5 Deus ex machina

Makerspaces in Milan and their transformative potential

Letizia Chiappini and Petter Törnberg

Introduction

Spaces organised around the practice of “making” are becoming an increasingly frequent sighting in cities around the world, in particular in Europe and North America. These “makerspaces” tend to provide access to a variety of equipment, including 3D printers, laser cutters, computer numerical control (CNC) machines, soldering irons, and even sewing machines, to feed the recent wave of do-it-yourself (DIY) culture. In the emerging literature, however, these spaces are portrayed as much more than merely a new locus for craftwork and urban social encounters. They have become the focal point for a growing discourse that claims urban economies of the future will be radically different from those of today and yesterday. In this discourse, the spaces are acclaimed as the driver of a fundamentally alternative mode of production, with its own distinctive spaces of work, and the potential to reinvent the industrial economy, the city, and urban governance structures.

It is hard to imagine that such narratives would not contain a hint of the exaggerated optimism and hyperbolic storylines that have often tended to surround the emergence of new technologies. But this is exacerbated by the lack of a competing and more serious social scientific understanding of the makerspace phenomenon. The literature broadly tends towards an over-reliance on theoretical speculation and conceptual discussion, and a lack of grounding in empirical evidence. Due to this, even the most fundamental questions – such as what even defines a makerspace – remain either unanswered or contested, leaving it far from clear what, if any, role these “makers” will play in shaping urban economies and urban life in the future.

This chapter aims to contribute to ameliorating this situation, by looking at the claims made in the literature in the light of an in-depth case study. The chapter first provides a brief overview of some of the narratives and claims made in the literature surrounding the maker movement and their suggested transformative potential. These narratives are then elucidated through an ethnographic case study on the maker movement in Milan – a city where makerspaces and maker-related activities have proliferated substantially in recent years. The fieldwork, conducted from 2013 to 2017, provides a detailed
picture of how the maker movement has evolved in this particular urban context. This provides an empirical foundation for a more informed discussion of the claims and speculations regarding the nature and transformative potential of the maker movement, enabling us to begin moving towards a more nuanced and less hyperbolic understanding of the role of these emerging urban practices.

**Makerspaces and the dreams of a coming revolution**

The attention given to makerspaces arguably has its origins in the more established peer-to-peer practices within software development, whose affordances and demands have enabled new forms of organisation and production processes. In software production, the hierarchical and top-down organisational characteristics of factory production generally have been replaced by decentralised peer practices, as epitomised by the open source movement. The emergence of technologies such as the 3D printer, capable of turning information into artefacts, implies the formation of a direct link that extends the logic of the information realm into the physical world. This development thus has been seen as poised to expand the logic and conditions of software production also into the realm of physical production. This has inspired several authors (e.g. Benkler 2006; Benkler and Nissenbaum 2006; Rifkin 2011, 2014) to associate peer production with a coming – or even ongoing – “third industrial revolution” (Hatch 2013; Troxler 2013), in which peer production is appropriated into various reformist liberal (e.g. Bauwens 2005) or revolutionary Marxist (e.g. Rigi 2013) grammars. This literature suggests that “these new producers will reinvent the industrial economy” (Anderson 2012: 229) and that they are “poised to overhaul our political economy in unprecedented ways” (Bauwens 2005: 1).

The literature on peer production as a technology network for useful social production is flourishing, particularly in the field of science and technology studies (Smith 2014). The argument here is that features of technology networks are relevant in practices such as participatory design and critical making (Tosh 2008; Ratto 2011; Disalvo 2012; Maxigas 2012; Smith et al. 2013). As such, the call for alternative production is embodied between prototyping activities and democratisation of production, in the so-called **critical making**. Again, Smith (2014: 6) insists “prototypes provided a practical means to engage people in political debate about the relationships of technology in society”. This statement is based on the assumption whereby prototyping technology, for instance, producing software and microelectronics, remains a focal activity, but is presented as a catalysing device for mobilisation around associated political, economic, and social issues (Cooley 1987).

These narratives furthermore tend to forecast the replacement of top-down and disciplined production associated with large-scale factory production with a “locally organized, decentralized, scattered production in small production facilities” (Sylvester and Döring 2013: 223). The new factories will be a host of
various forms of “open creative labs”, such as coworking spaces, makerspaces, fablabs, and urban living labs. The common features of such spaces are said to be openness, peer production, knowledge-sharing, and collaborative practices (Schmidt et al. 2014, 2016), which delineate an alternative economic and spatial imaginary. Furthermore, when imagining the possibility of an alternative economic development, it is important to take into consideration the debate on the role of these new forms of shared-work spaces in the future of urban economies. The question of physical proximity in determining forms of collective innovation and distributed agency has been extensively discussed in economic geography literature and innovation studies (e.g. Hansen 2014; Capdevila 2013; Cohendet et al. 2014).

