

Tomas Diez

@tomasdiez

in (almost) every social network

Director of Fab Lab Barcelona at IAAC and the

Master in Design for Emergent Futures

Fab City Global Initiative

Founding Partner

**My weak signals...
and interventions I
am working on to
enable emergent
futures**

Polarization of views, especially in politics

Colonial - Western centric views

Information obesity - informed ignorance

Normalization of toxic food chains



WEAK SIGNALS





Polarization of views, especially in politics

Colonial - Western centric views

Information obesity - informed ignorance

Normalization of toxic food chains

COVID-19 - Permanent Pandemics

Extreme oscillation of reality

Economic reconstruction for a new normal



The First Global Urban Planning Conference Was Mostly About Manure

The threat was real. And stinky.

BY DAVID DOOCHIN • JULY 29, 2016













Weak signals change

Pace layering

Fashion



Commerce



Infrastructure



Governance



Culture



Nature



large format machining

laser cutter

molding and casting

vinyl cutter

composites

design

videoconference

sewing

electronics

3D scan and print

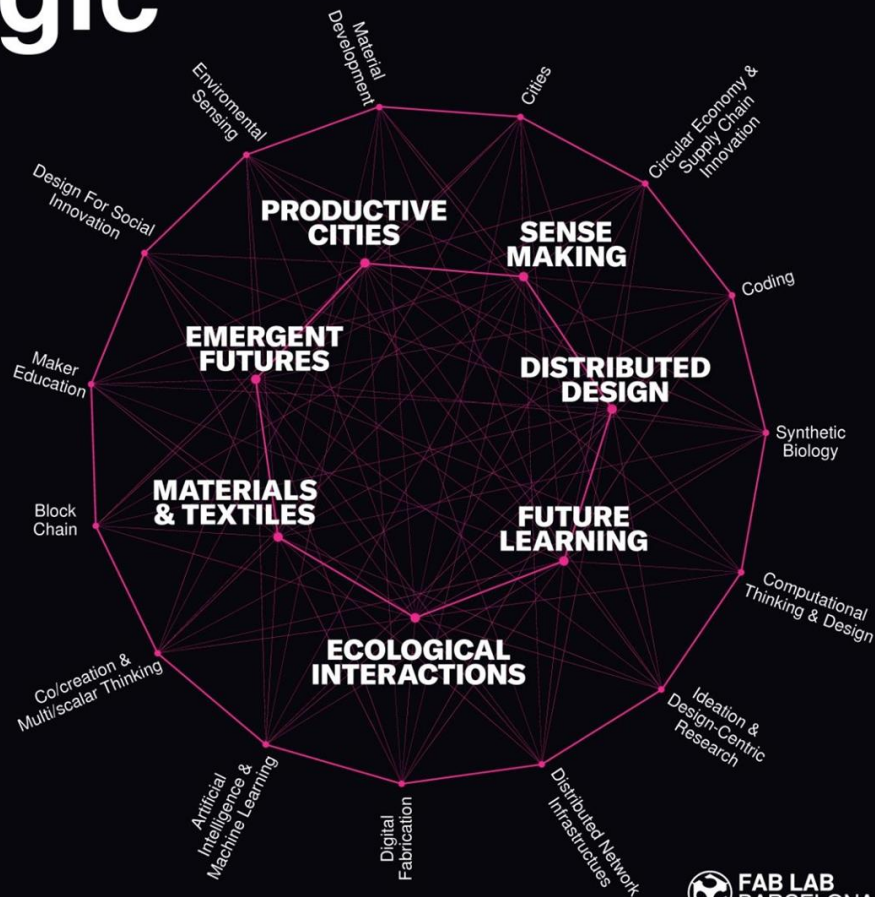
precision machining



I^aac

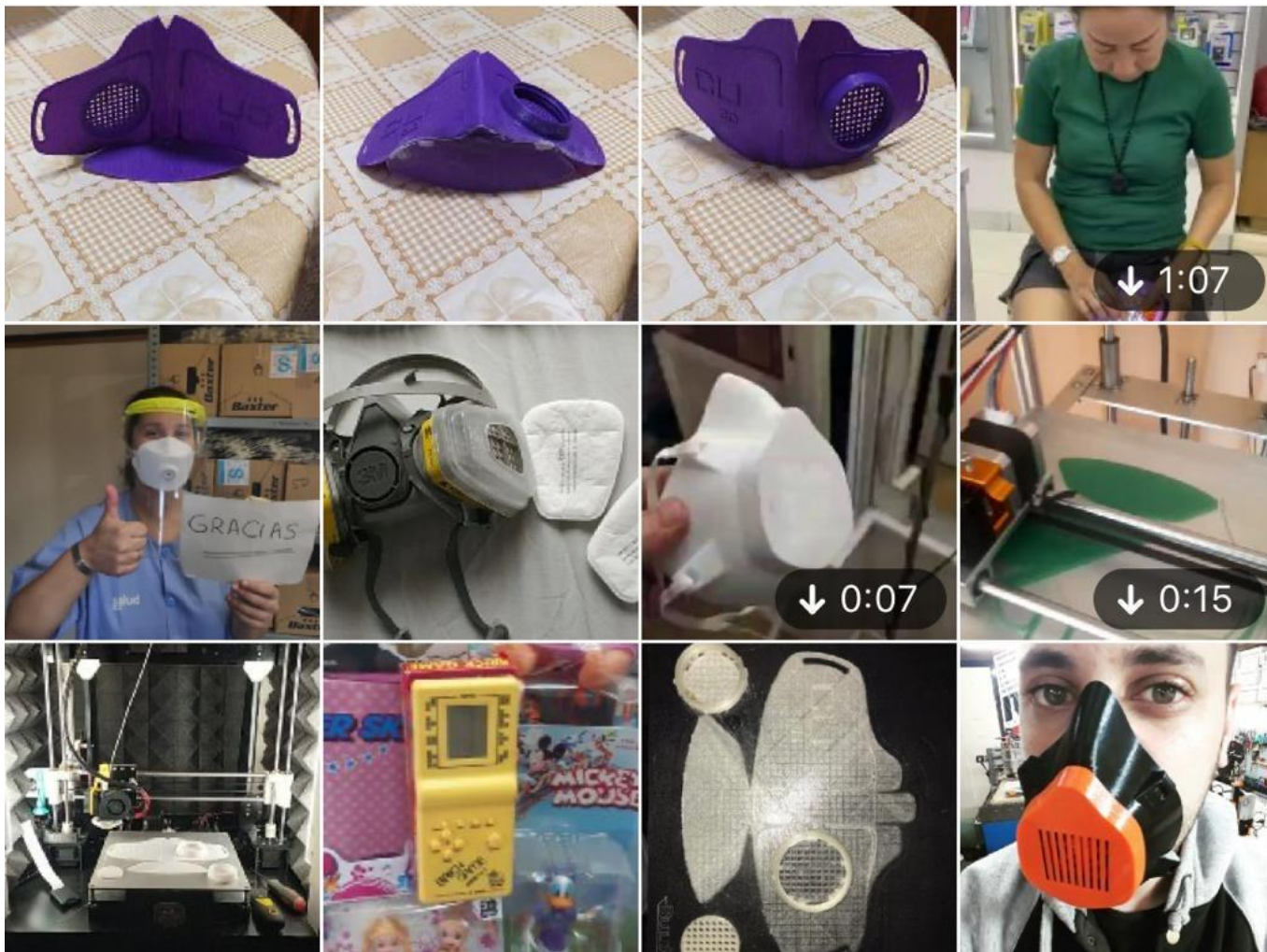
Strategic areas

Fab Lab Barcelona is one of the research departments of IAAC. Within the lab, there are seven research areas that synthesize our work, and help to understand how we relate technology with society and the environment. These research areas develop work related to educational programs, research and innovation projects, and collaboration with companies and organizations.





