

Prosuming Public Space: the UNPark project

The role of urban infrastructures in the
regeneration of the in-between spaces

Paolo Carli

with contributions by Francesco Bruschi, Matteo Clementi, Davide Crippa, Luigi De Nardo, Barbara Di Prete, Carol Monticelli, Giulia Procaccini, Agnese Rebaglio and Patrizia Scrugli



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Prosuming Public Space: the UNPark project illustrates the experience of the Urban Nudging Park research project, funded by the social responsibility program of the Politecnico di Milano through the competitive call Poli-social Award 2019. The book returns the complexity that characterised UNPark: a research by design project, in the wake of tactical urbanism, on the theme of the role that urban infrastructures could have in the regenerative processes of the in-between spaces.

Indeed, UNPark has been a transdisciplinarity effort which took shape through a temporary urban tactical intervention and a study about the possibility of transforming the current parking under the Serra - Monte Ceneri Overpass, in Milan, into a multifunctional space equipped for social activities, including street sports.

Prosuming Public Space: the UNPark project is a monographic book, with thematic chapters by the members of the work team, that proposes, in addition to recalling the research work phases, reflections on the city during the pandemic, on the co-design, on the multifunctional regeneration of the urban infrastructures, and about the needed transdisciplinarity in any urban design intervention.

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Part 2 - The UNPark's transdisciplinary approach to field research

Paolo Carli (*Editor*)

Introduction by the Editor

See also I.1

See also I.3

As anticipated from the beginning of this book, it is difficult to be able to reflect the UNPark project in a linear and temporal way due to its implications on the field, its organization by Work Package, its complexity and the large number and heterogeneity of the actors involved. For example, the WPs (Work Packages) of UNPark, although defined and designed in the most logical and functional way possible, are however strongly interrelated and partially concomitant, overlapping in some respects, in charge of different members of the Team, and often interdependent in the results to be achieved. If at first glance these may seem complications - and in some ways they are -, on the other hand, they represent an invaluable wealth that finds its complete substantiation in the transdisciplinary approach of UNPark to the project and, specifically, to the project on the field. Addressing the concepts of multidisciplinary, interdisciplinarity and transdisciplinarity in an etymological sense is not one of the objectives of this introductory text.

However, it is important to underline how UNPark, understood as a group of researchers from different studies, has always tried to “transcend” the boundaries of individual disciplines thanks to a participatory approach with the most diverse civic subjects, aimed at

achieving common objectives, such as a culmination and goal of previous interdisciplinary efforts expressed, for example, in the various WPs.

See also I.3

The transdisciplinarity of this research project is therefore not a spontaneous and intrinsic characteristic, more or less conscious, but a well-considered choice of approach with respect to a theme, that of the urban public space and its possible transformations and evolutions, in the spirit of the Terza Missione dell'Università (University's Third Mission) to *“foster economic growth, through the transformation of the knowledge produced by research into knowledge useful for productive purposes”* (ANVUR, 2014, page 4).

UNPark recognizes itself and has always recognized itself in the shared need to connect all disciplines in a coherent whole, since the field of sustainability is essentially transdisciplinary (McGregor, 2004).

More roughly, it can therefore be said that the transdisciplinarity of UNPark is an interdisciplinarity with the extra ingredient of public engagement, in the spirit of *“building a scientific democracy to help ensure that knowledge becomes an active factor of inclusion”* (Cognetti, Pasqui, 2018, page 28) of the Polisocial program, which funded the research.

This Part 2, very different in structure from the previous one and from the final one, through thematic chapters, written by members of the UNPark Team, pertaining to sometimes very distant research fields, has the objective of trying to give back to the reader this transdisciplinarity which, in addition to pervading the UNPark research itself, is also one of the most interesting results achieved. The UNPark/FREESTYLE pilot project in the field, preceded by its prodrome MUE:SLI, is in fact a more than concrete manifestation of it.

It is in this space, both physical and theoretical, that the

Conferenza delle Regioni e delle Province autonome Roma, 27 marzo 2014. La valutazione della terza missione delle università https://www.anvur.it/wp-content/uploads/2015/10/91.Conferenza%20Regioni_te~.pdf

McGregor, S. L. (2004). *The nature of transdisciplinary research and practice*. Kappa Omicron Nu human sciences working paper series.

Cognetti, F., Colombo, E., Pasqui, G. (2018), “Verso un modello Politecnico di ricerca responsabile”, in Broz, M. (Ed) Polisocial Award. Esperienze di ricerca, Poliscript, Milan. <https://re.public.polimi.it/retrieve/e0c31c0f-25a1-4599-e053-1705fe0a-ef77/Cog-Col-Pas-Esperienze-di-Ricerca-Responsabile-estratto.pdf>

interdisciplinarity, typical of urban environmental design, has become transdisciplinarity thanks to the inclusive relationship, in all phases of the research, with the stakeholders and their disruptive needs and requests. And it is precisely in the transdisciplinarity, necessary as a glue for a very varied Partnership, that the UNPark project has identified the urgency of a higher level of citizen participation in the choices relating to the city and their subsequent management: the prosuming of public space. But not only. In fact, this Part can also be read as a story in episodes, by specific essays, in which the main themes of UNPark are carefully articulated, discussed, analyzed and explored. An attention to which is added the awareness of a work now completed, of which both the achieved results are known, but above all the critical aspects that, in the future, each researcher belonging to the UNPark Team will be more inclined to take into consideration and deepen. The Part 2 is organized into three major themes, both to allow an understanding of the areas and sequences of the UNPark research activities, and to be able to evaluate their weight and impact on the overall economy of work; and they are all anticipated by a short abstract with keywords that summarize the contents. The three themes are:

1. public space, i.e. the new needs of the city after the pandemic, co-design as a tool of the transdisciplinarity necessary for post-pandemic urban design, and the most interesting international interventions for the multifunctional approach of UNPark to the regeneration of the urban infrastructures;
2. local resources, whether social or environmental, and how to exploit them and put them into a system to achieve the goals of UNPark through strategies of inclusion and facilitation of citizen participation in the co-design phases of the project,

*See III by Carli and
Rebaglio; IV by Di
Prete; V by Scrugli and
Procaccini*

and the relevant techniques and methodologies for surveying local potential;

3. methodologies and medium and long-term intervention strategies on the Serra – Monte Ceneri Overpass, and the relative possibilities of contamination for transdisciplinarity, in a perspective of urban metabolism and for the recycling and direct reuse of scraps and waste.

According to the holistic principle that presides over the city and all the disciplines connected to it, this Part too cannot be reduced to the mere sum and logical succession of the chapters that compose it. At the same time, however, the Part 2 wants to return in a schematic and above all thematic way, with the partial exclusion of the first three chapters, the operational points of view of the various authors in the broader container of the UNPark project, and in particular of its pilot project on field.

Above all, this Part has the credit of bringing the scientific and academic dimension back to the center of the practical questions encountered during UNPark. Indeed, it is in this second Part that the scientific point of view on UNPark and on the wake of the interventions on the city in which it is inserted, is mainly structured through international references and innovative practices. Since it is a risk of field research to lose the methodological and technical-scientific reference points, due to the pushes from the citizens that can be received. An essay written downstream of the project, instead, allows you to look coldly at the data and concrete facts, placing them in a framework already explored by others, and allowing you to draw the final conclusions, as well as an overall balance of the experience. These are therefore the reasons and the opportunities for which it seemed useful to insert the ekphrasis of Part 2 into the narrative thread intertwined by Part 1 and Part 3.

*See VI by Rebaglio;
VII by Clementi
and Bruschi; VII by
Monticelli and Scrugli*

*See IX by Procaccini
and Monticelli; X by
Crippa, Di Prete and
De Nardo*

III. Post-pandemic trajectories of work in the city and public spaces

Paolo Carli and Agnese Rebaglio

During the Coronavirus emergency that we are still navigating (summer 2022), public space, despite having the quantitative capacity to withstand the impact of the pandemic, has not proven to have the flexibility needed to accommodate and put its new usage requirements in order. It is therefore essential to interject, as soon as possible, to bring elements of flexibility, organisation and optimisation to public space within the design of the city, which require the engagement of its citizens, above all in its management. This contribution identifies, through both pre and post-pandemic examples and international research, certain trajectories of work for the coming years, with regard to the need to define new standards for indoor and outdoor design and new models for activity in public spaces, in order to render them more practical and create the vision of the “15 minute city/neighbourhood”, as a possible healthcare facility to combat future episodes of infectious disease by way of the flexible and adaptive design of public space, in which multifunctional regeneration of infrastructure could have a more important role.

III.1 INTRODUCTION

The great challenges that modern cities have recently faced, such as the health challenges linked to the pandemic and the related social and economic crises, are added to those of the last twenty years that are linked to the progressive urbanisation of the landscape, constant demographic growth in the urban environment and the increasingly serious environmental crisis (Florida, R., 2021). In a wider context characterised by an increase in urban “density”, both social and of the built environment, and the emergence of new models of behaviour and of community life, which are naturally also conditioned by the recent health and environmental emergencies, addressing the issue of public space design in cities has become critical to the pursuit of sustainable urban development. Indeed, on one hand it is becoming increasingly apparent that there is a need to maintain an adequate amount of public space in light of the essential role that it plays in policies combating environmental and health crises, air pollution and climate change (Kakderi, C., 2021). On the other hand, particularly in the current urban landscape, there has been a notable emergence of the need to ensure a different environmental quality in public space, equipping it to satisfy the increased demand and the new and more flexible ways in which it is enjoyed and interpreted by its users (Bliss, 2020). The concept of “public space” has been widely defined in relation to its provision not so much of a space resulting from construction but rather as a place of significance for the collective, which is accessible, comfortable and safe, capable of encouraging social relationships and, lastly, as an expression of a cultural and natural heritage that feeds into the collective identity (Gehl, 1980; Purini, 2007). In this sense, the design of public space has always been strongly linked to a cultural and local

dimension, on one hand representing a political idea of the city in the processes of urban and environmental development, and on the other being an expression of models of social and individual behaviour. However, the complex situation that cities and their officials find themselves facing today as a result of the speed of the changes in collective needs has called for a wide-ranging and global reflection on culture, politics and design with regard to the management and planning of the role of public space. Within a context which obviously feeds on globalised processes, examples and strategic objectives of development have become increasingly common and widespread in recent years, together with specific administrative devices, design tools and participated processes, in order to promote semi-local forms of accommodating, safe public spaces that are capable of encouraging social relationships, free expression and an active life for all sections of society. The culture of design in this field has established itself in its technical competency, tackling design from the perspective of the equipment, the services and the materials, with priority given to the themes of environmental and economic sustainability. Further to this, skills have been developed in the management of the immaterial aspects, of image and orientation, of flexible use and “comprehensibility”, of digital connectivity and multimedia interaction, in an increasing augmented dimension of the physical space. Lastly, it is also already widely accepted that there is a need to adopt approaches that involve a multidisciplinary contribution, which may be accompanied by participatory, inclusive processes that are open to creative input and management by the communities of residents and users. Cities however, with their active, involved and increasingly interconnected populations, in addition to being centres for the production of goods and services, hubs for the flow of goods and terminals for

infrastructure networks, are notably the places with the highest levels of resource and land consumption, of air, water and ground pollution, of waste and refuse production, of overdevelopment of land and natural river beds, with the consequent loss of elements of biodiversity and natural factors for the protection of the climate and the environment.

These issues were suddenly exacerbated with the advent of the Covid-19 pandemic which, as we know, impacted urban environments significantly. It is understood that the extreme population density of cities, which inevitably leads to a high frequency of movements of people and goods and contacts, as well as the high level of air pollution proved to be crucial factors driving the propagation of the virus with serious consequences for human health (Brunekreef et al., 2021). The pandemic effectively acted as a catalyst for environmental issues but also those of a social and economic nature and led us to urgently reconsider the way in which we design cities, taking the opportunity to promote more inclusive and sustainable forms which are capable of protecting public health, without having to abandon the idea of the city as a centre for socialisation and development (Lambert, H. 2020). The dramatic situation that we have experienced in terms of the loss of places of connection has however motivated us to imagine innovative and experimental services and forms of use for the reappropriation and use - both individual and collective - of urban space, accelerating certain reflections and initiatives that were already underway (Curci, Pasqui, 2021; Balducci, 2022). Indeed, the crisis has shone a light on the conversation about the value of urban spaces, whether these are outdoor urban spaces or the so-called “third spaces” that proved to be key factors in the process of liberation and reappropriation of the city and of social life, albeit in a different, “distanced” and protected manner. Moreover, it brou-

ght everyone's attention to the matter of the accessibility of space, or rather the "right to space" itself as an essential part of democracy (Lefebvre, 1970). Above all, in large cities where socio-economic inequalities are intensified and people live in homes with smaller dimensions, the availability of outdoor spaces in which to spend time, meet people, feel free to express ourselves and the presence of green spaces in which to feel well and healthy restored value to those public spaces which can no longer be places of transit, but special instruments for "social resilience" (UN-Habitat, 2020). We can therefore perhaps assert that many trajectories of reflection and innovation within the design of spaces in the city may have arisen from this experience, some of which have already been experimented with in the field and codified in policies and practice, which we will attempt to illustrate in the following section.

III.2 (POST-)PANDEMIC PROSPECTS: TRAJECTORIES OF ACTION AND INNOVATION

During the most intense period of the pandemic, "*We will come out on top*" was one of the slogans widely used as encouragement or a warning, although probably in vain. However, it is true that - in the disciplines that address the design of the city and its services - a great deal of energy was spent trying to identify opportunities for innovation based on recent lived experience, looking at sustainability and public health with new perspectives and new objectives (Armondi et al., 2022). The first potential trajectory of work is that which promotes, as was mentioned in the opening, the enhancement of public space as a collective resource within cities, in proximity to the communities by which they are populated. In the face of the new needs (in terms of health, social connections, sustainable beha-

viours, etc.) that came to the fore during and after the pandemic, the planning and design of cities have had to adopt updated visions. Among the areas that have been urgently placed on the political and planning agenda, alongside urban transport, communications between cities and the regulation of the movement (of people, goods, energy, etc.), the management of the economic and social crisis after the health crisis (Martínez, Short, 2021), there is certainly also the theme of the transformation of urban public space as a place in which to re-establish social relationships and to return to doing activities in a manner that conforms to safety and public health measures. The ever-increasing scarcity of “space” as a resource in urban areas also compels us to cast a fresh eye over those spaces that are normally considered to be “unusable”, such as areas produced by large urban infrastructure and monofunctional infrastructure, brown-fields and the undefined scraps which do not have a function in the consolidated urban fabric, the so-called in-between spaces, but also roads themselves (laybys, squares, boulevards, etc.) and car parks.

It is therefore a matter of fully embracing that approach, which has already been mentioned and which evidently the environmental and climate crisis were not sufficient to make urgent and emerging, founded on the principle of “doing more with that which is already available”, exploiting the existing but “underperforming” elements of our cities as much as possible, avoiding, if not strictly necessary, the consumption of further spatial, environmental and economic resources by building new structures and areas (Boeri, Berini, 2012; Burnham, 2018). In particular infrastructures for vehicular mobility, including their “manoeuvring spaces” (such as access ramps, underpasses, the underlying spaces, safety zones, etc.) and, by extension,

roads and car parks represent, for a resilient and adaptive city, a reserve of spaces and possibilities which is yet to be fully explored. A promising reserve, both in terms of the reappropriation of areas for different uses that provide benefits and/or social use, in terms of environmental quality and urban comfort, as an opportunity to insert elements of Nature-Based solutions (NBS), Sustainable urban Drainage Systems (SuDS) and in terms of other urban features that can be used to combat the effect of the climate crisis, making some of these underexploited, monofunctional spaces “useful”, if not usable. If the strategies mentioned above are nothing new, insofar as they have been urgently needed for years and yet largely ignored, there are instead new ways in which citizens feel compelled to engage, not only with the decisions of the composition of public space, but also with its management. Likewise, there has never appeared to be such a large consensus as there is for municipal administrations to experiment with new solutions and new processes in governing cities. Indeed, since the 1970s, there have been grassroots movements for the reappropriation of the city through informal interventions of self-construction, the depaving of roads, guerrilla gardening, squatting in abandoned buildings and the temporary occupation of public spaces as a form of political protest and criticism concerning the right to freely enjoy the city and a more sustainable and inclusive design of the same (absence of nature, exclusion/segregation, difficulty in accessing the property market, pollution, cost of transport, soft mobility, social injustice, etc.). Today, the same, yet more topical examples that animated these movements find new life in the Information and Communication Technology (ICT) that allows for simpler forms of practical organisation and interaction, while at the same time being equally effective and less burdensome, in addition to reaching much wider

audiences of support and potential new participants (De Chiara, 2013). Social streets, shared gardens, urban allotments, neighbourhood apps, flash mobs, temporary installations and all those local initiatives that converge under the umbrella of “placemaking” are the result of a new spirit of participation, sharing and taking responsibility, with ICT making it simple for anyone to take part according to his or her level of engagement, expertise and experience in the field.

Once more, it is a matter of exploiting an urban resource that already exists but often goes unrecognised, that is the “local knowledge” of citizens who, if involved in decision-making processes transparently, in addition to being the beneficiaries of public space, may be: “stakeholders”, precisely because they know the neighbourhood better than the designers, with its issues to be untangled from its potential; “facilitators” that, given their social relationships in the neighbourhood, can create a consensus around initiatives and projects; perhaps even “managers/constructors” at times, considering that participation in the processes, in addition to generating a sense of responsibility, often activates previously unexploited synergies in the neighbourhood which are merely waiting to be liberated. Even the second trajectory of work on public space as a strategic tool to improve urban resilience in the face of emergency crises, as identified by this paper, is closely linked to the relationship between citizens and public space, both on a local, neighbourhood and city-wide scale. Indeed, direct observation and monitoring of the use of urban space in the post-Covid period demonstrate a general increase in the frequency of access and the presence of a wider, more differentiated range of users (Gehlpeople, 2020). During the reopening phase, public spaces in many cities globally were extended in order to encourage more pedestrian areas and slow mobility (Sisson, 2020) and, statistically, the number of

people that used them and the types of activities carried out in them increased. In particular, we can identify certain general dynamics which became consolidated trends. During the various lockdowns, the need to minimise the movements of people and the prevalence of remote working resulted in a renewed appreciation of local areas and, through the promotion of services and opportunities for interaction in greater proximity to residents, a “place attachment” was generated for spaces that had scarcely been considered previously. Certain, less central parts of the city became popular and development guidelines that favoured a decentralisation of the city, or rather a poly-centralisation, were drawn up and promoted. Models such as “the 15-minute city” (Moreno, 2016 and 2021) promote more sustainable timescales and ways of life, reducing the need for long commutes and attributing greater value to the proximity of primary services and the quality of urban space close to residential properties, calling for the need to design and care for even the smallest and most neglected spaces in neighbourhoods.

The numerous programmes aimed at taking space away from vehicular traffic in favour of pedestrian space, which find even stronger support from local administrations after the pandemic, are moving in this direction, responding at the same time to global, environmental and climate pressure but also unprecedented social pressure for safe, outdoor spaces nearby in which to live and meet. Indeed, on one hand, in order to encourage the recovery of the so-called “third place” which suffered greatly during the pandemic because of the necessary reduction in interactions between people (Volpe, 2021), the use of space adjacent to the ground floors of commercial properties and tertiary services was permitted, with such space being diverted from car parking for example. On the other hand, the spread of outdoor recreational and sporting activi-

ties has been witnessed, which has encouraged installations and innovative equipment suited to the new demand. A new world of objects has therefore spread across the city - mobile seats and tables, herbs and flowerpots, modular platforms, small, light canopies, equipment that can be freely adapted, etc. - which increasingly resembles the soft, reversible urbanisation anticipated by Branzi's visionary capacity (Branzi, 2016). Not only that: the need to implement transformations quickly and in an economically sustainable manner also favoured the adoption of projects and programmes comparable with that which is already universally recognised as Tactical Urbanism. The softness - understood as distancing itself from "hard", permanent initiatives of construction - and reversibility - understood as the flexibility and adaptive capacity which is now indispensable in responding to increasingly rapid changes to social and emerging requirements - is increasingly united with a collective accountability for the intervention project. The "tactical square" is no longer the experimental transformation of a place in order to test its efficacy but, more importantly, it is the result of a journey of sharing, engagement and participation by the "user-residents", for the purpose of cultivating the fabric of relationships "of proximity" (Manzini, 2021) which is necessary to fuel the resilience of communities in the face of crises.

III.3 TACTICAL URBANISM. THE CASE OF MILAN

Tactical Urbanism, a specific term which over time has acquired increasingly generic meanings, owes its current moment of greatest dissemination and application, as is well known, to the programme launched in the city of New York, during Michael Bloomberg's term as mayor, of which Janette Sadik-Khan was a suppor-

ter in her capacity as Commissioner of the *New York City Department of Transportation* (2007 -2013), with the aim of renewing the sense of belonging and connection between people and public space, taking it away from cars and restoring it to pedestrians through soft transformation interventions, often using graphics, which were easy to implement and reversible. Even before the pandemic, therefore, the relationship between citizens, public space and neighbourhood was already the focus of many studies and interventions concentrating on returning space and urban facilities to pedestrians where these had previously been reserved for private vehicles and, in particular, on-street parking. Indeed, three recurring themes can be identified from the various Tactical Urbanism interventions seen in recent years in many North American and European cities:

1. the highly local and small-scale approach;
2. rethinking the relationship between pedestrians and cars;
3. the direct participation of citizens in the processes of transformation of the spaces (Lydon, Garcia, 2015).

In addition, it is also possible to recognise Tactical Urbanism from its aesthetic and functional features, which derive both from the affordability of the materials used and the expertise and skills of the constructors, or the active citizens, as well as the rapid reversibility that the test-projects must have as a necessity. As this second Part of the book will explain, Milan has stood out the most among European cities for its application of this type of intervention. Indeed here, after several experimental projects were implemented by means of the Collaboration Agreements between municipalities and citizens (associations, business owners, schools, etc.) starting in 2016, as well as two contested editions

of the Participation Budget (2015/16 and 2017/18), the 2019 “Piazze Aperte” (Open Squares) programme was launched in each neighbourhood, thanks to a collaboration between the Agenzia Mobilità Ambiente Territorio (AMAT - Agency for Mobility, Environment and Territory), Bloomberg Associates and Global Designing Cities Initiative. With its aim of *“bringing back squares as central places in neighbourhood life, no longer just car parks and areas that are passed through, but rather areas to enjoy and in which to live, where the Municipality of Milan and its residents actively collaborate in both the practical implementation and the programme design”* (Municipality of Milan 2022), in recent years the call has received more than 65 proposals for new spaces to be transformed and has supported around 35 projects, proof of the citizens’ desire to play a leading role in the city’s urban agenda.

Driven by new usage demands and new urban behaviours, including those brought about by the pandemic, the municipality began a radical journey of innovation in its methods of transforming the city, going so far as to create a new department “Laboratorio Officina Urbana” (Urban Workshop Laboratory) within AMAT, the Municipality of Milan’s planning company dedicated specifically to the research and design of public spaces. The UNPark experiment also sits within this global and local journey, although it represents a stand-alone case, both for the uniqueness of its location and the environmental and social challenges of the setting that was chosen. During the pandemic, given its immediate, rapid and soft nature, Tactical Urbanism became even more relevant, enabling rapid reappropriation of public space on streets by pedestrians, both for the construction of parklets for the sale of food and drink, attempting thereby to support the survival of these businesses during the health emergen-

cy; and to facilitate travel by bicycle (or other similar means) by plotting dedicated bike paths using only signage in order to avoid overcrowding of public transport and limiting the incentive of using private motor vehicles due to the fear of infection. Likewise for example the Open Streets project, again in Milan, which is part of the Area Zoning Plan to 2030, has enabled the creation of new cycle paths, also using signage only, an increase in 30km/h zones and the number of residential streets with predominantly cyclist and pedestrian access and the expansion of pedestrian routes and walkways (Comune di Milano, 2022). Regardless of the quantitative and qualitative results achieved, the Open Squares project, like the 2015/16 and 2017/18 editions of Milan's Participation Budget, have had the undeniable virtue of putting citizens at the centre of urban design, as well as communities and all those improvised efforts on the ground that are capable of organising themselves in order to support practical intervention proposals. However, many issues were encountered in these strategies of resident engagement on small interventions and very local matters, an attempt to divert attention from much larger projects of renovation and transformation of parts of the city, often to the detriment of the enjoyment of public urban space (Graziano, 2021). Likewise, citizens submitting proposals had many expectations and were often frustrated by the timescales of urban planning and, above all, its costs. A case in point would be the project proposed in the 2017/18 Budget for a cycle path on the Ghisolfi Bridge which, despite receiving many votes and much support, continues to be absent from the agenda because of the cost of its creation and previously unforeseen technical and bureaucratic issues (please refer to this book's closing Chapter XI in the Part 3). These experiences, like many other international experiences in London, Berlin, Bogotá, Minneapolis, Vancouver,

Mexico City, Dublin and across New Zealand (Daly, Dovey, Stevens, 2020), together with the experience on the ground of the UNPark research project - as we will see in this Part 2 - all clearly demonstrate that citizens want to participate ever more actively in the design of their cities, since, because of the pandemic, they have learned that public space, whether this may be a park, a square or even a car park, is an integral part of their habitat, an extension of their private space in which to carry out certain activities and of which to take care.

III.4 CONCLUSIONS

The glaring omission among these work trajectories is the integration of new technology in the city. A crucial role could be played by new technologies from the “Internet of Things” (IoT) in the transformability, if only temporary, and flexibility of squares, infrastructure, streets and car parks, providing users with real-time information: for example, where parking spaces are available nearby (smart parking) thereby reducing their vehicle emissions or, in a more structured manner, autonomously changing the road network both physically and through dynamic signage, on the basis of the most prevalent type of user at a given moment (on-demand). There are many possibilities for the integration of information technology across urban elements and users: from real-time assessment of air quality in crowded areas, parks, etc. through sensors; to the monitoring of noise levels, as a measure of potential issues (accidents, fights, burglaries, vandalism, etc.); to traffic control, which is already partially in place, with a view to reducing congestion and CO2 emissions; to energy consumption, in order to obtain a complete estimate of the energy requirements of various urban services so as to better plan consumption;

to smart lighting, that is varying the brightness of street lighting depending on the time of day, the weather conditions, the presence of people, the temperature and humidity, in order to ensure optimal levels of outdoor comfort and energy savings (Cicirelli et al., 2019). However, these new urban possibilities can only be unlocked through the creation of design ecosystems based on technology, innovation and the participation of citizens, which can be applied to streets, urban infrastructure and public space that, from fixed elements in the urban panorama, can be transformed into adaptive and responsive environments capable of changing, accommodating different flows and functions according to demand, putting the pedestrian at the centre of all urban decisions, thereby remodulating the dimensions of areas dedicated to vehicles. Indeed, as was demonstrated during the pandemic by the limitations imposed on private motor vehicles, too much urban area has been dedicated to car parking to the detriment of more universal and democratic uses (Clemente, 2017; Coccia, 2020); without forgetting, moreover, that 23% of greenhouse gases in Europe are produced by transport; and that road traffic represented 72% of the total CO₂ emissions by the transport sector in 2017 (European Environment Agency, 2020). The potential pool of new spaces to be regenerated offered by streets and mobility infrastructure, the rapid strategies for intervention by tactical urbanism, the new centrality of the pedestrian as a foundation of viability and the development of urban IoT technologies are therefore the four elements that need to be integrated in order to overcome the urban challenges of the coming years, with the aim of learning to design the temporary, to alternate between functions and users, and the multifunctionality of urban spaces, structures and infrastructure, in order to avoid their disuse and consequent deterioration. If in

the pre-pandemic “global” city “quality” public space was that of the city-centre resident, of great works of recent urban transformation, of fashionable streets for shopping and “movida” (nightlife), - in short - of those urban places in which it is more important to communicate quality through images than to enjoy them freely and informally (sit down, socialise, eat, etc.); in the inclusive, post-pandemic 15-minute city, the prospect of public space will be completely overturned and with it will come a local vision of neighbourhoods as part of our daily habitats, which immediately becomes more attentive to the areas around us, their strengths and weaknesses, as well as interrogating the inequality of the facilities and services from one neighbourhood to another, in order to ensure, in practice, the implementation of a 15-minute city.

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IV. Between urban regeneration and social reactivation: design approaches for a city in transformation

Barbara Di Prete

In the contemporary design scene, there are countless approaches that, albeit with individual specificities, address the urban as a territory to be rethought together with the population, with punctual interventions, often of an installation nature, respectful of the context, reversible and temporary. The aim is to promote an urban regeneration that acts on re-designing space while also reactivating its social ties. The case of UNPark fully fits into these light experiments, which enhance local resources and stand as demonstrative prototypes of a new,

more sustainable action (in economic, environmental and social terms). In addition to the “gentle” nature of the proposed interventions, which often have limited time horizons, their participatory dimension also appears to be fundamental. The involvement of people from the earliest planning stages of the public space (in its tangible and intangible dimensions) thus becomes a driver of innovation and, at the same time, an opportunity itself for creating additional value.

IV.1 INTRODUCTION

In the current planning scenario, urban approaches (methodological, theoretical and practical) are manifold; although they go by different names, they have deep tangential areas and common sensitivities. Tactical Urbanism (Garcia, Lydon, 2015), the Performative City, the Co-creating city (Agusti et al., 2014), Open Source Architecture or Open source Urbanism (Sassen, 2011; Ratti, 2014), as well as the methods and techniques of Urban Up-cycling, Urban mining and Wasted architecture, but also Pop-up city (Beekmans, De Boer, 2014), Urban acupuncture (Casagrande, 2013), Shy architecture (Ermentini, 2010), l'Urbanistica della gentilezza (Crippa, Decembrino, 2020) and the so-called Soft urbanism (Brooker et al., 2019) identify gentle ways of intervening that often act from below to initiate deep-rooted and shared transformations. The titles allude to different disciplinary tools, but the objectives and, often, also the underlying philosophy of the mentioned design attitudes, are the same: they are micro-design strategies *“formulated to explore alternative forms of adaptive reuse and innovation aimed at interactive and sustainable urban regeneration”* (Gianfrate, Longo, 2017, p. 99).

Although with multiple expressions and with individual peculiarities, these design strategies are capable of intercepting (and representing) the values of the contemporary and seem to give shape to that Branzian vision for a “weak and diffuse” society (Branzi, 2006) that today, more than ever, is recognisable. In this perspective, the city is re-conquered (and re-defined) starting from the dimension of the “minute”, through a constellation of situations and intermittent actions capable, however, of creating an extended sy-

stem of regeneration: even city shop windows, abandoned ground floors, in-between urban spaces (Piccinno, Lega, 2012), those forgotten or neglected spaces typical of mobility contribute to urban regeneration and, in a virtuous process, to its social reactivation.

It is a capillary re-appropriation made up of individual experiential moments, but capable of building lasting mindsets in people's memories. They are opportunities for redevelopment of the city by fragments, starting with installations that are often punctual and temporary, but which trigger processes of spontaneous re-appropriation, even in the long term, and encourage encounters and relations between residents. The theme of encounter - especially in the peripheral sphere where *"enclosed in an ever closer embrace, we are increasingly exposed to one another"* (Rifkin, 2011, p. 391) - thus acquires a symbolic value but also a tangible one. Indeed, it induces immediate social repercussions (as a vehicle of knowledge and a curb on the fear of what is different), but it is also capable of physical repercussions because performative and participatory actions are increasingly finding ways - even legislative - to tangibly characterise spaces. In almost all the bottom-up design approaches that are emerging, projects are united by this attention to the human dimension seen as a resource, as a tool and then as an agent of new urban appropriation initiatives.

