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The economy of collaboration in the age of digitalization

Francesco Ramella
University of Torino, Torino, Italy
francesco.ramella@unito.it

Abstract

The 'economy of collaboration' refers to a method of organizing the production, distribution and consumption of goods and services based on cooperative relations. These are new ways to coordinate economic activities, in which openness to the outside, decentralization and peer-to-peer horizontal relationships play a more important role than in the past. The main reference is to activities linked to the digital economy, since they are the emerging forms of a definitely older phenomenon, but which is expanding on an ever-wider scale thanks to new technologies. These collaborative activities can be regulated differently, along a continuum that ranges from the pole of market exchanges to that of generalized reciprocity, with various intermediate mixed forms (hybrid markets; balanced reciprocity).

Keywords: Economy of collaboration; sharing economy; smart manufacturing

Introduction[1]

The 'economy of collaboration' refers to a method of organizing the production, distribution and consumption of goods and services based on cooperative relations. These are new ways to coordinate economic activities, in which openness to the outside, decentralization and peer-to-peer horizontal relationships play a more important role than in the past.[2] Sometimes these modalities integrate, and at other times they replace, strategies of action based on hierarchy and market competition. An essential feature of these collaborative economic activities is that they often make use of new digital technologies, not only to circulate information and create new knowledge, but also to finance, produce and exchange goods and services. In particular, digitalization plays an increasingly important role not only in the sphere of consumption, but also in that of manufacturing production. To indicate these emerging realities, in the current debate, two terms are prevalently used: sharing economy and smart manufacturing.

The first of these terms - the 'sharing economy' - refers to the sphere of circulation and distribution of goods and services, more precisely to forms of exchange based on technological platforms that put people with things to offer in direct contact with those who may be interested in using them and/or acquiring them mostly on a temporary basis (housing, cars, clothes, tools, maintenance, domestic help etc.)[3].

[1] This article presents the analytical frame used for a series of studies on the economy of collaboration carried out together with Cecilia Manzo.

[2] In computer science, the expression 'peer-to-peer' denotes a network composed of equivalent and non-hierarchical nodes. In this article, I will use the term in two ways. The first, of a general type, refers to subjects/organizations that enter into horizontal and symmetrical relationships in order to make social and/or economic exchanges. The second, of a more specific type, refers to digital platforms for the exchange of goods and services. Unlike the business-to-peer platforms (B2P), which put companies in contact with their customers, peer-to-peer (P2P) ones connect individuals who want to make a direct transaction with each other.

[3] The literature on the sharing economy is becoming increasingly broad and varied. To give only some essential references, see: Botsman and Rogers (2010), Schor (2014), Sundararajan (2016), Frenken and Schor (2017).

The second term – 'smart production' - refers instead to the advent of a fourth industrial revolution based on closely interconnected and highly automated production processes. The new digital technologies, in fact, enhance computing and connectivity capabilities in production processes, making possible new forms of communication and interaction between people and machines, machines and machines, digital information and material things (Schwab, 2016).

Both the sharing economy and smart production highlight the transformative potential of digitization. And this justifies the attention that these phenomena are receiving in both the scientific literature and the popular literature. Taken separately, however, these focuses of attention appear limited and insufficient. The contributions that have appeared to date in the area of the sharing economy have mainly focused on changing consumption styles and the distribution sphere. In other words, an analytical framework dominated by the "consumption paradigm" has prevailed. Researchers, in fact, have mainly explored the new features emerging on the circulation side of use values (goods and services), often emphasizing their differences with respect to the classic model of market exchange - that is, the match between the supply of private companies and consumer demand mediated by the price system. The production side, however, has remained in the shadows and - especially in the initial phase of the studies - the same happened to the more properly entrepreneurial and commercial aspects of these activities: that is to say, the fact that these digital platforms enable new "business models" and exchanges among peers, of both for-profit and non-profit type.

Conversely, the debate on smart production - often associated with that on the fourth industrial revolution - tends to overlook that changes in the sphere of production are closely interconnected with those in distribution and consumption, and that new technologies make it possible to explore innovative business models with "variable geometries", in which the mix between competition/collaboration and profit/non-profit assumes

different forms. Hence, smart manufacturing cannot be fully understood without referring to the economy of collaboration.

