

Hybrid Economies in Hybrid Cities built on Manufacturing, Networks, and Design.

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Abstract: The concept of networks will be analyzed through a Hybrid Economy model, looking at new organizational forms and new multi-actor collaborations; Evolutionary Economic Geography defines these as interested in both social and financial returns, and it identifies institutions as particularly relevant in the success of these new enterprises. Six main factors that define the hybridity of a business and an enterprise have been identified: Offer; Goals and impacts; Founders composition; Team/Staff composition; (Relationship with) customers. To test this approach, we decided to analyze qualitative data collected during a research project which involved two sister cities: Milano and Chicago. The paper will focus on the Milanese case study, which considered manufacturing activities, including both 4.0 manufacturing and more traditional craftsmanship activities. We will define different forms of networks that can favor the hybridity of businesses and the roles that design can play. The research project was conducted before the COVID-19 pandemic spread worldwide; however, it is relevant to notice how reflections on the future of our cities were already part of policies and planning programs. The pandemic made evident the importance of local (and hyper-local) networks and also accelerated intervention processes devoted to favoring the creation of self-sustaining neighborhoods.

Keywords: hybrid economies; hybrid networks; manufacturing; design democracy

1. Introduction

The Hybrid Economy framework was introduced by Jon Altman in 2001, starting from his pieces of research focused on Indigenous economic activities in Australia. This starting point is crucial in our discussion since the issue is based on anthropological principles and has already considered the decisive importance of networks from one side and institutions from the other.



According to Altman, to study hybrid economies, an analytical combined framework is needed; for this reason, the research presented was carried out in a collaborative way, which put into connection and conversation different competencies and stakeholders.

This paper presents a collaborative study developed by two interdisciplinary teams of the School of Design of Politecnico di Milano and the Institute of Design of Illinois Institute of Technology of Chicago within the Sister Cities Policy Program. Cities, design, and civic engagement were the main factors considered; the research teams decided to analyze the relationship between these factors by focusing on the local economy (in particular manufacturing), innovation, and social inclusion. Therefore, the research was not explicitly oriented to studying hybrid economies. However, one of the main results we gained was that in a complex society, where traditional forms of economies are shrinking, the creation of hybrid activities is needed not only for economic survival but also for social support and -in general- for broader wellbeing of citizens. To be functional, sustainable, and prosperous, these economies need to be based on a strong sense of community, sharing of values, and -therefore- networks. Within this framework, design, which deals with complexity, plays an essential and multiple (or hybrid, as well) role and results to be both a driver and a possible content to support and create these forms of economy.

2. Hybrid Economies and Hybrid Cities

Two main elements have characterized the definition of the hybrid economy: i) the relationship between subsistence economy and capitalistic one; ii) the interdisciplinary approach needed to study these connections. These aspects are very much interrelated since economics failed to measure the impact of nonmonetary productive activities (Bunchanan, 2016; Altman, 1987).

The connections between economic, social, and contextual relations are crucial in studying and defining hybrid economies. Indeed, as several scholars discussed, socio-cultural structures and mechanisms inform and influence economic practices (Polanyi, 1944; Baudrillard, 1968; Lévi-Strauss, 1987; Molotch, 2003); market and society are profoundly entangled because the market coexists (and should deal) also with reciprocity, redistribution, and household wellbeing (Scaraboto, 2015). In particular, theories from the Evolutionary Economic Geography (EEG) state that “new organizational forms and new multi-actor collaborations blend outcomes, behaviours and structures drawn from different sectors with the aim of achieving both social and financial returns” (Gong and Hassink 2018, 2).

The role of institutions is particularly relevant in the EEG approach; institutions can play supporting and boosting functions, tuning their evolution according to the development of firms and businesses (and of the general Industrial Atmosphere, as Marshall would call it) (Gong and Hassink, 2018).

