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## NEIGHBORHOOD REGENERATION AT THE GRASSROOTS PARTICIPATION: INCUBATORS' CO-CREATIVE PROCESS AND SYSTEM

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### Abstract

*Incubators of Public Spaces is a funded JPI Urban Europe project aiming to support the self-organization of places by enhancing the factors that motivate, encourage, and enable the urban actors to reach common understandings in order to coordinate their actions by reasoned argument, consensus, and cooperation rather than strategic thinking only. By catalyzing citizens' willingness to 'do their bit' for improving spaces, it provides the means to grow and care for places. The paper is organized into three main sections. The first section offers a theoretical underpinning on the roots of self-organization and co-creation in urban interventions. After a brief introduction about the project's aims, the second section deals with incubators' co-creative process and system. It describes the running of the scenario workshops and provides an overview of the web platform and its inherent features. The third section presents the results of the application of the incubators method in the regeneration of an Italian neighborhood. It provides some general information about the area, and foresees a set of interventions for both built and open spaces. Conclusions offer early remarks concerning the ongoing experimentation in Incubators.*

**Keywords:** *Stakeholder self-organization; urban co-creation; crowdsourced placemaking; design actions; scenario workshop*

### INTRODUCTION

There is no doubt that European urban areas share some common features: when traveling across Europe, the recurrence of some peri-urban forms of settlement is apparent. The accumulation of family houses, shops, business districts, and industrial areas over time has given rise to a mix of forms that may vary a little from place to place, but whose visible outcomes ultimately look alike.

Anywhere, private buildings, infrastructures, facilities, and public spaces have been planned and, in most cases, designed according to the administrative and normative systems from their time at the national and/ or local level. And yet, a multitude of actors has interpreted those plans and codes in view of their individual interests and personal cultures, with results widely different from those intended by the norms.

In the making of places, an important role is played both by a family that settles its own house or a corporation that builds a shopping mall. But this is not all about placemaking; the cumulative result of the many individual initiatives is equally important, and unpredictable. The ensemble of the parts produces a comprehensive image, which differs both from the owners' meanings and the governments' plans. A variety of buildings and spaces overlap and blend in anonymous places that are common to many countries.

This general trend is well depicted in the film *Chain*, directed by Cohen (2004). The anonymous places where it was shot (shopping malls, single-family houses, business premises, parking lots, etc.) were filmed in seven different countries – in Europe and elsewhere – but they blend together so well that this becomes apparent only in the end credits. Part documentary and part fiction, the

film makes use of a modular plot; the sections of narrative are interchangeable and can be rearranged by the spectator to make new sequences, even new films. Places are not only the background to the film's characters, but are characters themselves. And urban interventions are the means available to reimagine their role in the 'plot of space'.



Figure 1. Frames from the film *Chain* (Source: Cohen, 2004).

### THEORETICAL PERSPECTIVE

Looking back to the 20<sup>th</sup> century history of urban interventions, Allmendinger and Tewdwr-Jones (2002), Campbell and Fainstein (2003), Geertman (2006), Hall (1975), Parker and Street (2015), and Pelzer et al (2014) identify an evolution towards the involvement of people in design practices, moving from the 1950s-60s rational paradigm, also known as 'master planning', to the 1960s-70s procedural paradigm, i.e. 'process planning', the 1970s-80s strategic paradigm, i.e. 'long-term visions' and 'short-term processes', and finally the 1980s-90s participatory paradigm, which entails that "effectiveness is the degree to which the affected people support the proposed policy and the degree to which they are involved in the implementation of the plan" (Geertman, 2006). According to Meijer et al (1981), citizens' participation dates back to the mid-1960s in Scandinavia and the Netherlands.

### Self-organization in urban interventions

The aim of participation is to enable actors to contribute to decisions by communicative consensus-oriented actions (Kensing and Blomberg, 1998; Brandt, 2006; Pløger, 2001; Ehn, 2008; van Abel et al, 2014). To our understating, an ongoing advancement is towards 'self-organization', in which actors take the lead for realizing bespoke and sustainable urban interventions.

According to early academic research, self-organization is a process of entropy reversion within a system (Allen and Sanglier, 1981; Eigen and Schuster, 1979; Maturana and Varela, 1991; Nicolis and Prigogine, 1989; Prigogine, 1980). In urban design, self-organization means that the urban actors are enabled to contribute to the shaping of their places by themselves; it is not simply to give them a voice, but to enable them to take responsibility and action for their places, by their own contributions, in bottom-up grassroots processes. "Participatory planning proposals remain controlled by public government, and that public government seems not to be very adaptive to initiatives that emerge from the dynamics of civil society itself, and thus is unable to address the

growing complexity of present-day society. This challenges us to explore the theoretical background for a radical alternative view on social embedded spatial planning, which would be able to interact with these growing complexities: [...] self-organization in urban development” (Boonstra, 2011).

In this matter, we understand self-organization as a progress over participation, as it can involve a wider array of actors: *people* (i.e. citizens who want to solve their real-life problems), *utilizers* (enterprises that want to develop their businesses in the area), *enablers* (public-sector actors, developers), and *providers* (domain experts, e.g. universities, consultants, technicians) (Juujärvi, 2013).