A central notion in this literature is that “open creative labs” in general, and makerspaces in particular, constitute local anchors for both local and global communities (Capdevila 2014). In short, the spaces function as meeting spaces that enable communities to be bound together, thus providing platforms for the formation of new forms of collective agency. This local anchoring enables them to constitute the basis for the development of social practices that also go outside the realm of production, and into other aspects of (urban) social life. The spaces are thought to be the foundation for a movement of grassroots activism that would bring the spaces into relevance also within the realm of governance, education, and welfare, laying the ground not only for new forms of production, but also for “an emerging collaborative age” (Rifkin 2011: 5). Some authors, in other words, see makerspaces as providing bottom-up and decentralised alternatives to traditional top-down government-organised services (e.g. Bauwens 2005; Gershenfeld 2005, 2012; Rifkin 2011). Peer production is seen as enabling a form of self-organised welfare system, which may provide an alternative to the current forms of welfare. One may thus extract three claims regarding the role and transformative potential of the maker movement from this literature, which we will make more explicit in order to enable them to be put under empirical scrutiny.

First, makerspaces are seen as alternative social spaces that bring a new transformative potential to urban social life. This claim goes beyond merely the provision of a meeting space, in that an alternative social space should also provide some form of protection from the pressures of market forces (Bathelt and Cohendet 2014: 3). The notion of an alternative social space implies not only the potential for meetings, but also that there is some level of protection from the powers that be (Benkler 2006; Rifkin 2011; Anderson 2012). Such social spaces are seen as central for creating the possibilities to develop alternative practices and foster oppositional virtues and consciousness.

Second, makerspaces are seen as providing an alternative mode of production that is thought to fundamentally transform the economic system or, at the very least, the economic imaginary (Smith 2014). While this claim comes in a number of different versions, we extract from them the common claim that the mode of production supported by makerspaces is challenging the current economic system. The decentralised and collaborative form of production
associated with makerspaces is thus not merely a continuation of current economic conditions, but something fundamentally alternative (Dougherty 2012; Maxigas 2012; Troxler 2013).

Third, the spaces are seen as providing alternatives also outside of the realm of production. The maker movement is suggested to be capable of providing an alternative to existing systems for the provision of public services by organising services, for example, for education, healthcare, and care for the elderly (e.g. Dawkins 2011; Torri 2017). Again, we take this to imply that the maker movement is not merely a continuation of, but a challenge and alternative to, the current welfare regime.

It is primarily these three claims that we will cast light on through the following case study on makerspaces in Milan.

**Makerspaces in Milan**

We will now look in detail at the maker movement as it has played out in Milan. This section is based on an ethnographic study combining participant observation (documented in field notes), document analysis, and qualitative interviews conducted in Milan between 2015 and 2017. The main data were collected from qualitative interviews; the informants were makers, civil servants, and aldermen within the Milanese metropolitan area. The section refers also to several interviews about the maker movement concentrated in Milan, conducted between 2013 and 2017, and partially used in Chiappini and d’Ovidio (2017), Chiappini and Anselmi (2017), and Anselmi and Chiappini (2017). All included quotes from interviews and statements have been translated from the original Italian by the authors.

**The Milanese context**

In the past decade, urban governance in Milan has been characterised by the significant and widespread involvement of civil society (i.e. non-governmental organisations (NGOs), charities, foundations, and other third sector – voluntary, community, non-profit – organisations) compared to other Italian cities. Moreover, the private sector occupies an important position in terms of investments and agenda-setting within Milanese urban governance. Private actors tend to play a crucial role in the project implementation process, in particular in policy areas such as welfare, culture, and urban services (Chapter 4 in this volume; Armondi and Bruzzese 2017). The recent transformation of Milan has been supported by strong political action and the definition of a new urban agenda, in which coworking and makerspaces have become policy subjects (see also Chapter 4). In this context, the maker scene has been subsumed within a wider political strategy oriented towards revitalisation of the local economy and enhancement of social cohesion.1