There are therefore probably two predominant and constant features of these approaches, if one were to make a summary exercise: the prevalence of the temporary dimension and the emergence of the participatory paradigm.

IV.2 TEMPORARINESS AS A HORIZON OF TRANSFORMATION AND AS AN EXERCISE IN IMAGINATION

The completeness of the actions proposed for a “Temporary city” (Bishop, Williams, 2012) must first and foremost be understood as a conscious choice and as a design value, not as a fall-back attitude: reasoning in temporary terms allows one to act in economy, with flexibility, foreseeing an open ending already in the planning phase.

With the temporary, a code proper to our everyday life, we do not abdicate, therefore, to provide impactful responses to the city, we simply do not aspire to leave a permanent mark which, in a society dominated by urgency (Finschelstein, 2011), would soon prove to be inadequate.

In other words, it could be said that those who today manage to work with a defined and close time horizon also manage to incorporate into the project a multiplicity of possible answers to questions that are yet to come. Wanting to try to outline, without the ambition to be exhaustive, some of the values that this type of project action promotes, one can focus on at least five aspects:

1. *On the legislative level:* the temporariness of the proposed actions represents a strategy for overcoming constraints, laws and economies that all too often limit actions to redevelop the territory. This is not an uncritical avoidance: on the one hand, we are witnessing a change in the regulatory paradigm with the structuring of *ad hoc* regulations that some more avant-garde metropolises have tried to experiment with (Milan with the *Piazze Aperte*¹, New York with the *NYC Plaza Program*², Barcelona with the *Superilles*³ programme, all aimed at transforming the city's spaces by favouring sustainable

¹ www.comune.milano.it/piazzeaperte, urban regeneration programme launched by the Municipality of Milan as part of the “Piano Periferie”, in collaboration with Bloomberg Associates and with the support of the National Association of City Transportation Officials Global - Designing Cities Initiative

² www.nyc.gov/html/dit/html/pedestrians/nyc-plaza-program

³ www.juntament.barcelona.cat/superilles

mobility, pedestrianism and biodiversity); on the other hand, we could simply speak of “creative interpretation”, which structurally characterises the proceeding of those who use Lateral Thinking (De Bono, 2000) and which the design-driven project has historically adopted (just think, to remain in the urban sphere with a sporting vocation, of the informal, unregulated and unregulated fields proposed by Cliostraat in *Play or rewind*, back in 2001).

2. *On the regenerative level*: often the temporary solutions proposed have a prototypical value; one thinks of all the experiences - paradigmatic in this sense - of tactical urbanism, which postulates the importance of “a ‘short term action for long term’ approach to community revitalisation using low-cost, scalable place making interventions that inform long-term investment” (Takemoto, 2016). Such actions serve, therefore, to test the impact of an intervention on the population: on the one hand, they are consensus-building tools, on the other hand, they are actual experiments whose effects in terms of streetscape, behaviour and identity recognition need to be observed. There are already numerous examples in this direction, some also promoted by the Politecnico di Milano (e.g. the *PAAI-Padiglione Adattabile Autogestito Itinerante*, which stands for *Adaptable Self-Managed Itinerant Pavilion* of the 2014 Polisocial programme, an itinerant structure for Municipio 9 which in the six months of its presence in the area welcomed and promoted the initiatives managed by local associations), and many



IV.1
*FIGURE IV.1 -
The PAAI-Adaptable
Self-Managing Itinerant
Pavilion during the
opening, Parco Saverino,
Milan, May 8TH 2016
(Source:
Barbara Di Prete)*

realised abroad. Among them *Estonoesuncollar - thisisnotanabandonedvoid* - an experimental programme that in 2009, in Zaragoza, involved the inhabitants in the temporary occupation of forgotten spaces that were transformed into squares, gardens, vegetable gardens and playgrounds, using participatory methods and recycled materials. Even when they did not eventually find replicability in the field, such projects are considered fruitful experiences, still remembered by inhabitants as positive models of urban and social requalification. Temporari-ness as “programming duration” thus makes it possible to respond appropriately to immediate needs and, at the same time, to anticipate (and evaluate) a different future.

3. *On the aesthetic level:* probably because of their removable, inexpensive and easily reversible nature, these interventions often resort to a very strong colour code. Colour and graphics, in fact, allow, with decidedly low costs, short installation times and easy removal, to renew the image of a so-called “urban interior” (AA.VV., 2016) with great expressive force. The project does not hide, therefore, it does not camouflage itself: while respecting the context, it seeks maximum aesthetic recognisability, thus ensuring that the change is read and perceived by the entire population. The environmental graphic - which recurs for example as a design code in the Milanese interventions in Piazza Dergano (2018), a playground with a pictorial matrix played out on large white and yellow ground stamps, in Porta Genova (2019) and in Via Toce (2020) - really seems to be a paradigm for these “tactical” interventions.
4. *On the sustainable level:* in the contemporary debate, even design disciplines cannot avoid confronting the demands of the circular economy, which “opposes the linear paradigms of take-make-waste, [in order] to keep materials and products within a closed loop for as long as possible” (Webster, 2015). It is no coincidence, therefore, that in many of these “time-based” projects the actions pursued already foresee an end with a subsequent reuse: even the UN-Park devices were to be relocated to other Piazzette Aperte locations, in a virtuous logic of reuse. When it is not reuse, it is up-cycling or “waste” valorisation strategies that are promoted, often together with Nature-Based Solutions that increasingly affirm the importance of environmental values. In UNPark, this dimension (in



terms mainly of collective awareness) was conveyed by the control units installed on the balconies of some of the inhabitants involved in the project, useful for monitoring the air quality in a particularly critical area of Milan; but also the creation of mobile green wings around the perimeter of the underpass further emphasised the intervention's intention to establish a virtuous relationship with the environment, spreading ecological awareness.

5. *On the social innovation level:* although the connection is not so direct, it does not seem far-fetched to hypothesise that the temporary can contribute to determining lasting social innovation, despite the brevity of its physical forms. As mentioned earlier, in fact, the mindset that projects help to activate often manages to be persistent in the memory of the inhabitants: the consumption of urban images is very fast, almost instantaneous, but the mental elaboration that they construct is deposited and it persists. Indeed, sometimes over time and in one's memory, it is amplified, and in this sense it activates an exercise of imagination. The legacy of these temporary projects lingers as an abstract ideal, but often also lingers in terms of the activated relationships, the engagement and awareness of citizens and in relations with local stakeholders.

FIGURE IV.2 - The tactical urbanism intervention carried out in Via Toce, Milan, 2020. Drone view (Source: Ghigos)

FIGURE IV.3 - The tactical urbanism intervention in Via Toce, Milan, 2020. A moment of spontaneous play time during the inauguration (Source: Ghigos)

IV.3 PARTICIPATION AS A TOOL FOR INCLUSION AND AS AN AESTHETIC OPPORTUNITY

The participatory dimension as a vehicle for sharing and social activation is now a consolidated working practice, especially for those involved in the construction of urban space. Indeed, there are count-

less researches that, in recent years, have explored this aspect in depth, enhancing the local sphere as the first opportunity for planning, in the awareness that it is precisely in neighbourhoods that urban bonds are more easily consolidated and the identity of a community is built (Borlini, Memo, 2008; Castri-gnanò, 2012).

In the context of this now widespread awareness, shared, inclusive and collaborative processes between institutions and the so-called city makers aimed at defining new practices of community life are therefore increasingly frequent and necessary - both from a consensus-building perspective and from the perspective of spreading a sense of belonging and care. The “tactical” urban planning actions initiated by the Municipality of Milan can be framed in this participatory panorama of reactivation of the city in general and of the suburbs. A territory that is often undifferentiated and degraded, but which today, with increasing frequency, is configured as the true experimental laboratory of new urban policies. The suburbs, in fact, *“are places of great life, they are the places of the future, we simply have to make cities grow by inclusion and not exclusion”* (Piano, 2018).

The various participatory approaches, yesterday codified above all in the process phase, today structure the active collaboration of citizenship also in terms of co-design, co-creation and co-management of public space. It is not by chance that we speak of a co-creating city (Agusti et al., 2014; Ermacora, Bullivant, 2016), because the city, by resorting to co-creation as a means of engaging citizenship, truly pursues innovation, inclusion and builds an increase in collective value with repercussions also in the use of services: *“public services work better when designed*

and delivered in partnership with citizens in order to harness their interest, energies, expertise and ambitions” (OECD 2011).

Noteworthy, in order to frame this participatory model that seems to spread more and more exponentially - by now finding consensus even among the most sceptical municipalities - is the analogy with the IT sector proposed by Dörk and Monteyne: for them the goal is “deciphering the urban code” and in such a scenario co-creation takes on the role of “hacking”: *“instead of creating a new urban operating system from the ground up, activists create prototypes of change and spread them like computer viruses throughout the city and around the world”* (Dörk, Monteyne, 2011). The metaphor with information technology, also re-proposed and codified in 2016 by T. Ermacora and L. Bullivant who speak of a “recoded city [for] co-creating urban futures” (Ermacora, Bullivant, 2016), thus appears convincing to explain an increasingly “open source” model (Sassen, 2011; Ratti, 2014), which is described as systemic, innovative, collaborative, a-hierarchical, multi-directional, mutually beneficial, reliable and transparent (Agusti et al, 2014). One manifestation of this is, for instance, *“PARK(ing) Day”*, an annual and *“international open source initiative [that] encourages participants to occupy metered parking spaces for a day, converting them into temporary parks or other public amenities”* as a demonstration action against the lack of public space (ARUP, 2016).

In more purely spatial terms, we could say that this type of intervention proceeds on a double track: the predominantly relational track and the physical track, two spheres that inevitably intertwine and find a functional and narrative synthesis in the city.

In general, many of these projects that act on the urban space for “needlepoint” regeneration accompany, in fact, the setting up of city spaces with a palimpsest of actions and events capable of animating, at least for an initial period, that portion of the territory. It is an attempt to rediscover (or to create ex novo) new collective rituals, where the design of the urban space and the construction of a community identity overlap.

*FIGURE IV.4 - Illumina-Mi installation, realised at the La Ribalta brewery and in the premises of Municipio 9, Milan, 2020-2021
(Source: La Repubblica del Design)*

In this sense, the relationships between people literally shape space: invisible connections translate into places of exchange and performance, places of often even informal interaction, sets of a multiplicity of unpredictable situations. The experiences and events, with their immaterial symbolic bearing, reconfigure the environment and qualify it as an “infrastructure of sociality” (Spinelli, 2010, p.11). This bottom-up perspective takes the form of what has been

*FIGURE IV.5 - Urban devices outcome of the project from Cosa nasce Cosa, installed at restaurants Rob de Matt (left) and Urban Garden (right), Milan, 2020-2022
(Source: Ideas)*



IV.4



IV.5.



effectively defined as “*portable stage sets*” (Arnaldi et al., 2016), capable of accommodating the “show” of the everyday and the momentary (Crippa, Di Prete, 2011). These programmes for the use of public space aim to regenerate urban fragments to be returned to the community by acting on the intangible: first and foremost on mutual knowledge, entertainment, the exchange of skills, culture and the transmission of knowledge, but performative and participatory actions are increasingly finding ways - even regulatory - to characterise spaces physically.

The use of colours and graphic patterns that remain as a trace and “field” of a spontaneous palimpsest (as in the examples already mentioned), narrative installations that literally give citizens a “voice” by visualising their words and transforming them into a collective luminous thought (think of the installation *Illumina-Mi*⁴, Milan, 2020-2021, the demonstrative upcycling and awareness-raising actions that will condition our future gestures, but whose effects remain today, as urban devices, to equip our parks, soften our streets, renovate our facades (recall, in this sense, the programme promoted by La Repubblica del Design *Da Cosa nasce Cosa*⁵, 2020-2022), are examples of participatory actions that do not delegate to others the task of qualifying, even physically, urban spaces.

The result is solutions manufactured with few resources, but great scenic impact: “*with light means, but signally strong*” (Tozzi, 2019).

Truly “small acts, undertaken with minimal resources, but maximal participation can produce opportunities for living alongside each other in more positive ways” (Brooker et al., 2019).

FIGURE IV.6 -
Urban devices
outcome of the project
from *Cosa nasce Cosa*,
installed at restaurants
Rob de Matt (left) and
Urban Garden (right),
Milan, 2020-2022
(Source: Ideas)

⁴ www.illumina-mi.it

⁵ www.repubblicadeldesign.it/dacosanascecosa

IV.4 CONCLUSION: ALL THAT GLITTERS IS NOT GOLD

Due to the characteristics of impermanence and fluidity (Bauman, 2011) that we all now recognise as peculiar traits of contemporary society, as has been illustrated above, the project *“increasingly requires reasoning in terms of setting up, reversibility and replicability, [...] of acting on the scale of the minute, of the imprecise, of welcoming and opening up to otherness”* (Di Prete, 2020, p. 137).

In the face of the design potential of this attitude - and the evident growth of confidence in such a *modus operandi* - it is useful to leave open questions in the conclusions of this chapter, highlighting at least some critical points on which architects and designers should question themselves.

Three problematic aspects still seem to be unresolved or only partially resolved:

- As “builders” of environments that also have to deal with the formal level, it would be important to understand the extent to which temporariness can become language and aesthetic code: *“temporariness becomes the very purpose and language of the project and, in its continuous metamorphosis, becomes the interpreter of continually changing modes of use of space”* (Rebaglio, 2017, p. 34). As we have tried to introduce in the previous paragraphs, the question is not new and is finding, today, some first credible answers, but these are still extemporaneous observations that would require more theoretical investigation and collective awareness.
- As observers (and makers) of the complex social context that welcomes us, it is necessary to recognise how, often, *“in the contemporary*

metropolis, security and permanence [are] attributes of wealth: wherever there is poverty, conditions often tend towards uncertainty and transience" (Ferorelli, 2012). Although I have treated these terms as values, being in total agreement with G. Vattimo's assertion that *"it is the areas of indiscipline in the metropolis where a possibility of authentic dwelling is still outlined"* (Vattimo, 1988, p. XI), it is an objective fact that the proliferation of situations of necessity and the informal occupation of urban spaces are terms that can often be linked in a cause-effect relationship. In such a scenario, the temporary dimension must perhaps increasingly succeed in asserting itself even in the historical centres and more consolidated areas of our cities, while even a cursory analysis shows that it is the peripheral public spaces that are most affected by this paradigm.

- As users of the corpus of legislation that regulates our cities, we must be aware that the change of perspective proposed by Mike Garcia and Antony Lydon is still far from being realised, except in fortunate, but episodic cases. The prototypical approach to urban space considers two levels of planning: the long-term strategic vision and the short-term experimental vision. The latter, in particular, needs to *"recognise the dysfunctionality of the rules, procedures and conventional instruments of urban planning; [...] the inefficiency and unsustainability of burdensome, in terms of cost and time, mega-projects"* (Talu, 2017, p. 18), suggesting solutions that, however, often still clash with an inadequate regulatory framework.

- Finally, even the massive recourse to participation conceals a risk, which C. Agusti effectively highlights, posing the problem of the quality - and implicitly of the authorship - of the outcomes of participatory projects: *“participation, whether through co-creation or other mechanisms, may also lower the quality of government actions and the policy results. Increasing the amount of anonymous input could blur the line between ‘good participation’ driven by civic interest and ‘bad participation’ driven by self-interest”* (Agusti et al., 2014, p. 7). The topic has already been debated at length, but it often comes up again when, even today, public administrations use participatory processes as a pretext to increase consensus among citizens, with little interest in the final results.

While we are supporters and staunch advocates of an inclusive and shared approach to urban design, which is reflected in “weak”, provisional and happily uncertain interventions, it is therefore important to remember that, as always, all that glitters is not gold.

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V. The role of infrastructures for a new urban scenario

Patrizia Scrugli and Giulia Procaccini

Cities possess a large inventory of surfaces, structures, supply systems and monofunctional infrastructures that serve urban areas so that they function properly, establishing relationships that do not go beyond a pre-determined function. These networks and structures have a huge untapped potential to be unlocked and reinvented by means of a clever, design-oriented and human-centered approach. Reprogramming the city allows us to transform spaces and objects traditionally intended as singular-function-

ing elements into-multi functioning assets, which can be developed over time, getting ever closer to the needs of citizens. Reimagining resources at hand in a different way is the first step in an adaptive reuse process aimed to unlock this dormant potential and to transform these spaces into platforms of opportunity. Through an accurate reading of international case studies, this chapter aims to encourage reflection on the role of infrastructures for a new urban imaginary.

V.1 URBAN INFRASTRUCTURES AND THEIR DORMANT POTENTIAL

Cities grow, are structured and need new surfaces and services. In an era in which long-distance relationships are closely intertwined with those of proximity, they continually demand more powerful and capillary material and immaterial connection systems (Azzone, Balducci, Secchi, 2020). However, they struggle when it comes to assigning new hierarchies to their spaces even when the purpose is to enhance their uses. Yet, faced with the contemporary challenges related to climate change, the energy crisis, the fight against social fragility, it should be clear enough that every resource and square metre of abandoned or underused urban land is actually a waste of precious space, whereas if it is put to good use, it could make urban agglomerations more liveable and sustainable (Burnham, 2021), from a perspective of functional and strategic support to the physical-economic world and to society itself (Schiaffonati, 2016). Urban infrastructures - in particular those related to mobility - are fully part of this framework, acquiring an ever-expanding role in terms of quality of life. In an increasingly populated, urbanised and complex world, citizens daily experience the imperfections and merits of the infrastructure urban places more incisively than squares and monuments in their firmness. Roads, motorways, viaducts, bridges, interchanges, ports, airports and stations regulate increasingly intense flows, thus becoming real points of reference which, in addition to fulfilling their function, give shape and identity to the territory. What clearly stands out from this snapshot is that the infrastructures will not be able to continue to expand and evolve solely on the technical and functional front: it is in fact time to put into practice some reflections that bypass the logic of the mono-functionality towards a genetic mutation that, from an enhan-

cing perspective, takes into account the impact on the contexts (Ferlenga 2012). All of these reflections lead to a principle that could be defined as ductility. Who says that infrastructures should only fulfil one purpose and that they can only comply with the need for which they were designed? Whether it is the need to move or to supply, infrastructures are a precious asset for contemporary cities and a stock of public space which, with a proper upstream design or a skillful downstream regeneration can generate enormous benefits for the communities with which they come into contact (Burnham, 2018). These are the possible ways to unleash the hidden potential of infrastructures: functional implementation, adaptive reuse, multi-scalar and multi-purpose design. All these achievable approaches find application on an international scale in honourable cases that can contribute to the construction of theoretical arguments to support a broader reflection on the role of infrastructures in our cities. It is therefore worth mentioning at this point some of these projects that embody problems and possible solutions better than others, thus building a cultural reference framework to be shared with all those interested in the subject. The fact that this panorama reveals itself in continuous evolution supports the contemporary relevance of the issue under discussion and, as such, the need to address it urgently.

V.2 FUNCTIONAL IMPLEMENTATION

In the so-called cases of “functional implementation of existing infrastructures”, the prevailing function remains unchanged but, through intelligent grafting and redevelopment projects, it is flanked by new se-

FIGURE V.1 - *The Bentway*,
Toronto (Canada), view
from Fort York Boulevard,
2022

(Source: Luca Maria
Francesco Fabris)

FIGURE V.2 - *The Bentway*,
view towards Strachan
Avenue, 2022 (Source:
Luca Maria Francesco
Fabris)

FIGURE V.3 - *The Bentway*
crossing Garrison Road,
2022 (Source: Luca Maria
Francesco Fabris)



¹ <https://www.thebentway.ca>

condary functions (with a view to multi-functionality), aimed at improving the perception and the use of the space by vulnerable citizens. These new practices soften the repelling effect of the infrastructures by rightly inserting technical structures into the dynamics of the use of open spaces.

*Bentway Park*¹ in Toronto is an innovative project: since 2018, it has transformed 1.75 km of space near the Fort York National Historic Site under the Gardiner elevated freeway into a meeting space for the population, the whole thing being just a few steps from the waterfront of Lake Ontario. The Bentway offers activities and events throughout the whole year thanks to the presence of green areas, spaces for ska-





teboarding, public works of art and leisure facilities that allow the creation of temporary exhibitions, festivals, theatre moments, musical, artistic and sporting performances. The name derives from the trilithic system of reinforced concrete supporting elements of the viaduct, named “bents”. These create 55 covered outdoor rooms that can work in unison or autonomously, perfectly adapting to the schedule of activities planned by the local agency that coordinates the space. The project is constantly evolving and aspires to connect various districts of the city to the lakefront by the transformation of the physical and social barrier represented by the overpass from a barrier into a new corridor of cultural connection and inclusion: “from underpass to gateway”, as stated in the Annual Report 2020/2021².

*Bruparken*³ is a street sports and game deck built in 2007 underneath the E18 elevated highway in Drammen, Norway. The project stems from the need to recover abandoned and underused spaces to transform them into welcoming places, capable of favouring the connection between the urban fabric of the city centre and the pedestrian paths along the river. Facilities

FIGURE V.4 - The Bentway, bents' perspective at Fort York Boulevard crossing, 2022 (Source: Luca Maria Francesco Fabris)

² <https://www.thebentway.ca/wp-content/uploads/2021/11/WEB-The-Bentway-2020-2021-Annual-Report.pdf>

³ <https://linkarkitektur.com/en/project/bruparken>



FIGURE V.5 - Bruparken, Drammen (Norway), the skate park underneath the highway viaduct (Source: Hundven-Clements Photography, LINK Arkitektur)

FIGURE V.6 - Bruparken,
the water, the artificial
lights and the reflective
steel cladding
(Source: Hundven-
Clements Photography,
LINK Arkitektur)



such as the skate park, the skate bowl, the outdoor stage, the climbing wall, the hockey field, a gushing fountain and simple seating attract groups of people of all ages who meet in a space that offers a complete sensory experience between movement, water, light and sound. Three works of art immersed in the greenery complete the spatial articulation. A reflective steel cladding upholsters the viaduct to reflect the life of the park during the day, while in the evening it diffuses the artificial lights that enhance its presence. In 2008, the park received the Norway's best public space award from the Norwegian government: a successful example of how the transition from marginal space to a fully equipped park is simpler than imagined.

⁴ <https://www.warrenlangley.com.au/project/aspire-2/>

FIGURE V.7 - *Aspire*, Sydney
(Australia), the lit-up trees
sculptures (Source: Warren
Langley, 2010)

*Aspire*⁴ is a luminous sculpture realized by the artist Warren Langley in 2010 in Sydney as part of the public art project *Life Under the Freeway*, commissioned by the local community to celebrate the struggle that has allowed to preserve a long-standing residential settlement from demolition: in order to do so, the project for a new motorway has been modified in favour of its supra-elevation. In memory of this collective action,



V.7

Langley proposed 14 stylized silhouettes of bright trees in high-density polyethylene that seem to support the imposing construction. These sculptures, with a familiar design, also have the aim of making the passage of pedestrians more reassuring, giving an identity to an otherwise repulsive place. This example shows how a simple project with a strong emotional value can redeem repulsive places without implying major upheavals thanks to the use of a proper design and artificial light.

A particular case is the one of the *Via Elevada Presidente João Goulart*, also known as *Minhocão* or *The Big Worm*, in Sao Paulo in Brazil. This 3,6 km long viaduct which crosses the heart of the megacity (with 2,7 km on an elevated road) was inaugurated in 1971 and presented as the solution to congestion. However, due to the several collateral phenomena that have occurred over time (property devaluation, degradation of public spaces on the ground, physical separation) and that have rapidly transformed a sign of faith in progress into an urban scar (Abruzzese, Farinella, 2019), already starting from 1976 the overpass was closed to traffic between 21:30 and 6:30 to limit the negati-

FIGURE V.8 - The Minhocão, Sao Paulo (Brazil) view from R. da Consolação, 2014 (Source: Georgia Santaniello Abejon)

FIGURE V.9- The Minhocão, spontaneous reuse and street art along the overpass (Source: Gabriela Mattei)







V.10



FIGURE V.10 - The Minhocão, spontaneous reuse and temporary installations
(Source: Gabriela Mattei)

FIGURE V.11 - The Minhocão, spontaneous reuse, 2017
(Source: Georgia Santaniello Abejon)

ve impact. Over the years, this temporal restriction on the circulation of cars has triggered a slow process of spontaneous appropriation of space by the inhabitants who now live the Minhocão as a sort of informal linear urban park where people can walk, go to cycling and attend artistic performances during the evenings and weekends. Since 2013, the Associação Parque Minhocão has been fighting to transform the viaduct into a permanent park, preserving its informal dimension, in open contrast with the vision of the local administration, willing to give up the viaduct only in view of the construction of a formally regimented public park. Therefore, today the Minhocão is a disputed space in which the daily relationship of the population with the infrastructure has triggered conflicting expectations about its destiny that are difficult to iron out (Hochuli, 2020) and which make this case interesting from the point of view of the right to the city (Lefebvre, 1970).

A separate theme, which is related to that of spontaneous reuse, is the one of temporary installations of which *Küchenmonument (The Kitchen Monument)*⁵ plays a full part in its ambivalence as a mobile sculptu-

⁵ <https://raumlabor.net/kuchenmonument/>



re and generator of temporary public spaces. The purpose of that installation is in fact to create recognisable places in urban spaces with no identity by the activation of social interactions that give a new life back to these places, even though for short periods. *The Kitchen Monument* has been installed in many different locations since its activation year in 2006: the graft under the ramp of an overpass in Duisburg was one such example. This is how an unused space like the imprint of an elevated becomes a banquet hall but also a conference room, a cinema, a concert hall, a ballroom, a dormitory, a boxing arena and a steam room. All of this is possible thanks to the large pneumatic balloon in resistant and translucent plastic material which, once inflated, assumes the shapes of the spaces in which it is housed, allowing introspection between the inside and outside, in a total symbiosis with its context.

Genoa, a city of sea and infrastructure, is crossed by the controversial Aldo Moro elevated road, at this point an integral part of the skyline of the Porto Antico. In 2016 the *Walk The Line* (WTL) project - conceived by Linkinart, PAGE - Public Art Genoa, Trasherz Lost in Art and supported by the Municipality of Genoa - set itself the goal of transforming the spaces below the infrastructure into an open-air gallery through the presence of street art works, such as graffiti, poster art and stencils. 100 artists for 100 pylons, accompanied by just as many soundtracks composed by the Magellano collective. An ambitious project the one of WTL, still unfinished but able to resume life from its ashes like the Arabic phoenix: not only does it aspire to change the image of the infrastructure itself but also aims to create a vibrant community around it both on a local and international scale, with the intention of initiating a sort of new cultural metabolism that goes beyond the spatial dimension. The objectives of the *Walk the Line*

FIGURE V.12 -
Küchenmonument,
Duisburg (Germany), 2006
general view. Project of
Raumlabor Berlin and
Plastique Fantastique
(Source: Marco Canevacci,
Plastique Fantastique)

FIGURE V.13 -
Küchenmonument,
internal view during a
community lunch. Project
of Raumlabor Berlin and
Plastique Fantastique
(Source: Marco Canevacci,
Plastique Fantastique)

⁶ <https://smart.comune.genova.it/pagine/ricerca-sponsor-repicta-genoa-street-art-project-strada-sopraelevata-aldo-moro>



project have recently merged into the much more imposing project of *Repicta*⁶, promoted directly by the Municipality of Genoa with the goal of decorating all eight kilometres of the overpass: the project aspires to be included in the Guinness Book of Records as the largest open-air work of art ever made, and it is realized right on a piece of infrastructure.

FIGURE V.14 - Walk the line, Genoa (Italy), the Aldo Moro overpass and the graffiti gallery on the pylons (Source: Tommaso Scrugli)

FIGURE V.15 - Walk the line, the Aldo Moro overpass and its gallery in proximity of the Acquario di Genova (Source: Tommaso Scrugli)

V.3 ADAPTIVE REUSE

The regeneration of railways, roads and highways, both on the extrados as well as on the footprint of the artifacts, often preserves the connective function by the removal of vehicles in favour of slow and neighborhood mobility and cycle and pedestrian paths, characterised by large spaces dedicated to safe parking, aggregation and entertainment. In this way, linear routes of different extension, originally intended almost exclusively for cars or trains, become alternative travel solutions, at the same time fully falling into the category of public spaces. These so-called adaptive reuse solutions with a view to up-cycling, represent not only a sustainable response to the rapid obsolescence of modern infrastructures but also make the intrinsic urban value of infrastructures very evident, which finds new usefulness in a second life perspective thanks to recycling. To give this type of approach a transversal definition, valid for buildings, infrastructures and open spaces, it can be said that adaptive reuse occurs when new contents are introduced into an existing container: the contents differ from the one for which the container was originally designed. Finally, it is the new content that adapts to the container rather than the other way around, with a view to maximum conservation and minimum processing (Robiglio, 2017). The first example in which memory runs regarding the up-cycling of urban in-

FIGURE V.16 - Les Viaduc des Arts, Paris (France), the permanent arched vaults housing arts and crafts experts and the elevated green promenade, 2022 (Source: Claudia Brivio)



FIGURE V.17 - Les Viaduc des Arts, the elevated green promenade, 2022 (Source: Claudia Brivio)



FIGURE V.18 - Les Viaduc des Arts, the bridge overpassing Diderot Bd, 2022 (Source: Claudia Brivio)

⁷ <https://patrickberger.fr/Le-viaduc-des-arts-Paris>; <http://www.leviaducdesarts.com/en/>

frastructures is that of the pedestrian promenade of the *Promenade Plantée* in Paris, also known as *Coulée verte René-Dumont*. Built between the eighties and nineties of the last century above the disused railway viaduct of 4.5 km that started from the former Bastille station, today Opéra Bastille, it is the first elevated public park in the world (the source of inspiration for the most famous *High Line* in New York). Surmounted by the famous linear hanging garden, the sixty-seven masonry vaults that characterise the first stretch

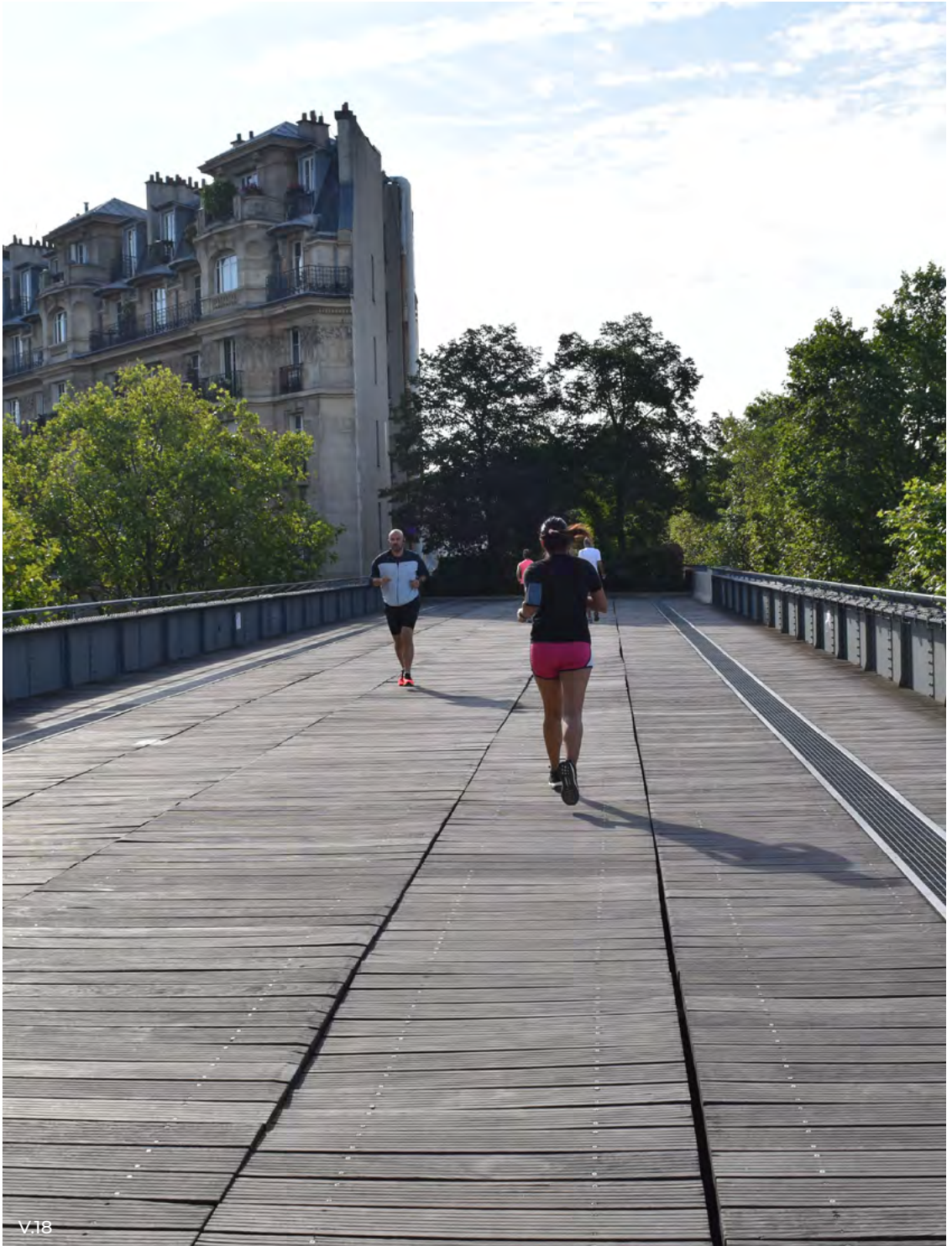


FIGURE V.19 - Les Viaduc des Artes, Paris (France), Coulée verte René-Dumont, 2022 (Source: Claudia Brivio)



of the route, known as *Le Viaduc des Arts*⁷, welcome commercial businesses, workshops and exhibition spaces dedicated to the most diverse traditional craft activities. The second section develops in the form of a walkway to then regain the altitude of the countryside definitively and thus give new life to old embankments and tunnels in a decidedly more naturalistic dimension (Borsotti, Pistidda, 2020). The Promenade can be considered an archetypal project of its kind, the son of that lucky season of large projects triggered by the then President Francois Mitterand and aimed at providing Paris with contemporary monuments capable of transforming its skyline and stimulating the economy through real estate operations of building replacement and renovation.