Nevertheless, the extent, the outcomes, and the methodologies with which urban self-organization can be managed are largely debated (Bond and Thompson-Fawcett, 2007; Campbell and Marshall, 2000; Innes and Booher, 2004; Van Meerkerk et al, 2013). Chaskin and Garg (1997), Chaskin (2003), Chaskin et al (2012), Hasanov and Beaumont (2016), Lepofsky and Fraser (2003), and Martin (2004) consider the challenges to put into action urban initiatives from non-governmental actors. Edelenbos (2005), Healey (2006), Kathi and Cooper (2005), Smith (2010) examine the difficulties of making effective collaborations with local administrations or agencies to pledge the implementation.

### Co-creation and Self-organization

Consistent with the aims of self-organization, co-creation, and its subcategory, co-design (Dubé et al, 2014), can be understood as a means to give shape and actuation to urban interventions, in which “users, citizens are at the heart of the creation of societal knowledge in a context of global development” (Roy, 2011). The European Design Leadership Board defines co-design as “a community centred methodology that designers use to enable people who will be served by a design outcome to participate in designing solutions to their problems” (Thomson et al, 2012). Co-creative processes are the outcome of a shift in urban design; they move from experts towards giving actors the capability to directly contribute their experience (Sanders and Stappers, 2008).

In practice, co-design approaches vary greatly from being close to consultation and information gathering to facilitating people in generating their own ideas and solutions. For example, scenario techniques can be used to identify the interests of different stakeholders, enabling them to participate in different stages of planning and design (Tress and Tress, 2003). To ‘accommodate a non design orientated population’, the use of visualization co-design techniques is well documented (Al-Kodmany, 1999; Sanches and Frankel, 2010). Co-design processes have also been known to fail, for example, ‘the process failed at the stage of active participation of the citizens’ due to unimaginative methods to engage citizens in the co-design of an urban square in Ypzigat, Turkey (Dede et al, 2012; Cruickshank et al, 2013). A further research strand centers on how to map co-created interventions into an institutional planning system (Munthe-Kaas, 2015).

The positive co-creation and self-organization synergies result in a grassroots process of local information and knowledge, aimed at improving places and driven by actors’ lived experiences. Co-creation methodologies aim to enable people, laypersons as well as experts, with a very broad range of knowledge and know-how to have a creative contribution to the design processes (Sanders, 2002). We understand the public insight in and co-creative contribution to the making of a place as an application of local knowledge that, after Yanow (2003), is in turn understood as the lay experience of places in everyday life.

Fuchs and Hofkirchner (2005) consider the construction of social knowledge to be the means to achieve self-organization. This construction develops along a threefold dynamic process of (1) cognition, (2) communication, and (3) cooperation, which means:

- “Cognition: Mechanisms of opinion formation that allow a plurality of information sources and in which every recipient can also be a sender that is heard and taken seriously by others.
- Communication: Mechanisms of rational public discourse that are open and accessible for all citizens and enable humans to acquire the resources and capacities they need for active, knowledgeable, informed participation.
- And finally, on the cooperative level, institutions of decision taking and enactment that are directly controlled by and responsible to all citizens” (Fuchs, 2007).

A self-organized co-creation requires individuals’ and groups’ autonomy and interaction among all three layers of the process.

For instance, ‘eParticipation’ is an emerging framework of methodologies, tools, and practices of using ICTs to inspire cognition, communication, and cooperation processes for constructing shared social knowledge. The leading innovation is in the role of the individual: from passive user to active creator of knowledge, from uninformed to informed, from isolated to connected. “In eParticipation processes, ICTs empower humans, groups, and society, that is, they provide individuals with capacities and resources for changing organizations and society according to their will, they provide groups and organizations with capacities and resources for changing society and better including individuals, and they provide society with capacities to better include groups and individuals” (Fuchs, 2007). “The idea is to recast state – citizen relations, to promote civil society and to empower citizens to help themselves (Wells, 2011), especially in deprived urban areas. This trend is reflected in conceptions such as the ‘Big Society’ and ‘localism’ (United Kingdom), the ‘participation society’ (The Netherlands) or ‘do-it-yourself urbanism’ in the United States and other countries around the world (Iveson, 2013; Finn, 2014; Sawhney et al, 2015)” (Kleinhaus et al, 2015).

### INCUBATORS OF PUBLIC SPACES

Incubators of Public Spaces is a funded JPI Urban Europe project, aiming to support the self-organization of places, by enhancing the factors that motivate, encourage, and enable the urban actors to reach common understandings in order to coordinate their actions by reasoned argument, consensus, and cooperation rather than strategic thinking only. It is a method that intends to link an agreed vision for the positive change of an urban area - the term ‘vision’ being understood as the purpose of the design process (Carmona, 2014) - with the combination of individual self-interest driven actions on that area.

By catalyzing citizens’ willingness to ‘do their bit’ for improving spaces within a certain community, it provides the means to grow and care for places. Since what makes a place is the integration of spatial forms, built and open, which fosters the interactions of people as they inhabit those spaces, the incubators project advances ‘crowdsourced placemaking’ practices.

