Social and Institutional Innovation in Self-Organising Cities

edited by
CAMILLA PERRONE
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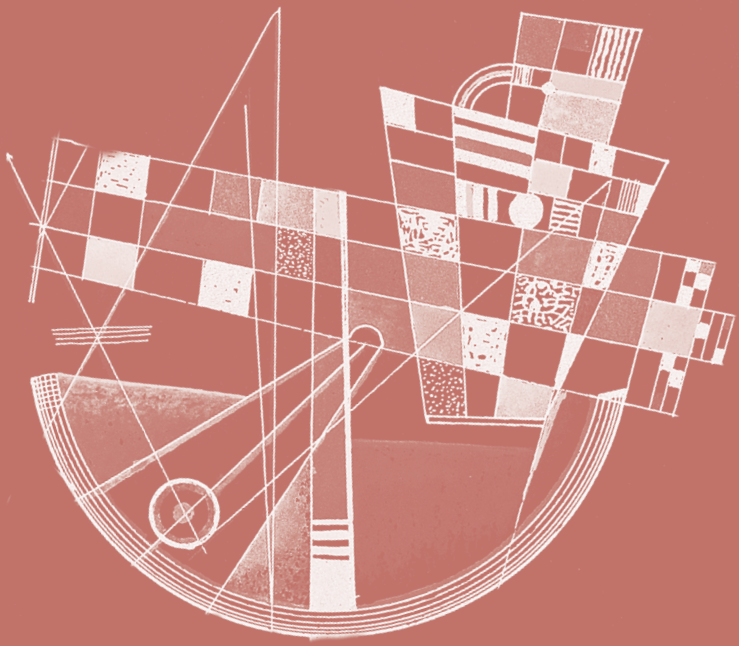

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Introduction

INSIGHTS FOR A POSSIBLE NEXUS BETWEEN URBAN INNOVATION AND THE NEW SCIENCES FOR COMPLEX AND SELF-ORGANISING CITIES

Camilla Perrone
Università degli Studi di Firenze
Italy

Research on social innovation has gained momentum

Social and institutional innovation has become increasingly influential both as a scientific concept and a social and institutional practice (Moulaert and Nussbaumer 2005; 2007; Moulaert et al. 2013; Urbact II 2015; Mieg and Töpfer K. 2012; European Commission 2020).

> It is a conceptual foundation for community-based trust, think thanks, corporate management practice and government funding programs in every continent, leading to a wide range of projects and international networks which recognize past failures of conventional service delivery to tackle poverty and social exclusion, and seek to promote new ways of doing things, grounded in the social relations and experiences of those in need (Moulaert et al. 2013, 1).

What underlies the path of social innovation is not a social problem to be solved through services or new products, but the social change it brings about. Accordingly, we could say that social innovation takes form when a new idea establishes a different way of thinking and acting that changes existing paradigms. So social innovations can be described as new social practices created from collective, intentional, and goal-oriented actions aimed at prompting social change through the reconfiguration of how social goals are accomplished. Social innovation is indeed influenced and generated by the complex interaction between agents and social structures.

In the Green Paper on Innovation (1995), the first document created by the European Commission to identify the factors on which innovation in Europe depends and to elaborate proposals to foster innovation capacity in Europe, the social element of innovation is highlighted as follow: «Innovation is not just an economic mechanism or a technical process. It is above all a social phenomenon […]. By its purpose, its effects, or its methods, innovation is thus intimately involved in the social conditions in which it is produced» (European Commission 1995, 11).

In 2015, the ESDN (European Sustainable Development Network) Quarterly Report No.36 on Social Innovation in Europe, social innovation gains the centre stage on the political

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agenda, «not only as new way of addressing social issues often overlooked either by the private sector or the public sector, but also as a chance to respond to the multiple social, economic and environmental crises that are faced by societies all over the world» (Pisano et al. 2015, 5).

The report remarks that social innovation engages with a social problem in a way that is

> more effective, efficient, sustainable, or just than existing solutions; thence that social innovations are "new solutions (products, services, models, markets, processes etc.) that simultaneously meet a social need […] and lead to new or improved capabilities and relationships and better use of assets and resources. In other words, social innovations are both good for society and enhance society's capacity to act (Caulier-Grice et al. 2012, 18)" (Pisano et al. 2015, 5).

Social innovation is very context-dependent. It takes place in broader social, cultural, economic and environmental contexts where innovations are formulated and embedded. Throughout the reports of the European Commission (2015; 2019; 2020a; b; c), the theme of innovation becomes increasingly central and constitutive, an indispensable requirement of the EU research and innovation for and with cities crosscutting all fields of intervention from nature-based solutions for sustainable development, to governance, climate change, circular economy, poverty, resilience, etc.

The approach of the "human-centred city" is focused as an overarching dimension to accomplish the UN SDGs (sustainable developments goals). It aims at promoting an integrated vision towards innovative urban planning and design that relies on co-creation and co-implementation among different policy areas, urban sectors and stakeholders and fully engage citizens as 'city makers' and actors of innovation in participatory governance and policymaking in a city for all.

More recently European Commissions define social innovation as

> the development and implementation of new ideas (products, services and models) to meet social needs and create new social relationships or collaborations […]. Social innovations are innovations that are social in both their ends and their means. They are new solutions that are not only good for society, but also enhance individuals' capacity to act (European Commission 2020a).

Historic antecedents of the theory and practice of social innovation are acutely surveyed by Frank Moulaert (2009) in his contribution on social innovation and territorial development where the author shows the nexus between these antecedents and Today's return to social innovation as a theme for research and as a principle structuring collective action. He traces back to the eighteenth century and mentions Benjamin Franklin's idea of social innovation as the solution to specific life problems and trigger for changing the social

organization of communities, and Emile Durkheim's plea for social regulation accompanying technical change. He moves to the twentieth century Max Weber's work on the relationship between social order and innovation and accomplishes with Joseph Schumpeter's idea of social innovation as structural change in the organization of society.

The line continues long and thick and includes much more references passing through the needed reference to the Schumpeter's theory of innovation "far beyond the usual economic logic, and appealed to an ensemble of sociologies (cultural, artistic, economic, political, and so on), which he sought to integrate into a comprehensive social theory that would allow the analysis of both development and innovation" (Moulaert 2009, 12-3, for more details see the reference).

Actually, the study of innovation as such began in economics, notably in the works of Schumpeter.

Since Schumpeter, the concept of innovation has evolved separately in different scientific traditions such as technological studies, social psychology, urban development and management.

However, attention to social dimensions appeared quite recently in the innovation discourse and research. Over the last decade, research on social innovation has then gained momentum over the last decade, encouraged notably by the growing interest in social issues related to public management, entrepreneurship, and urban policy. Nevertheless, the boundaries of social innovation processes have not yet been completely defined, leaving considerable space for contributions to both theory and practice to investigate social innovation as a driver of social change (Moulert et al. 2005).

In a contribution on the conceptual framework of social innovation, Giovany Cajaiba-Santana (2012, 42) stressed the idea that «although the concept of social innovation is as old as mankind, it has only recently entered the social sciences […]. Little attention has been devoted to understanding its emergence and diffusion as an outcome of purposeful and legitimised social actions». The literature remains scattered among different fields such as territorial development, urban and regional planning (Maccallum 2009; Mieg and Töpfer 2012; Ostanel 2017), public policy, management, social entrepreneurship and governance (Swyngedouw 2005; Bathelt 2017).

From social innovation in territorial development and planning to urban innovation

Territorial development and social change are the privileged spheres of interest concerning social innovation debate in this book that attempts to collect a number of initiatives and

experiences apparently sparse and heterogenous, under a comprehensive framework explaining of how practices are created – either institutionalised or self-organised – in broader social contexts.

Social innovation is then regarded not only with reference to a spatial context, but also as 'transformer' of spatial relations:

> territorially speaking, this means that social innovation involves, among others, the transformation of social relations in space, the reproduction of place-bound and spatially exchanged identities and culture, and the establishment of place-based and scale-related governance structures. This also means that social innovation is quite often either locally or regionally specific, or/and spatially negotiated between agents and institutions that have a strong territorial affiliation (Moulaert 2009, 12).

From a planning perspective, innovation has inhabited the debate especially since planning has entered the social sciences disciplines (Friedmann 2017).

John Friedman sees planning itself as innovation (not just a driver to innovation), and as such it «necessarily involves a process of continuous mutual learning by all concerned» (Friedmann 2017, 24). Knowledge becomes a crucial component of innovation and innovative actions. In his words «from a perspective of planning as innovation in the public realm, I argued that our primary task is to venture new beginnings, each intervention generating a stream of new "facts" as the consequences of more or less risky actions begin to materialize. Social practices […] proceed through a process of *social learning*» (Friedmann, 2017, 18).

Behind this definition, there is an understanding of the limits of scientific knowledge of society that drives Friedmann to suggest an epistemology of mutual learning that involves a variety of potential actors and planners in a common undertaking and sets the stage for innovation to come. This epistemology – inspired by Jurgen Habermas' concept of communicative action (1979) – supports a transactive way of planning based on a dialogical relation between planners and those with whom they work and nurtured by a new vision of a society engaged in radically transforming itself (Friedmann 1979).

Louis Albrechts (2006) in his contribution on spatial strategic planning and the envisioning ability (focused more on "how" one thinks rather than "what" one thinks) it calls into question, associates the concept of innovation with the concept of creativity «which refuses to accept that the current way of doing things is the best way and which breaks free from concepts, structures and ideas that are only there through the process of institutional continuities» (Albrecths 2017, 195). Innovation is implicitly understood as an 'attitude' to creatively reflect on the concepts and the techniques while constructing/envisioning

different futures; the activity Albrechts places at the very heart of transformative practices, and that requires creativity and original synthesis. In his view,

> envisioning reveals how things can be different, how things could truly be better, how people can become innovative, how we can unlock the natural creativity of the actors involved to improve our cities and regions, how we can legitimise these natural tendencies that are typically inhibited or suppressed by the daily demands of our governance systems (Albrechts 2017, 195).

Generally speaking, planning as a way for improving innovation is associated with three modalities: enabling the capacity of local actions; allowing the conflict emerging in context with different trajectories and values and cognitive capabilities to envision the change; capacity to intervening in complex situations, mostly entering the intermediate space between institutions (withdrawing from the scene) and institutional welfare. From a historical planning perspective, Peter Hall's contribution is crucial in identifying the shift between social innovation and urban innovation (Hall 1966; 1988). He inquiries about «the process of innovation and how it related to the genesis and growth of new industries, indeed new cities (Hall 2017, 63), and is the first to push the subject further by disputing how "to extend far beyond technical innovation into artistic creativity and also –as a logical continuation from Cities of Tomorrow (Hall 1988)— urban innovation» (Hall 2017). Actually, Hall's book *Cities in Civilization* is where the author clarifies his conceptualisation of urban innovation while probing the role cities have played in the civilization process of mankind under four cycles of innovation: cultural-intellectual; technological-productive; cultural-technological; technological-organizational which collect the previous three and precisely introduce the concept of urban innovation with reference to the media/digital revolution (internet and the new immaterial connectivity) and its effects on technology and design. Innovation still derives from the very character of the urban: a milieu where there is an abundance of current and potential exchanges, where technical capacity, research, higher education, finance, art, and production capacity benefit from being able to cross each other. But this time it is not only due to proximity but also to long-distance relationships supported by new digital and material infrastructures and technologies.

Urban innovation has then entered the twenty-first-century debate on cities in search of an understanding of their new patterns of innovation and change driven by the social and institutional systems ability to self-organising under conditions of uncertainty and complexity, technological innovations, digital interconnectivity.

Indeed, the use of this overarching concept of social innovation has been particularly fruitful in urban studies for acknowledging the increasingly flourishing initiatives of spatial change via innovation and transformation of social organisations, institutional frameworks, technical

approaches. These initiatives are mostly and alternatively self-organised, citizen/community-led, bottom-up promoted by collectives (both as self-governance – actions with collective results and intents – or self-organisation – actions with collective results without intent- de Roo and Perrone 2020), mainly addressed to create new assets, opportunities or conditions for change in local societies; a process frequently named as urban regeneration via innovation (Ostanel 2017).
Surveying topics and practices this book intends contributing to highlight a possible nexus between such initiatives and the way contemporary cities, seen as urban complex systems, self-organise within and outside the institutional domain through co-evolutionary, co-productive and interdependent processes while generating innovation within and outside the institutional domain (de Roo and Boelens 2016; Moulaert 2013).

Urban innovation and the new sciences of self-organising cities

Concepts of co-evolution and self-organisation are borrowed by Complexity Theories of Cities (CTC) and associated to the concept of social innovation to dig into and explain the relational dynamics between processes of the structuring of cities, the innovative entrepreneurial undercurrents and self-organised social and institutional practices influencing (and influenced by) new relational/spatial configurations.
Following this line of reasoning, the book specifically embraces the idea that city regeneration results out of social innovation through co-evolution (de Roo and Bolens 2016), co-production and networking (Batty 2013) frequently associated to the implementation of actions to meet unmet or new social needs. Moreover, the book sheds light on bottom-up processes of contextualised and situated entrepreneurial creation, thanks to the diffusion of the digital economy and new flows of things/actions, contribute to regenerate urban spaces and re-imagine the urban. References are made to processes of constitution of digital ecosystems of innovation anchored to the specificity of certain strategic urban places as well as to the agents of innovation (the makers) that, often from peripheral places, create global flows of re-invention of the ways of co-production and co- management of resources while triggering urban regeneration processes. Flows are then crucial and take the centre of Michael Batty's new science of cities inspired by complexity theory of cities firstly proposed by Peter Allen (1997), a former student of Prigogine, who precisely created the domain of CTC — complexity theories of cities. Michael Batty's argument (2013; 2005) for a new science of cities is based on the idea that «to understand place, we must understand flows, and to understand flows we must understand networks. In turn, networks suggest relations between people and places, and thus the central principles of

our new science depend on defining relations between the objects that comprise our system of interest» (Batty 2013, 20). Batty indeed presents the foundations of a new science of cities, defining flows and their networks and introducing tools that can be applied to understanding different aspects of the city structure. Cities are considered as devices that enable us to communicate in line with Jane Jacobs's idea that «cities have the capability of providing something for everybody, only because, and only when, they are created by everybody» (1961, 238), according to a plurality and multiplicity of ideas, perceptions, theories, models.
Batty's new science of cities

> is built from the bottom up and is robust and consistent with the way we consider cities to function, change, and evolve […]. To do this, we adopt the contemporary approach of complexity theory, which treats systems as being constructed from the bottom up, in a hierarchical fashion in which their basic components—functions that relate to how populations interact with one another—determine the networks on which individuals and groups engage with each other through social and economic exchange (Batty 2013, 30-1).

The field of complexity theory of cities is rich of contributions that build on and develop Jane Jacobs's legacy. Various scholars (Allen 1997; Portugali 2000; 2011; 2016; Alfasi and Portugali 2007; de Roo 2018; Rauws 2017; de Roo and Perrone 2020), consider cities as complex adaptive systems and work on the implications of complexity theory for planning with particular reference to the question of self-organisation. In particular, Juval Portugali (2000) introduces a new idea of cities as self organising systems. In Portugali's view, cities do not exist in benign environments and cannot be easily closed off from the wider world. They evolve mainly from the bottom up as the products of lots of individual and group decisions, with only occasional top-down centralized action (Portugali 2000). Portugali (1999; 2008) thoroughly explores the relationship between complexity theories of cities and planning. Basically, he makes the distinction between "classical" and "self- organized planning": «classical planning refers to a relatively simple 'closed system' planning process; closed in the sense that it is, or rather should be, fully controlled. Self-organized planning refers to a relatively complex 'open system' planning process, which like other open and complex systems exhibit phenomena of non-linearity, chaos, bifurcation and self-organization» (Portugali 2008, 259). Planning itself is not treated as an external intervention in an otherwise spontaneous and complex urban process, but rather as an integral element in its dynamics.
In this book, such theoretical framework is taken as a domain for un understanding of urban innovation as a result of bottom-up, self-organised, interdependent (sometimes networked), and only occasionally centralised actions in a co-evolving system. Urban innovation is then associated with efforts to understand how cities work when they are conceptualised as

complex systems, which are self-organising and have the pivot in communication. All in all, cities are considered as devices that enable us to communicate.

Fostering urban innovation in self-organising complex and sociotechnical systems

But what makes cities complex? Why urban innovation needs CTC to be fostered?
To answer this question, Portugali (2016) gives attention to how cities differ from natural complex systems and he includes the cognitive capabilities of urban agents in theorizing and simulating the dynamics of cities. Moreover, he contends that urban agents are typified by "chronesthesia", that is, the ability to mentally travel in time, back to the past and forward to the future. Chronestesia enables all agents as (natural) planners then potential drivers of urban innovation throughout self-organised, interdependent, interconnected actions, but also non-linear, rarely planned by constituted planners.
This view paves the way to overcome the potential and highly debated limit of Batty's interpretation of the city as apparently reduced to a superstructure and "simply" responding to a self-organising dynamic of an open system; «instead [they say] the relational approach delves into the push and pull of competing hybrids of associations explicitly seeking to understand how their traffic exchange and the interaction maintain particular order and hierarchies of power» (Amin and Thrift 2017, 16).
Amin and Thrift in *Seeing like a city* present «the cities as the locus through which to rethink the very composition of our world and how we might remake, with reinvestment in the provisioning of public goods, a more judicious viable place within it» (Amin and Thrift 2017, 160). Cities are seen as assemblages of sociotechnical systems (made of actual and virtual); systems that provide supplies, information and intelligence, enable connectivity and circulation, bind together human and nonhuman. These systems respond to a rhizomatic agency which is not fully knowable or traceable. They have an interactive character that produces outcomes that are both recursive and emergent. This kind of city is made of movements of information, people, vehicles etc., and natural and artificial flows. This is where urban innovation is co-produced, emerges and foster the urban change in a complex interplay between political and economic powers, institutions and the self-organized society –as it emerges (for example) from the Covid-19 responses (less effective the one from the institutions, more adaptive and maybe long-term effective the one from the community). In this case, it's clear how the ability to know what is required has to be bridged with the ability to listen, decentralize and be in touch. In cities, given their rhizomatic ontology, this process requires connective capabilities, rather than those that

flow from the logic typical of state power: 'Seeing like a city' (the Amin and Thrift perspective) means stepping beyond the confines of state-centric views to embrace the political-economic complexity of the 'urban' in making room for a multi- perspectival politics of existence in which infrastructural priorities become explicitly politicized, in which what are usually thought of as effects can become causes. Moreover, it implies managing the city's sociotechnical systems in ways that expand opportunity and benefit. The centralized power is challenged by a multiplicity of powers and interests that gain ground and shape urban lives at different and intertwined scales and layers of powers. Covid-19 shows at the same time the weakness of the state and the related institutions in many countries of the world. On the other end, a self-organizing society (community-led welfare initiative, especially in the peripheries or inner areas) and certain autonomous cities experienced responses to COVID- 19 crises through actions that might foster urban innovation.

Credits and Acknowledgments

This book includes a selection of conference proceedings and papers presented at the international conference *New Sciences and Actions for Complex Cities. Social and institutional innovation in self-organising systems*, organized by the laboratory of Critical Planning and Design (University of Florence) and held in Florence on 14th - 15th December 2017. The conference has been a research appointment to collect input about a Strategic Research Initiative titled Social Innovation in Practice: city regeneration through co-evolution and networking (SIPCITY) coordinated by Camilla Perrone (University of Florence), that was entering its final year of activities. SIPCITY Researchers were engaged in follow-up projects that will continue the work on social innovation through specific collaborative endeavours.
The conference was therefore designed on the purpose to open the debate to a wider community of scholars to engender more collaborations in the future.
The authors of this book express their gratitude to the conference attendees whose contributions make valuable this collection of conference proceedings.
The book is organised in two parts. The first explores proposals, theoretical lenses, experiments and approaches in the field of social and institutional innovation; the second part digs into variegated and international portraits of urban innovation in practice. Specifically, the contributions explore a variety of topics and theoretical references from different theoretical backgrounds and study fields. While exploring spatial scales, geographic and cultural contexts, temporal frameworks the book ends up presenting a kind of *miscellanea* that gives a brief – although scientifically rigorous – overview on contemporary urban systems and their kaleidoscopic complexity.

Please note that research studies and contributions were conducted and written before the Covid-19 emergence. Nonetheless, the authors consider the issues and questions arising from the papers of particular interest also in pandemic conditions, especially because they can be read in the light of the pre-pandemic and the in-pandemic times. In the book, we find key concepts, investigated through theoretical lenses and approaches and examined through case studies, such as self-organisation, transcalarity, interconnections, social innovative responses, inequalities in space triggered by local and global, virtual and real economic and political drivers, and also the role of the public sector and its duty to envision, regulate, mitigate the future. All these topics have been on scholars' agendas for years and are still crucial these days we face the pandemic struck, which possibly exacerbates situations and dynamics that were already ongoing in cities and territories.

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Section 1
Social and institutional innovation approaches

The recent theories of planning and urban design widely recognise how cities are complex entities the overall form of which cannot be predicted in advance, emerging as it does from the bottom-up interaction between human and material components. Despite this awareness, the current practice of planning and urban design often tends to predict and control the future development of pre-de‣ned areas by proposing top-down comprehensive master plans over emergent orders rather than cooperating with place-speci‣c spontaneous dynamics. Although complex urban systems cannot be entirely designed from the top down, they need some direction as they can also spontaneously veer towards cycles of decline. In this regard, the current paper (1) proposes a Multi-Scale Atlas as a tool to detect complex adaptive cycles across different scales and (2) highlights how this multi-scale understanding is crucial to shape the site-speci‣c minimum design interventions which can foster spontaneous incremental processes of self-regeneration or invert emergent cycles of decline.

DESIGN FOR COMPLEX URBAN SYSTEMS. A MULTI-SCALE APPROACH

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Exploring city complexity: challenges for design

The recent theory of planning and urban design recognizes how healthy, vibrant cities behave like complex living systems: they are open, bottom-up, self-organizing, emergent (Allen and Sanglier 1981; Dovey 2012; Portugali 1999). The main characteristic of an emergent system is that it cannot be predicted in advance because it is in a constant state of becoming. Such a system arises from unforeseen interactions rather than being determined by an *a priori* intention. It is resilient because disturbances can be accommodated by fluid adjustments: indeed, the heterogeneous components of the system retain the capacity to endlessly re-organize themselves into emergent interconnections.

Although, since Jacobs' pioneering work (1961), the advances in theories of complexity, self-organization, assemblage, adaptation (Gunderson and Holling 2002; De Landa 2006; Walker and Salt 2006; Miller and Page 2007) have supported an increasingly sophisticated understanding of the city as a complex living system (Portugali 1999; Dovey 2010; 2012; De Roo 2017), urban design practice often fails to transform this subtle understanding into strategies and actions that are capable of addressing urban complexity and cooperating with emergent urban systems.

Indeed, urban design is still widely based on master plans, which aim to predict and control the development of specific areas and tend to be presented as the final outcome of a certain transformation. A typical example of such a design approach is proposed by New Urbanism, which superimposes a top-down designed city, based on abstract principles and coded urban formulae, on an environment that is generally considered problematic. In their best examples, master plans are driven by a sincere intention to generate a regime of urban complexity which is capable of fostering diversity. Nonetheless they remain external interventions in an otherwise spontaneous transformation. In this respect, they cannot cooperate with emergent systems that are, to a certain extent, unpredictable and in a constant state of becoming (Porqueddu 2018a).

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Although complex urban systems cannot be designed from the top down, they need some direction as they can also spontaneously veer toward their own self-destruction. Jacobs foresaw how the same forces which nourish city diversity can often contribute to its self-destruction, and the recent theory of Complex Adaptive Systems and Panarchy show how complex systems can spontaneously fall into cycles of decline (Gunderson and Holling 2002; Miller and Page 2007).

From this perspective, a serious consideration of the complex, unpredictable nature of cities highlights the need for a kind of design which does not interfere with the spontaneous emergence of diversity, but at the same time, intervenes in order to prevent its decline. The role of such design is not fixing the problems through external interventions: instead it consists of monitoring the unpredictable evolution of emergent orders and understanding when an action is indispensable for inverting a cycle of decline.

In this regard, the current paper presents a method of inquiry which enables designers to detect place-specific latent capacities for emergent diversity and to uncover the risks for its self-destruction. Here this approach is considered fundamental to develop design strategies which cooperate with emergent transformations, rather than trying to master them.

Toward a multi-scale approach

Within the contemporary panorama, there are ways of practicing urban design, which are compatible with the emergent unpredictable nature of complex cities. These strategies aim to provide a specific place with the missing ingredients which can activate its ability to self-produce the solutions to emergent problems. This is without trying to predict and control the final, formal outcome of the transformation. In this respect, they aim to make more efficient use of the spontaneous capacity of places to maintain and increase their potential for diversity. These projects usually represent the beginning of a transformation, rather than its final stage, and they incorporate time, with its unpredictable outcomes, into the design brief.

A contemporary example concerns the realization of the Metrocable Network in Medellin – as part of the PUI (Integrated Urban Project), the complex programme of city transformation promoted by the Medellin municipal government and coordinated by Alejandro Echeverri (Echeverri and Orsini 2010). Indeed, the Metrocable project does not aim to re-design the informal settlements of Medellin, by imposing a new order from the top down, although these settlements are problematic. Instead, it recognizes that, beside all the well-known problems related to poverty and lack of services, these settlements

have a peculiar and vital network of micro-connectivity, which supports the emergent social and economic relations on a local scale. Nonetheless this labyrinthine structure is not inserted into the network of fast connections on a metropolitan scale and is thus cut off from potential exchanges with the rest of the city. In this context, the Metrocable is the creative solution that can incorporate the informal settlements into a new and wider network of relationships without damaging the existing slow micro-connectivity. There is now evidence that the construction of the Metrocable's lines brought a new energy to the urban economies in their area of influence (Coupé and Cardona 2013) thus activating an incremental process of self-regeneration across the settlements.

Around the word, there are scattered examples of this approach to design. I am endeavouring to collect and compare them in order to understand the relationship between design and complex urban systems (Porqueddu 2018b). These strategies are all very different and operate on very different scales, in very distant geographical areas and urban situations. However, they do have some similarities.

First of all, they emerge from a thorough understanding of the dynamic relationship between the physical components of urban spaces and the existing and emergent behaviour of people across them. Indeed, as a set of material components, the city is a simple system (Portugali 2013): buildings, roads, fences, sidewalks, etc. are just scattered elements of a potential living system emerging in the presence of its changing components: people and their actions (Moroni e Cozzolino 2019). Such social-spatial understanding is crucial for shaping the most appropriate (minimal) intervention capable of orienting individual movements and actions across urban space, thus activating a process of incremental change and self-regeneration.

Secondly, such strategies emerge from a multi-scale analysis that is fundamental to explore cross-scale effects. In this regard, Panarchy and Complex Adaptive Systems Theory (Gunderson and Holling 2002; Miller and Page 2007) show how the scale we are interested in is connected to – and affected by – what is happening on the scale above and below, both in space and time. An understanding of the non-linear relationships between the parts and the whole is crucial in order to frame the appropriate scale of (minimal) intervention, rather than propose a comprehensive plan which defines everything from the micro-scale to the macro-scale (Porqueddu 2018a).

Thirdly, in this kind of project, an understanding of place-specific social spatial dynamics across scales is an integral part of the design process. In this respect, these strategies highlight the need for tools for questioning places in order to understand their behaviour across scales.

A Multi-Scale Atlas

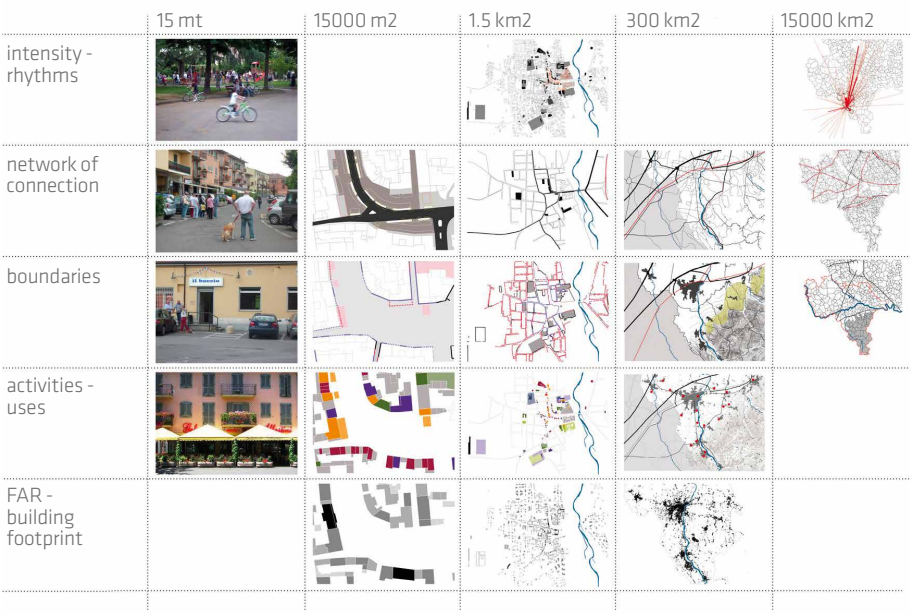
In order to explore the emergent nature of complex urban systems, a Multi-Scale Atlas is proposed here as a tool for an empirical investigation which makes it possible to explore the links between people's behaviour, activity rhythms and the physical layout that support them across multiple scales (Porqueddu 2015; 2018a). Here, the focus is not on individual maps, but on the actual and potential relations between them (Corner 1999).