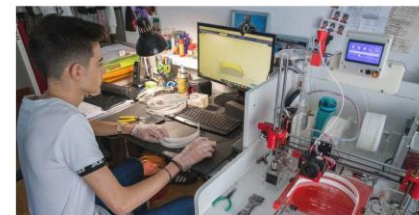




CURRENT EVENTS

Lesson of the Day: 'D.I.Y. Coronavirus Solutions Are Gaining Steam'

In this lesson, students will learn how from Ireland to Seattle, makers and engineers are creating open-source versions of much-needed medical equipment.



Coronavirus: Can we 3D-print our way out of the PPE shortage?

By Zoe Kleinman
Technology reporter, BBC News

10 April 2020

Coronavirus pandemic

Facebook Twitter Email Share

Top Stories

US orders China to close Houston consulate

Unsanitized people were filmed burning paper in the consulate's courtyard after the order was made.

21 minutes ago

Australia sees worst day yet for new infections

4 hours ago

Trump concedes coronavirus pandemic to 'get worse'

5 hours ago

Features





NEEDS, FAB LAB SUPPORT AND ACTION

Below you will find the number of Fab Labs that are currently working on PPE (Highlighted in red) and the interest shown by Fab Labs that are willing to produce other types of need (Highlight in black)



Face Shields



FDA Approved Products



Protective Eyewear



Respirators



Gloves



Gowns



Surgical Caps



Shoe Covers



Biohazard/Specimen Transport Bags



Pulse Oximeter



Ventilators



Hospital Beds



Hand Sanitizer



Power Air Purifying



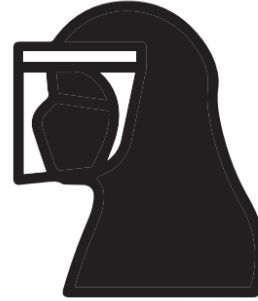
Testing and Diagnostics



Face Mask

TOTAL NEEDS: Biohazard Bags - N-95 Masks - Shrouds - Gowns - Gloves - Hospital Beds - Elastomeric Respirator - Powered Air Purifying Respirator (PAPR) - Powered Air Purifying Respirator (PAPR) Visors - Pulse Oximeter - Tyvek Coveralls with Hoods - Tyvek Hoods - Tyvek Sleeves - Tyvek Suits - Protective Eyewear - Face Shields - Shoe Covers - Surgical Caps - Hand Sanitizer - Specimen Transport Bag - Metered Dose Inhalers - Ventilators - Ventilator Supplies - Tubing Sets - Humidifiers - Endotracheal Tubes - Testing & Diagnostics - FDA-Approved Swab Kits - FDA-Approved Transport Media - FDA-Approved Sample extraction (EUA) - FDA-Approved PCR Tests (EUA)

FAB LAB PRODUCTS IN RESPONSE TO COVID-19



23 Face Shields
(one to wear with turbans/
beards)



2 Face Masks



2 Gowns



1 Valve for Ventilation Machine



1 Door Opener



1 Charlotte Valve



1 Injection Mold for filter
Rubber Mask



4 Mask clips/Ear saver



1 Stretcher



1 Respirator Connector



4 Incubation Boxes



1 Acrylic Partition Board



1 PAPR

Around ~108,600 of all of the PPE listed have been manufactured up to now - May 2020

PPE CONSUMER DELIVERY SYSTEM



Personal Delivery 29



Ground 19



Post Service 2



Consumer Pickup 5

KIND OF ORGANIZATION RECEIVING PRODUCTS AND RECURRENCE

Specifically, labs are giving out PPE to the following: school, nursing homes, doctors, dentists, restaurants, NGO's, homeless shelters, disability services organizations, army, police stations, ministry of healthcare, city hall



