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Urbanities

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Following a consolidated tradition since the first number of the journal, the 16th of Archi-DOCT is the result of a call for contribution focused on one single word "**Urbanities**". When we were discussing the direction that we wanted to give to this issue, we concluded that we aimed to focus its critical slant - through a specific call to action to the schools of architectures and their students - towards a new interest concerning the multiple scales and resolutions of the so-called urban dimension.

During the last decades, centralized planning - as a result of the Modernist heritage - fostered the implementation of top-down hierarchic processes that despite the political and ideological background led the city to be suffering phenomena such as sprawling, undefined expansions, and the emergence of the alleged "urban voids" (that aroused a new matrix of problems and issues to be tackled.

Whether we refer to Rome, Tirana, Valencia, Athens, or any contemporary metropolis, these criticalities are far from being solved and, even less, we are close to defining a methodological approach that could suggest effective strategies to proactively remedy this condition. For this, we have been interested in collecting inputs from our authors in order to set the scene so that everyone could tell a specific story and personally question the keyword we choose.

Following a well-known narrative gimmick, we imagined this issue constructed using the formula of the "**frame story**", a literary technique that serves as a companion piece to a story within a story, to build a palimpsest where our main narrative could be used by our contributors for a more emphasized second narrative or for a set of shorter stories that could relate to the topic of "**Urbanities**".

We had two major inspirations to achieve our goal. The first one was the Decameron, one of the Italian most famous collections of novellas by the 14th-century author Giovanni Boccaccio. As in his prose, we wanted our authors to contribute to the main mosaic with tales of architectural wit, different nuances in approaching the topic, and with inspirations on how their practice and research could help to picture a less vague framework to address the topic of "Urbanities" through both a theoretical or practice-

based approach, and highlight the breadth and scope of the results their possible implementation could bring about.

The second deals with a specific dimension of the city in order to enrich the architectural practice with some hints coming from the semiotic features of urban areas. In his *L'invention du Quotidien* (1980), Michel de Certeau defined the city, due to the specific connotation of the word "urban fabric", as a proper "text", a textual entity continuously overwritten by the systems of practice and interventions that define their physical dimensions and connotations. Following the improvement of this concept by urban semiotics in the last twenty years, we claimed that the city is not simply a text but, as an always-changing living entity, it rather acts as a text (Lotman, 1998; Volli, 2008; Thibault, 2020) and, like the latter, it can be not only read but also approached, analyzed and understood.

At this point, what are these "**Urbanities**" and what is the main narrative we used to create our frame? With the term 'urbanities' we anticipate a possible constellation of projects that symbiotically operate to define the future urban environment and respond to multiple crises associated with intertwined issues such as climate change, flooding, land consumption, but also inequality, gender issues, production processes, and geopolitics. 'Urbanities' don't only convey a functional quality to the city, but they also carry within themselves a whole set of social, political, and human values. As a reflection of the IT era, they often inherit the multifunctionality at the core of the digital technologies that allow them to be open to phenomena of people's appropriation and re-semantization, which consequently lead to the rise of new aesthetics. In a city similar to a motherboard, 'urbanities' are small strings of codes that, as specific plug-ins, connect to the urban environment and become meaningful narrations that open to continuous rewritings where, as smaller texts, they are interconnected by their simultaneous presence within the city.

The 16th number of Archi-DOCT attracted five diverse pieces from doctoral students and researchers around the world, each of them with its specific narrations and intriguing approach to the issues presented in the call and with the subtle aspiration to directly illustrate their resonance within the real world.

Vertical Growing as an Opportunity for Reactivating Historical Quarters is a contribution submitted by **Maria Piqueras Blasco**, a PhD candidate at the Universitat Politècnica de València, Spain. Maria's essay aims to show how the concept of "Urbanities" could be applied, and implemented, in a specific morphological and dimensional configuration such as that of the city of Valencia. Introducing the migratory problems that afflicted the Spanish city during the 19th Century, the researcher focuses on the distortion and incoherent modifications with the original urban condition that these phenomena have caused over the last decades. Urging to propose an operative framework to cope with this crisis, the notion of "vertical growing" is proposed as a possible design solution to urban reactivation, providing regeneration of existing housing and to guarantee the sustainable construction of new ones. Such a topic is analyzed and discussed not only from an architectural point of view, but also through the investigation of the historical conditions and legal framework that characterized the previous dramatic and inefficient expansion model of the city.

Andrea Ariano, PhD Candidate at Sapienza - University of Rome, in his essay **COVID-19 as a catalyst for collaborative city-making: from emergency to praxis**, reflects on how the recent pandemic has largely affected the urban fabric and which future strategies we should foresee for more sustainable development. His work suggests that we should start looking at the city as a 'hackable system' where new processes of bottom-up city making incorporates

hacker culture and suggests a novel logic to organize urban society through social and digital media platforms. Andrea states that he established linear design methods should be replaced by flexible processes and experiential means, fostering a *what…if?* approach and test-feedback loops where the creation of spaces happens in collaboration with its users.

Flavia Magliacani, PhD candidate at Sapienza - University of Rome, approaches the topic through the juxtaposition of a further term the word 'urbanity'. In her piece, **Urban densities and diffuse urbanities, the researcher uses the concept of "density"** as the critical lens to investigate surprising diversification and heterogeneity of spatial practices that compose the actual "urban mosaics" of European cities. Inspired by Lefebvre's theoretical elaborations, the author challenges the reader on the idea of the urban dimension as a closed socio-spatial condition and, indeed, on the necessity of redefining the real urbanity concept through a proper and updated system of tools and practices. The paper pictures an intriguing complex system of different urbanities, each one with its nature and peculiarities, explaining that only through the capacity to manage this complexity we could be able to foster alternative dynamics for urban regeneration.