In 2013 the first open call addressed to the new phenomenon of making was created under the label of “Creative Maker”. The Municipality of Milan
initiated significant investment in the development of coworking and makerspaces: in 2015 the Central Directorate for labour policies, economic development, and universities, Economic Innovation Sector, Smart City, and University allocated €500,000 for measures in favour of coworking and €300,000 for makerspaces and fablabs. The local authority furthermore has adopted soft policy tools to support the dissemination of makerspaces, fablabs, and coworking spaces. First, the Municipality provides direct economic and financial subsidies: delivery of economic incentives in favour of individual subjects to set up the lab and delivery of economic incentives in favour of suppliers of services already qualified (i.e. support to the space, improvement of machinery, etc.). Second, there is a list of qualified spaces within the city of Milan, inclusion on which constitutes an important source of public visibility and credibility for the makerspace. The requirements for inclusion on the list are: the availability of digital manufacturing equipment; training courses for the use of machines; public opening times of at least twenty-five hours per week; and a website with information on services, initiatives, timetables, fares, etc.\(^2\)

The intervention by the local state apparatus is twofold. It includes the development of productive and cultural renewal of the city and encouragement of extensive processes of urban regeneration (d’Ovidio and Rabbiosi 2017), with the ultimate hope of creating job opportunities. In general, the new urban economy is considered by the local state and by makers as an alternative driver of urban development, pertaining to the organisation of work and the production and provision of goods and services on an urban scale. This refers, in particular, to the horizontal organisation of work, low-intensity production for local markets (Bialsky et al. 2015), non-commercialised cultural activities, digital manufacturing, and “prosumption”. Makerspaces are, by these terms, new productive centralities located in urban areas. In the case of Milan, makerspaces are often scattered public-private hubs, community labs, and open-creative ateliers (Armondi and Bruzzese 2017). The local government deploys different existing urban resources, like abandoned buildings, brownfield sites, and former ex-industrial sites, both in central urban areas and outside of the inner city. Beyond the widely explored question of the transformation of and spatial opportunity provided by the large areas made available by the downsizing and re-localisation of Fordist production plants, today there is a need to deepen the phenomenon of reuse of minute and diffused spaces present in the mixed urban fabric in relation to the settlement demand for new types of companies: hybrids between research, production, and consumption of various kinds of goods and services, among which the maker laboratories are also situated.

The political strategy implemented in Milan, as a whole, is framed through the notions of a “smart and sharing city”, in which a need to define a new urban agenda with a medium-term horizon emerges (Vitale and Polizzi 2017). At the same time, in view of the establishment of the new Metropolitan City of Milan, the urban policy system – supporting innovation – requires an expansion on a scale appropriate to the recent socioeconomic and spatial dynamics. This is necessary in order to take advantage of the spread of new
workplaces as an opportunity for territorial rebalancing and, therefore, for containing an uneven metropolisation process that penalises many sectors of the Milanese urban region.

The role of makerspaces in Milan

In Italy overall, 27.5% of makerspaces are concentrated in the larger cities: 20.8% are located in Milan, Rome, and Bologna, and the rest are distributed among seventy-five small- and medium-sized cities. The Milanese metropolitan area has the highest concentration of makerspaces of any metropolitan area. There are ten makerspaces registered in the official list on the municipal website, but there are also additional creative ateliers and open creative labs that are not part of this list. Besides the makerspaces that had their origin in private initiatives, there are also spaces initiated by institutions, such as the Polifactory within the campus of the Polytechnic University of Milan located in the former workers’ district of Bovisa, and the Tinkering Zone at the National Museum of Science and Technology in the central area of Sant’Ambrogio.

Looking at the geographical distribution of the makerspaces (Map 5.1) allows us to see whether makerspaces cluster in specific types of neighbourhoods. In the design district (Zona Tortona/Porta Genova) southeast of Milan, we can clearly observe a small cluster of makerspaces and several coworking spaces located within the same area. Furthermore, we have collected data to complement the map with information about the kinds of buildings used to house these spaces. For instance, WeMake and OpenDot are located in ex-industrial areas that now form a residentialised part of the city, yet close to railroads and infrastructural nodes, which provide a high level of accessibility. When asked why they chose this location, one of the co-founders of WeMake motivated it with the low rents and the availability of spacious facilities. Unlike the two above-mentioned makerspaces, the new Digital Arts and Manufacturing Academy (D.A.M.A.) is located in the core of the city.

Despite the physical proximity between maker labs, the creation of the community and build up of their individual reputations through self-branding activities primarily takes place online. As one of the interviewees claimed:

We are part of many online networks, like MakeinItaly, FabAcademy, and FabLabNet, also the global events like hackaton, Fab10 in Barcelona, MakerFaire around the world are front stage in which you can show your products ... We are different in terms of skills and missions. In Milan, a makerspace focuses more on training, workshops. We do not do that much. Our main business is prototyping, we are good at that.

