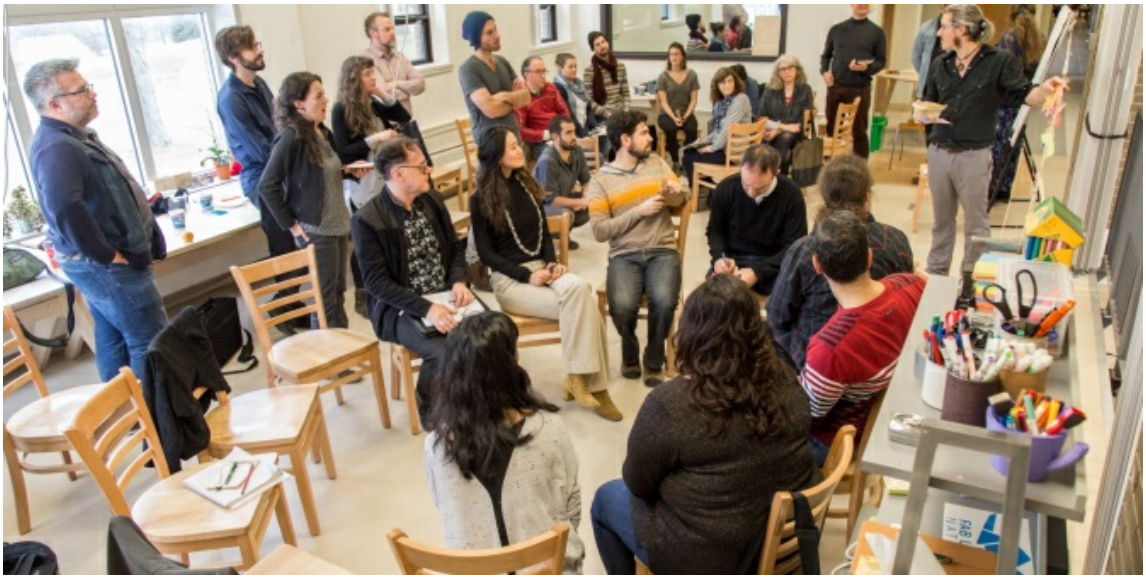
Fab labs and D-Lab: two different philosophies of innovation?



Between 25 and 28 July 2018, I had the opportunity to participate in a rich learning expedition called #hackingday2018. It consisted of a set of visits and reflexive discussions about Boston's academic, entrepreneurial and innovative eco-system. We followed a protocol combining planned and improvised visits going along with the flow of discussions and questions of the event itself (see the open walked event-based experimentations protocol [OWEE] for details). The expedition was organized by the Research Group on Collaborative Spaces (RGCS), an alternative academic network about new work practices (in particular collaborative work practices) inspired by open science and citizen science cultures.

More than two thirds of the visits were thus improvised. The protocol also relies on openness (anybody can register for free via an Eventbrite link) and long walked-times alternating visits and other seated times. Social media, blogs and videos are used to extend the event in time and space, and link it to other events and published research. Thus, serendipity, by chance encounters, reflexivity and narration were strong parts of this journey which led us to Media Lab, Harvard's Wyss Institute, CIC, WeWork, MIT makerspace, TMRC and different MIT labs.

Two of these visits allow me to make more systematic comparison between two different philosophies of innovation and their political consequences for society.

We first visited the Center for Bits and Atoms (CBA), part of the MIT Media Lab, in which fab labs were co-invented. CBA is presented in its website as an "an interdisciplinary initiative exploring the boundary between computer science and physical science. It studies how to turn data into things, and things into data." In its main building projects, CBA includes start-ups, facilities such as 3D printers, genomics oriented-tools, laser cutters, CAT scanners, etc. It was launched by a National Science Foundation award in 2001. The idea was to "create a unique digital fabrication facility that gathers tools across disciplines and length scales for making and measuring things."

Visiting this place was very interesting for me, as part of my research is focused on collaborative spaces such as makerspaces, hackerspaces and fab labs. CBA is for me an iconic, mythical space, as it is the place where part of the story of open knowledge-oriented spaces began. The fabrication laboratory (fab labs) program started here with CBA. As explained in its Wikipedia page, the fab lab program was "initiated to broadly explore how the content of information relates to its physical representation and how an under-served community can be powered by technology at the grassroots level". The first fab lab was launched in India in 2002, just one year after the beginning of the project.

