

## MAKERS AS SOCIAL INNOVATORS

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### SOMMARIO

Recently, the urban landscape has been dotted by laboratories and collective spaces where a large variety of goods is produced, thanks to prototyping and digital fabrication tools. These spaces are usually called fablab, makerspaces, or makerlabs. There, technological innovation allows a particular kind of social innovation, as potentially, makers (users and managers of such spaces) are at the centre of a cultural operation where innovation is given a new meaning and new focus. Yet the potential is expressed in the innovation and creative process: when the maker creates, the innovation is not necessarily directed to the market, but to the community, as it is the result of a (long) process of interaction with the community, to which the maker refers constantly, and which is part of. In order to better understand the relation among innovation, maker and community we will proceed from J. Schumpeter analysis of the creative destruction, passing through the idea of the creative class expressed by R. Florida and arriving eventually to the social innovation discourse. We will see how innovation, emerging, in the Schumpeterian perspective, from and for the society, is then directed exclusively to the market in Florida's view and finally is re-embedded in the community as showed by the focus on social innovation.

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## 1. Introduction

The paper explores digital fabrication as the arena of the co-production of innovation. We want to shed light on the role and figure of the maker who is at the centre of a cultural rephrasing of innovation which is given a new meaning and new focus. When the maker creates, the innovation is not directed to the market, but to the community, as it is the result of a (long) process of interaction with the community, to which the maker refers constantly, and of which the maker is part of.

In this process, proximity, co-location and face-to-face interactions appear to be crucial and these are all elements which typically characterise the urban environments. Urban communities not necessarily are co-located in the same space, but they are connected through the use of common spaces (that might be the makerspace itself, or another physical, or even virtual space), or through a common practise, or a common need and so on.

Focus of this paper is the meaning that innovation assumes in different time frames, through three idealtypical figures representing, respectively, three different cultural frames: the entrepreneur, the creative professional and the social innovator.

This will allow us to better understand the relation between innovation and society, and how it changes within the framework of co-creation. We will proceed from Schumpeter analysis of the creative destruction, passing through the creative class from Florida and arriving to social innovation to see how innovation, emerging from and for the society, is then directed exclusively to the market and finally (in a sort of Polanyian counter-movement) is re-embedded in the community.

## 2. Innovation and society

Many scholars and analysts have dealt with the figure of entrepreneur, since the beginning of economic, historic and social theory; among the many analyses, Schumpeter offers a portrait able to show the relation between innovation and society at the beginning of the modern capitalism. Schumpeter was an economist, trained at the Austrian school, and he was influenced by the historical school of economics, the Marxist theories and the sociological approach (Ramella, 2013). Although his main interest is to build a pure economic theory of development, he took into consideration many social and non-economics elements (Trigilia, 2002). In his juvenile main work, *Theory of the economic development* (Schumpeter, 1912) he put at the core of the economic development the entrepreneurial activity. According to him, «individual acts of entrepreneurship set off wavelike macro changes in the economy that disrupt the circular flow of the steady state» (Becker, Swedberg, & Knudsen, 2011, p. 16). Innovation, is seen as the real nature of capitalism, the process able to make economy grew and nations to develop. Schumpeter, in his latest book (1942, p. 83) called this a process of Creative Destruction<sup>2</sup>: «The fundamental impulse that sets and keeps the capitalist engine in motion comes from the new consumers' goods, the new methods of production or transportation, the new markets, ... [This process] incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one. This process of Creative Destruction is the essential fact about capitalism» (Quoted in (Aghion & Howitt, 1990).

The creative destruction is a push, a pressure that has to be satisfied through the entrepreneurial activity; in Schumpeter's view, neither the desire of the economic accumulation, nor the satisfaction of needs could explain the entrepreneurial action, but two other, very personal, wishes: on the one side, the desire of having a social position characterised by power and reputation, on the other the pleasure of creating itself. Heertje, moreover, claims that Schumpeter's interpretation of economic growth and development must be also read in terms of welfare economics (Heertje, 2006). Indeed, in *Capitalism Socialism and Democracy*, Schumpeter argued that economic growth (that is closely connected to innovation) will possibly and hopefully led to the end of poverty in 50 years. He went on by asserting that ...« even if we had the means of measuring the change in the technological efficiency of industrial products, this measure would [still] fail to convey an

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<sup>2</sup> According to Reinert and Reinert (Reinert & Reinert, 2006), the main features of Schumpeter's economics, both the entrepreneur, the instigator of change, and his 'will to power' and creative destruction, are truly Nietzschean creatures

adequate idea of what is means for the dignity or intensity of pleasantness of human life... And this after all is for us the relevant consideration, the true “output” of capitalist production, the reasons why we are interested in the index of production and the pounds and gallons that enter into it and would hardly be worthwhile in themselves» ( Schumpeter 1942 pp.66-67 quoted in Heertje, 2006, p. 109).