A very different route from the previous one but no less fascinating is that of the 32 km of the *Petite Ceinture*⁸, which embrace the entire heart of Paris. The railway belt, built between 1852 and 1869 for freight traffic and equipped with about thirty stations, was gradually abandoned until its complete dereliction in 1985, which coincided with the start of the gradual dominance

⁸ <https://petiteceinture.org>

of nature in the following decades. In 2006 the mayor of Paris Anne Hidalgo decided to respond to the numerous associations that asked for its preservation and return to the city by signing a memorandum of understanding with the SNCF (*Société nationale des chemins de fer français* - National Society of French Railways), which had to regulate its use with the possibility of carrying out maintenance work on the line as long as they were responsible. Consequently, in 2007 a small section of the infrastructure was reopened to the curious. Since then, numerous other sections have been returned to the public in the 12th, 13th, 14th, 15th, 16th, 19th and 20th *arrondissements*, through the creation of green walks and rest areas capable of enhan-



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V.21

FIGURE V.20 - *La petite ceinture*, Paris (France), the reused railway, 2022 (Source: Claudia Brivio)

FIGURE V.21 - *La petite ceinture*, people strolling along the pathway, 2022 (Source: Claudia Brivio)

FIGURE V.22 - *La petite ceinture*, an accessible disused railway segment with temporary installations, 2022 (Source: Claudia Brivio)

FIGURE V.23 - *La petite ceinture*, biodiversity and railroad equipment, 2022 (Source: Claudia Brivio)



cing biodiversity. In line with the rehabilitation of these stations, nowadays in several of them it is even possible to taste delicious typical dishes or listen to a jazz concert in an atmosphere redolent of the past.

La Petite Ceinture is an ongoing project that shows another possible way of recovering and reusing infrastructures, based on soft, reversible and bottom-up



FIGURE V.24 - The Bloomingdale Trail – The 606, Chicago (United States), the elevated pathway, 2022
(Source: Margherita Camilla Guffanti)



FIGURE V.25 - The Bloomingdale Trail – The 606, the elevated pathway crossing Milwaukee Avenue, 2022
(Source: Margherita Camilla Guffanti)

participatory solutions. A very interesting project on the theme of adaptive reuse, especially from the point of view of the regeneration process, is that of the *Bloomingdale Trail*, also known as *The 606*⁹, in Chicago. This route, over 4 km long, located in the north-west portion of the city, was obtained from the conversion of an old disused elevated goods line into a line-

⁹ <https://www.the606.org> and https://www.chicago.gov/dam/city/depts/zlup/Sustainable_Development/Publications/Logan_Square_Open_Space_Plan/Logan_contents_thru_guiding_goals.pdf



ar park. The 606 is an integral part of a larger project, the *Logan Square Open Space Plan*¹⁰, designed with the aim of extending the surface intended for public spaces in a densely populated quadrant of the city but poorly equipped with services for the community. The project, strongly supported by the residents of the area, has allowed the construction of a system of cycle and pedestrian paths that connect various green areas claimed for common use. Today *The 606* is operated through a public-private partnership between the City of Chicago, the Chicago Park District, the non-profit organisation Trust for Public Land and the Friends of the Bloomingdale Trail association. *The 606* is a full member of the *High Line Network*¹¹, a circuit that networks projects of reuse of infrastructure and people who make them possible every day.

*Seoullo 7071*¹² is a suitable reuse project for a viaduct in Seoul, South Korea. *Seoullo* in Korean means “towards Seoul” while the code 7071 contains the two dates of construction of the viaduct (1970) and its conversion into a hanging garden (2017). This approximately 1 km long public walkway, with a plant nursery vocation, flies over the tracks in front of Seoul Central Station at a height of 16 metres. The stated aim of its presence is to connect various green spaces and to make the heart of the city more attractive and pleasant. The use of large circular basins for the plants that become, from time to time, decorative elements, rest areas and display systems represent the key design choice that most characterises the image of the object, achieved in order not to impact the existing structures: the basins distribute the load of the cultivated land on the deck without particular burden on both the horizontal and vertical structures, allowing a varied articulation of paths and equipment and effectively making it necessary to rotate mature plants with young ones in

FIGURE V.26 - *The Bloomingdale Trail – The 606, the pathway crossed by the elevated train tracks, 2022*

(Source: Margherita Camilla Guffanti)

FIGURE V.27 - *The Bloomingdale Trail – The 606, the pathway and its users, 2022* (Source: Margherita Camilla Guffanti)

¹⁰ <http://landlab.co.nz/light-path>

¹¹ <https://network.thehighline.org/>

¹² <https://www.mvrdv.nl/projects/208/seoullo-7071-skygarden>





FIGURE V.28 - *Seoullo 7017*, the pedestrianised viaduct hosts more than 24.000 trees, shrubs and flowers, 2022
(Source: MVRDV)

FIGURE V.29 - *Seoullo 7017*, a detail of the circular basins hosting the plants
(Source: Tae Han Kim)

FIGURE V.30 - *Seoullo 7017*, people strolling along the sky garden
(Source: Tae Han Kim)

FIGURE V.31 - *Seoullo 7017*, Seoul (South Korea), bird's-eye view of the elevated public walkway, 2022
(Source: MVRDV)



an ever-dynamic vision of the green. Thus, the project addresses the theme of the green reconversion of suspended infrastructures, giving a strong aesthetic suggestion and combining it with an ingenious technical inspiration.

¹³ <http://landlab.co.nz/light-path>

FIGURE V.32 - *LightPathAKL*, Auckland (New Zealand), a cycle path as an interactive urban light sculpture
(Source: New Zealand Institute of Landscape Architects)

FIGURE V.33 - *LightPathAKL*
(Source: Land Lab)

The *Nelson Street Cycleway*, a pedestrian and cycle path in the heart of Auckland, New Zealand, was inaugurated in December 2015. Also known as *LightPathAKL*¹³, this glittering hot pink cycle path recovers an unused stretch of highway by transforming it into a colourful open-air sculpture intended exclusively for bicycles and pedestrians. 300 interactive LED bars sensitive to the intensity of movement at dusk light up 600 metres of bright resins, offering patrons a real sensory experience that is intertwined with glimpses stolen from this real landscape of infrastructures. Artificial light and colour become the key tools in the regeneration of an obsolete infrastructure which, at the end of its life cycle, has been returned to the city and its inhabitants in a more beautiful and lively way than before through a courageous project with strong artistic connotations.



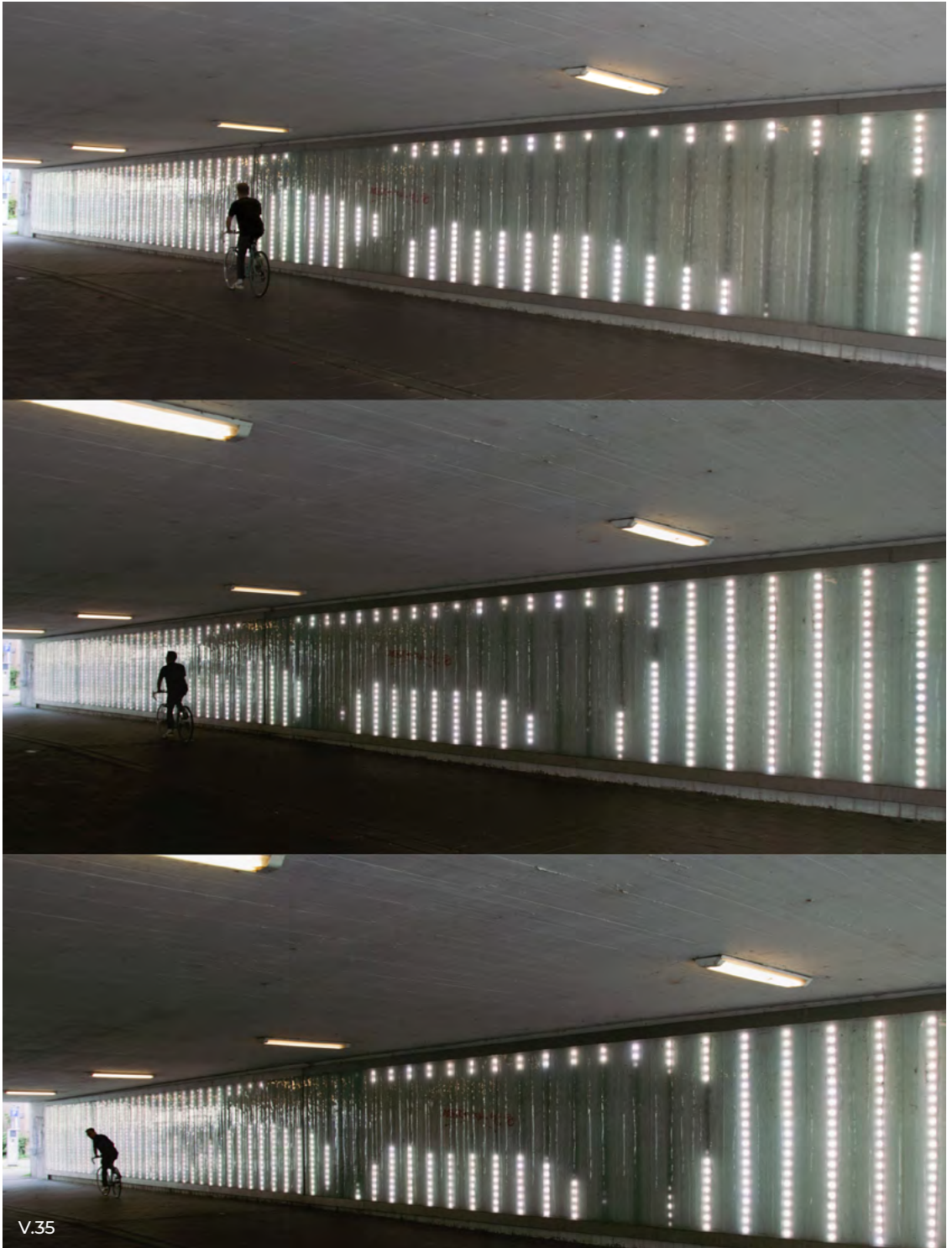
FIGURE V.34 - *Into the shadow, the underpass lit by the interactive installation, 2022*
(Source: Elena Beri)

¹⁴ <https://nio.nl/into-the-shadow/>



The redevelopment project *Into the Shadow*¹⁴ answers a simple as well as a complex question: how is it possible to transform a tunnel into a work of art? The cycle-pedestrian underpass located on Tugelaweg, in Amsterdam, was at the heart of a redevelopment project in 2013 that transformed the tunnel walls into two long interactive screens of a length of 40 metres each, both equipped with sensor-controlled LED lights and surfaces in u-glass. Switching on and off, the LEDs simulate the movement of the large animals of the savannah: here it comes a grazing buffalo, a majestic lion, a leopard that has just woken up, a rhino with its unmistakable profile and an elephant raising its trunk. The people who pass through the tunnel are tourists that with a little luck will be able to meet a wild animal, otherwise, unfortunately, they will have to settle for the lit wall, illuminated 24/7. The interesting side of this project, sober in its means but powerful in its outcomes, is the principle of dynamism: where it is customary to understand infrastructures as fixed artifacts at the service of the movement, *Into the Shadow* reverses this paradigm giving the infrastructure the power to change together with us, in a sensorial overturning that makes architecture cross over into art and vice versa.

FIGURE V.35 - *Into the shadow, Amsterdam (The Netherlands), the interactive wall, 2022*
(Source: Elena Beri)





V.36



V.37

The *Tunnellen*¹⁵ project, realised in the suburban area of Ammerud in Oslo, Norway, fits within the category of regeneration of mobility infrastructures, even though it presents a much more punctual and localised character.

The project and its construction, dating back to 2015, were curated by the Municipality of Oslo, together with the AHO School of Architecture and Design in Oslo, and saw the active involvement of local citizens. The inclusion of surfaces for free climbing and the setting up of fixed fitness equipment has given new life to an abandoned, unsafe and consequently little used underpass, transforming it into a new service for the community, for the benefit of passers-by and sportspeople frequenting the nearby hiking trail on the Alna River.

This radical but also very rapid transformation was possible thanks to the geometry of the tunnel which, from the very beginning, was able to accommodate alternative and complementary functions to that of a simple crossing. A dark bumper underpass has thus become a pleasant, colourful and identifying space. Nowadays it represents a real reference point for the neighbourhood.

Last but not least project in this category is that of the *Via Verde*¹⁶ in Mexico City. “Turning Mexico City’s grey to green” is the slogan coined by Fernand Ortiz Monasterio to describe this visionary idea with which in 2016 he launched a petition on Change.org that in a very short time collected more than 80.000 signatures, thus becoming one of the flagship projects of the local administration.

An idea as simple as it is powerful: to transform the 1.000 pylons that support the 27 km of the Periférico into as many vertical gardens. The project takes advantage of independent structures simply resting

FIGURE V.36 - Tunnellen, Ammerud (Norway), a dark and scary place made into a bright and social activity hub
(Source: Taral Jansen)

FIGURE V.37 - Tunnellen, the climbing wall
(Source: Taral Jansen)

¹⁵ <https://reprogram-mingthecity.com/railway-underpass-transformed-into-a-climbing-wall-and-community-play-space/>



on the pillars, a drip irrigation system based on the recovery of the rainwater, hydroponic fabrics obtained from recycling plastic, sensors that monitor the environmental conditions in real time and particularly resilient plant species capable of absorbing pollutants in large quantities.

Among the great objectives of the project there is the goal to make the city more liveable, sustainable and less polluted; to reduce the stress of citizens through continuous eye contact with nature and to promote biodiversity.

Via Verde represents an intervention that enhances the presence of nature in the urban context, using the techniques and solutions of the so-called *Nature Based Solutions (NBS)* in an emblematic way¹⁷.

V.4 MULTI-SCALAR AND MULTI-PURPOSE DESIGN

In the wake of the “utilitarian tradition” of the project of infrastructures, a new breach which has been opening up lately is the one which sees urban infrastructures as an opportunity to operate in an incisive but widespread manner in those contexts crossed by the infrastructure itself.

In this vision, the mono functionality of the infrastructures gets lost in favour of returning to the primary function of spaces capable of accommodating multiple activities at the service of the surroundings. In this new concept, infrastructures become multi-scalar and multipurpose elements in which the connectivity remains the main ingredient but no longer the only one, in the awareness that every resource is precious to the community.

This is the case of the Jardines elevados of Sants, in Barcelona, and of the Sky-rail with its Community Nodes in Melbourne. *Jardines elevados de Sants* in

FIGURE V.38 - Via Verde, Mexico City (Mexico), vertical gardens at Mexico City's Beltway (Source: ViaVerde)

FIGURE V.39 - Via Verde, the water used for the irrigation is a mixture of treated water with rainwater recovery (Source: ViaVerde)

¹⁶ <http://viaverde.com.mx/v2/>

¹⁷ The European Commission defines Nature based solutions as: “Solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions.” (Solutions of this type increase the presence of nature, natural features and natural processes in cities, landscapes and in marine landscapes, through systemic interventions, adapted to the local situation and efficient in terms of resources). https://ec.europa.eu/info/research-and-innovation/research-area/environment/nature-based-solutions_it

*FIGURE V.40 - Jardines
elevados de Sants,
Barcelona, Pèrgola
fotovoltaica square, 2022
(Source: Ignasi
Llorens Duran)*

*FIGURE V.41 - Jardines
elevados de Sants,
Barcelona, orientation
map, 2022
(Source: Ignasi
Llorens Duran)*



Barcelona is an urban renewal project that has had a long and difficult gestation. The problem to solve was the layout of the subway itself, which has always represented an element of separation of the Sants district and a cause of logistical problems and degradation. In 2002, the public administration launched a study table with the involvement of local associations: the decision taken excluded the burying of the tracks and led to the definition of a green corridor at high altitude, which was finally inaugurated in 2016 (De Francesco, 2017).

The intervention to date extends for only 800 metres, despite the aim of extending it up to five kilometres. The new roof garden at high altitude is supported by large diagonal beams in prefabricated concrete that call to mind the old railway bridges, enclosing the railway grounds and contributing to the reduction of noise. The linear park houses a row of trees, pedestrian connections and photovoltaic canopies that partially cover energy consumption.

A full-bodied system of punctual lifts - including stairs, ramps, elevators and escalators - finally allows access to the level of the roof garden. Some mi-

JARDINS DE LA RAMBLA DE SANTS

Districte de Sants-Montjuïc



Accessos

- A Plaça de Sants
- B C. d'Antoni de Capmany - Finlàndia (costat mar)
- C C. d'Antoni de Capmany - Jocs Florals (costat Muntanya)
- D C. d'Antoni de Capmany - Sant Jordi
- E C. d'Antoni de Capmany - Pavia / Sant Medir
- F C. de la Riera de Tena (Mercat Nou)
- G C. de Burgos
- H Rambla Badal (costat mar)
- I Rambla Badal (muntanya)
- J C. de la Riera Blanca

Recorreguts

- Esportiu

Serveis

- Bar i lavabos
- Àrea de jocs infantils
- Àrea de fitness
- Biblioparc
- Umbracle polifuncional
- Font
- Mirador
- Font ornamental
- Informació botànica
- Estació Mercat Nou (L1)

Equipaments

- 1 Ascensor
- 2 Guingueta
- 3 Escales mecàniques
- 4 Pèrgola fotovoltaica Riera Blanca
- 5 Pèrgola fotovoltaica Badal
- 6 Pèrgola fotovoltaica Jocs Florals



ght argue that the project, parasitising an existing layout, falls into the category of implementations. However, it is important to underline how the elevated *Garden of Sants*, in its value as an urban project, goes far beyond the dimension of the infrastructure: indeed, the infrastructure shifts from representing a problem to becoming a solution.

The whole thing is made possible through a courageous operation of underlining which, at the same time, celebrates the role of the technical building and demonstrates that a second way is possible. Indeed, infrastructures, if well designed, can integrate perfectly with the urban fabric, contributing to its social and spatial dynamics.

The most substantial railway infrastructure project in the history of the Australian state is the *Sky-rail*¹⁸, born within the *Victoria's Big Build* mammoth program, aimed at relaunching infrastructures in the state of Victoria in order to respond to the need to raise the tracks of the Pakenham-Cranbourne line in Melbourne. Objective of the project was to remove 85 crossings at the pedestrian level, which were dan

¹⁸ <https://march.studio/skyrail>

FIGURE V.42 - Sky-rail, Melbourne (Australia), Community nodes
(Source: March Studio)

FIGURE V.43 - Sky-rail, Melbourne (Australia), Reused spaces underneath the elevated railway (Source: March Studio)





¹⁹ <https://levelcrossings.vic.gov.au/about/urban-design-framework>

gerous and an obstacle in the way of the efficiency of the railway line and the local mobility, and to open a large public corridor along the railway.

This project has granted us the opportunity to imagine a new collective use of these rediscovered spaces - including sports fields, recreational facilities, green areas and new stations - characterised by a strong uniqueness, liveliness and identity. Bright colours and contemporary graphics contribute indeed to creating a recognisable image that nourishes the sense of belonging of local communities and favours the mending of the different parts.

A challenge, the one of creating functional, attractive and pleasant spaces, that is won thanks to the quality of the project.

Nothing is indeed left to chance: objectives, methods and design choices have been codified within the guidelines drawn up by the *Level Crossing Removal Project*¹⁹ with the aim of ensuring continuity and, therefore, recognition along the entire route.

The removal of the old railway barrier thus transforms the opportunities for access and movement of residents in the close neighbourhoods with consequent beneficial effects on health, general well-being and economic opportunities. This project fully demonstrates how new infrastructures are taking the contemporary stage.

V.5 CONCLUSIONS: A FLEXIBLE APPROACH IN FAVOR OF THE QUALITY OF URBAN LIFE

Following this rich roundup of very different case studies in terms of size, final outcome and process, a final thought goes to the labyrinth of positions between conservation and transformation that dominates the debate on the role of infrastructures in

our country and elsewhere. For most people, skyways and bridges are a quick and effective way of getting from one place to another. The important thing is that traffic flows smoothly both for those who use them and for those who live nearby. If there is a problem, it is mainly noise, overlooking the more subtle effects of air pollution which is certainly less perceptible but no less harmful.

Nobody wonders what lies beneath these structures, because it is assumed that the spaces below have no value other than being the footprint of the infrastructure above.

However, looking at them closely, in these spaces “beneath the threshold of perception” the most incredible uses materialise: parking lots, small businesses, skate parks, abandoned spaces inhabited in a clandestine way and other original activities.

Emblematic in this sense is *“Skies of Concrete”*, a report by the Austrian architectural photographer Gisela Erlacher, who in her travels between China, Great Britain and the Netherlands has portrayed many of these residual spaces together with their not always legal uses, which, despite geographical and cultural differences, have surprising similarities in common. These spaces, as big as the elevated structures above them but, on the contrary, neglected in their role of “shadow” of the previous ones, are impressively extended: it is just necessary to think that in New York below the 700 miles of elevated infrastructures – among those, bridges, freeways, subways and railways – there are millions of square metres of public space (corresponding to an area nearly four times the size of Central Park) which have the potential to radically change the life of the entire city. On this very topic, the non-profit organisation Trust for Public Space conducted the research *“Under the Elevated: Reclaiming Space, Connecting Commu-*

²⁰ <https://www.thehighline.org/>

“nities” in collaboration with various departments of the City of New York.

Between 2013 and 2020, the researchers of the *El-Space project* inventoried these residual spaces, giving useful information for their recovery and for a new use for the benefit of the community, by means of the Nature Based Solutions.

In fact, the space under the elevated infrastructure has the characteristic of being present in every district of the metropolis (unlike the aforementioned Central Park) and, therefore, of potentially reaching all citizens without any geographical discrimination. Nevertheless, these spaces are particularly “divisive”: normally identified as physical barriers or real borders between different parts of the city, they are frequently the subject of debate and contrast between the opponents who support the demolition of the structures and the supporters who defend the privilege / necessity of fast mobility.

After the success of the *High Line*²⁰, again in New York, between these two factions the ranks of a third category of contenders have swelled over the years, which could be defined as “progressives”: promoters of alternatives or enhanced uses, in a holistic view of infrastructure that goes far beyond the initial purpose for which it was designed.

It is clear that the success of the *High Line* cannot be replicated everywhere and without distinction with the same intensity and achievement, nevertheless it is now evident that an increase in the quality of life in our cities cannot be separated from a critical and flexible approach towards both these unsolved spaces and the development models that generated them. For the scope of the work, it would be good that these alliances leave the scene to a Political evaluation (with a capital P) which should know how to

put people at the center of the transformation, and to a scientific evaluation of impacts, costs and benefits related to the ecological transition, which, in turn, could nourish political choices in an objective way. After all, we are all moving in a direction in which the point will no longer be “if”, but “how” to face the challenge of change under way (Sarfatti, 2021). The road is still long but projects like *UNPark - Urban Nudging Park* have the ambition of being able to contribute in their own small way to the investigation of the untapped potential of infrastructure within urban regeneration, a theme that is ever central to the life of our cities and that can no longer be postponed.

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VI. Designing the Process: the experimental methodological approach of UNPark

Agnese Rebaglio

The UNPark project tackles urban regeneration based on consolidated co-design processes, which, due to the complicated context of the COVID-19 pandemic, have provided an opportunity for experimentation and innovation on several levels. By reinventing practices and tools, the co-design practices have been enriched by being connected through technology that resulted in increased participation and new forms of listening; the local neighborhood networks connected with each other by hybridizing virtual platforms and opportunities for strong re-discovery and exploration of the physical territory;

the now consolidated policies of the “open squares” projects were discussed to be adapted to the specific context in terms of space (an unresolved area between high-flow traffic flows), and functions (for the inclusion of recreational and sporting activities with a high impact of social cohesion). Finally, it is also interesting to frame the work carried out at the level of experimentation on physical devices, thanks to a European Call (see the “Furnish” project), whose outcome can be interpreted as a “pilot project of the pilot project”.

VI.1 INTRODUCTION

The UNPark project is one of the numerous projects promoted over the last 15 years in many cities around the globe aimed at regenerating portions of urban space to ensure a better quality of public space and its more open and more accessible use by citizens through the experimentation of temporary and co-designed structures with the communities. Starting in the 1970s, various participatory planning strategies have been developed in the field of architecture and design (De Carlo, 1972), up to the contemporary development of consolidated approaches and tools for co-design and collaborative processes (Robertson, Simonsen, 2012; Sanders, 2013; Selloni, 2017). This wide variety of experiences can essentially be referred to as a paradigm shift involving the end user (of a product, space, service, etc.) at the centre and during the project's development. People, citizens, and communities have duly entered into planning practices, with the aim of defining more democratic, inclusive and informed choices regarding the future of their living and working environments, as well as of the public space of their city.

Participatory design is not simply a set of “tools” to be applied mechanically, but rather an approach to design thinking that aims to co-imagine and co-construct stories of alternative futures and to engage users in the realization of their own future. In practice, the strategies adopted draw on disciplinary intersections and exchanges between the design sciences and the social sciences, such as anthropology and psychology, generating new models and tools for listening, narration, engagement, empowerment, sharing, and finally action. In the field of public space design, starting from spontaneous practices that

have been defined as “action-planning”, “guerilla urbanism”, “pop-up”, “city repair”, “D.I.Y. Urbanism”, “Tactical Urbanism”, “Lighter Quicker Cheaper”, “Urban prototyping”, ...¹, methods and practices have been developed which have then become adopted by designers and administrations in an increasingly consistent way. These phenomena are united by a culture of collaborative doing, bottom-up driven change, and a sensitive approach to economic and environmental sustainability to the dimension of prototyping as a moment of experimentation of possible transformation, which can be ascribed to the field of “placemaking”, or to those processes of co-generation of places capable of generating meaning, sociality, and a sense of belonging and care in local communities (Bradley, Hedrén, 2014; Manzini, 2015). In many of these cases, the design phase is also accompanied by the “production” phase, which is the collective self-construction of the elements that prototype the space and furnishings, allowing the immediacy of the visualization and experimentation of the imagined future, and activating, through doing and building together, energies and engagements in the dimension of care and management of the project itself.

¹ Numerous publications have documented the phenomenon, among which we can mention: Overmeyer, 2007; Chase et al., 1999; Hou, 2010; Bishop, 2012

Although these types of interventions have a site-specific vocation, the traits that unite them make them a widespread phenomenon whose ultimate goal is to redeem public space as a democratic place in an ethical and aesthetic sense (Lambertini, 2013) for a quality urban experience by the communities of inhabitants. Pioneering cities such as New York, with its “NY Plaza Program”, or Barcelona, with the well-known work done on the “Superilles”, have started the

codification of processes, tools, and methods, promoting collaborative practices and temporary experimentation with active policies, triggering a general transformation of the public space of the cities with participation open to citizens and local stakeholders. UNPark also set out to promote new structures for an urban context full of revitalization opportunities, described in the Chapter III, through a participatory process, co-planning with multiple actors and interdisciplinary contributions, visions, structure, functions, and management of a public space dreamed, figured out and designed together.

VI.2 EXPERIMENTATION IN PARTICIPATORY PROCESSES FOR MULTILEVEL INNOVATION

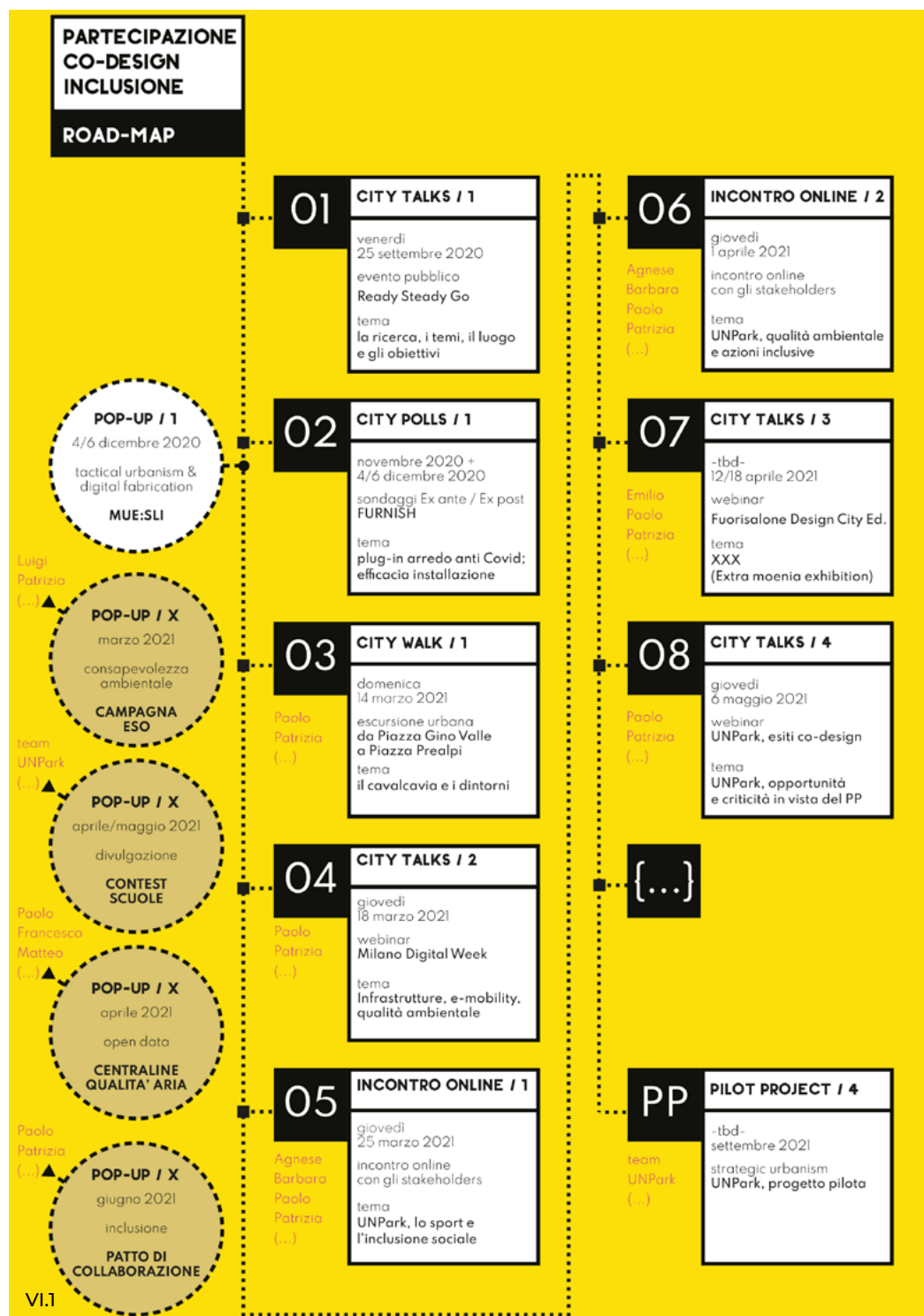
The collective process pursued by UNPark has adopted tools that are now widespread and consolidated in the field of practice and policies and codified in the field of theoretical research, but it has encountered elements - some researched, others completely unexpected - which have contributed to experimenting with innovative formulas. Among these, a decisive role was played by the pandemic that occurred during the project development period, generating the highly innovative approach that characterized the entire project, the most characteristic features of which are outlined below.

