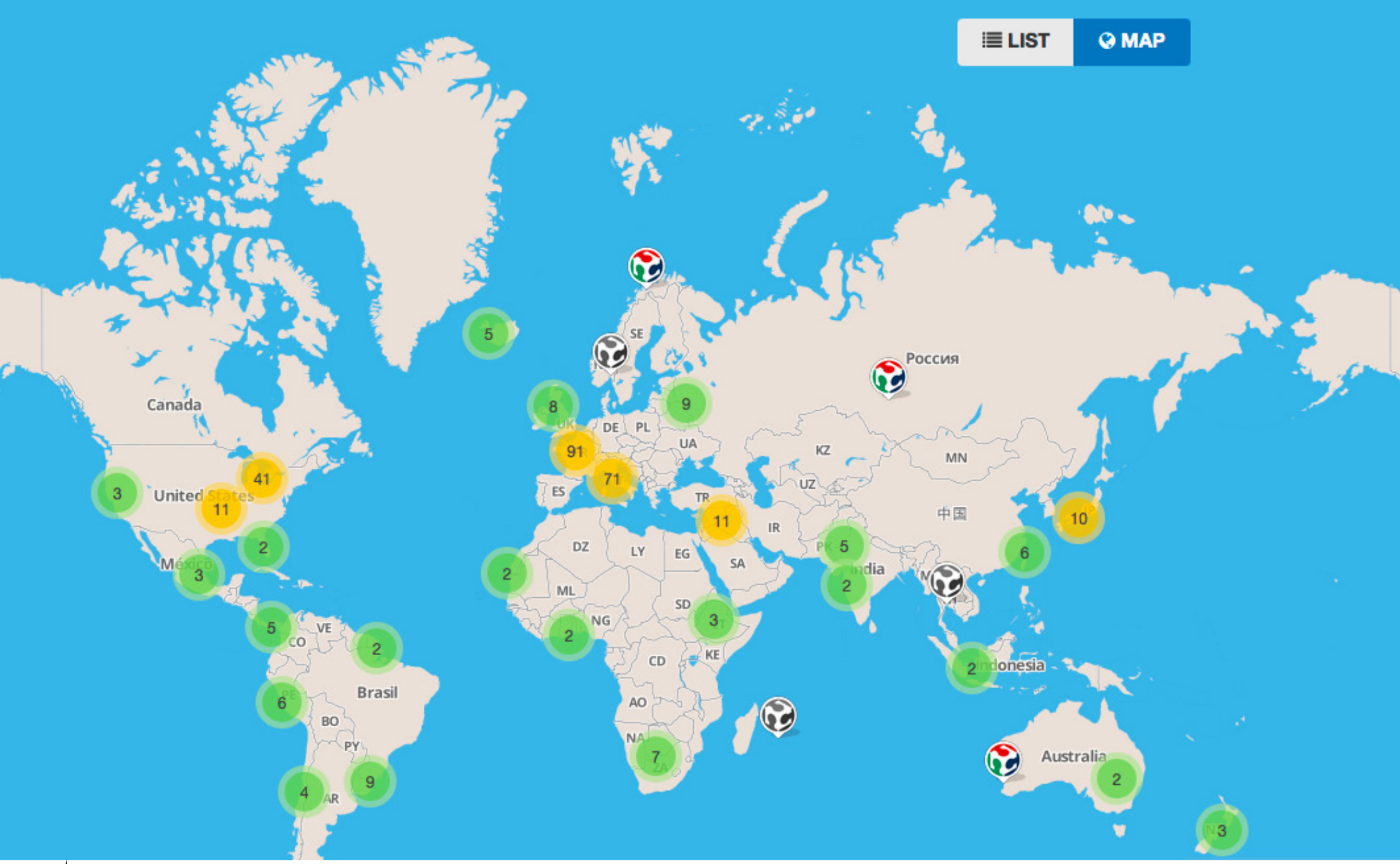


//Robotic Arm// Fab Lab Barcelona



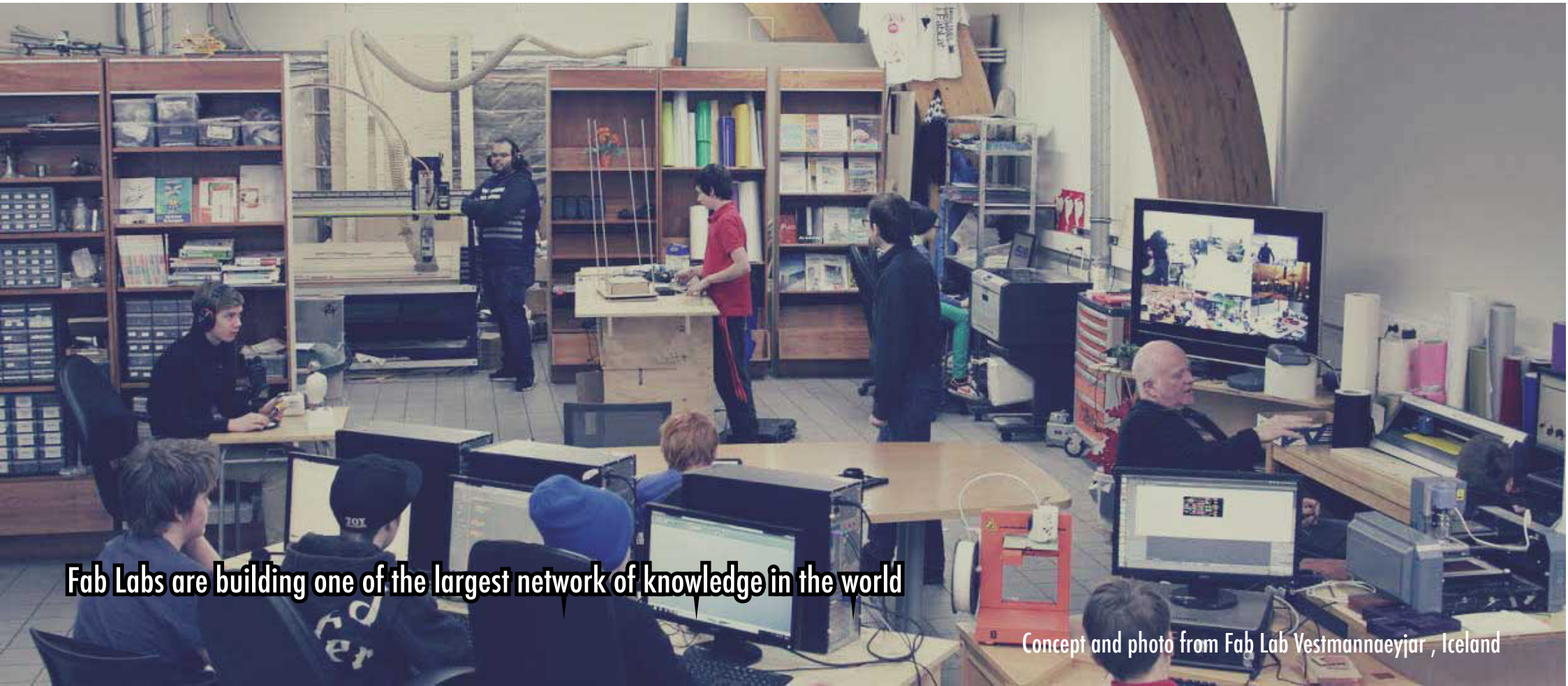
//3D Printer // Fab Lab Amsterdam

//Laser Cutter// Fab Lab Barcelona



A distributed knowledge network which shares processes and projects on Internet creating tools to bring fabrication at the personal level


The Fab Academy
Computer-Controlled Cutting
Get It


Fab Labs are building one of the largest network of knowledge in the world
Concept and photo from Fab Lab Vestmannaeyjar , Iceland