The figure resulting from the above presentation is that of an entrepreneur with a hybrid character, interested in creating new things and doing it for the pleasure of creating, but, at the same time, conscious that his/her success will contribute to the society well-being at the whole. Although at the very beginning in Schumpeter’s writings the main agent of the creative destruction is the entrepreneur him/herself, later on the firm and even the whole society is the actor of innovation: «Every social environment has its own ways of filling the entrepreneurial function» (1949, p260). The innovation is not an end in itself, but it totally at disposal of the society.

It is only in the 1980s that a real new wave of entrepreneurial attitude has emerged, when they bet on diffusion of communication and information technologies (Berta, 2004). The new protagonists of the technological scene, embodied by the public figures of Bill Gates or Steve Jobs, built their success on technological innovation. This had its peak at the beginning of the new Millennium, when not only new technologies, but all the sphere of creativity, culture and, more in general, the intellectual faculties are glorified as the mean through which economic success has to be searched.

The scholar who has influenced massively both ideas and rhetorics around innovation in the new Millennium is Florida. With his theory of the creative class Florida can be seen, to some extents, as the great “copywriter” of the contemporary capitalism. In his many best-sellers Florida tells about a variegated class of talented people, who are able to put their ideas into business, and to create economy, jobs and, eventually, wealth for their cities (2002, 2005, 2008).

According to his perspective, the contemporary, post-Fordist economy is moved by a new class of entrepreneurs, that, literally, are able to create jobs and to revamp the local economy. This class, called the creative class, is a varegated group of highly educated professionals that, as self-employees or entrepreneurs, do not look for jobs, but create their own businesses and eventually offer jobs when they expand. Examples of professionals of the creative class are architects opening their studios, fashion designers establishing their own label, art dealers and start uppers in general (Florida, 2014).

The scenario here is completely opposite to those of Schumpeter’s entrepreneur, as societies, now represented by cities, are facing a deep crisis and need to be sustained. If, in Schumpeter’s times, economy was booming and the entrepreneur innovated in order to become greater, and to reach new successful strategies, today, economy is based on a very harsh competition at zero-sum game, where not only innovation is necessary to succeed, but a better innovation is needed, greater than your competitor’s one, and if one does not succeed, succumbs. At the same time cities are competing to attract the better talented ones, and, as Florida clearly states «Those that have the talent win, those that do not lose» (Florida, 2005, p. 50).

The entrepreneur, represented by the member of the creative class, is totally alone in their race to demonstrate their talent, and the entrepreneurial push is the only possible way to overcome the crisis. Florida’s creative professional has no choices, he/she has to respond to the creative imperative, if not he/she will fail. The creative push is very well summarised in the title itself of McRobbie book *Be Creative!* (2016), where she denounces the many social costs of such an ideology. In this scenario, the individual becomes the engine of the new dynamisms of the whole society, and, as Magatti points out, even the relation between social institutions and individual is unbalanced towards the latter. The whole technological deployment develops in order to favour the expansion of the space of the individual action (Magatti, 2009). Indeed, «starting from the Sixties, capitalism core business is those of creating new opportunities for the economic growth, through an increasingly tied combination between the exploitation of resources and the mobilization of the emotional sphere of individuals» (2009, p. 126).

The ideology of the creative class has been gaining as much success as disappointment and, paradoxically, the latter has not deteriorated the first one (d’Ovidio & Rodríguez Morató, 2017): it creates «[a] profound dissatisfaction with recent directions and outcome of “innovation” in technology, markets,

policy and governance systems, and particularly a sense that benefits of such innovations have not been distributed as generally or as equitably as they should» (Moulaert, MacCallum, Mehmood, & Hamdouch, 2013, p. 1). Consequently, a very variegated plethora of practices are emerging, and they are labelled under the concept of social innovation.