See IV by Di Prete

A. Innovation of participation tools

The first element of strong experimentation characterizing the project is the designers' "toolbox" for the co-design processes. The methodology envisaged by the project to involve the local community in devising innovative solutions for the transformation of the underpass was characterized by the typical elements of

FIGURE VI.1 - The roadmap of participation, 2021 (Source: UNPark)



co-design, adopting, for the different phases of the project, tools suitable for specific objectives. In the preliminary phase of the project proposal, the tools of a more informal and ordinary nature were aimed at a first contact with the subjects active in the territory, groups made up of inhabitants or users of the place, to share the project objectives. The co-design phase, on the other hand, fielded the actions typically attributable to the *Tell-Make-Enact* steps (Sanders, 2013), adopting dialogue tools aimed at listening and narrating shared solutions for the future, up to engagement of the community and the development with it of concrete actions such as the creation and management of the experimental pilot. The roadmap of participation envisaged a series of actions aimed at interacting with the wider group of stakeholders in the neighbourhood to gradually generate not only knowledge but also responsibility and the taking charge of the project by the community of inhabitants. Talking, walking, questioning, installing, visualizing: meetings and activities were planned around these actions, which have as their protagonist the “relational capital” of the territory, which also was involved by constant communication on social networks.

As anticipated in Chapter I, the dynamics imposed by the advent of the pandemic have led to the need to redefine a substantial part of the process by adopting strategies able to guarantee the so-called “social distance”. An important part of the work was therefore dedicated to the development of tools which, making use of digital interaction, reinterpreted some typical elements of co-design. During a series of meetings held on digital platforms, the designers took on the role of mediators and activators of the discussion to define possible scenarios together with the inhabitants and stakeholders (Carroll, 2000) to be pursued in

the pilot project of the under-overpass. Based on the knowledge and data collected from the first actions in the field (feedback from an initial urban installation and online questionnaires) some premises were set up of the interactive “game” designed to activate the discussion. The playful approach is obviously not new in collaborative processes (Dorian et al., 2021), but in this case it was also superimposed on the strategy adopted for the project of transformation of the place: it was therefore “played” in order to define through which “game” the existing space should be modified. Another consolidated co-design tool, the use of cards for design thinking, was adopted in the online situation to feed collective creativity. Specifically, two evening sessions were held on a digital platform for a duration of approximately 2 hours each. The objective of the first evening was for the participants to develop a collective and shared vision of the requirements of the pilot project, starting from the macro-functions already identified in the preliminary phase of data collection and implementing them further. On an interactive online platform (Miro), a board arranged in 3 frames was prepared, on which the game / discussion took place. The board, visible to all participants, was managed by the organizers who assumed specific roles for the entire duration of the game: a moderator to manage the timing of the discussion; a moderator to manage questions and screen viewing; and two organizers to move the cards played by the participants. Each frame corresponded to a set of functions determined, as anticipated above, from the first conversations with the project partners and from the results of the first actions to collect interest or declined by the inhabitants / users:

- Sport framework (with the ball - e.g., basketball, five-a-side football; table - e.g., ping-pong, billiards; free body – e.g., skate, step, parkour, calisthenics)

- Game framework (table - e.g., draughts, chess, cards; on the ground - e.g., bowls; free body, e.g., gymnastics, yoga)
- Leisure framework (talk, dance, performance - e.g., theatrical performances, street artists, puppets)

Next to each frame, three decks of cards were used to activate critical thinking (*Unforeseen* and *Obligations*), and creative thinking (*Opportunity*) in the players:

- Unforeseen: risks and dangers to be assessed (negative meaning). For example: ball that creates accidents; number not adequate for the game; noise that creates interference in the talking.
- Obligations: constraints to be considered and prohibitions to be respected. For example: protection from the road; adequate lighting; respect for the area; need for spaces for the public; contingent night access.
- Opportunities: creative ideas (positive meaning). For example: giant chess; playing fields with informal or even irreverent designs; dance floor and yoga (or two functions that can be alternated in the same space).

The discussion was thus guided by the cards chosen by the participants in relation to one of the frames. Then, in real-time the organizers visualized the game, moving the cards “played” by the participants into the frame of reference, pinning the participants’ comments and observations on the card itself, and drawing an icon representing the topic being dealt with. The “playing field” was thus gradually filled with contents and reflections, without fueling conflicts and judgments on the part of the other participants. A last activating element was the “dice of raids”, conceived as a tool to stimulate divergent thinking. Managed by one of the organizers, the dice proposes disruptive


FIGURE VI.2(1)(2)- One of the three frames which have been the “playing field” on the interactive online platform (Miro), before and after the activity, 2021 (Source: UNPark)

sport
28.03.2020 unpark


IMPREVISTI
sport
rischi e percorsi da valutare


OBBLIGHI e DIVIETI
sport
vincoli da rispettare e azioni da ripetere


OPPORTUNITÀ
sport
idee creative



What If?

con la palla 
es. basket
calcetto
ecc.

da tavolo 
es. ping pong
biliardo
ecc.

corpo libero 
es. skate
parkour
calisthenics
ecc.

Moderatore: Barbara Di Prete
Incurisanti: Davide Crippa
Mazzieri: Agnese Rebaglio
 Emilio Lonardo


VI.2(1)


sport
28.03.2020 unpark


IMPREVISTI
sport
rischi e percorsi da valutare

OBBLIGHI e DIVIETI
sport
vincoli da rispettare e azioni da ripetere

OPPORTUNITÀ
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con la palla 
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calisthenics
ecc.

OBBLIGHI e DIVIETI
vincoli da rispettare e azioni da ripetere

IMPREVISTI
rischi e percorsi da valutare

OBBLIGHI e DIVIETI
vincoli da rispettare e azioni da ripetere

IMPREVISTI
rischi e percorsi da valutare

OPPORTUNITÀ
idee creative

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vincoli da rispettare e azioni da ripetere

VI.2(2)

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VI.3

questions, aimed at stimulating lateral thinking and leading to imagining innovative solutions using the “What if” method (Factory et al., 2009), such as:

- What if an event related to that activity is entered? What events could be used to animate the space?
- What if multiple functions are mixed? Or different user populations? And what if a business wanted to propose itself to “unexpected guests” (non-traditional users)?
- What if we used unconventional materials, sizes, objects? What if we left room for “unspeakable passions”?

FIGURE VI.3 - Example of three played cards: unforeseen, obligations, opportunities, 2021 (Source: UNPark)

² The Answer Garden digital platform (<https://answergarden.ch/>) allows you to create quick tests that are open to participants and view the answers immediately.

In the final phase of the evening, after having investigated the 3 macro-functions proposed (Sport, Game, Leisure), participants were asked to suggest (anonymously) any other functions that had not been considered but which, in their opinion, were strategic for a future implementation of the project. Thanks to a digital interaction tool² in real-time, a word cloud chart corresponding to the wishes of the participants was constructed. It was interesting to observe that at the end of

the evening the proposals expressed were much more daring³ than those initially offered by the participants, who, during the activity, overcame their resistance and concerns by sharing a courageous vision about the possible transformation of their neighborhood.

The second evening started with the re-elaboration of the results of the first evening and had the aim of engaging people in a shared reflection on the feasibility perspectives of the pilot project, co-designing the *contents* (events, cultural and sporting initiatives, aggregations, ...), and the actors (the roles in the field during the processes), after having defined the *container* of the action space (the functional areas). The methodology adopted provided greater autonomy for the participants, who were already experts in game dynamics. It made use of some open questions posed by the moderator on some crucial issues, such as:

- *Sustainability*: how to develop activities with a view to sustainability and circularity?
- *Integration*: what schedule of events can you imagine presiding over the area, involving citizens and enhancing multicultural integration?
- *Feasibility*: what time horizon can be considered, combining an imaginative vision and a feasibility perspective?

³ Some ideas that emerged from the free brainstorming on the possible functions to be hosted in the underpass: hostel under the bridge, collective kitchen, swings, karaoke, popular spa, after school, cultural exhibitions, break dancing area, living room / domestic places, neighborhood bulletin board, urban beach, neighborhood radio, bike workshop, basketball, artist lighting, show examples and other cases, climbing, curling, cricket, fairy tale murals, arena, indoor spaces for clubs, bowls, documentary projection on the pillars, hot dog / wraps kiosk, bathroom public, art murals, point for suspended pads

FIGURE VI.4 - The word cloud chart with other activities desired and dreamed of by the participants, 2021 (Source: UNPark)



⁴ "Open squares" is a project of the Municipality of Milan, carried out in collaboration with Bloomberg Associates, National Association of City Transportation Officials (NACTO) and Global Designing Cities Initiatives, which uses the approach of tactical urbanism to promote projects for the enhancement of space public of the neighborhoods with the active collaboration of the community of inhabitants, both in the planning and in the care of the activity schedules

The stimulation of the discussion on wide-ranging issues was aimed at enhancing the level of involvement of people in the short term, as well as the value of the intervention in the long term. The meta-design visions reached during the participatory design process were therefore a reasoned evolution of the proposed framing both in terms of concreteness - considering the constraints and contingent needs - but, above all, in terms of meaning - recovering the values of the urban space currently prohibited from the use of the citizens. The proposals referred to the concepts of meeting, custody, memory and education, generating playgrounds, arenas for performance, informal and multidimensional spaces, aimed at and managed by a heterogeneous audience but with a strong identity imprint.

B. Innovation of experimentation processes of public interest

The last aspect of innovation introduced by the UNPark process concerns the way in which it has interpreted the facilitation programmes recently introduced by the municipal administration of Milan, in the wake of the numerous international experiences already tested. UNPark was developed within the framework of the "Piazze Aperte" programme of the Municipality of Milan⁴. The project pursued the general aims of the program and applied all the procedures envisaged, among which was the "collaboration agreement" signed between the administration and promoters of the project, individual citizens, associations, committees that played an essential local role, and universities represented by researchers in the role of facilitators and mediators of the process. The pact has the objective of engaging local relational resources, networking the potential agents of change present in the territory and beyond, with the

See again IV by Di Prete

See X by Crippa, Di Prete and De Nardo

scope to feed consensus for the project and to optimize its cultural and social benefits thanks to the collective participation of people who together generate networks, relationships, shared initiatives, care for their neighborhood and, finally, mutual care. In this consolidated participatory planning framework, UNPark has nevertheless introduced its distinctive features on different levels. First, UNPark has addressed the theme of temporary transformation for the recovery of public space with an approach that has an extremely compressed temporal dimension at its centre.

In a context that covered such a large physical space/, for the extension of the Overpass infrastructure, it was necessary to experiment with some conversion practices on a fragment of the entire area, as a “manifesto” of possible actions spread over the entire axis of the underpass. UNPark has therefore interpreted the program of opening temporary squares as the opening of ‘instant’ squares, creating a square with a very short duration of three days full of events, activities, opportunities for discussion, thus demonstrating a possible alternative future. The dimension of the event thus becomes strategic first of all to promote transformations in the imagination of the community of inhabitants, not only by narrating but also by prototyping, that is, putting at least some of the plausible futures for the place to the test and for everyone to see. The instant square becomes the culmination of a long process of negotiation of imaginaries and solutions that goes beyond the time limit of the event itself: promoting critical reflections, generating shared visions and stimulating the perception of a possible change. As the result of a long journey of knowledge of the past and present of the place, it becomes a tool for forecasting and designing the

future (Evans, 2005). At the same time, the collective event also becomes a celebratory, almost festive occasion, in the sense of “*commonality*” as Gadamer named it (Gadamer, 1977, p. 43), where there is a sense of belonging and feeling of equality among all the participants: “*The party always belongs to everyone*” (ibid). Therefore, the liberation of space also becomes a cultural and political fact, combining aesthetic practice with ethical practice, supporting processes of re-appropriation of the community.

A further element of experimentation in the Piazzette Aperte process is derived from UNPark's choice of enhancing the playful-sporting approach as a key factor in setting up the instant square. The cultural vocation of the event has resulted primarily in the promotion of fun and sport practices. The playful-sporting dimension emerged as a constant from the participation process, both as a request of the numerous associations present in the area, and as an element recognized by many citizens as capable of appealing to and involving young people and children. Competitions held in schools also placed the theme of space for play and movement at the center of attention. We must also recognize that many urban infrastructure recovery projects already have vocations similar to the sporting culture, especially that of “street” culture. However, the specific location in the urban fabric - an underpass between two high-traffic-density roads - makes the UNPark project a highly experimental case. The participatory discussion was oriented towards unconventional models of spaces for sports, producing scenarios of functional mixes of spaces freely reinvented for activities dedicated to outdoor leisure; movement but also contemplation; and aimed at a multi-targeted audience (the community, but also individuals, young and old, locals and foreigners).

*See V by Scrugli and
Procaccini*

C. Innovation of the furniture design process

The third element of process innovation consists of the open and shared dimension of the design of the furnishing elements of the pilot intervention of the instant square. In the end, the design of the space provided a multifunctional base for street sports and other social activities, with a bottom-up monitoring system of environmental quality and the application of Nature Based Solutions in particular. If a substantial portion of the equipment was provided by sponsors or the administration (traffic bollards and protectors, structure for the playing field protected by nets), the multifunctional base itself was equipped with seating systems and display elements resulting from a process that was articulated in the research preceding the event, through some experimental actions, and above all in relation to the reflection on the relationship between public space and the pandemic.

*FIGURE VI.5(1) - MUE:SLI:
study models to verify
the guarantee of social
distancing, 2020
(Source: UNPark)*

*See IX by Procaccini and
Monticelli*

See IV by Di Prete

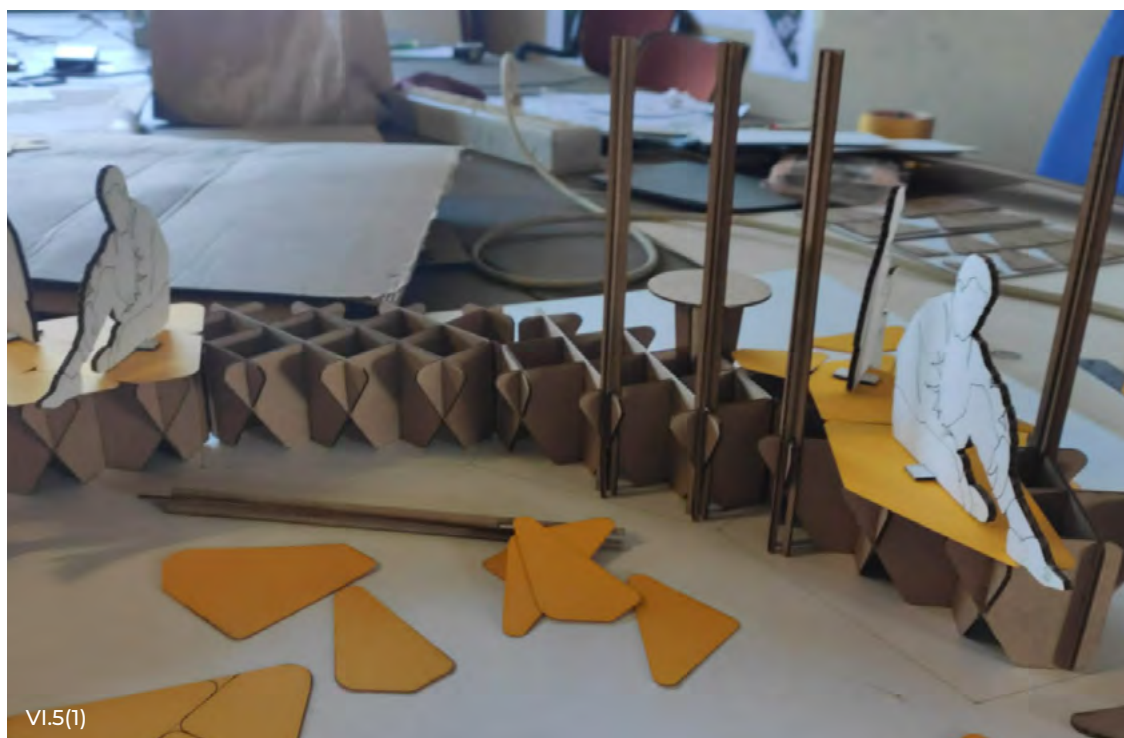




FIGURE VI.5(2) -
MUE:SLI: study models
to verify the guarantee
of social distancing,
2020 (Source: UNPark)

FIGURE VI.6(1)(2) -
MUE:SLI: production
with laser cutting
technologies and then
assembly, 2020 (Source:
UNPark)

In fact, the UNPark project managed to gain the interest of a European funding channel by participating in the call “FURNISH (Fast Urban Responses for New Inclusive Spaces and Habitat)”⁵ aimed specifically at promoting projects for innovative ways of using public space in the COVID-19 era. The main objective of the call was to generate a series of Mobile Urban Elements (MUEs) designed to be temporarily installed in a public space, newly expanded to fight against COVID-19 while promoting social cohesion. The selected participants designed, produced and managed the implementation of digitally manufactured MUEs in their respective cities, to safely designate new temporary pedestrian-oriented public spaces and other public facilities. The MUE:SLI Project (Mobile Urban Element: Sport, Leisure and Inclusion) developed by the Milan team, proposed a system of furnishings - seats and plug-ins for social interaction and play - designed in a

See again X by Crippa, Di
Prete and De Nardo





VI.7(1)



VI.7(2)

way to guarantee “social distancing” between people. In addition to being an experimental product for the concept and the production technique, MUE:SLI has effectively assumed a strategic role in the UNPark process, that of the “forerunner” of the project itself. Ten months earlier, it was placed for 4 days in an area of the underpass adjacent to that identified for the preparation of the temporary square, thus assuming the role of an “urban guerrilla” action (Chionne, Scozzese, 2014) with two main objectives. The first was to promote knowledge of the UNPark project and to enable as much as possible the participation of inhabitants, local actors, and patrons in the process - by inviting them to subsequent online meetings and disseminating an online questionnaire through postcards and graphic documentation supported by the furnishings themselves. The second objective was to promote a first test of the use of the space: the equipped area, highlighted by a graphic intervention of great impact with the drawing of a coloured circle on the ground, was left to be freely used by the patrons, day and night, and observed by researchers in the ways it was used and hacked by users. This experiment has also demonstrated the potential of an intervention that brings comfort and beauty to a place that previously lacked both, while gathering questions, criticisms and suggestions, much interest, some slight damage, but overall great respect for the space that was set up and handled by the people. It could be said that MUE:SLI has ‘prototyped the prototyping’ of the open square and has strongly promoted innovation in the furniture production, and ultimately in the use of the space.

FIGURE VI.7(1)(2) - MUE:SLI: final prototype before urban installation, 2020 (Source: UNPark)

⁵ *FURNISH was a project promoted in 2020 by the consortium led by CARNET, with the participation of UPC BarcelonaTech, Elisava Barcelona School of Design and Engineering (Elisava), the Institute for Advanced Architecture of Catalonia (IAAC), the municipality of Milan and AMAT, in the framework of EIT Urban Mobility.*

VI.3 CONCLUSIONS

There is no doubt that the months affected by the pandemic have slowed down and prevented many participation processes that involve contact and social

interaction. However, some processes have instead been accelerated and somehow reinvented: the transformation of the urban public space in favour of an increasingly pedestrianized use (Honey-Rosés, 2020); the search for innovative methods of broad consultation through the experimentation of digital tools (Robertson, 2012; Di Salvo, 2012); the design of furniture and equipment for a new form and new ways of using urban space (ArkDes, Vinnova, 2021).

UNPark has been remodeled from this context and has been able to react and redesign its development process. First of all, in the modalities for activating participation and co-design; then, addressing a very particular situation of public space and the context object of the design (as yet not addressed by the local administration through its temporary city conversion programs), through the experimentation of activities with an aggregative-sporting vocation never practised before. Finally, the process was fueled by preliminary experiments thanks to the participation in wider levels of planning, inserting a phase of the path within European funding channels, in connection with other European cities and experts in digital fabrication.

There are, therefore, multiple legacies of the project in terms of innovation trajectories of the regeneration processes of public space. At the same time, windows of opportunity for possible further search paths were opened following the participatory path and the installation of the instant square. It remains to be understood how to assess the long-term impacts: in the face of further difficulties and closures induced by repeated occurrences of the pandemic, how to keep people who actively participated in the process “engaged” should be monitored. A further element of reflection concerns the impact the process has been able to produce on public decision-makers, and therefore on the possibility of triggering long-term changes, in the

knowledge that UNPark must be read in the context of a variety of collective actions. Finally, although the increase in active life in the urban public space is widely recognized, it would be interesting to continue the research to verify how this can be combined, thanks to the design of the place, with that request for memory, custody, and education that emerged from the process. Also, it would be necessary to ask what time will be necessary to achieve what is hoped for: the processes engage people who change, just as the needs and context of the surrounding city change. If the time between the prototyping and design phases becomes too long, the design assumptions themselves should be re-evaluated. As expected, the public space project is confirmed, also for UNPark, to be the result of an articulated process with many levels of meaning.

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VII. Mapping opportunities and criticalities, open geo data as tools to support analysis, public engagement and design

Matteo Clementi and Francesco Bruschi

The thematic chapter illustrates the open-source tools and procedures used in the analysis and mapping of the main environmental variables, with the intention of making information available to local actors to support possible procedures for activating the public space. The choice to use open-source tools and data was motivated by the intention to enable communities to implement data and make the environmental survey experience of the UNPark project easily replicable. The mapped data is organized around

two macro areas, that of criticalities and that of opportunities. The first includes the retrieval and mapping of information relating to air quality and noise. The second macro area, that of opportunities, presents specific themes starting from the main strategies involved in the development of scenarios oriented to sustainable and circular urban metabolism, namely: use of energy and local resources, reuse, and recycling (Rueda, 2012; Hebel et al., 2014).

VII.1. OPEN TOOLS AND OPEN DATA TO SUPPORT A PROSUMING COMMUNITY

What we have been working on is a method that starts from the information normally made available to citizens to create support tools for decisions that can be managed from below. Therefore, to ensure the replicability of the procedure to a wide audience the research relies exclusively on open data provided by governmental and institutions or self-produced data. The open-access data used for the development of the present work are:

1. The Topographic Database (DBT) of the local municipality, providing topographic information on the local built environment, including building heights and shapes and typology of open-space surfaces (<https://geoportale.comune.milano.it/sit/open-data/>). Comparable databases are available for most of the Italian regions and are developed with the same national guidelines.
2. Data on local population and buildings associated with census sections (ISTAT, 2012).
3. Data from the regional urban waste observatory (<https://orso.arpalombardia.it/>).
4. Air quality data provided by ARPA survey station (<https://www.arpalombardia.it/>).
5. Self-produced air quality data.
6. Climatic data relating to the municipality of Milan (UNI, 2016).
7. Self-measured data on the level of noise pollution.

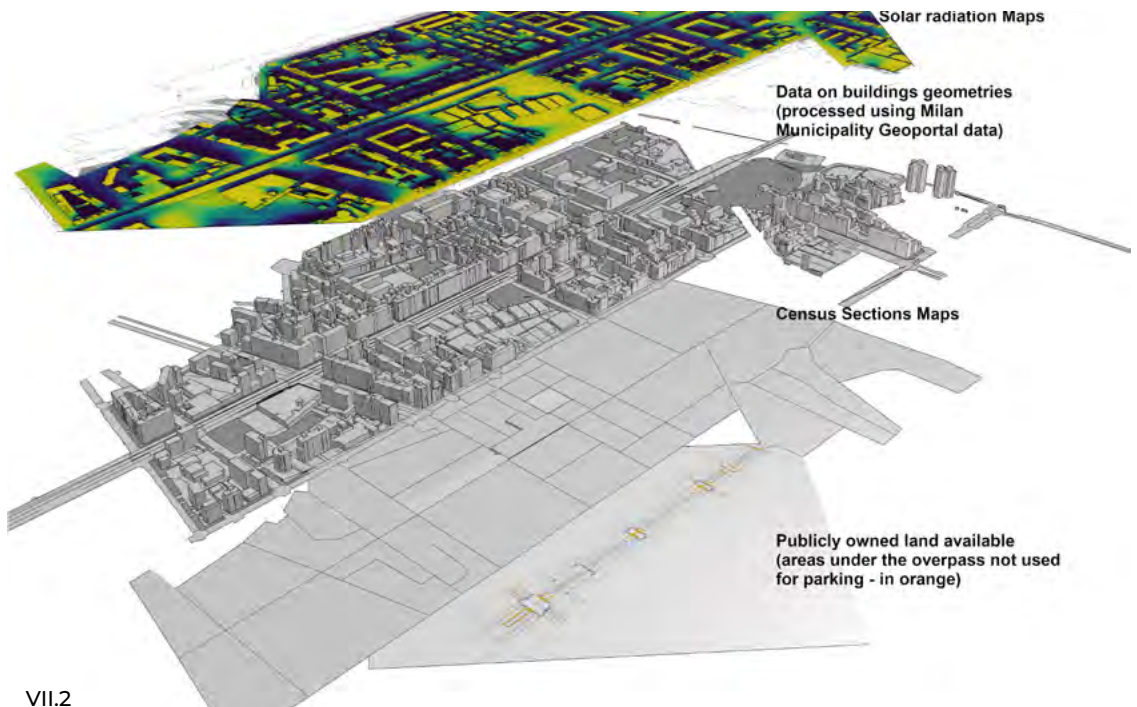
This information has been used to develop specific themes that collect information on local criticalities and opportunities on the same geographic information system (GIS) to support local actors design decisions. In particular, regarding local criticalities, particular attention was paid to the problem of air



VII.1

pollution and noise pollution. As for the opportunities, the information was organized around 4 macro areas relating specifically to materials, energy, unused spaces, and the available workforce present. As regards the local flows of potentially usable materials, reference was made to what is made available by the local urban metabolism, to solid urban waste, and to the waste made available by specific facilities linked to the specificities of the local environment, such as polymeric fabrics from street advertising. Regarding the survey on available and unused local energy, the focus was on the availability of solar energy, for manpower availability and the public spaces availability, please refer to the specific in-depth following paragraphs. In the macro area of criticalities, the survey of data relating to air quality was conducted through activities of direct involvement of the local community. To this end, UNPark joined the worldwide open-data Sensor-Community network (<https://sensor.community/it/>) directly involving some local associations and schools in self-monitoring initiatives. During the project, this experience included the activation of four low-cost units for detecting particulate matter

FIGURE VII.1 - Some of the themes mapped in the environmental survey phase, 2021 (Source: UNPark/Matteo Clementi)



VII.2

Figure VII.2 - Main information layers that make up the georeferenced database under development, 2021 (Source: UNPark/Matteo Clementi)

(PM10 and PM2.5) in the area affected by the flyover, three control units in close proximity to Serra - Monte Ceneri overpass and one in the Rinnovata Pizzigoni school building.

VII.2 CRITICAL ISSUES

VII.2.1 Air quality

ARPA Lombardia monitors air quality using control units in urban areas, but the resolution level is not adequate to understand the particular situation of Viale Monte Ceneri. The question that has been asked is therefore the following: Is it possible to integrate the current very reliable but point-like environmental monitoring network with a more widespread low-cost system manageable by the local community, with the aim of increasing the resolution level of the detected

data? With the term “increase the resolution of the data at a spatial level”, we intend to understand how much, compared to the value recorded by the nearest ARPA control unit in viale Marche, the local value increases or decreases in the spaces in the immediate vicinity of the overpass and to understand how much this criticality can be harmful for the users of the public space, pedestrians and cyclists but also for the inhabitants who live near the structure. About the temporal attribute, it is intended to monitor the variation of emissions in the different days of the year and at different times of the day in order to understand if there are intervals in which the values are adequate for carrying out specific activities. Currently the technology is mature to provide the established community at an affordable cost with adequate monitoring systems, as demonstrated by the Sensor.Community network (SC), constantly updated on the website www.sensor.community, which counts the presence of low-cost sensors throughout the world. It is an open technology in both hardware and software. In the UNPark project, this technology was used to develop two types of low-cost detection devices, one fixed connected to a local wifi network and one mobile connected directly to a mobile phone.

- Fixed survey unit

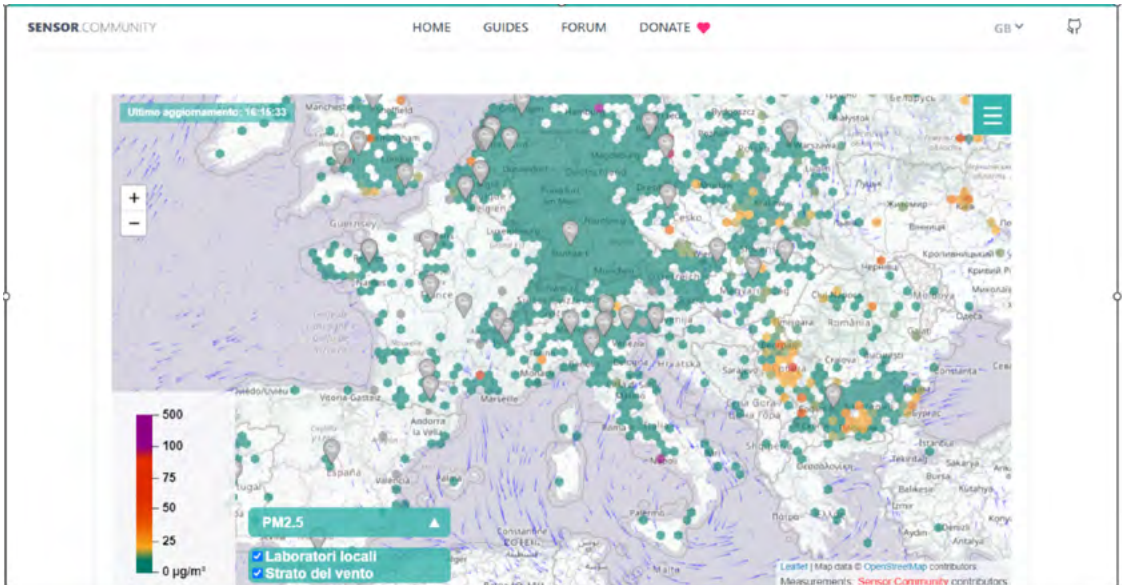
As mentioned above, about fixed detection units, UNPark by joining the SC network has relied on the indications provided by the network for the self-construction of a type of fixed detection unit capable of monitoring the characteristics of the particle pollution (PM10 and PM2,5), air temperature and relative humidity. As for the hardware, SC employs sensors that can be used with the help of small controllers like Arduino (Esp8266) capable of reading an open programming language and consequently rich in free scripts

available to everyone. As far as software is concerned, the SC network provides open-source software, i.e. free access, open and implementable, both for the configuration of the detection units and for the publication of data. In the first case it is sufficient to load it into the control unit through your PC and a sw developed by the network and downloadable for free from the web site. In the second, it provides its own web space and its own interactive maps to consult the data, the data collected in real time can in fact be consulted on the web-site <https://sensor.community/it/>.