Recovered materials for participatory urban design processes: The case of Struga City, is the third paper and the fruit of the collaboration between **Gerdi Papa** and **Emel Petërçi**, respectively Doctor of Philosophy and PhD candidate at POLIS University, Tirana. The objective of their research is two-folded: on the one hand, they want to demonstrate how the methods of urban design can benefit from a more sustainable approach based on recovered materials as transformative resources for design practices and how the latter could impact specific problematic urban scenarios; on the other hand, the paper presents the results of a community-based workshop in Struga, Northern Macedonia, where through dynamics of civic engagement and empowerment, recovered materials can be a meaningful agent to ignite urban transformations and improve the conditions of the built environment.

Roman Diaforentities. Interdisciplinary insights for urban regeneration in Rome, authored by **Anna Riciputo**, PhD from Sapienza - University of Rome, attempts to propose an operative methodology that frames the concept of "Urbanities" within the anthropological meaning of the notion of the border. Through the term Diaforentity, borrowed from anthropologist Pietro Vereni, the author aims to address the real meaning of non-place and junk space and offer new perspectives that could allow us to intervene and to prepare a new dialectical strategy between old and new, between the historical traces and the need to introduce the screech of contemporaneity into the palimpsest of the consolidated city. As the object of her investigation, the author focuses on a specific neighborhood of the city of Rome, the Mandrione area, whose existential condition is by now trapped between a glorious ancient past and a recent past of misery and rubble. Architecture's role is twofold: to recompose this fracture: firstly, it serves as a tool to understand the ontological conditions of the urban environment and, secondly, through gained knowledge discloses how urban regenerations is a matter of tangible and intangible injections within the flow of time.

The last paper **Architecture within infrastructure: habitable bridges** as a vector for social urban regeneration, is delivered by **Bianca Andaloro**, PhD candidate at the University of Palermo. Bianca's essay is articulated around the concept of the bridge not just as an architectural and engineering typology, but as a concrete possibility to regenerate and reactivate the urban environment of our metropoles. Specifically, the entity of the inhabited bridge is a valid approach to confront the needs of the city and its inhabitants and to offer them new types of public and flexible spaces. The typology of infrastructures is analyzed from a historical and functional perspective,

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demonstrating how enzymes of multi-scalarity, multi-temporality, and multi-functionality can be used as a proper design material to define new "urbanities" that can address the complexity of the urban tissue.

These are the six contributions that have been selected to compose the "frame story" we imagined for this new issue of Archi-DOCT. At the beginning of this journey, our intent was not so much to propose another new agenda - we already have plenty of those - but rather to juxtapose these practices - independently from the scale of the 'urbanities' proposed by the authors - with what is already happening 'out there', how this speculation regarding the urban could potentially inflect, positively or negatively the recomposition of the fracture within theory and praxis in the realm of architecture.

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Abstract

This paper offers a semiotic perspective of the city as an enunciation of different signs in which contemporary projects (the alleged urbanities) play a fundamental role in resemantizing the urban environment. Such design outcomes allow us to understand the city as a hypotactic complex system, not created then only by the simple juxtaposition of elements, but intended as the results of multiple primary and secondary intertwined narrations. The work adopts a structuralist-based approach to the topic where the examples presented act on two combinatory levels: a first one, where each of them maintains its autonomy and functions as an independent predicate, and a second one where the importance relies on the structural system in a dyachronic perspective. What we argue for is the possibility for architects to promote a bottom-up incremental design strategy in the urban enviroment to trigger sustainable urban transformation processes.

Moreover, through the specific experience of the authors in the Tevere Cavo project, the papers aims to demonstrate the importance of multitasking interactive spaces and new generation infrastructures for the revitalization and re-activation of the abandoned urban spaces using the city of Rome as object of such investigation.

Keywords

Urbanities; urban semiotic; multitasking infrastructure; urban voids; bottom-up processes.

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0. Prologue

Dorotea, the city, could have been different... if only its infrastructures would have places where the linearity of the industrial world could have been transformed into a space of happiness and joy, where life could stream freely and picture new moments of interaction and exchange among its citizens and dwellers.

Dorotea, the city, could have been different... if only its urban tissue would have been a flexible organic membrane where the different zones would have been linked and divided, close and not distant if the whole entity would have been different from a tree and more similar to a network (Alexander, 1965) where all the different interconnected pieces would be considered as a synergy of heterogeneous elements all able to give sustenance to the organism.

Dorotea, the city, could have been different... if only we, the architects, would have understood that the old paradigm was anything but a result of the *zeitgeist* of different times, where previous conditions led to the necessity of a specific metaphor to cope with the challenges of a world different in time and space from ours.

Dorotea, the city… could have been…

Of course, Dorotea, the fictitious 'city of desire' does not exist. It is just a narrative artifice that we had borrowed from Italo Calvino's seminal book The Invisible Cities (1972). In this novel, the fictional character of Marco Polo inserts this city among the several representations of the city he creates to entertain Kublai Khan. It is interesting to note that through his invisible cities, Calvino deconstructs and recomposes not only the travel literature genre but also the archetypal idea of a city that is no longer intended as a static entity guided by immanent ideas, but becomes a fluid mass that can always be re-written, edited and enriched by new meaningful elements to the original plot.

The city we imagine, and that we aim to explore through our research, could be effectively one of those who could find a place in the above-mentioned book and, perhaps, could be precisely the place of 'urbanities': a complex urban system defined by multiple and variegated signs that, taking as an example the Structuralism of Ferdinand de Saussure (1916), works on two combinatory levels. A first one, where each of them maintains its autonomy, and a second one, deeper, where the importance relies on the structural system - apart from the single elements - and more on the asynchronous axis rather than the diachronic one.