Looking at the historical overview of the term social innovation, a variety of meanings, orientations and uses emerge (Moulaert, Mehmood, MacCallum, & Leubolt, 2017); as it happened for the notion of talent and creativity, also social innovation in the contemporary capitalism is a vague and abused term, often used for branding economic-oriented practices: over time, the concept has been increasingly interpreted mainly in economic and market-oriented terms, especially within the European policies framework. This vision favours a meaning of social innovation focusing as a way to address social problems «privileging firms as the (key) carriers of social innovation. [...] The last feature prioritises the social business over the social movement as a vehicle for SI, thereby unfortunately neglecting the great transformative potential of the latter» (Moulaert et al., 2017, p. 19).

The figure emerging in this context is the social innovator: a resourceful and optimistic hero, with past experiences in creative sectors and in voluntary working, with a strong wish of changing the world. The rhetoric of change, transformation and revolution is very important in the construction of this figure. He/she wants to ameliorate the world, and, in order to do it, he/she transforms this in his/her main professional activity. His/her action is therefore placed within the market, but not driven with a for-profit approach, rather by an ethical push towards the amelioration of the society<sup>3</sup>. Within this framework, innovation is seen as the needed tool for the amelioration and transformation of the society, no matter the field of action: social works, high-tech products, new policies, new relations can all be considered part of this world.

The structure of the social relations within which the social innovator is moving, is very rich of different types of relations, with a massive presence of communitarian-type of connections. Community here means the setting (mostly territorialised) where innovation is both addressed to and happens. Innovator's action is directed towards community and is legitimated by it. Indeed, legitimation and reputation are two very important elements explaining innovator's action (Gandini, 2016; Pais, 2012): Schumpeter's entrepreneur is driven by the will of gaining reputation with his/her innovation (Becker et al., 2011; Heertje, 2006; Schumpeter, 1942), Florida's creative professional needs to create to be recognised as such by the market (and therefore succeed), the social innovator needs the community that legitimates his socially innovative strategies (Moulaert, Martinelli, Swyngedouw, & Gonzalez, 2010).

Beyond rhetorics, this paper aims at addressing at social innovation practices with a very precise meaning, as actions "aimed at the - satisfaction of social needs that are not adequately met by market and macro-level welfare policies (content dimension) - through the transformation of social relations (process dimension) which involves empowerment and socio-political mobilisation (political dimension linking the process and content dimension" (Moulaert et al., 2017).

We refer to a specific group of actors, namely the makers: they are people involved in making objects with the digital fabrication in makerspaces (either as laboratories managers or laboratories users)<sup>4</sup> (d'Ovidio & Rabbiosi, 2017). In recent times the urban landscape of major urban areas has been dotted by labs and collective spaces (Armondi & Bruzzese, 2017) where a broad range of objects are produced thanks to fast prototyping technologies; these spaces are usually called fablabs or maker-spaces. In those spaces, the sharing of information, knowledge and mutual help is particularly encouraged. These spaces are therefore not only production places, but, more importantly, spaces where interaction takes place, where people exchange ideas and, also, where social cohesion is built.

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<sup>3</sup> See, for instance, the description of social innovators from these influencing webpages: Rena project (<http://www.progetto-rena.it/comunita/soci-individuali/> - last visit 23/04/2018); Urbact (<http://urbact.eu/who-social-innovator> - last visit 23/04/2018); <http://www.glistatigenerali.com/innovazione/vi-racconto-chi-sono-e-cosa-fanno-gli-innovatori-sociali/> - last visit 23/04/2018); <https://www.forbes.com/sites/rahimkanani/2014/02/17/5-brilliant-social-innovators-youve-never-heard-of-until-now/#6feb66ae45d3> - last visit 23/04/2018).

<sup>4</sup> <http://www.fabfoundation.org/index.php/what-is-a-fab-lab/index.html> (accessed 2018, April, the 16th); <http://makersinquiry.org> (accessed 2018, April, the 16th)

Within the many varieties of actions that can be addressed as the makers' practices, it is possible to conceive a set of practices aiming both to respond to meet needs in a socially innovative way, but also, and more focused on the paper aim, to see their action as able to re-signifying the relation between innovation and society.

With this aim, we observe the potentiality of makers as protagonists of a very crucial cultural operation aimed at giving a new meaning to innovation: such as a process not focused on profit, but aimed for the amelioration of the community.