(Interviewee no. 3 – MioCugino makerspace)

Makerspaces are far from uniform entities, but rather notably heterogeneous. If we sketch out a simple typology of three Milanese makerspaces, we notice that they differ not only in size and participation, but also in more fundamental
Map 5.1 Spatial distribution of makerspaces in Milan
aspects, such as their material stakeholders, their functioning, output goals, and the type of activities that they organise (see Table 5.1). One may distinguish two main categories: makerspaces that are community-oriented and those that are market-oriented. The majority of our informants, however, suggested that all makerspaces share an associative side; the internal governance, in principle, is based on horizontal and informal organisation of work. For instance, OpenDot is a makerspace with many founding members and a variegated portfolio of projects, during an interview one of its founders asserted:

The associative side is how you manage it. There are informal rules. For example, if you need a machine, say so. So if you want to use the same machine the same day, you know that it’s not available. If you are not able to use that machine, you start a basic training course here and if you have doubts ask, we are always around. You pay a card for management fees and the insurance. Plus, free workshop and training for the dissemination of culture. (Interviewee no. 5 – OpenDot makerspace)

Besides this common focus on the associative side, makerspaces generate part of their profit through membership, workshops, and training courses. They are a fortiori shared-work spaces; just as the majority of the coworking spaces require you to pay for a desk, in the makerspace you sign up for membership depending on your needs. If you want to produce your own

<table>
<thead>
<tr>
<th>Makerspaces</th>
<th>Functioning</th>
<th>Material Stakeholders</th>
<th>Current Output</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WeMake (2013)</strong></td>
<td>Association with membership and Ltd., Voucher and “candies” for using machinery</td>
<td>Login coworking space. Lombardy region. Cultural foundations</td>
<td>OpenCare (EU – Horizon 2020). PublicProduct workshop</td>
</tr>
<tr>
<td><strong>Yatta! (2013)</strong></td>
<td>Association with membership and estimated budget for using machinery</td>
<td>Secondary schools and universities. Cultural foundations. Associations</td>
<td>Education, lifelong learning, training, workshops, and events. Yatta! School internship and stage</td>
</tr>
</tbody>
</table>
artefacts and use a particular machine, you might also pay for the “time machine”, i.e. the number of hours for which you use the machine to create your object. Training courses, management fees, and external commissions are vital to generate enough income to maintain the labour force and the space.

It is better to have a company because you can bill, and make consultancy for other firms. It’s a low profit company, it’s not just an association. But the goal is not profit in itself, our goal is to create social wealth. We create jobs, the people who work part-time and full-time are crucial because they run the space and offer a service to the community … Plus, we reinvest the profit in our makerspace.

(Interviewee no. 5 – OpenDot makerspace)

Makerspaces carry out a mixed array of projects, usually in partnership with cultural foundations, private actors, and knowledge institutions. For example, the project Digital Fashion Design Pro is addressed to all those who want to work in the field of digital design and fashion, digital craftsmanship, and manufacturing 4.0. It is a free course that explores new open source approaches in fashion by the use of software adapted to create products with numerically controlled makerspace machines. This course is realised through the alliance of Fastweb Digital Academy and Cariplo Factory.

When you spend a day in a makerspace you realise that machines are scarce resources, and that there is a hierarchy governing the right to their use. During the ethnographic fieldwork in Milan, we observed how makers internally organise their activities. To use a certain machine you need a specific set of skills, and usually not all the makers can use all the available equipment, as some are specialised in the use of a specific machine. Since it is not possible to allocate workloads in relation to a formal role within a company, what occurs is a distribution of tasks between individual makers (and micro enterprises) as a function of the skills and level of reliability that the various actors have in the reputational peer system. As a maker explained in an interview:

The advantage is that between an exchange of goods or knowledge there is always someone who gives something to someone who receives. In the exchange of knowledge you both earn; the gain is also in the relationships. Marco, our first customer, now works with us. He has extensive knowledge on manual and electronic practices.

(Interviewee no. 1 – MioCugino makerspace)

In another interview, the importance of social relations within the space is clearly a feature that defines an alternative mode of production:

In the past 30 years of a white collar job, I forgot the importance of doing things with my hands and creating practical knowledge to share
with your peers, you build social relationships and this is producing in a socially alternative way.

(Interviewee no. 7 – WeMake makerspace)

If we look at makerspaces more devoted to community, what kind of services do they provide? To what degree are they alternative/complementary in the provision of local welfare? The political aims of the more community-oriented makerspaces in Milan are particularly geared towards issues associated with ageing. They want to support healthy and active ageing within the population (i.e. health, participation, and safety), emphasising the role of new digital technologies in the field of sensors and home automation solutions (Torri 2017). These efforts find support with the Municipality, where the official responsible for a project called OpenCare stated:

OpenCare happens in the context of the fourth industrial revolution. We are in the process of a relocation of production activities within our urban environment. Fablabs and makerspaces stand as new actors in the care ecosystem.