The evolutionary approach is the most significant in identifying the role of context in the barriers and opportunities that the local economy may encounter and exploit. EEG, for example, takes into consideration path-dependent processes (Liebowitz and Margolis, 1995) based on the assumption that history matters and, therefore, “previous events affect the probability of future events to occur” (Boschma and Frenken 2006, 281). Economic actions in this view are contextual, and for these reasons, scholars who adopt an EEG approach are more interested in the micro-scale and micro-routines. At this scale, networks are particularly relevant as means of knowledge creation and diffusion (Boschma and Frenken, 2006); the creation of the so-called weak ties (Granovetter, 1973) are supported and conditioned by proximity, which is both geographical, cognitive, organizational, social and institutional (Boschma, 2005). The broader definition of proximity proposed by Boschma and used in the research presented here improve the possibilities of applying this concept; indeed, only physical and geographical proximity is no longer a guarantee of innovation, success, and development of networking relationships. To the extent of the present dissertation, we will briefly highlight and define the other typologies of proximity, apart from the geographical one. Cognitive proximity is particularly suitable for knowledge sharing, development, and exploitation; in Boschma and Frenken (2010) words, the notion of cognitive proximity implies that “people or firms sharing the same knowledge base and expertise are expected to learn more from each other than if cognitive distance is large” (2010: 122). Organizational proximity is defined by shared relations in the organizational arrangement, either within an organization or between organizations. Higher levels of organizational proximity, reducing uncertainty and opportunism, can be helpful in establishing innovation networks. Social proximity can be defined in terms of socially embedded relations between agents at the micro-level; these kinds of relations are trust-based thanks to repeated interactions, which increase the probability of engaging in innovation networks (Boschma and Frenken, 2010). Institutional proximity is similar to social proximity, but it is associated with formal and informal institutions at the macro-level. This kind of proximity influences the coordination between different actors and enables stable conditions for interactive learning (Boschma and Frenken, 2010).

Networks and proximity are very much connected. Indeed, Boschma and Frenken (2010) state that the development of a dynamic network approach is preferred because this can take into consideration and eventually affect the degree of the different forms of proximity. Moreover, as Castells highlighted (1996), it might be both local and global because of the possibilities given by the Internet and the fact that cities and regions are positioned in a global system characterized by hyper-competition dynamics.

We should look at cities as hybrid systems because of the need for keeping together sustainable growth, civic engagement, social justice, and economic diversity (Pradhan and Pradhan, 2002). To favor hybridity for economic and social reasons, public authorities should clearly determine the public purpose, focusing on financial and social values, sustaining the creation of new markets from one side and social cohesion from the other (Mazzucato, 2015).

To summarize, the discussion on mixed economies is mainly referred to:

- members of more simple societies (in an anthropological sense) facing the market system of contemporary complex societies;
- members of contemporary complex societies facing a new market system.

In both cases, solutions to be put in place have to do with the hybridity of:

- Offer - answers to the questions “what goods, services, and activities are offered? What are the offer conditions?”;
- Goals and impacts - answers to the questions “what are the vision and mission? Is there information on the typologies of impacts that their activities have/might have?”;
- Founders composition - answers to the questions “who are the founders (private or public subjects)? What are their biographies (especially as their expertise is concerned)?”;
- Team/Staff composition - answers to similar questions to the previous point but with a focus also on the specific roles covered by the team/staff members;
- (Relationship with) customers - answers to the questions “who are the people attending this place? How do they communicate with them? How they are reached? etc.)”

All these levels are co-dependent, connected, and influence one another.

We will look at these levels in the specific context of the city of Milano through the Made in Milano research findings.

3. The Milanese context

To stress the relationship between public authorities, economic success, and social enhancement, it is important to describe the Milanese context starting from the declaration of interest made by the Milanese municipality on five main series of (economic) activities related to innovation and social inclusion, identified by the URBACT project BoostINNO (<http://boostinno.org/>): Hybrid Enterprises & Urban Regeneration; Sharing & Collaborative Economy; Startup & knowledge-intensive economy; New Craft & Urban Manufacturing; Smart city & Smart citizens.