Community is the reference target when new things are created, but also in the process of creating: in practical terms, it can be a neighbour asking for some particular items, a (formally or informally) organised group of disabled people needing accessible items (which on the market might be extremely expensive), local craftsmen willing to create innovative items and so on. Here we refer to the community in line with Moulaert and colleagues' researches on urban neighbourhoods: « [In this perspective], community has a powerful, often area-based, political and analytical meaning as the real-life setting where needs resulting from exclusion can be satisfied, where initiatives grow and are established and which serves as a springboard for multiparty, multi-governance dynamics» (Moulaert, 2010, p. 24) 5.

Co-creation is here addressed as a fluid process involving different agents and (often) based on proximity (Zebracki & Palmer, 2018) which, thanks to the technologies employed in the digital manufacturing, has the potentials to be expressed in the makerspaces: it is where community members can find solutions to their problems, but, more importantly, it is where a maker creates with the community. Very interestingly, also the process through which a maker makes new things reveals strong links with the local community and it is what we are going to observe in the following pages. Instead of listing the many new things that makers create together with the community, we focus on the process leading to the creation of new things, showing how it is potentially, mainly thanks to the technological development of the digital manufacturing, a co-creative process.

### **3. Co-creation in makerspaces (I): local manual traditions and global flows**

If one looks at the map of the Fablabs global network<sup>6</sup>, it emerges that *fablabs* are spreading almost everywhere, not only in global, creative, advanced sites. The strong links with the local communities makes the makerspaces the place where local competences, skills and know-how are expressed, used, valorised and, also, channelled in global fluxes. Makerspaces are observed as places where co-creation happens, based on knowledge sharing and aimed at diffusing a culture of collective knowledge and collective work. Following this line of thought, Manzo and Ramella (2015) claim that these places are able to connect local resources with global networks: their configuration is that of a local environment, where people concentrate and interact face-to-face; however, these places are also global hubs, connecting local users, to a wider international community made by labs and teams sharing ideas, values, practices and attitude. All of this can contaminate the whole local communities where the maker-space is located.

Moreover, digital manufacturing has the potential to valorise the local knowledge in terms of skills and competences, especially, but not exclusively, in those contexts where the economy is still based on manufacturing (being it heavy one, or craft-based one). Yet, increasingly, most of manual and craft skills lost their central place in the post-Fordist economy, which is mainly based on immaterial production, but they are still present (although maybe not always employed) in less developed regions, where the economy is grounded on manufacturing activities or craft ones<sup>7</sup>. Not only makers expose local tradition to global fluxes, but also, more importantly, makers can valorise such manual skills, transferring part of the knowledge in

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5 Although usually the community is geographically proximate, not always this happens, and it might also be a community of practice, however, the need of doing physically the object makes the geographic element crucial.

6 <http://www.fabfoundation.org/index.php/fab-labs/index.html>

7 We are well aware that particular craft tradition in the post-fordist economies are particularly valorised (e.g. tailors for design fashion), but the majority of manual jobs reduced dramatically

other, new and competitive contexts. Increasingly, the use of the term “digital artisan” seems to mean exactly the convergence of these two worlds (Micelli, 2016).

The debate on labour and skills is far from being a new one and since its origins reflects upon the relation between human and machine labour. In its modern version the debate draws on Gorz’s and Braverman’s thoughts (Braverman, 1974; Gorz, 1988). The debate has been focusing on the question whether machines could be able to perform every kind of activity, and whether this could mean the end of work (in both positive and negative terms). This is not the appropriate place to report the whole debate, but the rising of the digital fabrication allows to reflect upon the idea of the machine substituting the craft work, something that before was hardly imaginable. Yet, borders between digital designing and physical production of goods are increasingly blurred and makers can intersect the community know-how with the new technologies in a twofold line of thought (Hielscher & Smith, 2014): firstly, we could ask whether manual skill is actually needed within the digital fabrication, and, if not, whether the introduction of the digital fabrication in a community leads to the vanishing of local manual skill; on the opposite and secondly, we can discuss the extent to which manual competencies are needed: the digital fabrication could, on the one side, reduce the need of traditional manual competences (deskilling of the local labour force), but on the other it could require new ones (reskilling the local community).

On the first line, the debate is of course stretched between two edges, the one claiming that digital fabrication allows the complete and definitive substitution of the craft skill, yet keeping the characteristic of authenticity and customisation of the “old” craft production (Rifkin, 1995). At the opposite we can find the position of Richard Sennett claiming the crucial position the craftsman occupies, in the post-fordist economy, where their competence is not only impossible to be substituted, but also it gives an added value extremely important (Sennett, 2008).