As far as the project is concerned, crowdsourcing, or the act of outsourcing tasks to a large group of individuals, is seen as a chance for people to have a real say on the future of the places where they live and work. In this regard, the ‘crowd’ represents a place-based asset, rooted in its specific context, and worthy of being involved because it is a holder of wisdom that would otherwise be hard to develop from scratch (Surowiecki, 2004; Erickson, 2010). Engaging different kinds of stakeholders as active co-creators and co-producers, it calls them to contribute with their considerable knowledge and valuable expertise to the community vision-making and scenario-building process.

### Incubators’ co-creative process

Within this framework, the incubators project has been designed as a multiple-step process that takes place in the form of public face-to-face and/ or remote workshops for the development of multi-stakeholder design-oriented scenarios. Using methodologies presented by Cox et al (2014)



and Oswald and Baccini (2003) as a base, this project aims to deploy an additional method for shaping places in relation to the expectations of a broad array of stakeholders, whilst limiting as much as possible the risk of getting stuck in ideological or positional conflicts (i.e. the so-called Not In My Backyard syndrome).

When dealing with public consultations, it is fairly common that the presence of divergent or even confrontational purposes and aspirations undermines citizens' natural motivation to participate in the shaping of their daily life environment. By contrast, through providing them with the possibility of easily creating a plurality of scenarios for a given place, the *Incubators* is likely to make them focus their attention on the development of a 'what will happen if' approach, instead of bluntly assessing 'what will happen'.

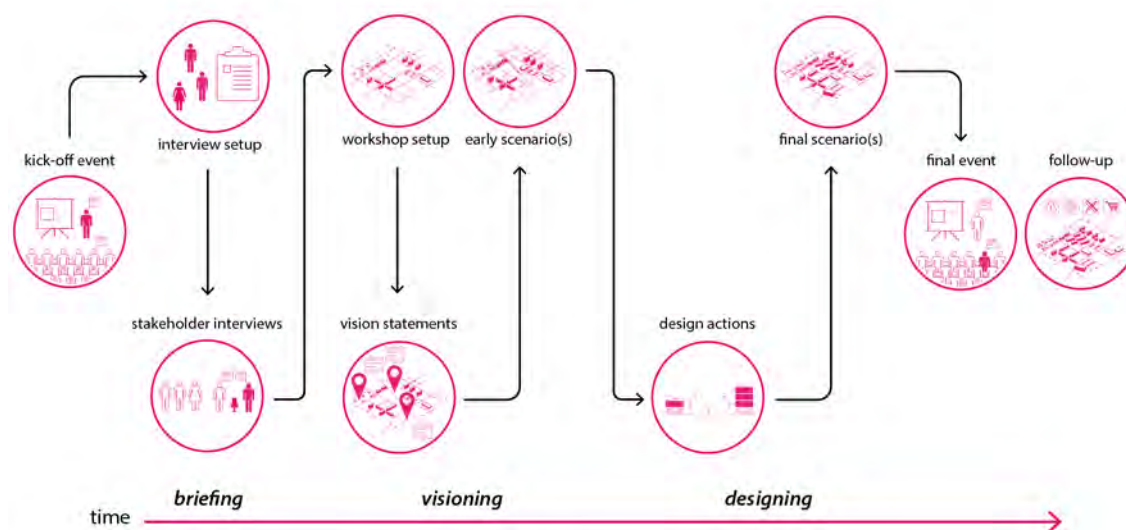


Figure 2. *Incubators* multiple-step process (Source: Authors, 2016).

To reach this goal, the process runs through three main phases, all of which are based on the interface between two groups that can be roughly referred to as 'experts' - the *Incubators* team (made up of researchers and practitioners encompassing areas of expertise such as urban design, planning, participatory design, etc.) - and 'non-experts' (the local stakeholders).

Interviews set the point of departure for the process. These were held with a selected group of key agents, such as decision-makers, opinion leaders, and members of local organizations, on the basis of semi-structured questions primarily meant to collect qualitative data. Responding to open-ended questions for about 45 to 60 minutes, each interviewee is asked not only to outline the current situation and its possible/ desirable future states, but also to suggest actions that could lead from the present state to those future states.

In order to elicit both verbal and visual information, the text of the interview is paired with a number of images (e.g. photographs, maps, drawings) that illustrate specific indoor and/ or outdoor spaces, on which the interviewer intends to focus attention. By bringing abstract questions down to a very tangible level, the pictures give the opportunity to reach a deeper understanding of the issues that need to be addressed intuitively, capturing habits and reflections otherwise easily overlooked and difficult to characterize.

After the interviews were completed, and meaningful data synthesized and interpreted by experts, the workshops could start. These cover both the visioning and the designing phases, but with different purposes and modalities.

In the first case, brainstorming and social storytelling techniques were used to ‘open the discussion’, with most of the time allotted to narrative descriptions of future visions. In the second one, evaluative and deliberative activities were carried out to ‘narrow the discussion’, with most of the time allotted to qualitative and quantitative explorations of design actions. In the middle, the scenarios developed by the *Incubators* team were the means that the facilitators have available to guide this shift from vision statements to concrete actions.