Fig. 1
Multi-Scale Atlas. Matrix example (Porqueddu, 2015, 2018a)

In this regard, the Atlas builds upon Jacobs' phenomenological social-spatial approach, but it extends it to a multi-scale level. Indeed, a multi-scale understanding becomes indispensable in the contemporary city, where the rise of mobility and communication technology has brought about a network of exchanges between discontinuous places – opening up new possibilities for interaction and exchange beyond the traditional relationship of proximity (Massey 1994; Castells 1996; Amin and Thrift 2002; Boelens 2009). In the domain of this new metropolis, the mere scale of architecture would not highlight the social-spatial dynamics beyond the boundaries of a specific site, while the broad metropolitan scale would not reveal anything about the micro-space of perception and human interaction. In this respect, these maps enable us to study specific micro-spaces in relation to a wider network of relationships. From this perspective, the Atlas can help to frame the scale and type of problem by highlighting the multi-scale dynamics in which specific places are immerged. The maps face the following questions: how can the existing and emergent spatial layout support emergent diversity across scales? How does it foster its decline?

The Atlas (fig. 1) is organized into five thematic layers:

- *Intensity and rhythms*: this shows daily concentrations of people in specific places according to different time cycles, event geographies and commuter flows.
- *Activities and uses*: this shows the distribution, concentration and type of activities across the territory. (The mix of heterogeneous activities is considered one of the main generators of diversity)
- *Network of connections:* this shows how the network of streets, parking lots, sidewalks, etc. support fast and slow flows of people. (Accessibility is considered one of the main factors in fostering emergent concentration of people).
- *Boundaries and public-private interfaces*: this shows how the layout and type of physical border can encourage or discourage unforeseen interactions between public and private spaces/activities.
- *Building footprint and density*: this shows the concentration and mix of building types combined with data on density in terms of floor area ratio. (This layer is important be-



cause density in terms of Floor Area Ratio and compact urban form are still central to the discussion on city diversity).

Every layer is investigated on a wide range of scales, within the framework of:

- 15m² and 15,000 m². This scale shows how space is perceived and how it supports face-to-face interaction between people.
- 1.5 km². This shows whether the spatial layout – on the scale of the village or neighbourhood – supports the movement of people and their interaction across different activities and spaces.
- 300 km². This scale shows the main infrastructures in relation to the existing urban fabric, natural environment and administrative boundaries, and it highlights the flows between different settlements.
- 15,000 km². This scale situates the area within the wider scale.

The maps amalgamate data collected through interviews, behavioural-photographic survey, data analysis and multi-scale mapping.

The Atlas has been developed across a low-density area of Italy, called Oltrepò Pavese. It is a network of old small settlements and more recent nodes, situated in the province of Pavia, 50 km south of Milan, at the intersection of two important transport routes connecting Milan

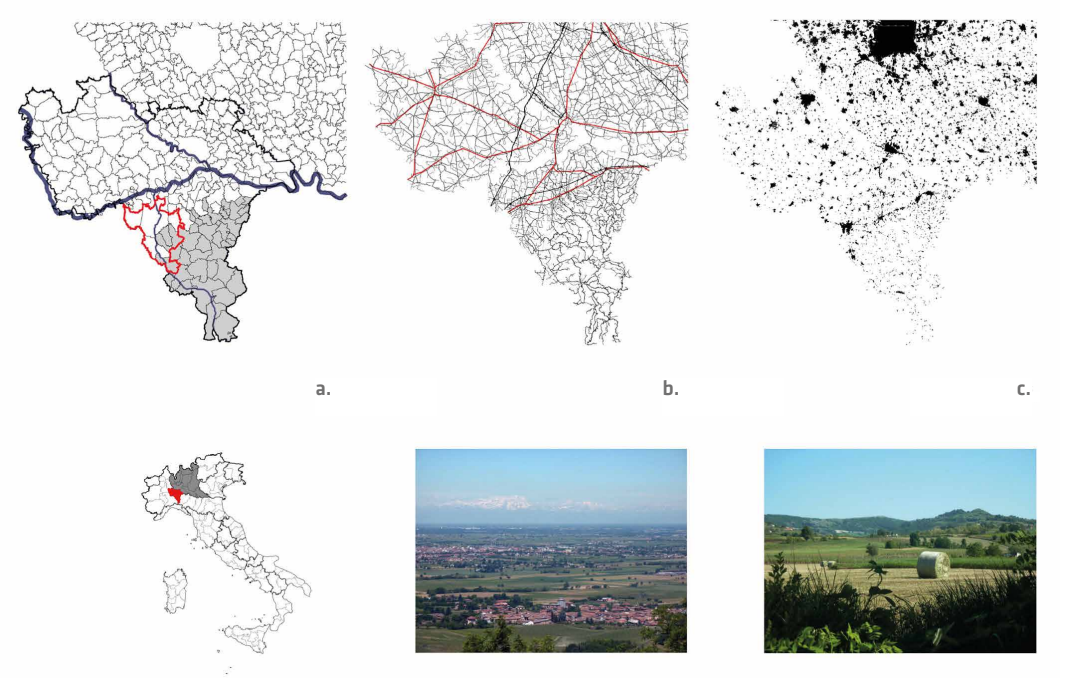


Fig. 2
The Province of Pavia. (a) Administrative boundaries; (b) Network of connections; (c) Built-up areas (Porqueddu, 2015, 2018a)

and Genoa and Turin and Bologna. The case study area includes eight municipalities situated in the province of Pavia. This province (fig. 2) is a mosaic of 185 micro-municipalities, 162 with fewer than 5,000 inhabitants: about 40% of the population lives in these traditional old settlements at a distance of 2-7 km from each other. This pattern – significant local differences notwithstanding – is interesting because it is prevalent throughout Italy, where about 70% of municipalities have fewer than 5,000 inhabitants. (ISTAT Census 2011).

The Observation Area is situated at the border between the plain and the hills – agricultural and wine-growing areas – and includes eight of these municipalities (fig. 3). The major centre is a small town of approximately 40,000 inhabitants, the others being villages of 900 to 5,000 inhabitants.

Detecting risks and potentials of emergent transformations

In the Atlas, the wide scale maps highlight the presence of a layer of distributed metropolitan attractions (such as hotels, spas, sport centres, new workshops, shopping centres, showrooms, famous restaurants or clubs) that generate a new intensity of flows in and out

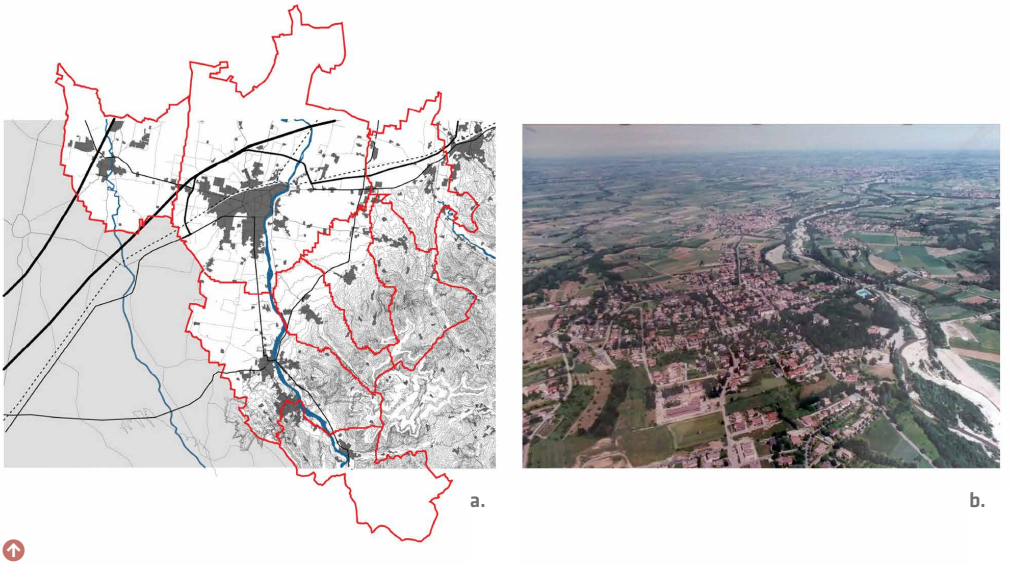


Fig. 3
(a) Observation perimeter (300 Km2 frame): Eight municipalities; (b) Aerial photo

of small municipalities and from major centres towards smaller settlements. This is particularly relevant because, in this area, a vibrant local street life can be nourished just by wider flows, developing on a metropolitan scale. Indeed, a single settlement is here not dense and big enough to generate diversity within its boundaries.

From this perspective, these flows are transforming this territory into something far more complex than a sum of small settlements depending on a major metropolis. In actual fact, when observed on a wide scale, this area behaves as a low-density distributed system: an open network, where every single settlement has the potential to become a node connected to several other nodes. In such a system the hierarchy is always shifting: every node can become the centre according to different time cycles and event geography.

Nonetheless, the Atlas highlights the presence – on the micro-scale of single settlements – of two contrasting types of spatial layouts: the first one fosters emergent diversity, the second one encourages its decline.

The first situation (fig. 4) shows a settlement where:

- metropolitan attractions are interwoven with local activities (such as the baker, butcher, newsagent, primary school, etc.);
- this mix of local and metropolitan activities is situated at a walkable distance from regional arterial roads;

Fig. 4
Local-metropolitan interaction (Porqueddu, 2015, 2018a)

- small and medium size parking lots are scattered at the edges of the settlement as well as across its urban fabric;
- metropolitan attractions are not enclosed into wider precincts or, if they are, then they retain a certain degree of autonomy in terms of access, rhythm and management;

This type of spatial layout encourages people coming from other places to leave the car and walk through the small settlement in order to reach the metropolitan attractions. This increases the pedestrian traffic in front of local shops, thus nourishing their businesses. These new flows of strangers across the small village foster local street life, thereby increasing the potential for flourishing city diversity and new emergent activities.
However, figure 5 shows a contrasting situation where:

- metropolitan attractions are enclosed within bounded precincts placed along fast arterial roads at the edge of existing settlements or outside them;

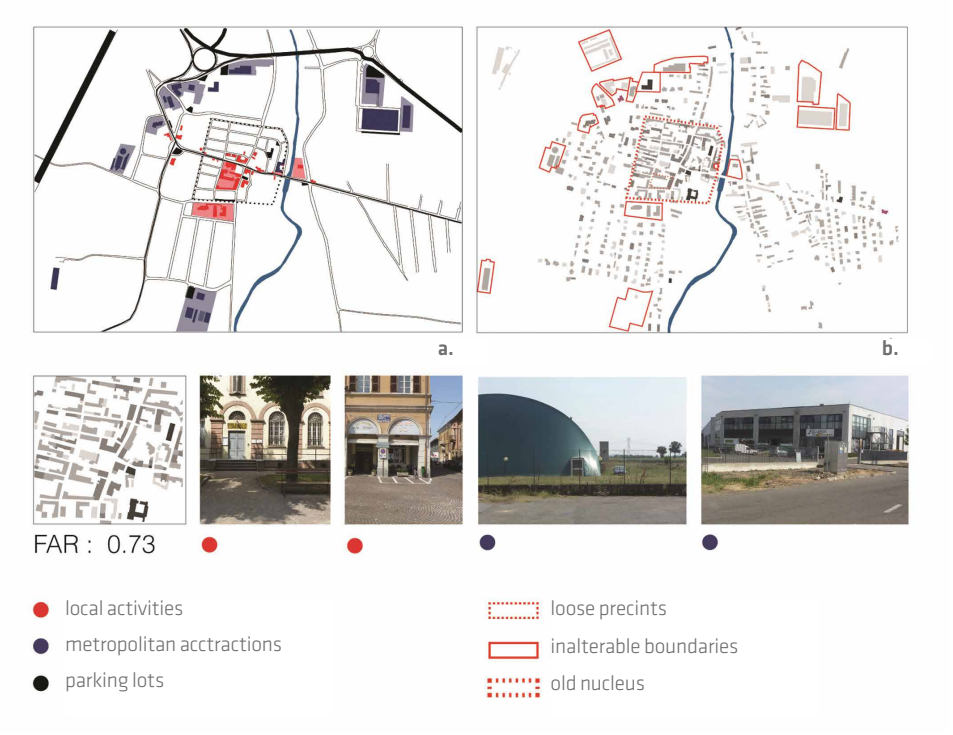


Fig. 5
Local-metropolitan disconnection (Porqueddu, 2015, 2018a)

- the precincts usually have only one entrance, connected with a large private parking lot overlooking fast arterial roads, without any connection to the local network of activities, even when they are placed at a walkable distance from them;
- the boundaries of these precincts are impermeable and inalterable; if, inside the precincts, activities are multiple, they do not retain autonomy in terms of access, rhythm and management;
- there are almost no small and medium size parking lots across the old settlement;

In this type of spatial layout, people travelling on a regional scale can directly reach the metropolitan attractions without walking through the old settlement, which remains cut off from these wider fast flows, which, in this case, do not foster local street life and businesses. Therefore, street life in the old settlement tends to disappear, and people have the impression that the whole area is declining, even if it actually has several new activities and businesses.

In this sense, the maps show that space matters. Indeed, these two villages have nearly the same amount of local activities and metropolitan businesses, but their spatial layout offers a very different experience: the first example gives the impression of being a vibrant place, while the second seems like a ghost town.

Directing rather than mastering emergent transformations

The Atlas highlights how this area has the potential to behave as a complex distributed metropolis. The illustrated network of traditional villages and new hubs could evolve into a low-density rural metropolis where every single settlement might become a node capable of combining the intensity and diversity of the city, the sense of safety and calm of the village and the experience of nature in the countryside. Nonetheless, it also highlights the emergent spatial conditions, which tend instead to foster a disconnection between old settlements and new hubs, thereby contrasting emergent diversity.

In this regard, the Atlas shows how the challenge of the local administrations, planners and designers consists of shaping actions which do not interfere with the spontaneous tendency of metropolitan attractions to spread across this area. At the same time, however, these actions can transform the negative effects of the attractions into new potential synergies with existing local activities. Since, as previously highlighted, emergent phenomena can neither be planned nor designed, these strategies should not aim at producing a top-down definition of the type of activities and their place within existing villages and across the wider network. Instead they can, for example, shape a series of actions which can make the inner parts of the settlement more appealing for new metropolitan activities and businesses[1].

In the presented case, multi-scale investigation suggests that a set of punctual place-specific interventions could help integrate the historical urban fabric of the small settlements into the regional metropolitan network, without the need to re-design large parts of the system. These interventions might concern the revision of the current infrastructural network and of the layout and distribution of parking lots across the existing urban

[1] Indeed, the spatial layout is just one part of the problem: building and planning regulations, although not investigated in this paper, are crucial to managing city complexity (Moroni 2015). Some reasons which might induce the owners of businesses to situate new activities outside the old settlements concern the planning system. Indeed, in Italy rules tend to be more restrictive within historical centres. While the intentions of these restrictions are valid (to protect the aesthetic value of these urban areas), often they also prevent the adaptation necessary to update the historical buildings and render them suitable for emergent activities and uses. Furthermore, the procedures to obtain construction or renovation permits are more complicated when the project is developed within the historical urban fabric. The overall bureaucratic process is usually longer and thus entails higher economic costs (which are already higher due to the greater value of lands and buildings within the historical nuclei).

fabric. In this regard, the creativity of designers could be crucial in facilitating the adaptation of the existing urban fabric (recent and historical) to emergent changes, while protecting and enhancing its aesthetic quality (Porqueddu 2018a).

A few minimal revisions could incrementally turn the spontaneous economic vitality spreading across the territory into a generator of local diversity, thus inverting a negative cycle. In this respect, the presented study also shows how a multi-scale approach is necessary for informing design and planning strategies which can channel the enormous quantity of individual energy – that is concentrated in every urban environment – toward the emergence of diversity. Indeed, the sum of individual actions, even if each of them is of certain quality, does not necessarily guarantee the retention of city vitality.

Final remarks

The present paper presents the Multi-Scale Atlas as a tool for understanding complex diversity cycles across the wide territory of the contemporary metropolis and it stresses how this understanding is crucial for informing every design strategy which aims to cooperate with emergent transformations. Such design strategies are inspired by the ability of existing urban environments to remain dynamic, adaptive and diverse. The idea is to interpret the inventions that life brings to the city every day and to work as much as possible with (and not against) the place-based forces which shape them. In this regard, planners and designers need to become acquainted with the behaviour of people across space, in order to make more efficient use of their natural capacity to maintain and increase urban vitality. From this perspective, the present paper highlights how this awareness emerges from a deep understanding of cross-scale effects. This understanding makes it possible to frame the scale of the problem, thus informing an action which can invert a negative cycle, through minimal interventions (and therefore with the minimal waste of economic resources).

Finally, the present paper highlights how an understanding of the dynamic interaction between the parts and the whole, between micro and macro scale, between spatial details and larger phenomena, is crucial for informing every creative strategy which aims to direct emergent transformations, without trying to formally predetermine their final outcome. This approach to design will hopefully increase the potential for city diversity and open new unforeseen possibilities across the heterogeneous landscapes of our everyday lives, which are in a continuous state of becoming.

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This paper makes an overview of applied spatial research in Zurich, Switzerland, on the role of local digital networks in creating innovative materializations of social space. The current hybrid (digital and physical) condition of space requires early consideration of digital technology in the design process, rather than just using it as communication and networking infrastructure. The engagement of spatial designers is critical in facilitating knowledge exchanges and social learning processes toward shaping a community of practice, which can sustain participatory processes toward designing hybrid networked laocations in neighbourhoods.

SHAPING AND NETWORKING HYBRID SPACES[1]

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NetHood Zurich
Switzerland

Introduction

Geographic locations today are part of the hybrid space[2] (Apostol Antoniadis and Banerjee 2012; 2013), enabled by the advances of information and communication technologies (ICTs); aside from many benefits, global top-down ICTs that are remote from local contexts bring significant challenges to localities (Antoniadis and Apostol 2014). Among self-managed group responses that address locally such challenges are DIY networking solutions and community networks (Antoniadis 2018; Apostol 2019), impacting social space and its use in particular ways.

This paper presents examples of self-organized hybrid spatial structures, out of recent research integrated within a series of related studies exploring the role of spatial designers in shaping physical space together with the digital one (Antoniadis and Apostol 2014; Apostol and Antoniadis 2020). The design process of spaces concentrating complex networks becomes increasingly multifaceted, also because spatial (social) uses are occurring simultaneously in physical and digital layers in a hybrid environment. As we already know from developing physical spaces, the design process unfolds in different ways depending on its structuring conditions, which holds also for the design of digital technology. Along these lines Antoniadis (2018) advances a provocative argument in favor of a more 'organic internet' in comparison with currently ubiquitously used networking technology.

For a more democratic, comprehensive and sustainable design of hybrid space I suggest in this paper to consider the design and use of digital technology as being an integrative part of spatial design, rather than using digital technology only as communication and networking infrastructure. Moreover, the design process shall identify individuals or groups to coordinate the use(s) of hybrid space, implying that digital technology could acquire a 'human face'

[1] Under the title - "Sharing knowledge for sharing space" this paper was presented at the New sciences and actions for complex cities - Social and institutional innovation in self-organising systems, SIPCITY Conference: Innovation driver 3: "Ecosystems of Innovation", in Florence, on December 15, 2017.
[2] The space is 'hybrid' in the sense of being digital and physical (material and social) space at the same time.

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capable to interact with spatial users. Then a community of practice (Wenger 1998) may manifest over time, which is important in building collective awareness and in exchanging knowledge with groups of spatial users. Hybrid space developed in this way can enable place-making through local networking and engagement, stimulating cooperative practices at various levels of activity.

The MAZI project

These insights are grounded in research undertaken within two recently completed Horizon 2020 projects, by the name MAZI <nethood.org/mazi/> and netCommons <nethood.org/netcommons/>. The MAZI project ('mazi' means 'together' in Greek) explored through transdisciplinary research the role and impact of DIY networking technologies on the activity of individuals and local groups. To empower them to build and control their own community wireless networks, the project partners co-designed the MAZI toolkit: a collection of user-friendly guidelines, software (i.e., open source software on Raspberry Pis), and stories of practice.

Deployments of the MAZI toolkit in real-life situations generate 'MAZI zones.' This technical term was used by Panayotis Antoniadis since the project proposal to call "a concrete instantiation of the toolkit, the deployed network infrastructure with a selected set of services and application," and the spatial hybridity comprised in it is of interest in this paper, as it names "the physical and the virtual (hybrid) space around a deployed MAZI node" (MAZI glossary). The design of DIY local networks was approached by means of research and action, a part of this process being the configuration of hybrid networked locations in real-life situations. So the applied research was undertaken in four distinct local pilots, at various spatial scales, namely in Berlin's urban garden called Prinzessinnengarten, in Deptford neighborhood of South London, in Zurich's Kraftwerk1 housing and living cooperative, and in two mountainous villages in Greece.

This paper documents the process that unfolded in Zurich, where the MAZI pilot built on a long tradition of self-organization and self-management. That materializes, for instance, in the construction of cooperative housing and living. Since more than a century ago pooling resources together was a viable solution to provide affordable housing in Zurich, as a way of building shelter of relative higher quality compared to what a single owner could afford. Many of the historic cooperative housing projects were developed by groups of public servants, similar to UK building societies. But after the period of deindustrialization, these projects have taken a particular path within the redevelopment of former brownfields, experimented with new forms of housing, and even turned into

laboratories of sustainable urban living. They generated new forms of cooperation, where people self-organized as non-profit oriented collective actors and became active in the real estate market, to bring to reality urban alternatives advancing a model of sustainable city life (Apostol 2015). Housing cooperatives are associations of people interested to support the project, who outnumber actually their future residents and engage in the development process through diverse participatory practices.

The more recent cooperative housing and living settlements are called 'young', and Kraftwerk1 is the first built 'young' cooperative (Wirz 2004). Here the pilot team in Zurich developed hybrid local spatial structures through MAZI toolkit deployments. While these deployments were being tested, the team experimented with hybrid networking also in the Kraftwerk1's neighborhood (the Kreis 5 district), ultimately initiating an urban living lab at a permanent location at Langstrasse 200, the L200 space (Apostol and Antoniadis 2020). Before presenting moments along this process of producing hybrid space, a brief theoretical explanation is due, regarding our team's phenomenological take on transdisicplinary research of local networks.

A phenomenological take on technology

MAZI proposed a phenomenological understanding of hybrid local networks that considers society and technology enabling each others' existence, where 'technology' means the artifact and the attitude that invests it with meaning (Introna 2017). The formation of structures for communication, exchange and cooperation like the L200 space in Zurich, which I will introduce later in this paper, is essential for the development of technology embedded in a particular context and a (local) community.

From experiences with transfer of planning knowledge and technology we learned that, «the preparedness of the professional culture is of more urgency than the specific technologies themselves» (Banerjee and Chakravorty 1994: 77). So an important research task in MAZI was to join existing community projects and initiate participatory processes in the pilots' local communities, in which technology could be introduced and later on also deployed. But rather than preparing the 'professional' culture, we focussed on the manifestation of respective communities, by engaging with local groups and individuals interested in the possibilities that DIY networking technology can open up for them.

In general frequent interactions between group members around a shared domain of interest or of action, like improving their practice or around learning how to do something, are shaping a 'community of practice'. The term was coined by anthropologist Jean Lave and educational theorist Etienne Wenger (1998) to refer initially to learning groups in the context

of apprenticeship. For any community of practice three elements are critical, and illustrated for the MAZI project they are, a) a domain: DIY networking technology, b) a community: the MAZI consortium together with an extended community of participants in events, workshops, lectures etc, and c) a practice: co-designing the MAZI toolkit.

Fig. 1
PARLA kick-off at EXIL, July 17, 2017 (photo by Jens Martignoni)

For the emergence of the MAZI toolkit, for instance, in the course of conversations, negotiations and hands-on workshops, project partners including researchers, community activists and technologists developed a set of stories, guidelines, cases of particular situations that over time became a shared repertoire for the MAZI practice. The specific shared practice is expressed through various MAZI toolkit's versions based on local deployments in the local pilots, until a final generic version emerged toward the project's end. Beyond the project timeframe, however, the toolkit keeps evolving, and for that it requires some continuity within its community of practice. To that end, the project established a sustainability plan comprising in addition to online spaces of exchange, new initiatives and projects that could provide structure for the toolkit's future development. One of them is the PARLA project in Zurich.

PARLA: a networking project

The 'PARticipatory LAboratory' (PARLA)[3] was initiated during the MAZI pilot, to disseminate and implement its ideas beyond the timeframe of the Horizon 2020 project. PARLA is networking specific locations in Zurich, bringing in contact people in the proximity through local gatherings and events, thus connecting face-to face people, places, initiatives, practices etc. Digital technology may be introduced and explored for use even at later stages of this process, depending on the needs of the groups involved or of the networked places.

As PARLA enables networking and participatory practices in neighborhoods, this common action may lead in the long-term to the formation of established local networks, and especially of communities of practice around social learning on neighborhood-relevant topics. In the Kreis 5 neighborhood, for instance, in recent years rental prices have increased dramatically, with a consequence of turning this central location unaffordable for small businesses, art studios or other non-commercial activities. Powerful players at the national or global level dominate the rental market and have a strong influence on urban policies and neighborhood development. As some of the small shops had to move out of their long-time locations, networking of local actors becomes critical for the survival of neighborhood life.

[3] <nethood.org/parla>.

At the same time, the 'digital city' project of the City of Zurich states that digitalization has to take place in parallel with face-to face encounters, which is along with our understanding of creating 'smart' cities through engaged and informed citizens. So far through PARLA we organized in Kreis 5 various events, guided tours and presentations of places, where residents could meet and learn about people and activities in their neighborhood. Some of these events were hybrid in the sense of using the MAZI toolkit to attach a digital layer to their space, comprising information, exchanges and interactions.

PARLA kick-off event in July 2017 took place at a music club in Kreis 5 by the name EXIL. Its co-founder, Nik Baertsch, introduced to the audience this self-managed cultural venue and the regular 'Montags' jazz concert program. The date converged the regular events of two communities, 'Montags' frequent visitors and the monthly public meeting of NeNa1, a new 'young' housing cooperative. Thus a diverse public from the neighborhood and from other parts of the city learned that day about the place's philosophy and activities, and then participated in group discussions. The evening concluded with a jazz concert, a direct experience of how lived space is continuously shaping the place at EXIL.

The club's intimate space was organized to host the audience in concentric circles, an amphiteater focussing on six guests invited to discuss the topic 'From polyphony to harmony' (fig. 1). By advancing the analogy of participatory practices as enacted polyphony, the group explored multiple possibilities of either creating, or not, harmonious outcomes of such processes that affirm group differences and value diversity. The structure was flexible, inspired by improvisation in the jazz process, a valuable tool enabling innovation within complex

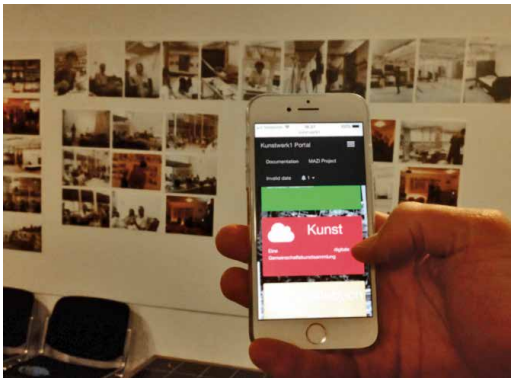

Fig. 2
The Kunstwerk1 MAZI zone accessed by smartphone in the exhibition space, December 2017

Fig. 3
Kunstwerk1 Exhibition Opening, October 31, 2017. (photos by Ileana Apostol)

Fig. 4
Stadionbrache's manager presenting the main activities and principles (photo by Panayotis Antoniadis)

systems.[4] This neighborhood event begun building shared understandings of what cooperation implies in the diverse city, and what roles may play the artistic traditions in self-organization, management, and broadly in participatory practices. In the course of PARLA this first networking event at EXIL opened a series of cultural activities shaping a community of practice in Kreis 5.

A follow-up of this roundtable was organized at Kraftwerk1 housing cooperative in the form of a dynamic hybrid photography exhibition, Kunstwerk1, located in the Pantoffelbar. This is a common space where residents could meet informally, that the MAZI pilot team organized to accommodate an exhibition wall and the MAZI toolkit (fig. 2) to create an ongoing archive of photographs that may be projected and/or presented in print form. Through the use of this permanent MAZI zone, Pantoffelbar's hybrid space could provide a representation of Kraftwerk's everyday life.

At the exhibition opening (fig. 3), the host was Philipp Klaus, who works and lived at the time at Kraftwerk1. As a member of the MAZI team he introduced this space to the participants – an enthusiastic group of cooperative residents, initiators, and guests – and moderated vibrant deliberations about the early days of Kraftwerk1. The hybrid exhibition extended longer than a year and hosted many related activities. The MAZI team was frequently present in the Pantoffelbar, to engage with those interested in the project, and to answer questions on DIY networking technologies in general, and on the hybrid exhibition and photo archive.

Such a related activity was the MAZI pilot workshop with invited guests from many cities around the globe; they joined some of the local actors who participated already the

[4] Accounts of "surprising leadership lessons from jazz" (Barrett 2012) document its qualities in the management and organizational studies literature.

PARLA kick-off roundtable or events at the Pantoffelbar. In addition to group discussions and presentations, a critical field research tool employed were the guided tours of the Kraftwerk1 cooperative by Philipp Klaus, and of the adjacent community garden, Stadionbrache, by the garden's curator (fig. 4). This event focussed on aspects regarding self-management and self-organization of collective projects, where the MAZI toolkit can provide a digital space for exchanges and cooperation for coordination of activities, which could be mobile and used during tours, and can attach digital information to any space, similarly to the Pantoffelbar MAZI zone.

L200: designing hybrid space

Certainly digital technology plays an important role in creating innovative materializations of social space, particularly local networks like those created with the MAZI toolkit, by having the capability a) to create hybrid local spaces for encounter and exchange, b) to represent in specific places the activity of related communities of practice, c) to attach to a physical location (permanent) information layers that may be accessed only while being in the proximity of that location, and so forth. Most importantly, they may create opportunities for face-to-face exposure, generating centripetal spaces of social interaction.

In terms of structuring hybrid locations like the Pantoffelbar at Kraftwerk1, a main element to be carefully treated in the design process is the interface between digital and physical space. This interface may be expressed through various means, as public displays, projection walls, screens or windows, on displays of personal devices or in print form. Another important element is the spatial organization that may take into account how the digital dimension of

space will be used during collective activities. For that one may set simple considerations like the positioning of a screen or projection wall to be seen by all participants, while focussing light sources and placing furniture and other physical elements to be conducive to conversations and exposure to other people present in a space for social life. Also the documentation of events and activity happening there, and its archiving, may become a part of that location in both analogue and digital form (e.g., in a MAZI zone).