[what can you make in a Fab Lab?]

projects from Fab Lab Indonesia, Fab

Objects & Furniture, Interactive Fabrics and New Materials,
Electronic boards and Monitoring devices

b Norway, Fab Lab Sevilla, Fab Lab Amsterdam, Fab Lab Lima, Fab Lab Barcelona

Fab Lab Jalalabad in Afganistan- WiFi Antenas

Fab Lab India-Water Pump

Fab Lab Kids/ Invent to Learn and Grow

[new business models]

/new economic models based on collectivity of peer users
entrepreneurs-start ups
/new techniques like additive manufacturing that needs no stock
production on demand

Social and Personal Manufacturing

[new production models for cities]

Buildings

Fabrication in Building Scale
Contribute to the local production of objects, tools and buildings in our cities

Fab Lab House, IAAC | Fab Lab Barcelona, 2010

Fab Lab House, IAAC | Fab Lab Barcelona, 2010

[3d printed buildings]

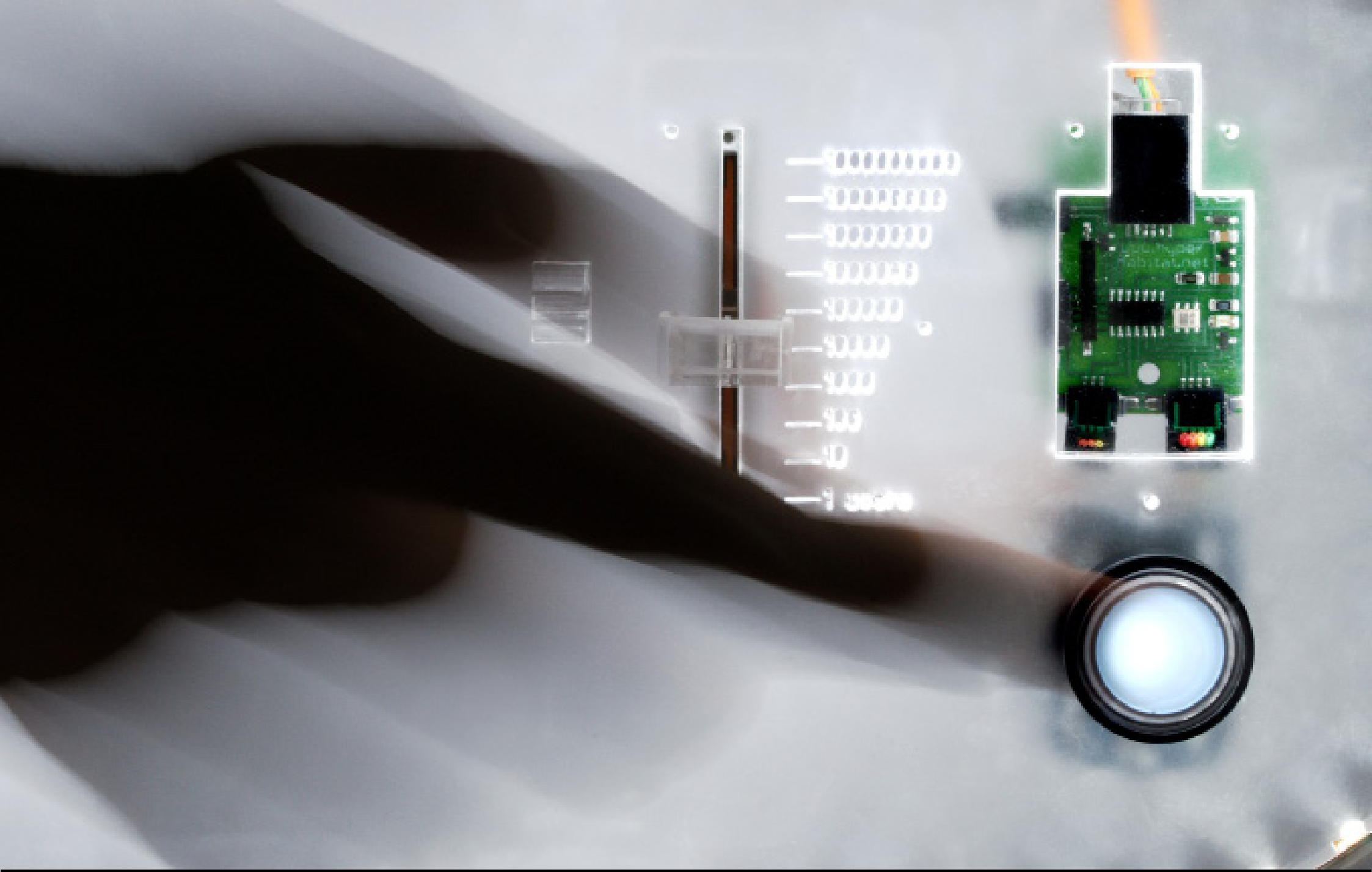
new techniques, low cost, places with no infrastructure