(Renato Galliano, event OpenCare and Digital Social Innovation in Milan, 22th November 2017)

The local government directly supports the OpenCare project, emphasising the importance of improving the physical health and independence of an ageing urban population, especially in terms of accessibility and functionality of living environments and services in urban space. Social initiatives in the healthcare system, such as OpenCare, or projects of digital fabrication in former prisons, are examples of practical solutions for providing social security and equitable accessibility for the “unnecessariat”. The social expression of these alternative, or complementary, efforts in traditional welfare provision is an attempt to provide an alternative social infrastructure in which technology is the main driver. In these kinds of projects, makers work together with vulnerable and marginalised communities, co-designing and producing disability devices, re-manufactured products, toys and playground equipment for children, community computer networks, etc. Through these projects, makers advocate for a more democratic relationship with technology. By furnishing tools to needy segments of society, they claim to operate within an alternative paradigm that prefigures a different role for technology in society. In practice, the social change is embodied in projects that aim at low intensity production for a local market, such as the DIY shoes developed together with kids at OpenDot, or non-commercialised cultural production, like the modular urban gardening for kids, created in collaboration with MUBA, the children’s museum in Milan. In the same vein, the project “Mi-Generation Lab” consists of a free training course on the use of new technologies, with participants receiving a certificate of the attended internship. The local government posits that such activities can constitute alternative forms of civic engagement, the novel spaces for digital fabrication described above represent new opportunities
for citizen empowerment and the provision of alternative and complementary services that cover different social needs. In sum, the novelty lies in the digitisation of services that favour the means of sharing the experience of making and co-producing with local communities.

**Dreams of revolution in the cold light of the empirical**

Having now looked at the makerspaces in Milan, we will use this empirical grounding for a more informed discussion of the previously reviewed claims about the makerspace movement. As we saw in the brief review, the literature suggests makerspaces provide: (i) alternative spaces that create the potential for social mobilisation; (ii) an economic alternative, by being part of an ongoing industrial revolution that will transform the economy to a decentralised and networked structure; (iii) a social alternative, by providing alternatives to the existing capitalist provision of public services. In this section we relate each of these claims to the Milanese experience and evaluate the extent to which Milanese makers are on the route to fulfil such potentials.

*Alternative spaces for mobilisation*

Makerspaces clearly constitute new urban meeting places that enable the coming together of diverse urban dwellers. As we saw in the brief literature review, the literature takes this to imply more potential than merely opportunities for meetings, these spaces are seen as platforms for social organisation and the emergence of new collective agency. Such a claim, that social spaces may bring the potential for social mobilisation, is not without basis in the broader literature. The claim can be linked to a broad and sprawling social movement literature that discusses the phenomenon under names such as *safe spaces*, *social havens*, and *counterpublics* (e.g. Boyte and Evans 1986; Törnberg and Törnberg 2017). Such spaces have been characterised as protective shelters against prevailing hegemonic ideologies and as hubs for the diffusion of ideas and ideologies. A common example that shows the role such spaces can play is the way in which southern black churches – removed from white control and repression – functioned as protective pockets that nurtured and sustained southern civil rights protests in the 1950s and 1960s. Could it be, then, that makerspaces function like the black churches of the civil rights era: as a bridge between the ordinary world and the world of revolutions? Do they serve to foster a latent class consciousness among the disgruntled precariat of “creative” workers socialising within its midst, with potentially large-scale political consequences? While such potential is clearly impossible to firmly confirm or deny, some observations regarding the role of makerspaces as alternative social spaces can be made on the basis of the case study.

First, the case study does not point towards any development of a movement or mobilisation on the basis of the spaces. The maker movement itself does not yet seem to be converging towards any coherent interest or direction. Rather, as
we have seen, the “movement” describes such a heterogeneous set of actors and institutions that quotation marks are warranted. While makerspaces tend to describe themselves as bottom-up and democratic spaces for knowledge production, all their protagonists do not necessarily share this vision. It is furthermore clear that the development of makerspaces in Milan seems to be part of an “institutional action” by the local state, rather than a spontaneous bottom-up mobilisation. Rather than accepting the self-positioning image of makerspaces as bottom-up urban processes, they should be seen as the outcomes of a much more complex process involving both top-down initiated policy frameworks complete with funding opportunities, and bottom-up initiatives taking advantage of available funding channels and political support to realise various urban projects. It is difficult to ascertain whether these initiatives attach themselves to maker discourses because they believe in the “revolutionary” potential of the maker movement or simply because it is an effective way of securing public funding and support.