Regardless of the phase during which the workshops take place, these are run as group sessions and involve up to 20 targeted participants with different tasks to perform. On the one side, the *Incubators* team is asked to do the foundation work for providing inputs to the local stakeholder workshops, while on the other side, the local stakeholders are involved in various hands-on activities and games producing outputs to be further developed during the following *Incubators* team workshop. In front of the difficulty to manage workshops with too large a number of participants, the alternating movement between right and left columns is seen as a good way to ensure proper communication and interaction between the two groups, but without overloading the overall process.

In order to facilitate the attendance, different participants correspond to different workshop durations; while the workshops engaging local stakeholders lasted a few hours (no more than 3), those dedicated to the *Incubators* team were organized in the form of *charrettes*, lasting several days. Therefore, it is worth noting that the workshop process is not done once and for all, instead iterated a number of times, usually three or more. Thanks to this iteration, the exploration of the set of assumptions driving the generation of every personal scenario raises awareness about the relationships between the individuals’ and groups’ issues, planned actions, and foreseen outcomes.

Two public events, one at the very beginning of the process and the other one after the last workshop, are conceived as opportunities for an enlarged discussion and communication. Follow-up activities are also required in order to provide up-to-date information about the progressive implementation of the agreed scenario(s). Post-workshop feedbacks and meetings are crucial in reinforcing the development program turning good intentions into real actions and outcomes.

### Incubators’ co-creative system

Thanks to the active collaboration of experts and non-experts, shared strategies and ideas are expected to result in a co-created set of micro-design interventions. This set collects the design options that are made available on the *Incubators* digital platform and from which the users can draw to propose their personal scenarios.

The system is designed to look at ways to gather proposals from different contributors, following a collaborative approach. It is made up of a collection of (re)design interventions, applicable either to individual buildings or to built/ open spaces, to some extent similar to those that can be found in other manuals of urban design (Tachieva, 2010; Nouvel et al, 2009). The main difference is that, in *Incubators*, interventions are defined thanks to a bottom-up approach to the urban design issues. Urging the stakeholders to work together for the regeneration of an urban area, it creates the conditions that enable citizens to express their needs and wishes and negotiate solutions in a constructive way.

Stakeholders’ expectations do not necessarily match reality; rather, they could point to reality as a ‘would/could be’ process. The three-dimensional visualization, supporting the intuitive expression of these expectations, ties them to the reality of the morphology of the places and exploiting a visual mean makes the interaction easy and clear. In particular, inhabitants can contribute to a place as ‘experts of their experiences’ (Sleeswijk Visser et al, 2005). We understand the public insight in and co-creative contribution to the making of a place as an

application of local knowledge: “the very mundane, but still expert, understanding of and practical reasoning about local conditions derived from lived experience” (Yanow, 2003).

The work carried out so far has led to the creation of a prototype web-platform (accessible at: <https://polytechnic-egrid.polito.it/viewer.php>), a static version of the dynamic system that the *Incubators* project is developing (see Figure 3).

Using the *Trimble SketchUp* software, a realistic urban setting has been modelled as a composition of different typologies of urban tissues. As a whole, these typologies represent a large part of the urban fabric that can typically be found in the outskirts of many contemporary European cities. Ranging from low-rise single-family houses to mid- and high-rise multi-family dwellings, from residential to commercial and production buildings, from roads to green open spaces and facilities, the digital 3D model combines uses and densities to be representative of a multitude of urban fabrics.

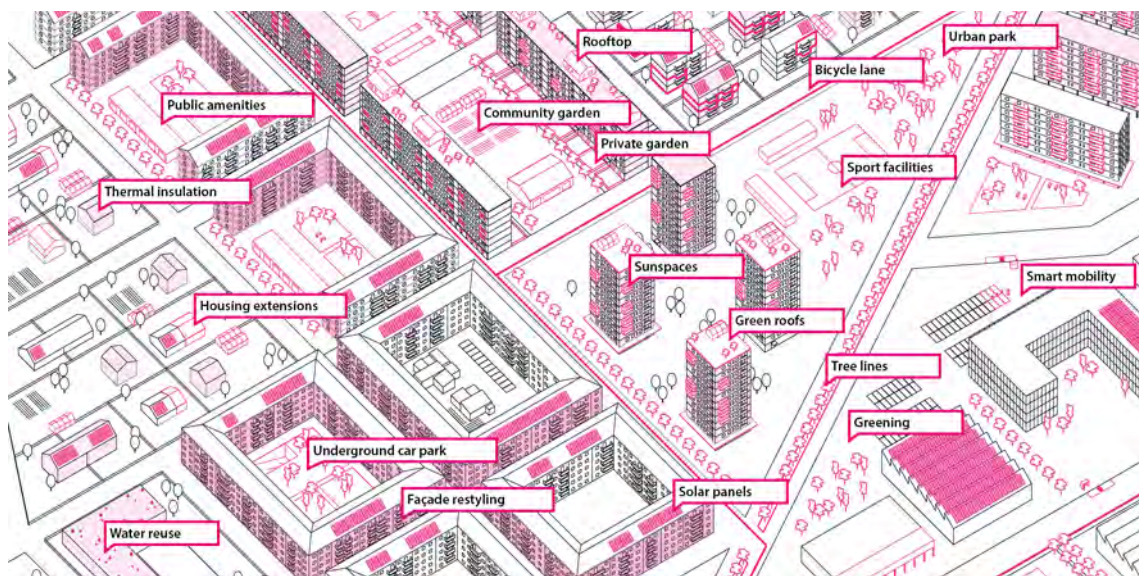


Figure 3. *Incubators* micro-design interventions (Source: Authors, 2016).