Mataerial, 2012, Open Thesis Fabrication/Petr Novikov, Saša Jokic, IAAC-Joris Laarman Lab/ Pylos/ IAAC, OTF, Sofoklis Giannakopoulos, 2013

[internet of things]

programming objects that interact among them,
with the environment and the user

Hyperhabitat_Reprogramming the world, 2008, Venice Bienale/ IAAC - Guallart Architects-MIT CBA - Bestiario



Internet 0 Node-Small and cheap computer-Internet of Things

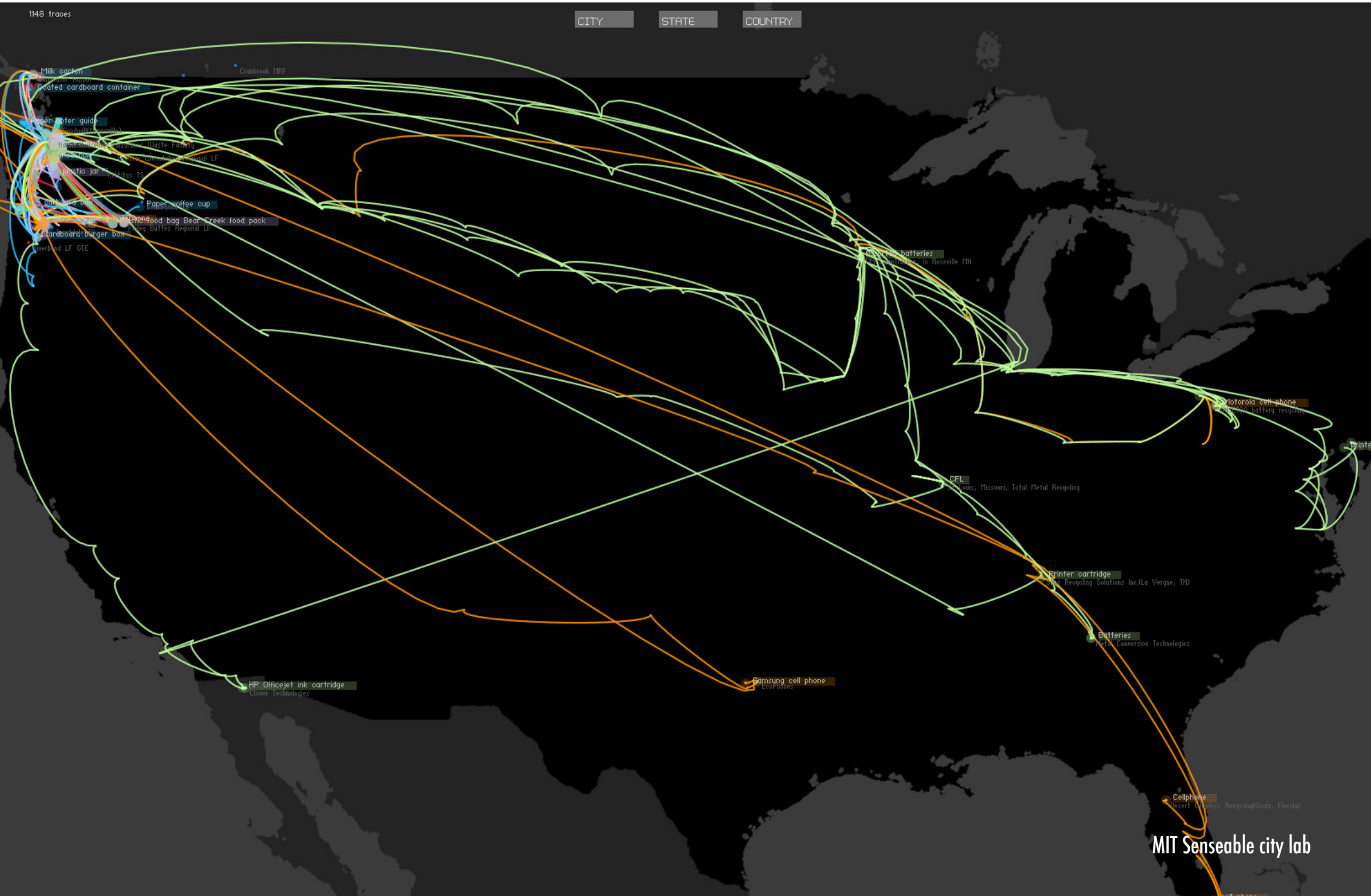
Objects sensing and actuating-hyperconnection of users, objects and environment