In this paper, we would like to underline the importance of the city as a semiotic enunciation of different signs (or alleged urbanities) that, despite their scale or physical dimension, can help us be the agent of change in contemporary urban conditions. At a smaller scale, urbanities own their specific boundaries and peculiarities while, through a progressive blurring of lines of demarcation, at a bigger scale they act as a network of meaningful fragments that creeps into the city and composes infrastructural webs to reactivate our urban fabric. These projects, or constellation of projects, help us to resemantize the urban tissue that we inhabited and push us to understand the city as a hypotactic complex system, not created then only by the simple juxtaposition of elements, but intended as the results of multiple primary and secondary intertwined narrations. We welcome the reader to this journey and while asking for forgiveness for the necessary redundancy of the beginning, we will appreciate together the crises that grip our cities and the ways in which, through the concept

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of urbanities, new hypotheses and paths can be unveiled and, why not, undertaken. As a first step, let's define the object of our investigation: the city (as it is).

1. The city that is and The city we can read

The city that we have inherited today is a multi-layered palimpsest of a series of tangible and intangible dynamics that have been implemented at several scales (from the micro to the macro) from architects in the last decades primarily focusing on an economic production model.

Through analysing urban systems from a Marxist critical lens (Marx, 1867), we can agree upon the fact that this is a materialistic reification of the economic system of capitalism and industrialism. The phenomenon of zoning - the division of the urban environment in a series of monofunctional quarters- the progressive uncontrolled growth and sprawl, and either the fragmentation of the city in a historical core or a progressive development of the productive areas outside the latter, are just the architectural consequences on a specific economic model that had to create the fertile soil for itself to grow and thrive. To achieve this goal centralized planning was used as the primary methodology to control the city and affect its growth. Through this model, decisions are not taken independently at a local level, but holistically and centrally, where every single aspect of urban life is controlled and oriented towards a top-down approach. Moreover, the different sectors are coherently organized following the leading metaphor of the assembly line, every process in the urban areas can be synthesized as a linear system where the previous one forestalls the subsequent (Saggio, De Francesco 2018, 2019). Furthermore, these top-down approaches can be then defined as the operation of breaking down a system to gain new insights into its subsystems in a reverse engineering fashion (Bresser-Pereira et al. 1993) and have shown in the past decades lack of empathy towards people (focusing on policies rather than users). Such condition represents not only severe obstacles in a long-term planning process, especially in complex and layered situations as the European reality, but also foster dynamics such as conflictuality (Dhamo, Bregasi, Perna 2020) and the rise of the progressive abandonment and mass-migrations towards different urban areas. These reiterated phenomena have slowly led to the actual conditions of our metropoles where the appearance of the alleged "urban voids" (Moccia, Ballini, 2010) aroused a new matrix of problems and issues to be addressed and tackled.

But what is the "new" dimension of cities that we want to confront and how can this new dimension be an agent of change? Wherever we try to grasp the crises and complexities of our urban environments, what we realize in the end is that, first of all, we need to declare what the object of our investigation is and, only then, appreciate which kind of understanding we have to project on it. Of course, the matter in question could be debated exquisitely and based on personal solutionist approaches. As far as we are concerned, we are not interested in proposing any new agenda but rather to stimulate a debate regarding the object of our investigation - the city - and offer some new insights into how the figure of "urbanities" can be used to give rise to a revised sense of citizenship and, indeed, bottom-up incremental urbanity.

To do so, and to introduce our personal experience within the topic, we would like to refer to the semiotic conception (Volli 2005, 2008) that suggests that the city has a textual dimension and even though it is not a proper text, it properly acts as one. Hence, if the urban condition can be read it can also be physically altered, and the operation of "writing the city" (Thibault 2020), whether we build, insert, demolish, resemantize something new or existing - unveils the possibility to superim-

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pose something to reality and rectify the existing condition in something that already is in front of our eyes. With these premises, in a city similar to a motherboard, 'urbanities' are small strings of codes that, as specific plug-ins, connect to the urban environment and become meaningful textual/architectural narrations. There are two possible directions for the operation of urban writing: the first one refers to the image of the palimpsest and involves the removal of one of the different layers of material to build something new that roots in the pre-existing condition. It is similar to the work of the Italian Nouveau Réalisme artist Mimmo Rotella. His *décollage* is departs from the idea that a new artistic object can be made by the juxtaposition of existing ones, where the parts are detached and torn and where the new one not only carries some of the features of the older, but also injects new enzymes on the overall composition. The other technique is the *maquillage*, which is more based on the concept of recuperating and recovering, and acts through the resamantization of existing environments through new writings, whether they are strategic or simply the traces of human activity that takes place in urban space.

The paper illustrates these two directions of urbanities through concrete examples of our approach to reactivating and resemantizing the city.

2. Towards new urbanitities. From top-down to bottom-up

Following the shift from the industrial society to the Information Technology one, and the change in the main value of our times from the industrial production to information (Toffler, 1980), in the last decades, we have seen the rise of a new awareness regarding the issues of our urban settlement and the flourishing of several pieces of architecture that insinuate the meshes of the existing city to re-activate it. These micro/macro interventions are real catalysts of urban change, configured as networks with diffused morphologies, sometimes linear and tentacular that innervate the space in multi-layered ways. Multiple coexisting scales, unexpected geometries, and multifunctionality mark these architectures, whose definition is polysemic for their capacity to produce several meanings and, at the same time, as non-alphabetic writings, to be read in various manners. These, which we call Urbanities, promote a new methodology to define the future of urban environments and to respond to multiple crises associated with intertwined issues. Acting in the underused and abandoned urban spaces, they nurture the appearance as a network of psychogeographical fragments in the built city and shape up to have the role of activators of rewriting processes of important urban pieces. The old urban plans, large drawings based on the top-down model, based on the logic of *tabula rasa*, have proved unsustainable for communities over the years. The long time to realize the planning rendered them obsolete once completed; funds proved to be insufficient for public administrations; designs were not sensitive to the contexts. Urban voids, abandoned spaces/drosscapes (Berger, 2007) structures are the main results of those planning oeuvres. Moreover, these leftovers represent a cost from a cultural, socio-economic, and environmental point of view, configuring themselves as an unleashed vacuum energy (Wilczek, 2008) that intensifies the entropy level of the city system.