ONE TIME
10
RECURRING
19

LOCAL



ONE TIME
6
RECURRING
6

NATIONAL



ONE TIME
2
RECURRING
0

INTE'L

DELIVERY TIMEFRAME



31 Fab Labs
had a rapid
production line
delivering in
1-3 days



7 Fab Labs had
a moderated
production line
delivering in
3-7 days



2 Fab Labs
had a slow
production line
delivering in 2
weeks

PRODUCTION CAPACITY INSIDE FAB LABS

Varies greatly within every PPE type, from 80 daily to 2000 daily, 200 weekly to 20,000 weekly, 100 monthly to 10,000

MONTHLY PRODUCTION



The answers were quite varied even within the same product. We have to keep in mind the many other factors that contribute towards the possible monthly production (equipment available, materials available, time availability, staff, volunteers, etc)

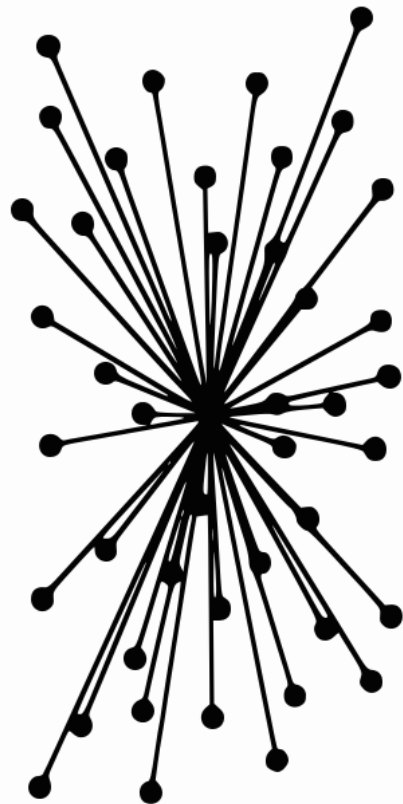
FACE SHIELD EXAMPLE

195,400 estimated production
from all fab labs

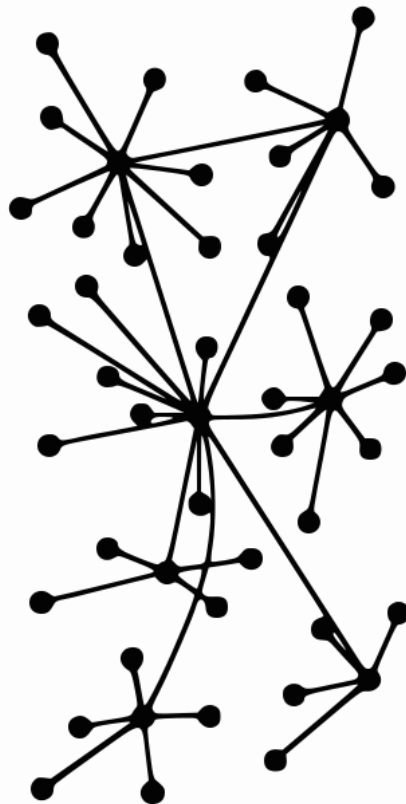
13,026 average monthly
production per fab lab



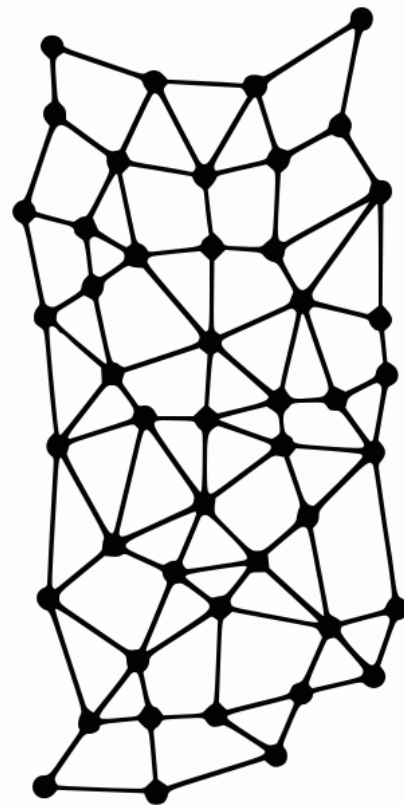
The monthly production rate ranges from **120 to 29700**
When you combine all of the monthly production rates, the Fab Labs could together produce **195,400** face shields a month. The average rate of monthly production is **13,026** face shields



