

Fab lab and D Lab at MIT: Two different philosophies of innovation?

François-Xavier de Vaujany, PSL, Université Paris-Dauphine



Between 25 and 28 July 2018, I had the opportunity to participate in a rich learning expedition 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.

The expedition, called #hackingday2018, 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 [OWEE protocol](#) for more details). 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. The center for bits and atoms is presented as an "an interdisciplinary initiative exploring the boundary between computer science and physical science. CBA

studies how to turn data into things, and things into data.” (Source: [CBA website](#)). The CBA includes in its main building projects, 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 (source: [CBA website](#)). 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 narrated by its [Wikipedia page](https://en.wikipedia.org/wiki/Fab_lab) (https://en.wikipedia.org/wiki/Fab_lab), 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.

What is a fab lab? It is a fabrication-oriented place whose community document and share 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 labs 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 center was part of the elaboration of this innovative concept: the [Grassroots Invention Group](#), which is no longer part of the MIT media lab. The Grassroots Invention Group (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”. Interestingly, GIG is rarely mentioned in the articles we read about fab labs history or philosophy, but its joint imprint is obvious, in particular in its objectives. The website stresses that “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, concepts that can travel it time and space. They appear locally, work as co-production, and need (in particular with the help of digital tools such as wikis) to be shared and appropriated by other people.

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 I will not mention here. Most of all, it was very interesting to see the presence of teaching practices and students at CBA, and the 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 the myth, visuals and concepts about fab labs were absent from the spaces I visited.

Less than one hour later, we explored another place of MIT, the [D lab](https://d-lab.mit.edu/), 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 (<https://d-lab.mit.edu/about>) 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 labs network (which is outside the MIT structure), D lab has an amazing international inscription and is connected to communities in 20+ countries. (Source: [D lab website](https://d-lab.mit.edu/)).

Two interesting times of the visit 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



Source: author's own picture taken during the visit of the lab

In both cases, the gestures, habits, embodied practices of the community (e.g. of handling, crafting, maintaining, activating...) 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, objects and habitual 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. In the context of fab labs, the ultimate goal is about co-producing a common good for society. Interesting ideas can travel in time and

space, be full of improvisations and bricolages 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: The fab labs and D labs models of innovation

	FAB LAB MODEL	D LAB MODEL
Focus	Both the Fab lab network and local communities.	Mainly and ultimately the local communities.
Resources	Knowledge and skills documented by the network, local knowledge and skills. Digitalization of skills and projects in the spirit of a common good for fab labs community and society at large.	Gestures, skills, available objects on site, embodied practices. The local community is the 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 labs 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 ‘commons’ for all society and humanity. For 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 co-corporate strategies coping with distributed, heterogeneous local communities.



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- *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 & Organization Studies at Université Paris-Dauphine, PSL. He is particularly interested in digital innovations and new work practices (e.g. digital work, remote work, mobile work, coworking, distributed work, slashers, digital nomads, hacking, etc.), how they emerge and how they are legitimated in organizations and society. He is the co-founder and president of an international research network (RGCS: the [Research Group on Collaborative Spaces](#)) about new work practices (in particular collaborative work practices). RGCS is inspired by makers and open science movements. It organizes 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.