Hybrid enterprises are in this case defined as those that mix profit and non-profit, different sectors, several stakeholders, and they are connected with urban regeneration because they generally take some role in these processes (e.g. regenerating former factories which become their headquarters). However, to some extent, all the economic sectors mentioned in this list can take the form of hybrid enterprises (or economies). In addition to that, we might affirm that the sector that can more than the others include all of them is “New [or

traditional] Craft & Urban Manufacturing”. Indeed, it takes the form of a hybrid economy because:

- It is often based on collaborative and sharing approaches;
- New enterprises in this sector are start-ups based on a knowledge-intensive economy (manufacturing 4.0);
- It pursues technological and economic development goals, social cohesion, inclusion, and participation, as the Smart City approach does.

Talking about path-dependence processes, the city has always kept a “culture of making”, and the manufacturing re-launch does not represent a cultural discontinuity with its past. Designers, because of their proximity (Boschma, 2005) to the manufacturing and artisanal sectors, often embraced the role of producers, recognizing the value of craftsmanship knowledge (Tajani and Micelli, 2019).

The Municipality of Milano supports the growth of this sector with a special program called Manifattura Milano that promotes the development of new craftsmanship, digital manufacturing, and industry 4.0. The Manifattura Milano experiment is very much linked with urban regeneration and (therefore) social inclusion. The actions on which the Milanese administration leverages are:

- regeneration from below of buildings and neighborhoods;
- coordination and support for festivals and cultural activities capable of crossing new manufacturing;
- incentivization for common innovation platforms such as Fab Labs and makerspaces.

We said before that manufacturing has to do with creating new businesses, as well; facts show that new contracts in the various manufacturing sectors grew by 63% from 2014 to 2017. The data collected by PIM highlights a significant increase in start-ups in Made in Italy sectors and mechatronics sectors. In addition to that, the participation of manufacturing enterprises in research and development projects can favor their hybridization (Tajani and Micelli, 2019).

Looking at the “Sharing & Collaborative Economy” point, the revival of the manufacturing vocation of the city has significant implications both in economic and social terms because it helps an inclusive development of the city since:

- makerspaces and fab labs are located in suburban areas because of spaces left empty by other industrial activities and because suburbs are more accessible than city centers. The localization in the peripheral areas often contributes to the physical and cultural regeneration of these areas (Armondi and Bruzzese, 2017);
- rediscovering craftsmanship means uncovering a deeper relationship between people and their work (Friedmann 1987);

- favors professional growth to a wide range of profiles, such as qualified technicians, the old and new generation of artisans, ITS graduates, designers, etc. (Tajani and Micelli, 2019)
- craft knowledge is based on mutual learning, cooperative and collaborative connections, and the development of dialogic competencies (Sennett 2008).

4. Made in Milano/Made in Chicago, a hybrid project

We propose to define Made in Milano/Made in Chicago project as “hybrid” because of its own specificities. The first level of hybridity leans on the experimentation of the collaboration and on the focus between University, Government, Industry, and Civil Society (Quadruple Helix approach), which was encouraged by the two cities’ Mayors as an activity to be developed within the Sister Cities Program.

Another level of hybridity has to do with interdisciplinarity, which was at the core of the project. As we discussed in previous pages, this was essential for the research contents. Indeed, the teams’ composition integrated both designers and human scientists.

The third level of hybridity can be found in the research object, which was multi-composed and focused on hybrid spaces (and economies).

4.1 Methodology

In the development of the research structure, the two teams started from a Grounded Theory approach and the concept of civiness, which is a fabric of values, norms, institutions, and associations that permit and support civic engagement, mutual trust, and widespread tolerance, where the interest is no longer (only) private and personal but becomes public (Bagnasco, 1999; Putnam, 1993).

The field research had been developed, and it comprised mapping, interviewing, and workshop activities.

The mapping activity consisted in selecting places and initiatives of interest focused on work, creativity, and aggregation, in line with the view of the Municipality of Milano, which were analyzed according to specific dimensions (see Table 1).

Table 1. Categories for the analysis of the mapped case studies.