Their reuse is proving to be a valid strategy for operating in the built city, with the dual aim of redeveloping it and promoting an urban model that does not consume soil through a never-ending expansion phenomenon. Through the reuse of these spaces, it is possible to promote sustainable urban transformation processes, incremental over time, built on the succession of the construction of parts where every single one is not just a simple addition to the previous one but, as in the *décollage* of Rotella, which exchanges with it a range of signs and meanings.

In the last years, as research assistants in our former institution, we experimented with a bottom-up

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planning model, based on the notion of incremental design (Hartson, Pyla 2018) - borrowed from UX Design) that splits the problem into subsystems of smaller ones and faces and solves them one by one, according to the guidelines of master-programs that shared choices, principles, and strong-concepts (Höök, Löwgren 2012), while updating them over time to trigger further improvements.

This model promotes an idea of an open project, adaptive over time, and the rise of a new generation of infrastructures that, even though composed of minimum parts, can be read as a coherent entity and appear as lymphatic vessels that activate and inter-connect the punctual and widespread interventions in the city, that configure hybrid landscapes for the rehab of urban suburbs.

3. New figures in urban spaces

What these new urban figures have in common is innate multifunctionality. After all, they are an reification of the time in which they live. Our information technology era is marked by the simultaneity of times and events and architecture, the highest inhabited tangible expression of culture, embodies this time. This overlapping of multiple times manifests itself in public spaces, technical infrastructures, cultural equipment, playgrounds. Also as green spaces, landscaping, informative systems, all symbols of the rebirth of the contemporary urban condition. Their definition is not univocal. Besides all, today a car is not only a car, the same way a computer is not only a computer, or a telephone is not just a telephone. In order to let urbanities emerge in the physical world, we need to attribute to them a name, and the latter seems to us, the most appropriate to contain all peculiarities.
Furthermore, this multitasking condition generates experimentation of architectural forms and geometries (Spiridonidis, 2019; Spiridonidis, Voyatzaki, 2020), far from given typologies and archetypal forms. They reinterpret urban complexity by generating a series of unconventional morphologies that liberate architecture from the boundaries imposed by ultimate standardization and the principles of Modernism.

The hybridization process generates figurative alterations and demonstrates the possibility of an integrated project in which different components co-exist: durability and mutability, nature and built advanced technologies, and traditional materials. Through the layering and intertwining of curves and inclined planes, these architectures ensure the functioning of large parts of the city and generate fascinating metropolitan narrations. These architectures aim to build a new urban model: a living city, able to evolve with the nature that surrounds it, with the rapid changes of the contemporary, such as climate change, pandemics, economic crisis, able to promote systemic interactions between the components of the environment. They try to build design ecologies able to change in time.
Nonetheless, the formal richness of these forms belongs to a new phase of architecture and the city in which information technology imposes itself as a key paradigm. The dynamic interconnections that are its heart are transferred from the world of digital models to the reality of a reactive, sensitive, interactive architecture (Saggio, 2020). This paradigm promotes a practice of architectural, urban, and landscape design not as finished work-objects but as processes in continuous evolution. Richard Sennett (2006) defines it as an "open city", while the Greek mathematician Salingaros as the "resilient city" (Mehaffy, Salingaros, 2013).
The search for the Informal, which has been part of postmodern history, represents a background of this field of research. Architects in the 1990s, inspired by the philosophical theories of Derrida and Deleuze, investigated the influence of topological geometries on architecture by denouncing the infinite transformations of a malleable material (Ito, 1999). Today a new generation of architects

moves from an architecture of de-formation to another of information (Kipnis, 1993) and questions the ontological dimension of the discipline itself through new tools which are no longer tools for 'making' but, indeed, for 'thinking' (Carpo, 2017).

4. From theory to practice // 3 Design experiences

Beyond the theoretical elaborations present until now, it is important to test hypotheses and implement in order to confirm speculations. As researchers we have been directly involved in some specific projects that could best communicate the design methodologies taken as references when dealing with the topic of 'urbanities'.

Since the 2000s, as students, and later on, as PhD candidates, we have been involved as research assistants in a series of design studios[1] of the chair of Professor Antonino Saggio, at the School of Architecture of Sapienza University of Rome. Over that period, we had the opportunity to participate in three significant experiences entitled Urban Green Line™ (2010-2013), Tevere Cavo (2012-2016), and UnLost Territories (2016-2019) that were the results of a collective effort from several people involved[2].

All projects aimed to investigate the issues concerning abandoned spaces in three different sectors of the city of Rome. Those labs had been the opportunity to work and address the several crises that grip our cities and to develop new proposals and research insights for the re-activation of the 'urban voids' within the urban tissue. The design approach that mobilised these experiences completely overturned the conventional point of view of the architects, and defined a process that does not start from predetermined solutions (lead by a top-down approach) but instead proposes an incremental system activated by different architectural additions in a longer time-span.

From this perspective, the architectural project has to configure itself as a forerunner of thematic - and indeed problems - that might still not be visible, but could be a later result of the actual ongoing dynamics. The design inputs do not need only to describe then the existing situation but, on the contrary, have to contribute to adding new enzymes in the urban environment under the lens of a more sustainable future development. Each of the projects described, roots on the fundamental idea that new generation infrastructure represent the key for the revitalization and re-activation of the abandoned spaces through micro/macro interventions that part of the systems of 'urbanities'.

These infrastructures are not just the linear connections between two points (not an assembly then) but are agents of change in the city. They are intimately multitasking and able to do multiple things at the same time. They can be devices to monitor the level of pollution in the air; collectors of big data that can be used to organize and manage the city; new landscapes that can offer to citizens new leisure spaces and

1. The authors have been involved respectively in the Design Lab IV and in the IT-CAAD (Computer Supported Design in Architecture) at the 4th and 5th year of Integrated Master in Architecture and Urban Design.

