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Performing collaborative and open production through organizational spaces. Insights from an ethnographic study of a Fablab

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Abstract. The rising of forms of collaboration in economic realms constitutes an unavoidable challenge to researchers aiming at understanding the sociospatial dynamics of economic life. Fablabs in particular are identified as expression of a new form of material production pivoting on collaboration and democratised innovation. Embracing a recent claim in economic geography for an appreciation of the relevant role of spatial dynamics in organizations (Müller, 2015), I argue for an investigation of collaborative workplaces through an ethnographic research of the situated practices of organising a Fablab. Drawing on Actor-Network Theory and the 'performativity programme' launched by Michel Callon (1998), the paper argues that collaborative economies could be analysed as the emergent outcome of the interaction between economic theories and heterogeneous socio-technical arrangements through which they are brought into being, showing how economics performs the economy. In order to unpack the contingent, situated, and fragile nature of this process with regards to Fablabs and Makers, the paper discusses the data coming from an ethnographic investigation of a Fablab in Turin, Italy, working on two levels. Firstly, it identifies the economic theories involved in the process of performing Fablabs as collaborative and open economic spaces. Secondly, it shows how sociospatial processes of organizing participate in the enactment of an economy where production and innovation have been 'democratised' and where collaboration and sharing are at the core of value production. However, the paper highlights also how the process of actualization is never stable, resulting sometimes in failures and 'misfires' (Callon, 2010).

1 Introduction

For more than ten years, the rising of Makers has been attracting interest from various sides. Notably, the relevance of these experiences within a broader framework of collaborative economies has been commonly accepted as truth.

Usually portrayed as a technological extension of a DIY (do-it-yourself) culture that praises 'any project done independently from professionals' (Davies, 2017: 22), Makers are broadly identified with people who engage in small-manufacturing, mainly facilitated by digital fabrication tools, local workshops such as Makerspaces and Fablabs, and online tools for sharing.

Literature in economic geography and urban studies takes for granted the economic relevance of the phenomenon, usually drawing on a mainstream discourse that portrays Makers as examples of a democratization of production and a new way of organizing the innovation process (cf. Doussard et al., 2017; Powell, 2012; Vicari et al., 2015). Framing the phenomenon as one that bares economic relevance, this literature pigeonholes Fablabs through the mobilization of concepts such as open innovation, sharing economy, and collaborative production.

Offering an alternative theoretical and methodological approach, I claim that these concepts descend from economic theories that, rather than providing explanatory categories for the phenomenon, contribute instead to its coming into being. In order to illustrate this process, the paper draws on the performativity programme in economic sociology in arguing that those economic theories enact Making as an alternative form of value production through the creation of specific socio-technical systems in which those economic discourses become true.

After a short introduction on the performativity programme and its roots in Actor-Network Theory (ANT), the paper illustrates the economic theories that imbue the rising of Makers and Fablabs. Through the ethnographic investigation of a Fablab in Turin, Italy, the second part discusses how those theories become (or not) true through the constitution of specific socio-technical arrangements and practices of organizing that bring into being a Fablab as a new economic organization based on sharing and openness.

2 Theoretical framework: how economics performs the economy

The performative programme in economic sociology descends from the tradition of STS (Science and Technology Studies) inspired by ANT research, which emphasizes the way (scientific) knowledge, rather than being a mere representation of reality, actually plays an important role in bringing reality into

being. Michel Callon (1998) and other scholars who have pursued his path applied that approach to the investigation of the economy, underlying the role played by economics in making the economy itself.

The core principle of this stream of literature claims that economic theory, rather than describing the economy, performs it, shaping reality in a way that is consistent with those theories. Thus, economic discourses materialize into complex socio-technical systems (*agencements*) that enact those theories. Practices and sociomaterial arrangements consisting of buildings, devices, texts, rules, human agents, etc. *make* the economy (Mitchell, 2008), that is, they make specific economic entities emerge through a *performation* process (Callon, 2007) that aligns humans and non-humans (Callon, 1986; 1987) in actualizing the world described by theories.

Notably, rooms and specific spatial configurations, the available tools, and the situated practices performed constitute important elements in the process (Beunza & Stark, 2004; Garcia-Parpet, 1986/2007). Indeed, a branch of organizational studies and research in geography of organizations argue that organizations represent typical economic *agencements*, and organizing processes are crucial components of the *performation* process, highlighting how organizations come into being also as the result of a complex array of sociomaterial and spatial practices. Indeed, 'organization is a sociomaterial accomplishment, in which things – whether mundane such as partition walls or complex such as software – often provide the cohesive glue to make organizational arrangements durable at least for some time' (Müller, 2015: 305).