This platform allows to publish the data and view them together with the output of other detection units, increasing the resolution level of the information based on the number of control units, laying the foundations for achieving an adequate level of spatial resolution.

Going into more detail on the procedure adopted to start up a local network monitored from below, it is necessary to mention that the UNPark project followed the procedures made available online, relying on two sources of reference, the sensor.community website and the website of the Italian association Centralinedalbasso, <http://centralinedalbasso.org/>.

The sensor.community website gives specific indications also in Italian on where to find the parts, where to download the software and the drivers of the detection unit, however it refers to slightly more complicated operations relating to humidity and temperature sensors, providing for welding operations that not all are capable of carrying out. The Centralinedalbasso association, having been the first in Italy to join the SC network, has published on its website the assembly procedure relating to a simpler control unit which is part of the SC proposals, but which does not necessarily require to proceed with tin soldering. This information available online allowed to start the experimentation, buying the sensors, the

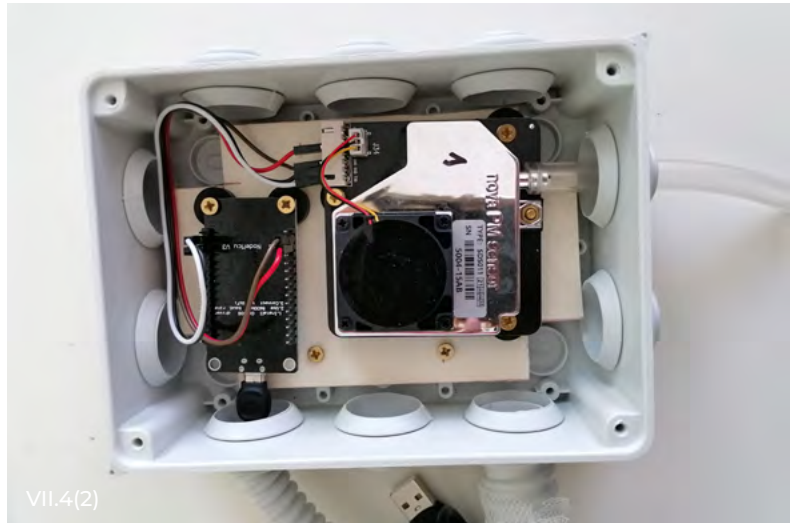


VII.3

controllers (the small 4 euro computers that manage the sensors and transmit data via wifi) and test the sw to set the control unit and publish the data. The only problem that remained to be solved was how to work on something that was waterproof and did not attract too much attention, another requirement was to be able to anchor it easily and in a reversible manner. We therefore opted for maximum economy and anonymity, placing the electronic devices in a junction box for outdoor electrical systems. The system is very flexible, the equipment that can be purchased in any electrical retailer or DIY supermarket provide acceptable result and completely camouflaged in the elements that we often see on the poles of our cities and on the facades at the street level of the urban environment. The box also lends itself to being installed on different supports using easily reversible anchoring systems through perforated metal plates screwed to the back, used to anchor the box to various types of supports with plastic clamps. (for example, roller blind tracks, shutters).

FIGURE VII.3 – A screenshot from *sensor.community* interactive maps, 2021
(Source: <https://sensor.community/it/>)

FIGURE VII.4(1)(2) -
Images of one of the fixed
detection units installed
near the Serra - Monte
Ceneri Overpass, 2021
(Source: UNPark/Matteo
Clementi)

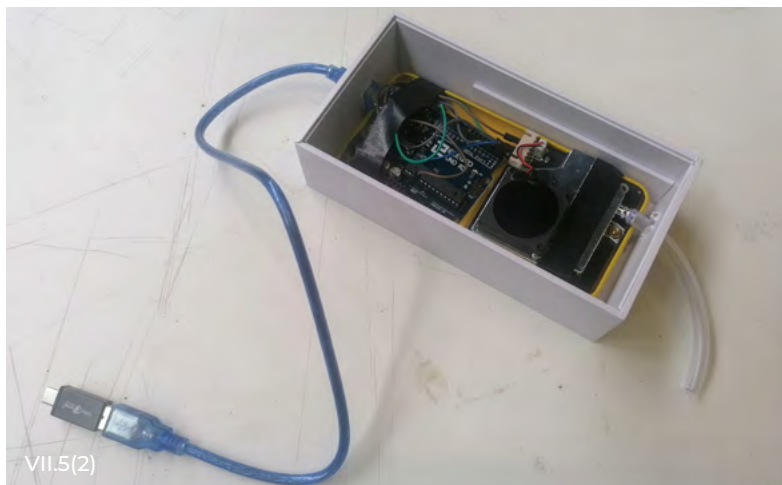


- *Mobile survey unit*

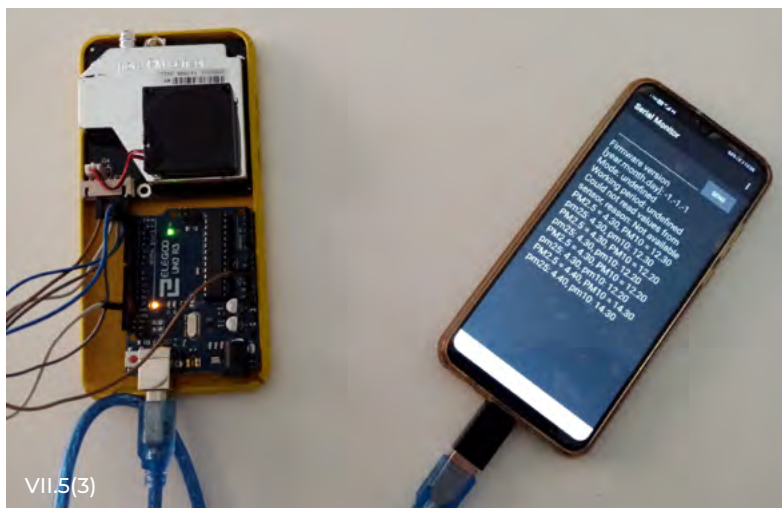
The mobile detection unit does not rely on a shared monitoring infrastructure but supports the direct reading of data from a mobile phone. In this case, the same particulate sensor used in the fixed units was connected to an Arduino controller and powered directly via a mobile phone. The connection to a mobile phone allowed to power the electronic devices and to be able to read the data using free apps for monitoring the data detected by Arduino (in our case the Serialmonitor app).



VII.5(1)



VII.5(2)



VII.5(3)

FIGURE VII.5 (1)(2)(3)- Some images of the mobile survey unit for particulate detection (PM₁₀, PM_{2.5}), 2021 (Source: UNPark/ Matteo Clementi)

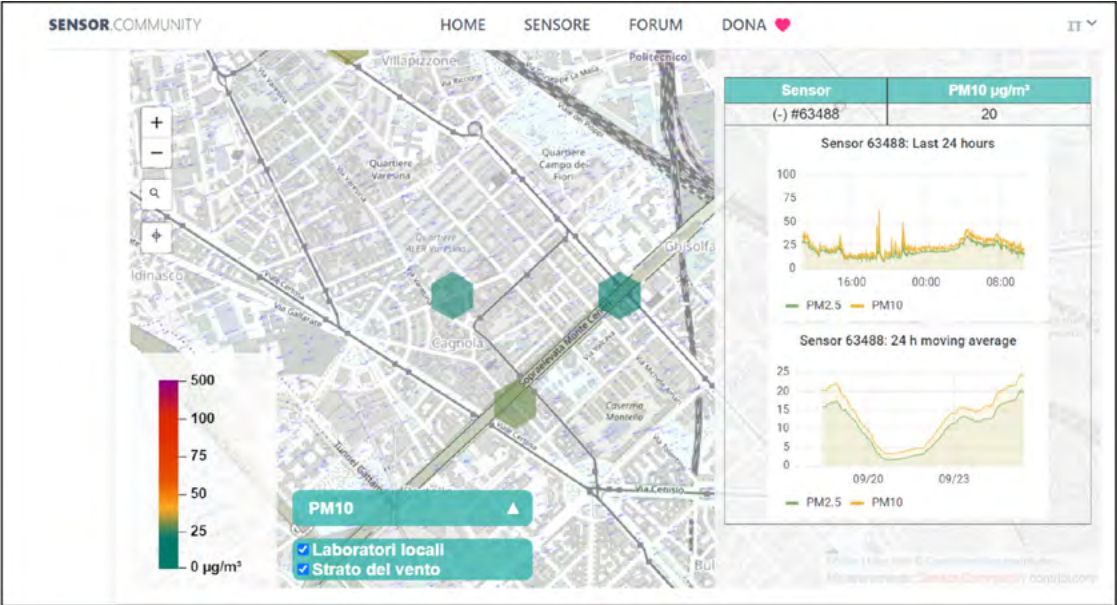
- Data collected

At the end of the work, the auto-detection network had a total of four fixed and one mobile control units. As for the fixed control units, the network consists of various stations located near the overpass and identifiable on the SC website with a unique code:

- Esp8266-9546419 on the fifth floor of viale Monte Ceneri, located on a balcony overlooking the avenue (operational from July 2021 to June 2022).
- Esp8266-11516636 on a window on the street level of the arci club, via Bodoni 2, (operational from July to November 2021, from March to May 2022)
- Esp8266-11466803 on the ground floor of via Pietro di Cemmo n.2, particulate sensor 63488, temperature and humidity sensor 63489 (operational from July to December 2021)
- Esp8266-12700892 installed later in a classroom of the Dante Alighieri school, in via Mac Mahon 100, (from January to June 2022)

FIGURE VII.6 - Map of the three outdoor fixed stations located near the Serra - Monte Ceneri Overpass, 2022
(Source: <https://sensor.community/it/>)

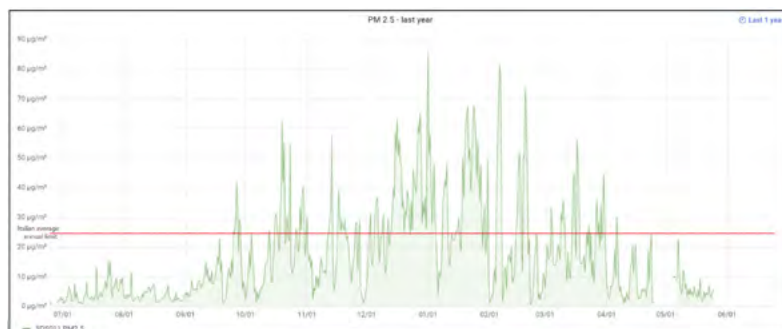
The mobile unit has been used to compare the data recorded under the overpass with those detected by



VII.6

the fixed positions. The data collected by the fixed control units can be consulted using the identification code (Esp...) at the following web address: <https://api-rd.madavi.de/grafana/d/GUaL5aZMz/pm-sensors?orgId=1&theme=light&var-chipID=>

The following graphs illustrate the quantities detected by the fixed units in the respective operating periods.



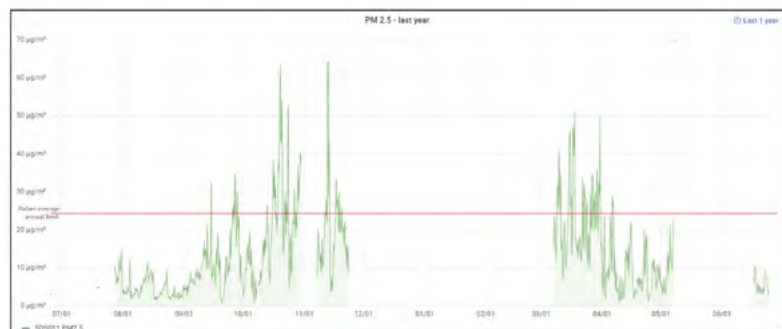
VII.7

FIGURE VII.7 - Graph of the data collected in viale Monte Ceneri, from July 2021 to June 2022 (PM2.5), 2022 (Source: UNPark and <https://sensor.community/it/>)



VII.8

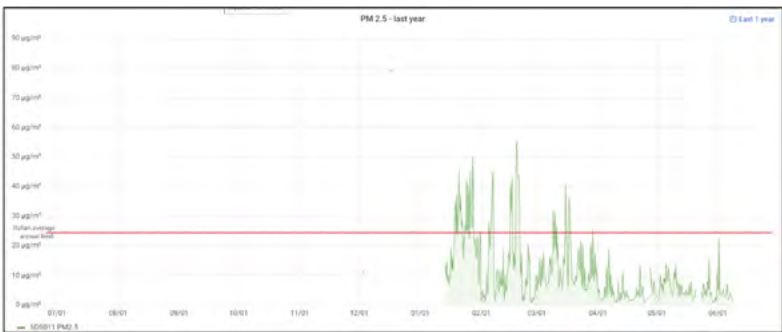
FIGURE VII.8 - Graph of the data collected in via Pietro di Cemmo, from July 2021 to June 2022 (PM2.5), 2022 (Source: UNPark and <https://sensor.community/it/>)



VII.9

FIGURE VII.9 - Graph of the data collected in via Bodoni, from July 2021 to June 2022 (PM2.5), 2022 (Source: UNPark and <https://sensor.community/it/>)

FIGURE VII.10 - Graph of the data collected in a classroom in the school in via Mac Mahon, from July 2021 to June 2022 (PM2.5), 2021
(Source: UNPark and <https://sensor.community/it/>)



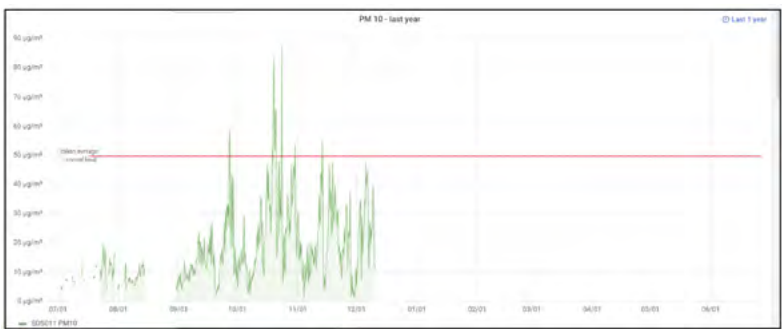
VII.10

FIGURE VII.11 - Graph of the data collected in a classroom in viale Monte Ceneri, from July 2021 to June 2022 (PM10), 2022
(Source: UNPark and <https://sensor.community/it/>)



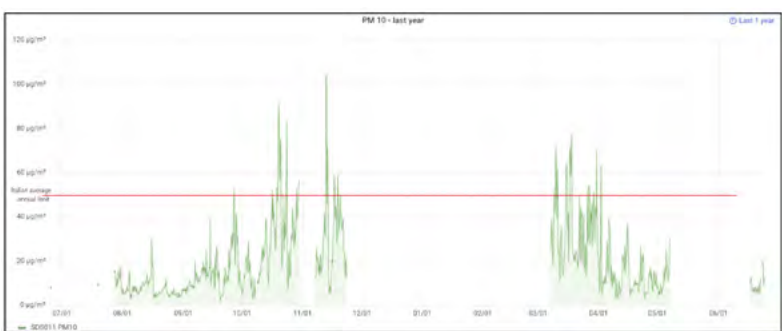
VII.11

FIGURE VII.12 - Graph of the data collected in via Pietro di Cemmo, from July 2021 to June 2022 (PM10), 2022
(Source: UNPark and <https://sensor.community/it/>)

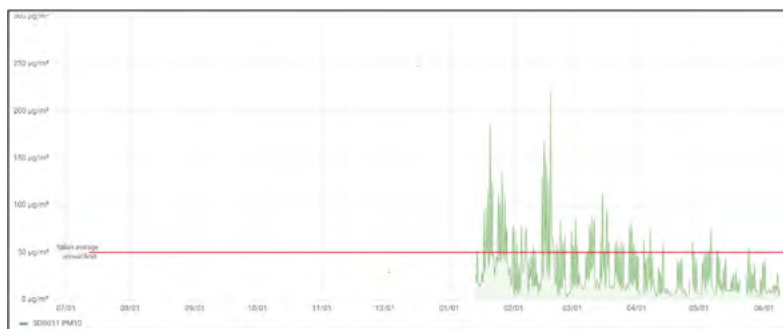


VII.12

FIGURE VII.13 - Graph of the data collected in via Bodoni, from July 2021 to June 2022 (PM10), 2022
(Source: UNPark and <https://sensor.community/it/>)

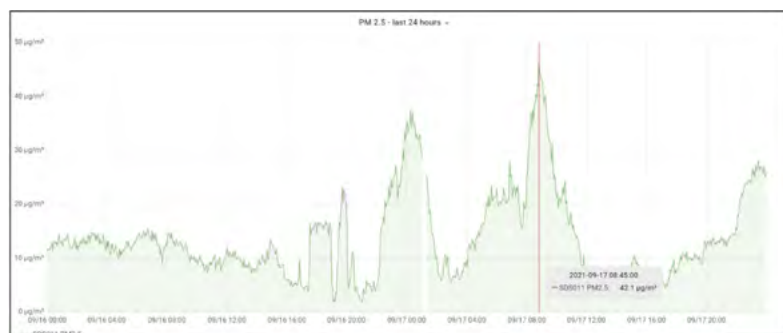


VII.13

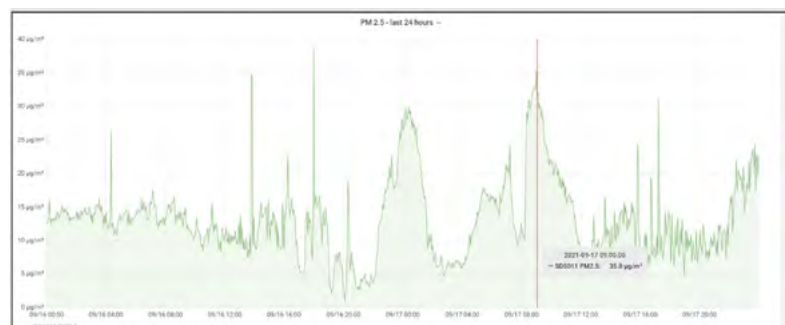


VII.14

Instead, the following graphs are related to what was detected in two days of September 2021, this information has a dual purpose: to illustrate the variability of the time of the concentration of particulate matter during a day and to compare the difference of the data detected in the different portions of the fabric where the detection units are located.



VII.15



VII.16

FIGURE VII.14 - Graph of the data detected by the control unit located in a classroom in the school in via Mac Mahon, from July 2021 to June 2022 (PM10), 2022 (Source: UNPark and <https://sensor.community/it/>)

FIGURE VII.15 - Data collected in the control unit in via Monte Ceneri, 16 and 17 September 2021 (PM 2.5), 2022 (Source: UNPark and <https://sensor.community/it/>)

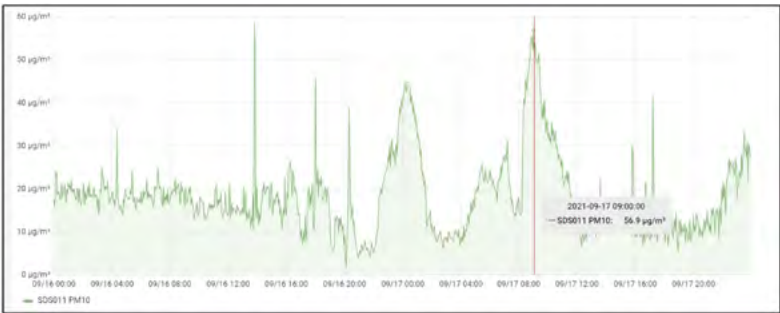
FIGURE VII.16 - Data collected in the control unit in via Pietro di Cemmo, 16 and 17 September 2021 (PM 2.5), 2022 (Source: UNPark and <https://sensor.community/it/>)

FIGURE VII.17 - Data collected in the control unit in viale Monte Ceneri, 16 and 17 September 2021 (PM10), 2022
(Source: UNPark and <https://sensor.community/it/>)



VII.17

FIGURE VII.18 - PM 10 data detected in the control unit in via Pietro di Cemmo, 16 and 17 September 2021 (PM10), 2022
(Source: UNPark and <https://sensor.community/it/>)



VII.18

FIGURE VII.19 - PM 10 data detected in the control unit in via Bodoni, 16 and 17 September 2021 (PM10), 2022
(Source: UNPark and <https://sensor.community/it/>)



VII.19

To understand the variability of the quantities detected depending on the position (distance from the overpass), the data collected on a September day, in particular on 17 September 2021, have been analyzed and compared (See Fig. VII.20).
As regards the presence of PM10, the Italian law imposes a limit equal to 50micrograms / meter not to be exceeded for more than 35 days and an average

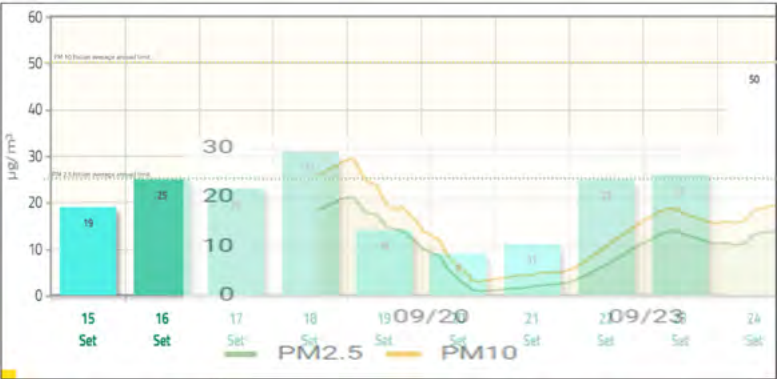
September 17th 2021	viale Monte Ceneri under		Viale Monte Ceneri 6th floor		via Pietro da Cemmo Ground level		via Bodoni First Floor	
daytime	pm2,5	pm10	pm2,5	pm10	pm2,5	pm10	pm2,5	pm10
08 45	43,3	74,3	42,1	68,9	32,2	50,3	14,8	20
09 11	60,1	122,6	38,6	62,9	29,7	49,8	24,1	40,4
09 27	40,7	80,7	32,4	52,3	27,5	43,7	21,8	34,7
09 31	51,1	90,4	31,6	49,5	25	41,4	22,3	35,7
12 18	9,6	14,6	5,6	7,18	5,3	6,53	5,96	8,63

VII.20

FIGURE VII.20 - Comparison between the data detected by the control unit under the overpass (viale Monteceneri under) and the fixed outdoor detection positions, 2022
 (Source: UNPark/Matteo Clementi)

annual limit of 40micrograms / meter. As regards the presence of PM2.5, the average annual limit is equal to 25 micrograms / meter.

The information that emerged during the monitoring campaign denounces a very high concentration of particulate matter during the winter period in the months of January, February and March and in particular hours of the day with peaks relating to the early part of the morning and late afternoon on the occasion of entry and exit from the workplace. As evidenced by the graphs that investigate the September trend, peaks are also recorded in the night period on Friday and Saturday when people use to move towards weekend evening recreation destinations. The detection in a confined environment (one classroom) shows a similar daily trend, with particular peaks detected probably due to the lack of air exchange. Those data, being the result of surveys car



VII.21

FIGURE VII.21 - Comparison between the data detected by a sensor.community network control unit nearby and Arpa data near the control unit in viale Marche, 2022
 (Source: UNPark and <https://sensor.community/it/>)

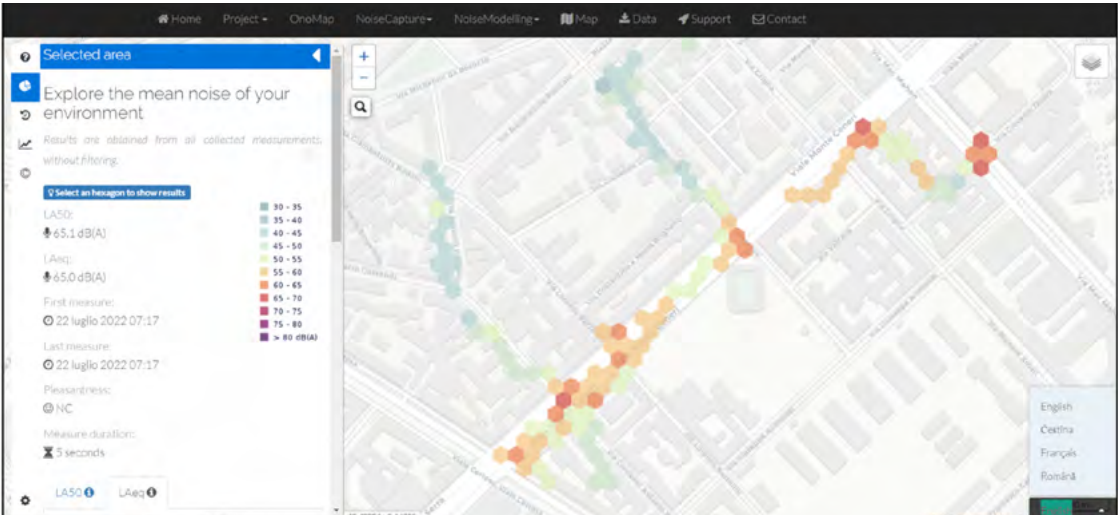
ried out with low-cost sensors, require future insight through a comparison with what detected by ARPA and the certification of the data by the same public body. The graph in the Figure VII.21 presents a comparison between what was detected by the ARPA detection unit in viale Marche and the closest low-cost control unit in the SC database.

As detected in a confined environment, the data presented in the graphs refer to a shorter time frame than the entire detection interval, the reader can refer to the SC website for consultation of what has been found to date.

VII.2.2 Noise pollution

As for the critical issues relating to noise pollution, the work focused on the recognition of possible apps that would allow the use of a mobile phone as an acoustic detection tool. The research identified useful support tools in the citizen science project “Noise-Planet Scientific - tools for environmental noise assessment”, developed and promoted by the CNRS, the French national scientific research center in collaboration with the UMRAE laboratory <https://>

FIGURE VII.22 - Map of noise pollution data detected in Viale Monte Ceneri, screenshot from the noise planet data storage site, 2022 (Source: <https://noise-planet.org/map.html>)



VII.22

www.umrae.fr/ of the Gustave Eiffel University of Paris. Among the tools developed by the project is the “Noise capture” app (<https://noise-planet.org/noise-capture.html>). This app allows to use a mobile phone to detect noise pollution conditions and allows to map the findings by archiving them in a shared georeferenced database (<https://noise-planet.org/map.html>). What has been noted as an example clearly highlights the differentiated conditions of noise pollution between the area of Viale Serra - Monte Ceneri and the blocks nearby, with variations in intensity that exceed 80 decibels near the overpass up to 30 decibels of some internal roads.

VII.3 OPPORTUNITIES

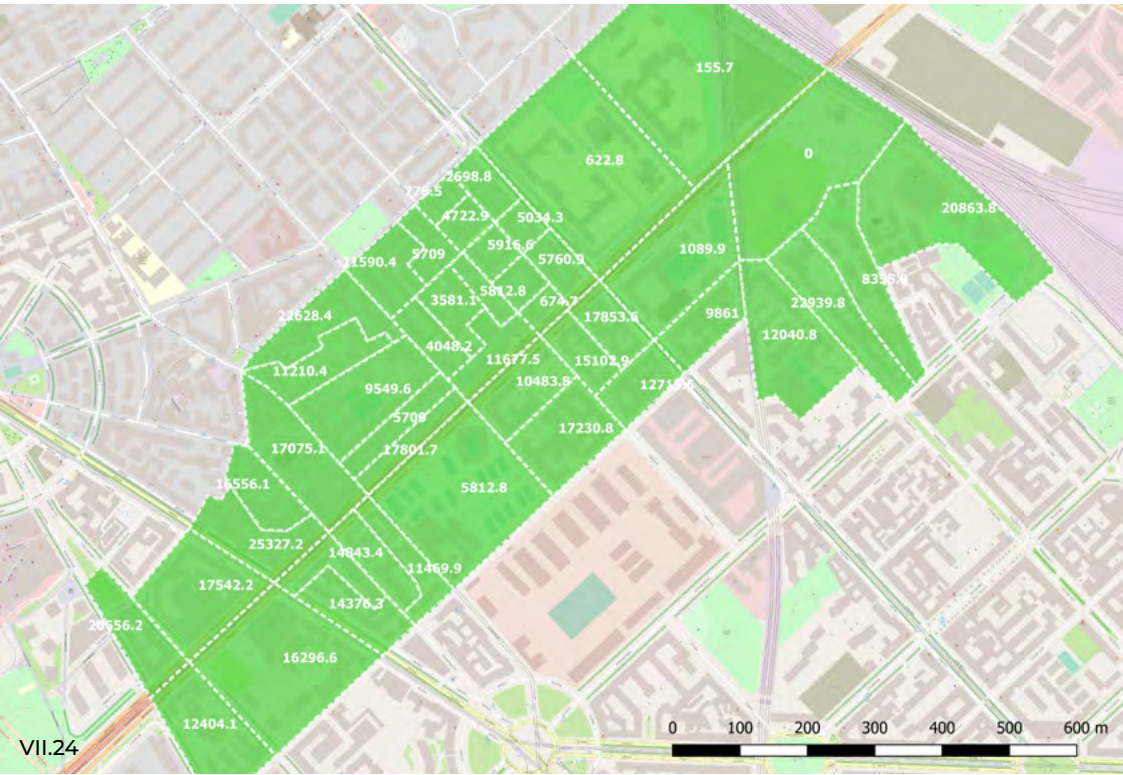
VII.3.1 Local MSW generation: mapping material outflows

The mapping of outgoing material flows was carried out by associating the per capita flows detected by the regional waste observatory with the number of residents in the census section (data referring to the province of Milan in 2019) (<https://orso.arpalombardia.it/>). The yearly estimated and associable outgoing household waste material flows for the area in exam are shown in the following Fig. VII.23.

By multiplying the quantities of waste generated with the number of residents provided by ISTAT, the total amount of MSW generated within the area can be obtained (Fig. VII.24).

FIGURE VII.23 - Yearly outgoing household waste material flows by category in Milan province, 2019
(Source: UNPark/Matteo Clementi).

Waste type	Quantity kg/person*y	Density kg/m ³	Volume m ³ /person*y
Organic waste	70.7	600	0.118
Polymers	20.7	950	0.022
Paper	51.9	970	0.054
Glass	40.7	2500	0.016
Metals	5.77	2700	0.0021



VII.3.2 Road advertising

The UNPark project, in addition to the outflows from the housing sectors in the form of solid urban, polymeric, organic and paper waste, has identified other waste streams emitted locally that could have interesting potential for use.

These are the PVC fabrics used for road advertising. In fact, in the vicinity of the overpass there are various support structures for such large advertising devices, which are periodically dismantled at weekly or monthly intervals. This activity gives rise to continuous flows of light material with high mechanical performance and large dimensions, potentially usable for zero-cost set-ups in the spaces below the overpass.