2. All the work is completely published, with link to the bibliography, in the official site: www.arc1.uniroma1.it/saggio.

high-quality mobility.

Through this specific approach, the hidden objective of the work was to reinstate the polarisation between theory and practice in order to communicate to our students these concepts that we consider fundamental for the rise of a new urban dimension for our cities. All the projects presented follow a specific coherence that leads to three different multitasking infrastructures, and 'urbanities'-oriented propositions, for the city of Rome.

The UrbanGreenLine™[3] (Angelini, De Francesco, Finelli, Interdonato 2013; Saggio, 2017) is a thirteen-kilometer long ecological and infrastructural ring that aims to connect the two metropolitan scale areas of the Archaeological Park of Caffarella and the Centocelle Park in Rome. The ring is composed of 21 traits of existing roads, to which a project is assigned to enhance the local and global impact and rehabilitate a series of urban voids. The mobility through a new tram line becomes the driving force of a wide overlapping of interventions, finalities, and of a design proposal.

Tevere Cavo[4], develops a network of urban voids along the course of the Tiber, from the dam of Castel Giubileo to the door of Piazza del Popolo, enclosed by the hills Monte Mario and Monte Antenne. The project is linked, physically and methodologically, to the previous one Urban Green™. The catalytic role of the new tramline of the previous part bcomes the systemic element in this part of Rome Tiber. The Tiber in which the history of the city itself and its future flow.

After UrbanGreenLine™ and Tevere Cavo another sector of Rome, in the East periphery of Rome, along with via Prenestina is completed. Urban voids and brown areas cross a multitasking tramway line: the UnLost Line[5] (Saggio, De Francesco, 2019). It is a double infrastructure and ecological ring that links the three large urban parks: the Aniene Park, the Mistica Park, and the Centocelle Park. It also connects the suburbs close to via Tiburtina and via Casilina and the Metro lines with the urban railway FL2. Its development consists of 17 sections of roads (many of which exist) for each of which different design proposals have been developed to enhance the contexts in which they operate.

These works have involved hundreds of students, PhD candidates, collaborators and assistants, curators, and experts in the different roles of supervisors, public administrators, and politicians. They are articulated in architectural and urban designs, research projects, publications, graduation theses and PhD dissertations, conference presentations, and exhibitions which work in a coordinated system since 2007.

Finally, delving into the case Tevere Cavo, the main methodology, and operative principles, behind its formation are further elaborated upon.

3. For further info on UrbanGreenLine™: www.arc1.uniroma1.it/saggio/UGL/.

4. For further info on Tevere Cavo: www.arc1.uniroma1.it/saggio/TevereCavo/.

5. For further info on UNLost Territories: www.arc1.uniroma1.it/saggio/unlost/.

5. Tevere Cavo // An Urban Project for the City of Rome.

Figure 1

Tevere Cavo, overall perspective of the 'area flaminia', Authors: Livia Cavallo, Valerio Perna (Saggio, 2018)

Tevere Cavo is an urban project that focuses on the northeast sector of the city of Rome. In this specific case, the infrastructure used as the main 'lymphatic vessel' for urban regeneration was an already existing natural one: the river Tiber. The design proposal roots on five main points that are defined as many distinctive characteristics that the alleged multitasking infrastructures should have and are listed and summarized below:

Multitasking: it refers to the ability to conduct simultaneously multiple interrelated actions, where each of those sustains the other in a virtuous loop (De Francesco, Saggio, 2016). These features aim to inject in architecture the ubiquity of the modern production processes. Indeed, following Toffler's theorization (1980), the Third Wave has erased the logic of the assembly line and made those processes more 'computerized' and diffused. This economic shift has to be projected also in architecture and prompt us to anticipate the topic of infrastructures no longer as monotasking entities, but rather as multitasking, where the city of zoning leaves space to the one of 'anti-zoning'.

Green systems: represent the possibility of humans to deal with a renewed ecological sensibility and to reflect upon large urban green systems - or the so-called 'ecological corridors' - towards connecting, activating, and valorizing different areas at a different scale.

Slowscape: the third point is more related to the topic of mobility. Instead of taking into consideration 'speed' as the only parameter, when designing an infrastructure, the slowscape explores the possibility of a 'slower but more 'quality' movement in the city permeated by symbolic, ecological, and social values.

Information technology foam: it expresses the idea that infrastructural can collect data to be further modelled into interpretative structures to foresee massive changes within the ecological or urban conditions.

Galvanize: this last, is the less tangible of the five principles and it refers more to the need for contemporary architectural projects to raise dynamics of engagement and social awareness within the urban fabric. The idea is to generate a new sense of community at the level of the citizens; if they identify in a set of shared values, their agency in the city will also be active and inspired.

With the help of these five principles, through several sessions and understanding of the actual conditions of the riverside of the Tiber, a series of 'urban voids' were identified by the academic team. Different in regards to dimension, previous functions, or orographic conditions, these areas were collected into a digital map, created through the Google Map platform . Students were pro-actively stimulated within the design process. Conversely, to the common design studio, where the teacher demiurges gives to the class an already complied brief to be addressed at the end of the semester, every student in the class is engaged in proposing the selected areas and a specific design brief that the area can contain.