On the base model, many typologies of interventions have been identified and grouped according to different criteria. Indeed, the drop-down menus provide an overview of the main rationales that can underlie an effective regeneration process, classifying items according to the corresponding field of intervention (i.e. energy efficiency, built form, open space), the ownership status of the space implied (i.e. private, common, or public), and the most likely funding sources (i.e. energy savings, owners or community investments).

By switching on and off the various options, the website allows the generation of a wide range of scenarios which, in a way, simulate the outcomes that we expect to result from the *Incubators'* co-creative process. The objective here is that to trigger participation, to inspire users providing them with some parametric solutions, which employ basic concepts that are highly adaptable, flexible and scalable.

Of course, not all the suggested interventions are possible, or at least advisable, in every context; feasibility must be checked on a case-by-case basis in order to avoid steep realization costs and/or paltry environmental benefits. This is also why, in its final version, the platform will include assessment tools to assist participants in their screening.

The Case-project section of the paper comes to the early findings arising from the Italian case-project, providing further details about the actual implementation of the *Incubators* method when dealing with a specific urban fabric.



### Incubators' platform features

Drawing on these issues, the tasks that have to be performed by the *Incubators* platform in order to properly support a co-creative process, as the one described above, comprise:

*Site modelling*: Creation of a virtual 3D model of the area formed from an assembly of sub-elements that, to a certain extent, can be treated as autonomous parts, such as an apartment, a roof, a parking lot, a façade, a garden, a road, and the like.

*Action modelling*: Collection and prefiguration of a set of actions to transform the just mentioned model parts, by means of basic operations (e.g. additions/ subtractions, transformations, extensions/ reductions).

*Scenario building*: Definition of an array of scenarios that do not require stakeholders to converge towards a unique or unifying design but that, instead, understands the regeneration as an incremental process, made possible by the combination(s) of several small-scale actions.

*Agreed scenario(s)*: Assessment of feasibility, convenience, and mutual compatibility for both single and multiple actions and selection of the most wanted scenario(s). Once all the local stakeholders agree on the scenario to be pursued, a further obstacle that can prevent it to be achieved is a lack of financial resources.

*(Crowd)funding*: In order to overcome the budget constraints of most municipalities and the conjunctural shortening of private partnerships, the *Incubators* platform also deals with innovative means of financing. Microfinance and crowdfunding tools, in particular, seem the most appropriate alternatives to be investigated, mainly for their capability not only to pool fresh money for a project, but also to build an active consensus around it. After a proposal is published online, any user can support it by either funding it or adopting it. Adopting means taking charge of someone else's idea, as if it were one's own.

Since the input features to every scenario proposal are accessible online, a user can co-creatively contribute his or her knowledge and expertise to a specific idea, thereby progressing it. In this regard, the *Incubators* platform implements the next step in co-creation: co-ownership, which gives to the virtual proposal creators a means to confer 'crowdfunding inheritance' from the ancestor idea(s).

Because often a main bottleneck for realizing an urban project is the lack of support, relevant know-how and capital and the inheritance mechanisms provide users an effective and intuitive way for both co-creating and co-funding projects that are meaningful to a specific community. Only ideas that raise the required target amount are realized; no one pays if nothing happens.

### CASE-PROJECT

The *Incubators*' co-creative process and system will be experimented with three different case-projects, respectively located in: (a) London, *Queen Elizabeth Olympic Park*: a 125 ha site, part of the larger Olympicopolis education and cultural district, where the new UCL East university campus is planned; (b) Brussels, *Josaphat Ancienne Gare*: a zone of regional interest whose strategic development plan envisages the transformation from a 25 ha disused railway yard into a mixed-use quarter; (c) and Turin, *Quartiere Mirafiori Sud*, the latter having been chosen as test ground for the early phase of the project.

The Partners of the *Incubators of Public Spaces* project are Politecnico di Torino (coordinator), Innovation Service Network GmbH, Katholieke Universiteit Leuven, Neurovation GmbH, University College London, and Città di Torino.

### Quartiere Mirafiori Sud

The aforementioned Quartiere Mirafiori Sud is a public housing neighborhood located in the southern outskirts of the city and built by Gestione Case Lavoratori since the mid-sixties

(Ges.Ca.L, 1966), when the primary need was to quickly provide the largest possible number of dwellings in response to a pressing demand for housing.

The outcome is a very poor urban layout, characterized by the uniform arrangement of blocks and streets, suitable to simplify the design process and to reduce construction cost and time. Buildings are made of panels of precast reinforced concrete and host only three types of apartments (3, 4, or 5 rooms). Their total number is about 1300 units, located in multi-family complexes ranging from 7 to 8 storeys high and spread across a total area of around 32 hectares (see Figure 4).