FIGURE VII.24 - Census sections of the case study labeled with the household waste material flows (kg of paper/year), 2019 (Source: UNPark/ Matteo Clementi)

VII.3.3 Unused energy: Mapping unused renewable energy potential

The overpass in certain areas represents a huge solar collector capable of supplying a considerable amount of electricity for mobility, the upper part of the overpass, could become an important renewable energy source in the neighborhood.

According to the various land use destinations that characterize the local area of reference, this phase of the methodology aims to assess and map the type and amount of renewable energy available (Clementi, 2019). In this case, being a densely urbanized area, the research project maps the solar renewable energy potential. The topographic database available for the municipality of Milan associates the eaves height to the buildings polygons. That information, together with the street level contour lines, allows for generating high-resolution digital elevation models (DEM - 1 pixel / 50 cm) useful for mapping solar radiation incident on open spaces and roofs using open-sour

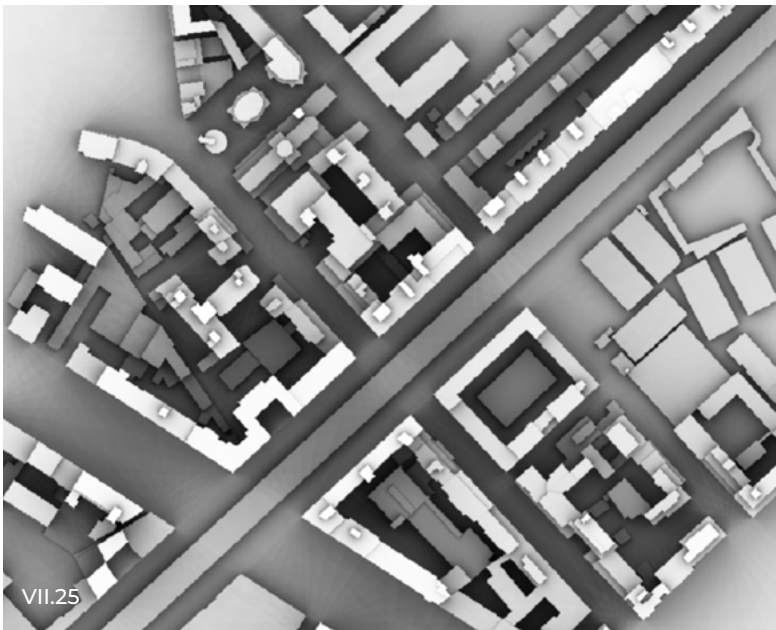


FIGURE VII.25 - Sky view factor, expressed as a percentage, 2022 (Source: UNPark/Matteo Clementi)

FIGURE VII.26 - June Daily
solar irradiation clear sky,
2021
(Source: UNPark/Matteo
Clementi)



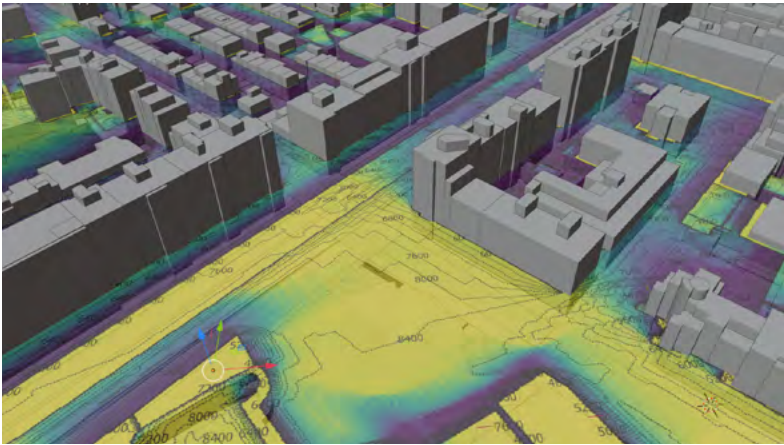
VII.26

FIGURE VII.27 - December
Daily solar radiation clear
sky, 2021
(Source: UNPark/Matteo
Clementi)



VII.27

FIGURE VII.28 - 3D model
of a portion of urban
fabric nearby the Serra
- Monte Ceneri overpass,
processed using the
data published on the
geoportal of the Milan
municipality with the
addition of the solar
radiation map presented
in Figure VII.3, the
numerical values refer
to Wh/m²*day, (Source:
UNPark/Matteo Clementi)



VII.28

ce GIS, thanks to tools such as the one proposed by Hofierka (Hofierka, 2002). If accompanied by isopleths (Fig. VII.28), these maps can be consulted using common web services such as Google Earth, allowing easy access to information, even for those who do not use GIS software. In the specific case of this study, these maps have the purpose of showing and measuring the potential solar energy available on the overpass and on the roofs and open spaces nearby.

VII.3.4 Space availability

Under the flyover there are currently some unused areas that can be transformed into spaces available to the community. The current hypothesis considers publicly owned land as open spaces available, such as the areas under the overpass not used for parking.

FIGURE VII.29 - Publicly owned land, such as the areas under the overpass not used for parking (in orange), 2021
(Source: UNPark/Matteo Clementi)



VII.29

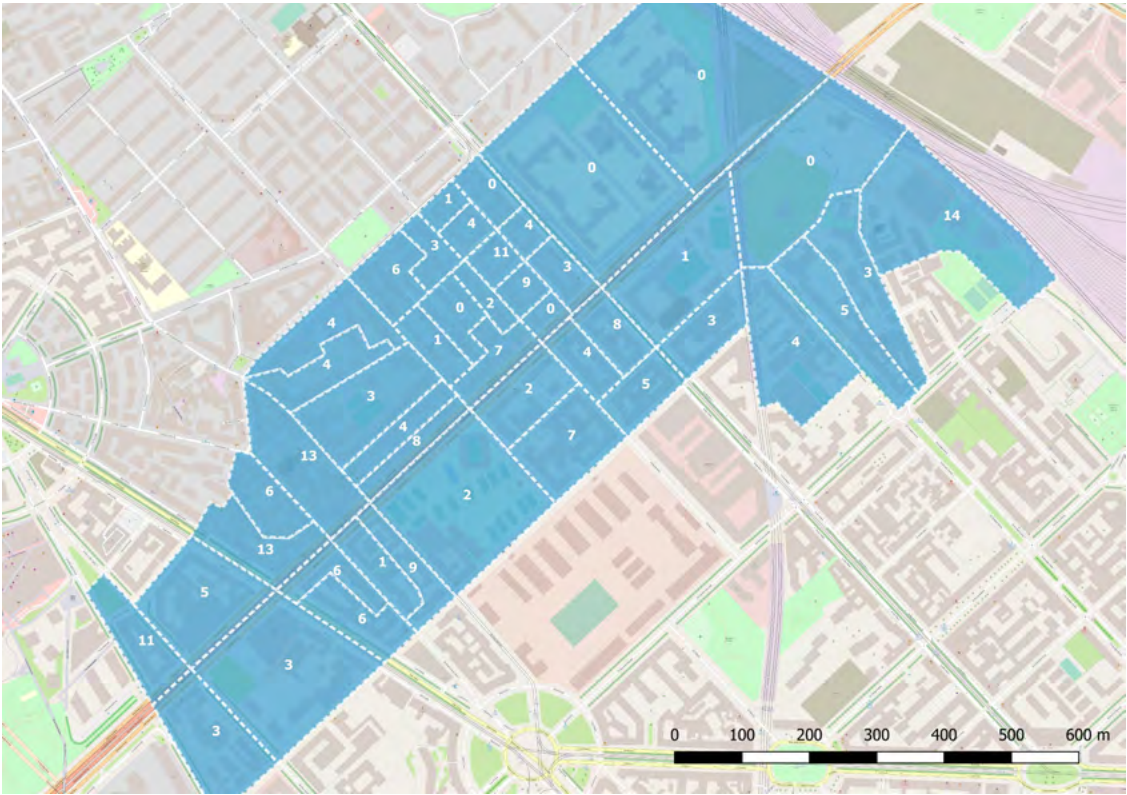
VII.3.5 Unused man hours: mapping potential local labor

Among the unused local resources, person-hours are a fundamental component. The real possibility of triggering local prosuming processes depends on local availability of human resources.

Useful information on the available person-hours is obtainable by crossing age-groups with employment status within the census data by ISTAT. For the present case-study the following categories were selected:

- Total resident population aged 15 and over, unemployed seeking new employment (ISTAT, 2012).
- Total resident population aged 15 and over, non-labor force (ISTAT, 2012).

FIGURE VII.30 - Map of the unemployed population looking for a job, 2021
(Source: UNPark/Matteo Clementi)



VII.30

- Total resident population aged 15 and over, households and housewives (ISTAT, 2012).
- Total resident population aged 15 and over students (ISTAT, 2012)

Due to the restrictions associated with the past emergency, the data relating to the presence of unemployed are changing considerably. It is therefore of fundamental importance to integrate the data already mapped with what will be published by the recent census activity of 2021.

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VIII. UNPark/Freestyle: an Experimental Open Square

Carol Monticelli and Patrizia Scrugli

The final act of the UNPark research coincides with the implementation of the Pilot Project and, specifically, with the public event UNPark / Freestyle, as the outcome and validation of a long process of design and investigation tested out on the field. This contribution deals with the final phase, i.e. the temporary redevelopment of some spaces currently used for parking under the Serra - Monte Ceneri Overpass, through sporting events, demonstrations and public events related to the themes of the project. UNPark/Freestyle is configured as an "Experimental" Open Square, a challenge not only for the research group but also for the Public Administration. The experience of UNPark/Freestyle has shown that even the most neglected and abandoned space, with the involvement of the inhabitants, can find its redemption and, above all, that it is essential to challenge consolidated paradigms and practices with a view towards multi-scalar and multidisciplinary innovation, in the cases of complex urban spaces such as those linked to infrastructures, that can become "multi-systemic".

The implementation of the Pilot Project and, specifically of the public event UNPark / Freestyle, held between the 18th and 26th of September 2021, represent the final act of the UNPark - Urban Nudging Park research, as the final outcome of a process of design and survey tested on site and organized according to the following timing and events:

- phase I (test) - Furnish¹: November 2020 - December 2020;
- phase II (metadesign) - Participation / Co-design: January 2021 / April 2021;
- phase III (design) - Drafting of the UNPark Pilot Project: April 2021 / July 2021;
- phase IV (implementation) - Implementation of the UNPark Pilot Project for Piazze Aperte (Open Squares)²: July 2021 / September 2021.

The Phase IV, or implementation, is deeply based on the previous phases: it is during the Co-Design process, shared with citizens and stakeholders, in fact, that the metadesign - understood as a set of desires, of spatial constraints - came to life and of the organization and set-up proposals.

Various technical round tables have been set up in consultancy with the Public Administration which allowed the drafting of the final project and, therefore, the creation of UNPark/Freestyle.

VIII.1 PROJECT'S DEVELOPMENT

The metadesign, as the outcome of the co-design phase, embodied many constraints: contextual constraints, linked to the presence of traffic, pollution and noise, and material constraints, dictated by the budget allocated to the initiative and the available workforce. However, some of the founding initial as-

¹ FURNISH (Fast Urban Responses for New Inclusive Spaces and Habitat), is a European competitive tender funded by EIT Urban Mobility, for the creation of prototypes of mobile urban furniture (MUE - Mobile Urban Elements), produced in digital fabrication, and aimed at exploring the theme of socialization in public spaces in compliance with the physical restrictions imposed from the pandemic (for further information, see paragraph XX or consult the web page www.furnish.tech/results)

See also I and IV by Di Prete

² "Open squares" is a project of the Municipality of Milan, created in collaboration with Bloomberg Associates, National Association of City Transportation Officials (NACTO) and Global Designing Cities Initiatives, based on the idea of public space as a place for meeting and socializing (<https://www.comune.milano.it/aree-tematiche/quartieri/piano-quartieri/piazze-aperte>).

sumptions have undergone important compromises, which led to various alterations in the final design, aiming to achieve authorization criteria and safety requirements.

The latter were particularly restricted in relation to the project's location, below an overpass and, above all, in the middle of a high-speed boulevard with three lanes on each side, with access permitted only at the pedestrian crossing.

The use of the space dedicated to the U-turn and the change of gears between opposite carriageways near via Bartolini was certainly one of the most important changes.

This relatively small space would have been useful for the project not only to allow the interconnection between the pedestrian accesses at the intersections of via Plana and via Bartolini, but also to give more entry / exit solutions to the event area in compliance of the regulations related to exodus routes and physical distancing and, finally, to decompress the spaces for the various activities foreseen in the draft program. It was difficult to acquire this small portion of the road surface as of local mobility. This change, apparently a secondary detail, actually had a significant weight not only within the formal agreements with the Public Administration, but also in terms of the feasibility of the intervention: Freestyle could in fact count only on a single access gate / outflow on the side of the pedestrian crossings of via Plana³. Other two initial design choices, subject of complex discussions and important reinterpretations, concern the structure delimiting the sports field and the perimeter protection system of the area intended to accommodate the Pilot Project.

The net wrapping structure, designed to allow the ball game safely (below the Overpass and between

³ *The presence of a single access and outflow passage was a major critical issue for the project as it was an exception to the Guidelines of Directive no. 110011/1/110 of 07/18/2018 (Organizational and procedural models to ensure high levels of security during public events) which prescribe no less than three removal gates, even in open-air situations.*

the two avenues) was design as a self-built element supported by concrete new jersey and suspended from the viaduct by hooks and steel strands (thus making use of the intrados of the Overpass as a ceiling closure). But during the definitive project stage, it has instead been transformed into the rental of a self-supporting cage in American beams covered with a net mesh on all sides, including the ceiling, in order to avoid any physical interface with the road construction. The perimeter protection system has in turn undergone a considerable thickening, justified by the safety requirements imposed by the Local Police. In the metaproject it was initially hypothesized the double row of potted plants: they are the typical equipment of the set of furnishings for the Open Squares provided by the municipality, but they became difficult to move for a short period of time.

This solution was in fact replaced by a double casing of anti-panic steel barriers on all the two sides, coupled externally to new jersey in shatterproof concrete for containing any accidental collisions of cars out of control.

The public event UNPark / Freestyle took place from the 18th to the 26th of September 2021. Two significant moments characterized the event:

- Paint with us: a weekend of painting with volunteers and citizens of the neighbourhood, aimed at repeating the colour of the tactical urban planning intervention of December 2020 carried out in conjunction with the installation of the urban furniture modules created by the digital fabrication for the tender Furnish.
- Participate with us: four days - reduced to three - of initiatives and meetings including sports presentations, music, dance, scientific contents in the form of workshops and conferences, a

theatrical reading and the awarding of the prize-giving to the school children who have won competitions organized into the UNPark framework program.

In the days before and in-between the two events, the following activities took place:

- making the area safe, with the intervention of the Rapid Intervention Unit (NUIR) and the Local Police;
- sanitation, by AMSA;
- preparation, with the installation of a self-supporting cage in American beams by the rental company, and the placement of the Furnish wood modules by Ideas Fab Lab; at the same time, the exhibition of the works of the students who participated in the competitions promoted by the research group was also set up on site.

Finally, at the end of the event, the disassembly of the temporary furnishings and the removal of the heavy protections followed, allowing the restoration of the typical normal conditions and the return of the area to its original use, i.e. as a car park.

The only still visible signs of the passage of UNPark under the Overpass are the colours on the ground and the murals, now faded, and the bicycle rack, obtained at the Furnish installation.

Before detailing the precise description of Freestyle, it is worth telling the reflections underlying the schedule of the organized activities. One of the founding characteristics of UNPark is the mix of urban regeneration interventions and social inclusion actions, on the assumption that, in order to transform a complex place such as the Overpass, it is not enough to act “on the container” but it is essential to “activate the content”. Regarding this, it is useful to start from

*FIGURE VIII.1 - UNPark/
Freestyle's activities
calendar, 2021
(Source: UNPark)*

the palimpsest and the events' agenda and a brief description of their structure. For choice, the two significant moments of the event (Paint with us and Participate with us) were concentrated on weekends, allowing for greater public participation.

On the weekend, in the morning, at a time when school children are by definition freer, it was decided to include workshops and activities designed for them; the space of the sports field also offered a greater number of free accesses into this time schedule. In general, cultural or educational events (workshops, readings, conferences) were scheduled for mid-afternoon while, in the late afternoon, the playground was always available to children and teenagers coordinated by instructors affiliated with partner associations of the initiative. In the evening, however, with the help of ARCI l'Impegno (co-organizer of the event), the space under the Overpass was animated by people and music: in these moments of leisure, the parking place was transformed into a collective arena for all those who wanted to chat, listen to music or have a drink and therefore experience a new place in an alternative way.

VIII.2 SEQUENCE OF THE PLANNED ACTIVITIES

14th- 17th September 2021

During these days, in the area under the Overpass interested by the pilot project, NUIR first installed the concrete barriers in new jersey at night (essential for delimiting and protecting the work area from the vehicles circulating on the adjacent carriageways), the cleaning of the project area and the installation of anti-panic barriers to complete the double protective casing.

*FIGURE VIII.2 -
New jersey barriers
positioning by NUIR, 2021
(Source: UNPark)*

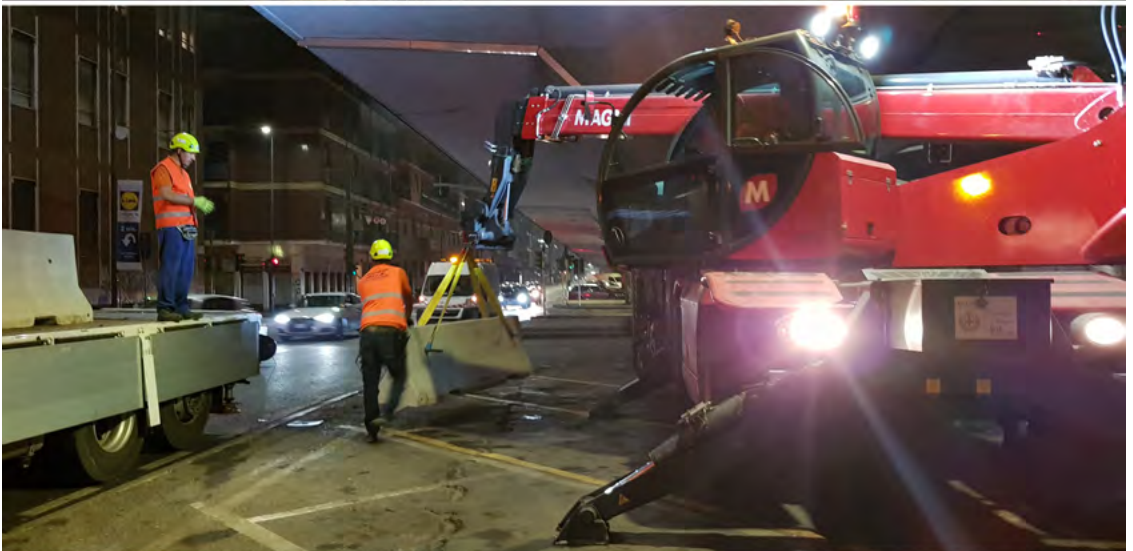




FIGURE VIII.3 - “Colora con noi” tactical urbanism activities with volunteers, 2021 (Source: UNPark)

18th-19th September 2021: UNPark/Freestyle, Paint with us

During these two days the free painting activities, mentioned above, took place together with volunteers and citizens; the colour of the large yellow circle with the UNPark logo was repeated in the initial part of the project area, at the pedestrian crossing of Via Plana. On the occasion, the smaller blue circle was also revived, corresponding to the bicycle rack. At the same time, the street-artist Spino started the preparation of the murals on the pillars of the Overpass near to the provisional sports field; the artist wanted to interpret the themes of climate change and the impact on humanity with the image of a man-machine who, after being jammed, returns to produce in an eco-sustainable way, reuniting with nature.

20th-21st September 2021

During these two days, backstage work was mainly carried out, with the completion of the materials for the press and the web, with the installation of posters promoting the event on site, at the neighbouring exhibitors and the stakeholders of the district,

and at the shop MediaWorld, partner of the initiative, also making available during the event several parking places in its parking equal to those temporarily occupied below the Overpass.

22nd September 2021

The day was dedicated to the main set-up activities of the area: - the assembly of the structure in American beams with a square base and a module in order to delimit the area dedicated to the various sporting demonstrations (dimensions of the field: 10 m x 15 m) ; - the assembly of the gazebo for the storage of materials on the traffic island near the crossing of via Bartolini; - the relocation of the eight urban furniture modules, with the related plug-ins, created by Ideas Fab Lab within the Furnish project. At the same time, the preparation of the exhibition of the posters of the students, participating in the competition, was also carried out; the drawings, grouped in large format tables, were exhibited on mobile site barriers set up with tensioned polyester/pvc fabrics supplied and installed on a project by the Textiles Hub, a laboratory belonging to the Architecture Built Environment and Construction Engineering Department of the Politecnico di Milano, as supporter of the UNPark project.

23rd September 2021

In the morning, secondary installations were completed (positioning of the decorative plants of Soul Food Forest Farm and informative graphics) while the official start of the Freestyle works, scheduled for the afternoon, was postponed to the following day. The activities planned in the schedule have been deleted due to the following reasons: the check carried out in the morning by the Municipal Supervisory Commission (CCV)⁴ and aimed at verifying the feasibility of



VIII.4



⁴ For further information, please refer to the "Regulations of the Municipal Supervisory Commission (CCV) on public entertainment venues" approved by the Municipal Council resolution no. 109 of 1996 and modified with the Municipal Council resolution n. 40 of 24 May 2021 (<https://www.comune.milano.it/servizi/commissione-comunale-di-vigilanza>).

See also XI in Part 3

FIGURE VIII.4 - Space in progress with protective barriers, sports equipment and Furnish modules, 2021
(Source: UNPark/
Claudia Reati)

FIGURE VIII.5 - The CCV's survey, 2021
(Source: UNPark/
Claudia Reati)

the design presented and approved at the Sportello Unico Eventi (SUEV) of the Municipality of Milan, gave a negative result for some discrepancies that could be resolved. The CCV is responsible of the technical assessment aimed at issuing the usability license for public entertainment venues and temporary events; the checks are typically not intended to be mandatory for any type of event. In fact the regulations mean that they are excluded for "premises and / or activities with a capacity of less than / equal to 200 people", as in this case. However, the criticality of the place and the uniqueness of the organizers (formally the presence of the club Arci L'impegno into a project with a declared academic origin) convinced the CCV to carry out an inspection. The assessment highlighted some discrepancies that forced a temporary suspension of activities pending integration. Two types of integration were required:

- integration into the set-ups, with protection of the sharp edges of the steel structure for sports and provision of special signs indicating the escape routes, in case of emergency;
- integration of the documentation related to the static testing of the structure and to the declarations of conformity of the products used with respect to reaction and resistance to fire.

24th-26th September: UNPark/Freestyle, Participate with us

- Starting from the morning of Friday 24 September, the space under the Overpass was animated by an information activity organized by Auser Prealpi, an association of pensioners in the neighbourhood, a reference point for social issues in the area, which was repeated in the following mornings.

- Following the verification meeting with the CCV and the resolution of a last problem related to surveillance with fire fighting experts, the event started with the didactic laboratories headed by the Textiles HUB:
- *MacraméLab/The textile fabric for the public space*: visitors were able to get to experiment with self intertwining and weaving to crate textile furniture and to understand the important role of textiles in street furniture as simple and flexible means for environmental mitigation;
- *Acoustic preceptions' Lab/How to contain the noise*: by putting the head in three cardboard "helmets" coated with various sound-absorbing materials, it was possible to experience the difference between materials that prevent sounds from coming out of the box and materials that allow, on the contrary, to exclude external noises in-

FIGURE VIII.6 -
MacraméLab and AcousticPerceptionsLab, 2021
(Source: UNPark/
Claudia Reati)

See also IX by Procaccini
and Monticelli



VIII.6

side the environments; contextually to the practical test a small survey was submitted based on the following questions: *"Which do you consider the main problems of this area? Do you think the noises would prevent you from spending time in this area?"*; And then again: *"do you think that carrying out some activities under the flyover can create problems from an acoustic point of view?"*. The outcome of the survey was used to infer possible design actions in the urban area relating to the issue of noise abatement, which were developed after the Pilot Project.

- In the sports field, the Soul basketball instructors taught younger children some basics of basketball: the joyful cries of children and the bouncing of the balls replaced and almost annihilated the annoying noise of traffic for some time. The space of the arena at dusk was transformed into a lounge area by ARCI L'impegno, which enlivened the space with a little music and a bar corner: the space, normally occupied only by parked cars, it came to life and was easily transformed and adapted to the different function. On the following day, Saturday 25th September, the boys of the MI20 Italian Catholic Guides and Scouts association filled the free space of the sports field with their activities and games. Later it was the turn of the demonstration of the sports association Il Disc Golf that explained the rudiments of acrobatic Frisbee. In the afternoon the live workshop *PMZeroLab* gave the floor to a researcher of the UNPark team with a detailed illustration of one of the research activities of the UNPark project related to air quality monitoring, with the aid of a mobile sensor and a mobile app; a short communication was also held here aimed at describing the stages of construction of a self-ma-

de dashboard, installed for the occasion under the flyover, and dedicated to displaying the AQI index derived from the data collected by some control units installed at the homes of volunteers who reside near the Overpass. Subsequently, the Auser Prealpi association presented a conference entitled *"Il ponte della Ghisolfa"* together with the students of the Dante Alighieri schools: a particular moment of historical review and telling those present of the vicissitudes that only the "oldest" of the neighbourhood know. Then the turn of the Giovanni Testori Association in which two of Giovanni Testori's⁵ most famous stories were presented through the formula of theatrical Reading. The two stories chosen for the occasion and masterfully read by the theater actor Andrea Carabelli were: *"Il ponte della Ghisolfa"*, taken from the 1958 collection of short stories of the same name; *"La Gilda del Mac Mahon"* taken from another collection of short stories from 1959 where the character of the Gilda takes its name from via Mac Mahon, the first street you meet coming from Ghisolfa, where Gilda worked to keep love of his bitter life. Another important moment of the schedule animated the evening: the live music concert by ARCI L'Impegno and with the participation of two emerging groups, *Cutie8* and *Il Cairo*. Even in this case, that of electric guitars replaced the noise of cars for a couple of hours and, for one evening, a repulsive place like this expressed a potential that had never been investigated.

⁵ A prolific writer, playwright, painter, art historian and Italian critic (Novate Milanese 1923 - Milan 1993), Giovanni Testori can be counted among the most important Italian intellectuals of the twentieth century. Skilled novelist of the life and miseries of the Milanese suburbs during the years of the economic boom, it was his *Ponte della Ghisolfa* that inspired Luchino Visconti for the masterpiece film *"Rocco and his brothers"* (1960).

Sunday the 26th of September, the last date of UN-Park Freestyle, was an intense day of scheduled appointments. In the area dedicated to sport, SkateMi, an association of the Amateur Sports Association of Skateboarding, followed one another, accompanying





FIGURE VIII.7 - Public lecture held by Auser Prealpi Association in collaboration with the Dante Alighieri school students, 2021
(Source: UNPark/ Claudia Reati)

FIGURE VIII.8 - Concerts on Saturday night, 2021
(Source: UNPark/ Claudia Reati)

FIGURE VIII.9 - The crowded space under the Overpass on Sunday morning, 2021
(Source: Lorenzo Masotto Ph.)



FIGURE VIII.10 - SkateMI, 2021
(Source: Lorenzo Masotto Ph.)

children to discover this street sport with the help of a temporary ramp, and Soul basketball. The morning of the arena instead started with Sara Gué “RicicliAMO”’s workshop, open to children between the ages of 6 and 13, in which the little artists were able to try their hand at some jobs with recycled material, a theme dear to the UNPark search. In the late morning the awards ceremony for the competitions for schools was held. At the end of the award ceremony, the Councilor for Participation Lorenzo Lipparini also spoke, underlining

FIGURE VIII.11 - *RicicliAMO*
by Sara Gué and the
awards ceremony for
schools competitions, 2021
(Source: Lorenzo
Masotto Ph.)



FIGURE VIII.12 - The
schools competitions
award event, 2021
(Source: Lorenzo
Masotto Ph.)



the support of the Municipality of Milan for the project. In the late afternoon Nicholas Meletiou, director of ESO Ecological Services Outsourcing, one of the partners and supporters of the initiative, talked about the link between ESO and creative recycling, illustrating how it is possible to start from the used soles of rubber shoes and bicycle wheels and to recycle the material and produce a flooring suitable for sports tracks and / or anti-trauma mats for playgrounds. Then, the contribution *reGen Infrastructure* with the illustration of a re-



VIII.13(1)

FIGURE VIII.13(1)(2) - The final evening event held by Bandy Dance School and the lounge atmosphere of ARCI L'impegno, 2021 (Source: Lorenzo Masotto Ph.)



view of international case studies took place, and was useful to understand the actual tendencies on the issue of infrastructure regeneration. In order to conclude the event, the spectacular joint performance of Hip Hop and Tip Tap by two masters of the Bandy Dance School, a prestigious reality in the area: once again the Overpass proved to be the ideal set for unthinkable practices but which could become the practice, in terms of a future regeneration.

27th-28th September 2021

The last two days were devoted to dismantling and supervising the complete removal of the installations. At the end of these activities, the space returned to its usual use and, already the next morning, the parked cars regained their spaces.

VIII.3 THE STRENGTHS AND WEAKNESSES OF THE EXPERIENCE UNPARK FREESTYLE

It is impossible to sum up a project like UNPark and give a univocal judgment; the points of view for its evaluations are many, some internal to the research and

others external. This is even more true for the UNPark / Freestyle Pilot Project which encountered considerable formal difficulties, but also a lot of bottom-up approval. With respect to the strengths, the first certainly concerns the number of citizens who attended during the event: many were residents in the area, many were people who happened to be passing through those parts by chance; different subjects by ethnicity, social background, profession and age, which allow us to say that the goal of social inclusion and transversally has been achieved. There was also considerable interest in the initiative: several people defined themselves intrigued by the temporary set-up, but also well disposed towards a more radical change with a view to regenerating the entire Overpass. It is appreciable that what the suggestions of the Pilot Project stimulated debate and the desire for renewal. The UNPark project, within the limits of this brief experience, has set itself the goal of opening a way towards a possible improvement of the urban space linked to infrastructures, leveraging sport as a universal communication tool, and express to the many realities they live in the shadow of these bulky artefacts. In more internal terms of the research, a positive effect of UNPark and, in particular, of Freestyle, was certainly that of highlighting the possibilities on the local government front, forcing various actors of the Public Administration to face a very complicated problem and to also unwelcome traits such as that of the Serra - Monte Ceneri Overpass, on which positions often tend to become radicalized.

With respect to the weaknesses, the first, and perhaps also the most evident, concerns the number of people actively involved in the co-design process: although there was adhesion by citizens and stakeholders, it was not the desired numbers. The pandemic and online meeting have certainly influenced participatory

dynamics much more than was imagined at the beginning of the project. Fortunately, it must be said that the “hard core” of supporters was proactive until the end, really contributing personally to the success of the event. Compared to Freestyle, environmental and, above all, noise pollution was in some moments a real handicap: at certain times of the day the noise generated by traffic was so high as to make some spoken activities complicated such as, for example, reading, theatrical. Hygiene conditions are also worth mentioning among the various negative environmental effects: despite the cleaning campaigns by Amsa, in the days preceding the event, in fact, it was not possible to erase the effects of decades of decay and dirt in few days.