Moreover, if the areas listed by the teaching team does not satisfy the class, the teachers are completely open to listen to new areas proposed by the students that, after a specific negotiation, will be then included in the Google Maps list, where the already existing one is divided into a growing level of difficulty.
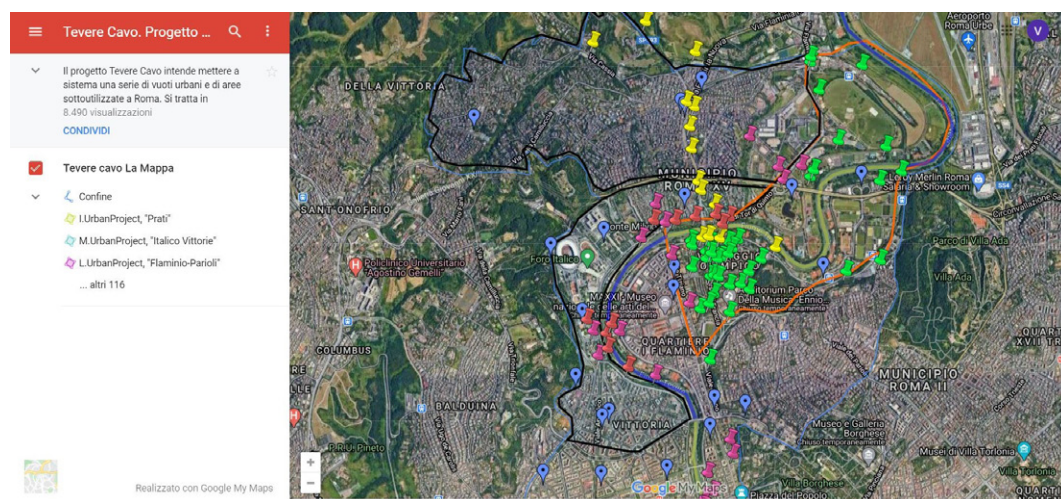

Figure 2

Tevere Cavo, interactive Google Map. The map is accessible at the following link: https://bit.ly/39yZiET

In addition to the five principles already explained, there is another set of inner characteristics that specifically lead the class environment and behavior during the semester (Baldissara, 2016; De Francesco, 2017; Perna, 2019). These are not just recommendations but a complex system of notions and concepts helpful to nurture in the students a different way to navigate within the world of architectural design, following a path that instead of operating in a top-down way, rather focus on a bottom-up horizontal approach. These points are:

Deductive what-if method: it conforms to a non-linear working modality, where every single design action and reaction is not necessarily directly linked to the previous one. The new methodological tools at the disposal of architecture, such as computational software and strategies, allow us to manage a greater amount of complexity and problems regarding the urban environment. We are no longer submerged in a fixed theoretical - and ideological - system, but rather in a deductive and dynamic one, that does not follow a rigid consequential *if…then* path, but provides *what…if* non-linear interrogations (Saggio, 2020).

Proactivity (proactive behavior): it refers to an attitude that, despite plainly respond to a current situation, provides the strength the focus on the problem with a future-oriented futuristic or forward-looking stance. The architect, and as described above the 'proactive student', make things happen and act as an agent of change ready to catalyze the hidden potentiality of the existent. The term, appeared from the first time in the 1930s, refers to the field of organizational psychology, but it is meant to describe a person that takes responsibilities for his own life, instead of searching causes and reasons outside of itself, attributed to the work of the Austrian psychologist Viktor Frankl (1946).

Incremental design: represents a series of actions at a smaller scale (the 'urbanities' scale) that, linked by a system of general principles, propagates in every corner of the built environment. In the field of urban planning, it denies the idea of a rigid prescriptive masterplan, and fosters a bottom-up approach where every single intervention enforces the energy of the surrounding ones and allows space for future implementations and changes. The general idea is to give birth to a 'system space' (Saggio, 2020), where the different components maintain a high level of independence, but are intimately interconnected within each other. The terminology comes from software engineering, used to describe a model based on the sequence of some primary points, where every single one is renegotiable and leads to lateral processes (De Bono, 1970) different from the original ones: (i) *planning*, (ii) *requirements analysis*, (iii) *design*, (iv) *implementation*, (v) *attempts,* (vi) *evaluation*.

Information technology-driven approach: it is the implementation of IT technologies - interactive and responses - that consents to change the meaning of the contemporary urban architectural interventions. Data sets and information are seen as the key to imagine a new era for the discipline and to design 'active' urbanities that could activate a series of virtuous and regenerating processes in the complexity of the existing city.

Tevere Cavo is just one of the links in a chain of continuous non-linear interventions, where, as in an incremental design process, each step forward questions and modifies the previous one. The project has involved hundreds of students, PhD candidates, collaborators and assistants, curators, and experts in the different roles of supervisors, public administrators, and politicians and has been publications, conferences, and exhibitions. More than 200 projects have been produced over four years of collective works, and every single design proposal is unique, but deeply related to the main principles and strong concepts presented.

Dorothea city can be different: urban projects in Rome based on the seminal role of infrastuctures