This points towards a second observation: the spaces cannot be said to be protected from either the economic forces of the market or the political forces of the public sector, which puts into question the analogy with the free social spaces literature. The Milanese case study reveals an unholy trinity of makerspaces, market, and state. This dependence on government support is furthermore likely to crowd out some of the alternative interests that may be kindled in these spaces. This can be seen in the tension in the Milanese movement between the idea of making as a way to increase social cohesion, and making as a way to drive urban growth and increase territorial competitiveness.

These semi-traditional business models imply dependence either on government funds, for example, memberships, projects, or money from private donors, or on the market. Milanese makers therefore, to an important degree, have to operate as highly precarious private micro-entrepreneurs, in the sense that they are dependent on selling services and products on the market; makerspaces are spaces for starting your business and a platform for freelancers and designers. They sell services to companies, foundations, universities, and public and private bodies, developing design paths and highly complex training programmes, such as commissioned orders and prototyping for private sector commercial research and development, educational and social design services, and internships and apprenticeships for technical schools, and have strong ties to certain segments of the Milan fashion industry. These factors imply that, while makerspaces are clearly social meeting places, the fact that there is little sign of any coherent movement emerging from them, and that they cannot be said to provide protected spaces, implies that one should remain reserved as to the claims that they are likely to function as incubators for the mobilisation of urban alternatives.

**Alternative mode of production**

The idea in the literature that makerspaces are heralding a coming industrial and economic revolution is based on the notion that makerspaces provide a
new form of decentralised and democratic production, to replace the hierar-
chical discipline of traditional factory production (cf. Rifkin 2011; Troxler
2013; Smith 2014). We first note that such decentralisation of production does
seem to be playing out, in that the work in Milanese makerspaces is informally
organised through informal social groups. While these groups are not without
hierarchies, these are primarily informally and reputationally organised.

The claim that this also constitutes a sign of an ongoing industrial revolution
towards small-scale production, however, is significantly more dubious. It is a
long-observed pattern that new business opportunities created by radical
technological innovation tend to be first exploited by small firms, before they
are brought into larger-scale industrial production. It seems, with this back-
ground, rather likely that the new technologies enabling the makerspaces will
similarly increasingly be brought into large-scale factory production. Since
makerspaces are furthermore at least in part dependent on being competitive
as private enterprises, this may imply an undermining of their market niche.

The value creation associated with urban producers and makerspaces is not
always as alternative as it seems, in that the focus on value creation is almost
exclusively on exchange value (i.e. skills, and relational and symbolic capital).
While, on the one hand, the makers are inspired by visions of the community
and a democratic world, they always operate within the market, where profit is
the main engine of strategic choice. It therefore becomes central for the
organisations to hide their economic, self-entrepreneurship aspect by referencing
themselves as a movement that creates symbolic value and a cultural milieu
within urban space. They want to brand themselves as social and grassroots
entrepreneurs to hide the fact that they are – like virtually everyone – part of the
capitalist economic system.

But this does not change the fact that increasing automation in the form of
technology like 3D printing will likely produce more decentralised and self-
organised work processes. This should, however, be put in the right historical
context: production has gone towards exchanging blue-collar labour with
white-collar labour through automation since the 1970s, in part as an effort
to undermine the negotiation position of unions (Dunford 2000). Information
and white-collar labour do bring with them fewer hierarchical work processes,
and the decentralised work organisation of makerspaces thus fits neatly into the
story of post-Fordism and neoliberalism, rather than constituting a challenge or
alternative. While DIY culture often embraces values of pleasure, self-realisation,
and (consumer) choice, this transformative rhetoric often reproduces, as
Dawkins puts it:

neoliberalist rationalities and limiting the political potential of craft and
community activism. Pleasure and self-fulfillment are often exchanged for
what might otherwise be felt to be unstable, precarious, and even
exploitative work … Contemporary craftwork produces postfordist labor
subjectivities through the blurring of labor and leisure.