The dates themselves at the end of September (a compromised choice linked to the administrative timing of the project and matured together with the Public Administration) were not always helpful. The use of outdoor spaces depends a lot on the weather conditions and bad weather days greatly affect the dynamics of use. During *“Paint with us”* and *“Participate with us”* the bad weather has certainly discouraged participation in some initiatives. Among the weaknesses of the project, it has to be mentioned the temporary stop linked to the suspension of the Municipal Supervisory Commission (CCV) which cost a day of scheduling. In this regard it must be said that UNPark Freestyle was born as one of the Piazze Aperte projects; these projects do not envisage any show activities and related public, but only set-ups of the space. The temporariness of Freestyle meant that the event was configured as an “Experimental” Open Square where, not being able to last for a long period, attention was shifted from the arrangement of the space to the schedule of activities, inserting the UNPark Freestyle project in the field of outdoor shows, subjected to specific authorization at the Sportello Unico Eventi SUEV

(Office for the Milan Events). The particularity of the location and the heterogeneity of the organizational group (association of the territory and university) have attracted the attention of the appropriate control commission. This forced the organizers to deal with a series of rules and requirements that are difficult to comply with for a non-profit project that has the peculiarity of being born from the citizens with a strong component of laymen, mostly unfamiliar with the world of entertainment, and with the related practical and bureaucratic problems. Looking this adventure in a positive path, the errors and superficialities committed have also become the collective heritage of the employees in charge of the offices, who are already working on an experimental simplification of the organizational procedures for events with a social purpose, as demonstrated by resolution no. 813 / 2022 of the Municipality

*FIGURE VIII.14 - UNPark/
FREESTYLE, 2021
(Source: Lorenzo
Masotto Ph.)*



of Milan in favour of PIDS (Small Widespread Initiatives with a Socio-cultural Character)⁶.

See also XI

⁶ <https://www.comune.milano.it/servizi/sportello-unico-eventi-suev>

Last in order of exposure but perhaps first in terms of impact was, finally, the weakness on the communication front. The lack of dedicated skills within the team and the absence of a targeted communication project, at certain times made partially this dissemination and promotion of the various initiatives complicated.

Beyond the outcomes and possible judgments on the Pilot Project, we can conclude that UNPark was not only a privileged field of study of temporary regeneration processes, but also a courageous experimentation that wanted to turn on a spotlight on a stalemate no longer acceptable in a framework of the city of Milan. The hope is that this process, now triggered, will not stop and that there is an interest from the Public Administration to carry out an active and constructive dialogue on this portion of the city: the citizens are waiting a long time for some answers.

IX. Implementing urban infrastructures through Themed-Design responses and Time-Based Design scenarios

Giulia Procaccini and Carol Monticelli

With the evolution of the needs of the city and the current re-appropriation of abandoned and disused urban spaces, it follows the necessity to intervene on those urban infrastructures that hide a great potential for the cities behind their mere function of physical connection. Representing at the same time a visual and a social barrier, the aim is to achieve such a transformation of an urban element whose presence has sedimented

on the collective imagination. To do so, it is necessary to intervene with an incremental approach that, starting from the bottom, aims at gathering the local population for achieving at first small transformations and, gradually, increase their extension both in terms of time, space and type of intervention. This chapter collects different approaching strategy for dealing with this type of transformation. The scenarios of use and imple-

mentation have been based on the concept of the *Time-Based Design*, valuing the temporal aspect as a fundamental requirement that encourage to think and install architectural elements that are adaptable to the incremental process of appropriation of the place. The *Themed-Design Responses* have been thematized with respect to the main constraints of the area, such as the environmental comfort, the production of energy and the acoustic requirements. Additionally, spatial requirements and the flexibility of use of the space over time contributed in the adoption of an incremental approach, based also on the gradual integration and implementation of the functions. The fallout of this design process in the technological and material choices focused both on low-cost and easy to assemble solutions as well as on the use of innovative materials as light / ultralight components. From the re-use of waste materials to the integration of technical textiles for architecture, this chapter aims at presenting different punctual scenarios of intervention, that could easily be reproduced in similar urban contexts.

IX.1 INTRODUCTION

Modern cities are characterized by the presence of huge urban infrastructure, born with the aim to facilitate the connection between different parts of the cities. Nevertheless, with the evolution of the urban needs and the ones of their citizens, these spaces lost their primary function in favor of a worse image which sees these infrastructures as social and physical barriers rather than a connection between different parts of the cities (Bauer et al., 2015). Within this frame of urban infrastructures in need of requalification, it is possible to fit the Serra - Monte Ceneri Overpass in Milan which still plays an important role within the urban scenario although its relevance has decreased over the years. Indeed, despite its original objective was to connect two parts of the city in a longitudinal direction, the Overpass turned out to represent a physical, visual and social barrier, currently separating the city in a transversal direction and marking what is beyond it as “periphery”. Hosting mainly parking lots and being characterized by unused pedestrian crossings, the space under the Overpass is marked as an unpleasant space, even characterized by an unsafe feeling during the evening and night hours when the area is completely abandoned and not appropriately illuminated. Unfortunately, despite its bad current condition and the feeling that the inhabitants have about this infrastructure, at the same time the numerous car parks located under it represent a resource that most citizens are not willing to lose, consequently preferring to sacrifice the quality of life of their neighborhood rather than - the much sought - carparks. It follows that, despite the urgency of intervention in this area, any transformation can't happen just suddenly, but it is necessary to gradually intervene in the area, working at the same time both on the space and on the citizens' opi-

nion. This chapter about possible scenarios of project implementation for a sustainable future aims precisely to represent possible solutions of intervention in the context of the Serra - Monte Ceneri Overpass, with the aim to open up to further considerations in similar contexts. The scenarios have been thematized according to two main typologies of intervention, "*Time-Based Design Solutions*" and "*Themed-Design Responses*": while the firsts are driven by the time and length of intervention for just gradually achieving a radical changeover of the area, the seconds aim at taking advantage of both the positive and negative characteristics of the area for developing scenarios of intervention based on the current existing elements. The goal of this chapter is to display multiple design parameters on the basis of which it is possible to foresee different strategies for transforming this kind of infrastructures. The division between "*Time-Based Design Solutions*" and "*Themed-Design Responses*" has the purpose to exhibit two different but complementary types of action based on a new design concept: to take advantage of the existing for achieving a transformation exploiting the existing possibilities rather than imposing anything new from outside.

IX.2 TIME-BASED DESIGN SCENARIOS

The area under the Serra - Monte Ceneri Overpass perfectly represents one of those abandoned and neglected space of the city of Milan, exhibiting at the same time a high potential of transformation for the consequent re-development of the neighborhood. The intervention under the Overpass has the aim to give back both to the city and to the citizens such an extended public space: in order to do so, it is necessary to establish both temporary and permanent functions

able to transform the area from an abandoned one into a catalyzer of “open-air” activities. Consequently, by attracting citizens and locals to the area, it would be possible to achieve the opposite: to create a visual and physical connection between the two sides of the street, in place of the current barrier. For intervening in such a peculiar context as the one below the Overpass, the design scenarios have been conceptualized taking in consideration the time and length of intervention: the approach of the “*Time-Based Design Scenarios*” foresee to gradually intervene on the area with increasingly permanent solutions and with an incremental process of appropriation of the place, from an initial flexible and temporary use to a more permanent and defined one. Indeed, with both the physical and digital revolution of mobility, the concept of time has invaded the design field, leading to the conceptualization of “temporary architectures” which, due to the rapid and increasing changes, are becoming increasingly crucial in these times. Therefore, it is possible to affirm that, up to date, it is the *Time-Based Design* that gives shape to places rather than the reverse (Barbara, Paoletti, 2020). Consequently, designing for time is becoming a task not unrelated to architecture and urban planning, which majorly needs to be considered when planning such an urban transformation.

Therefore, considering that the area under the Overpass is currently entirely dedicated to parking lots, which are valued as fundamentals by most of the citizens, it follows the necessity to intervene with a gradual approach, transforming at first just small but pivotal areas and consequently let this transformation root on the surroundings, valuing that short-term actions could be the base of long-term changes (Lydon, Garcia, 2015). The *Time-Based Design* approach adopted for the definition of scenarios of implementation of

the area under the Serra - Monte Ceneri Overpass considers five phases of intervention, exploiting at first the areas close to the zebra-crossing at the sides of each lot, for later connecting all the portions together. The driving concept of the project consisted in keeping as long as possible the services and parking lots present in the area, intervening at first on those spaces completely abandoned and unused, and gradually, with the involvement of the citizens, in transforming the entire area under the Overpass through the establishment of more permanent functions. Therefore, five different timespans have been defined, with shorter periods of time hosting more temporary activities and more frequent changes.

Phase I concerns the period from 1 day to 1 week and consists in a temporary intervention that takes place in the abandoned portions close to the zebra-crossings, exploiting unused spaces without interfering with the existing parking lots and the current function of the area. At the same time, the choice of the location is driven by the higher visibility of the crossing corners. Given the temporariness of the intervention, in this phase everything is conceived for being easy to install and to be (re)moved, with all the furniture consisting in recycled elements: the easiness of collection and placement of the elements mark this phase of a very short-term transformation, easy to be realized by the citizen themselves.

Phase II spans from a period of 1 week to 1 month: although the type of activities that could be established in the area are similar to the ones of the first phase, it is possible to organize them in a way to attract more visitors and not only local people. Consequently, more durable components could be employed in the design, whose realization could be led by specific figures

through small local workshops. Additionally, considering hosting longer activities, a limited use of acoustic structures starts to be acknowledged in order to improve the noise of the area.

The *Third Phase* of the project consists of a seasonal phase, characterized by quite a long period of time, for sure long enough to have more permanent installations. In this phase, specific modules could be integrated: specialized figures could be involved for the design of modular structures, realizable for hosting various activities, allowing at the same time for an easy reconfiguration of the space over time. Additionally, these modular elements would serve not only for the configuration of the space but could also be designed as a solution to some specific problems such as, for example, the noise through the integration of acoustic insulators.

Phase IV has an extension that goes from 6 months to 1 year, aiming at starting to affect at a long-term the transformation of the area. Therefore, this phase includes more permanent activities for citizens and employs the use of prefabricated structures and the exploitation of a wider area.

In the *Fifth Phase*, which consists in the transformation of the entire area, through the use of fixed and durable elements are considered for the use and an appropriate and specific design of the space is expected. The outcome of this last phase should be a quite permanent transformation of the area with an achieved perception among the citizens of the integration of the new concept within the urban space and the everyday life of the citizens. In conclusion, within the *Time-Based Design Scenarios* an incremental process of appropriation of the place is proposed.

In parallel with this strategy, an incremental use of resistant materials is employed, with the design of adaptable architectural elements for complying with different requirements over time. The approach aims at achieving a gradual transformation of the area, adapting it on the basis of citizens' response to the transformation and its changes.

IX.3 THEMED-DESIGN RESPONSES

In the definition of incremental scenarios of implementation of the project, the concept of *Time-Based Design* is supported by the one of "*Themed-Design Responses*": appropriate solutions conceptualized for dealing with specific design problems and/or taking advantage of the elements that could represent a design opportunity. Urban infrastructure par excellence, in the context of the Serra - Monte Ceneri Overpass these responses have been thematized in relation to (I) the low air-quality, (II) the energetic aspect and (III) the acoustic noise that widely affects the area. The following analysis aims at presenting possible methods for dealing with the above-mentioned topics, presenting possible solutions of interventions in urban contexts such as, but not only, the one of the Serra - Monte Ceneri Overpass.

IX.3.1 Monitoring and improving the air quality in urban areas

Intervening in a scenario such as the one of the above-mentioned Overpass, it consequently comes the necessity to deal with a low air-quality of the area, affected both by the numerous vehicles crossing it, as well as the configuration of the area (confined in between tall buildings and covered by the Overpass itself), additionally characterized by the lack of green

elements and the difficulty of air recycling. Therefore, two main subsequent strategies need to be adopted in such a context: at first, the monitoring of the air-quality itself, for gaining knowledge about the real situation in the different parts of the entire area of more than 2 km of extension; subsequently, the installation of either traditional or innovative technologies for capturing the CO₂ and increasing the air quality of the area, at the same time providing citizens with new urban furniture. The solutions presented below works as temporary solutions able to improve the air quality during events or specific periods, without compromising the existing configuration of the area.

Given that half of humanities lives in cities, where the air is particularly polluted, and the verified importance of the air quality, its monitoring is spreading worldwide, especially at a municipality level, in relation with the weather and environmental conditions. In parallel with the urban monitoring, new technologies are emerging for locally controlling the



FIGURE IX.1 -
GreenCitySolutions
"CityTree"
(Source:
©greencitysolutions.de)

⁷ <https://greencitysolutions.de/en/>

air quality and, eventually, improving it: it is the case, for example, of the urban bench designed by two polish miners, M. Kaczorek and M. Szyszkowski, which monitors the air quality through an internal filter and changes its color according to it, therefore suggesting or not if to rest in the area according to the air quality; additionally, the installation of an air purifier under the bench contributes to the improvement of the air quality. Exactly with the aim to create living conditions that enable everyone to breath cleaner air, especially in urban areas, the german company “GreenCitySolutions”⁷ focuses on developing innovative technological products for the improvement of the air quality: among them, “CityTree”[Fig. 1] is the world’s first biotech fine dust filter which cleans and cools the surrounding air of up to 2.5 °C, taking advantage of the natural filter power of the mosses.

FIGURE IX.2 -
“PhotoSynthetica Curtain”
by ecoLogicStudio at
Dublin Castle, Dublin, 2018
(Credits: ©NAARO)



IX.2

The Italian architecture and design innovation firm “ecoLogicStudio”² is one of the firms and companies which is focusing on the rising concept of Nature-Based Design Solutions, “*Solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions*” (Nature Based Solutions, European Commission³).

Specifically, it is specialized in biotechnology for the built environment, focusing on biophilic sculptures, living architectures and blue-green masterplans for the re-development and improvement of urban areas. Among their products, it is worth to mention “PhotoSynthetica”, a photosynthetic building cladding system which, combining the aesthetic and material qualities of ETFE claddings with the natural ability of micro-algae in capturing the solar radiation, is able to capture and remove CO₂ and pollutants from the atmosphere [Fig. 2].

² <https://www.photosynthetica.co.uk>

³ https://ec.europa.eu/info/research-and-innovation/research-area/environment/nature-based-solutions_en

IX.3.2 Urban infrastructures as active sites for the production of renewable energy

The Serra - Monte Ceneri Overpass shows up as a crossing elevated road of a length of more than 2 km, made up entirely in reinforced concrete. Consequently, extensive use of asphalt combined with the lack of green elements contribute to the urban heat island phenomenon. Nevertheless, the large-scale infrastructure could be considered as an opportunity for capturing the solar energy striking the ground, therefore transforming the Overpass in an active site for the production of renewable energy. In recent years, roads, as strategic places for the exploitation of

solar energy, started flanking this new function to the traditional one of connection, taking advantage of both their large extension and their proximity between the networks of transport and places of life: in 2018 in China the world's first photovoltaic highway was consequently inaugurated as a three layers road (the transparent surface one, the one hosting the modular photovoltaic panels and the basic one absorbing the stresses), extended for 1 km.

Multiple solutions are recently being developed worldwide for exploiting the solar energy striking the roads (Natalicchio, 2021): in 2006 in the US the "Solar Road Panels" company was born focusing its production on hexagonal-shaped photovoltaic panels, resistant to the passage of vehicles and wirelessly connected to various devices; the WattWay product, presented in France in 2015, is instead a photovoltaic road covering (protected by a layer of transparent resins and polymers) which can be applied to car parks and cycle paths, powering public lighting and signs. Another experimented technology in France, the "Power Road" realized in 2012, focused instead on the collection of the solar thermal energy accumulated in the asphalt during the hot season, for storing it underground thanks to a complementary geothermal system and making use of it during the cold season. In addition to the above-mentioned opportunities, what is under experimentation now is the possibility to recharge electric vehicles in transit: in 2020 in Sweden, the DWPT (Dynamic Wireless Power Transit) technology was employed making use of copper plates embedded both in the asphalt and under the vehicles; the same technology has just now in 2022 been implemented and employed for experimentation on a 1 km length of the highway Brebemi in Italy. In conclusion, the above-mentioned examples

represent solutions for re-imaging the Serra - Monte Ceneri Overpass and similar urban infrastructure as multifunctional elements, able to comply not only with their primary function of connection but also with additional and new ecological requirements.

IX.3.3 Confining and absorbing the noise in urban areas

An additional element to take into account when planning an intervention on an urban infrastructure, crossed by high-speed vehicles, is the sound. Indeed, the entire area of the Serra - Monte Ceneri Overpass, as well as similar urban areas of high-speed, is characterized by an excessive noise, which determine some difficulties in imagining the placement of any possible function in such a context. Additionally, in the case of the Serra - Monte Ceneri Overpass, a double concern rises in relation to the sound when considering the transformation of this urban infrastructure: on one side, it is necessary to consider the noise coming from the surrounding streets and affecting any activity that could take place in the area; on the other side, the noise deriving by the activities in the area could, on the contrary, affect the surrounding residential buildings. If any intervention wants to take place in this area, it follows the necessity to work with acoustic barriers, in order to isolate the site and its activities. When working with the sound, both the materials involved and their design play a crucial role, in order to reduce the reverberation but also to avoid other acoustic phenomena such as the echo. Among the acoustic barriers that can be placed outside, it is possible to categorize them into three main solutions: acoustic ceilings, acoustic floor treatments and urban transportable devices acting as barriers. Suspended acoustic ceilings can be used in urban contexts with a natural covering, such as the area un-

der the Overpass. While fabric panels are frequently hung horizontally or flush to the ceiling, acoustic baffles are suspended vertically from a ceiling or a nearby support structure, both dealing with the reverberation and echo of sound within a space: baffles, like panels, are comprised of insulation covered in acoustically transparent fabric with a mounting strip along the length of the baffle itself; the core material used for tiles or panels, instead, is often hard stone wool or fiberglass covered with fire-rated acoustically transparent fabric, which helps to reduce impact noise and reflection from above. In terms of floor treatment, cork is used as a natural, long-lasting and environmentally responsible way to reduce impact, echo, and reverb sounds. Indeed, when sound waves enter cork, they are broken down and diffused. Absorbing the sound, rather than reflecting it, the cork works as a perfect material when excessive noise is produced by directly in contact with the ground, and therefore need to be absorbed, as for the case of any noisy sport, which most presumably is one of the activities that could be integrated in the UNPark project. Lastly, urban transportable devices must be mentioned as one of the ways for achieving sound barriers without interfering at all with the existing elements. Indeed, these devices could be designed ad hoc, in relation with the activities that could take place in the specific site, in order to work not only as sound barriers, but also to comply with a different function. In order to achieve an urban transportable device which could represent also a sound barrier, its design should be implemented with a sound absorber material. There is not a specific design that could comply with requirements, but this solution is worth to mention as it contributes both the reduction of the noise and to the temporary transformation of the area by the placement of innovative urban furniture.

IX.4 PROJECT IMPLEMENTATION

In the definition of scenarios of project implementation, the design responses have additionally been catalogued between 'low-skilled' and 'high skilled' solutions, to which the use of different materials correspond: on one side, easy and fast assembly materials, able to be employed without the need of a specific knowledge and to be found locally, also by the citizens, such as waste products and low-cost materials; on the other side, light and innovative materials, such as technical textiles for architecture, could be employed for realizing high-skilled solutions by taking advantage of the potentialities of lightweight materials such as their flexibility of use and easiness of installation.

IX.4.1 'Low-skilled' and 'High-skilled' solutions

The definition of incremental scenarios of implementation for the project implies the use of different types of materials according to the extension of the project in terms of time-length: as it is possible to imagine, more durable materials and tailored-design solutions could be employed for longer time of periods, while for shorter ones it is possible to foresee the re-use of waste products and the employment of low-cost materials. In addition, according to the design of Time-Based solutions it is possible to adopt an incremental strategy that combines short interventions with the use of low-cost materials and easy to realize solutions, while to longer interventions, not only the type of materials employed changes, but also the complexity of the intervention.

Low-skilled solutions through the use of waste products and low-cost materials. Considering the high impact of the construction materials in a life-cycle optic, a recent trend in the field of temporary constructions

takes advantage of the (re)use of daily life waste products such as fruit boxes, milk cartons, newspapers etc. for realizing urban furniture to be employed in the temporary transformation of public spaces. The idea beyond this application is to further exploit the characteristics and properties of specific materials that could still play an important role in a different context even when at the end of their first cycle of life. Additionally, the (re)use of waste and low-cost products has



FIGURE IX.3 -
Transforming urban
elements by pimping
them out
(Credits: ©Aude Frost)



FIGURE IX.4 - Transforming urban elements by pimping them out: "Plug a Seat, 2017" (Source: ©Teratoma Productions)

the advantage to avoid the need of a specific knowledge of expertise, therefore making possible to directly consider citizens able to realize by themselves different furniture, without the need of any specific figure. Within the frame of the low-skilled solutions, it is possible to fit four different incremental strategies for making use of waste products: (i) the pimping out; (ii) the upcycling; (iii) the recovery and (iv) the creative re-use. The strategy of the *pimping* out aims at looking differently at existing elements, exploiting them in a multi-functional perspective by the addition of simple or



FIGURE IX.5 - Upcycling of daily-life elements into furniture: "tire urban garden" (Source: ©Relab74015)

⁴ <https://basurama.org>

daily-life components, consequently giving a new function and a new appearance to unused spaces. [Fig. 3, 4]. Similarly to the pimping out, the upcycling strategy aims at reusing discarded objects in an implemented way in order to create a product of higher quality or value than the original: a large use of this approach could be recently found for decorating both urban or rural areas in a creative way, as testified by the products realised by the Smithers of Stamford or the tire urban garden project accomplished by the creative laboratory of recycling and reuse of materials “RELAB74015”. [Fig. 5]

The recovery instead makes use of existing elements without working on it, but simply employing them in a different context and by taking advantage of a creative displacement of them in order to reproduce daily-life urban elements: the project of Basurama⁴ “Autoparque de diversiones público” realized in Lima in 2010 works as a perfect example of how to re-generate an urban space with few resources [Fig. 6, 7].



FIGURE IX.6 - Basurama,
Autoparque de diversiones
pública, RUS Lima, 2010
(Source: ©Basurama.org
[CCBY-NC-SA 4.0](https://basurama.org))



FIGURE IX.7 - Basurama, Autoparque de diversiones público, RUS Lima, 2010 (Source: ©Basurama.org [CCBY-NC-SA 4.0](https://creativecommons.org/licenses/by-nc-sa/4.0/))



FIGURE IX.8 - Basurama, Tsunami de basura, RUS Santo Domingo, 2009 (Source: ©Basurama.org [CCBY-NC-SA 4.0](https://creativecommons.org/licenses/by-nc-sa/4.0/))

Lastly, the creative re-use strategy represents the more complex one as it requires a proper design for the reuse of waste products by their employment in such a way that daily-life objects can be transformed into construction elements for realizing temporary pavilions (Chart Art Fair, 2017) or art installations as a way to reflect about the topic of the excessive production of waste and their effective end of life. [Fig. 8 – 14]



FIGURE XI.9 - CUAC Arquitectura, Tetrabricks pavilion, Granada – Spain, 2010 (Credits: ©J. Callejas)



FIGURE XI.10 - Elise Morin and Clémence Eliard, Wastelandscapes #1, Paris, 2011 (Credits: ©Y. Fradin)



FIGURE XI.11 - Factor Eficiencia & 5468796 Architecture, One bucket at a time, Winnipeg, 2017 (Credits: ©J. Florio)



FIGURE IX.12 - Tomè Capa,
Mahjong, Braga – Portugal, 2016
(Credits: ©T. Capa)



FIGURE IX.13 -
Mia Frykholm and Astrid
Gabrielsson, Sunday Temple
(Credits: ©D. Hugo Cabo)

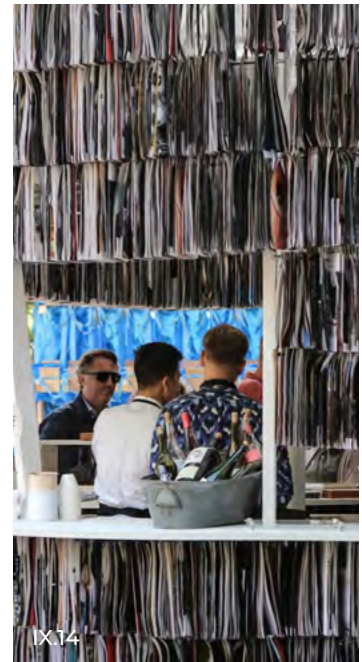


FIGURE IX.14 - Kazumasa
Takada, Yuriko Yagi and Yohei
Tomioka/
Paper Pavillon
(Credits: ©D. Hugo Cabo)

IX.4.2 High-skilled solutions and the application of technical textiles

With the definition of longer urban transformations, it comes along the need to design more durable and resistant solutions, able to comply with increased needs and requirements. Planning an urban intervention in a context such as the one under the Overpass, implies the necessity for example to provide acoustic barriers in order to be able to let different activities run there and to avoid being disturbed by external noise as well as, on the contrary, to cause disturbance from the site towards the surrounding. In order to do so, more structured solutions need to be designed in accordance with the advantages and demands of each specific site. Accordingly, the intervention of specific expert figures needs to be considered when designing and planning more specific and high-quality interventions.

Technical textiles, thanks to their intrinsic characteristic such as lightness and flexibility and the easiness and speed of installation and maintenance, perfectly fit in a scenario of high-skilled solutions, whose integrations could be specifically designed for the site and temporarily applied, with the idea to be mantled and dismantled very quickly.

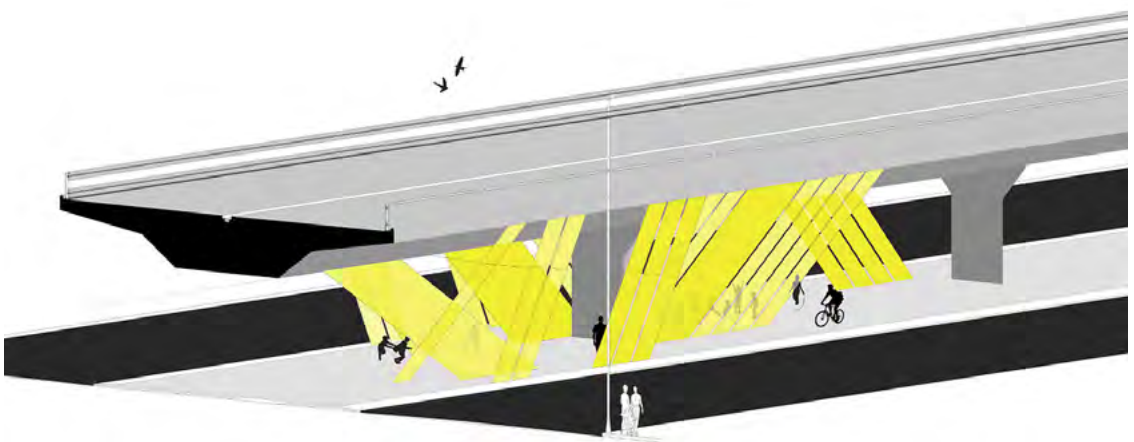
Therefore, a lightweight textile solution has been appropriately designed for the area under the Serra - Monte Ceneri Overpass with the aim to provide citizens with a solution that could be applied for transforming and organizing the space according to the necessities, but also for contributing in the improvement of the noise-quality of the area. Additionally, through the employment of long vertical pieces of textiles, the idea is to attract visitors by marking the site with an iconic intervention.

IX.4.3 A 'high-skilled' temporary solution: the project of a lightweight partition in the urban area of the Overpass

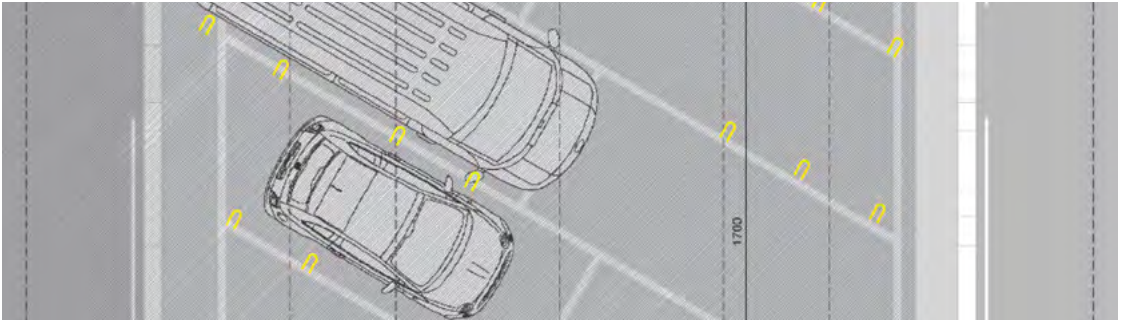
The use of ultra-lightweight materials in a context such as the one under the Serra - Monte Ceneri Overpass comes from the idea to develop an easy-to-apply and easy-to-transform solution, while at the same time marking the space with a dynamic image that could be easily changed according to its use. Working on an area covered by the infrastructure itself, the aim of the project was to create a movable skin, able to adapt its form over time according to the different activities, and that would work both as a visual and an acoustic barrier.

Therefore, the project focused on the definition of textile elements with different sizes, shapes and even transparencies in order to define the space in varied ways by simply playing with the positioning of the elements. The inclination and the different angles of the individual elements represent the answer to the need for a dynamic, flexible and above all reversible space, able to preserve its original function: by adapting the inclination of the elements according

*FIGURE IX.15 - UNPark
– The different inclination of the elements contributes to creating a dynamic space (Credits: © J. Otxoantezana Fernández, I. del Pino, G. Fernandez Lombrana)*



IX.15



IX.16



IX.17

FIGURE IX.16 - UNPark
– Different positioning
of the hooks (Credits:
© J. Otxoantezana
Fernández, I. del Pino, G.
Fernandez Lombraña)

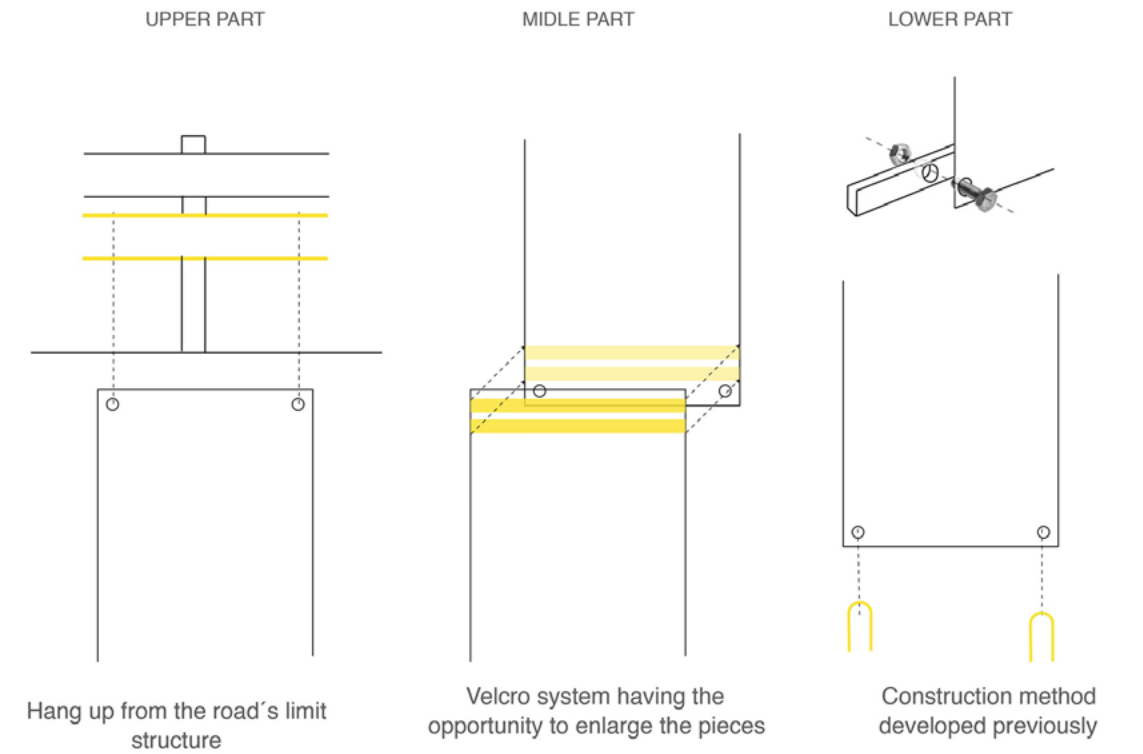
FIGURE IX.17 - UNPark
– Double curvature
system (Credits: ©
J. Otxoantezana
Fernández, I. del Pino, G.
Fernandez Lombraña)

to the direction of the car parks and playing with different angles through the positioning of the hooks, it is possible to generate a rotation of the single textile elements, determining a double curvature system that allows the passage of both air and pedestrians at street level [Fig. 15 – 17].