Originally designed to accommodate a different population demographic (mainly low to middle class families), Mirafiori Sud confronts today many of the challenges that characterize similar post-war housing estates (van Kempen et al, 2005). Besides the simplification and the repetition of a limited number of architectural elements, the low energetic performance of the existing buildings is among the main problems that affect the settlement today.

Property fragmentation (due to subsequent sell-off programs) and low spending capacity have so far severely constrained the chances to take action. The question at stake is how to take advantage of the innovative approaches and technologies brought by the *Incubators* project to finally produce change in the neighborhood.

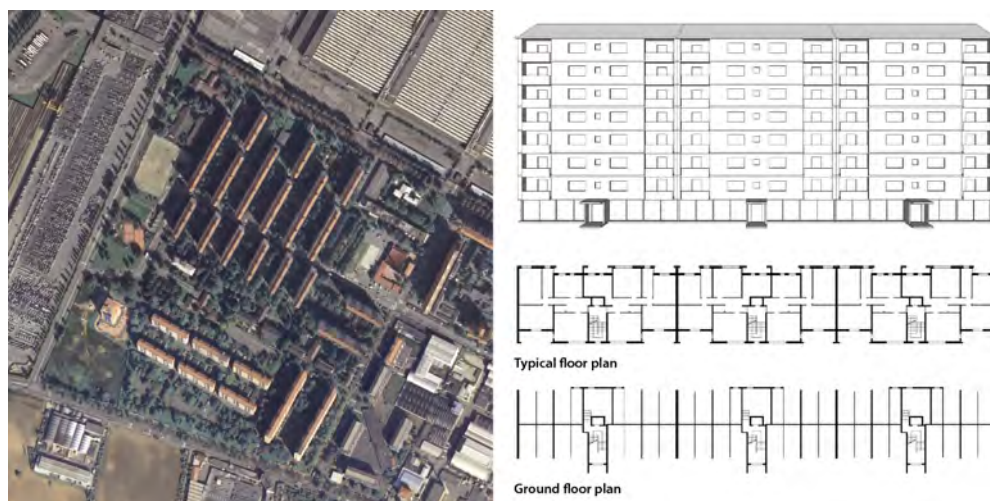


Figure 4. Quartiere Mirafiori Sud: (left) aerial view and (right) sample building façade and floor plans (Source: Authors, 2016).

As a first step in the experimentation, a reference 'urban space', which is an open space bounded by built forms, was selected as the most appropriate unit of interest in order to compare and combine several options for intervention. Usually defined as an empty surface enclosed by filled volumes, on the contrary, we understand it as a hollow space, not a void, as a living space determined by the relationships that connect rather than separate the buildings that stand at its edges.

Under this perspective, the object of the investigation becomes to identify the technological and spatial solutions that can make a difference in how the site is lived and perceived by its inhabitants and users. From a preliminary survey, the list of possible interventions on the residential blocks comprises, in ascending order of complexity, includes:

- Loft and wall insulation and windows replacement to increase the energy performance of the buildings envelope and renovate façades;
- Loggias closures and attached-sunspaces as well as solar greenhouses/ winter-gardens to achieve energy savings/gains and upgrade balconies;

- Apartments layout optimization to mix housing types/tenures and introduce new functions at the ground floors.

Also of importance is the chance to match the interventions on private buildings with other interventions on the related common and public open spaces. Since the spatial characteristics of an urban environment can significantly impact its climate (Kleerekoper et al, 2012), design strategies are deployed to redesign buildings' surroundings.

Dealing with Mirafiori Sud, the presence of extensive, and often underused, unbuilt areas makes possible the implementation of interventions, such as:

- Collective space reconfiguration to create privately owned gardens and lower shared maintenance costs (i.e. condominium fees);
- Paved surfaces treatment to influence the local microclimate and reduce water runoff.

Figure 5 shows, the possible outcomes of a combined application of the interventions mentioned; Figure 6 displays the diagrammatic sequences of steps for the realisation of two of the suggested design interventions.

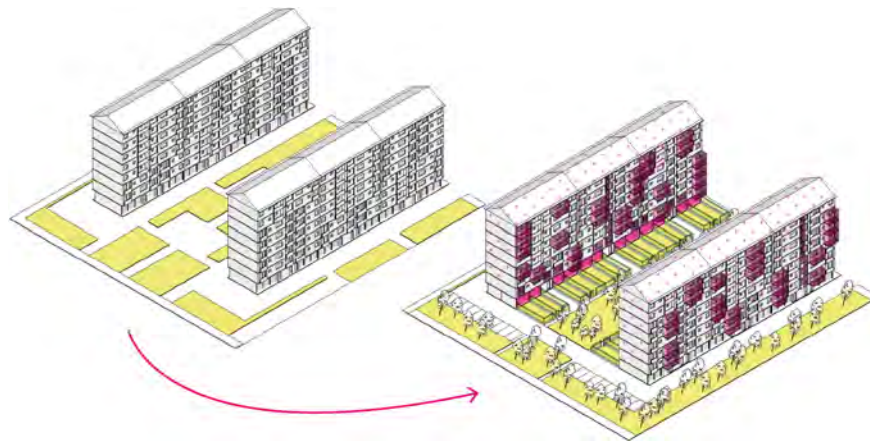


Figure 5. Quartiere Mirafiori Sud: (left) present state and (right) future scenario (Source: Authors, 2016).