3 Methodology

The theoretical discussion hinges on an ethnographic research of Fablab Torino in Turin, Italy. The fieldwork was conducted over a period of 18 months, between November 2016 and June 2018. Both participant and non-participant observation, together with semi-structured interviews with Fablab managers and members were conducted.

Opened in 2011 as a temporary Fablab within a one-year exhibition on the future of work, Fablab Torino location changed one year later, becoming permanently hosted by Toolbox Coworking. The same building hosts also a

start-up that used to have strong ties with Arduino, the company producing the single-board microcontroller renowned among Makers and born near Turin.

Accessing the field was not easy. I emailed the association, explaining my research interests, and they invited me for a visit during the weekly open day. In that occasion, I met the president and another man, the one who showed me around. I had a short chat with him on my research interest and he invited me to contact him again for any further requests. I did that twice, but I never received an answer. Thus, I found the email of the president, contacted him, and got from him the authorization to start. He also introduced me to the group through the Telegram chat, which I later realized was the preferred communication channel. Another thing that I realized later was the powerful position that the man of the open day held in the Fablab, even if it was not the president. Therefore, during the fieldwork, I constantly had the feeling that any request should have been made to him and that my access had to be frequently renegotiated.

I have been there on a regular basis of three times per week. Usually, observations were conducted during the afternoon and the night, the Fablab being open to the public from 4pm. Besides conducting participant observation during the hours devoted to independent work, I attended both the community nights and the workshops. However, being more interested in Makers and Fablabs as part of new urban economies rather than in tinkering and making per se, I was always perceived (and I felt myself) as too detached from their world and practices. Moreover, another difficulty emerged from being usually the only woman among a group of elder men. Members are mainly men, of an average age of 40. The youngest members (in their 30s) are designers who either use the space for their professional activity or work for the connected start-up. The female members who regularly attended the space were three. The association counts approximately 200 members, whereas the Telegram chat of Fablab Torino gathers approximately 100 people. However, during my fieldwork I used to meet no more than 30 people.

Indeed, the most pressing challenge was the fact that during the afternoons there were barely two or three people using the space, which instead used to become more crowded after 6 pm, especially during the communities' nights. I shared the feeling of puzzling described by Kohtala and Bosqué (2014: 2) when facing with lack of attendance at the lab: ‘what was at first problematic from the perspective of ethnographic research (but something that emerged as a key finding) is that there was surprisingly little activity ongoing in the Lab during our

visits that we could observe'. Moreover, even during the night gatherings, it was rare for me to observe someone making a prototype or working on a project.

4 The economics of Makers and Fablabs

Usually, the discourse that incorporates Makers and Fablabs into a broader structural change in the way value is produced and work is performed pivots on two main economic pillars. The first one is the mantra according to which collaborating with others who have different skills and sharing the access to knowledge and material assets represent the main economic transformations of the present time. If, on the one hand, the economic discourse that portrays co-working spaces as accelerators of serendipity has been extended from immaterial labour (Moriset, 2014) to material production with Fablabs, on the other, sharing and collaboration as sources of value production are said to exceed the walls of these organizations too, giving birth to a form of collaborative production among peers (Benkler, 2006).

The second pillar identifies in the opening up of both the innovation process and the production of material artefacts and immaterial contents a crucial element in the contemporary organization of value production. Henry Chesbrough, who coined the term 'open innovation', claims that 'useful knowledge is widely distributed and that even the most capable R&D organizations must identify, connect to, and leverage external knowledge sources as a core process in innovation.' (Chesbrough et al., 2006).

In line with these theories, the advent of Makers is usually framed as the *democratization* of production that will ignite a third industrial revolution (Anderson, 2012; Rifkin, 2011; 2014).

However, rather than explaining the advent of Makers and Fablabs in light of a broader transformation in the economy towards a more collaborative and open system of value production, these theories could be *constitutive* parts of the genesis of a Fablab. Indeed, both bodies of economic theory have informed the advent of Fablab Torino.

> 'What I wanted was simply that people could build a community, [could] have access to some stuff […] 'Cause I wanted to have a space where...actually, in the past, we did manage to tap into the Fablab culture to look for people who could do things' (Massimo Banzi)[1].

[1] Retrieved from: https://www.youtube.com/watch?v=4F0BrhVLDQQ. Last access: 21 August 2018.

> ‘We needed to create a space where people work well, feeling as in a social media, as within an information flux' (Interview with the project manager of Toolbox Coworking, October 2017).