Typology	Location	Mission	Target	Contents	Founder/ Promoter	Dimension	Local commitment	Originality
Coworking spaces	Both in terms of area and building	Entrepreneurship: business-oriented services	General target	Digital	Municipality	Small ≤ 70 sqm	Low: the carried-out activities are mostly exclusive and done within the space, without any special influence on the local environment and community	
Fab labs & maker spaces		Public Engagement: active involvement of citizens	Specific target	Design	(other) Public institution	Medium 71-500 sqm	Medium: activities are open to a wider public, indirectly and passively influencing the local environment and community	
Service centers and hubs		Social Innovation: activities and strategies for social needs		Art & Culture	Private sectors	Large ≥ 501 sqm	High: the mission of the space is social innovation-oriented	

Incubators		Education: training and knowledge sharing activities	Media	Associations	
Cultural centers		Entertainment: events, leisure and spare time activities	Agriculture		
Spontaneous engagement spaces			Food & beverages		
Cafès					
Events					

Then, we carried out ten semi-structured interviews deepening selected case studies from the mapping activities. In the following table, the analysis considered dimensions are shown. We highlighted those we used for the interviewees' selection. To the ten interviewees selected from the mapping activity, we also added two "key informants" from the Public Administration and seven artisanal entrepreneurs because they emerged to be relevant for our study thanks to the other interviewees' suggestions. In total, we conducted nineteen interviews.

Then, the interviewees were involved with other stakeholders in a workshop.

We will focus mainly on the interviews carried out with manufacturing case studies in the following pages.

We categorized the typologies of spaces and initiatives according to the Municipality of Milano areas of interest mentioned above (Table 2). While Cafès and Events are less relevant in our discussion than the other spaces, we decided to consider "Fab Labs & Makerspaces" and "New Craft and Urban Manufacturing" experiences. We will also include one case study out of the "Spontaneous Engagement Spaces" in our dissertation since these kinds of places sometimes carry out manufacturing activities.

Table 2 Categorization of the typologies of spaces and initiatives according to the Municipality of Milano areas of interest

	Hybrid Enterprises & Urban Regeneration	Sharing & Collaborative Economy	Startup & knowledge-intensive economy	New Craft & Urban Manufacturing	Smart city & Smart citizens
Coworking spaces	X	X	X		
Fab labs & maker spaces	X	X	X	X	X
Service centers and hubs	X				X
Incubators	X		X		X
Cultural centers	X	X		X	
Spontaneous engagement spaces	X	X		X	X

Cafès	X	X			
Events (depending on the typology of the event)	X	X	X	X	X

4.2 Hybrid making/Networks/Design

The originality of this contribution lies in using hybridity dimensions to analyze the case studies and the interviews collected, according to the dimensions listed above.

In addition to that, we will deepen the analysis of these dimensions according to two other important parameters: networks and design roles.

Offer

In many cases, these experiences own hybrid characteristics since they carry on several activities, such as manufacturing, education, co-working, consulting, and often have become platforms of connection and inclusion (this last applies to the section “Goals and impacts”).

“From one side, profit enterprises and subjects discover and understand their social responsibility. Conversely, nonprofit subjects start to understand that they need the market to be autonomous. [...] New Urban Bodies, City Makers, and Trouble Makers are mediators because they are very important for community cohesion and can connect institutions with the wider community. [...] social mediators are often chosen from below and cannot be imposed from above.” Policymaker; Municipality of Milan

Often, the hybridization of the offer is a must to survive on the market. In general, the most fruitful sources of revenue come from renting activities (co-working, rent of the spaces for private events or as settings, etc.), teaching, and training activities (courses, consulting, etc.).

The hybridity of the offer is also connected to the working methods. Indeed, many of our case studies have been developed around the ideas of innovation and experimentation through new technologies in connection and combination with traditional tools, methods, and practices. Each case study shows a different and unique balance between tradition and innovation.