Date originally posted: 2018-09-07

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Blog homepage: http://blogs.lse.ac.uk/businessreview/

What is a fab lab? It is a fabrication-oriented place whose community documents and shares the processes it co-produces. It has to respect the key principles of the fab lab charter.The charter stresses also the importance of the fab lab network, and the possibility for patents and private sponsorship but with an important condition: “Designs and processes developed in fab labs can be protected and sold however an inventor chooses, but should remain available for individuals to use and learn from.”

Interestingly, another MIT centre was part of the elaboration of this innovative concept: the Grassroots Invention Group (GIG), which is no longer part of the MIT Media Lab. GIG is “developing a suite of low-cost, powerful personal computation and fabrication technologies along with innovative idea dissemination methodologies to give individuals and communities greater independence over their own learning and development”. GIG is rarely mentioned in the articles we read about the history and philosophy of fab labs, but its joint imprint is obvious, in particular in its objectives: “We are actively working with our international partners to ensure that the tools we build and disseminate can be locally reproduced, extended and appropriated in a variety of social, cultural and economic context.” The idea is to document procedures, ideas and concepts that can travel it time and space. They appear locally, work as co-production, and need to be shared and appropriated by other people (in particular with the help of digital tools such as wikis).

To come back to our CBA visit, I was impressed by the tools and facilities accessible to MIT students and outside projects. I also saw fascinating private projects, but most of all, it was interesting to see that teaching was taking place at CBA, with multiple departments connected to the place. Interdisciplinarity is an obvious practical thing here. And the course “How to do (almost) anything” (set up by Neil Gershenfeld) is part of the original story about fab labs’ birth and lists among the three most requested courses at MIT. Impressive. Is that surprising for an independent, open movement? But fab labs, the myth, visuals and concepts around them, were absent from the spaces I visited.

Less than one hour later, we explored another place at MIT, the D-Lab, with both a close and a different philosophy from that of fab labs.

A D-Lab is much more socially and politically grounded in the space itself of the MIT. Their website states: “MIT D-Lab works with people around the world to develop and advance collaborative approaches and practical solutions to global poverty challenges.” Likewise, it stresses an interdisciplinary orientation (in particular in the courses) and research in “collaboration with global partners, technology development, and community initiatives — all of which emphasize experiential learning, real-world projects, community-led development, and scalability.”

The place was founded in 2002, with a strong focus on developing solutions to countries’ needs. Although not as widespread as the fab lab network (which is outside the MIT structure), D-Lab has an amazing international inscription and is connected to communities in 20+ countries. Two interesting times of the visit epitomise the culture of the lab: the presentations of a corn sheller and a mechanical washing machine rotated by a bike (see figure 1).

Figure 1. A mechanical washing machine and a corn sheller presented at D-Lab

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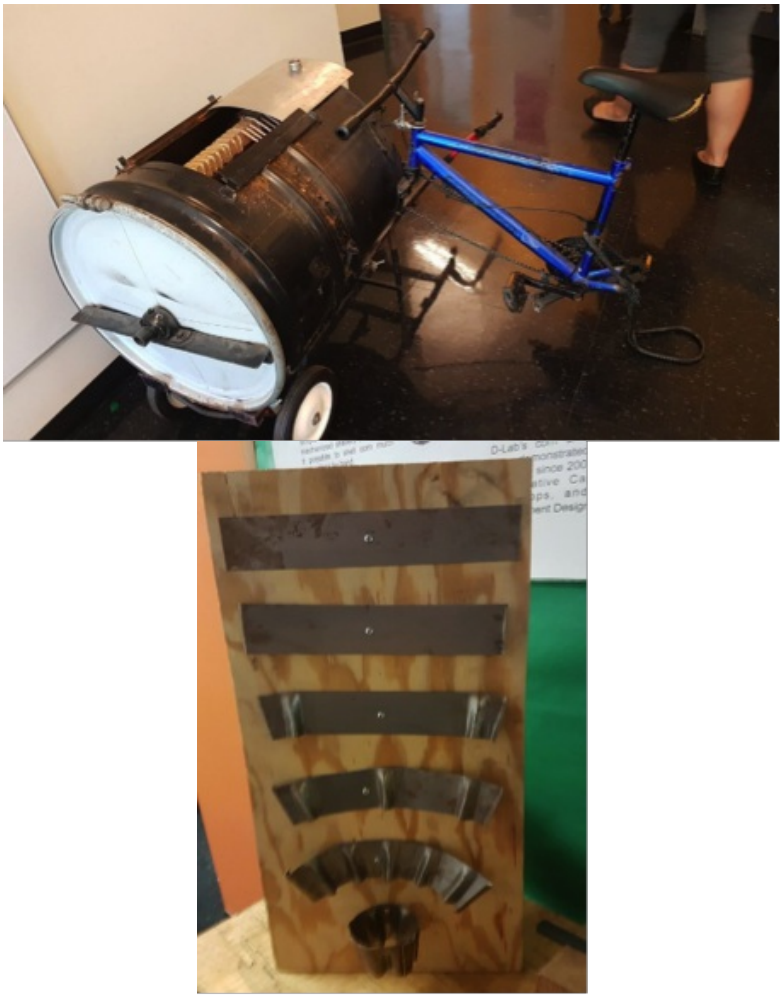