Gaetano De Francesco / Valerio Perna
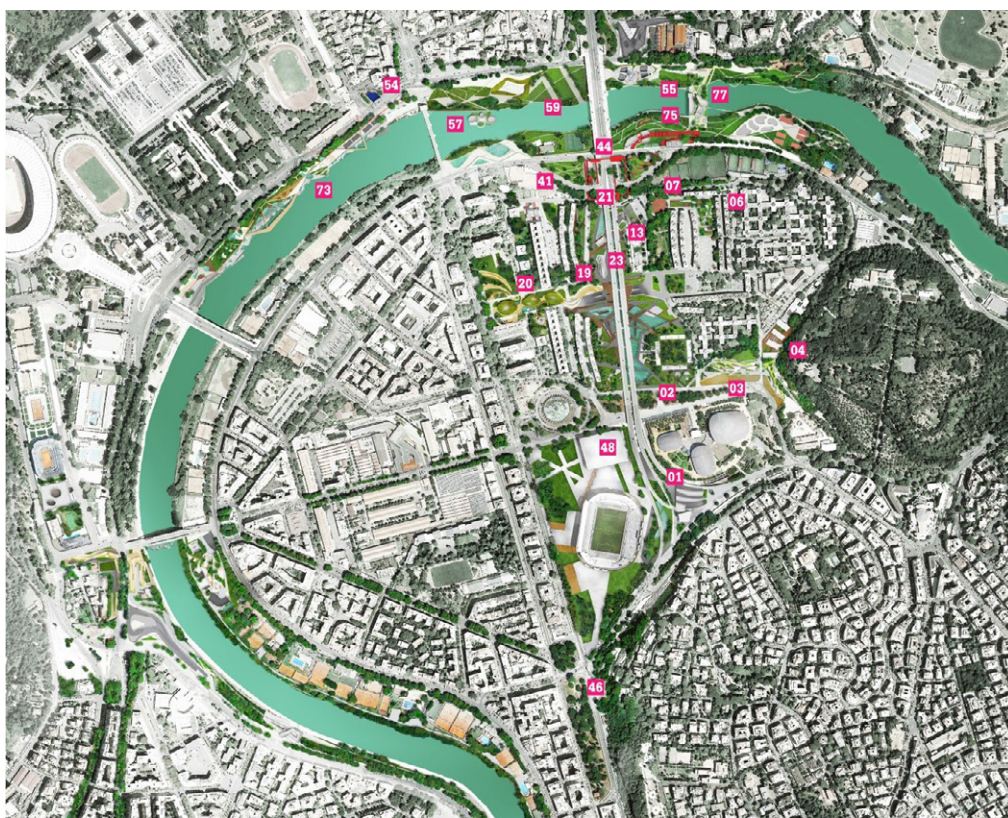
Il Villaggio e l'Ansa Olimpica

🚗 01 **E-MOTION SYSTEM**
Luca Bregni, Antonio De Rosa

🎬 02 **CINEMATIC-ARTS**
Noemi Niro

🐎 03 **JUMP-IT**
Alessandro Perosillo

📷 04 **TM LAB**
Francesco Risita

04 **SCOUT CENTER**
Savina Leggieri

♻ 04 **GREEN PAPERY**
Alessandra Lione

06 **FREE FROM DOPING**
Ernesto Liloia

07 **SOCIAL CENTER**
Simona Raimondi

13 **CONTRO LO SPRECO**
Francesca Orunesu

📻 19 **ON AIR, ON LINE, ON SITE**
Simona Ricchio

🎷 20 **GREEN CISV**
Tiziano Tamburri

20 **CUPOLE SOSTENIBILI**
András Csiki, Martin Hoeck

🍽 21 **RISTORO NERVI**
Valentina Spedicato

21 **INKADEMY**
Valerio Vincioni

👥 23 **BLOG VILLAGE**
Michele Spano

👗 23 **WALKWAYPARASITE**
Monica Napoli

🏬 23 **PARK [ING]**
Valerio Galeone

🏛 41 **CRISALIDE**
Gabriele Stancato

🌱 44 **L.A.B. LOCAL ACTIVITY OF BUSINESS**
Alessio Petecchia

🏍 46 **DREAM'S FACTORY**
Marco Lucci

⚽ 48 **FLH (FLAMINIO LAZIO HOME)**
Nicola Pennacchiotti

🛏 54 **SMART PLAT**
Giuliana D'Amore

💧 55 **L.A.S.T.R.A.**
Francesco Vantaggiato

🏊 57 **WATER PLAYGROUND**
Michela Falcone

♾ 59 **P.a.r. FLAMINIO**
Federica Tassetti

🌿 73 **A.R.TE. ARCHITECTURE RIABILITATION TECHNOLOGY**
Alessandro Perosillo,
Silvia Primavera,
Michele Spano

75 **IDENTITÀ FLUIDA**
Selenia Marinelli

77 **COMMUNICATION BRIDGE**
Valerio Perna

Figure 3

Tevere Cavo, portion of the map showing the projects concerning the 'Villaggio and l'Ansa Olimpica area), Authors:
Livia Cavallo, Valerio Perna (Saggio, 2018)

Through this methodology, we claim that architecture is a processual path where new digital-oriented design tools contribute to reinforce the relationship between positivism and architecture as a cultural production, much more than just technical possibilities. The aim is to isolate some enzymes through which we can keep contributing, in continuity or discontinuity, to the lineage of architectural production.
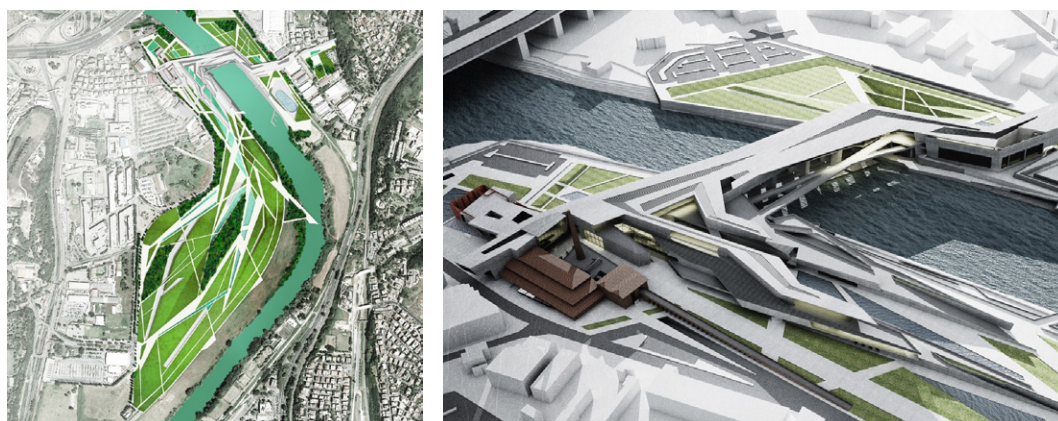
Figure 4-5

Liborio Sforza. [EX-PO] New bridges at the furnaces of Castel Giubileo. Technological center for the development of constructive experiments, Tevere Cavo (Saggio, 2018)

Figure 6-7

Alessandro Perosillo. Eco District Park: Urban Park, Urban District, and Educational Center on recycling between Collina Fleming and Tor di Quinto, Tevere Cavo (Saggio, 2018)

Michel Falcone. Water playground. System of urban happines for fitodepuration and the reconquer of the Tiber, Tevere Cavo (Saggio, 2018)

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Figure 8-9

Valerio Galeone. PARK [ing] Junction for the Development of Sustanaible Public Intermodal Transports and Bio-monitoring able to produce oxygen and electric energy (Saggio, 2018)

Livia Cavallo, Silvia Di Marco, Giuseppina Rubino. Side by Side, Activation of micro-design projects on the Tiber's riverside between Ponte della Musica and Scalo de Pinedo (Saggio, 2018)

6. Reprise and conclusions

Dorotea, the city, could have existed… if only the lens of architecture could move from historical pre-conceptions to open up to a new undeniable complexity that affects, for better or worse, the urban environments that we inhabit.