All these elements and interfaces are constantly present in a recent neighborhood hybrid space in Zurich, the L200 project. These spatial configurations provide for flexibility, as they can change according to the digital means and can coordinate with specific face-to-face activities. Out of the experience with spatial design at L200 we present (Apostol and Antoniadis 2020) a potential blueprint for creating hybrid common infrastructure. By exchanging this knowledge with local groups and individuals, grassroots innovative projects could scale through replication (Antoniadis 2018: 250) throughout the city.

The L200 project is a spin-off of the recent research and action projects in Zurich. At the beginning of 2018, a group of Kreis 5 residents, small shops' owners and activists founded an association and applied successfully to become tenant of a space owned by the City of Zurich. From the address at Langstrasse 200, a central location on one of the city's most dynamic streets, the new project took its name L200.[5] This new neighborhood space is presently run by the L200 association to provide common social infrastructure. It develops at the convergence between individual and common needs, hosting gatherings of neighbors, various events, pop-up shops, courses and workshops, and during earlier hours of the day is used for co-working. As mentioned before, moreover, a necessary condition for the smaller players to survive in an increasingly gentrifying neighborhood is to network and organize themselves in a shared space at a visible location. In addition to claiming access to centrality, it is a way to (re-)localize social activities in the physical space, after almost two decades of shifting their concentration in the online environement.

In this complex organizational situation the digital layer, which is taken care by Panayotis Antoniadis and Thomas Raoseta, is used in various ways in the spatial design (e.g., ICT, organization of the association, coordination of its temporal and spatial uses etc). The "l200.digital" permanent MAZI zone is used for file sharing, for editing collective notes, as digital whiteboard, as a photo archive etc. During the MAZI pilot workshop, L200 hosted a networking PARLA event (fig. 5) with the aim to shape a community of

Fig. 5 'Beyond cooperative housing' roundtable at L200, May 25, 2018 (photo by Panayotis Antoniadis)

[5] <http://langstrasse200.ch>.

practice around the topic of cooperative housing and living. By integrating through participative practices various projects related to resilience and social innovation, L200 is becoming slowly an urban living lab. This is a construct coming from research in the 1990s on community-driven technology and social tools (Bajgier et Al. 1991), when Mitchell (1995) already noted the need of designers engagement in the "creation of electronic venues for local communication and interaction."[6]

The 2020 Corona crisis created the need to use the L200 space as a venue for streaming small group conversations to online audiences or for enabling group participation in online meetings. That turns L200 into a laboratory for shaping such hybrid spaces, by experimenting with audio-video equipment, open-source conferencing technology (e.g. the BigBlueButton platform) and its implications on the spatial organization.

Looking beyond the current crisis, L200 is structured in the spirit of citizen initiatives in Zurich like the 'young' housing and living cooperatives (Kraftwerk1, NeNa1), self-managed cultural venues (EXIL club) or self-organized urban gardens (Stadionbrache). It is an experiment in providing access to the city through specific places, that becomes possible in a political economy of cooperation, of solidarity, and of mutual benefit. In the future, L200 may play the role of a coordinating living lab in the Kreis 5 of Zurich.

Summary

The research framework in which this process took place was transdisciplinary research for co-designing DIY networking technology, in the form of community wireless networks enabled by the MAZI toolkit. Its deployments generated 'MAZI zones' where the design of

[6] «Bitsphere civic design will encompass not only traditional matters of roads and sidewalks, sewers, and land-use zoning, but also development of local network infrastructure and creation of electronic venues for local communication and interaction» (Mitchell 1995: 170).

interfaces is critical, between digital and physical space, in parallel to other spatial elements that could act as catalysts of social interactions.

Toward the sustainability of hybrid space design, a community of practice is being shaped including researchers, community actors, and citizens. As the research was embedded in the real-life laboratory, an ongoing neighborhood project, by the name PARLA, was created to structure networking activities beyond the Horizon 2020 project. Within this project specific events and gatherings were organized in various self-organized and managed spatial settings, from locations hosting cultural activities like a music club (EXIL) and a common space turned into an exhibition venue (Kraftwerk1's Pantoffelbar) to urban gardens (Stadionbrache) and a neighborhood hybrid node (L200).

The design of hybrid spaces for local networking and cooperation is contained in a phenomenological understanding of digital technology as a result of embodied and relational practice. The introduction and deployment of digital technology has been always in parallel with community events, where local actors presented the event locations and the MAZI toolkit, providing a representation of the digital aspects, building digital awareness, and sometimes being responsible to mediate spatial uses.

Acknowledgment

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Firenze 3scapes is a research project on three ▸elds of observations (“scapes”) that characterize changes happening in the city of Florence in recent years concerning food, sharing practices and self-organization. These scapes have been chosen to answer to the questions: what are the emerging phenomena that characterize the post-metropolitan city? Is it possible to observe, measure and describe these phenomena? What are the drivers of this change? How is it possible to observe them in the metropolitan territory of Florence?
The chapter present a conceptual framework and a description of the scapes. The phenomena described are both grass-root or capital led innovation practices, in this way it is shown the ambivalence of the concept of Innovation.

THREE VIEWS ON FLORENCE POST-METROPOLITAN SCAPES: FOODSCAPE, SHARESCAPE, SELFMADESCAPE

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The paper presents some of the results emerging from the research *Firenze 3 Scapes*[1]. The research was part of a main national research project *(PRIN 2013) Post-metropolitan territories as emerging urban forms: the challenges of sustainability, habitability and governability*.
The research *Florence 3scapes* aimed to investigate some themes specific to the territory of Florence: how some global trends are changing the urban territory of Florence, and the emerging dimensions of the contemporary urban question. The basic questions we worked on during the research were: what are the emerging phenomena that characterize the post-metropolitan city? Is it possible to observe, measure and describe these phenomena? What are the drivers of this change? How is it possible to observe them in the metropolitan territory of Florence?
The Florence unit chosen to investigate some areas, called *scapes*: views / landscapes, with the aim to describe how global phenomena 'land' in the city and interact with the context. The three scapes of change and innovation in this case concerned economy, urban and residential spaces and food. They were: share scape, which explores the questions regarding the changes produced above all in the area of the sharing economy; self-made scape, which concerns the production and self-production of public space and living; food scape, which relates to food.
The methodology followed to explore the scapes is described by Anna Lisa Pecoriello in her contribution to this book. This paper will describe briefly the three scapes explored, described from a general point of view. The single cases analyzed during the research are collected in a website: www.3scapes.eu. A more complete description of the research in general, questions, methodology, results, is contained in Belingardi, Pecoriello (2018).
The research started in a global crisis scenario on several levels: environmental and climatic, economic and financial, housing. Although Harvey theorized the presence of crises as a

[1] The research was conducted by Chiara Belingardi and Anna Lisa Pecoriello. For this reason this paper and the one authored by Anna Lisa Pecoriello are to be read as a whole work. The research is described in Belingardi, Pecoriello, 2018 and in the website www.3scapes.eu.

FUP Best Practice in Scholarly Publishing (DOI 10.36253/fup_best_practice)
Camilla Perrone, Flavia Giallorenzo, Maddalena Rossi (edited by), *Social and Institutional Innovation in Self-Organising Cities*,
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mechanism peculiar and necessary to capitalism (Harvey 2012), which would therefore not lead to any profound change in the system, many changes occurred at a social and economic level. The economic and financial crisis (which was accompanied by the welfare crisis for some time) had in fact a relapse in terms of the expulsion of some social categories from the city, a general increase in poverty and difficulties in accessing the house. In the urban context, the crisis has also shown the preponderance of the financial market on the public administrations in the design of the city: whole buildings used as a guarantee for credits and therefore left empty or incomplete (Martinelli 2011) and, according to the same mechanism, major events (Olympic Games, World Cup, Expo) used for the revival and promotion of cities (often failing) with an increase in public spending, not always justified by the result.

In this context, around 2010, some protests and passwords at international level were widespread. The *Arab Springs* and the *Occupy* movements (Occupy Wall Street and the other in the United States, the 15M movement in Spain, the occupation of Exarchia square in Athens, the occupation of Taksim square in Istanbul) claimed the right to the city, a democratization of governments in general and a fairer economy. In the same period in Italy the movement of common goods was spreading, through the occupation of theaters and other disused or abandoned public structures. These movements have also demonstrated the importance of new technologies and social networks (in particular the use of twitter has played a role in organizing protests; see Beraldo 2011) as a means of horizontal communication, self-organization and communication at international level. The ability of people to organize themselves in a horizontal manner, to cooperate for a common purpose (also as a response to daily needs), to share and invent new assembly and decision-making methods was demonstrated.

During the course of the research, the International Expo on the theme of food was being prepared and opened in Milan (2015). Despite the fact that the event concerned a specific city, there was a spread throughout Italy of food-related discourse, including scientific researches funded, events and political documents.

Faced with such a complex scenario, it was necessary to make some strategic decisions to allow for an in-depth analysis of some aspects of innovation and change in the city of Florence. At the origin of the changes observed in the Florentine metropolitan area we have identified some common drivers: social and technological innovation, environmental problems and economic crisis. They are closely intertwined with the common elements that emerged in the exploration of the three scapes, which is why they are presented here together, as causes, contributing factors and effects of change itself.

Social innovation is here put together with technological innovation, because, as we have already seen, the spread of new technologies (especially smartphones, which allow access to the internet and social networks in any place where a connection) has a strong influence also at the socio-economic level (Braidotti 2014: 97). On a social level, we are witnessing a tendency towards sharing behaviors, whereby people are more willing to share what they do not use and to use what is not theirs (Rifkin 2000). On the one hand, this tendency leads to the return of confidence and the re-establishment of community bonds, which makes it important to be socially included, but also to respond collectively and creatively to one's questions, also through the creation of new commons (Bollier 2014; Dardot and Laval, 2015). On the other hand, new unregulated market niches are spreading. Where direct knowledge between users is not possible, for example on exchange platforms, people rely on reputation built through feedbacks and value judgments on a certain service or experience, compiled online on the platforms themselves (D'Eramo 2017).

Feedback mechanisms are based on the tendency to self-narration. If in the access economy is more important the experience than the property, the social status is given by the story of one's adventures, accompanied by photos, shared on social networks, often to some extent colourful. To these tendencies is related a particular type of retro-innovation, understood as the rediscovery of traditional methods and values to give answers to contemporary questions and needs.

Technological innovation provides new tools for retro-innovation: the return to the land is joined by new ways of communicating and creating communities; craftsmanship is combined with the availability of new technologies such as 3d printers, and so on. Finally, technological innovation provides new possibilities for data collection and analysis. On the one hand, this opens up problems with respect to the dissemination of data, which can be used for commercial purposes (market research) and / or to increase the efficiency of some services, which could be adapted according to demand. A case in this sense is represented by public transport according to Uber: on the occasion of the extraordinary jubilee of Rome, in 2015, the U line was created, cars and minivans with a fixed route to travel at the price of five euros. The line was also modulated thanks to the votes of the possible users collected through an online questionnaire.

Environmental issues have made space in the collective consciousness both for global reasons and for the influence on everyday life. With regard to global issues, climate change is now well established. The increase in temperatures has had effects also in the northern part of the world and in less temperate climates it has dramatic consequences, with extreme phenomena of drought and floods and consequent loss of crops, destruction of economic

activities, increase in hunger and poverty, generation of refugees climate and environment.

Since August 2012, a point of no return has been reached (yet another): according to scientists, the earth is no longer able to supply and regenerate the resources necessary for the sustenance of seven billion human beings (Maddalena 2014). The negative repercussions that environmental problems (in particular pollution) have on everyone's life now appear to be clear to the most, thanks also to the awareness-raising work of environmental associations. Some sectors of the population have tried to change their behaviour towards more sustainable lifestyles. This is accompanied by waste management policies (especially door-to-door) that have changed the habits of most citizens. Therefore, a certain environmental sensitivity is spread in daily life, which leads to the search for fresh, organic ingredients from short supply chains, to prefer light transport, when these do not weigh too much on daily travel.

However, the impacts of daily choices on the environment are not taken into consideration when it comes to new technologies (smartphone, laptops, etc.). Some confidence in technological improvement remains unchanged, also supported by some advertising campaigns, for which the environmental impacts that the new technological acquisitions are not evaluated.

The economic and financial crisis began in 2008 in the United States and had repercussions in subsequent years in all the economies of the world (Baranes 2012). In Italy, as in other countries of the European Union, it has led to (further) cuts in the costs of welfare, culture, education and research and in general to expenses that are not considered directly productive (including those for the economic rebalancing between the different population groups). Despite the global declarations on the need for regulation of finance, little has been done and consequently the gap between the wealthy classes of the population and the poor has widened.

The crisis has led to the closure of several companies and a large number of people have lost their jobs both for those closures and for the dismissals made in the name of safeguarding companies. Workers have often been blackmailed. Among these we must remember, as relevant cases, the workers of FIAT of Pomigliano d'Arco (consulted on the worsening of working conditions through a referendum) and those of ILVA of Taranto, forced to choose between the closure of the factory and the resulting pollution. At the most minute level it is possible to see an increase in precariousness, with work relationships that are currently approaching those of exploitation (Fana 2017). To cope with unemployment and generalized impoverishment, new companies have increasingly been

resorted to due to the sharing economy universe. These are characterized by digital market places, flexibility of working hours and days, absence of bureaucracy and regulation, absence of a real work places. For this reason the 'little jobs' that derive from it are suitable to be considered as fillers.

Another solution to unemployment has been sought in the world of start-ups, according to the thesis that it is sufficient to have a good idea and a certain amount of entrepreneurial (or self-entrepreneurial) ability to succeed. Policies were born to support innovative start-ups, whose success has not, however, always been up to expectations. According to Ardivisson[2], thinking of start-ups as a solution to the problem of unemployment is a mistake: in fact the system does not aim at creating new companies capable of generating economic well-being, but at producing few companies that can rapidly monopolize a sector of the market, such as for example AirBnB and Uber. The survival of a platform is linked to the monopoly of the relative market space - that is, to the fact that users choose that and not another for their exchanges; this choice is mainly based on the number of users, that is related to the possibilities users have of finding what they are looking for.

The drivers that lead these changes have been described in the three *scapes* illustrated above. They have been explored through continuous changes of scale and point of observation. For a description of the methodology it is possible to refer to Pecoriello (in this book). The choice of the scapes to observe has been initially arbitrary, but it has been a good choice. The three *scapes* explored have been complex, intertwined and at the centre of some contemporary debates. The interconnection among the scapes enabled to see the same practices from different point of views and to enhance different aspects and repercussions of the same action.

Share scape

In the share scape, phenomena concerning the practices of exchange, sharing, collaboration, cooperation, which have had a strong diffusion in the last ten years, both in physical space and through the use of digital networks, are described. Some of these practices can be traced back to economic exchanges, others are linked to choices based on freeness or on alternative forms of economy; others are based on apparently collaborative equal relationships, that hide forms of profit extraction and exploitation, while others benefit of the label of "sharing economy" even though they do not have any real sharing basis.

The culture of collaboration is increasingly spreading, which has developed in the world of digital activists, open source, solidarity economic practices, collaborative work. This culture

[2] http://www.ruralhub.it/2016/07/01/campdigrano2016-adam-ardvisson-inocula-anticorpi-al-fanatismo-startup.

seeks to extend itself into other fields with obvious friction with the system based on competition, copyright and competition.
In recent years the theme of the government of this change is becoming increasingly important, with a heated debate among those who intend to apply to it the rules of other sectors, those who ask for ad hoc rules, because the sharing economy corrects market distortions, and those who believes that a deregulation leaves more room for experimentation and innovation. Due to the inadequacy of legislation, some problematic issues remain unresolved: the responsibilities of platform managers, taxation, worker and consumer protections.
Most of the experiences mapped in the Florentine metropolitan area are related to the development of collaboration in the field of work (co-working, fab lab, shared spaces) and the exchange of goods (gift or barter), services and skills (time banks, restart parties), open culture (copyleft, free software, open source, DIY digital networks, etc.).

Food scape

In general it can be said that food-related innovation practices depend on or incorporate some common aspects, which will be briefly described below.
Internet as a public space, or place of creation of social and market relations: the use of the internet allows the spread of practices (which spread by narration), the construction of networks, communication, the overcoming of the isolation of rural life, the creation of exchange platforms and ways of collaboration. For the new farmers it becomes easier to invite consumers for parties and events, to make their work known live and establish a stable bond. The storytelling, in addition to attracting consumers, can make the multi-functionality of agriculture emerge more strongly (Giordano and Ardvisson 2014).
Food security, health and poverty: awareness of the relationship between food and health has grown. This means that those who can afford it, search natural and high-quality ingredients. Food becomes one of the factors through which to measure the differences between the wealthy classes and the poor: the ones satisfied and healthy, the others often neither one nor the other (Morgan and Sonnino 2010). These differences do not emerge only on the basis of income, but on the basis of the ability to weave relationships, of social inclusion, of awareness (which can also be linked to education), and the availability of time. In particular, the less monetary factors are at the basis of the construction of *alternative food networks* (Barbera et al. 2014; DuPuis et Al. 2012) food circuits placed outside or as an alternative to large-scale distribution for ethical reasons or product quality.

The food experience. The mechanism of amplification of social networks is also reflected in food. Food is no longer just a means to satisfy a need: it becomes a sensory experience to share. TV programs and cooking magazines, restaurant guides, event dinners and other food-related happenings proliferate. The fashion of food porn is spreading, the sharing on social media of images of the food that is being tasted. This is linked to the discourse of taste, the rediscovery of traditional cultivars, the search for producer niches and the spread of food and wine tourism (Bukowski 2015). Food becomes, like art or the landscape, the driving force of tourism (d'Eramo 2017) and this generates the spread of food-related fairs or festivals linked to a single product or a typical dish.

New farmers and old exploitation: The crisis appears to be one of the reasons for the return to the land of some sections of the population, which reinterpret the trade of the farmer through new technologies and new interpretations, also thanks to the internet (Ferraresi 2013; Agostini 2015). This phenomenon brings out the question of access to land, which is often out of reach for young farmers, even when they are uncultivated. This is why some campaigns were born, including *Terra Bene Comune* (Vannetiello 2013; Borghesi 2014), and some re-appropriation practices (Mondeggi Bene Comune, Terre di Lastra Bene Comune).

The work related to the production of food is not only that of agricultural communities and new farmers, which remain a niche. The influx of migrants and widespread poverty have led to the creation of real conditions of exploitation in the countryside, with phenomena of new illegal hiring. Among the phenomena of exploitation linked to food, it is necessary to report that of delivery men for deliveries, linked to the spread of platforms for ordering food at home.

Environmental crisis and climate change: we are witnessing the spread of an ecological and civic sensitivity, for which behaviors are promoted that go in the direction of food sovereignty and the reduction of the environmental impact of their consumption (consumption of seasonal products and short supply chain). These products travel through alternative food networks: direct sales, markets, platforms, GAS, and others.

The phenomena described have ambivalent urban and territorial effects: the spread of urban and peri-urban agriculture favors the preservation of the territory and the unfolding of the multifactorial nature of agricultural work. The urban expansion trend continues (driven by the same demand of nature), with consequent cementing of agricultural lands and disappointment of the aspirations of those who wish to (comfortably) access an imagined uncontaminated nature. The problem with the authentic is that, when it is repeatedly visited, it tends to become a staging (Lefebvre 1968). The same is true for the countryside, which an inordinate desire of nature risks contaminating and destroying. Furthermore, food is one of the drivers of urban regeneration in some neighborhoods, operated through tourism.

Self-made scape

Self-made scape is the landscape of the city that self-organizes and reproduces through the daily practices of its inhabitants. Within the self-made scape, the protagonists and the places subject to transformation practices are described and mapped. Transformation that affects two fundamental components of the city: the home and public space. The transformation practices observed concern both the production and the ways of managing spaces, which in some cases from public become common. This transition occurs when a new collective and community subject emerges in the public / private dichotomy. However, in this transition phase, neither the nature nor the intentionality with which the new subjects move on the urban scene often emerges with sufficient clarity.
The design practices that feed this type of transformation are also new. The public city produced through the great planning strategies, which are beyond the control of the inhabitants, is flanked by the city self-produced by the community, which transforms it according to its needs through incremental, adaptable and reversible logics, deliberately in phases, low cost, shortly term, on a local scale, preferring a tactical approach to obtain immediate results, without however losing sight of the objectives of a larger scale.

Conclusions

The intertwining of technological innovation and social innovation, the questioning of the role of the state and of the communities, the question of common goods, the debate on new forms of property, the tension between civic activism, subsidiarity and self-organization, the new ones forms of the economy, are deeply intertwined themes that occur in scapes.
For all these experiences the creation of a new synthesis or synergy between the emerging movement of peer production and the commons on the one hand, and the more innovative elements of cooperation and solidarity economy on the other, seem to be able to give rise to the most solid and lasting alternatives (Conaty and Bollier 2014).
The post-metropolitan environment opens up many questions and calls into question assumptions that were already made. It also opens up a horizon of possibilities. These can be ascribed to the horizon of "affirmative policies" (Braidotti 2014): policies as outcomes of practices, collective projects aimed at the affirmation of the possible, of hope understood as a way to dream possible futures. These are rooted in the political economy of the desires, affections and creativity that underlie it.

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This paper outlines a research agenda for social and design researchers interested in the subtle – and not so subtle – ways in which social stratification is created, reinforced, communicated, and obscured through design in the city. We will address this general question through the example of public park design, hoping that our reflections will be also applicable, with due adjustments, to other design domains, such as object and interior design, house, institutional, or urban design at large.

A RESEARCH AGENDA FOR DESIGN INEQUALITIES IN THE CITY. URBAN PARKS AND BEYOND

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Background

Our thinking about the role of design in social inequalities has emerged from decades of combined experience as sociologists teaching design. When Cranz, a new PhD sociologist, starting teaching architecture students full time in 1971, neither sociology nor design acknowledged the inequalities built into design. Class was hard to discuss because it implicitly understood that there was little an architect could do about it; the design problem was set by the studio instructor and the class components were implicitly baked into the site and the task and not discussed. Chiesi's experience also suggests that the role of class is not explicitly addressed, neither challenged nor advocated in the context of Italian architectural education. The design problems typically assigned in studios revolve around matters of form, structure, materials and "good taste," and rarely, if ever, address class-related implications of the designers' choices. We conclude that the role of class in design has remained powerful but relatively silent, and the presence of sociologists or social scientists in general has declined over the last decades, due to budget cuts and faculty downsizing (in fact, those who were most affected by the downsizing were research positions) and to a lessening of social activism. As a corrective we would like to offer a research agenda to future scholars so that they might be able to demonstrate and assess the relationships between inequalities and designs. Such an agenda ideally covers all levels of analysis and all sectors of society. We start with observations about the ways in which class inequalities have worked their way into the design of urban parks.

A Park Typology of Urban Parks in the U.S.

A classic study of urban parks (Cranz 1982) described four types: the Pleasure Ground (1850-1900), the Reform Park (1900-1930), the Recreation Facility (1930-1965), and the Open Space System (1965-95), and a paper (Cranz and Boland 2004) added a fifth type, the Sustainable Park (1995-present). This typology includes both the shifting social purposes that

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parks served and the corresponding variations in designed form. Each park type evolved to address what were considered to be pressing urban social problems at that time.

The *Pleasure Ground* was typically large and located on the edge of the city. Frederick Law Olmsted, the father of landscape architecture in America, designed many of them. He favored a pastoral style, neither wild nor urban, with curvilinear circulation and naturalistic use of trees and water. Mental appreciation of the landscape was important, but these parks were actively programmed and sports were popular, so they were not merely 'passive'. The working class seldom used these parks because they were far from the tenements. Consequently, small park advocates wanted municipal governments to establish parks on a few square blocks in the inner city.

Eventually this movement merged with those advocating playgrounds for children, resulting in the *Reform Park* with special play equipment for children in tenement districts. These parks were small and symmetrical, with no illusion of countryside or nature. Their principal architectural innovation was the field house, envisioned as a clubhouse for the working class. To justify their expenditures, park commissioners during the first two eras enumerated all the social goals that parks served: reduce class conflict, reinforce the family unit, socialize immigrants to the American way of life, stop the spread of disease, beautify the city, and educate citizens.

In contrast, a new era was claimed in 1930 when Robert Moses was appointed commissioner of New York City's Park Department. For him, parks had become a recognized governmental service requiring no ideological justification (New York City, 1940). Instead, he and park departments nationwide established uniform standards and extended service to the middle-class suburbs and urban areas that had not yet received parks or playgrounds. The major innovations were the stadium, parking lot, and asphalt ball courts – hence the term *Recreation Facility*.

A generation later, a dialectic response against the perceived sterility of the Recreation Facility emerged in 1965 when Lindsay ran for mayor of New York City. His policy paper on parks reclaimed parks as a mechanism of social control and reform. In defiance of the preceding notions of standardization, he recruited landscape architects to design site-specific recreational settings. A more artistic, participatory sensibility flourished, part of a closer tie between park programming and popular culture. Accordingly, recreation came to be seen as something that could take place anywhere—in the streets, on a rooftop, at the waterfront, along an abandoned railway line, as well as in traditional plazas and parks. Paley Park, in Manhattan, for example, is a tiny site, violating the standards of the recreation era, and emblematic of the new ideology. Parks came to

be conceived as part of a network of disparate open spaces linked together, hence the term *Open Space System*.

A fifth model emerged during 1990s, the *Sustainable Park*, in which environmental sustainability and active participation of citizens were the key principles emerging from a new attention to solving ecological problems through sustainable development. Noting that park models tend to dominate for 30 to 50 years, Cranz concluded that these models are generational. That is, each generation has its own set of ideas about how parks can help cities, its own experience in putting these ideas into practice, and its own frustrations and victories with those models.

Social stratification and urban parks

In large part the evolution of thinking about the purposes of parks in US cities has revolved around issues of social class. The first park type, the Pleasure Ground (1850-1900), was praised for being paid for with public money, in contrast to European royal gardens having been opened to the aristocrats and bourgeoisie as a gesture of social benevolence. Paid for with taxes, American parks would be free and open to the public, and this was considered a sign of democracy.

That democratic ideal was not met since workers worked 6 days a week for long hours, and *Pleasure Grounds* were located on the perimeter of towns. Laborers could not afford the time nor the money to make this journey as frequently as they could if the parks were nearer, so a movement to establish smaller parks within the built up parts of towns argued for serving the needs of the working class more directly. This smaller park type, the Reform Park (1900-1930), was also intended to socialize immigrants, include women, introduce and supervise recreation, but class was the primary rationale to move parks near workers.

In the era of the Recreation Facility (1930-65) class was used to justify the proliferation of parks to keep up with suburban expansion. The argument was that middle-class families, not just poorer workers, needed recreation. Partly, this was only a change in language since the suburbanites were themselves workers – but workers who could afford to move to single-family dwellings.

After the middle class had moved (or 'fled', as the public discourse often framed this process) to the suburbs, park planners sought to update park programming in order to help bring the middle class back to city centres. The ideology of the Open Space System (1965-1990) directly addressed issues of race and class, by making city streets safe during the era of urban riots, entertaining youth with popular music, and emphasizing the aesthetic and kinesthetic features of urban life to attract the middle classes.

In the era of the Sustainable Park (1995-present) structuring class relations is no longer the explicit rationale for park siting, design, and programming. Instead, ecological values are invoked to argue implicitly that all classes depend on natural resources. However, the assumption of a classless discourse overlooks the way lower middle-class persons view ecology as an elite issue, often satirized as 'effete'.

This broad look at the history of urban parks shows how fundamentally class considerations were invoked to justify creating the new institutions of urban parks.

Class Considerations at different levels of analysis

While class considerations generated the transformation of one park type to another, class considerations can also be seen at each sociological level of analysis – from cultural to societal, institutional, organizational, and role (Parsons et al. 1965). These sociological levels of analysis correspond with scales in design (Cranz 2010). Cultural values and their relative importance are expressed in settlement patterns. Societal ideals are expressed as symbols on building facades. Organizational structures find their counterpart in plans (relations of rooms to one another). Primary, face-to face relations are supported by the size and shape of rooms.

At the cultural level we note that the place of parks within the overall settlement pattern changed over time as their purpose in managing urban stresses and class relations changed. Initially, Pleasure Grounds parks were located at the periphery, then Reform Parks were located toward the centre, then Recreation Facilities expanded out to the suburbs, while the Open Space System brought attention back to the centre again, and currently the Sustainable Park directs attention on the whole settlement pattern. At the societal level of analysis parks first symbolized nature, since cities were viewed as a necessary evil. Meadows, native trees in naturalistic clusters, no formal flower beds that would betray human intervention, rustic architecture (with asymmetric facades and windows and many mixed materials and textures) were the symbols of pure Pleasure Ground theory, although other values competed for more classical expressions in architecture and statuary after wealthy Americans began to travel to Europe and returned wanting similar formality. The Reform Park field house was less romantic, more symmetrical in elevation and windows, and displayed fewer materials. The Recreation Facility symbolized utility and efficiency with blacktop roads, parking lots, paved tennis and basketball courts; most buildings have been caricatured as brick and tile "lavatory style" (Huxtable, 1973), although a few art deco, machine age buildings were built, but here too in the symbolism of the sleek, efficient machine. We note that such stylistic differences are not merely

dictated by budget, and therefore urge social scientists to understand the role of visual symbolism in social analysis.

Class considerations also justified design decisions at lower levels of analysis. The plans of a building or complex indicate its social organization, sometimes called the bureaucratic level of analysis. The architects of the Reform Park used gender and age to rationalize a bilaterally symmetrical field house and site plan. The bilaterally symmetrical placement of buildings and ball courts in a Reform Park showed the new sensitivity to developmental psychology that posited that the needs of boys and girls were different from one another and the needs of each age were different from one another. The field house was the new building type of this era, explicitly called the "working man's country club." Indoor rooms housed demonstration dental clinics to educate workers, classes for filling out immigration papers, libraries, social clubs, etc. Indoor recreation offered year round recreation in the Reform era, unlike in the Pleasure Ground era. The new social groupings (all the boys or girls of one age) required new types of rooms, for example, indoor gymnasia with high ceilings.