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In both cases, the community's body gestures (hand gestures, postures, ways of moving…), habits, embodied practices (e.g. of crafting, moving, sharing…) and its needs are both the starting and final points of the co-creative process. The method and output are expected to be documented and diffused globally.

Local availability of skills, habits, knowledge and objects is key. If you have barrels around you, do something with barrels… If you are used to a particular gesture, let's see how to extend it to other routines and artifacts.

This philosophy is interesting to compare with the more digital, global sharing, network-grounded, and documentation focus of fab labs, whose ultimate goal is about co-producing a common good for society. Interesting ideas can travel in time and space, be full of improvisation and bricolage in their local co-production, and be also adapted later in their appropriation in other local contexts. The use of (still) costly tools can also help to represent the object, which will be later produced with laser or water cutters, 3D printers and other tools likely to be produced locally as well.

In contrast, D-Lab has no expectations about a pre-existing set of tools or skills, and starts with the embodied practices of the community. The possible commodification of knowledge, the articulation of business is not part of the story. Both philosophies could be presented the following way:

Table 1. Fab lab and D-Lab models of innovation

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	FAB LAB MODEL	D LAB MODEL
Focus	Both the fab lab network and local communities.	Mainly and ultimately the local community.
Resources	Knowledge and skills documented by the network, local knowledge and skills. Digitalisation of skills and projects in the spirit of a common good for the Fab Lab community and society at large.	Gestures, skills, available objects on site, embodied practices. The local community is both the starting point and final destination.
Property	Both private and open. Access to facilities and knowledge is a key thing.	Not really the key issue as available objects, gestures and technologies are at stake. Out of reach of effective or potential platforms and markets in a way.

Of course, both models presented here are just 'archetypes' and for sure the D-Lab model exists in local fab lab practices, and vice versa. And to come back to the example of the mechanical washing machine (which is a re-invention of an old technology), the tripod at the back of the bicycle (see figure 1) could perfectly be a fab lab-documented and -engineered technology. Both approaches are for sure largely complementary.

But they are not 'open' the same way, and do not raise the same political questions for society and the urgent issues we are coping with in the world. For fab labs, knowledge and skills co-produced need to be part of the 'commons' for all society and humanity. For the D-Lab, local communities, their needs and habits come first, and co-producing 'commons' is ultimately an idiosyncratic, local thing. The higher commons for D-Lab is maybe a 'meta' thing, a method (i.e. how to identify what is locally available? How to extend it? How to transpose it? How to re-combine it?). Interesting food for thought, both for public policies and corporate strategies coping with distributed, heterogeneous local communities.

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Notes:

- *The author thanks Aurore Dandoy and Annie Passalacqua "for their great animation and active co-production of this exciting event in Boston", and PSL university and university Paris-Dauphine for their support.*
- *This blog post gives the views of its author(s), not the position of LSE Business Review or the London School of Economics.*
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François-Xavier de Vaujany is a professor of management and organisation studies at Université Paris-Dauphine, PSL. He is particularly interested in new work practices (e.g. digital work, remote work, mobile work, co-working, distributed work, slashers, digital nomads, hacking, etc.), how they emerge and how they are legitimated in organisations and society. In late 2014 he has set up an international academic network (RGCS: the Research Group on Collaborative Spaces) about collaborative communities and collaborative movements involved in new work practices (in particular coworkers, makers, hackers). This network organises events all over the world, in particular learning expeditions and other experimentations mixing academics, entrepreneurs, managers, activists, journalists and politicians. Those are opportunities for walked, reflexive, collective narratives and events which are connected to each other.

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