To satisfy economic needs by collaborating

But more precisely what is the "economy of collaboration"? To fully understand the expression, it is better to clarify the use that I will make of the terms of this binomial. As regards the first, I use the "substantive" meaning that is typical of economic sociology. Referring to Karl Polanyi, it is possible to conceive the economy as an institutionalized process of interaction of people among themselves and with their environment intended to satisfy needs (Polanyi, 1968). In this perspective, what is interesting is to analyze how economic activities are organized and regulated differently, through different principles, regulations and institutions. Not all economic transactions, in fact, pass through market exchanges and are oriented towards acquisitive purposes. Therefore, it becomes important to understand the ways in which they are regulated - that is to say, the "various modes by which that set of activities and inter-actor relationships associated with the production and distribution of economic resources is coordinated, these resources are allocated and the related conflicts, real or potential, are structured – that is, prevented or settled" (Regini, 2006b, p. 4–5).

Precisely in order to study this variety, Polanyi proposed a tripartition of the principles of regulation (forms of integration), which define the different modes of participation in the economic process, with the rights and duties that are connected to it. With reference to the economy of collaboration, what interests us most is that two of the three principles - that of reciprocity and that of market exchange - refer to the coordination of horizontal relations between economic actors in the absence of superordinate authorities.

The first of these two principles, that of reciprocity, configures a system of transactions based on shared social norms. The typical social institutions within which it applies are family and kinship. Other examples can be found in

the relationships among friends, neighbors, members of the same association. In this type of situation, exchanges follow the rules of behavior of these social structures, and economic relations are guided by expectations of reciprocity that are articulated according to horizontal and symmetrical relations. The motives that inspire the action, the means used, the terms of exchange applied, are not strictly acquisitive; rather, they depend on a broader system of socially recognized obligations and rights. Typical examples are voluntary activities, donations, aid and service exchanges carried out without any payment.

Following the suggestion made by the American anthropologist Marshal Sahlins (1965), I will articulate this category of Polanyi by distinguishing the transactions between peers that follow a "generalized reciprocity" orientation from those regulated by an expectation of "balanced reciprocity". As noted by Sahlins, in the symmetrical exchanges involving two actors, material transactions of goods and services are intertwined with social relations among people more or less distant from each other. In generalized reciprocity, the social dimension tends to prevail: whoever offers a good or a service does so, as in the case of gifts, without expecting something in return. In other words, the obligation to return what was received is rather weak, so that "the material side of the transaction is repressed by the social" (Ibid., p. 147). In balanced reciprocity, instead, there is a more or less equivalent exchange of utility. In a certain sense - continues Sahlins - this form of reciprocity is “more economic" than the generalized one, since "the material side of the transaction is at least as critical as the social: there is more or less precise reckoning, as the things given must be covered within some short term" (Sahlins, 1965, p. 148).

The second principle of regulation, that of exchange, asserts itself in parallel with the spread of self-regulated markets which, through the interplay between supply and demand, determine the prices of goods. Although

markets and trade have existed since ancient times, according to Polanyi, this mode of regulation prevails only in modern ones, reaching its peak in the nineteenth century. This occurs when market institutions become predominant, as well as in the sphere of trade, even in those of production and distribution of income. It is in this situation that the utilitarian motive for gain and the "fear of hunger" are affirmed as the essential drivers of economic action.

Now I am going to consider the second term of our binomial. The Latin etymology of the verb collaborate indicates, literally, the activity of "working together" and by extension being of help to others and supporting an initiative. 'Collaboration', therefore, means participating with others in a task, in a joint production, in a project. The same applies to the word 'cooperation'. Also in this case the etymology of the verb cooperate means "to work together", to contribute to the achievement of a shared goal.