Centralized

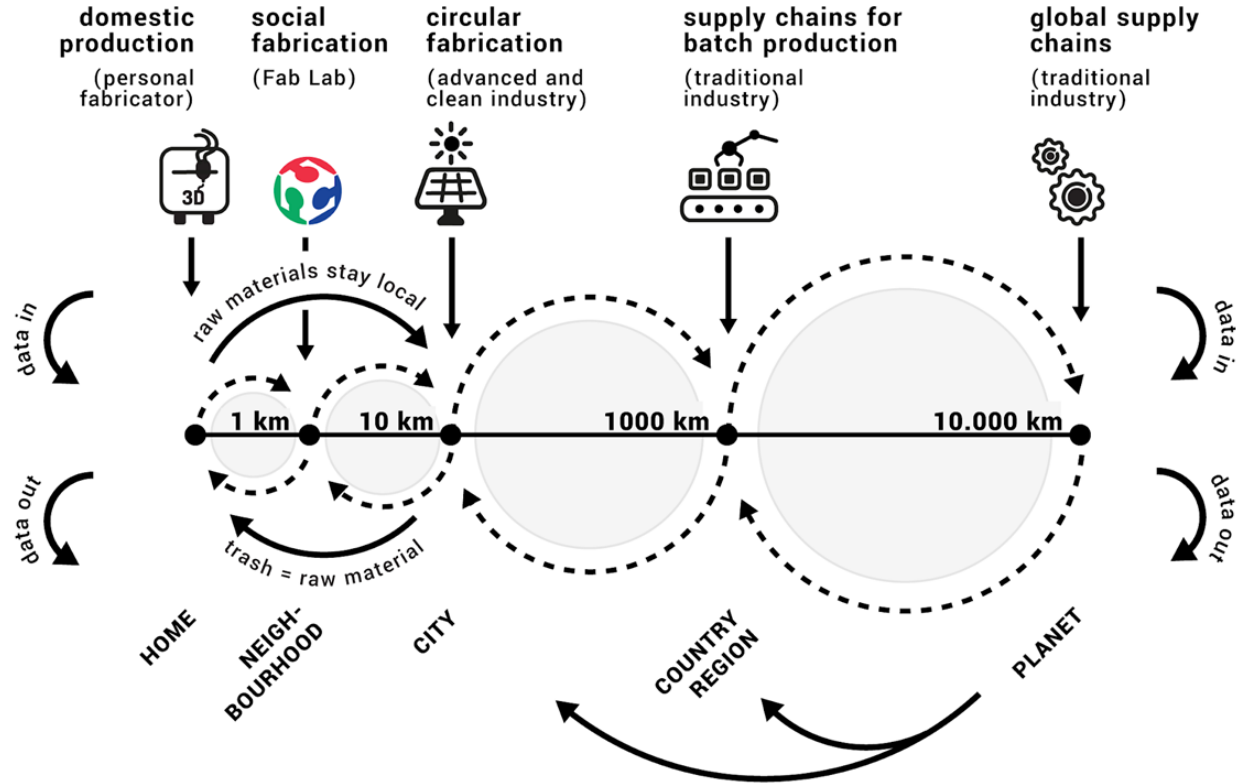


Decentralized