The most intimate level of analysis is at the role and small group (face-to-face) level. America's first parks, the Pleasure Grounds, were located on the edge of cities as a respite from the new stresses of industrialization. Boarding house living, saloons, and brothels were thought to be a threat to the family, so parks were designed so that a man would have a respectable place were he could take his wife and children, and thereby see himself as others would see him – as the head of household. Activities had to be programmed to support such presentation of self, and settings had to be designed to accommodate those activities. Promenading required pathways wide enough to be seen and to view others; rowing required bodies of water and boats. The Pleasure Ground was intended to be a place where the rich and poor could feel they owned something in common, intentionally trying to reduce interest in socialist ideology from Germany, but the wealthy drove their carriages in the parks because they had some of the best roads in the city, and poorer watched, admired, and envied them, underscoring inequality...

In the era of the Reform Park design supported age and gender separation by having specialized equipment for use like weights for gymnastic routines or separate slides for boys and girls. In the era of the Recreation Facility designers emphasized technical equipment like fencing, the hoops and nets needed for basketball courts and tennis courts, and new types of garbage collection containers to support and reinforce good citizenship. In the era of the Open space system design supported new activities by, for example, creating paths for bike riding, transforming meadows into concert venues, and structuring craft events, in line with the new cultural values that emerged during the second half of the 20th century. In the same

sense, in the era of the Sustainable Park designers have created bins, interactive structures, and signage for visitors to participate ecologically by recycling, interacting with water, and appreciating land management strategies.

Dimensions of a research agenda

Extrapolating from the example of urban parks, one can see that class and design is a vast topic that can generate many inquiries. We see a research agenda for a future generation of sociologists (and other social scientists) interested in design.

1. First, the design profession itself is recruited disproportionately from the upper middle class, further stratified and segmented by gender and race; what effect does this have on the design of cities, infrastructure, gardens, buildings, and objects? Garry Stevens (2002) demonstrated that both major and minor architects are recruited from lineages of previously successful architects. Robert Gutman (Gutman et al. 2010) surveyed practicing architects in the east coast of the US and Magali Sarfatti-Larson (Larson et al. 1983) compared architects with other professions in the US; Kathy Anthony (2001) published a study on the absence of African-Americans and the slow increase of women in architecture. Dolores Hayden argued that a non-sexist city would look different that our current split between suburb and city; work would be integrated closer to home (1980).
2. Second, how are inequalities expressed at different scales – object, building plan, building type, building elevation, and city plan/settlement type? Bourdieu (1979) showed how taste in furniture, artwork and other objects creates and maintains social distinctions. Cranz (1998) showed how chairs express and reinforce class and other social distinctions. Recently, Anthony (2001; 2018) has focused on the power of objects to reinforce inequalities. One example she offers is the design of the podium. When Queen Elizabeth visited the U.S. the podium was not adjusted to her height, obscuring her face and diminishing her importance. Anthony writes,

What happened to the Queen decades ago still happens every day to thousands of speakers in schools, colleges, universities, convention centres, city halls and houses of worship, who are shorter than the average male for whom most podiums are designed. The podium, a symbol of power and prestige, creates a gendered space that all too often disempowers women and diminishes their credibility, not only at the event itself, but also long afterwards in commemorative photographs and video recordings that take on a life of their own. (Anthony, 2018)

The symbolism of 'elevations' reinforces class differences symbolically by creating pillars, pilasters, architraves, and other references to Greece or Rome on one facade, but

not another. Symbolism can be even more plain as in the case of the public not wanting public housing to look as good as market rate housing, hence unadorned with no frills, without symbolic references to columns, flowers, or sleek machines. Architectural and landscape details communicate non-verbally to let everyone know that poor people live in one place, and middle class in another place, and the wealthy in yet another place. This allows official ideology to maintain that America is class-free, while the non-verbal, physical world communicates the opposite.

Regarding city plan and settlement pattern, US gridded cities reveal the history of real estate, economic interests. Within the overall plan different activities are placed where "the powers that be" consider appropriate and those notions of appropriateness include class as discussed above. Historically and still today, urban parks are designed differently if they are in local neighborhoods or if they are in the center of a city, where they carry greater symbolic significance. Maintenance varies by the income of the neighborhood. Regionally, one side of town – e.g., 'the north side' – might be understood to be high income, while the 'south side' is understood to be low income.

3. Third, how much space does each person use, control, or decorate and how does the amount and kind of space correlate with class, race, gender, and age? Someone should attempt to quantify the amount of space that individuals have access to by class, adding up the sections of town frequented, the clubs accessed, the work places and streets routinely used, the square footage of domestic environments including the building and each room. One obvious example is that slum dwellers live at a higher density/crowding demonstrated by photographer and social activist Jacob Riis (1971). Less obviously, the Chapin Living room scale researchers (1935) noted that even within their own homes lower class women took up less space on their own sofa than did higher class women.

4. Fourth, how are inequalities expressed symbolically in imagery? Imagery is powerful because it communicates non-verbally, shaping attitudes and behaviour often unconsciously below the level of reason. Imagery reaches the limbic parts of the human brain to persuade and thereby avoids critique. It works at all scales: interior design, architectural, gardening.

When looking at imagery in design, we can reflect on the role of signs as references to meaning, i.e. "something that stands for something else" in standard semiotic parlance. Signs convey symbolic meaning when they require a set of rules to associate them to content (in other words, they require a shared "code" between who produces the sign and who receives it), as in the use of spoken language. But signs can also be visual and be embedded in space by designers to make references for users to interpret. By doing so, design might reinforce class structure because access to codes is not socially equal, but rather stratified. For example,

when Philip Johnson and John Burgee decided to ornate the top of their Manhattan AT&T building in mid-1980s with a Chippendale-like frieze they might be construed as embedding a sign that would be interpreted differently depending on one's own access to various codes, which is in turn connected to one's class. The frieze, in this view, refers to different meanings for different people: it might evoke values of comforting traditions and family at the lower middle of the class spectrum; it might confuse or have no meaning at the lower end; it might stand for irony and iconoclastic hubris at the upper end.

Graffiti are another example of signs in the public space that are rich in class-related implications. They are usually produced with the purpose of challenging the status quo and are usually rejected by institutions, but are sometimes appropriated by the higher classes and reframed into "works of art," (as in the case of Banksy's work) in an endless dialectic where their capacity for social rupture is constantly renegotiated.

5. Finally, what methods can social researchers use to answer these various questions? We advocate a mixed-methods approach where qualitative and quantitative techniques are both used to render the complexity of the issues at hand (Silverman, 2004). Because class is often hidden, its influence on design may have to be assembled from indirect as well as direct evidence. Hence, multiple methods are required. Census data, surveys, interviews, newspapers, journals, editorials, minutes, annual reports, photographs, architectural plans and renderings, zoning regulations, advertising, ephemera, lyrics and folk sayings, and now internet and social media are all useful, especially when woven together. Qualitative techniques produce data in the form of macro-texts, produced either by the researchers themselves (e.g. ethnographic diaries or observational notes) or by the subjects involved in the research (e.g. in-depth interviews or self-produced reports or documents). These macro-texts, once coded and analyzed, can provide an understanding of the 'processes' that are being studied.

By distinction, quantitative techniques provide data organized in matrices that provide understanding of how phenomena are distributed within a certain domain or population, thus allowing appreciation of how relevant a process is. Furthermore, we advocate an approach where empirical research is enriched with historical depth, so that phenomena related to class within design emerge in their longitudinal complexity and can be connected with larger societal transformations. We believe that through such methodological diversity, where an interpretive approach benefits from historically laden qualitative and quantitative data, researchers can disclose the implicit role of design in reproducing class structure and the inequalities that it maintains.

Summary and Conclusion

Design can challenge classism by advocating high quality design for all, as the modernist movement tried to do from Bauhaus to IKEA. However, design also naturalizes and normalizes class differences. Scholarship on this vast topic would benefit from being synthesized within a comparative framework; we have suggested the framework of levels of analysis and its correspondences with the design concept of scale. Researchers can demonstrate how design operationalizes class by being manifested physically at all scales – from the scale of the handheld object to the city plan.

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This paper draws upon James Gibson's notion of 'affordance' (1986) alongside Manuel Delanda's notion of material 'capacities' (2005). Both concepts relate to how an environment or object's material characteristics become activated in response to unfolding conditions. The paper aims to better understand how such material characteristics can infuse urban elements or infrastructures with adaptive capacity, thereby making urban self-organization possible. Here, allowing for the morphological plasticity and potentiality of urban elements is seen as a necessary pre-requisite to opening up the potential for urban self-organization. The research adopts a new materialist perspective: highlighting the agentic and affective capacity of non-human agents, while also emphasizing the imbricated and co-constituting relations between human and non-human actors.

BOOSTING INNOVATIVE CAPACITY: CULTIVATING AFFORDANCES FOR SELF-ORGANIZING URBAN ENVIRONMENTS

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Introduction

A growing body of urban research is exploring concepts related to the planning of 'self-organized' cities (Portugali et Al. 2012; Sengupta et Al. 2016). That said, little explicit attention has been paid to the material conditions under which civic components hold an inherent capacity to self-organize. How might the 'hard' components of urban fabric be conceived in ways that enable a 'soft' responsiveness to emergent forces? What might provide civic elements the pliability to better channel the flows and resources to which they are subjected?

This paper argues that some urban artifacts are more responsive to external forces than others and, in some cases, may also solicit new ways of being occupied. While 'rigid' urban artifacts may also shift use, the forces needed to set such adaptation in motion need to be substantial in order to displace existing patterns. An environment composed of such rigid artifacts is thus ill-suited to supporting processes of self-organization.

The paper focuses on two related notions: 'affordances' as introduced by James Gibson (1986); and 'capacities' as framed by Deleuze (see Feast, 2006) and elaborated upon by Manuel Delanda (2006). The paper considers how material features of the urban environment can hold broader 'capacities' that present distinct 'affordances' from a user perspective. These inherent affordances, in turn, infuse adaptive capacity into specific components of the built fabric – enabling greater self-organizing and emergent capacities to exist in the environment as a whole. I begin by outlining the two concepts and how, together, they help illuminate how amenable built urban artifacts are to self-organizing processes (that require adaptive capacity). The paper concludes by summarizing several factors we can attune to when designing for affordances (and adaptive capacity). These are characterized as 'plasticity, pluri-potential, and non-passivity'.

Considering properties, capacities and affordances

Manuel Delanda (2006) describes objects as holding certain inherent 'properties' – dimension, weight, material substance, etc. However, when considering a specific object, a

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Fig. 1
Delanda's notion of capacities and the Gibson's notion of affordance

hammer for example, we do not only perceive it as the sum of its properties. Instead, we understand it in terms of its ability to affect and be affected. In this regard, Delanda argues, the hammer has particular 'tendencies' – thoughts around hammers are framed around their tendency to be put to use for the hitting of nails. At the same time, the hammer has more subtle 'capacities' that, while present, are not called forth so often as to become tendencies. We might, for example, employ a hammer to strike an attacker, but this would draw forth a 'capacity' of the hammer, not a tendency.

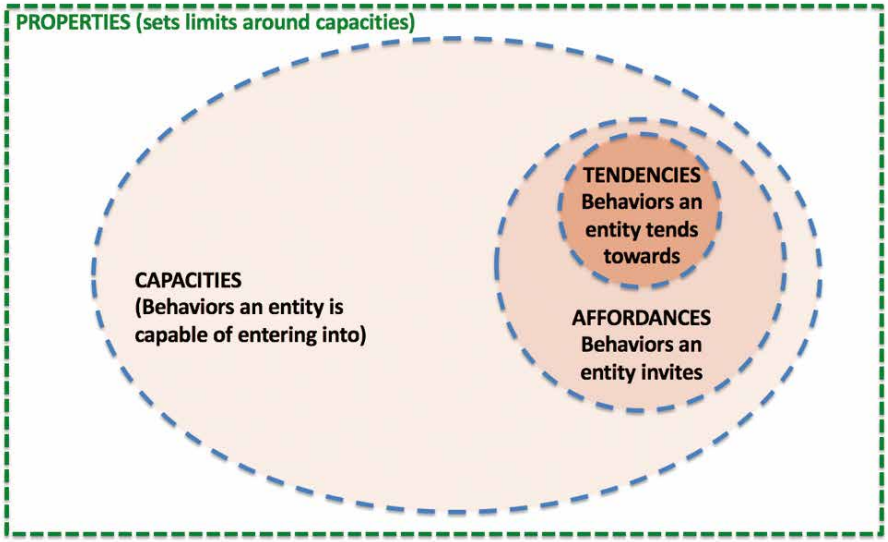
Echoing Delanda's description of properties, James Gibson discusses what he calls an object's 'properties or qualities'. He describes these as including «color, texture, composition, size, shape and features of shape, mass, elasticity, rigidity, and mobility» (1986:134). In addition to these tangible properties, Gibson posits that animals interact with environments in terms of what they perceive that environment to 'afford' or 'the behaviors invited'. A flat surface affords walking upon, a cup affords grasping and drinking. But these affordances are relevant only insofar as they are 'drawn forth' through the actions of an entity engaging them. Affordances are therefore not a property of an environment or of an animal, but instead involve an imbrication of both. An affordance of water – as used for washing – exists only insofar as this affordance *cues* the action of washing by an animal needing to wash. By discussing the environment as a series of affordances, Gibson conceives of material environments as niches that invite actions suitable for different living entities that, in turn, draw forth or 'activate' only those most relevant to them.

Gibson further argues that affordances steer us away from 'assuming fixed classes of objects', instead attuning to how an entity's identity is brought forth according to how *certain* capacities are activated and imbricated with other forces (in what Delanda would consider the territorializing aspect of an assemblage). Commenting on Gibson's work, Delanda observes:

> what is significant in the surroundings is that which has the capacity to affect (and be affected by) an animal. In one model of animal visual perception, for example, what animals see, the part of their visual experience that affects their behavior, is the opportunities and risks that their environment affords them. These are referred to by the term 'affordances'. (forthcoming)

While Gibson's and Delanda's framing of entities appear to closely parallel one another[1], subtle differences do exist. Returning to the example of the hammer, while one might use this instrument to attack, it does not explicitly 'call forth' or 'invite' this behavior – the

[1] Similarities between affordances and capacities have been noted by others (see for example, Pickering 2009; Ash 2013: 23).



hammer's 'weaponness' is latent and requires an act of volition on the part of the user to activate. By contrast, when describing affordances Gibson states that the environment 'offers' something to the animal encountering it – 'provides or furnishes' something with which to achieve a goal (1986: 129). This suggests a much more 'explicit' call for action in comparison with the mere presence of 'capacities'. The of hammer might have a multitude of capacities - to be used as a paperweight, for instance - but the hammer itself does not incite this action. Further, Gibson's affordances exist 'only insofar as they relate to and serves an entity' (animal) encountering the affordance. This differs from Delanda's capacities in that these exist without reference to a user.

It would be equally incorrect to equate affordances with tendencies. Tendencies imply a certain default mode of 'normal operations', while affordances suggest a broader range of possible invited actions. While some of these invitations might be acted upon more than others (thereby becoming tendencies), the broader scope of invitations for action remain present at all times.

I propose that Delanda's notion of capacities forms a broader logical category than Gibson's notion of affordance (fig.1). While all affordances of an environment are also capacities, all capacities of an environment are not necessarily affordances.

Agentic entanglement and agentic 'load'

> Reality is not composed of things-in-themselves or things-behind-phenomena but "things"-in-phenomena. The world is intraactivity in its differential mattering. It is through specific intra-actions that a differential sense of being is enacted in the ongoing ebb and flow of agency. That is, it is through specific intra-actions that phenomena come to matter – in both senses of the word. (Barad 2003: 817)

In what follows, I turn to a specific discussion of how material affordances 'call forth' actions. This discussion adopts a new materialist perspective, positing that vital agentic instigation is something that can be materially situated (Bennett 2004). This position does not imply a return to earlier environmental behavioral concepts (Dittmer 2014), but instead pays closer attention to more subtle, enacted entanglements between human and non-human forces. Here, no 'fixed' identity is ascribed to entities, but rather entities *come into being* through processes of enactment, with materials not only having the capacity to be affected but also to affect. Karen Barad carefully frames this idea in terms of 'responsiveness', stating:

> …agency is about response-ability, about the possibilities of mutual response, which is not to deny, but to attend to power imbalances. Agency is about possibilities for worldly re-configurings. So agency is not something possessed by humans, or non-humans for that matter. It is an enactment. And it enlists, if you will, "non-humans" as well as "human". ('New Materialism Interviews' with Karen Barad 2012)

This notion of human/non-human material enactment has been described, variously, as an 'imbrication' (Leonardi 2011) a 'socio-material entanglement' (van Dijk and Rietveld 2017) or a 'mangle' (Pickering 1993). These concepts not only blur the lines of where agency is located, but also suggest that seemingly clearly delineated agentic entities are instead constituted by means of their entanglement. This perspective is taken up most strongly by Assemblage theorists, who consider the world to be "an ongoing open process of mattering through which "mattering" itself acquires meaning and form in the realization of different agential possibilities." (Barad 2003: 817)

It is these 'agential possibilities' that I wish to attune to, with these being either more open-ended (plastic) or more constrained (rigid). Here, the notion of 'agential possibilities' can be strongly linked to 'adaptive capacities', particularly when speaking of urban artifacts. While a material entity in urban space might not adapt in the way a species does – mutating in response to environmental pressures – it can 'call forth' its agential capacities in new ways in response to environmental pressures. This then provides a useful way to speak about material 'adaptation' while not requiring 'literal' shifts in DNA.

An example may serve to clarify. Consider modernist, 'universal' space. Such generic space – stripped of load-bearing walls and supported by columns alone – is intended to offer a 'free' plan: one that can be configured to support multiple functions, and outfitted in new ways to meet user needs. Such adaptations have, indeed, occurred in spatial refurbishments of modernist buildings.

But while modernist spaces 'can' be adapted, do they also 'afford' being adapted? Do they 'invite' adaption? When one perceives a large expanse of space delineated by columns, the cues that would hint at how one might productively enact alternate manifestations of this space by calling forth its capacities - to serve, for example, as home or shop or office - remain mute. Thus, if adaptation of the space occurs, it does so only with the bulk of 'agentic load' being placed upon the agent altering the space.[2] This does not preclude novel uses being drawn forth; indeed, in modernist open-plans, the space is imbued with a certain pliability to host alterations in a straightforward manner. That said, the environment acts more 'as passive receptor for action than active instigator' of action.

The modernist space is capable, but not amenable; it supports, but does not invite. While such a space 'can' enter into an imbricated relationship with its users and be transformed in new ways, the space itself has little to say: little agency in offering, suggesting, or inviting new forms of occupation. It is constrained to being responsive. This passivity in 'calling forth' action helps illuminate the delineation I wish to make between capacities and affordances, with affordances 'calling forth' or inviting enactments in a more explicit manner than capacities would suggests. One might imagine affordances for enactment occupying a spectrum, ranging from 'implicit' affordances – being only weakly suggestive - to 'explicit' affordances: those 'calling forth' or inviting alternate activations in a much more deliberate - or 'non-passive'- manner.

It follows that, to evaluate the self-organizing potential of urban settings, it is worth examining the nature of the material sub-strata of such settings, determining not only if they hold the *capacity* to change, but also the capacity to 'invite' or 'incite' change in light of unfolding conditions. Here, physical change and evolution remains deeply imbricated with human agents who enact material spatial alterations, but this neither implies that spatial materiality is neutral, nor that all materials are equally malleable. Some settings offer more explicit affordances: are more 'plastic' or responsive to contextual shifts such that they easily support a broader range of functional (or evolutionary) trajectories. Here, paying attention to the design of the material substrate of the city can impact how easily civic components might evolve and, as a corollary, support processes of self-organization.

[2] Agentic being ascribed to both social and material entities.

Fig. 2
Image from RAAAF website

Passive or Active affordances - the degree of agentic force

> An architectural structure can be conceived as being meaningful to its users without reducing it to a text, a maneuver that flattens the analysis and deprives the structure of its materiality. Surface layouts, in natural as well as in humanly built environments, can be conceived as indices, as natural signs that indicate the capacities to affect and be affected... (DeLanda, forthcoming)

The End of Sitting, is an installation by Dutch firm RAAAF (Rietveld Architecture-Art-Affordances) presented at the Chicago Architecture Biennale. The project consists of a landscape of sloped planes that invite users to take various standing/resting positions while working. These surfaces allow users to stand comfortably for extended periods before moving to alternate locations within the landscape. The designers recognize that long periods of sitting are considered unhealthy, but that current workplaces fail to afford options that enable people to assume alternate postures. Their landscape 'induces' one to switch postures on occasion, as part of healthy work habits. It invites the act of standing in different postures, affording multiple niches wherein this occurs.

This activation of affordances is not merely a derivative outcome of designing an unconventional space. Rather, RAAAF explicitly embraces Gibson's notion of affordance, both from a physical and a philosophical standpoint. They describe their installation as offering, "a large variety of standing affordances so that people would be solicited by multiple possibilities for working in different position". Accordingly, the physical

environment is granted explicit agency – requiring that the user be responsive to the space rather than vice versa.

While the architects set this material agency in motion, the landscape, once built, assumes agentic force in prompting user actions. It 'solicits' users to assume postures 'they would not normally imagine or activate themselves'– soliciting users to assume postures that are non-intuitive but surprisingly comfortable[3]. Within this human/spatial imbrication, it is not the space that adapts, but the space's users: shifting to test new working postures. The environment solicits new actions, and those deemed comfortable (which varies from person to person), emerge as 'fit'. Over time, patterns of occupation upon the landscape provide information as to successful niches for standing work.

The installation can be seen as instigating a disruptive shift from 'lock-in', ill-adapted modes of work (sitting). Such lock-in states – entrenched through habit due to an inertia that resists change - are present in a wide array of designed environments. Human actors tend towards 'normative' modes of occupying space, which go unchallenged unless subject to disturbance or 'perturbation'[4]. Simultaneously, material artifacts tend to codify habitual modes into spatial expressions that reinforce the norm. Thus, in everything from standard office furniture to standard urban sprawl, unfit norms tend to persist. RAAAF's project both challenges norms, and prompts alternate behaviors that might prove fit.

Characteristics for Adaptive Change

> The designer of active forms is designing the delta or the means by which the organization changes – not the field in its entirety, but the way it is inflected, the dispositions immanent within its organization. (Easterling 2011: 156)

Not all material artifacts are created equal. Some hold greater capacity to enter into an imbrication that engenders adaptive change. Thus, if we wish to design in such a way that leverages the adaptive, self-organizing capacity of an urban context, we need to consider how easily built elements within that context are able to enter into imbricated adaptive relationships. Accordingly, I wish to highlight the following material characteristics:

- Plasticity or 'degree of malleability' (responsiveness to change): Some material settings are quite rigid – resisting any sort of new unfolding and requiring that change be instigated by strong forces. By contrast, others are quite supple –malleable to changes that are required or desired. That said, while a column-free modernist space has a high degree of responsive 'plasticity' it fails to cues actions or solicit change.

[3] The author had the opportunity to visit the installation in 2016 and can attest to the comfort of the standing postures.
[4] The term used to describe this in Complex Adaptive Systems Science.

- Pluri-potential or 'degrees of freedom'[5] (scope of possible change): Some settings are quite limited in the number of supportable functions, while others easily afford a multiplicity of future imbricated unfoldings. The RAAAF installation exhibits a multiplicity of potentials for inhabiting space, but it is still built with a high degree of specificity (as opposed to plasticity)
- non-Passivity or 'degree of agency' (instigating change vs being changed): Evolutionary processes tend to rely on some form of external pressure – such as 'survival of the fittest' – in order for change to occur. In urban environments, we tend to think of people as the agents of change. We thereby overlook the capacity of environments not only to respond to human change, but also to prompt change. Here, non-passive environments actively suggest, cue or incite– challenging lock-ins such that new fit regimes can emerge.

Along the rigid to plastic spectrum we can reference purpose-built spaces that are so specific in their rendition that it is difficult to imagine, much less enact, change. In these circumstances, «the material in question is homogeneous and closed to intense flows of energy, its singularities and affects will be so simple as to seem reducible to a linear law» (DeLanda 2004:19). In these 'closed' circumstances there are minimal degrees of freedom to be explored in the potential unfolding of novel capacities and imbrications. The environment is frozen, reducible, linear, and the possibility of novel uses of space emerging is slight. But if we grant that certain material spaces freeze and encode habitual modes, we might also imagine environments that support a multitude of possible behaviors, supporting a broader range of possible futures. Finally, we can imagine that certain environment might provoke new kinds of actions – steering us toward trajectories we would not normally explore, but that nonetheless might prove fit.

I wish to argue that the relative degrees of plasticity, pluri-potential and provocative 'non-passivity' that an environment possesses relates to its adaptive potential. By endowing urban artifacts with such characteristics, we help afford new possibilities for action. These possibilities are what provide a flexible responsiveness to shifting, unknown forces that urban artifacts are subject to and this responsiveness is what helps make the emergence of novel urban conditions possible. Here, «uncertainty, or the inability to fix meaning, does not paralyze the actor but rather allows more agility and interaction with other actors.» (Easterling 2012).

[5] The notion of 'degrees of freedom' is familiar to physics, and is adopted in Complex Adaptive Systems thinking to describe possible system behaviors or 'phase space'.

Conclusion

Recent architectural discourse is grappling with the implications of new-materialism, assemblage thinking, and a post-human understanding of the built environment. Each of these threads acknowledges matter as an active participant in affecting action. For urban designers, paying attention to the affective capacities of matter alters the way in which decisions are made. In this post-human perspective, «the encounter between thought and that which forces it into action [where] thought cannot activate itself by thinking but has to be provoked. It must suffer violence. Art and architecture may inflict such violence.» (Radman and Kousoulas 2013: 2).

To date, very little explicit consideration has been given to the manner by which the architectural elements of cities hold high or low levels of adaptive capacity. In what ways can built artifacts allow for new conditions to unfold? In what ways can they be made responsive to uncertain futures? In what ways might they offer new ways to break out of unproductive regimes or behaviors? Here, the challenge becomes to design settings holding an inherent capacity to change, to solicit, and to invite new ways of being occupied. Only by attuning to this 'matter of matter', can we better understand what physical conditions need to be met in order for more general self-organizing processes to manifest within the urban context.

Further work is needed to clarify the nature of expanded material capacities. In particular, it is worth speculating over the manner through which, in an age of computationally augmented physical artifacts that have extended capacities (sensors, mobility features etc.), elements might be designed in ways through which their urban performance can be more dramatically altered. This paper hopes to provoke new ideas regarding how we might consider the embedded material affordances of the places we inhabit, and their relation to self-organizing potentiality.

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Section 2

Portraits of urban innovation in complex cities

The research investigates the topic of social innovation in brown‣elds recycling. Considering this purpose, the paper focuses on the analysis of the European 'Ecosystems of innovation' able to create innovative urban and territorial metabolisms.
The study observes the socio-economic and cultural aspects of the reactivation of neglected areas through comparative and qualitative methodology, with structured and semi-structured interviews. In conclusion, the research is conceived as a contribution to the body of knowledge and the basis for international projects on social innovation in disused assets.

ECOSYSTEMS OF INNOVATION: SOCIALLY-INNOVATIVE PRACTICES IN BROWNFIELDS REACTIVATION

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Introduction

The present contribution focuses on the theory of social innovation as driving force of urban and regional development.

The research investigates the socio-economic and cultural aspects of the reactivation of neglected areas and how these 'Ecosystems of innovation' create new metabolisms able to innovate the place. The research analyses brownfields reactivation as activators of social economies and new benefits for local communities. Therefore, it reflects about social enterprises as generators of new forms of urbanity and innovative urban life-styles. In this direction, some Europeans good experiences developed by the socially innovative re-cycling of brownfields have been selected. Furthermore, the research adopted a comparative and qualitative approach[1] with structured and semi-structured interviews. The study analyses the state-of-the-art about social innovation and its empirical effects. The paper discusses the role of social innovation in the development of new cultural values and the need to involve stakeholders for a more conscious spatial development process. The research adopted a methodological approach based on the theoretical study of contemporary literature and the selection of some empirical references. These cases have been identified in order to verify the correspondence between the considerations emerged from the literature review and the selected empirical examples. Each case is a brownfield site, an element often in a state of neglect and that, due to its potential, activates new life cycles and generates social benefits, and innovative local development.

Social innovation: towards a definition

The concept of social innovation consists of many theoretical and empirical reflections on the themes of social inclusion, stakeholder engagement, the satisfaction of community

[1] The qualitative analysis was addressed through exploratory and dialogic surveys, aimed at the observation of the local context, the analysis and interpretation of the social fabric and the evaluation of the ongoing practices.

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needs, innovation of economic models and systems of relationship/connection and information transmission. From the analysis of contemporary literature, different definitions and theoretical positions have emerged. The concept of social innovation is attributed to an innovative character, connected to the ability to generate innovation, a radical change that upsets the routine of a society. Social innovation generates new solutions in response to a problem and a social need, better solutions, more effective and efficient, whose resulting value benefits the community and not the individual (Phills et Al. 2008). Social innovation revolves around the theme of invention created, able to bring a revolutionary and radical impact on the social and institutional system, thus solving the identified social problem. Through social innovation, new products and processes are introduced that change the routine, the beliefs of the social system, generating a lasting impact over time. Social innovation becomes a process that innovates, which generates new solutions to meet the needs of the community, creating the conditions for interaction between the parties. Through the practices of social innovation, it is possible to observe an improvement in the quality of life of a community, as stated by Riccardo Maiolini: «The goal of social innovation concerns the improvement of society, through the identification of innovative practices and/or products able to improve the widespread and collective well-being of a given community.» (2015b: 35-6)

In this regard, Moulaert, Martinelli, Swyngedouw and Gonzales attribute to social innovation the "content / product dimension" able to satisfy the needs of the population that have not yet been satisfied; the "dimension of the process", which improve the 'relationship system' in order to create greater social inclusion through participation; the "dimension of empowerment" which increases the socio-political capacity to satisfy these needs through increased rights (2005: 1976):

> We especially stress three dimensions, preferably occurring in interaction with each other

- Satisfaction of human needs that are not currently satisfied, either because 'not yet' or because 'no longer' perceived as important by either the market or the state (content/product dimension). The stress will be on the satisfaction of alienated basic needs, although it is admitted that these may vary among societies and communities.
- Changes in social relations, especially with regard to governance, that enable the above satisfaction, but also increase the level of participation of all but especially deprived groups in society (process dimension).
- Increasing the socio-political capability and access to resources needed to enhance rights to satisfaction of human needs and participation (empowerment dimension).