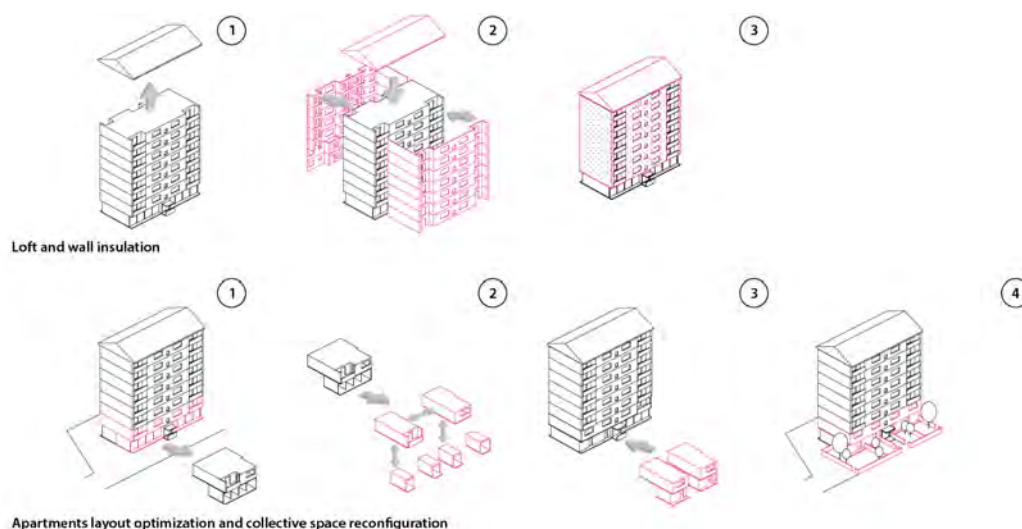


Figure 6. Quartiere Mirafiori Sud: design interventions step-by-step (Source: Authors, 2016).

## ANALYSIS AND RESULTS

Analyzing specifically the environmental and economic benefits that, besides the architectural ones these kinds of intervention can produce, two different degrees of intervention can be envisaged: (a) standard interventions, which require the homeowner a lower intensity of investment, and achieving a minor degree of performances, and (b) advanced interventions, with a higher intensity of investment and better performances. Table 1 shows the cost variations of refurbishment interventions on the envelope, in particular:

- Application of insulation material on walls to reach the U-value of 0.33 W/(m<sup>2</sup>K) for the standard refurbishment and of 0.25 W/(m<sup>2</sup>K) for the advanced refurbishment;
- Application of insulation material on floors and roofs (or ceilings) to reach the U-value of 0.30 W/(m<sup>2</sup>K) for the standard refurbishment and of 0.23 W/(m<sup>2</sup>K) for the advanced refurbishment;
- Replacement of windows and doors to reach the U-value of 2.00 W/(m<sup>2</sup>K) for the standard refurbishment and of 1.70 W/(m<sup>2</sup>K) for the advanced refurbishment.

Table 1. Cost of standard and advanced interventions (Source: Authors and ANCE Torino, 2016).

Intervention typologies	Standard interventions		Advanced interventions	
	Transmittance target value	Cost range	Transmittance target value	Cost range
Roof insulation	U>0.80	70-100 €/m <sup>2</sup>	U>0.70	120-160 €/m <sup>2</sup>
External walls insulation	U>0.33	100-150 €/m <sup>3</sup>	U>0.25	90-120 €/m <sup>2</sup>
Floors or ceilings towards unheated zone insulation	U>0.30	40-60 €/m <sup>2</sup>	U>0.23	50-70 €/m <sup>2</sup>
Windows and doors replacement	U>2.00	370-470 €/m <sup>2</sup>	U>1,70	600-720 €/m <sup>2</sup>

Depending on the degree of intervention, the levels of energy consumption, CO<sub>2</sub> emissions, and related heating costs vary considerably (see Figure 7), ranging from a minimum reduction of 55% to a maximum reduction of 85% compared to the initial levels.

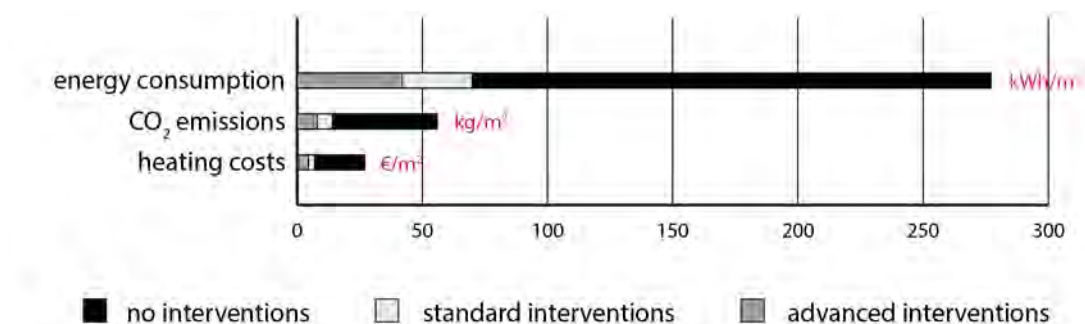


Figure 7. Annual reduction of energy consumption, CO<sub>2</sub> emissions and heating costs in case of standard and advanced interventions (Source: Authors and ANCE Torino, 2016).