A few years ago, Richard Sennett (2014) published a book with an evocative title: *Together. Rituals, Pleasures and Politics of Collaboration*. Sennet's main thesis was that the ability to collaborate is a valuable social talent because it makes it possible to compensate for individual deficiencies and to perform tasks that would otherwise be difficult. However, collaboration is a difficult social art, full of ambiguity and conflict, especially when it involves interactions with very different people (strangers, foreigners, etc.). The basic thesis put forward by Sennett is that modernity and transformations in contemporary capitalism are eroding the foundations of the social skills of collaboration.

The hypothesis advanced in this article is different. It is based on four assumptions. 1) Under way in the advanced societies are contradictory processes, both dissipative and accumulative of the social capacities of collaboration. 2) The accumulative processes tend to expand the collaborative spheres of the economy, which can however be regulated according to

different principles (in transactions between peers, ranging from market exchange to generalized reciprocity). 3) The coexistence of these different principles of regulation tends to generate mixed forms of regulation (hybrid markets; balanced reciprocity). 4) The expansion of the digital economy increases opportunities for collaboration.

The "dissipative" trend highlighted by Sennett is certainly at work in advanced societies, but there are also trends of opposite sign, connected to the expansion of the digital economy.[4] The new technologies, in fact, facilitate the multiplication of decentralized production networks, open-innovation phenomena and peer exchanges, thus expanding the scope of economic transactions based on collaboration. These activities can be regulated by the market and an acquisitive logic or, on the contrary, by rules of generalized reciprocity that do not contemplate monetary rewards. Or, again, they can assume a "hybrid" form in which market and reciprocity mix, and acquisitive and pro-social motivations merge. These intermediate forms of regulation, such as hybrid markets and balanced reciprocity, are expanding in advanced economies, and they represent a very interesting aspect of the transformations underway.

Markets, competition and collaboration

As economists often emphasize, one of the constitutive foundations of the market and its allocative efficiency is competition. The more the market is free and allows competition among a plurality of producers and consumers,

[4] The term "digital economy" refers to the processes of digitalization of the economy and their products, that is, to the activities of production and economic exchange that are making increasing use of new digital technologies. Studies conducted by the OECD in recent years testify to the rapid growth of the digital economy in the sectors of retail (e-commerce), transport (automated vehicles, car sharing), education (Massive Open Online Courses), health care (electronic documentation and personalized medicine), personal relationships (social networks), relations between citizens and governments (e-government) (OECD 201, 2015a).

the more it produces collectively positive results, guaranteeing a dynamic balance between supply and demand. Many criticisms can be made of this representation of the market, but for the purposes of this article it is sufficient to highlight only two points. 1) Since its origins, economic sociology has proposed a more complex and less "peaceful" view of the market. The latter, instead of self-balancing, needs to be regulated to function effectively: that is, it needs the "beneficial constraints" imposed by non-economic institutions (Streeck, 1994). This assumption represents the cornerstone of one of the prevailing theoretical approaches in contemporary economic sociology, that of comparative political economy, which studies the relations of reciprocal influence among economic, social and political phenomena, analyzing their modes of regulation in different institutional contexts.[5] 2) The second point to stress is that in economic phenomena, competition and collaboration often tend to coexist, to different extents. It would therefore be misleading to imagine the 'economy of collaboration' and the 'market economy' as antithetical terms. The former does not coincide with transactions based on generalized reciprocity and free exchange. The latter does not at all exclude cooperative aspects. In other words, we must not confuse the "real markets", that we observe in the various economies and that can be regulated by a mix of regulatory principles, with the "imaginary markets" - that is, market exchange as a principle of regulation understood ideal-typically.

The thesis of this article is that the spread of the digital economy, together with other factors, has led to an expansion of economic activities based on collaboration among individuals and organizations. However, the modes of regulation of these collaborations may be different: some more oriented to market logics, others to forms of generalized reciprocity. Or there may be intermediate forms that tend to mix these two principles with

[5] For a reconstruction of this analytical approach see Ramella (2007) and Regini (2006a). Its consolidation is well demonstrated also by the publication of a handbook devoted to comparative institutional analysis (Morgan et al., 2010).

different dosages, coming closer to the so-called 'hybrid markets' (see below) and to forms of balanced reciprocity.