Within the digital fabrication, Ree’s works are particularly interesting, as they test the necessity (or, on the contrary, the redundancy) of artisan competencies in maker-spaces. He and his colleagues have performed a series of empirical research on skill and competence in maker-space during workshops, laboratories, and learning sessions. (Ratto & Ree, 2012; Ree, 2011). Ree realises that, in particular in the educational sessions, there is a particular attention in the teaching and learning of manual competences, and that should be a signal that these elements are still very important. This depends largely by the persistency of improvisation and experimentation (that are typical of the craftsman work) both in the designing of the object and, in particular, in the post-production phase. For example, in order to design a project for a 3-d printed object we have to be extremely aware of the whole productive process, so to be able to choose dimensions, shape, material to be used (all competences that often are learned by touching and literally felt by hands the object); once printed, the object usually needs to be refined manually. Ree and colleagues conclude that, even in order to 3D-print an object, one needs a significant amount of “skilful human authorship”, since, “3D printers don’t make things; people do” (Ree, 2011, p. 60). Following Sennett’s thought a whole set of competences is needed: creativity, sensibility, a particular world vision and so on, all these attitude that are emerging from the local community and become now crucial also in the contemporary “economy of signs and spaces” (Lash & Urry, 1994).

The second line of the debate deals with the content of the skills required for the work. One position claims that digital manufacturing encourages the once-passive consumer to become active in the productive process and, with that aim, to learn new competences: following this line of thought, we can say that the digital manufacturing supports a reskilling of the society, transforming the consumers in active makers (with new competences). This is the position taken by Gauntlett, who, in his book *Making is connecting* (2011) acclaims the practice of creating things. The opposite position is taken by those who see in the digital fabrication a deskilling process, in particular within the artisanal words, that, yet are necessary, but tend to be increasingly poor and without specific knowledge. This is caused by the same process celebrated by Gauntlett: since everyone can be a producer (a maker), the needed competences must be simpler and simpler. Wood and his colleague (Wood & Rust, 2003; Wood, Rust, & Horne, 2009) developed a series of empirical analysis in order to test such hypotheses and found out that manual competences are necessary, but also that they need motivation and commitment to be learnt, because sometimes they are complex and need a deep

training. Therefore, they found out that the process involves more reskilling than deskilling, and, in particular, the manual skills of craftsmen tend to be renewed and transferred to new generation in new environment, thus making the digital manufacturing a tool to keep such knowledge alive.

#### **4. Co-creation in makerspaces (II): creating a common knowledge**

One of the peculiar characteristics of making practice is the ethical drive that in many cases generates them, in particular, but not only, because it aims to produce a shared and open knowledge, whose use does not depend on economic resources and it is useful for the community. The potentialities are many, and derive both from the culture and the history of the making movement, and from the potential offered by the technology of digital manufacturing.

Values of social cohesion, justice and equity, are compatible with that fringe of the market, now expanding, which shares the same ethical principles (Arvidsson & Peitersen, 2013): a varied multitude of practices increasingly emerges and they, while being insert into the market, are self-narrating as not for-profit, acting with and for the community, and driven by an ethical impulse (Arcidiacono, 2017).

Within the makerspaces, the emergence of a production of shared and open knowledge takes place primarily in large urban centers, able of concentrating actors, skills, competences and sharing practices: hackers, coworkers, makers, subjects involved in social and innovative social projects, they are all crucial actors in this arena, as they are carriers not only of unprecedented practices, but also of instances and innovative ethics devoted to social change.

The question of the production of knowledge and its protection is at the center of a debate, in which many scholars consider copyright now incompatible with the contemporary production of culture and innovation. Following Smorto, the transfer of tacit knowledge, which massively characterises the processes of making, is improved in contexts where knowledge is open and freed by ownership obstacles. He defines collaborative production as “decentralised systems of production which are alternative both to the enterprise and to the market, and where different people contribute to the definition and implementation of a project aimed at the creation of commons in an open access system. These people are associated in a community of practice, and not necessarily they share values or visions, but they tend to consider their action as alternative and often opposed to market logics” (Smorto, 2014).