Social innovation, therefore, increases the communities' quality of life, improving previous living conditions and producing new solutions that increase quality. Social innovation solves a problem of society and generates new social value through greater community involvement and the choice of instruments that favour the satisfaction of collective needs. Social innovation aims to create conditions of well-being for the entire community, analysing the behaviour of the various social actors and encouraging them to actively participate in the development processes (Venturi and Zandonai 2012). According to Maiolini and Fracassi (2015: 141):

> A social innovation is based on the dissemination and understanding of the behaviours of social actors who participate in a creative process, in order to create solutions that can benefit all members of a community. [...] The success of any social innovation project, therefore, depends on the ability to raise awareness of the importance of actively participating in the choices and processes of development and implementation.

The success of a process of social innovation, therefore, also depends on the ability to include different types of stakeholders, such as associations, public and private institutions, the local community and give it an active role capable of generating new value (Maiolini 2015b). Social innovation brings about changes that favour a greater inclusion of individuals at various scales, as stated by Moulaert et Al. (2005: 1978): «Social innovation is path-dependent and contextual. It refers to those changes in agendas, agencies and institutions that lead to better inclusion of groups and individuals in various spheres of society».
The involvement and sharing process promotes new entrepreneurial organizational forms (social enterprise), new business models based on social innovation principles, where the main objective is not to generate profits, but to create services and products that respond to a problem and bring social benefits (Maiolini 2015a; Marra et Al. 2015). Social enterprises aim to create a structured social impact on the site, improving the social result in relation to existing solutions (Neumeier 2012). Social innovation has not only positive effects on the community, but also on the whole context in which it is inserted. According to Matteo Caroli (2015: 54):

> Social innovation is also relevant for companies because it can have an important impact on the evolution of the role they play in the Company, in a direction closer to the expectations of other social actors; moreover, the positive effects deriving from the satisfaction of collective needs also benefit the companies themselves and in some cases, their specific business.

This balance is generated by the production of services and products, attributing an economic value to the results of the social innovation process. This allows to generate new socio-economic benefits for the territory, giving rise to innovation ecosystems capable of reactivating urban and regional metabolism (Fig. 1).

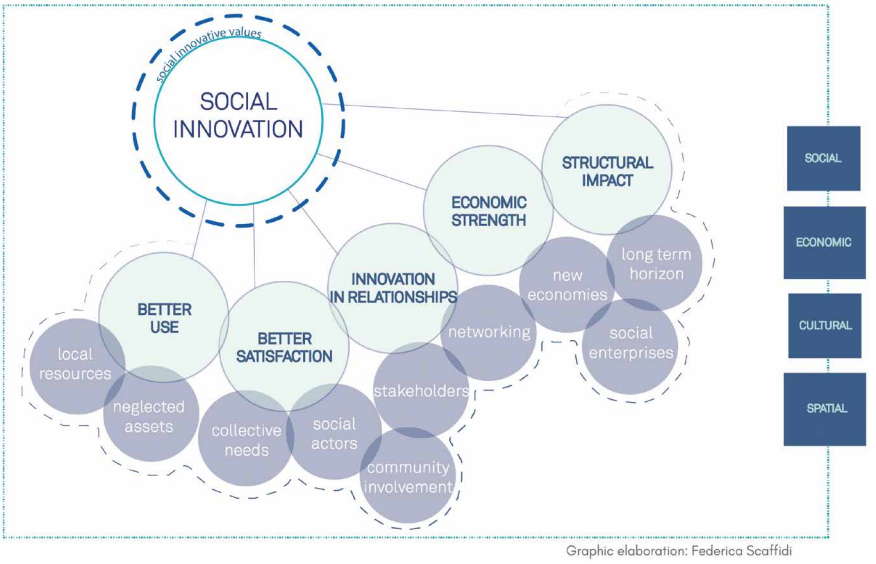

Fig. 1
Social innovation. Source: Graphic elaboration by the author

Ecosystems of innovation: brownfield as activator of local development

The present paper analyses some empirical experiences. The study shows some cases selected within the European scenario in which it is possible to identify the characteristics of social innovation and where the social enterprise becomes the activator of a reactivation of a disused resource. These examples are brownfield areas that thanks to social enterprises, local communities and administrations have been reactivated, generating a new urban development. Therefore, many of these cases are former factories such as the former silk factory in Perosa Argentina in Piedmont or the former Spinnerei cotton mill in Leipzig. The other realities, instead, have an extractive nature, such as the Arnao coal mine in Spain the former tuff quarry of Mazara del Vallo or the saltworks of Salinas de Añana in Spain. All these experiences generate innovative solutions capable of reactivating a neglected resource and its socio-economic context. They are ecosystems of innovation that produce new value for communities and for the local area. These cases produce positive impacts on the territory, promoting cultural initiatives and encouraging socially inclusive processes. These activities are carried out by the social enterprise and generate local development, urban regeneration processes and new territorial flows. This is the case of the Ecomuseum association of Perosa Argentina, which has generated new cultural and tourist routes within the municipality, encouraging the

development of the industrial heritage of the valley, the participation of local community and the creation of new initiatives aimed at enhancing the former silk factory Gütermann and the entire local area (Scaffidi, 2017b). This is the case of the Arnao mine association that promotes a cultural offer that enhances the naturalistic and industrial fabric through educational visits, museum tours and exhibitions or Periferica in Mazara del Vallo, which contributes to the redevelopment of some urban areas of the city, to the development of initiatives aimed at spreading the local reactivation process, strongly based on cooperation. Another example is that of the Fundación Valle Salado in Salinas de Añana in Spain, where thanks to the growing management capacity of the social enterprise and the increasingly recognized value of the good, created an economic and tourist development of the town. This process led to the drafting by the local institutions of the *Plan de Embellecimiento* and the *Plan de Ordenación Urbana*, promoting a parallel development of the productive landscape and urban landscape (Scaffidi 2018). Moreover, this last planning tool was not limited to the town of Salinas de Añana, but for the whole territory of Añana, creating a unique system. In other cases, instead, the creation of social enterprises and their socially innovative initiatives took place following the brownfield reactivation process, but thanks to which the resource revives over time, creating local development. This is the case of the Matadero of Madrid in Spain, the Cantieri Culturali della Zisa of Palermo, the Knos factories in Lecce or ExFadda in San Vito dei Normanni in Italy, the former Spinnerei cotton mill in Leipzig, and the Zollverein coal mines in Germany. Places where the cultural and social dimensions have been favored by the local administrations that have invested in processes of reactivation of these resources entrusting them to the local communities. Experiences that have in common the ability to generate a structural impact and whose initiatives of the administrations have led to a systemic creation on the territory, creating other cases of socially innovative re-cycling. This is the case of the Puglia Region that with the Bollenti Spiriti Program has contributed to the urban and regional development thank to the involvement of communities, the creation of social enterprises and the reactivation of disused areas (Scaffidi 2017a). This is the case of the reactivation plan of the neglected sites of the Ruhr, which gave rise to socially innovative re-cycling processes throughout the region. This process considered the supra-local scale of the region, the semi-local scale of the municipality and the local one of the resource, creating new life cycles based on the patrimonial value of the areas. This experience led to an official recognition of this cultural heritage by the institutions, including Zeche Zollverein in the international world heritage list UNESCO and the development of a more attractive landscape for new inhabitants and tourists, and more inclusive place of living.

In all these cases, the reactivation of the brownfields has generated effects on the socio-economic and cultural dimensions. The socially innovative re-cycling, therefore, has brought new value to the areas, reaching that objective of reactivating the weakened resources, responding to a social and territorial problem, and generating urban and regional development, thanks to the implementation of actions and to the use of tools that have allowed its development.

Conclusion

In conclusion, the paper starting from the analysis of the state-of-the-art about social innovation and the analysis of some empirical references, located in the European context where the research was carried out, highlighted the characteristics of the concept of social innovation and its effects on the local territory. Therefore, the present paper aimed at illustrating through the analysis of contemporary literature and the active research of empirical cases that these ecosystems of innovation can be considered as local development activators, capable of triggering social, cultural and economic development, both for the weakened resource and for the context in which they are located.

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The emergence of organic planning in the Netherlands has served as a response to dominant housing and real-estate practice in implementation since the second world war. This system focuses on creating conditions to allow a variety of local initiatives that helps in an incremental urban development; they are responsible in creating the demand-driven urban environment (Rauws, De Roo, 2015). Netherlands has also been trying to develop a co-operation strategy between the citizens, civic organizations, entrepreneurs, etc. for many years now (WRR, 2008). The new Structural vision of Amsterdam 'Amsterdam 2040' follows the old tradition of Dutch spatial planning, yet on many important points they have diverted from the previous structural plans. The emphasis in these cases is on addressing the social needs and concerns. The visual aspects of the development plan are complimentary (WRR, 2008). This new approach has brought forward interesting development strategies in Amsterdam for Amstel III, Oostenburg, Buiksloterham, etc. The development plan implemented in these cases is a good mix of both bottom-up and top-down transformation styles. To understand, this article takes the case-study of Amstel III and Oostenburg in Amsterdam.

CASES OF SELF-ORGANISATION IN AMSTERDAM: CASE-STUDIES OF AMSTEL III & OOSTENBURG

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Introduction

A city – a meshwork of players, comprises of people with common interests pursuing their lives in different ways. Throughout the world for many years, local bodies have been involved in deliberation of local issues, decision making within their capacities and choosing their leaders (UNDP 2016). There are many unpredictable collaborations between the stakeholders to achieve their individual, commercial or political goals (DeLanda 2000). These collaborations develop a pattern of connections based on the hierarchy in the society or the styles of interaction that define the community structure. Therefore, the focus of planners should be on implementing short-term, slight changes to adapt accordingly (Batty 2011).

The traditional Dutch approached planning with specific details. This included distribution of activities, spatial layout and even the visual appearance of urban blocks. The dense urban spaces left very little scope for redevelopment with lesser density and future projects. These cases can be seen in many city centres of Dutch cities having an evident mix of activities but limited scope for redevelopment.

However, Netherlands has also been trying to develop co-operation strategies among citizens, civic organizations, entrepreneurs, etc. for many years now (WRR 2008). The new Structural vision of Amsterdam 'Amsterdam 2040' follows the old Dutch spatial planning approach, yet on many important points they have diverted from the previous structural plans. The emphasis in these cases is on addressing the social needs and concerns. The visual aspects are complimentary (WRR 2008).

Organic planning (Buitelaar et Al. 2014) focuses on creating conditions to allow diverse local initiatives for an incremental urban development. They are responsible in creating a demand-driven urban ecosystem (Rauws and De Roo 2015). It approaches a multi-layered view emphasizing on inter-dependence between processes of different scales and different moments (Byrne 2003). The multi-layers of an urban system can be broadly divided into three levels (Boonstra 2015):

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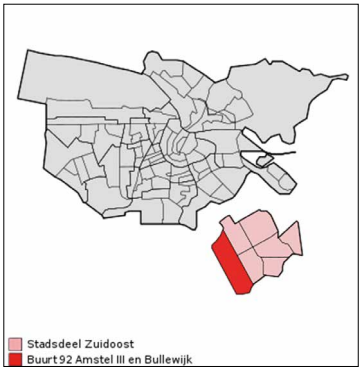


Fig. 1
Location of Amstel III, Amsterdam. Source – wikimapia.org

Fig. 2
Transit and road connections to Amstel III. Source – Gemeente, Amsterdam

1. Macro – Society or neighbourhood
2. Meso – network of established players
3. Micro – group of independent agents

This new approach has brought interesting development strategies in many neighbourhoods of Amsterdam. This article takes the case-study of Amstel III and Oostenburg in Amsterdam and explores the development strategy of the local authorities. The common factor in all case studies is their idea to bring diversity in activities, avoid homogeneity or polarization, encourage small-scale entrepreneurs and have temporary land uses to adapt to the changing socio-economic context. It emphasizes on realising a coherent relation between social desires and spatial development through different approaches.

Case 1 – Amstel III, Amsterdam

Amstel III in the south-eastern part of Amsterdam, primarily a business park of 250 hectares, is made of many large scale and small scale offices, accommodating approximately 27,000 employees. It is divided into two parts – Amstel III east (Office zone) and Amstel III west (Business park).

Amstel III is constantly criticized for its quality of space and is a fine example of a monologues 'office park', there is a stark transition in the level of activities in day and in night. This is because of a strong division between the residential and the office areas (Clarke, Harvey, 1991; Remøy et Al. 2008). A railway line passing through further solidifies the spatial separation (Remøy et Al. 2008). Despite the residential area in a walkable proximity, the spatial division gives a feeling of two distinct and disconnected spaces.

Post-recession, many buildings in Amstel III became obsolete. In 2017, 30% of its office spaces were vacant and the scope for reconstruction was limited (due to financial

Fig. 3
Vacant lots in Amstel III in 2017.
Source – Gemeente, Amsterdam.

and spatial constraints). The requirements of the working environment had also changed drastically. People now are very active in the labour market and believe in working in a flexible environment. The economy now, is driven more by knowledge and networking (Scott, 2012; ZOcity, 2015). This need for a more flexible environment has been ever increasing and encouraged the need for developing a new policy to improve vitality and diversity in Amstel III.

New Intervention

In 2011, the municipality decided a new development framework for Amstel III. Instead of concentrating the occupancy of a monologues office stock, the new framework looks for smaller businesses and firms to enliven the area. The municipality desires to accommodate more mixed use to allow employers, employees and visitors to share the spaces throughout the day. With 27,000 employees commuting to the area, a good transport connectivity is essential for preservation of employment.

Spatial interventions were equally important. The first stage of zoning Amstel III allows new features like catering, hotels, services, sport, culture, leisure, etc. to improve the quality of spaces and generate more activity. In the second phase, housing will be introduced to further improve the liveability and the work conditions (Amstel III Oost: Toelichting, n.d.). Small scattered clusters of parking spaces, comprehensive network of slow traffic, places with high quality appearance, more public facilities (like, café, restaurant, etc.) are some of the considered ideas for improving the spatial quality (Amstel III Oost: Toelichting, n.d.).

Just like other examples of organic planning, Amstel III works on a definitive framework of rules but without a definitive masterplan. The power to take decisions resides with the stakeholders and the role of the municipality reduces as the stakeholder participation increases.

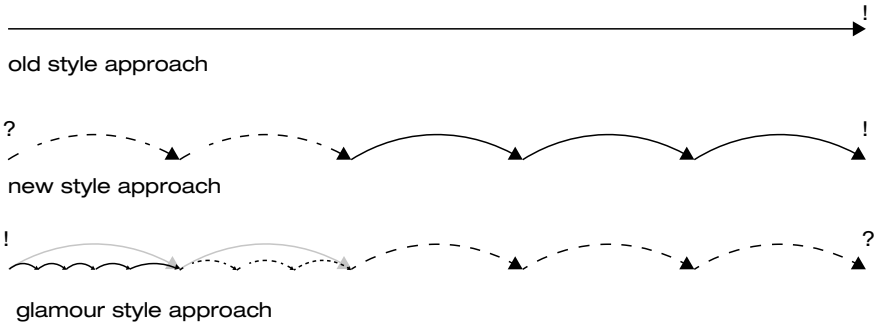


Fig. 4
Comparing traditional approaches with the glamour style approach. (Beer, 2014)

Fig. 5
ZO!city's online interface. The projects & initiatives are spatially located with the differentiation of the typologies. The colour fill shows the progress of the respective project. Source – www.zocity.nl

Following the model of co-operation and co-creation, the stakeholders constitute a collective model of interventions and investments. In this case, the idea is to analyse and translate big goals into strategic and realistic actions (Beer 2014). The strategy decisions for the redevelopment includes ("Amstel III Oost: Toelichting", n.d.):

- Transforming Amstel III bit by bit
- Producing conditions to reverse the increasing vacancy
- Producing conditions that permit corporations to modernize strip and compacting

The municipality follows a passive 'space initiatives' policy to encourage the stakeholders to introduce new features in existing buildings (Gemeente Amsterdam 2017). This allows them to have more flexibility in designing the spaces and adapting to the user needs. The interventions are divided in 3 levels (ZO!city 2015):

1. Micro

   Economic – Seed money – Small targeted actions with immediate visible output. This improves the value of the space among the public, boosts the local enthusiasm and the transformation process.

   Spatial – Through self-management, community building & branding, better signage, intensifying slow traffic network, etc.

2. Meso

   Economic – Private – To realize interventions on private investors' plots for the perception of an attractive area by clustering the parking and using innovative mobility solutions.

   Spatial – Through temporary use, open plinths, realizing meeting points (small scale), climate resistance, shared facilities, transformation of existing properties, etc.

3. Macro

   Economic – Public – Joint investment by the municipality and the Amsterdam Medical Centre (AMC) to improve the area around the station Hollendrecht and the green strip between Zuidoost and the AMC entrance.

   Spatial – By upgrading the railway station, putting art in the public space, realizing meeting points (large scale), preserving architectural accent, upgrading green structure, park lighting and square, etc.

ZO!City

In line with the guidelines of the municipality and its context, Glamourmanifest was kick-started by Saskia Beer. It initiated a local network of stakeholders through workshops, campaigns and events (Beer 2014). These informal events helped the committee in collecting the interests of the stakeholders and develop many starting points for a collaborative environment. These starting points, when mapped, were identified as high energy zones (like a heat map). The role of a planner, here, was minimalistic (Beer 2014).

On gaining enough support and identifying scattered potential capital in the neighbourhood, the team connected the interests of the stakeholders and developed a common platform 'zocity.nl' to integrate data sharing, co-creation and crowdfunding ideas for urban transformation of Amstel III (Beer 2017). Through the portal, they encouraged and looked for direct self-organizing and resilient to change stakeholder outputs. This platform allows the community to build a local business model, raise funds and create a dashboard based on the suggested outputs.

In 2015, the municipality of Amsterdam commissioned ZO!city to co-create the urban transformation model for Amstel III along with the stakeholders. The strategy had three objectives ("transformcity.com"):

- Inform – Common platform to collect and share information among the stakeholders and about the projects.
- Create – Introduce new ideas, projects and gain local support. Form or join alliances around buildings and public space projects.
- Execute – Combine and showcase the resources; invest and participate in selected local projects.

Fig. 6
The four qualities and the sub-categories within the qualities. Source – Urhahn, 2012; Gemeente, Amsterdam

Through the interface, information about the buildings, initiatives and the projects are geographically located and can be accessed by a click. By combining the database and understanding the priorities and interests, the companies and their capital are beginning to come together. The interface creates scope for cohesiveness, project review and feedback sharing across stakeholders.

Response

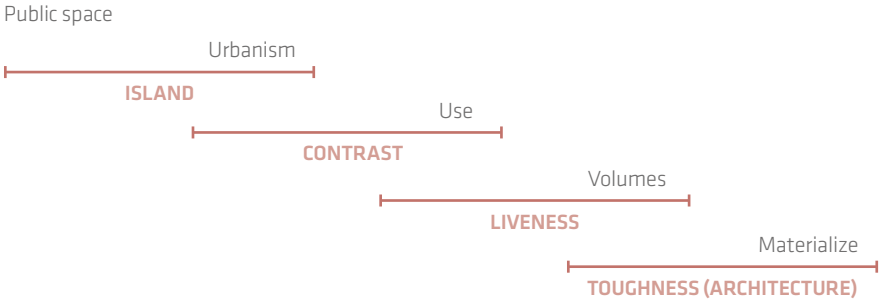
There are many different initiatives scattered in Amstel III. Despite the restrictions (of stakeholders and local context), a certain degree of freedom in the implementation of projects exists. As on 2017, some projects either in progress or completed are ("zocity.nl"):

- Parking space sharing
- Electric bike sharing
- Bike sharing stations
- Ubuntu stadtsuin (city garden)
- E-car charging stations
- Co-working space

There are similar participatory interventions being initiated in relatively larger private building compounds. Despite operating privately, the owners opt for multiple shareholders and allow diversification of activities.

CASE 2 – Oostenburg, Amsterdam

Oostenburg is one of the three – Oostenburg, Kattenburg and Wittenburg – islands in the north-eastern part of Amsterdam. The island was built in the 17th century by the Dutch East India company for warehouses and a shipyard. Given the strong historical influence on its structure and planning, the municipality is taking special considerations for the conservation of the urban values. On the south-western side, four buildings of



early 20th century, named after the architect Van Gandthallen, received the monument status in 2001 because it constituted "great historical, architectural and urban values" (Loos 2014). After the collapse of the industries, the area went through a lot of clean up and regeneration. Although some parts of Werkspoor are still preserved, the island, however, lost its vibrancy with the decline of the industries and its locational isolation.

Amsterdam's dense urbanization brings opportunities for growth in Oostenburg. The INIT building was built in 2000, it has the district's wharf on the ground floor and offices on the upper floors. In 2004, real estate company Stadgenoot bought the Van Gendthallen buildings. For many years, many professional and cultural activities were hosted there. In 2008, Stadgenoot bought the remaining area of Oostenburg north except INIT and the south-western area.

Decision making process

From 2004 to 2008, Stadgenoot made many unsuccessful plans to re-develop the area, primarily due to lack of clear vision for political and social development (Stadgenoot 2013). These failed interventions alongside 2008 crisis made Stadgenoot re-strategize their development plan. Therefore, in 2011, Stadgenoot and the municipality eventually intervened with an ambition to create a mixed environment for working and living.

In the initial stages, the plan was to develop an open structure connected to the environment. Instead of developing a single master plan, the development plan was implemented in stages where the land is sold in small lots, individually. The sale and development of parcels, and investment in public spaces and facilities is taken from the profits of the sale of previous parcels of land.

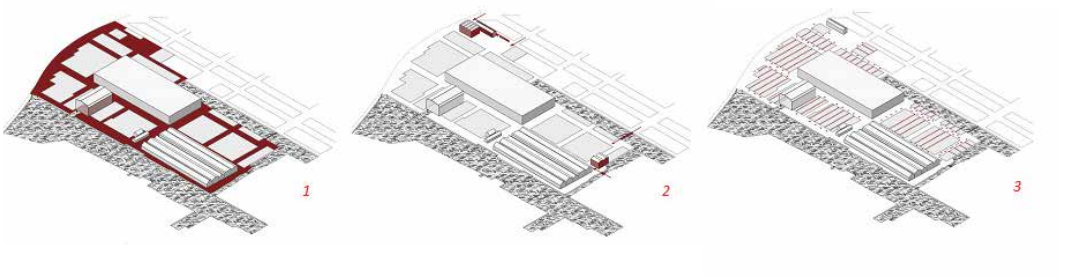


Fig. 7
Quality 1 – Island.
1. Connections through public spaces
2. Limited vehicular access
3. Orientation of the plots in line with the water around Oostenburg.
Source – Urhahn, 2012

The focus was on creating a good outdoor public space and have limited vehicular access, by:

- Visualising the yard floor as a unifying element and as a medium to promote pedestrian and bicycle movement
- By avoiding traditional building block layout

In a general outlook, most of the outlines for the design and the program is fixed, but the island, on the inside, has a lot of freedom and flexibility for better spatial solutions. Through a series of products, a framework of rules for the development of the spaces were developed, this framework identifies four qualities of the island (Urhahn 2016):

1. Island: Definite boundary made by the waterways, the railway embankment on one side and limited access gives the area a clear identity of an island.
2. Liveliness: The mixed use ensures public movement and activities through the day, the public spaces of the island work as a unifying element and also becomes a utility space. The INIT and van Gendthallen buildings are capable of accommodating many exhibitions and manufacturing at once. Simultaneously, Stadgenoot wishes to provide houses for low-income groups in a limited area. The remaining plots will be sold to private owners to recover the break-even cost. A higher plinth and plots' grouping encloses the inner yards. This brings privacy in the inner yards and parks, makes it quieter and allows the owners to use it as per their needs & convenience. The limited traffic movement and open plinth of the INIT & van Gendthallen buildings makes the use of outer spaces possible.
3. Contrast: The neighbourhood has an industrial presence but also accommodates bars & restaurants. The architecture and activities are diverse. To ensure contrast in activities and the architecture, the land owned by Stadgenoot is being developed in parcels. Size of the plots varies; the development plan suggests maximum width of a plot but does not put any restrictions on the depth. The plot width is coupled with the front orientation of the buildings. There is a lot of scope for variation in height, roof

shape, activities in the plot, etc. The distribution of activities for the neighbourhood is fixed as 50% each (live-work). These areas are kept car free and will have spaces reserved for public greens in the centre of the parcel. There are at least three variations proposed for the height of the building. The proposed layout places a building of smaller height between two higher buildings to create visual contrast in the arrangement of the buildings and provide light and air through the cluster of the buildings.

4. Toughness: The heavy industrial history and the rugged architecture gives a strong visual impression and an identity to the island. The older buildings in Oostenburg appear as a single block with simple but robust detailing. The activities opening on the yard floor worked as a unifying element.

The development plan follows the same line of visual appearance around the van Gendthallen building. The indoor and outdoor public spaces run into each other. The roofs of the buildings are decided on what fits best, they do receive proper attention and are not cut-off abruptly. Aiming for a higher level of interaction and liveliness, balconies on the side of the street are encouraged, especially if the side is waterfront. The buildings are more open towards the side facing the water.

Oostenburg is relatively dense and has limited scope for greenery. Hence, the users

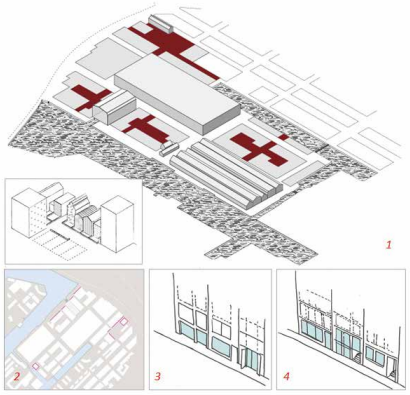


Fig. 8
Quality 2 – Liveliness. 1. Coherent design of the inner yards. The green space can have
2. The areas marked in red are to be opened at the ground level and are preferred for public activities 3. Around 2 levels Variation in height in relation with the adjacent building 4. Variation in height of around 1 level in relation to the adjacent building. Source – Urhahn, 2012

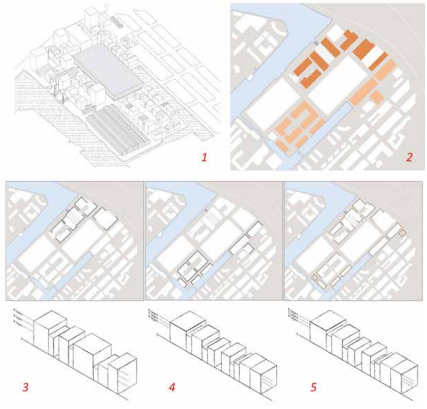


Fig. 9
Quality 3 – Contrast. 1. Small grain v/s large industrial plots 2. Variation in lot width; darker – Max. width 24 m., lighter – Max. width 18 m. 3. Variation in height of around 2 levels in relation to the adjacent building 4. Variation in height of around 1 level in relation to the adjacent building 5. Variation in roof shapes. Entrances (hatched) have a special roof shape. Source – Urhahn, 2012

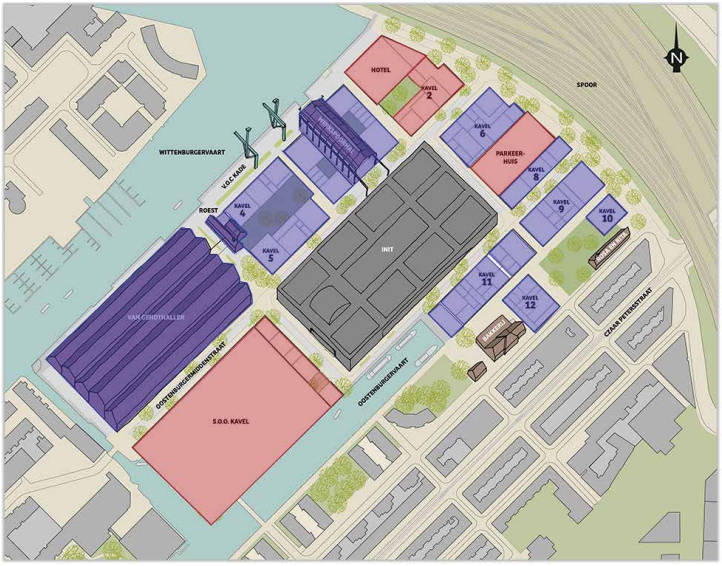


Fig. 10 Parcel distribution in Oostenburg. The parcels marked in red are under construction, the areas marked in blue are upcoming projects. Source – Oostenburg.nl, 2019

are suggested to develop green roofs and install solar panels. The industrial image is enhanced by the steel balconies, openness of the buildings and rugged style of architecture. Through these four qualities, the framework focuses on six key issues:

1. Society: Implement mixed use and encourage adaptive re-use
2. Mobility: Limited access for cars, focus on more soft mobility
3. Material: Preserving the island's historical significance
4. Water: To reduce the water consumption
5. Energy: Reduce energy consumption
6. Biodiversity: Possibility to grow native plants in the dense urban area

Van Gendthallen building offers temporary work spaces capable of adapting to different needs of different organisations. The offices in INIT building and nightlife in Roest is already active. This mix of activities makes Oostenburg capable of attracting public and keep the place active.