The proposal is therefore to analyze the expansion of economic activities based on collaboration by locating them along a regulatory continuum that ranges from the market to generalized reciprocity. This approach seems analytically more promising than the one followed by others in order to identify the "true" and "false" forms of sharing economy. Russel Belk (2007, 2014), for example, defines sharing activities as an alternative to exchanges based on private property, as happens - albeit in different forms - in both market transactions and donations. Sharing activities (such as those that typically occur within the family sphere) are different. Belk defines them as "the act and process of distributing what is ours to others for their use as well as the act and process of receiving something from others for our use" (2007, p. 127). Belk therefore contrasts market exchanges with sharing activities, placing donations in an intermediate position. Rather than differentiating "what is mine and yours", as happens in market exchange and gifts, "sharing defines something as ours" (*ibid*.). The two concepts are also characterized by diametrically opposed motivations: selfishness versus altruism; greed versus generosity.

This approach, in my opinion, betrays a normative bias that does not help to make progress in analyzing the economy of collaboration. For example, it does not allow one to highlight how the same peer-to-peer platforms - from the point of observation of the users - allow very different social practices, more or less oriented to sociality and reciprocity and driven by a mix of motivations, in which utilitarian and not-utilitarian purposes inextricably combine. Nor does it allow one to analyze the intermediate areas, in which different principles of regulation tend to coexist, which are also the most innovative and interesting.

Like the "hybrid markets" present in the collaborative producer-consumer networks, which are characterized by the coexistence of

exchange methods and transactional logics of mixed type. For example, in collaborative geocaching networks[6], studied empirically by Diane Scaraboto (2015), we note a complex intertwining of economic and recreational-social interests and a fluidity of roles between consumers and producers, both of whom are involved in activities of value creation (economic and social). Scaraboto, by way of example, reports the case of the Geocaching Swiss Army Knife (GSAK), a software particularly appreciated by the geocacher community, noting that buyers are often available for extra donations in addition to the requested "market price". In turn, the creator of the GSAK - a geocacher who has used the collaboration of many consumers-players for the software development - although aware that the sale price is not representative of its "economic value", avoids applying a maximizing market criterion to these transactions.

We thus see the coexistence, unstable over time, of different logics of exchange, in which market transactions often mix with forms of mutuality and reciprocity that approach the logic of the gift.[7] In markets such as these, roles, logics of action and "domains of value" are not separate and mutually exclusive, but are "interrelated and cogenerative" (Karababa & Kjeldgaard, 2013, p. 5). Although in tension with each other, the frictions generated by the simultaneous presence of different orientations of action tend to generate forms of value and utility, both personal and collective, greater than those created by private companies that offer similar software following the traditional market logic. The same applies to many of the collaborative platforms of the sharing economy, which often give rise to hybrid markets and forms of balanced reciprocity in which economic transactions and social relations, based on reputational mechanisms, tend to join together (Ramella & Manzo, 2019).

[6] Geocaching may be described as the modern, digital and georeferenced, version of an old game like the "treasure hunt".
[7] The essay by Scaraboto contains references to other studies carried out in the sociology of consumption on collaborative producer-consumer networks.

Recognizing that the economy of collaboration takes root even within markets does not therefore allow for a unilateral reading which tends to emphasize solely the "re-embedding" of the economy in society, contrasting it with the depersonalized and atomizing logic of the market capitalist. This is what is also suggested by the teachings of the "New Economic Sociology". The latter, in fact, reminds us that economic actions - even those that pass through markets - are always embedded, that is, rooted in systems of social relations (Granovetter, 2017). And this induces us to abandon both a hypersocialized account of economic action, dear to many sociologists, according to which actors only follow the internalized dictates of social norms, and the hyposocialized account typical of utilitarianism - resumed from classical and neoclassical economics - which has an atomized view of the market and of economic actor behaviors, imagined as driven by the pure utilitarian pursuit of self-interest. Embeddedness, on the other hand, emphasizes that even to explain market exchanges it is necessary to take into account the interpersonal relationships and the structure of such relationships, which for example can facilitate transactions based on mutual trust and prevent the risks of prevarication linked to the opportunism of the actors.