Having a hybrid offer is both cause and effect of having hybrid networks. The role of networks in defining a mixed offer is dependent on internal and external resources. The internal resources are represented by the team composition, which we will talk about later; the external resources rely on the capability to start new temporary collaborations. Participation in events, research projects, and calls that require partnerships keep alive the community of makers through formal and informal moments of encounter, giving life to formal and informal networks, both local and global.

“We are in contact with the association of artisans (CNA, Confartigianato) and the Municipality of Milano. We have actively participated in the European Maker Fair in

Rome for some years [...]. We are in the Fab Lab network; we collaborate with Barcelona and Amsterdam, the supernodes of the Fablab network, within some European research. We have a system of relationships on many levels.” Makerspace1

Artisans who showed a more excellent hybrid offer (6 out of 8) had developed more relationships than the others who were primarily focused on a unique typology of the offer. In addition to that, a mixed offer also led to the development of hybrid networks, which do not belong to the same area of competence, e.g. governmental institutions, universities, and research centers.

“We are looking for ways to provide value-added services through gamification activities thanks to the collaboration with Politecnico di Milano in a Horizon 2020 project.” Bicycle entrepreneur

As Design is concerned, it is both an offer itself, a strategy, and an approach. Design is at the base of all the products and services offered, also because several interviewees are designers themselves.

Looking at Design as a strategy and an approach allows the reinvention of traditional businesses, expanding their offer, addressing the project of a product from unexplored points of view, and improving the quality of the product by controlling (almost) the whole production chain.

“In 2007, we opened to external product design. A young designer came in, bringing the idea of a shape linked to gestures. That same year, Giulio Iacchetti proposed bringing the topic of music to the Milan Design Week. Each designer was linked to a company in order to make a musical product. So, we also made an instrument for this event.” Guitar artisan

Goals and impacts

Many of the interviewed realities are directly or indirectly connected to sustainability in terms of products, services, activities, vision and mission, and personal commitment of workers. Indeed, producing and offering only what is needed is crucial within the maker and artisanal culture, making a few pieces following a different timetable compared to GDO or big retailers. Customization plays an essential role in these economies, which are flexible and offer products that can better satisfy customers' requests.

“Rather than having 8000 pieces, which pollute and are a “more” in the world, maybe we could invest in one piece that has a history, an emotion, a preciousness not only in the material but also in the project behind it.” Jewelry artisans

Social issues are often at the core of the mission of our interviewees' activities. Some of them are focused on empowering marginalized people. Sometimes, people who lost their

jobs or just wanted to change it, after participating in courses or activities promoted and conducted in these places, had the opportunity to reinvent themselves.

“We have projects in collaboration with refugee tailors. One is an Afghan tailor, since he knew how to make shirts well, we did things together. Now he has his private clients.” Bottom-up union focused on tailoring

The majority of the realities we interviewed locates in the city’s peripheral areas. The impact on the neighborhood is for sure a goal that the local administration imposed, e.g. lowering the prices of some locations, launching calls for the renovation of buildings, etc.; in other cases, the interviewees wanted to stay in a specific area because they saw the possibility of networking and contributing to the identity of that area.

“We had a role in showing that it was possible to make Bovisa [ndr a Milanese peripheral neighborhood] a Fuorisalone district.” Makerspace2

The mix of goals led to the hybridity of impacts. The primary (hybrid) goal declared is environmental, social, and economic sustainability. The creation of networks might be an explicit goal and, together with a strategic design approach, also a means to acquire those goals.

“We are in connection with the school in Barcelona. Among the many ideas we have, there’s that of creating a network. We are also connected to a laboratory (like ours) in Florence.” Jewelry artisans

Founders’ composition

The founders often informally met or were already friends in the past. Indeed, many of the initiators/founders shared common passions and values, which was an essential push for them.

“We were born from a collective called Chain Workers focused on job precarity and creative forms of conflict, aimed at generating positive imaginaries.” Collective bottom-up association focused on tailoring

In general, formal networks played the role of facilitators in starting the business. Makerspaces and Fab Labs, for example, are often established thanks to the collaboration of several agents, both bottom-up and top-down. As said before, they are often participated by institutions also through direct financing or through making available spaces at controlled prices.