> ‘This has been defined as the third industrial revolution. As you can see easily from this cover of *The Economist*, it is a revolution where you have direct access to the means of production. […] In this book by Rifkin, he deals with the topic in a more holistic way: it's also a revolution of democracy, of trade.’ (Fieldnote, member of the Fablab board delivering a speech for a school visiting the space, February 2017).

A paradigm of openness and collaboration laid the foundation for a new urban infrastructure for changing work practices in Turin, identifying the source of value production in new organizational forms ‘framed as experimental spaces of chance encounter’ (Lorne, 2019: 2). When it comes to Makers, these economic theories turn into a ‘technomyth’ according to which digital technologies have ‘placed in the hands of users the ability to become, for the first time, their own creative economic producers’ (Braybrooke & Jordan, 2017: 29). In order for theories that claim value to be produced through serendipitous encounter, boundaryless production, and open knowledge flow to become true, new sites and spaces have to be engineered. In the case of Fablab Torino, a specific kind of tools, organizations, equipment and the like were mobilized in order to construct a ‘practical realization’ (Garcia-Parpet, 1986/2007) of these theories in Turin.

5 Organizing a space for open and collaborative production: enactments and failures

Therefore, when the Fablab migrated to Toolbox Coworking, the targets set by his inventor were: first, to ‘create a space where people can meet’; second, to have a space ‘to work directly with those people who were already tinkering with Arduino’; and, third, ‘to put there some machines owned by various firms that produced Arduino which they did not use that much, and […] have a place where people work [but] also other people can come and play with our toys’[2]. In line with the above-mentioned economics tenets, the main features of the space should have been great accessibility to the space itself, enmeshment between users and

[2] The first quote is retrieved from ‘Arduino camp. Innovazione dal basso’, http://ed2013.makerfairerome.eu/2013/06/25/che-cosa-vi-siete-persi-a-innovazione-dal-basso-e-arduino-camp/. The second and third quotes are retrieved from ‘Massimo Banzi. Arduino e le Officine per nuove idee e prodotti’, https://www.businessadvisor.it/notizie/wbf-news/massimo-banzi-arduino-e-le-officine-nuove-idee-e-prodotti. Last access: 15 March 2019.

producers of Arduino, and provision of open access to industrial machines not only to work but also to experiment in a playful way. These three features were inscribed in the material constitution of the space itself.

Specific spatial practices of organising were put in place that aimed at the facilitation of networking in order to foster innovation (cf. Lorne, 2019), thus performing the serendipitous encounter between not only people working in different sectors but also between professionals and amateurs. Starting from the inner architecture, the premises of the Fablab are connected with both the ones of the co-working space and the room at the second floor occupied by a start-up that used to be the research branch of Arduino. This organization of the space had the aim to create a material connection between the two main business actors participating in the creation of the Fablab. This double connection would have spatially enacted both the concept of open innovation and the basic tenets of the collaborative economy, thanks to the facilitated flux of knowledge, information, but also material instruments among the various communities inhabiting the building.

Fablab's walls, desks, and doors participated in organising a space that performed the unprecedented falling of the boundaries that used to separate – and, therefore, produce – consumers and producers. This distinction had to be substituted with the reference to an ill-defined idea of 'community', which the spatial configuration of the organisation aimed at performing. Spaces for learning, spaces for production, and spaces for business had thus to be entangled in the original idea of the Fablab creators for the opening up of production to be obtained. Indeed, a Fablab is not only conceived as a space for production but also as a space where knowledge is freely shared in a horizontal way in order to foster innovation. Thus, a room was settled specifically devoted to workshops.

However, during the years the bare architectural design of the space started clashing with unpredictable spatial and temporal practices that occasionally made the enactment of an open form of innovation going adrift. Regarding the relationship with the co-working space, besides the clear obstacle represented by the fact that the majority of the Fablab members uses the space after the co-working's closing hour, the material artefacts and technologies that should be in charge of creating this organisational arrangement actually fail. The co-working space is separated from Fablab premises by a big empty room, employed as an occasional garage for loading and unloading. No sign indicates the directions for

the co-working, and the fact that the Fablab has an independent entrance sometimes leads to unawareness of the very presence of the co-working space from the side of newcomers. Even more strikingly, sometimes the fact of being under the same roof makes the materiality of the two spaces – i.e. furniture, utilities, cleanliness, and level of care – a source of comparison, which undermines the identification of Fablab Torino as a proper economic organisation.

> 'Gregorio asks me to go for a coffee at Toolbox. […] 'They [the co-working's management] did a great job with the space! And this relaxing area...I like it a lot!'; 'Um...but you have one too, at the Fablab'; Gregorio laughs: '...I don't like that... It's too...meagre'. Fablab's relaxing area is actually constituted by two leather armchairs and a sofa, the three of them all evidently second-handed and marked by wear and tear' (Fieldnote, October 2017).