Response

The land in Oostenburg is of high demand due to its location and proximity with the city centre. The sale of the plots in the first parcel began in 2017. Currently, sale of DIY plots in the 9th parcel is active and construction in 5 parcels is under-going (Oostenburg.nl 2019). The end of construction is stated to be around the end of 2020.

Conclusion

Portugali (et Al. 2000) refers a city as a reciprocal product of the initiatives by stakeholders under the influence of their private motives and the environment that they are a part of. The outcomes of these self-organising processes manifest themselves in specific physical growth, urban form and morphological or functional patterns.

As understood by the case-studies, the adaptive nature towards multiple interests of the actors is one of organic planning's main strengths. It allows the urban systems to distribute the decision-making power to its diverse actors and avoids the dominance of a single actor (or activity). It's tendency to self-organise the development safeguards the interests of the actors and maintains a dynamic socio-spatial nature (Boonstra 2015).

The distinctions (agency, rules and physical order) in decision-making process carry out the transformation process in their own way. This results in a complex environment capable of self-organising itself through multiple interventions. The planners' style of intervention and the style of mediation in this complex set-up depends on the context and the understanding of the social system (Tan et Al. 2014). The development plan has four design principles (Rauws 2015):

- Small-scale sub-plans
- Incremental development strategies
- Carrying structures
- Loose rules

It is also important to understand that these development plans are highly contextual and depend on the level of interaction. A good interaction among the actors can only come with a strong sense of community building. It may not be active and prevalent in every case. Therefore, such a solution can be implemented only after a deep understanding of the neighbourhood. In absence of strong and dense pre-existing networks, taking an intervention like this can be too much work, even if the actors are skilful and committed (Uitermark 2015).

From the case-studies, it is also evident that the nature of organic planning is not entirely self-organising. It requires interventions at multiple-levels to safeguard the interests of the actors. In this case, it becomes interesting to observe whose interests are being safeguarded and whose are being compromised during a conflict. Intervening in the complexity of a city or a neighbourhood leads to a tension between the opinion of spatial intervention and the concept of self-organizing urban systems (Savini 2017). Therefore, the existence of a contradiction questions the true role of the actors and the level of freedom they eventually enjoy while developing their spaces.

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The research 3scapes is part of a complex exercise of description of the contemporary city at a regional scale (the so called PRIN research program on Postmetropolis) using ITC's. The challenge of this part of the research was to come back to the ground level, to observe what's really changing in the streets of the city of Florence, looking at emerging phenomena in three main fields (the share scape, the food scape and the self made scape). This raised several methodological questions that will be discussed below, as the use of different tools (digital maps and graphs) to describe urban transitions.

SPACES IN TRANSITION. A MAPPING EXERCISE IN FLORENCE

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The eye does not see things but figures of things that mean other things.
(Italo Calvino)

Mapping is a description exercise to which human beings have dedicated themselves for centuries. Usually a map is the representation of the features of an area of the earth (forms, sizes and relationships) according to some conventions. This kind of traditional representation of places fixed an image over time that could not be altered. With the technological progress and the availability of an impressive amount of data, mapping has become an increasingly complex activity, that extends to include the graphical representation of concepts, flows, processes, structures or systems, showing relationship among different components, including time in space. The national research program (PRIN) on Post-metropolis, of which the research here presented is part, was a complex exercise of description of the contemporary city at a regional scale using ITC's (the results can be consulted on the website www.postmetropoli.it).

The challenge of the research Firenze 3 scapes, developed with Chiara Belingardi (whose contribution is also included in this book) in the general frame of the Florence unit research on Urban transitions (Paba and Perrone 2018) was to come back to the ground level, to observe what's really changing in the streets of the city, observing emerging phenomena (Belingardi and Pecoriello 2018). This raised several methodological questions that will be discussed below.

Mapping the change: a methodological approach

The description of something that happens under our eyes, which is not crystallized in a form and cannot yet be observed in a temporal distance that allows us to interpret its causes and effects, is a classic methodological challenge for the researcher who deals with contemporary transitions.

The analysis and description of change in fact challenge both the quantitative methods, and those based on case studies. The quantitative method is suitable above all for static patterns,

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case studies are more sensitive to the variables, but expose themselves to sampling errors and to limits in the capacity of generalization.

In the analysis and description of what can be defined as three transformative landscapes of the contemporary city, we found ourselves faced with some of these challenges related both to the research methodology and to its representation. There was a need to use devices suited for rendering the mobility and variety of observed phenomena, their spatial nature (points, areas, networks), but also the complexity of hybridizations between physical and virtual space, between local and global, between narratives and concrete effects.

The first part of the research of the Florence unit was based on the attempt to elaborate complex indicators starting from the aggregation of quantitative data obtainable from digital maps, integrated with information obtained from other sources to develop unreleased and representative maps of phenomena otherwise difficult to observe on the ever-changing territory of the Florentine metropolitan region. In this part of the research instead we have explored other dimensions, trying to describe change at a more minute level. Our research has taken a leap in scale and has approached the streets of the city and its inhabitants to observe changes in daily life, selecting the three 'scapes' as observation fields of emerging practices with a strong potential for innovation. We also tried to link the description of these changes to global transformation processes, trying to provide an interpretation that made reference to the ever more abundant literature on these themes, now dominant in the public discourse and in the rhetoric on innovation that accompanies them.

Our society's obsession with innovation obviously arises from the need to be competitive in a rapidly changing world and to be able to foresee changes to govern them, so that power can remain in a few hands (or vice versa to build alternatives). Even the critical discourse on innovation faces the same problems of classification and definition, due to the presence of opposing tensions that create a continuity of distribution of research objects in the field instead of clear polarity, with representations that are already obsolete as soon as they are completed, interpretative frameworks that have already changed just after being outlined.

The change taking place has a speed and a plurality of actors involved such as to render any classification or definition attempt vague and precarious (many terms used in the rhetoric on innovation are banal redefinitions of existing practices with terms of greater appeal, supported by weak arguments on the profound differences of meaning and approach, as happened to the concept of participation, redefined as service design, co-design, human smart city, design thinking etc.).

A common research approach in recent years was to design maps for orientation in change, obtaining partial, stunted visions, similar to the first geographic maps of the known world, yet interesting precisely as the first attempt to identify, name and describe emerging phenomena. In the first Festival of the Communities of change organized in Bologna in 2015 by RENA (an organization created to promote innovation and networks between innovators), several mapping projects were presented, to demonstrate the need to make the emerging phenomena visible, to identify actors and to accelerate and reinforce the innovation processes establishing new forms of cultural leadership, on the other to critically reflect on the nature of this change and of the forces that drive it.

As Quarta and Spanò (2017: 7) write in the introduction to their book that gathers reflections from different disciplinary points of view on the ways out of the present crisis:

> It was a question of interrogating all the plethora, confused and arbitrarily collected under the equivocal labels of "sharing" and "collaboration", of phenomena, more and less institutionalized, that social actors (those that we, provocatively and against a lot of sociology, call 'private individuals') had put in place and were putting in place to satisfy needs and guarantee services that the economic crisis had helped to restructure from top to bottom, when not simply to make it disappear. Neither the State, in its twentieth-century "providential" and progressive guise, and even less the market, in that of efficient and extremely rational allocator, have appeared to be up to the task. And individuals have been busy: institutionalizing social cooperation. That is, producing a rich and far from homogeneous range of experiences of mutuality, exchange of goods and services at the intersection of free and profit, public and private, local and global, materiality of practices and ineffability of algorithms, informality and constraints, civic activism and illegal practices, affections and needs.

A map + a graph to try to keep complexity under control

In our case the methodological choice made to represent the ongoing transition was to choose a partial point of view on three aspects of the city that seemed particularly significant to us for their dynamics and relationships (the Foods-scape, Sharing scape and Self-made scape) and to use two interconnected representation tools: the geo-referenced map and the cognitive map (the graph).

The map included the metropolitan area of Florence and had the last ten years as its time horizon, stopping at the end of 2016. The objects mapped were very different typologies: places, events, networks, communities…

In the Share scape there was a mass of experience of mutuality at the crossroads between profit and no profit, public and private, local and global, many of which took place in the virtual space of the digital platforms and not in the physical space of the city (despite having impacts on this last). Many of these experiences take the form of networks, which can only be

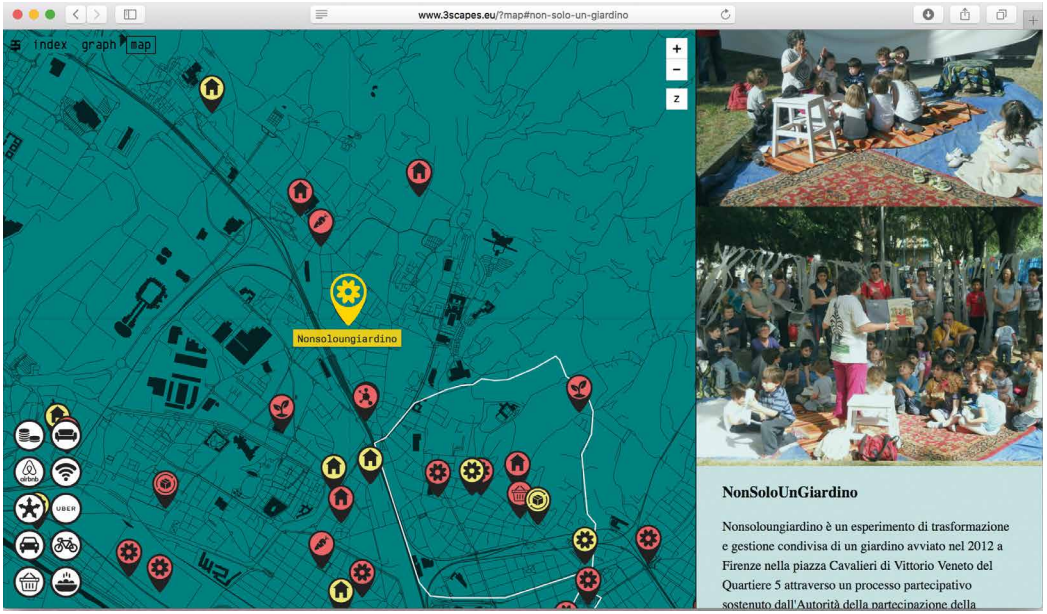

Fig. 1
Sample from the 3scapes graph (Non solo un giardino project)

Fig. 2
Sample from the 3scapes map (Qualcosa da dire project)

mapped as such, while others are so densely diffused in the city to require thematic maps, others are widespread and mobile objects that can only be represented through dynamic maps.

The Food-scape oscillates between the physicality of the experiences of collective agricultural production and community supported agriculture (new rural-urban alliances, farmers markets etc.) and the immateriality of narratives and new distribution networks and forms of consumption (on line shopping and delivery food) that are deeply transforming labour market, lifestyles, sociality and the way we use and define public space, up to the creation of food districts in the city and the localization of public policies at different scales.

In the Self-made scape, the landscape of self-organization and self-production of living and public space, we witness the increasing complexity of the mapping exercise and the more visible spatial effects of the ongoing transition. On the map appear very different places, with different statutes and management forms: buildings and open spaces of various kinds (green or paved, public or private, self-managed or co-managed as common goods or through public-private partnerships, formal or informal) with different location mode on the map required (also in this case we have points, areas or networks), different actors involved (formal and informal groups that constitute the new communities and

the collective subjects that act in the public space), and different temporality (self-promoted transformation practices or spontaneous uses of the spaces are often temporary, impermanent, cyclical…). Many mapped experiences refer back to specific on-line maps, sometimes dynamic like the maps of car sharing companies with the location of shared cars, or like those produced by Airdna, a company that deals with statistical surveys in the Airbnb world, which shows how the proliferation of short-term rentals has devoured the historic center and the immediate surroundings of a tourist city like Florence. The next problem was to give to these phenomena an interpretative framework and to show the relationships among them. This is the reason for the conception of the graph.

The three-branched tree graph represents the conceptual map that integrates the description of the three scapes with a more general theoretical reflection. In the graph the concepts are articulated through nodes and branches up to the extremities, the 'leaves', which correspond to the identified and geo-referenced points in the map. Each node of the branches and each leaf corresponds to a fact sheet that contains, depending on the level, theoretical reflections or descriptions of a concrete experience mapped in the city. The description is sometimes accompanied by images and where possible by a link to a website that gives further firsthand informations. In the graph, for each scape, there are also attempts to identify public policies related to the theme, some of them developed bottom up, other top down, at different scale, some in the form of pilot projects, some others as charter of principles that are supposed to inform policies.

The result of this complex mapping exercise is visible on the website www.3scapes.eu, in which concepts and experiences can be consulted in the form of a list, a tree graph and a map.[1]

Mixing research and action: the C.I.V.I.S.M. project

Fig. 3 Neighborhood oven campaign. Group of inhabitants 'Statuto in transizione'

Fig. 4 Genuino Clandestino farmer's market at La Polveriera

The selection of experiences was part of a long process that saw the academic research intersect with a participatory process that took place in 2015 in the city of Florence, the C.I.V.I.S.M. project (of which I was coordinator and facilitator in the same period of the Firenze 3 scapes research) funded by the Authority for participation of the Region of Tuscany (L.R.46/2013). Being engaged in Participatory Processes as a longstanding activity brought me a deep knowledge of many different actors in the city, from public entities to single active citizen or more organized stakeholders, in the formal and informal universe of social and political activism on urban issues. I define myself an activist and not only a researcher or a "reflective practitioner" (Schön 1983). This is not a secondary aspect in the reflection on the research methodology, that involves many aspects that have been investigated in the extensive literature on the relationship between activism and academia. In the kind of approach that can be defined as research activism there is an intention to identify power relationship that are acting in the society in order to involve people «to formulate strategies for transforming these conditions and to achieve the power necessary to make these strategies effective». (Hale 2001: 13)

The C.I.V.I.S.M. project has been promoted by a network of associations gathered around the Sportello EcoEquo, an office of the Municipality of Florence co-managed with associations committed to sustainability, fair economy and social justice. The original purpose of Civism was to promote new forms of collective welfare through sharing of time, space, goods and services between people in proximity. Soon the focus of the project shifted to the issue of public space, starting from the consideration that many citizens are at this moment in various ways engaged in activities of care, use, management and transformation of public spaces, but find common difficulties and strategies to overcome them are not univocal:

- spontaneous uses are repressed by an oppressive system of rules and an unbeatable bureaucracy for ordinary citizens who try to make good use of their time by taking care of common things or re-establishing social ties through conviviality and mutual help;
- there is a lack of available spaces but at the same time many public spaces are often

[1] Il sito è stato realizzato con la indispensabile collaborazione di Sergio Segoloni e Manuela Conti, *web* e *graphic designers*.

abandoned, under-used, left to decay waiting for investors, put up for sale to cover the debts contracted by the public administration, or over-regulated and commodified at the same time;

- as a result, informal or illegal uses as the only possible forms of spontaneous, free and convivial use by these new urban communities that reclaim the 'right to the city'.

A new status for public space was considered fundamental to boost these new forms of collective well-being. The absence of an adequate regulatory framework, prone to facilitating innovative social practices and promoting a new role of the administration towards citizens, was creating a new field of social conflict that crossed the one created by the commons movement, which challenges the state and the market as the only alternatives for the management of goods, services and economy. It seemed, to Civism participants, that public space was going through a transition from a system based on public-private dichotomy to a system where a new collective subject appears. A growing number of people is fighting against exploitation and sale of public lands and buildings, occupying and taking care of them as commons. This rises several problems of what new forms of organization, new institutions and new economic models can support this transition.

A first map of the transition from public to common space

In the course of C.I.V.I.S.M. project, the passage from the discourse on public space to that on the commons took place through a long work of construction of collective awareness.

Fig. 5
MOTA (selfmanaged allotment gardens) project in the Mondeggi Bene Comune farm

Fig. 6
Ludic actions in the public space of the S.L.U.R.P. (Spazi Ludici Urbani a Responsabilità Partecipata) network

The starting point was a participatory mapping process aimed to bring out the subjects active in the management, use and transformation of public or collective spaces (often abandoned or underused).

These groups were asked to self-fill an on-line survey form and to circulate it among similar experiences. The form contained a few questions aimed at highlighting the types of experiences and the subjects that carried them out, the resources used (tangible and intangible) and at investigating the facilitating role that the administration could have had for a better performance of the activities.

The subjects present in the map were therefore self-selected and self-described, showing in their different aims and practices, the contradictions and complexity of the ongoing transition.

The transformation practices observed concern both the production and the management methods of spaces that in some cases become commons. This transition occurs when a collective subject emerges in the public/private dichotomy. However, in this transition phase, neither the nature nor the intentionality of the new subjects acting on the urban scene emerges with sufficient clarity. Even in these cases a complex categorization work was necessary to highlight the different histories and meanings of self-organization practices in public space.

They are, in fact, very different:

- practices of co-management of public spaces by groups of citizens in collaboration with the public administration (within this category there are several public gardens

such as Nidiaci, San Jacopino, Orti dipinti and others, managed by groups of people with different level of rooting in the neighborhood);

- practices attributable to private initiatives that have tried to involve the territory in innovative ways and to reformulate public-private partnerships (e.g. the third square comanaged by Coop and inhabitants;
- self-management practices that are radically autonomous from the public administration, alternatives to the state and the market (the most recent actions of defense and custody of abandoned or underused public goods put up for sale, which refer to the movement of the commons e.g. The Mondeggi farm, an experiment of collective agriculture carried on by the Assembly "Terra bene comune" (Land as a commons) or La Polveriera, a common space of the student movement etc.);
- neo-communities that experiment alternatives in the fields of economy, work, lifestyle, rights (for example the Comunità delle Piagge (Piagge neighborhood Base Community), the informal neighborhood group Statuto in Transizione (Statuto in transition) and the various experiments of community living, with different degrees of awareness and radicalism);

- self-building practices and temporary uses put in place by groups that we defined as "public space makers";
- groups of citizens active in the cleaning of the city and in the removal of graffiti from the walls (like the Angeli del Bello (Angels of the Beauty), a massive phenomenon in Florence, the only one of these groups really supported by administrators).

The design practices that feed this kind of transformation are also extremely interesting. The public city produced through the great planning strategies, which are beyond the control of the inhabitants, is flanked by the city self-produced by the community, which uses and transforms public spaces according to its needs through incremental, adaptable and reversible logics, deliberately in phases, low cost, in the short term, on a local scale, preferring a tactical approach to obtain immediate results, without, however, losing sight of broader-scale objectives, inspiring and promoting global change.

The mapped actors are both entrepreneurial, simple citizens or activists belonging to territorial communities or communities of practices, organized in formal and informal groups. Some of these experiences seek interactions with institutions through forms of collaboration or political pressure, some others are totally autonomous and self-determined but looking for a recognition of their status of commons.

The C.I.V.I.S.M. path ended in early 2016 with the establishment of a City Forum on the Common Goods, an informal network that gathers some groups and individuals active in the city on this topic, which produced a shared platform in seven points (see Pecoriello 2018: 30). The forum still exists as a self-organized space for the construction of a political awareness and a shared ethics on common goods, often absent both in public administration and among citizens.

From the C.I.V.I.S.M. map to the Self-made scape

The Civism process was important for the experiences involved and self-mapped, which were able to confront the ongoing transition, their role in the complexity of the city governance and of power relationships at different scales and the role that the public administration could play.

The Civism map was used as an initial contribution to the research on the three scapes, particularly to the definition of the Self-made scape, subsequently supplemented by field observations and reflections by the authors. The Self-made scape map was then enriched by including practices that relate to housing, in addition to the experiences resulting from the self-inquiry conducted in the first phase of the research. In the section on housing policies, experiences of self-help housing were included, such as the ones activated

by an innovative call for proposals of the Region Tuscany and the relative Safety guidelines for building-sites of this type, defined together with the Tuscan Network for self-help housing which gathers both experiences of household self-building, eco-villages and political squatting movements. During the Civism project, a reflection was launched on the Regulations for the shared administration of urban commons, a new regulatory frame at local level conceived by Labsus, an organization that developed the model for the city of Bologna in 2014, later adopted by many municipalities, including that of Florence in 2018 with the Regulation on collaboration between citizens and administration, analyzed in the section about policies in the Self-made scape.

Emerging tensions

On the rare occasions when the world of self-organization meets institutions, it redefines its role and produces innovation and change in the way they manage, produce and reproduce the city and everyday life. However, this dialogue remains tiring, problematic or absent. One of the major obstacles that very often has emerged in the confrontation with public administration, is public debt, that is used to justify sales of public goods, revealing the subjection of public administrations to the logic of commodification (the aim is to maximize profits in managing public assets, rather than to recognize and preserve their social function) and the lack of any critical approach to the origins of the crisis of debt (Cappello 2018). This last theme is strongly linked to the increasingly evident conflict between the experiences of community self-management of public goods and their economic valorization carried out by public administrators. This has led, in many recent cases in Italy, to the eviction of squatters of social centers but also NGO's, and associations with a rich historical background about community welfare who had occupied public spaces for a long time. The eviction was motivated only by the need to cover the public debt or to have liquidity for other investments. This goes together with the inability of Public Administration to recognize the social value of these experiences and to find new ways of entrusting spaces to the management of communities that are not identified as formal organizations which are usually entrusted with the exclusive use of a space by means of calls for tender. The problem for the Public Administrators is to recognize (and monitor over time) the ongoing community experiences that make a non-exclusive use of spaces and to legitimate their existence. Finally, the question of legal responsibility emerges as a critical point, so that even the regulations for the shared administration of the common goods, that should empower active citizenship, are often designed to make possible the horizontal subsidiarity only by downloading on the citizens an unsustainable amount of responsibilities and costs, otherwise they are not applied for fear that these

same responsibilities fall on the administration. In general, the legal system as a whole is incapable of interpreting the constitutional dictate on subsidiarity, social function of private property and common goods in an unequivocal manner, of creating new regulatory frames, of redefining relations between the state and the communities updating historical forms of collective ownership in the urban realm (Micciarelli 2017), defining a not exclusive use and a 'shared responsibility' (not loaded on the legal representative of a single organization) and ways of managing public affairs that recognize the social value of experiences without having to run the risk of being targeted by the Court of Auditors for revenue damage. This incapability of the legal system is the reflection of the lack of perspective and interpretation of the politics and of large part of academic research, that continue to ignore and misunderstand what's emerging in the social practices. This partial and unconventional description exercise of Firenze 3scapes aims to develop a tool for activists and researchers who want to make the invisible, visible. The next step could be the creation of a community users platform for involving a continuous, shared and interactive mapping process. Every representation is nothing but an alternative modality to give a sense to reality.

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This essay shows a series of strategies and thoughts for design of human settlements built on water surface. The described project is a 10'000 people temporary •oating settlement, designed as alternative answer to the constant increase of housing demand in Hong Kong. The work was developed as Master degree thesis (tutor: Prof. Arch. Aldo Aymonino) and defended at Iuav Università di Venezia, in 2017. The strategy is set by two considerations: the first it deals with the main implications related to the floating settlements, the second it reflects on the opportunity given by the water's surface as a new new territory. Furthermore, it re•ects on the necessity of establishing a theoretical/physical dialogue between sea and land surfaces. The research underlined several contradictions and a lack of clear strategies that belongs to contemporary case studies, giving the project the opportunity to enrich the contemporary architectural debate with alternative strategy and operative tools. The project deals with different urban topics: from temporality and permanence, to infrastructure and public spaces. The result is a complex urban infrastructure, where the public spaces become the planning and regulation tool of the whole settlement, while different steps of temporality are assigned to each element of the structure, giving the possibility to be adaptable to different demographic scenarios. The strategy embodies all the project's scale, even describing some different atmospheres and domestic scenarios inside the housing modules, the basic element of the whole settlement.

HONG KONG'S NEW NEW TERRITORIES, AN ARCHITECTURAL DIALOGUE BETWEEN LAND AND SEA ENVIRONMENTS FOR FURTHER FLOATING CITIES ON WATER

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Introduction. Water is the new land.

Projects, strategies and scenarios for villages and cities which use water as a new surface recently came back as an urgent topic in the architectural debate on the future of the human settlement's expansions, figuring as a solution able to face the climatic displacements of the *Anthropocene* (Dobraszczyk 2017).

Beyond their operative value in emergency contexts, contemporary cases of cities on water demonstrates ambiguous approaches. In cases of cities' territorial expansion, it has been preferred to fill water surfaces with earth, funding artificial islands for hosting some functions of the city (e.g. airports, terminals, touristic resorts). Nonetheless, in several projects proposed by private investors, a single floating platform resets all the surface's differences between earth and water, giving the builder the freedom to settle on it its earth archetypes. Even among the consolidated tradition of Dutch houseboats (Kloos, de Korte, 2007) come up ambiguities in juridical definitions (is it a boat or a house?), space regulations, architecture and urban language for floating houses.

There is a fundamental choice to be made in designing a village on the water: we can think about a floating settlement, a fleet of small boats or a massive ocean liner that everything includes, or we can try to transport the primitive certainties of the mainland stability in a context that endlessly denies them. As the first option implicates both a physical and ideal drift towards fragmentation and informal aggregation, the second one escapes from finding a specific solution to the main question.

These premises act as the starting point of the project. Is it possible to adopt design strategies able to establish a clearer dialogue between land and sea territories? Understanding the limits and potentialities of each own surface made the project aware of a fundamental consideration: water is the new land (Schmitt [1942] 2015).

But If water becomes an unknown land, a 'New' New Territory (to recall the history of Hong Kong development) fated to be colonized, the reflection switches to a different issue, parallel to the primary one. How can a hostile place be domesticated? What foundations must be laid

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Fig.1
Hong Kong seen from the ferry to Lamma Island (photo by the author)

for a new settlement? Which development to image? Which complexity? What realistic scenario can we give for the future development of Hong Kong? (see Fig.1)

To settle on water

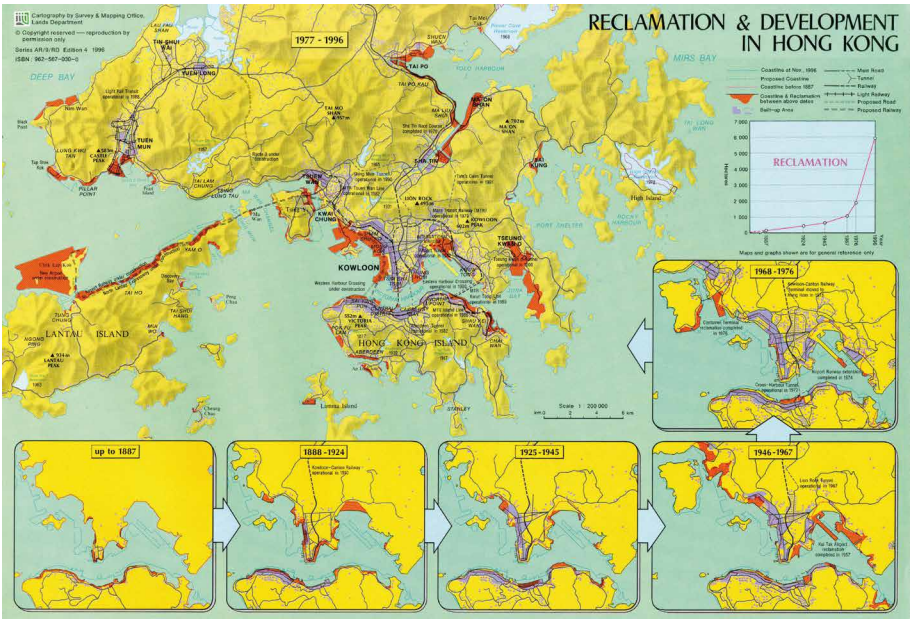
Humans are not suited for inhabiting seas. As Carl Schmitt wrote, "Man is a terrestrial, an earthling. He lives, moves and walks on the firmly grounded Earth. It is his stand point and his base. He derives his points of view from it, which is also to say that his impressions are determined by it and his world outlook is conditioned by it" (Schmitt, [1942] 2015: 5).

Although this, a vast series of case studies accepted the challenge to settle on water surface, accomplishing one of the strongest architecture's desire: overcoming environmental constraints for inhabiting hostile territories.

Beyond heterogenous necessities, most of the projects were pushed by critical issues happening on land. Water surface was chosen as a place of expansion of the city (in cases of land scarcity), as a place of political/urban exploitation, as a place of food production or energetic source.

Hong Kong, one of the most dense city in the world (in 2011, almost 400'000 inhabitants located in less than 1100 Km2), has faced with land scarcity since its born.

Fig.2
History of Hong Kong's land reclamations (from the Survey & Mapping Office, Lands Dept., Hong Kong)



The city's economic-political history, the dramatic topographic conditions and a rapid demographic demand in the 70's (Yeh 2011), pushed the city to reclaim portions of land from the sea, expanding its waterfront (see Fig.2). Beyond this continuous coastal reshape, other urban interactions with the water coexist in the bay. Since the XIX century, Aberdeen harbour (located in the Southern district) hosts a 6000 fishermen's floating village; while other fishermen's floating villages are settled in other points in the Pearl bay. Among them, the village of Lamma Island was chosen as site for the project (see Fig.3).

Other case studies come from many informal fishermen villages settled in Far east bays, between China, Vietnam, Cambodia. Among them, the villages of Xiapu (Nindge Region, China), Ha Long (Vietnam), Ko Panyi (Thailand). In these case studies (adopting both piling foundation and floating strategies) the inhabitants established a site for cultivation and fishing, saturating harbours and bays surfaces for food production (see Fig.4).