Coming back to the case-project, among those cited in the previous paragraph, the refurbishment measures that have been considered the most likely to find application are (1) loft and wall thermal insulation, and (2) the insertion of sunspaces. This is mainly for two reasons: the architectural and structural features of the buildings and the cost-benefit balance of the interventions.

Figure 8 summarizes the energy and money savings potentially achievable by applying the mentioned measures to one of the buildings situated in Mirafiori Sud. As it is possible to see,



sunspaces are a typology of intervention that does not involve significant energy and money savings; the advantage lies in the opportunity to increase the floor area of the apartment. On the contrary, the amount of the savings resulting from the retrofit of the envelope is quite relevant, about 40% less than the initial consumption.

Loft and wall insulation has already proven effective in improving the energy efficiency of buildings at no costs for the owner. Typical pay-back times are about 12 years. This time-scale is medium, considering the pace of the construction sector, but it tends to long, considering consumer habits, for instance, on the directions that the market will follow or technological innovation.

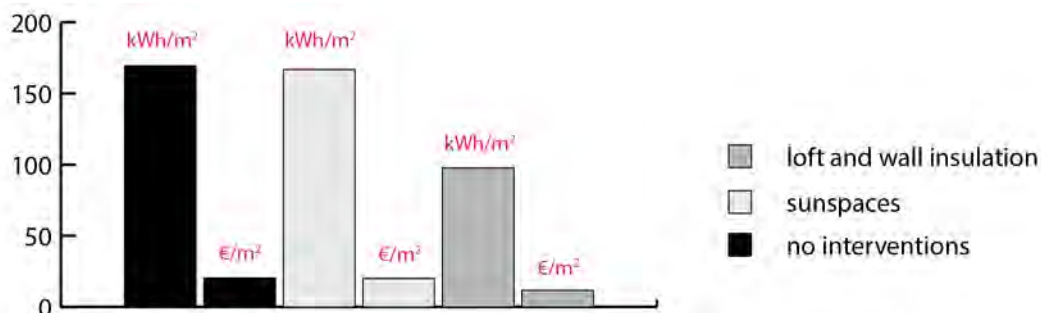


Figura 8. Quartiere Mirafiori Sud: interventions and potential annual energy and money savings (Source: Authors, 2016).

Pay-back times and initial investments raise questions about the economic attractiveness of these interventions. In a neighborhood where most of the inhabitants are in unskilled employment (ISTAT, 2011), a big part of the challenge consists of making the renovation attractive.

## CONCLUSIONS

The experimentation is ongoing, so, it is premature to draw any final conclusion from it. This is especially because in the making of places, besides space, time is the key element of the process. In Quartiere Mirafiori Sud, like in most suburbs, the public participation, the co-creative contribution to the making of the places evolves and layers in the course of time. The span is usually long to give the inhabitants the capability to metabolize it: the memory of a place is the legibility of layered actions over time (Larco, 2003).

*Incubators of Public Spaces* aims to catalyze the process, depositing more public actions into the built and open spaces. *Incubators* aims to spark the creativity of the stakeholders as 'experts of their experiences' (Sleeswijk Visser et al, 2005) and aims to provide those spatial preconditions and practices that create the potential for meaningful placemaking. In our understanding, the project fosters the collective creativity of subjects, their propensity to discover ways to adapt spaces to whom a use is effectively given.

*Incubators* has confidence in the co-creative contributions of the inhabitants and stakeholders, in their knowledge of ways to use the spaces that they are living and experiencing. The project aims to give the collective the means to create places out of the spaces that are given. The architects' role is to make the spaces for that public, producing the conditions where the co-creativity can freely be practiced. It is something that cannot be simply put in place as the outcome of a top-down process.

Foucault (1995) clearly considers that "freedom is a practice"; "I think it is somewhat arbitrary to try to disassociate the effective practice of freedom by people, the practice of social relations, and the spatial distributions in which they find themselves. If they are separated, they become impossible to understand. Each can only be understood through the other". *Incubators*

placemaking aims to create the practices, both social and morphological, to positively give the community the capability to express itself in the places.

The co-creative methodology, put in place in the case-project, can be further improved in the interplay between expert and non-expert workshops, to give the architects a better and deeper understanding of the community's and individual's knowledge and expertise with regard to a specific idea. In this, the system is expected to be developed to give a greater contribution. And conversely, the community can benefit from acquiring a more direct experience with and familiarity of the designerly practices. This can probably be achieved blurring the boundaries between expert and non-expert workshops, and keeping public track of the work done in the workshops with the system.

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