Therefore, both formal and informal networks are essential in creating the initiators’ team; while the first ones (formal) were created ad hoc, the seconds (informal) already existed. Formal networks that connect different stakeholders are usually hybrid; informal networks tend to be less mixed because the founders shared similar study and specialization paths in many cases. Design is generally present in formal and informal networks since the Politecnico

di Milano is often a stakeholder included in the formal networks. Design and Artisanal Schools constituted a platform of encounter for the founders.

“We met at the Ambrosian goldsmith school. I worked and followed the courses with Valentina, coming from Rome, and Debora, who studied at Politecnico. We met, and this sympathy was born.” Jewelry artisans

Team/Staff composition

The varied nature of several of these case studies deeply affects the typology of workers whom these places are looking for. This kind of hybridity is internal to a single person (e.g. one worker needs to own several competencies and be flexible to work in several fields) and external in terms of the staff composition with several different figures who own complementary competencies. This hybridity is higher than that we registered in the founders' composition.

“The real maker has to be adaptable, flexible, curious, and always in motion.”

Makerspace1

As we have previously discussed, the variety of the offer affects the need for having different collaborators working on various projects and activities. At the same time, the scarcity of resources can limit a mixed arrangement of the team, mainly composed of designers.

In general, some of our case studies pursue the promotion of a social mixité (Wirth, 1938; Sennet, 2008) both in the composition of their teams and their users and clients, as we will discuss in the following section.

(Relationship with) customers

The hybridity of the offer can lead to a mixed composition of customers. Indeed, the hybrid nature of these activities and businesses, especially in terms of the offer, contributes to differentiating their targets. In some cases, the facilitation of the encounter between different populations (children and elderlies, Italian and foreigners, men and women, etc.) is explicitly mentioned in their mission, as said above.

“The interest in what we do -specifically in the tailoring sector- is shared by men and women, notwithstanding their culture or political views.” Collective bottom-up association focused on tailoring

Networks, in this case, are at the core of the composition of customers groups since many of our case studies do not carry out specific planned communication campaigns because of the lack of time, competencies, and resources to invest. Therefore, most of their clients got to know them through word-of-mouth or because of their visible localization.

However, because of the popularity of innovation, manufacturing, and creativity topics, the media are often interested in these kinds of activities and talk about them. In addition to that, the visibility gained in fairs and exhibitions is able to attract new customers.

“Word-of-mouth is a way we reach customers. We want to have a relationship with the neighborhood and, for this reason, we didn’t choose commercial buildings in Cordusio, San Babila, Cadorna, or Buenos Aires. We aim at residential neighborhoods, inhabited by Milanese people. Word-of-mouth has been fundamental since it has attracted the press, which seems to have fallen in love with us.” Bakery artisan

Networks in the case of customers are both:

- pre-existent independently from the action of our case study;
- created thanks to and within these spaces, which often become platforms of encounter.

Design is present both in the composition of customers (many of them are designers, especially in the makerspace and Fab Lab cases) and also is or could be strategic in creating the right conditions to reach these differentiated targets through careful planning of vision and mission, offer, and communication.

5. Conclusions

This paper analyzed the concept of networks through a hybrid economy model. EEG was found to be the preferable approach to study these concepts because it defines new organizational forms and new multi-actor collaborations as interested in both social and financial returns and identifies institutions as particularly relevant in the success of these new enterprises. Institutions and enterprises, together with society, co-evolve and reciprocally influence their co-evolution.

To test this approach, we decided to analyze qualitative data collected during the research called Made in Milano/Made in Chicago, focusing on the Italian results. We found this research particularly appropriate because of its hybrid nature, defined by its initiators, the composition of the teams, and the object of the study. Indeed, the research focused on multi-composed and hybrid spaces (and economies), e.g. companies mixing innovation, social entrepreneurship, (new) craftsmanship, design, storytelling, meanings, and a strong focus on territorial development and relationships with particular attention on their possible social impacts. This paper has considered only manufacturing activities, including both 4.0 manufacturing and more traditional craftsmanship activities. The recognition of the Municipality’s commitment to sustaining this sector from one side and the tradition owned by the Milanese context in manufacturing activities supported this choice.