The drivers of the collaboration economy

Fully to understand the diffusion of the collaboration economy, therefore, it is necessary to make use of both the teachings of comparative political economy - which underlines the role of institutions and modes of regulation - and those of new economic sociology, which emphasizes the role of networks of social and economic relations. This also makes it possible to avoid the risks of "technological determinism" that sometimes emerge in the international debate on the so-called 'fourth industrial revolution'. The reasons for the expansion of the collaboration economy, in fact, are more complex.

One aspect is certainly linked to the digitalisation of the economy, which affects both the production and services sectors. This technological transition is further enhanced and accelerated by the growing interconnection via Internet not only of personal networks, organizations and businesses, but also of the world of material objects and processes. The growth of connectivity, the convergence of fixed, mobile and television networks, together with the combined use of sensors, machine-to-machine (M2M) communication systems, big data, artificial intelligence, devices and objects connected in the Internet of things and the blockchain, are supporting a large-scale transformation of society and the economy (OECD 2017a, p. 24; OECD 2015b).

This shift of technological paradigm is one of the main factors enabling the collaboration economy, since the combination of digitization and interconnection removes many of the physical limits to the sharing of goods, services, information, and it facilitates the formation of dispersed collaborative networks. Thus the new digital technologies generate an infrastructure that supports the development of the collaborative economy, creating a network effect on both the demand and supply sides.[8] And yet this explanation is not enough. Isolating only the technological aspect risks giving a deformed and one-dimensional reading of a process that is more complex. In fact, it is a process of co-evolution involving a plurality of factors. If it is true that the digitalization of information is changing society in depth, this process is in turn supported by profound transformation in the economic and institutional scenario.

[8] Economists, in fact, tend to consider online platforms as exemplifying "two-sided markets" (Rochet and Tirole, 2006; Evans and Schmalensee, 2007; Demary and Engels, 2016): that is, markets in which two groups of actors benefit from interaction through a platform or an intermediary. This creates a situation of interdependence, so that the adhesion choices made by the group acting on one side of the platform influence the results achieved by the other group.

A first element to consider is the 2008 international economic crisis, which has created an environment favorable to the spread of collaborative peer-to-peer transactions, both on the supply side, for subjects looking for job opportunities or income integrations, and on the demand side, for consumers looking for lower prices (EU, 2016, p. 13). Against this background, we must also consider the proliferation of new business-platform models which, besides altering traditional competitive dynamics, also fuel demand for regulation.[9] Not by chance, many of the most industrialized countries have launched strategies to promote and regulate the digital economy. A study conducted a few years ago by the OECD (2015b) reported that as many as 27 of the 34 countries analyzed had a national strategy.

These market transformations and the focus on regulatory aspects highlight the socio-institutional changes that accompany and support the development of the collaborative economy[10]. Besides the technological factor, it is therefore necessary to mention at least three others that have favored its diffusion: a) the changes in the production paradigms following the crisis of Fordism, which has seen the spread of more open and flexible organizational models; b) the changes in consumption trends towards models based more on the access to goods and services than on property purchases; c) the globalization that — at least until the outbreak of the pandemic crisis — has pushed towards the expansion of inter-organizational partnerships, not only through global value chains, but also through the

[9] Although still small in Europe, the collaborative platform market shows enormous growth potential. In 2015, it was estimated that platforms active in five key sectors (housing; transport of people; family services; technical and professional services and collaborative finance) brokered transactions amounting to € 28.1 billion, generating 3.6 billion in direct revenues (PWC 2016a). Furthermore, their growth potential is estimated to be around 20 times higher and it is expected to reach 570 billion euros by 2025 (Pwc, 2016b).