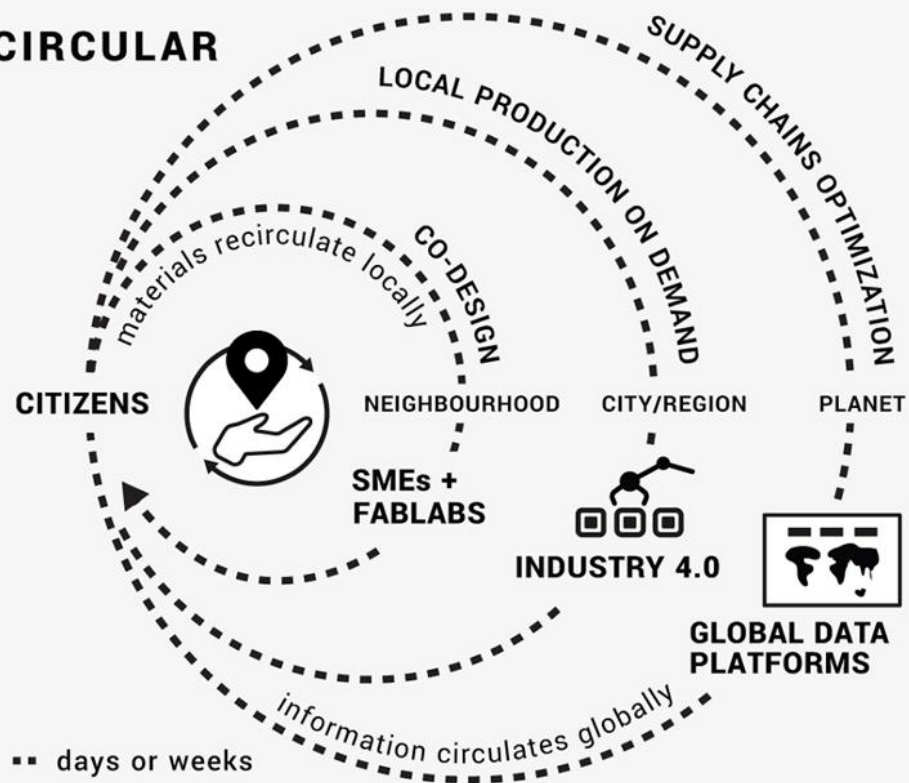
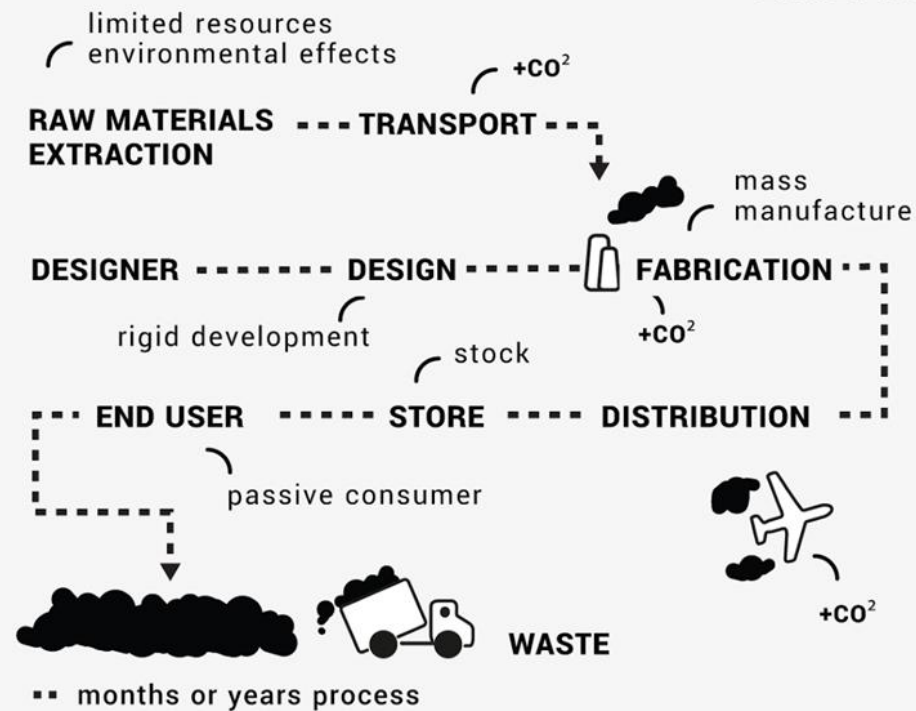
Distributed