> 'I visited a Fablab in Porto. It's kind of an ex-firm [...] the furniture is not very different from ours, very meagre...even if it's much cleaner and more orderly, with many more tools... But they're still wooden axes with nails, with the drill inserted on it, that is, that's the drill-holder. It's very functional, let's say. Low budget. But...but it looks like a space that works, where there is someone with an idea […] with entrepreneurial interests.' (Interview with Vincenzo, Maker, November 2017).

DIY furniture was conceived as a crucial and symbolic component of the organisation. A cloud-shaped open-source toilet paper holder, 3D printed tap handles, tables, and laser-cut speakers are part of a specific design whose openness and indeterminacy perform the paradigm of openness and collaboration. Together with some artefacts on display fabricated there during the past years, DIY furniture contributes in actualizing the democratization of production. Notably, the entanglement between artefacts and practices of display aims at eliciting inspiration through imitation, thus producing an arrangement of open production in which artefacts directly affect Makers. Nevertheless, when the basic provisions of the space become intertwined with a diminished functionality, the net result is the organisation failing in being perceived and attended 'like a space that works'. Indeed, digital fabrication itself is undermined by the misalignment of some non-human entities, as the frequent breakdowns of machines and heating system and a general negligence towards shared tools exemplify.

> '...when they laugh, a puff of smoke comes out from their mouths. We all wear scarfs and wool hats. "Come on, let's finish! I want to go back to my desk (N/A at Toolbox), it's freezing!"' (Fieldnote, January 2017).

> 'If you go there, you won't find pliers. A hammer? Forget about it! Screwdrivers properly working? Extremely rare!' (Interview with Tiberio, Maker, May 2017).

While sometimes the performance of a democratized production may go adrift due to some 'glitches' in the internal socio-spatial processes of organizing, it

could also result in a ‘misfire’ (Callon, 2010), that is, a partial *performation*, when a proper arrangement to guarantee accessibility fails to emerge. Indeed, whilst Fablabs and Makerspaces have been considered in the literature parts also of the so-called 'access-based economy', the way this access gets to be assured is usually overlooked.

> ‘On the wall next to the door there's an intercom with the names of the various organisations hosted in the building. The sign 'Fablab Torino' is barely readable. No other signs outside help the newcomer [...] Laura, a newcomer, suggests to better signal it. Adriano, laughing "Yes, it's kind of an intelligence test!! Like: if you manage to get here..."' (Fieldnote, November 2016).

At Fablab Torino, an automated door-opening has been developed in the early years of the organisation and then went on being implemented, inscribing into the material artefact a particular social order and delegating to the technology the accomplishment of a task (i.e. assuring the accessibility of the space in order to allow people to self-organise and self-manage their productive activities). This system should represent an important part in performing self-organised production, enacting the Fablab as an organisation that takes part into a more democratic economic model. However, the delegation to a non-human agent does not always work as expected. Indeed, the automated entrance system was frequently out of order. The misalignement of the automated door paired with the shortcomings in the role of the Fablab host, and many were the complaints about the lack of a proper welcome at Fablab Torino, something that is supposed to be at the core of collaborative workspaces.

> 'Other friends have a little bit suffered from this fact...that there's nobody welcoming you, that there's nobody curating the human side...' (Interview with Michele, Fablab Torino Maker, March 2017).

Indeed, the role of managers and hosts in collaborative spaces is crucial in organising a space that performs a form of value production based on openness and collaboration (Brown, 2017; Merkel, 2015). Therefore, when accessibility is poorly enacted, the net result is that some people are excluded from the possibility to get part in production, thus making the actualization of a democratized production partially going adrift.

6 Conclusions

The paper has mobilised the ethnographic study of a Fablab to argue for the need of going beyond approaches that consider Fablabs as spaces belonging to new

collaborative economies and build on theories descending from economics to *explain* the phenomenon. Rather, the theoretical framework mobilised has illustrated how economic theories on open innovation and collaborative production are constitutive components of the rising of Fablabs as new economic organizations. In particular, it has illustrated how processes of organizing constitute a crucial part of the *performation* process through which entities align in a specific socio-technical system that enacts economic theories. Processes of socio-spatial organizing are enacted that respond to principles of sharing, collaborating, and the open production of value. However, the paper has also stressed how the enactment of these theories may fail too, when some of the entities involved in the process stop aligning. It is precisely through the acknowledgment of the performative and contingent nature of economies and the possibility of failure in the performativity process that a more nuanced understanding of Fablabs and Makers could be provided.

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