Indeed, networks are favored by the presence of institutions supporting their creation and by the historical accumulation of knowledge, expertise, and connections.

Six main factors that define the hybridity of a business and an enterprise have been identified: Offer; Goals and impacts; Founders composition; Team/Staff composition; (Relationship with) customers.

According to the project results, founders and initiators groups do not often have a hybrid composition, but they profoundly influence the hybridity of goals, impacts, and the offer. Therefore, the founders' vision can determine the hybridization of goals, first of all, and then of the offer, which can ultimately lead to reaching those objectives.

The more mixed the offer, the more the team needs to be varied and multi-composed, and the more the target composition is hybrid.

The variety of impacts is directly connected with the mixed nature of goals (e.g. financial and social) and especially on the positive answer received by the customers; impact results can influence the assessment and eventually a redefinition of goals and offer.

To favor this hybridity cycle, networks are fundamental at different levels:

- defining the efficiency and the effectiveness of the offer that also determines the economic success of initiatives (business oriented or not);
- determining the founders' composition, especially when different stakeholders take part in the initiatives;
- finding and involving the right collaborators;
- reaching the desired targets;
- and as an offer in itself for customers.

However, networks might not directly influence the definition of goals (if not at a very personal level).

It was also revealed that there are different typologies of networks that differ according to time, space, structure, and competencies:

Pre-existing/New networks: in this article, we have stressed the importance of path-dependence processes in determining the success of business sectors and policy interventions. For this reason, pre-existing networks are a solid base on which it is possible to build new networks more oriented to assessment and-or innovation.

Local/Global networks: usually, networks are defined as very local (e.g. districts) or global (e.g. internet connections); in our discourse, it is important to consider both. Indeed, in light of the definition of proximity given by Boschma (2005), networks are not dependent only on geographical proximity but also on cognitive one. Global networks influence the offer and also the capabilities of impact.

Formal/Informal networks: the discussion on the efficiency of formal and informal networks has a long history. It is important to stress, also in this case, that both are needed. The recognition and the awareness of the supporting role of institutions (formal networks) are

essential for the community at large. However, being inserted into a dense net of informal connections might facilitate knowledge acquisition.

Homogeneous/ Hybrid networks: homogeneous networks pertain to the same area of competencies; instead, hybrid networks connect people and institutions from different fields, owing to other competencies. In addition, we can see the definition of homogeneous and hybrid networks as strictly dependent on their composition according to the previously mentioned characteristics. This means that hybrid networks would also be defined by the availability of pre-existing and new networks, local and global, and formal and informal networks.

Design, especially in the case of manufacturing, is a content and a means (if not also an end). Indeed, manufacturing is strictly connected both with traditional and advanced design. Design plays a strategic role in activating innovative processes inside other hybrid enterprises and creating networks at the different levels for and among various actors (Sedini, 2019). In addition to that, design is a hybrid by nature:

- It deals with complex systems.
- It borrows and adapts methods and tools from other disciplines.
- It works in collaboration with different stakeholders, especially in the case of co-design.
- The role of design in innovating and recovering craftsmanship activities is also relevant.

Society has to be imagined as a twine of networks between people who might be favored by the context in starting conversations and creating social innovation also thanks to a new form of businesses, which might be more inclusive, take care of social issues, contribute to the local economy (Manzini, 2018). Ezio Manzini (2018) identified this context as Design democracy, a participative and enabling ecosystem where everybody can develop their projects and achieve their own goals in collaboration with other stakeholders.

In future pieces of research, it would be crucial to assess this approach by analyzing more quantitative data and building indicators able to define the level of hybridity. In addition to that, it might also be helpful to apply this approach to enterprises that do not work in manufacturing sectors.

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