These practices fit perfectly with the *digital skin* of contemporary cities (Rabari & Storper, 2014), where both threats and opportunities are emerging. There are many problems that are identified along the increasingly digitalisation of the society, but they are not the focus of this paper, which is centred, oppositely, onto its opportunities. Yet, according to Storper, the development of an economy based on digital fabrication in cities can have very positive outcomes: one of these are the practices related to the making and the digital fabrication that can emerge as economic activities based on horizontal processes of sharing and social inclusion, representing a valid and alternative answer to the increasing inequalities of the contemporary societies. Such productive processes have the possibility of laying outside the control of the big corporations, and innovation and knowledge will be at community disposal. In this sense, the development of an economy linked to making constitutes fundamentally a novelty within the advance capitalism, and makers can pioneer a new possible urban development. Together with the disposition and potentialities of makers for a knowledge production at disposal of the referenced communities, this shows that the potentialities of the maker as social innovator are extremely interesting for the local environment. Many makers believe that it is only by building knowledge in an open and shared way that one can build innovative knowledge, and, if one considers it as a local collective resource, it is possible that this becomes a competitive asset for the community. For instance, a research on the embeddedness of the maker laboratories in Milan (Colleoni, d'Ovidio, & Vicari Haddock, 2015), shows that the Milanese makers organize their activity as to constitute a sort of outsourced department of research and development for local businesses: as places

for the development of projects, for the creation of new ideas, products and technologies with the support of highly qualified workers in an open environment and at everyone's disposal<sup>8</sup>.

Actually, scholars and analyses show that there is no such a dichotomy between open and "closed" knowledge production. We see, for instance, that in the biotechnologies, there is a strong wish for an open and shared knowledge production, that integrates universities, hobbyists, communities, and so on and that has a role even within the institutional science production and even corporate environment (Delfanti, 2012). Similarly, within the software field, communities are extremely active in the open and shared production (Bauwens, 2005).

In the field of open source software, Castells, resuming the debate on the gift economy and common goods, recalls that those who produce open knowledge are, as a rule, repaid in prestige, status and self-esteem (Castells, 2005). We could add that the growing importance of the reputation economy (Gandini, 2016), makes the production of open knowledge also advantageous in economic terms. Secondly, Castells continues, the economy that is generated in the production of open-source software is anti-competitive: not only is not based on competition, but is based on cooperation. This aspect, in the system of laboratory makers based on relationship networks, makes open knowledge even more important, because it creates bonds and potentially generates new collaborations (including economic ones).

## 5. Conclusions: the main challenges of co-creation

In 1944 Polanyi wrote *The Great Transformation* where he assumed that a system based on competition and individualisation is incompatible with any sort of social relations and leads eventually to the disruption of the society itself (Polanyi, 1944). He also identified in the embeddedness of some elements of the market in the society the antidote for this apparently paradoxical dynamics. In this paper we trace a trend that, to some extents, is similar to the one identified by Polanyi. Innovation is, at the beginning of the modern capitalism, led by the individual action of the entrepreneur who creates for his pleasure, his reputation and, more importantly, for the wellbeing of the society; then, in the "be-creative-capitalism" innovation is totally individualised, directed to the personal success of the creative professional and a tool needed for competition; finally, thanks to the social innovator, innovation is re-embedded in the society, through local communities. Moreover, not only new products are created for the community needs, but the process leading to the production of new things is embedded in the communities, valorising local knowledge and skills, creating new local competences and building an open, shared knowledge.

We want to conclude the paper highlighting some of the challenges that have to be faced by the main actors of this transformation: makers, communities and local governments. For makers, the challenge is to keep being social innovators, being loyal to their referenced community and to their values; moreover, economic sustainability can be hardly compatible with social sustainability and social innovation. Second, communities should be as much inclusive as possible, in this sense the focus on spatialized urban communities (Moulaert et al., 2010) allows to grasp a notion of communities rarely socially homogeneous and able to accommodate diversities. Finally, institutions, in particular local governments, are facing probably the hardest challenges. Local institutions should be able to empower communities and social innovators, in order to make innovation available, sharable and transformative. They should believe in the communities, but, at the same time, they should watch and monitor the communities themselves and make them as much open as possible, as much horizontal and inclusive as possible. Of course in order to do that, local governments should be able to accept innovation themselves.

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<sup>8</sup> Notwithstanding the desire of makers of producing open knowledge, few are the projects implemented, because they are hardly financed.



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