RESCALING GLOBAL PRODUCTION



↳ Model: DIDO - Data In / Data Out

LINEAR vs CIRCULAR



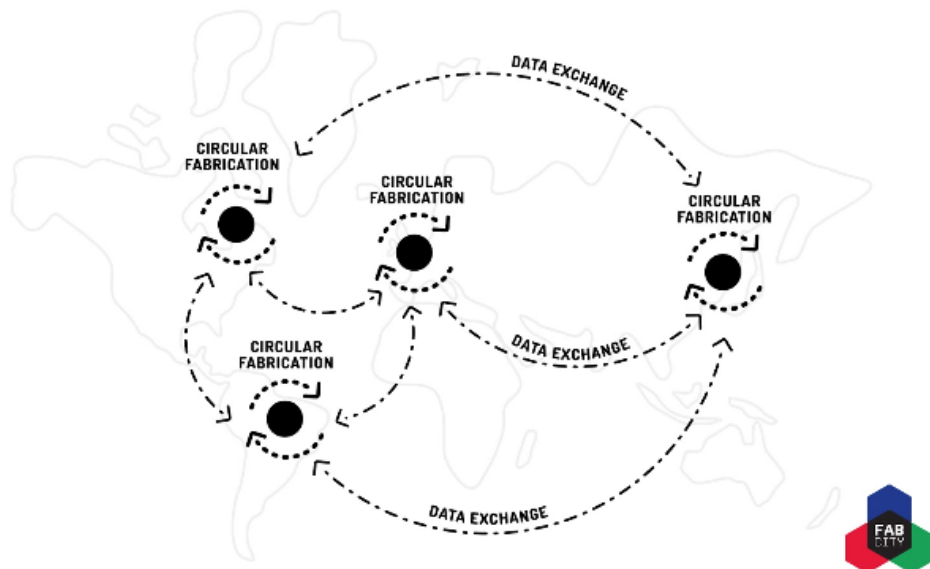
Industrial revolution after 200 years:



↳ PITO - Product in / Trash out

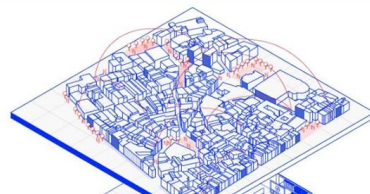
From linear to spiral production ecosystems:

↳ **DIDO - Data in / Data out**



FULL STACK

The Fab City Global Initiative is envisioning and constructing possible urban futures by working at multiple and interconnected scales.



Cities Network

Shared metrics to evaluate progress towards self-sufficiency in cities. Policy-making, regulation, and planning for regenerative urbanization.



Platform Ecosystem

Project repositories for urban transformation. Distributed and decentralized repositories and value exchange mechanisms for global collaboration. Fab Chain, the blockchain project to enable distributed design and manufacturing.



Shared Strategies

Global programs for urban transformation related to local production and processing of food, energy, water, information, or other production systems. Implementation and deployment strategies by the Fab City Collective.



Distributed Incubation

Engage the power of a distributed network of knowledge to envision, design and create open source technology for urban regeneration. "Grow with Fab" program as a distributed accelerator within the Fab Lab network.



New Forms of Learning

New skills to learn how to learn, learning by doing principles, lifelong learning basis. The Academy of Almost Anything (Fab Academy, Bio Academy, Fabricademy), STEAM education and professional training.



Distributed Infrastructure

People, communities, spaces (Fab Labs, Makerspaces, Hackerspaces), machines, tools. Thousands of spaces and communities already in place in every major and middle city in the world.



Designing Emergent Futures



WELCOME TO FABX LIVE



<https://fabxlive.fabevent.org/>

Link to video: <https://www.youtube.com/watch?v=YPIZ12THkLQ>