The project chose to give an alternative answer to the city's space reclamation, finding in the floating (rather than in the land filling) strategy an opportunity to develop an alternative urban structure. Parallel to this first case studies typology, other Eastern architecture projects had been chosen as design precedents. In 1960, the World Design Conference in Tokyo raised several questions for the future of urbanism, thanks to the contribution of architects

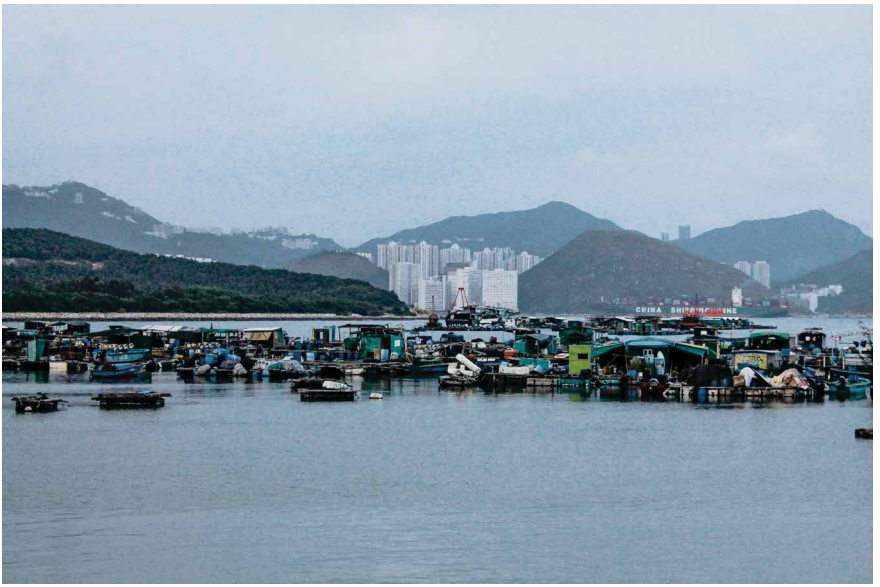


Fig.3
Project site, Lamma Island bay with the fishermen's floating village (photo by the author)

Fig.4
Beach, Shoals, Fujian, Xiapu (anonymous author, https://www.maxpixel.net/Beach-Xiapu-Fujian-Shoals-1833569)

who later joined together under the name of Metabolists (Koolhaas et Al. 2011). The projects developed by the group offered alternative scenarios for the rapid urban expansion of Japanese cities during the 50-60's, formulating innovative strategies for replacing the inadequacy of existing urban design and planning tools (Pernice 2004).
Fumihiko Maki's (1964) innovative researches on urban collective forms, Kikutake Kionori (Oshima 2016) and Kenzo Tange's project for Tokyo bay (Tange and Kultermann 1970) focused on floating cities for millions of inhabitants. Addressed by the international architectural debate as utopias, they rather were planned as prototypes for an urban expansion on water surface (Kaji-O'Grady and Raisbeck 2005). Reconsidering its role in the architectural contemporary context (Pernice 2004) these unbuilt projects offered innovative spatial hierarchies and relations.

To found, or to float? Dealing with temporality and permanence

Building a new settlement on the water gives the possibility to deal with current issues related to the life in the urban settings (temporary nature, flexibility, limited space), but at the same time, the water gives less constraints in the elaboration of new strategies. Considering the radical differences between land and water surfaces, to find an architecture on the seabed appears clearly as a paradox, since marine objects adopt and follow the basic hydrodynamic constraints. Their shape is totally devoted to satisfy Archimedes' law: rather than founding themselves as land objects, they float onto a fluid surface.
Kikutake's marine cities projects (Oshima 2016), furnished a vast catalogue of floating typologies, mainly derived as inspiration from organic shapes (Nyilas 2016). In these precedents, the potentiality behind the floating strategy allowed to deal with temporality and flexibility on urban structure. The design of urban elements which adopt different founding technologies, allowed to design with different degree of temporality. Thus, the hierarchy which orders all the project's elements is regulated by a balance between permanence and temporary nature of the structures.
The breakwater dam that protects the bay, is the element with the lower degree of temporality. It is founded with an embankment that produces energy, a massive drinkable water concrete tank and a surface that offers welfare services and public spaces for the community. Designed as a generating element of the settlement system, the embankment is designed with reference to the construction principle of vertical-walled dams. Usually used as mouths in the main maritime ports, it works both as foundations and renewable energy storage (see Fig.5).

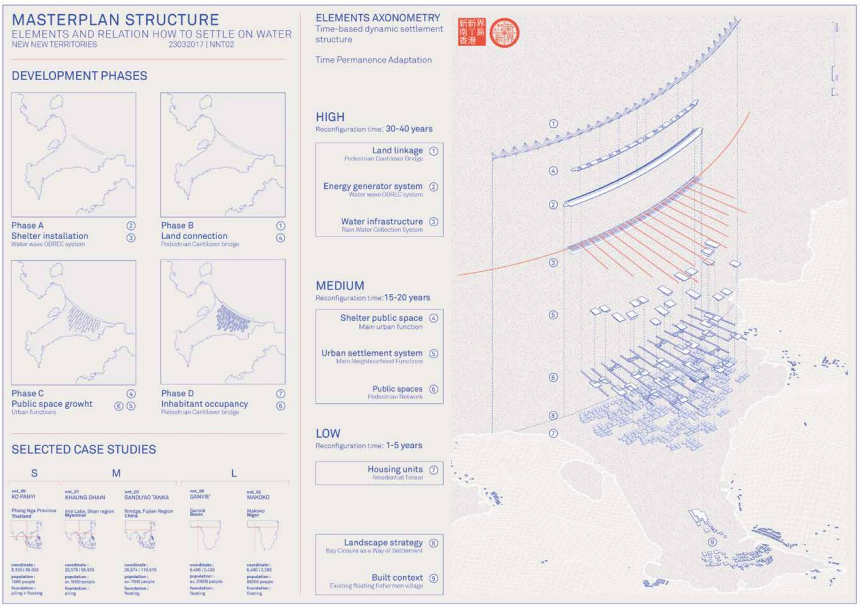


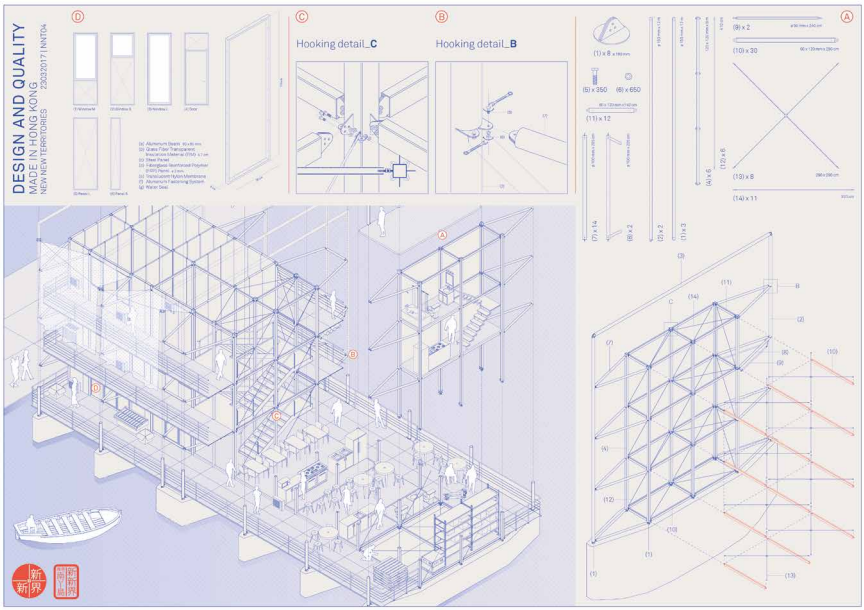
Fig.5
Masterplan structure, project elements and hierarchies. Exploded axonometric projection

Fig.6
Housing units, construction strategy, Exploded axonometric projection

Above this complex element, the arch of the pedestrian bridge keeps a light, but comforting link with the mainland, creating a new dialogue with the context. The dam is planned to remain the only permanent element of the project, to which a more flexible structure is connected.

From this element, a series of radiant piers are founded to the seabed with removable pillars. Conceived as mediation elements between the dam and the housing units, they have a middle degree of temporality. Built with a modular prefab framework, they could be expanded or reduced in length, adjusting to the expansions or the contractions of urban tissue.

The floating residential units are the most ephemeral and dual elements of the system: the modular structure allows a great flexibility in term of space and function. The necessity of an easy and fast building process, eventually reversible, determines the choices about materials and detail solutions. Thanks to their floating nature, they could adapt to tides, move from one point to another, expand or reduce their dimensions, adapting to the settlement's housing demand. Refusing the concept of a platform, they are built starting from an array of parallel vertical buoys, hinged together by a prefab framework.



Those vertical cores act as fixed logistic spaces able to assure domestic facilities (toilets, kitchen, stairs). The other space of the units is shaped by inhabitants' desires and necessities (see Fig.6).

Energy & Public spaces as design tool

Adapting the strategies shown in Maki's *Investigation in collective form* (Maki 1964) and taking inspiration from megastructure' concept (Banham, 1976), the settlement is designed as an energetic machine, managing with different flows (people, energy, sources, waste). Acting as main design tool, public spaces are conceived in synergy with the energy infrastructures.

Energetic independence from land could be considered as the most present aim for the recent (not only) floating cities' projects, being sustainability a central topic in the contemporary architecture debate.

The project takes distances from these precedents, refusing the idea of a complete sustainability. Different systems of renewal energy (taken mainly from solar and waves sources) contributes to Hong Kong's energetic network, which still remains the main source of energy for the settlement. This dependence wants to establish a closer relation between city and

settlement: rather than an independent entity, it works more like a piece of the main city, implementing the whole network with the production of renewable energy.
Other flows, like drinkable water and waste are completely managed by the settlement's structure.
The breakwater dam acts as main 'mother' element. The side of the dam facing the outside of the bay hosts a water and energy storage system called OBREC: this technology uses the breaking of waves against the dam walls for storing water inside tanks, and extract electricity with a forced passage through a series of hydroelectric turbines.
The reinforced concrete tanks that make up the dam's structure act as water tanks, divided into different storage functions: from the first storage, to the treatment up to the conservation of drinking water for human consumption. The water comes from two collection systems. The first collects the rainwater from the housing unit's roofs, then sending it to a centralized purification system, which redistributes purified drinking water to the entire network. The second water resource, the marine one, is captured by OBREC system: after having obtained energy through the turbines, the water used is stored and desalinated, for non-potable use, both domestic and non-domestic.
This flow is centralised as well in the embankment and distributed to the entire network (see Fig.7).
Over this water storage system, settlement's main public services take place: these are primary services, such as high schools, medical centres, commercial, entertainment. Their composition is developed along a central axis, accessible from the main connecting bridge. From the height level of the central axis, the piers branch off, delivering energy and flows.
Urban piers are the founding matrix of settlement's public space, composing the entire urban/energetic village's infrastructure. The piers structure is assembled in correspondence with energy and water network, which always remains continuous and undifferentiated throughout the pier's length. All the variable modular components of the bridge and services are designed to connect to it.
The pedestrian walkway spaces have been designed to offer heterogeneous functions and practices, as well as direct connection between the parts of the village. Different configurations can be assembled and made possible, thanks to the pier's modular structure, which provides as well moorings for floating housing units.
Secondary public services, different in scale and function from the primary ones, take place alongside the piers. These units, with heterogeneous public functions (from the market, to the primary school, up to the sports centres) act as aggregation spaces. Their

position alongside the piers organize the settlement in different portions, managing housing density.

These secondary services are designed as urban piers' expansions, sharing with them composition and construction strategy.

Furthermore, these nodes are connected with the transverse pedestrian bridges. Intersections serve as well as infrastructural junction between the two levels of the piers, thus providing further opportunities for spontaneous aggregation, in correspondence with the public functions. Different piers heights give the possibility to navigate underneath them and to go across the settlement, while the transverse bridges allows the same freedom for pedestrians flows (see Fig.8).

The path from secondary service cores to the housing units is planned as a gradient from a public to a private space, with hybrid spaces which act as mediator. From the piers, short movable bridges connect to the housing units, conceived as a living frame capable of accommodating both the living function, and small work/business activities. Housing unit's balconies act as hybrid space, bring the plot of public spaces to increasingly smaller dimensions, blurring the rigid boundary between public and private (see Fig.9).

Imaginary

Building land city's expansions on water surfaces implies a selection of concepts, spatial relations, materials and atmospheres to be transcribed and placed in new territories: a migration of imaginaries and urban narratives, displaced from the land to the sea.

This ontological operation could be found in several precedents: from European colonies settled in the Americas, to the most ancient religious myths regarding the great flood. Especially the myth of Noah's Ark could become a key reference for tracing this approach.

The millenary Noah's Ark iconography, witnesses how Ark's architecture took shape from different land archetypes through the centuries: churches, tents, palaces, etc.

The drawings made by Athanasius Kircher (1675) gave scientific dimensions and proportions to Noah's Ark. Kircher's designed an encyclopaedic architecture, which works as taxonomy for all the animal species to be saved from the flood. Pushed by the imminent divine climate disaster, this architecture operates as archive which selects and collects a precise portion of the known world. (Breidbach and Ghiselin 2006)

Taking inspiration from this myth interpretation, the project is a framework which supports a displaced imaginary brought from Hong Kong (see Fig.10). All the elements hosts narratives brought by the city, in the attempt to establish a conceptual dialogue with Hong Kong. The mix of work and housing spaces, the imaginary of living in extreme levels of

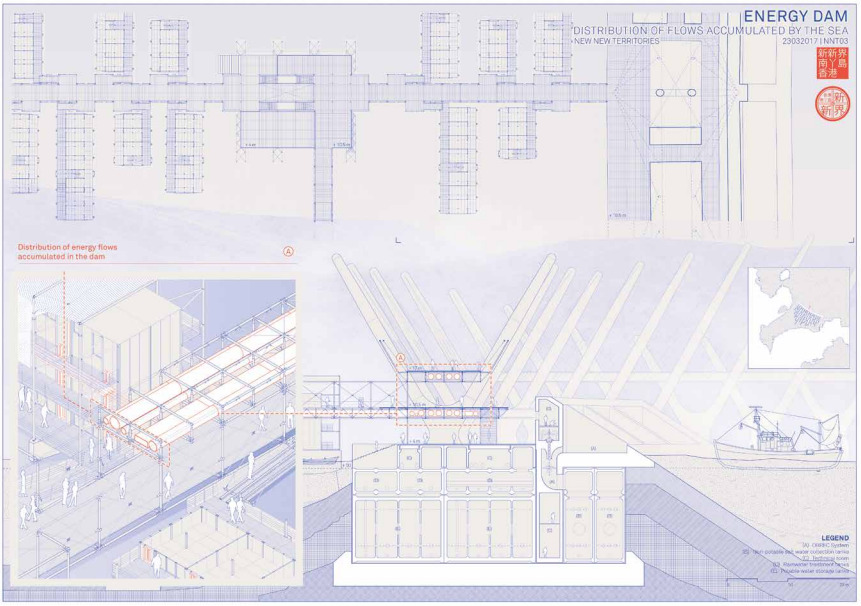
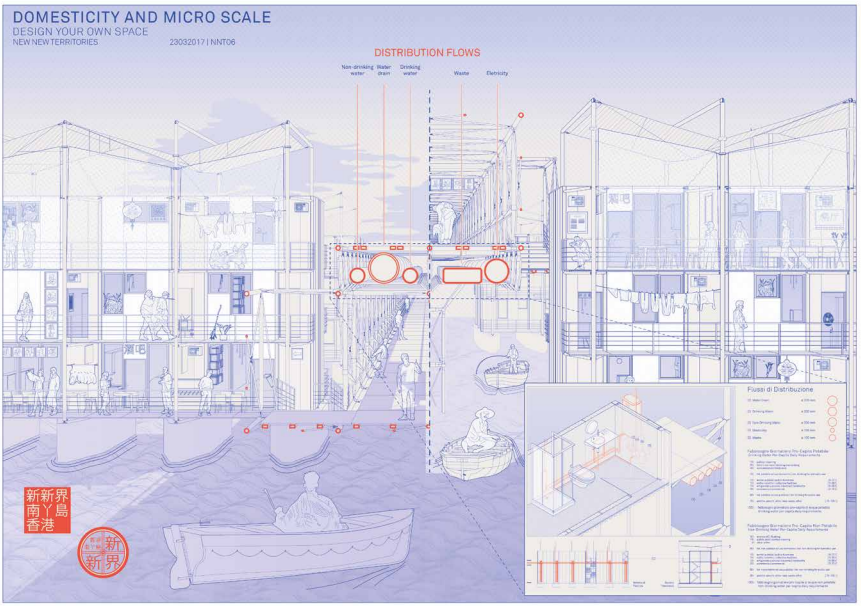


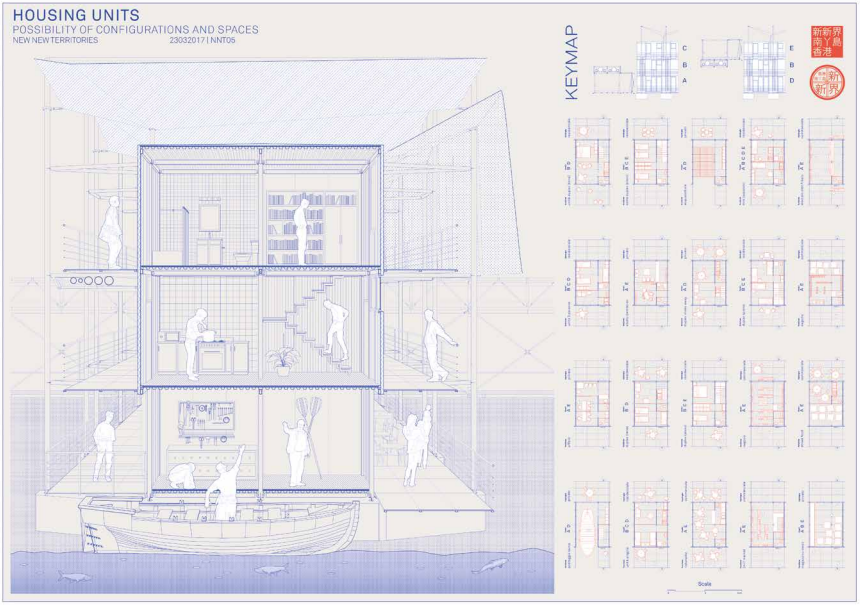
Fig.7
Energetic network, Breakwater dam, Section

Fig.8
The urban pier and its relation with the housing units and the energetic network, Section

Fig.9
Housing unit and its potentialities in spatial configuration, Section and plan

Fig.10
Displaced imaginaries, Hong Kong's elements translated into the project, Axonometric projection

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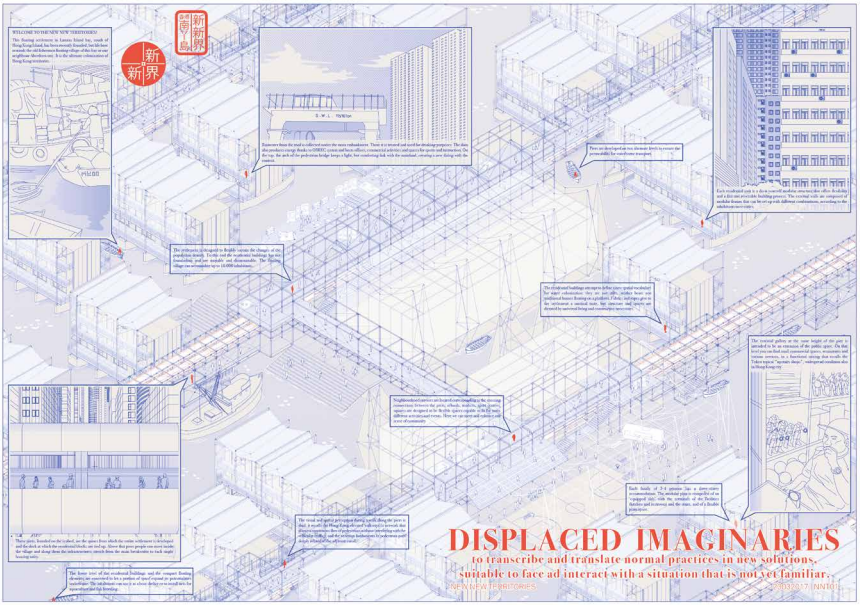
WELCOME TO THE NEW NEW TERRITORIES
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DISPLACED IMAGINARIES
to transcribe and translate normal practices in new solutions,
suitable to face ad interact with a situation that is not yet familiar.
NEW NEW TERRITORIES
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Fig.11
West Kowloon, Hong Kong (photo by the author, Kodacolor 200 film)

Fig.12
Hong Kong's pathways, Tsim Sha Tsui, Hong Kong (photo by the author, Kodacolor 200 film)

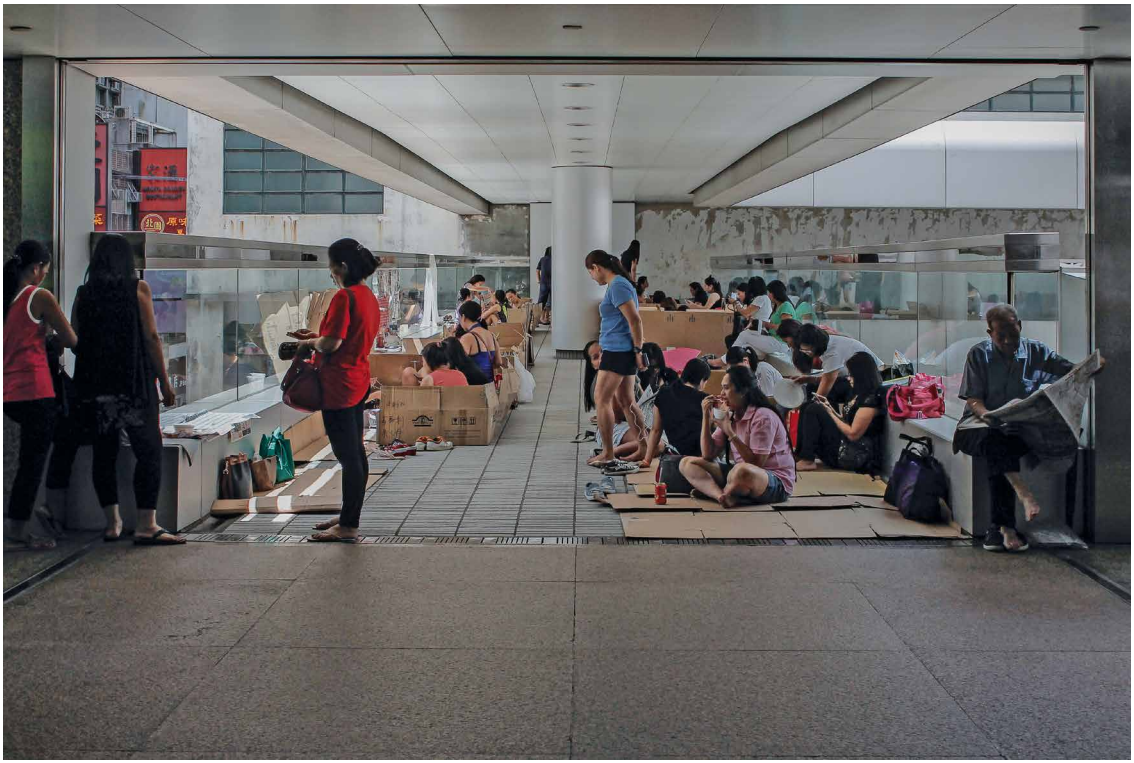
congestion and population densities: even the cladding material of project's volume tries to recall to the foggy atmospheric conditions of the Pearl bay. Even the density has been source of imagery. Rather than a matter of numbers, the project had interpreted it as opportunity to develop new design experiences, focused on the rewriting of the spontaneous practises that the density itself generates (see Fig.11).

Project's infrastructure and public spaces design are mainly inspired by Hong Kong's pathways (see Fig.12). They compose inside the city a complete autonomous pedestrian infrastructure, set above the ground and separated from car traffic. Because of this, on a cultural and physical point of view, "Hong Kong is a city without ground" (Frampton et al. 2012). The complex pedestrian network is shaped by city's density, atmospheric and environmental constraints (air conditioning). It crosses and joins heterogeneous fragments of the city: shopping mall's halls, public parks, transport stations, housing lobbies (see Figg.13, 14).

Conclusion

Fig.13
Hong Kong's pathways as space of aggregation, Central, Hong Kong (photo by the author)

The project acted as an index of theoretical questions related to the design of floating settlements on water surface. Taking origins from two main topic, Hong Kong's demographic demand pressure and the strategy to build on water, the project tries a dialogue between the necessities of the land and the opportunities given by water territories. The lack of strategy and ambiguities in contemporary case studies has been the starting point for this argument, with the purpose to enrich the architectural debate of a renewed perspective.



The approach to the design of a settlement on water territory brings to the image of a new frontier: it is an effort in transcribing and translating normal practices into new solutions from land to the sea, suitable to face and interact with a situation that is not yet familiar.
Because of this, building on water surface is a matter of an ontological and spatial dialogue between two environmental surfaces: land and sea. The design strategies within this project are intended as a possible, alternative relationships for these two contexts.
The potentiality of this operation is the development of an alternative, innovative urban strategy.

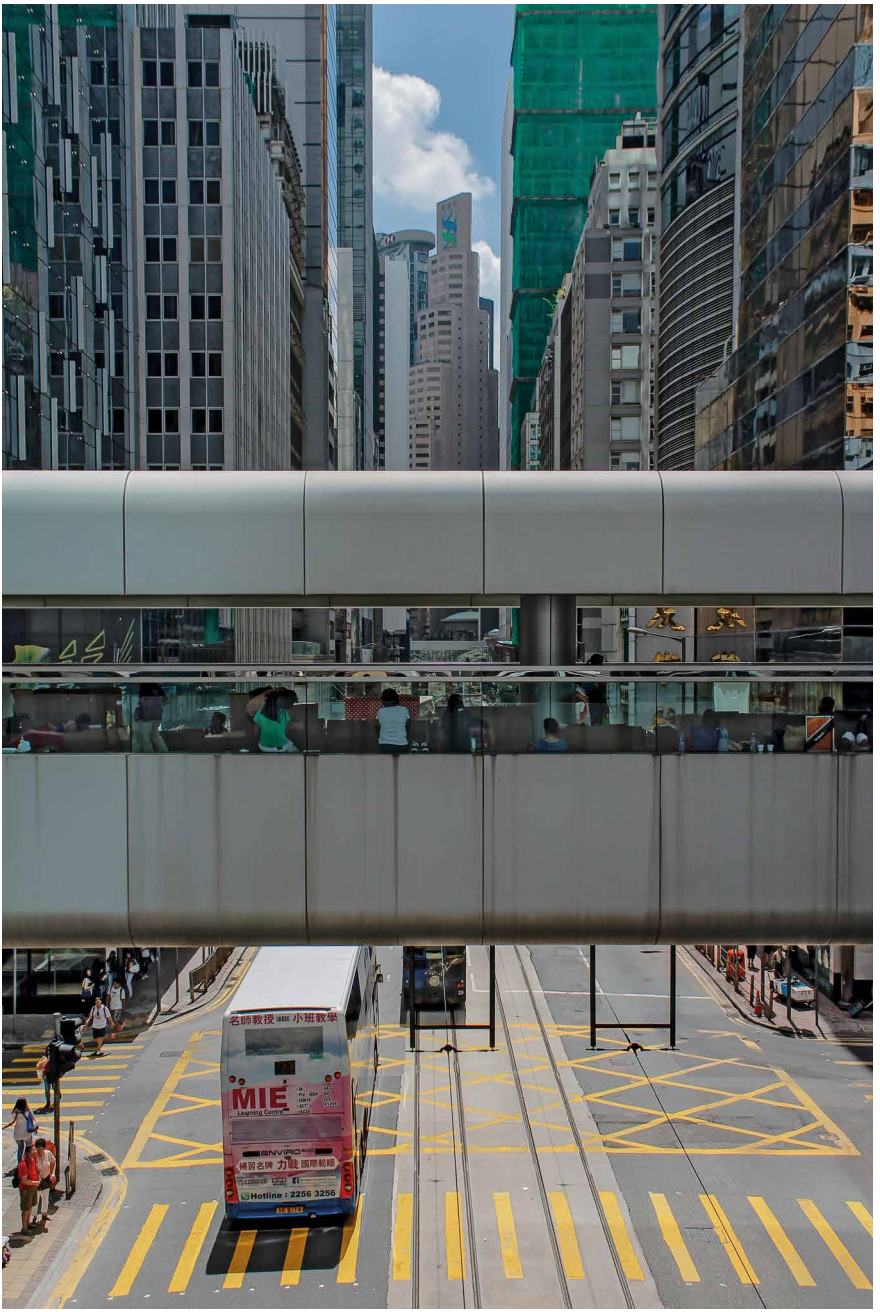


Fig.14
Elevated pathway crossing the street, Central, Hong Kong (photo by the author)

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The paper is built on ongoing research by the Critical Planning and Design Laboratory. This contribution aims to re•ect on public policies and governance tools for the short-term rental phenomenon in the urban region of Florence. This is a fuzzy-border domain that is defined by overcoming institutional borders and considering the current interactions and people, economic, touristic, information flows of this region. In this context, the research is guided by questions such as: with what policies, what planning tools, and with which means the multitude of challenges connected to the Airbnb, and the other home-sharing platforms dynamics constituting a muddle of multiple interests and therefore, unpredictable directions of the future, could be faced? The contribution is an intermediate working paper, and therefore it presents preliminary contextual re•ections in the framework of complexity theories.

AIRBNB AND THE CITY. TRENDS AND IMPLICATIONS IN FLORENCE

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Introduction

Cities, as post-metropolitan realms (Soja 2011; Brenner 1998; Balducci et Al. 2017), are challenged by constant social, economic, environmental non-linear dynamics and discontinuous changes (De Roo 2018; Portugali et Al, 2012; Jacobs 1961; Perrone 2019). In this context, new phenomena emerge among others and consolidate in the *platform economies* (Kim et Al. 2019) frame. These are businesses characterized by digital infrastructure exchanges in different sectors: from the social networks to online spaces for services or products transactions (Srnicek 2017). Among the platform economies, the home-sharing platforms go under the label of lean platforms, including platforms as Uber and Deliveroo, for their distinguishing feature of owning only the p2p (peer-to-peer) relation between seller and buyer, not the physical product or the service on sell (Srnicek 2017). This is a huge shift from the traditional industrial paradigms concerning the product and the company assets. The other great shift linked to the platform economy is the centrality of data, one of the main profit channels of the platforms. «Just like oil, data are a material to be extracted, refined, and used in a variety of ways. The more data one has, the more uses one can make of them» (Srnicek 2017: 40). And of course, the more one can profit from them.