(Dawkins 2011: 261–279)
According to the claim in the literature, the maker movement is suggested to be capable of providing an alternative to existing systems for the provision of public services, by organising services, for example, for education, healthcare, and care for the elderly. The claim that we are to discuss is that the maker movement is not merely a continuation of the current welfare regime, but an alternative and a challenge to it (e.g. Dawkins 2011; Torri 2017). We may begin by noting that it is clear that the maker movement in Milan is indeed providing various social services, including healthcare, childcare, and care for the elderly. It should be noted that previously these services generally have been provided by public investments or, in the case of Sunday schools, by the Catholic Church. The makerspaces are thus stepping in to fill a hole in welfare services left by shrinking government funds and, consequently, they are indeed providing important services to the community. While this is a notable ongoing change, it does not seem to be the case that it springs from the service provision of makerspaces being in any fundamental way “alternative” to their previous organisation. In fact, in the case of Sunday schools for example, there are – despite superficial differences – striking similarities between the practices and activities in the makerspaces and those of previous regimes, even though the children are now asked to bow under a 3D printer instead of an effigy of Christ. The difference is rather in relation to organisational structuring and the way in which the services are financed. These aspects, however, seem to fit neatly into the larger narrative of ongoing economic transformations, in particular the ways in which neoliberalism has affected welfare systems throughout the world. There has been a recent upsurge in public-civic co-production of welfare services in which public authorities soften the effects of their retreat from welfare provision by gradually transferring responsibilities to civic actors, often under the banner of empowerment (McGimpsey 2016). The private-public partnerships shown in the Milanese case study seem to be exactly in line with such neoliberal transformations of welfare, and it is indeed quite hard to see anything progressive or alternative about them. When a publicly financed system is being replaced by public-private-civil organisational hodgepodges, this is not a challenge against the mainstream capitalist current, but merely something that floats downstream. The makerspace type of welfare is best understood as part and parcel of the processes of welfare neoliberalisation.

**Conclusion**

This chapter has looked at some of the narratives that surround the maker movement and their transformative potential. These narratives clearly contain a hint of the exaggerated optimism that has often tended to surround the emergence of new technologies. The literature was found to suggest that makerspaces constitute (i) an alternative space that creates the potential for
social mobilisation; (ii) an economic alternative that is part of an ongoing industrial revolution that will transform the economy; (iii) a welfare alternative, providing an alternative to the existing capitalist provision of public services. The aim of this chapter was to discuss these claims on the basis of an in-depth ethnographic case study of makerspaces in Milan, in order to begin to separate the hype from the reality.

The case study suggested that these narratives indeed tend to be overly hyperbolic, in particular concerning the notion of makerspaces as an alternative or a challenge to the status quo. Seen through the lens of empirical observation, the maker movement seems less like a radical alternative and more like the next step on the current trajectories of capitalist exploitation. The decentralised and networked production processes characteristic of the spaces are typical of a post-Fordist restructuring of labour through, for example, automation, driven in part by the interest to undermine union power. The welfare provision is similarly typical of a neoliberal era in which holes in the welfare provision left by retreating states are filled by amorphous private–public–civil partnerships with weak ties and soft boundaries. These aspects are thus, rather than challenges or alternatives, part and parcel of the neoliberal and post-Fordist developments that have been ongoing since the 1970s. The notion that they would provide a sustainable or scalable “alternative capitalism”, let alone an “alternative to capitalism” (Rogers 2014), does not find much support in the empirical case study. While makerspaces seem to be part of, or at least symbolic of, ongoing important transformations, they are going with the current, not against it.

There is certainly something to be said for the creation of social spaces, as they do afford the growing precarious class of freelancers and creative workers meeting places ripe for politicisation. As we have noted, makerspace activities and practices in this way could play a role in enlarging a critical space for the deconstruction of capitalist realism (Fisher 2009). The mobilisation of organised precararian labour struggles may still be nurtured in these spaces, but only if the makers themselves realise that all they have achieved so far is to reinforce their own precarisation. By engaging in welfare provisioning, Milanese makers have seen that they are in a position to make a difference for other, less privileged, urban dwellers; what they still need to see is that they can also make a difference for their own collective futures as urban workers. Social spaces bring the possibilities for precisely such realisations, enabling the mobilisation and creation of new collective agency by kindling common class interests and identities. What limits the potential of makerspaces in this regard, however, is that they are in no way protected from those cold winds of market forces and government interests that tend to quickly blow out any transformative flame that such kindling may ignite. For a social space to function as tinder for the ignition of a dormant class consciousness, protection from market forces and government interests would be warranted. This underwhelming transformative impact of makerspaces, together with their generally ill-defined and amorphous nature, suggest that a more productive focus of study for future
research on this movement should perhaps be on their discursive and cultural aspects. We see two main directions for such future enquiries.