[Urban World]

Today's urban population is 3.3 billion, is expected to double by 2050.That means that two out of every three people will live in the city in 2050.

Current production model has economic and environmental impact:
High demand for goods/ production in countries with low labor costs/energy and monetary cost for logistics and transportation


Cities import goods and export waste/ energy and monetary cost for waste transportation


1148 traces
CITY
STATE
COUNTRY
Milk carton
Cranbrook MRF
Coated cardboard container
Paper coffee cup
Cardboard burger box
Rechargeable batteries
Motorola cell phone
CFL
Printer cartridge
Batteries
HP Officejet ink cartridge
Clover Technologies
Samsung cell phone
Cellphone
MIT Senseable city lab

[city protocol]

SMART AND SELF SUFFICIENT CITIES

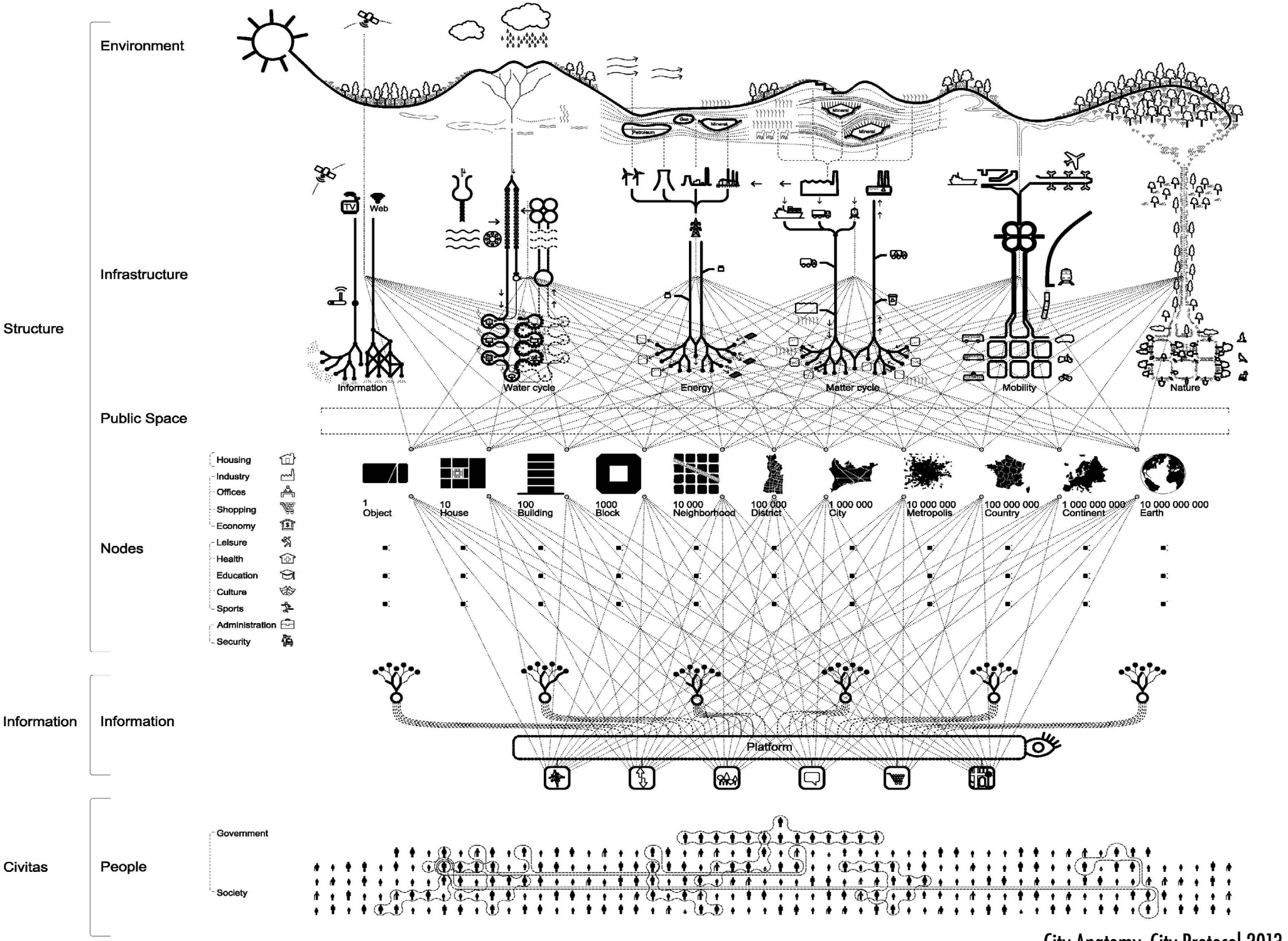
How can we optimize the performance of our cities?

[fab city]

PRODUCTIVE CITIES

Ajuntament de Barcelona

There is a need of new alternative and sustainable models for the production and consumption of goods
Productive cities (goods, knowledge, innovation)



City Anatomy, City Protocol 2013


Citlilab Cornella
Citizen innovation
Can Batllo
Advanced 3d Print
Les Corts
Accesibility
Vallvidriera
Theater and arts
El Raval
Music and artisans
Green Fab Lab
Self-Sufficiency
Gracia
Textiles
MOB Eixample
Design and art
Horta
Water and energy
Sant Andreu
Mobility and cycling
Ciutat Meridiana
Urban renewal
Santa Coloma
Furniture
Fab Lab Barcelona
Smart Cities
Productive city:
Local Production
Fab Labs for citizen education-access to technology and innovation
Re-industrialization
Hyper-connection with other cities

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Ajuntament de Barcelona

The Center for Bits and Atoms

FABFOUNDATION

info@fab10.org

‘Just as digitization has freed some people from working in an office, the same will happen in manufacturing. Product design and simulation can now be done on a personal computer and accessed via the cloud with devices such as smartphones. It means architects, designers and engineers can work on a product and share ideas with others from anywhere.
What does this do for manufacturing?

[innovation in crisis societies]

from consuming to producing

It means the factory of the future could be me, sitting in my home office.’

(The Economist, April 2012, ‘All Together Now’)

Iaac | Institute for advanced architecture of Catalonia | BARCELONA

[thank you]

areti@iaac.net

www.iaac.net

www.fablabbcn.org

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