In the framework of the platform economies, a recent but increasing literature is investigating the short-term rental (STR) platforms dynamics, particularly focussing on Airbnb because of its predominance in the European home-sharing market. Many scholars (Holman et Al. 2018; Barron et Al. 2018; Nieuwland and Van Melik 2020) point how this private company is producing unexpected effects such as gentrification (Cócola Gant 2015; Füller and Michel 2014) or the progressive exclusion of long-term residents from some areas of the city due to higher rental prices after the increase of Airbnb supply in the neighbour (Barron et Al. 2018). Meanwhile, born to be a more sustainable alternative to Airbnb and similar platforms, Fairbnb is a new kind of internet-based service firm,

> a community of engaged citizens, researchers, and people from a variety of professional backgrounds aiming to put the word "share" back into the sharing economy. The[ir] platform provides

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Camilla Perrone, Flavia Giallorenzo, Maddalena Rossi (edited by), *Social and Institutional Innovation in Self-Organising Cities*,
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> a community-centred alternative to current vacation rental platforms that prioritizes people over profit […] a web-based meeting place that allows hosts and guests to connect, facilitating for meaningful travel and socially beneficial exchange.[1]

This experiment devolves half of the earnings to bottom-up local projects involved in reducing the negative impacts of the over-touristification (Koens et Al. 2018), indeed. As we can observe in the case of Fairbnb on a side, and specifically Airbnb on the other, platforms seem to be very fluid not only for the supply, directly influenced by the type of hosts and their own business but even in their policies and their ability to perceive necessities of the market and the moment. We refer especially to Airbnb's choice of creating specific sections of the platform dedicated to luxury houses or the interest of the company in promoting a project on inner and underused areas in different countries with different degrees, e.g. the Samara project in Japan,[2] but even softer actions e.g. in Italy.
Indeed, in 2007, Airbnb, supported by the Italian Ministry of Cultural Activities and Heritage (Ministero per i beni e le attività culturali - MIBACT), started a project to promote the less touristic Italian areas to "support local communities outside Italy's major cities".[3] This project is interesting both for the role played by Airbnb in interacting with public authority and for the decision of this private company to invest in inner and rural areas of the Country. Nonetheless, the Airbnb implications have been mainly studied in the city centre, where the higher demand and supply are located and where the accessibility to site scraped[4] data let research on quantitative, georeferenced information. Though, we contend that in Italy, and specifically in Tuscany, it would be necessary to investigate the Airbnb dynamics and effects on territories, crossing municipal borders, going through the metropolitan area and beyond. Hence, due to the peculiarities of Tuscan territory (Paba and Perrone 2018; Paba et Al. 2017, Perrone et Al. 2015), this paper assumes the *city region* (Soja 2011; Schmid 2014; Brenner 1998; Brenner and Schmid 2015) as the geographical reference of these reflections, considering

> urbanism as a way of life, once confined to the historical central city, [that] has been spreading outwards, creating urban densities and new 'outer' and 'edge' cities in what were formerly suburban fringes and green field or rural sites. […] [I]n some cases city regions are coalescing into even larger agglomerations in a process that can be called 'extended regional urbanization' (Soja and Kanai 2006: 59).

[1] <https://fairbnb.coop/about-us/> *(12/2019)*.
[2] <https://www.fastcompany.com/30622246/an-exclusive-look-at-airbnbs-first-foray-into-urban-planning> *(01/2019)*.
[3] <https://italianvillages.byairbnb.com/> *(01/2019)*.
[4] Sitescraping is a process of data extraction from websites.

Administrative and official borders seem to be too much defined and rigid to be a reference for coping with the fuzziness that distinguishes the complexity of contemporary cities (Soja 1996). The strong and interconnected relations between people, associations, even institutions, that cross the official borders have been investigated, highlighting how the Municipal, or even the Metropolitan limits of Florence, are not feasible to describe, guide, plan, govern it. In the Florentine case, policies are related to a geographical context that is deeply influenced and is in strong relation with other places, not included in the institutional vision because out of borders (Perrone et Al. 2017; Paba and Perrone 2018). This is the reason we adopted the post-metropolitan approach to make these reflections 'landing' on the territories involved in the analysis.

Institutional policies are related to institutional borders. Therefore, these are usually referred to a specific region and their range of action does not often interact with other players or places outside its limits. Differently, the platform's policies can create an agile network of co-players around the globe, connecting people, companies, associations with the same goal and even institutions that can support (fast and sudden) projects of the Company. Time and speed are crucial differences between Airbnb and administrative actions. However, it is necessary to underline that the platform policies are the result of private company intentions and do not need to pursue the common good, as public policies do. This inadequacy of planning and governance tools has led to the emergence of a 16 European Cities Network, built to present to the European Commission a law project. Amsterdam, Athens, Barcelona, Berlin, Bologna, Bordeaux, Brussel, Krakow, Florence, Lisbon, Madrid, Monaco, Parigi, Reykjavik, Valencia and Vienna are working to have a common law under which facing the Airbnb and other home-sharing platforms impacts. In their own countries, many of these cities are assuming control and restrictive positions to contrast the STR phenomenon that affects social equality and the 'right to the city', moving people – students, low-income people, long-term residents, and also owners that auto-exclude themselves to make more profits and tenants, from specific parts of the city.

In 2019 in Italy, a national law on short-term rents passed (L.n. 58/2019). Article n. 13 *quarter* of this law introduces national rules for the STRs especially, to avoid taxes evasion. It introduces a 'national identifying code' that each owner must have and that platforms must show on their 'host' spaces to be legal. A precedent national law (Dlg.n. 50/2017) indicated as short-term rent only that rents not longer than 29 days per year, that could in a sense guarantee that the house was inhabited by the owner, who rents just for its holidays and such, without being an entrepreneur. But, this kind of measure, applied even by other countries and cities like London, New York, Barcelona, need to be supported by a strong system of control

(Ferreri and Sanyal 2018; Leshinsky and Schatz 2018). Furthermore, the law provides that Airbnb, or other intermediary platforms, had to collect the flat tax of 21% of the transaction from the users for the Italian State. This law has been taken to the National Council (Consiglio di Stato) by Airbnb. And the Italian State took it to the European Court of Justice. Then, the situation seems to be blurry and in becoming, but unsolved. What we can evidence is the focus of these resolutions, primarily concentrated on fiscal issues and restrictive rules for hosts. Socio-spatial effects of these dynamics seem not to be a marginal matter and we contend that would be important that laws took it as a pivot element to find adaptive answers.

Therefore, how impacts of the Airbnb phenomenon are emerging in '*extended regional urbanizations*', and particularly in the urban region of Florence, and how these social, economic, spatial impacts are subject of policies are the objects of investigation of this paper and standing questions for a research agenda.

Reflecting on the change

Airbnb is a transnational home-sharing platform that, like other lean platforms, is changing rapidly and continuously the current urban dynamics, boosted, at the very beginning, by the economic crisis of 2008 (Srnicek 2017). Its role is the object of many studies and recent literature on the theme (Van Doorn 2019; Leszczynski 2019; Shabrina et Al. 2019). The role of planning in the Airbnb and the city dynamics is still under discussion (Ferreri and Sanyal 2018; Holman et Al. 2018; Barron et Al. 2018).

The geographical context of a post-metropolitan city region can represent an interesting case study to explore both vertically and horizontally the governance scales and actors. Particularly, the region of Florence, meant as a fuzzy-border part of the territory, is subject to processes of change that converge and emerge in complex, discontinuous, non-linear dynamics. Considering the emerging complex interactions among cities and the STR dynamics - among which the Airbnb company is an influent and private actor that gives space and visibility to other private actors to sell or let their products, in a muddle of multiple interests and therefore, unpredictable visions of the future - what challenges public policies and planning will face or are already facing?

Recently, the European Court of Justice recognized that, for its nature, Airbnb is not real estate owners or companies, but, as sentenced in the case versus the *French Association pour un hébergement et un tourisme professionnels*, it is subject to regulations for 'information society service', not being a real broker, an estate agent. How can the public sphere approach these new fuzzy, unclassified typologies of actors? The European

Network of 16 cities strongly subjected to the phenomenon is working to propose a common law to the European Commission to have the same rules in Europe for the short-term rental market. Currently, in their own countries, these cities are approaching the problem with restrictively means, e.g. giving maximum numbers of rental nights for a year and enforcing other similar rules that need a huge effort in controlling. After moments of "regulated deregulation" (Ferreri and Sanyal, 2018; Holman et Al. 2018), we are witnessing the opposite. How can the public sector pursue the public interest and therefore guide the change, not refusing it, nor controlling it?

Many scholars worked and are still working on these topics. We think that Sassen's call for «urgency to the work of actively making the public and the political in urban space» (Sassen 2014: 8) especially in case of large acquisitions of urban land, needs to be unpacked in the frame of local and regional policies coping with the short-term rental activities fostered by platforms like Airbnb, in a complex and multiscalar socio-geographical context.

Florence, a portrait

The Florentine region is a fuzzy border domain in which interactions between different actors are spread outside institutional borders. The city centre of Florence is a powerful magnet for tourism (Colini et Al. 2009), but its suburbs and the rural landscape are getting influencing realities in this market (Annual Report Centro Studi Confagricoltura 2017), with substantial differences from the cultural heritage fruition (Centro Studi Turistici Firenze[5]), but with significant numbers and possible reflections even on the home-sharing platform processes of change. Therefore, the city-region of Florence follows this trend and is drawn on a geographical domain based on a previous National Research Interest Project (PRIN) *Post-Metropolitan territories as emergent urban realms: the sustainability, housing and governance challenges* (2012-2013).

Passing the institutional borders permitted to include in the research a wider and interconnected territory, where

> [t]he post-metropolitan transition in Tuscany is analysed with reference to the role of geo-historical matrices in determining a polynuclear pattern of settlements and a reticular organization of inter-institutional cooperation (Paba et Al. 2017: 95).

This is the context of our Florence portrait, multi-scalar, fuzzy, fluid, in which our reflections and our current research is aimed to deeper investigate the emerging, complex process of the short-term letting that, due to a globalised infrastructure such as Airbnb, is exponentially

[5] <http://centrostudituristicifirenze.it/blog/turismo-slow-e-toscana-tra-cammini-borghi-enogastronomia-e-sport/> *(01/2020).*

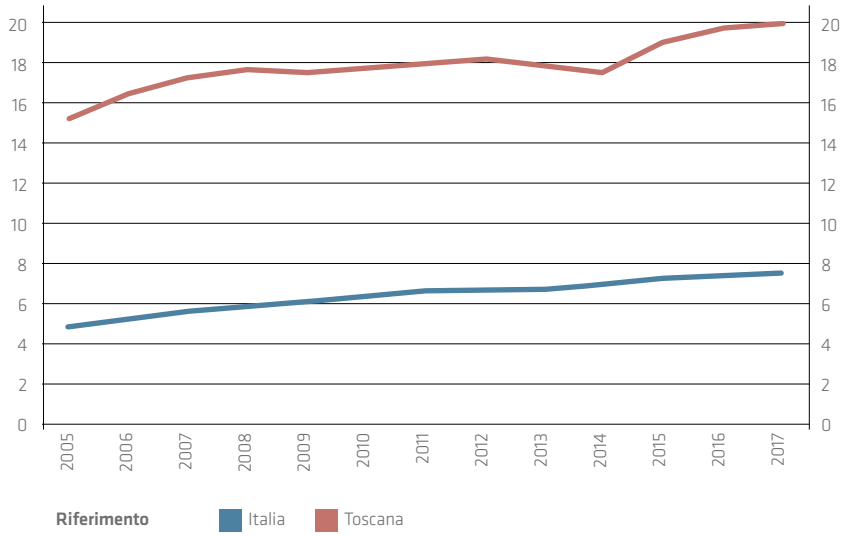

Fig. 1
In the x-axis: the reference period. In the y-axis: the number of holiday farms for 100 square kilometres. Source: <https://www.istat.it/it/benessere-e-sostenibilit%C3%A0/la-misurazione-del-benessere-(bes)/gli-indicatori-del-bes> (01/2019)

growing through the local. Its effects involve the city in unexpected, more often negative, ways. These impacts are inputs for asking how private interests and the public sphere can interact and how planning and governance can guide the socio-spatial effects of the Airbnb phenomenon taking place in the region of Florence. To have a primary frame of the situation in this context, the case study is analysed through different types of data. Quantitative and geolocalised data are accessible only within the municipal borders of a selection of the most touristic cities. They are constantly updated and made available by websites like InsideAirbnb.com and TomSlee.net that provide them in open-source versions. Statistical data and previous research add quantitative information about the entire region of Florence, which, still, was mainly investigated through qualitative data, consisting of informal interviews made to local institutional stakeholders. From this in-depth investigation and the literature, the wide territory of the region of Florence was taken as reference, not only the place where major -people, information, economic - flows come across the Tuscany region but a peculiar territory invested by its touristic flow, outside the strong pole of the Florence city centre. Indeed, the Chianti, or *Chantishire* as defined because of the large number of English people that moved there, is a brand landscape of Tuscany, a flagship picture of the region and its lifestyle. In the whole Tuscany, the promotion of traditional landscape and food and food culture has increased the business of agritourism, about which ISTAT (Italian National Institute of Statistic) registers

19,9 holiday farms for 100 square kilometres (in Tuscany in 2017), with a growing average of 17 holiday farms/100kmq within the period 2005-2017, a significant datum compared to the Italian average (around 6 for the same interval). And these trends are steadily increasing, boosted by the territory and by regional policies. As we have seen, Airbnb can impact and influence the everyday life of the territory in many ways, that need to be known and guided by the Public to reduce negative externalities.

The problem of data accessibility is a central point for the public administration at any scale. As mentioned, the national laws provided some solutions to the problem, but for the moment they are both unapplied. At the regional level, Tuscany adopted a regional law on tourism (Testo Unico sul sistema turistico regionale LR n. 86) in 2016 and its regulation, the applying rules of the law (d.p.g.r. 47/R/2018), in 2018. The host, even if she/he does not manage directly the house, has to report to the municipality: where the house/houses is/are; information about the activity (for statistic use); the potential entrepreneurial nature of the activity. Houses must have hygiene and structural requirements. Therefore, this law is mainly aimed at collecting short-term rental data. This might have an impact even on the Airbnb users and policymakers but, since the regulation has entered into force last year, its effects are not currently visible.

The planning and the governance are constantly challenged by the phenomenon, the conditions and the interests of Airbnb which are in constant change, as the impacts from these derived on the city. A chronic lack of data contributes to the public policies downturn. At the municipal scale, it can be found a '*laisseiz-faire*' policy, possibly due to economic development interests about tourism and *touristification* of the city. This issue has been detected in some informal and unstructured interviews with a sample of local technical and political stakeholders involved in the topic to different degrees. We are possibly witnessing what David Harvey wrote about in 1989:

> […] investment increasingly takes the form of a negotiation between international finance capital and local powers doing the best they can to maximise the attractiveness of the local site as a lure for capitalist development (Harvey 1989: 348).

Finally, the middle level of governance, the Metropolitan City, seems not to have the political power to adopt concrete dispositions about the STR phenomenon. Possibly, because it is an assembly of Mayors, which president is the City of Florence Mayor. The political weight in the assembly is related to the most densely populated and the most economic influencing municipality at the table. Furthermore, the geographical limits of the Metropolitan City of Florence are the object of discussion (IRPET 2016) because it was decided to maintain the old borders of the province, losing the chance to include other regions more intensely

involved in daily flows exchange with Florence and other metropolitan poles, such as the Prato and Pistoia Municipalities, but even the cities in the Valdarno Superiore.
The weakness of policies context might be even more evident if we consider the Florentine region as an exploding context of in-becoming, unpredictable and complex situations (Cilliers 1998; Portugali and Stolk 2016) need to be addressed by the public vision for common good.
Finally, it is crucial to strengthen the awareness of the current necessities of all actors involved in the process of change and to promote a multilevel, interacting and strong political commitment that could open a dialogue with the platform(s), a dialogue between global interests and local needs.

Conclusions

This brief picture of the region of Florence case is aimed to introduce further research on the short-term rental phenomenon, and to let emerge some issues linked to the interface and the interaction between the public sphere and the private interests of a company that contains and promotes the multiple (and unpredictable) interests of many privates (the 'hosts'), while having its global markets and stakeholders. The missing dialogue between the public and the private is leading to perceived, and even tangible, negative effects produced by Airbnb policies in the local contexts. Reactions are emerging both from the privates, with new sustainable platforms like Fairbnb, and from the public, with the European Network of the 16 Cities working for a common law on the short-term rental market. Still, it is evident a gap between the private and the public that raises a question: what planning tools might be suitable to face challenges derived from private interest impacting on the common good? How can the public sector pursue the public interest and therefore guide the change, not refusing it, nor controlling it?
In conclusion, these questions represent pillars of a research agenda that will examine not only the phenomenon inside the municipal city limits but will investigate it in post-metropolitan regions that even do not perfectly match the institutional borders.

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Conclusion

TOWARD A NEW IMAGINATION

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The spatial re-configuration is at the centre of contemporary urban, politics and economic processes (Pullano 2016) in Europe and worldwide. Actually, the very concept of urbanity is involved in this spatial re- configuration – as proved in a considerable literature (Hall and Pain 2006; Keil 2011; Kloosterman and Musterd 2001; Lang 2003; Roy 2009; Scott 2001; Soja 2011) – that is re-defining it in a transition toward dimensions different from those we used to historically called cities.

Therefore, coping with a new, emergent form of the urban, as a trans-scalar and interconnected regional urbanization (Soja 2011), it is necessary to leave behind the nineteenth-century idea of the city, overcoming the traditional dichotomous interpretation of it, based on classical binary juxtapositions centre-periphery, urban-rural and local-global. Furthermore, this new contemporary urbanity phenomenology is based on the topic of the epoch-making shift from a space of places to a space of flows (Perulli 2017). Today, urban contexts are crossed by a global connection made of continuous flows of information, people, goods that go through socio-economic large-scale processes. Consequently, this hyper-connectivity produces a significant change in practices, institutions, logic and ideologies at the base of unprecedent relations between space and society.

Contributions collected in this book present a plurality of theoretical views and findings of practices related to the current shift that is re-configuring shapes and nature of the contemporary city through unprecedent geographies which seem to compose in new ways space-society, real places-virtual spaces and local-global relationships.

The contributions constitute a varied and multifaceted urban overview, that essentially portrays the complexity of the current re-thought on contemporary urbanity phenomenology at the global level. Indeed, the common element of the papers collected, that present different themes and geographical contexts, is the approach to the urban phenomena under the lens of the complexity. They portray urban areas as a plurality of variable and interconnected systems, characterized by the 'rhizomatic' (Deleuze and Guarri, 1976) coexistence of spatial and non-spatial relationships. These systems are constituted both by networks and flows

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of economies and trans- local and trans-national information and by physical spatial relationships among people, (real and virtual) objects, between people and objects and natural elements. These new relational configurations, each with its own form of agency, lead to innovative and complex spatial configurations. Their main feature is the unavoidable and in-becoming interplay between places as punctual and physically localized entities, and flows as interconnections between economies, cultures, ways of living both close and distant.

All in all, in the contributions collected, the coexistence and parallelly the distinctions between flows and places seems to open new possibilities to interpret and describe the current ongoing great transformations in cities. Reflections presented in the book – starting from the complexity features of the urban systems and from the concept of space reconsidered in the light of 'spatiality' in a plural sense interconnected and trans-scalar, to be investigated assuming a "relational" and "dialogic" point of view (Morin1990; Bateson 1979) – suggested a variety of strategic issues around which it is necessary to re-organize the interpretation of the urban to imagine new ways to govern it as structured territorial organisms.

Emergent Issues

Some strategic questions on emergent urban phenomena, crucial for the ongoing process of urban rethought, are presented in the book. These questions, variously discussed through the contributions, are proposed as a micro-keywords: transcalarity, self-organization, social innovations, platforms, inequalities; vocabulary aimed at synthesize the main challenges for project and planning of contemporary urban organisms and the emergent tensions highlighted by the authors.

The first keyword is 'transcalarity'. The contributions of this book recognize the dynamic transcalarity of urban contemporary organisms as the essence of the complexity expression, as their most constitutive feature. According to this vision, the urban is a temporal and dynamic effect of continuous (material and immaterial) flows in the frame of a complex transcalar interplay between actors and geographies at different scales based on innovative, and rife with contradictions, relations of exchange, forces and power. Therefore, territories can be considered systems open to multi-scalar flows organized crossing functional structure in constant becoming, living systems with their own metabolism. Indeed, the concept of metabolism presented in the book has its roots in the ecologic original theories but includes also complex and relational dynamics that constantly re- design the relationship between space and society (Balducci et Al. 2017).

As suggested by the authors in this book, the insight of these 'metabolic' interdependencies, with regard to complex relationships and retro-actions between scalar frameworks of spaces and energy-matter flows, is challenging the planning and project community. The first challenge relates to the need of abandoning classic ideas and reductive representations of the city and territories and of accepting the nature of complex adaptive systems, characterized by continuous change and in-becoming balances. Indeed, avoiding reductionism means avoiding the goal of a simple representation, aimed at producing immediate decisions, while accepting the complex nature of cities and territories, their sustainability can be achieved only if they are planned and managed through a consistent and systemic approach, characterized by flexibility and reversibility and by the ability to evolve and to be constantly reinterpreted.
In this perspective, as clearly emerge from the authors reflections, the planning and project communities have to learn to activate social, environmental and productive (both traditional and innovative) energies in balance with the great diversity of settlements and territories in order to plan and organize more efficient urban organisms. Furthermore, these communities will have to be able: firstly, to think and enhance the *governance*, plans, projects and practices of rational/sustainable use of the resources based on efficiency of metabolic processes at different territorial scales.; secondly and parallelly, to support the transition from traditional socio-economic models of development characterized by a scarce energy efficiency, towards circular economy development models based on an high metabolic efficiency.
All in all, one of the main challenges that the *transcalarity* and the *interconnection* issue to the project and the governance of the contemporary urbanity lies in their capacity to introject the territorial system as a system sustained by 'many minds', where single elements contribute to the complexity absorption through a bottom- up process in a self-organizing perspective. Single people, with their roles becomes more and more important and often demonstrates to be able to understand the external variability and to adapt to it, creating top-down and innovative solutions.
This evidence makes us reflect on another concept that emerge from the contributions collected in this volume and that constitutes the second keyword: 'self-organisation'.
The importance of self-organising practices in the urban contexts re-organisation firmly emerges in the most of contributions in the book. These shows that, more and more frequently in contemporary territories, social bottom-up experiences of self-organisation build and activate spaces for dialogue and meeting with public and private actors with different drees of intensity and for production of new representations of themselves, of the territories they live-in and of the urban development they generate. These experiences are bottom-up movements and civic initiatives, often characterized by a deep involvement of the territories,

aimed at promoting and supporting their approach through complex, often conflicting or alternative to established representations of the territories. The significance of the plurality of images through which these practices develop, as expressed by authors, opposes to the hegemony of top-down urban representations that simplify the complexity of territories, imposing images aimed at specific interests that subtend particular power relations. Therefore, self-organising practices constitute an important alternative, hardly ignorable, if we aspire to interpret, understand, imagine and govern the complexity of contemporary territories. The many self- organising practices here presented are vary and show a 'regenerative' approach, strongly contextual of territories and the city, in which a key element of the practice is the active participation of the community to the care and transformation processes of their own contexts of life in a sustainable vision. What emerges from the composition of these 'episodes' is a punctiform and polynuclear variegated geography that includes daily practices rethought, innovative and widespread interventions to reintroduce territorial resources and to self- produce daily-life contexts, and the identification of territorial common goods as germinal resources in the *rurban* revival. Currently, the relationship between this new social protagonism aimed at sustainable and bottom-up creation of the territory and the top-down territorial planning/management is still a critical issue. Thus, in many of the cases presented in the book, institutions paradoxically still have difficulties to build territorial projects and policies based on the enhancement of this new social protagonism rooted in the practices and knowledge of the local communities. Indeed, in an ecosystem metabolic and ecologic rebalance of the territory perspective based on the incremental development, the accreditation of this social protagonism through public policies should be the thinking device of the project to connect and promote the caring and productive actions of local communities for life contexts, based on new and virtuous possible uses of the territorial palimpsest. In this, material, formal, and informal mechanism, multiple temporality of change and varied implementation means adapt to the local features are re-combined. At the same time, as far as architecture and design scale is concerned, contributions seem to suggest the need to re-discover project skills able to generate adaptive urban spaces to host, embrace and promote the spontaneous emergence of diversity and the self-organisation propensities inherent in the communities.

The third keyword that emerges by the contributions in the volume and that is deeply linked to "self- organization" is 'social innovation'. It is interpreted as a process that generates new solutions through interactions aiming at satisfying community needs and producing a more sustainable management of territories and changes toward an increasing

inclusivity at different scales. Contribution area focussed on the analysis of the social enterprises' role, that can play in producing innovation, activating authentic ecosystems of innovation, meeting the need of the local community, and reactivating and regenerating portions of abandoned cities and territories. The social enterprise is presented as a new entrepreneurial form of organization, structured on a new business model that apply the concept of social innovation to a company that is not aimed at generating profit, but social benefits and services and products to solve problems (Maiolini 2015; Marra et al. 2015).

The cases presented in the book show that the ecosystems of innovation establish within complex networks of stakeholders, consisting of local associations, public institutions, private actors, and local communities. The interplay among these actors can activate new metabolism processes triggering the local development to promote the social, cultural, and economic development of the territory and parallelly to guarantee it regeneration through the innovation. Contributions seem to suggest an urgency for planning and project cultures related to this field of innovation practices. The urgency implies the need to reorganize the territorial governance toward new dynamic equilibria of new competences able to constantly reinterpret the relationship between the community, the territorial regeneration, development and innovation.

The fourth keyword discussed in the contributions is 'platform'.

Some authors highlight how in the last years the so-called 'sharing economy' has grown all over the world both as social and cultural phenomenon and as economic power, becoming a new life and work style. In this context, online platforms and apps introduced a new way to commute, travel and even work. The possibility to share goods or services is based on their supply, agglomeration, and on-demand access. Therefore, this is an intrinsic urban phenomenon and cities have become a key site for the development of the digitally mediated sharing. Issues investigated in the book about sharing platforms are about their inner ambiguous nature. Indeed, if on a hand they seem to promote a new development model based on sharing, on the other hand they are liable to be an advanced capitalism form based on extraction, aggregation, and analysis of data. Nevertheless, as some authors explore in the book, many of these collaborative digital platforms are vehicles of activation of new sociality forms, able to boost co-project of services processes and even of self- organization. At the same time, these platforms are aimed at reactivating bottom-up territorial resources. Therefore, we can say that this kind of platforms implies a phenomenological understanding of digital technology as result of embodied collaborative and real relational practice. In this perspective, platforms evolve in the practice of community activation, contributing to build digital awareness, and, sometimes, assuming the responsibility to mediate spatial uses. As far as this point

is concerned, contributions seem to suggest that for accomplishing a more democratic, holistic and sustainable project of the space is necessary to consider the project and use of digital technology embedded in the spatial project, rather than a mere network infrastructure. Furthermore, the project process must identify individuals or groups to coordinate uses of the space. This implies that digital technology might acquire a 'human aspect' able to interact with spatial users to contribute in the practice community building.

Finally, 'inequalities' is the fifth keywords on which contributions call for reflection. These suggest the importance of concentrating on the crucial aspect of the vastity and depth of current transformation and innovation dynamics in urban contexts. These processes are generating new and increasing imbalances and disparities, determined by unequal interpersonal spatial distribution of "spatial capital" triggered by current urban restructuring processes. The territorial dimension is a structuring component for the distribution of these new inequalities. A central issue to interpret and understand the new phenomenology of the contemporary urban is the way people can live the city, access its resources, and transform the urban space. Contributions seem to suggest that the right to the city mainly is the right to change our selves with the city, relating this concept not only to the economic dimension and to the resources re-distribution, but also to the political and relational dimension, that involve the right of those who can be included in urban life and those who are excluded, and to the environmental dimension related to sustainability issue and therefore, that necessarily need to confront with the social dimension.

In contemporary territories, as complex systems, all these layers are intertwined, overlapped sometimes they collide, to create a political and social geography that condition the life of people who daily lives, crosses, transforms it. Contributions proposed in the book open reflections on how the culture of planning can address the creation of more just territories, through a reflection on its own practices of regulation and project and on their own disciplinary preconditions. These seem to suggest that effective answers for a more fair and inclusive planning can be found in a systemic interpretation of contemporary territories and in their bottom-up reactivation.

Conclusive reflections

From contributions collected in the book it clearly emerges show ongoing processes of restructuring in contemporary territories are broadly reformulating the urban question in the core mechanisms of acknowledgement, production and signification that historically characterized it.

For these reason, it seem to be clear that, if we aim to approach effectively the issue of the current urban phenomenon, it is necessary to frame it within an alternative interpretative method on urban processes, that accepting their structural complexity, assumes that exhaustive descriptions isn't made of pure forms and defined borders, but it is made of fuzzy transition states. Indeed, the essence of the new urban reality is the process, not the product, of the change. This is a fundamental shift to approach the interpretation of new urbanisation processes, a new planning and project field that is progressively more detached by the analytical and interpretative view oriented to the indivisible and dichotomic aspects of the city (making), to the state of play in their freeze moment rather than in their changing phases, to the substance rather than to interactions. It is necessary to develop a new imaginary that enables a new territorial conception that refusing dichotomic mechanisms, works on unifying aspects and mechanisms, and therefore, on the areas of relation and rhizomatic connections, shifting from «an ontology based on material and properties idea toward an ontology of relations»[1] (Tagliagambe 2008: 5). Only through this perspective it seems possible to outline a new culture of planning, that, intercepting a plurality of actors, practices, and ongoing innovations, can aspire to build more environmental, economic and social sustainable territories.

[1] «ontologia incentrata sull'idea di sostanza e sulle proprietà ad un'ontologia delle relazioni». Free translation by the author.

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