The first direction focuses on the interests underlying government engagement in initiating and funding the makerspace movement. The context for such a discussion comprises the changing conditions of the public sector, implying new selection pressures for government organisations. Under conditions of neoliberalism and economic decline, governments lack an adequate tax base for the funding of necessary social services, and are thus increasingly becoming forced to turn to private investments and alternative sources of income. Governments are therefore looking to international grant processes to fill the holes left by inadequate public funds. This has created the need for them also to become competitive in such grant processes, which is primarily a question of capacity to mobilise discursive resources and form convincing coalitions. The maker movement becomes a valuable discursive resource in such a field, precisely because of the hyperbolic narratives that surround it, since the strong branding of the spaces makes them useful discursive devices in grant applications. This way of understanding the role of makerspaces implies the existence of what we might call a “grant machine” of the city, resulting in “grant coalitions rather than growth coalitions” (Bernt 2009). This implies that, in fact, the points that have caused observers to conclude that makerspaces are “more than just empty rhetoric” – for example, collaboration, openness in urban governance, civic engagement, and grassroots entrepreneurship – in fact may be precisely part of a strategy in a new competitive realm of empty rhetoric.

The second direction unravels from the hard-to-ignore fact that making is in no way a new phenomenon. Indeed, community meeting spaces with sewing machines are not a new phenomenon; neither is community provision of childcare and care for the elderly. This begs the question: what is actually new about these spaces that could explain the sudden excitement? The answer is hinted at when considering the only reason why the international maker movement is highly male dominated is that the millions of women sewing, knitting, and weaving are not included in the term. Through this lens, the maker movement looks more like a cultural recasting of existing social practices. This type of process will not be news to urban scholars, as parallel processes have been observed and theorised in other parts of the urban economy. For instance, while the poor and marginalised have always reused and repurposed, these practices seem to attain a new value and different signalling when done by white “hipsters”. Similarly, making seems to attain another value when done by male makers, armed with the latest technological gadgets, rather than female crafters. In this way, makers seem to fulfil some of the same cultural roles as “hipsters” in attracting that ever-sought-after creative class. The maker movement is drenched in the cultural values of Silicon Valley – male-dominated, technological, and innovative – and there is perhaps some aspect of “cargo cultism” to the state’s interest in supporting these entities:
the government is essentially building an aeroplane runway of practices associated with the creative class, with the hopes of attracting the Western aeroplanes of “creative workers” and international capital. This type of cultural analysis may in fact prove to be a more useful way of understanding the makerspace phenomenon than an analysis that departs from speculative claims about their innovatory and revolutionary potential.

To conclude, makerspaces and their 3D printers seem like the latest iteration of the frequently recurring story where a new machine is envisioned to come upon the stage of capitalism to resolve its difficult plot situations. But if we wait for the godly intervention of such a deus ex machina, we will not only be in for a long wait, but also continue to fall for precisely the same traps that the makerspace dreamers fell for: we will mistake technological change for social revolution, individualism for freedom, and the reinvention of capitalism for revolution. If we are to change the plot of the tragedy in which we live, we cannot wait for the intervention of an imagined celestial scriptwriter – we will have to craft our own future.

Notes
1 “Innovare per Includere” is a political slogan and a laboratory for public policy instituted by the public administration and an amalgamation of local knowledge composed of academics, storytellers, policy makers, and Cristina Tajani, Councillor for Labour Policies, Production Activities, Trade, and Human Resources. She is the main gatekeeper in crafting urban policies to support makers, social entrepreneurs, start-ups, etc. See the website: www.innovarexincludere.it.
3 It is three times more than in Rome and Bologna (5.2% each) and four times compared to cities like Modena (3.7%), Venice (2.9%), Padua and Parma (3.6%) (Manzo and Ramella 2015).
4 Cf. Chapter 4 in this volume.
5 See the website: www.fastwebdigital.academy/digital-fashion-design-pro.
6 Since 2016, WeMake has contributed to a series of health and care projects with a bottom-up approach through the European Union-funded OpenCare project. The mission of the makerspace is oriented to support citizens, institutions, and companies in the creation of projects and solutions with a high social impact. The core of the project is the progressive automation of care solutions: from sensors to replace people dedicated to assistance, through the complete automation of performance acquisition functions, to the development of diagnostic techniques, assisted by computer algorithms. Over the course of the project, more than 400 participants made a written contribution to the online debate. In November 2017, the platform hosting the discussions on OpenCare recorded 760 threads and 4,850 posts for a total of one million words. In addition to the level of verbal interaction and storytelling, WeMake acted at the prototyping level. The online and offline solutions proposed were effectively designed, tested, documented, and shared for a total of six projects. See the website: http://wemake.cc/opencare.
8 The Municipality of Milan, in collaboration with eighteen partners, launched the project of free training courses on new technologies dedicated to young students
and citizens aged from eighteen to thirty-five years with residence or domicile in Milan who have precarious jobs, with the aim being to develop new skills and business ideas. The makerspace Yatta! is one of the main partners in this project.

References


Sitography