[10] For a broader discussion, see Ramella and Manzo (2019).

new development policies implemented to face the challenges posed by international competition.[11]

Innovation, territorial embeddedness and collective goods

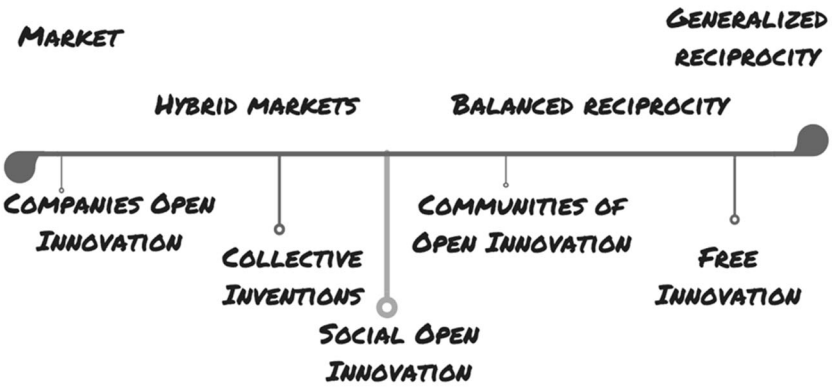
As said, the economy of collaboration can assume a plurality of forms, which operate between the two opposite poles of the market and of generalized reciprocity, often giving rise to mixed forms. An example taken from the field of "Innovation Studies" is sufficient to clarify this point. In the international community there is widespread recognition that, in the past few decades, more open modes of innovation have developed. They involve collaboration among companies, institutions and other actors (Ramella, 2016). In the Fordist phase of capitalism's development, large companies tended to internalize most research and development activities. In the post-Fordist phase, instead, one observes a proliferation of partnerships with external actors for the purpose of sharing costs, knowledge and skills. Digital technologies facilitate these new modes of cooperation, up to the most extreme forms of crowd-innovation (widespread innovation, generated by the "crowd") that use collaborative platforms to exploit the collective intelligence present on the Internet.

However, there are different forms of collaborative innovation. When we talk about "open innovation" we refer to a "profit driven" corporate strategy: market and profit-oriented (Chesbrough, 2003). When we talk about "free innovation", instead, we refer to the form of innovation implemented by consumers, in their free time, for non-market purposes, often of a collaborative nature, which do not imply any kind of remuneration or search

[11] It is significant that precisely in parallel with the unfolding of the internationalization of production chains and the acceleration of technological change, there has also been a pronounced relaunch of industrial policies, as evidenced by a recent study on 100 countries (UNCTAD, 2018). A more proactive role of the State, open to collaboration with other partners, is in fact seen as essential for facing globalization processes.

for earnings (von Hippel, 2017). There are also intermediate variants ranging from collective inventions (Allen, 1983), through social innovation (Murray, Grice & Mulgan, 2011), to "commons-based peer production" and "open innovation communities" (Fleming & Waguespack, 2007; Benkler & Nissembum, 2016).

Fig. 1 - The modes of collaborative innovation



Before concluding, mention should be made of two other aspects that are still little explored in the international debate. The first concerns the socio-territorial embeddedness of the collaborative economy. To explain the spread of the sharing economy, in fact, several authors have mainly focused on: 1) some intrinsic characteristics of goods and services and/or subjects accessing the exchange, for example emphasizing the constitutive specificities of the so-called sharable goods, the presence of idle capacities (unused capacities) and cognitive surpluses, i.e. of under-utilized resources that are available for greater and more efficient use; and/or 2) on the characteristics of the technological medium, i.e. (a) the enhancement of the automation and interconnection capacities of the production process, and (b) the platforms

allow an efficient match between supply and demand and an effective construction of trust-reputational mechanisms. Instead, the territorial diffusion of these new economic forms (in the various countries and regions) have been less analyzed, as well as the different methods of regulation and the diverse institutional and relational architectures that support these "collaborative transactions".

These aspects deserve a great deal of attention, since they highlight one of the transformative functions carried out by digital technologies. In fact, for social relations, the latter perform the same action as electricity transformers: they make it possible to vary the parameters of voltage and intensity by transferring the energy from one circuit to another. For example, peer-to-peer collaborative platforms facilitate the process of disembedding/re-embedding of social relations mentioned by Antony Giddens (1990) with reference to modernity and globalization.