Starting from the constraints of the site and from the need to develop a temporary solution, the project focuses on the development of a reversible solution, limiting the damages to the existing in order to gua-

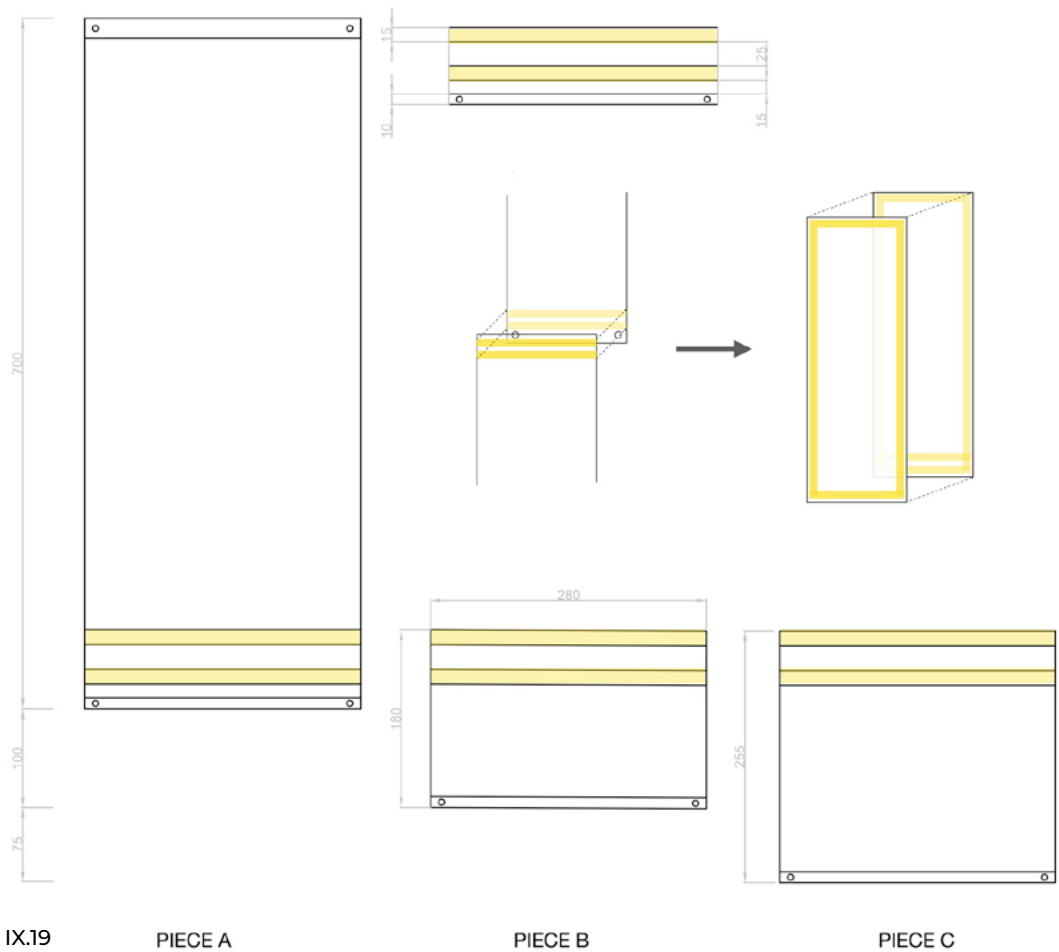
rantee a complete reversibility of the site to its original configuration. For this reason, all the connecting elements have been minimized and the anchoring points have been placed along the existing parking stripes. For the setting up of the project, an efficient method has been developed using simple elements and making use of the possibilities offered by the location of the project: the arrangement of the barrier or visual boundary have been studied in order to follow the directions of the railway track and the lower parking track. The oblique position of one with respect to the other is understood as an opportunity to offer an interesting visual effect while providing the necessary strength and stability to the enclosure. The installation process has been organized by starting

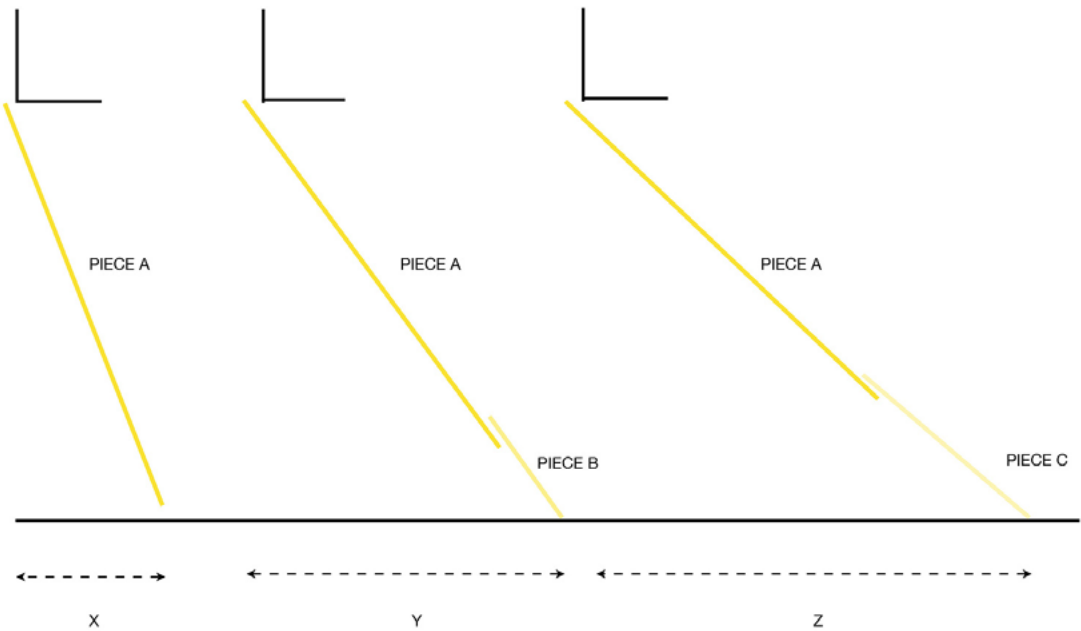
FIGURE IX.18 - UNPark – Installation process (Credits: © J. Otxoantezana Fernández, I. del Pino, G. Fernandez Lombraña)



from anchoring the upper support to the guardrail system of the elevated track, taking advantage of the lightness of the material used in order to achieve a non-invasive supporting system. Consequently, the bottom hooks are arranged to the floor and later connected to the textile fabric through metal rings placed in the corner of each polyester [Fig. 18]. The variable arrangement of these elements at street level allows for versatility in the layout of the textile factory. This placement as “gills” allows passers-by and air to pass through at the street level, while of-

FIGURE IX.19 - UNPark
– Extension and
standardization of the
system (Credits: © J.
Otxoantezana Fernández,
I. del Pino, G. Fernandez
Lombráña)





IX.20

fering the sensation of a capsule, creating a relevant space under the pre-existing road. In terms of textile element and its choice, PVC coated polyester has been selected due to its low cost and the opportunities offered by its ease of installation in relation to its maintenance. It is also worth highlighting its capacity as a sound barrier and insulator, which the project would greatly benefit from, taking into account its location in between of two high-speed roads. Its thermal capacity of the material takes second place due to the way in which it is arranged, emphasizing at the same time the presence of the wind.

The oblique position of the PVC film and its variable perspective varies its length. Because of this, it is necessary to place an extension of the material. These elements are glued to the original piece using a Velcro system that allows for extension and standardization in manufacturing [Fig. 19]. This sum of material is represented as PART B and PART C [Fig. 20].

FIGURE IX.20 - UNPark – Schematic representation of the different positions and extensions of the textile elements (Credits: © J. Otxoantezana Fernández, I. del Pino, G. Fernández Lombrana)



FIGURE IX.21 - UNPark –
Project image (Credits:
© J. Otxoantezana
Fernández, I. del Pino,
G. Fernandez
Lombráña)

Taking advantage of the Velcro-system, it is possible to foresee an implementation of the acoustic performances of the textile by coupling it with additional insulation layers.

Additionally, an extra opportunity offered by the implementation of Velcro is the possibility of adding another layer of textile material on top to provide other advantages such as air filtering through last generation polymers. It can also be used as way of advertising adding a printed layer or some art exhibition. Instilling the perception of a dynamic barrier, the delimited area below the Overpass takes on a whole new spatial quality. In this way, pursuing the final goal of bringing together the inhabitants of the neighborhood in a neglected but with a great latent potential area, the design system is declined as a structure with multiple functions that allows to temporarily redevelop the urban space, guaranteeing at the same time both the reversibility and the implementation of the system itself.

IX. CONCLUSIONS

The chapter aimed at presenting different incremental scenarios of intervention, specifically designed for the case-study of the area under the Serra - Monte Ceneri Overpass in Milan, but applicable with the required modifications to similar cases. Intervening in an abandoned and neglected area, where the presence of the infrastructure represents at the same time both a fundamental urban element and a physical and visual barrier, it follows the necessity to take gradual action in the area without radically and extremely rapidly working on it. Consequently, the involvement of the local population has the aim to convey to citizens a different way of looking at urban areas, such as this one, from a more human-centered perspective, valuing them as areas with a high hidden potential of transformation.

The *Time-Based Design* approach presented in this chapter (based on the incremental occupation of the space and the intensified typology of intervention over time) intend to propose a procedure of intervention that aspires to gradually achieve the intended goals by the involvement of the citizens and the incremental increase of the time and volume of the intervention. In parallel, the *Themed-Design Responses* have been studied appropriately for the area under the Serra - Monte Ceneri Overpass, taking advantage of the existing constraints and trying to look at them as opportunities. Despite the scenarios of project implementation for a “sustainable future” have been specifically studied for the area under the Serra - Monte Ceneri Overpass, they have been presented with the main goal to propose design solutions able to be applied on different but similar contexts for solving common urban problems. In-

deed, the main goal of the research aspired to look for repeatable and adaptable solutions, suitable for answering to common urban problems given that similar types of urban elements and abandoned areas can be found worldwide.

ACKNOWLEDGEMENTS

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X. UNPark: a trans-disciplinary, multi-dimensional and multi-actor project

Davide Crippa, Barbara Di Prete and Luigi De Nardo

In this chapter, we take up some of the themes that emerged in the UNPark project, depicting a critical perspective of the overall process. In particular, an attempt will be made to highlight the transdisciplinary character of the project, which brought into play multiple competencies, its action on a variety of scales and project dimensions, and the synergistic collaboration between academic, commercial and civil society actors, allowed to obtain results were only desirable at the beginning of the research. Finally, we would like to focus on two specific experiences that UNPark has

incubated and promoted: the prototyping of MUE:-SLI, realised thanks to the European call for proposals FURNISH, and the experimentation conducted with ESO, both developed by exploring the technological and aesthetic potential of digital fabrication.

X.1 INTRODUCTION

From what has emerged in the previous chapters, the hybridisation and the convergence of a multiplicity of themes that found in the *UNPark* pilot project an initial experimentation - or at least the seed of future changes - represent its main distinctive feature. This hybridisation is to be understood, on the one hand, as a contamination between different disciplinary areas, well exemplified by the multiplicity of Departments of Politecnico di Milano involved (DASStU, Design, ABC, DCMIC, DEIB) and, on the other hand, as an opening of research towards a very heterogeneous system of external actors. In fact, the project was able to “speak different languages”, each time finding in the interdisciplinary collaborations specific opportunities for confrontation and research advancement: in this context, the university assumed the role of promoter - but at the same time also of collector - of knowledge, interests and sometimes imaginative visions coming from a plurality of external actors (companies, makers, ordinary citizens, cultural associations, cooperatives and schools, protagonists in various ways in the various phases of the process of co-designing, co-realisation and co-management). Collaborations with the “outside world” have therefore taken on different faces: companies involved as technical sponsors, volunteers active in the bottom-up construction of a more liveable and inclusive city, third-sector actors capable of animating the space by sharing their social, cultural or sporting contributions outside the “known walls”, schools that have acted as mediators to bring a project of the future closer to the younger generations that will live that future. The two cases which, however, are most representative of these collaborations that the *UNPark* project was able to initiate with the outside world, and which in some ways constitute a further specific inheritance

from it, concern two thematic areas which are similar in scale: that of the interior design object and the urban equipment, both punctual devices confronting the market. Although analogue, they assumed two very different roles in the general process: the modular street furniture system developed for the European call for proposals *FURNISH* (which fully responds to those needs of the post-pandemic city that were enumerated in Chapter III) represented a sort of “pilot project of the pilot project”, while the final meta-project concerning the circular economy (developed in collaboration with ESO at the end of the field experimentation) identified a sort of spin-off of *UNPark*. In fact, it laid the theoretical and empirical foundations for a fundable line of research that is open to future implementations, not only in the purely urban sphere. In both cases mentioned, the partnerships set up (the various fablabs of the European network, a Milanese fablab that has become an operational partner of the project, citizen-makers, profit-making companies, a research foundation, the political apparatus) demonstrate *UNPark*’s ability to “speak” to different audiences, with different languages, at different scales of intervention and with different aims. This is another starting point for identifying future synergies and other opportunities for experimentation.

*See III by Carli and
Rebaglio*

X.2 THE PROJECT AS AN ACT OF MEDIATION BETWEEN DISCIPLINES, ACTORS, LANGUAGES AND TOOLS

Mediation between disciplines

One of the difficulties the designers encountered during the *UNPark* experience, but at the same time also one of the most satisfying results achieved, concerns the multiplicity of languages, themes and actors invol-

ved in the process. It was, in fact, a multi-disciplinary project not only because of the heterogeneity of the Departments of the Politecnico di Milano that promoted the research, but precisely because of the repercussions on the field and the project scales that were addressed. On the one hand, *UNPark* consisted of a spatial design of an unresolved urban fragment and, as such, brought into play competences first and foremost of architects and designers, but the peculiarity of the location - at the centre of a high traffic artery such as Viale Renato Serra - also required, at least in the initial meta-project phase, the consultation of engineers for potential mobility variation scenarios. The design sphere itself was articulated in different areas, ranging from urban design themes to those of environmental graphics, from the co-design component for the management of participatory processes to the more technical component aimed at improving the acoustic and micro-climatic conditions of such a challenging context, both in terms of noise and air pollution. As already mentioned in the previous chapters, in fact, this attention to environmental sustainability has declined in the project in the use of textile structures with performance oriented to minimise acoustic impact, but also in the constant monitoring of fine particles through electronic control units. Further, *UNPark* also explored the scale of the furnishing object, in particular the theme of urban supply; it did so - with that spirit of research and innovation that should guide every academic project - by turning to the world-makers and the principles of digital fabrication, thus not to the already codified industrial serial production, but by experimenting on the furniture itself with new forms, new gestures, new technologies and new aesthetics. Finally, *UNPark* also provided the opportunity to bring together communication aspects and social sensitivities in the project, which allowed for the involvement

*See IX by Procaccini and
Monticelli, and VII by
Clementi and Bruschi*

in the initiative of a multiplicity of citizens, local third-sector associations and stakeholders. In this sense, two significant actions are worth mentioning: both the City walk conducted on 25 April 2021 for exploratory and cognitive purposes, a sort of urban drift with a situationist flavour (Careri, 2006), and the schedule of events and activities (games, workshops, exhibitions) that animated the underpass during the days of installation of the pilot project, had the fundamental role of launching a path of social innovation whose effects will be assessed over time. These are the disciplinary areas, whether priority or tangential, that have contributed to the realisation of *UNPark*; as mentioned, these have often been internal competences of the Politecnico di Milano's multi-departmental working group, but there has been no lack of trespassing and involvement of other actors. In particular, anthropology - perhaps due to the very nature of the project, which already in its initial intentions intended to activate a network of environmentally and socially aware citizens - took on a significant role, finding an initial declination (the ethnographic reading captured from Matteo Di Giovanni's photographic point of view) and a final relapse (participation in *World Anthropology Day 2021*, where the processes of engagement and placemaking adopted in the area were recounted). This disciplinary interference between design, architecture and anthropology should not be surprising, because "design and anthropology represent two tangential disciplines, which historically have found profitable opportunities for comparison and elements of contact; [...] today more than ever these two disciplines are called to question themselves again, with a critical look and turned to the future, to renew their fields of investigation" (Di Prete et al., 2021, p. 28). For this convergence of thematic areas and contributions from heterogeneous subjects, the case of *UNPark* can therefore fully testify, if ever it were nee-

ded, to the role and value of design as an act of mediation: “the meaning of the term design [...] is obviously very broad, but there is a specific discipline - design - that codifies and defines it as a field of action between art, science and technology (Findeli, 2001) capable of combining transversal knowledge through, above all, the application of skills that pertain to the “knowing how to be” of the designer” (Rebaglio et al, 2016, p. 919).

Mediation between actors

The system of interactions and collaborations set up can be described as a constellation of variable relationships composing a multifaceted whole with blurred boundaries, because it has always acted in inclusive and collaborative terms, facilitating the inclusion of new contributions right up to the end of the project.

With the aim of structuring a fruitful synergy and optimisation of individual efforts, the map of involved actors can be summarised as follows:

- individual volunteer citizens interested in the “bottom-up construction” of a more liveable and inclusive city, especially in its most problematic areas.
- local third-sector associations who shared their expertise and contributed to animating the space of the underpass by organising a calendar of actions (mainly socio-recreational, cultural and sporting) outside their premises, often adjacent to the project area.
- the political and institutional apparatus, i.e. Municipality 8 and the Municipality of Milan, which supported the initiative by framing it within the *Open Squares* programme, but above all the local primary and secondary schools (Rinnovata Pizzigoni, Dante Alighieri, Puecher), which ‘questioned’ the youngest children to propose

*FIGURE X.1 - The exhibition with the design visions of local school children set up under the flyover on the occasion of the UNPark pilot project, Milan, 2021
(Source: UNPark)*



¹ www.eso.it

² www.eiturbanmobility.eu/furnish-the-project-that-is-reconfiguring-public-spaces-across-europe/

scenarios, dreams and design visions for the underpass of the future to the community.

- companies, involved as technical sponsors or as project partners, sensitive to the themes of sustainable urban regeneration and social reactivation: some for a previous interest in developing research on the recycling of urban objects and materials (e.g. ESO¹, whose experience will be discussed later in this chapter); some for a position particularly close to the project area and therefore more involved in the area's regeneration dynamics (e.g. Decathlon, the local branch, which acted as technical sponsor by providing prepaid cards for the purchase of sports equipment); and some, finally, for their affinity with the target users and the reflections stimulated by the project. The local branch of Decathlon, which acted as a technical sponsor by providing prepaid cards for the purchase of sports equipment); and finally, those who are particularly close to the target audience and to the reflections stimulated by the research (e.g. Koh-i-Noor Italia, which offered drawing items to support the creativity of children, or Volverup, which provided designer bags made from old truck tarpaulins to stimulate reflection on the potential of second life of materials).
- the fablab system of the European network, and in particular the Milan Ideas fablab, which became an operational partner of the project; specifically, the fablab was involved in the numerical control production of the furniture, installed on site with a prototype and demonstration value, thanks to funding from the *FURNISH*² call.

The coexistence in the same project of this multiplicity of actors - obviously bearers of different sensitivities and interests - certainly represented a challenge

and a difficulty for *UNPark*, which finally succeeded in ‘speaking’ to different audiences and at different scales of intervention, making this success one of the greatest values of the initiative.

The role of the University

As previously described, *“neighbourhoods today can be seen as incubators for the design of spaces and services thanks to the proactivity of many civic realities that act at the centre of the design of those common goods (public spaces, streets, squares, pavements, parks, etc.) that do not have a voice but with which they interact, which they share and which they design their daily lives”* (Fassi, 2020, p. 77). Within this territorial dimension, which appears to be the foundation of a new, ever closer living (Manzini, 2021) (Tajani, 2021) - close to the citizens and capable of meeting their physical and relational needs, both in terms of services offered and in terms of liveability and spatial quality - the university also plays a central role. This is an internationally studied dynamic, to which a monographic volume published by Springer (2020) was recently dedicated: *“specifically, the publication posits and analyses the fundamental role that universities can play in guiding, fostering and testing scientific research in the context within which they operate. Indeed, there are already several examples of virtuous relationships between the spaces and skills that are present on university campuses and the local (physical and social) context in which they are situated”* (Fassi et al., 2020, p. V). As early as 2011, the European Commission had already focused on the importance of recognising universities as *“activators [and] actors with a significant role in urban and social issues”* (Jiusto et al., 2013) (Mitrasi-novic, 2015), but since then *“the influence of university campuses in the surrounding social context”*³, as *advocates and disseminators of sustainable practices*⁴

³ European Commission (2011) *Connecting universities to regional growth. A practical guide*. European Commission, Brussels. https://ec.europa.eu/regional_policy/sources/docgener/presenta/universities2011/universities2011_en.pdf

⁴ See ISCN, <https://www.international-sustainable-campus-network.org/>

(Rebaglio, 2022, p. 94), has progressively increased. This is a significant paradigm shift, which still sees resistance, fortunately residual: “some nations and cities have long histories of functional separation between government, the private sector and academia. [...] It is rare for a municipality or a regional council to turn to an academic institution for an experts’ opinion because of an existing prejudice that the academic approach is too theoretical. However, certain co-creation projects at the city level - in Lyon, for example - show that this silo mentality may be changing” (Agusti et al., 2014, p. 2). This reading also finds full correspondence in the *UNPark* experience; the Politecnico di Milano, in fact, for some years now has been taking on the role of promoter of social innovation and urban regeneration, acting as a collector of knowledge, interests, visions and different skills, but also as the first trigger of change in the territory close to it. In particular, it is since the launch of the *Polisocial* initiative, the *@Politecnico di Milano Social Commitment and Social Responsibility Programme*, that this focus has been enhanced: there are numerous projects, already financed and accounted for, that have opened up Campus spaces to third parties, exported academic practices to an external productive context, used culture as a lever for territorial innovation or become collectors of interests of an extended community, always embracing the challenge of new social responsibilities.

FIGURE X.2 - The MUE:SLI device made for FURNISH and set up for the first time under the flyover as a preview of UNPark, Milan, 2020
(Source: UNPark)

FIGURE X.3 - The MUE:SLI device made for FURNISH and set up for the first time under the flyover as a preview of UNPark, Milan, 2020
(Source: UNPark)

X.3 PROJECTS WITHIN A PROJECT: THE CASE OF FURNISH AND ESO

Of all the collaborations undertaken, there are two that - due to the recognisability of the results achieved - are almost configured as “projects within a project”, with their own research autonomy: *UNPark*, the an-

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⁵ *FURNISH* is a project financed by the European Institute of Innovation & Technology (an agency of the European Union) with its EIT Urban mobility section, managed by a consortium led by CARNET (Future Mobility Research Hub), together with UPC-Barcelonatech (Technical University of Catalonia), Elisava (Barcelona School of design and engineering), IAAC (Institute for advanced architecture of Catalonia), the Municipality of Milan and AMAT (Milan Agency for Mobility and Environment).

icipation: as illustrated in Chapter VI by Agnese Reabaglio, *UNPark* has in some ways incubated a demonstration urban furniture project; the partnership with Ideas and the participation in *FURNISH* 2020⁵, a European call for proposals to redesign the city's public spaces, have in fact enabled the realisation of *MUE:SLI* (*Mobile Urban Element: Sport, Leisure and Inclusion*). The call specifically called for thinking about urban devices capable of meeting the challenge of social distancing in times of pandemic; the answers provided by the seven selected groups took the form of virtual workshops and innovative prototypes in *digital fabrication* to be temporarily installed in the project areas. Proposals from the network of European fablabs and universities were manifold: some groups reasoned mainly on the size of the event and on elements for its "amplification"; others transformed a courtyard into an urban interior in the centre of Budapest thanks to sets of furniture and graphics

that could be replicated and implemented from below; still others preferred to explore the object scale, envisaging multi-purpose stations with integrated audio, or the architectural scale, imagining an itinerant device that would allow continuous experimentation of informal appropriation of urban space. Still others - including VORA, proposed by ELISAVA, *Open Terrace*, developed by IAAC, and *MUE:SLI* itself - have instead preferred to adopt modular and adaptable systems of urban elements that can be quickly relocated in space for the recovery of vehicular areas for pedestrian use. The project developed by the Milanese team, which was actually installed in December 2020 in the underpass, consisted of a seating system that could be implemented, if necessary, by punctual plug-ins dedicated to play, sociability, food consumption and communication (tops at different heights, board games, vases, graphic panels). These *plug-ins* were prototyped in a limited number, but the project envisaged a much broader abacus of functional possibilities that could have enriched the base-module potentially ad infinitum. At the construction level, *MUE:SLI* was realised exclusively with a CNC milling machine and laser cutter, exploiting a technique - the so-called *sectioning*⁶ (literally "slicing"), a typical expression of digital production - with which one is able to interpret any shape, even a complex one, and generate two-dimensional interlocking geometries to reconstruct it with flat machining. The solution thus exploited both an open system logic with constant implementation and the technologies inherent in the digital fabrication paradigm. All the projects were eventually published on the *Open Innovation Platform* and made freely available for use anywhere in the world, trying to give substance to the open-source philosophy that was described in the previous chapters. *UNPark*, the "spin-off": a second significant collaboration is the

FIGURE X.4 -
The *MUE:SLI* device made for *FURNISH* and set up for the second time under the flyover during the *UNPark* pilot project, Milan, 2021
(Source: *UNPark*)

⁶ Sectioning: "slicing a form into layers, fabricated from planar materials, well-suited to laser-cutting and/or CNC machining. These layers are often then assembled by stacking or intersecting, exploring also manipulation of non-planar components" (https://www.sporteimpianti.it/wp-content/uploads/2020/09/FURNISH_BriefSDA_Booklet.pdf)

See VI by Rebaglio, and VII by Clementi and Bruschi

one established with ESO-Società Benefit, a company active since 1999 in the sector of office waste management and environmental consulting, which today manages 11 platforms in Italy dedicated to circular economy projects aimed at “responsibility, transparency, ethics and the implementation of solidarity actions for man and the environment” (ESO, 2020, p.4). ESO, which has already established fruitful collaborations with international brands to initiate recycling processes of their production waste (including Burberry, Gucci, Louis Vuitton, Amazon, Oviess and Coin), participated in the *UNPark* kick-start by illustrating some of its latest experiments, *Il Giardino di Betty* and *La pista di PIETRO*. Both are part of the esosport run research, the first and only project to collect and recycle esasuste sports shoes in Italy and Europe. In *Il Giardino di Betty*, a children’s playground realised on several occasions, most recently also inside the Campo dei miracoli in Corviaie, and in *La pista di PIETRO*, a 60 m itinerant athletics track built as a tribute to Pietro Mennea, the company was

FIGURE X.5 - A study of surface decorations made by digital fabrication on recycled material from the soles of sports shoes. The aesthetics of the material change depending on exposure: when exposed to direct light, the workings on the material are barely perceptible, while against the light the texture becomes evident. Research commissioned by ESO, 2021
(Source: Ghigos)





FIGURE X.6 and X.7 - A study of engraved (left) and cut (right) surface patterns on recycled materials from the soles of sports shoes. At low laser power values, it is possible to engrave the material without burning it; at higher power values, the laser burns the material and the texture becomes more perceptible even in situations of direct light exposure. Research commissioned by ESO, 2021 (Source: Ghigos)



able to put the rubber soles of old, worn-out sports shoes back into play, generating a new raw material used as flooring. This was the first step in the collaboration between ESO and *UNPark*, which then continued at a distance throughout the duration of the project and finally resulted in research, commissioned by ESO, aimed at investigating the potential, also aesthetic, of recycled materials from sports shoes. We worked, again, in *digital fabrication* - exploring the technique of low-relief laser *engraving*, with

a thick engrave because it was applied to a non-homogeneous material such as rubber - thus attempting to reveal the “hidden narrative” enclosed in each specific supply lot (implicitly telling the story of the individual *trainer*, the way it was used and the sport to which it was dedicated). The result was a small prototyping, organised by decorative scenarios, of objects with sound-absorbing properties designed primarily for the domestic sector.

In conclusion, we could say that this research has been able to explicate “scenarios and back-stages”, in which decoration has become an aesthetic and narrative occasion. It is precisely in the exploration of the possibilities allowed by digital fabrication, in this case laser-cutting, in the attention to sustainability and the instances of the circular economy, and finally in the translation of sport into a project dimension, that we can identify the points of contact and recurrence between ESO's research and that of UNPark.

X.4 CONCLUSION: WHAT LEGACY

The two cases illustrated above already constitute a specific and recognisable legacy of *UNPark*; they concern two thematic areas that are similar in scale but have pursued very different intents and results. As we have tried to illustrate, the element of continuity between them is nevertheless explicit and concerns the desire to explore the potential, both technical and expressive of the new production methods promoted by Industry 4.0: “*in addition to proposing a new aesthetic, the self-producers bet on a specific business model. They work on limited series [...] with an innate vocation for excellence and tailoring*” (Micelli, 2011, p. 128); and again: “*Fab Labs, and in general*

the Maker mode, operate in a context of advanced technology finally made accessible, of collaborative and democratised design, of revolutionised and re-organised manufacturing by continuous and open research” (Menichinelli, 2016, back cover).

Both of these experiences have left two tangible, decidedly innovative legacies: a “programmed distance” urban “supply” system and a system of decors applicable to multiple product types. In particular, the metaprojectual research on the circular economy that that involved ESO at the conclusion of *UNPark* represents a long-term legacy: with it, in fact, the theoretical and empirical assumptions were identified to initiate further research that opens up to unforeseeable future spin-offs, in the urban sphere but not only. In addition to these two easily describable outcomes, there are at least two other legacies that the installation realised in the underpass gives us, perhaps less easily recognisable because intangible, but no less important for that. One thinks, first of all, of the project’s ability to act as food for the inhabitants’ imagination, a vehicle and representation of their “possible dreams” which they would often be unable to visualise without a trigger. Giving citizens the opportunity to shape a desired future, and consequently allowing them to find the motivation to ask *policy-makers* for a concrete change in the collective urban space, appears to be an important success that a prototype and demonstration project such as *UNPark* could achieve.

In the second instance, consider that the choice was sometimes made to pursue certain apparently risky solutions (above all in functional terms, because the activities installed were decidedly anomalous for the area that would host them), but this choice had precisely the objective of unhinging certain project customs, of drawing attention to the inadequacy of

certain technical-legislative constraints, and of demonstrating the potential impact on the territory of possibilities of use that were perhaps unheard of, but not utopian.

In summary, it can certainly be said that the visionary and futuristic charge of *UNPark* has in turn constituted a valuable legacy of the project, however intangible: describable in both symbolic and factual terms, this legacy probably still has to settle in order to fully enter the imagination of the inhabitants and to overcome the scepticism of politicians. The first seed, in any case, has been laid.

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