Digital platforms, in fact, tend to decouple certain activities from social and territorial proximity, to then recombine them on different scales. Through their reputational systems they generate "trust between strangers" and thus widen the range of exchanges that require mutual reliability: they allow one to lodge or give lifts to perfect strangers, to offer the conviviality of dinners with friends to people never seen before , etc. In some cases, these people are not just "strangers" (with respect to the sphere of social proximity relationships), but also "foreigners" (with respect to local proximity relationships). Social relations therefore disembed: they are detached from local contexts of interaction and from the limits of mutual knowledge, and are restructured on more abstract levels. In other words: digital technologies and collaborative platforms release the sphere of socio-economic relations based on trust from situations of geographical proximity and consolidated mutual knowledge.

If these dynamics have often been emphasized in the literature on the sharing economy, the territorial embeddedness of these collaborative

activities is less analyzed. The process of abstraction and "disembedding" of social relations also allows the latter to be recombined in a new form, connecting the global and the local, opening up to distant-people the spaces of sociability and conviviality previously reserved for neighbors-people. Continuing to use the apt metaphor of Giddens, we may say that territorial embeddedness allows a "reappropriation or recasting of disembedded social relations so as to pin them down (however partially or transitory) to the local conditions of time and place" (ibid., 85). In other words, digital and collaborative platforms also represent intersection points where the identities and resources of people living in a "local world" (made up of relatives, acquaintances, friends), meet with people from "different worlds" (because they are strangers or foreigners), creating a sort of "global neighborhood".

In regard to this re-embedding process, it is above all interesting to highlight how local contexts model the spheres and modes of organizing the collaborative economy differently. To give just a few examples, this aspect is particularly evident in "collaborative financing", where the promotion of crowdfunding campaigns does not stop only at the online/global level, but is adapted and integrated with offline activities promoted by citizens, and which take place in specific places. This is also apparent from research carried out on some collaborative platforms (Airbnb; BlaBlaCar; Gnammo), which highlights how the economy of collaboration takes on territorially different forms and functions (Ramella & Manzo, 2019). And the same emerges from the studies conducted on the Fabrication Laboratories (Fab Labs), which show how their diffusion in the world, the generative mechanisms and the services performed, are differentiated according to the socio-institutional contexts examined (Ramella & Manzo, 2017).

The second aspect to which I want to draw attention is the type of goods produced within the collaborative economy. Researchers who deal with the sharing economy have mainly focused on the production and

sharing of private assets. However, it appears increasingly evident that the combination of new technologies and pro-social actions can also lead to the creation of collective goods. For reasons of space, it is not possible to develop this topic, but to gain an idea, it suffices to consider the open source movement, the aforementioned Fab Labs, or the civic crowdfunding campaigns aimed at promoting the private co-financing of public goods.

Conclusions

The proposal put forward in this article has been to address the issues of the sharing economy and smart manufacturing by framing them within a broader and more transversal paradigm: that of the 'collaboration economy' in the age of digitization. This term refers to the spread of new ways to organize the production and exchange of goods and services, both individual and collective, which imply a greater use of collaborative interactions. The main reference is to activities linked to the digital economy, since they are the emerging forms of a definitely older phenomenon, but which is expanding on an ever-wider scale thanks to new technologies. These collaborative activities can be regulated differently, along a continuum that ranges from the pole of market exchanges to that of generalized reciprocity, with various intermediate mixed forms. These are ways to create value, both economic and social, which tend to take on more decentralized and horizontal features; that is, they are associated with peer-to-peer relationships, in various stages of value creation: from that of ideation (open innovation), to that of financing (crowdfunding), production (smart manufacturing), distribution (e-commerce) and consumption (sharing economy).

The different forms assumed by the collaborative economy today require being studied by means of comparative empirical research, paying attention to the different actors involved (agency factors), to their relationships (relational factors), and to regulatory contexts (contextual

factors). With the aim of avoiding two specular distortions: on the one hand a too "economicistic" reading of these phenomena, which interprets them almost exclusively as new business models; on the other, a too "normative" reading, which instead sees them solely as social practices and organizational models radically alternative to those of the capitalist market.

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