Such complexity, emerging from the problem of dealing simultaneously with a sizable number of factors that are interrelated into an organic whole (Weaver, 1948), requires a brand-new system of tools not as simple extensions of the senses, but as catalysts capable of being an embodiment of the spirit and materialization of thought (Koyré, [1957] 1968).

As a reflection of the IT era, 'urbanities' don't convey only a functional quality of the city, but they also carry within themselves a whole set of social, political, human values, as well as the nonhuman presence in the formation of Gaia, nature and data sets that reinforce the sense of citizenship of the dwellers of these places.

This paper, and the issue in which it is contained, was the opportunity to offer an overview of almost ten years of practice and experimentation within a personal and more mature reflection concerning the concepts we have borrowed from our previous experiences. It contains theoretical questions but, most precious for us, it is for us a way of addressing each of those through a concrete design strategy to find equilibrium in a contemporary city, which is always fluctuating between what is expected and desired, and what is eventually realized.

7. Acknowledgments

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Essays //

Essays

Vertical Growing as an Opportunity for Reactivating Historical Quarters

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Abstract

Migratory tendencies of the 19th century favored the growing of cities and expansions districts were created. These new neighborhoods were urban areas with residential blocks and large avenues accompanied by a marked order of streets. However, subsequent urban modifications distorted the architectural landscape of that time, creating urban landscapes that have little to do with their initial approach. In addition, the lack of investment and urban policies in those areas is generating a tendency to abandon not only historical centers but also nineteenth-century quarters, leading to their possible degradation. Nowadays expanding cities in terms of area is not always advisable or possible, due to the scarcity of resources and the potential inefficiency of the model. However, there is an opportunity to expand the city in height in buildings which still have both legal and architectural chances for doing so. This vertical growing aims at providing a solution to urban reactivation, providing a regeneration of existing housing and the construction of new ones. In the following study we will focus on this phenomenon considering the city of Valencia in Spain as an example. Present times make recommendable understanding the current migratory tendency, urban changes and strategic opportunities.

Keywords

Housing regeneration; urban re-activation; expansion district; buildability; over-elevations.

1. Introduction

The need to create housing in cities has generated an opportunity in many historic city centers based on buildability. This unexpected and controversial chance is mainly based on a given town planning historical sequence, but presents also many relevant economic, social and sustainable aspects, playing each one a different role. The economic factor awakened the interest in this new methodology, the urban factor made it possible, and the social and sustainable factors endorsed this practice as an attractive and viable solution.

This article addresses the urban and town planning framework, leaving the other points previously mentioned for further research. For this reason, the main objective of the research is to demonstrate that the existing urbanistic conditions made possible the practice of over-elevation, and that, in the city of Valencia this has occurred without enacting new laws and in a rather natural manner. In addition, an approximate view of the construction process required to execute this type of intervention is offered.
Over this research, we start from a historical migratory base of cities, and how this has affected the urbanistic norms in the case of Valencia. Next, the building resource is analyzed and how in the case study it is available. Finally, a small view of the possible building solution is shown. This new methodology of construction in buildings that have not exhausted their volumetry, not only generates new homes, but also promotes urban renewal in groups that probably could not assume it from the improvements made in these buildings.

The research methodology will be initially based on the study of the sequence of urban ordinances enacted during the recent history of the city which regulated mostly the volumetry of buildings, with a particular interest on the maximum number of floors allowed and the recommended cornice height. Later, an observation of the recent history of some of these unexpected upper gaps produced by subsequent urban regulations will be performed. Therefore the set of research tools employed will begin with the historical cartography of the city and the attached regulations. Bibliography on renewal of historical contexts and urban regeneration will be also employed. Finally specific bibliography, mostly press coverage, on the over-elevation phenomenon will be utilized.

2. Migratory tendencies towards cities

Cities are continually growing and need more and more space to provide their inhabitants with all the necessary requirements and amenities. As a result of the occasional lack of space, urban planning has been significantly affected throughout history giving rise to an ongoing increase of cities' area. Currently, this extension proposal constitutes an unsustainable and inefficient model, since it implies an investment of resources in new infrastructure to provide the city with connections, equipment, green areas and all kinds of services. Likewise, frequently urban centers are left unprotected from this type of urban growth, and remain in a situation of decline due to the scarcity of urban regeneration policies.
There have always been migratory flows throughout history. However, the Industrial Revolution was the period which brought remarkable urban changes in cities for the first time (Piqué, 2017). This was due to the large migrations from rural to urban areas, and the change from an economy previously based on the agricultural sector to a more industrialized economy. In Valencia, as in many other cities, there is evidence of the growth of the urban population in the second half of the 19th

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century, either by the internal increase of residents, by the migration towards the city or even by the annexation of the adjacent villages (fig.1). The growth in the number of inhabitants accentuated the dichotomy between peripheral and central areas. Thus, outskirts mostly hosted built housing with a stark character for the working class, and urban expansion areas were destined mostly for the upper classes (De Terán, 1994).

POPULATION DEVELOPMENT. 1877-2011
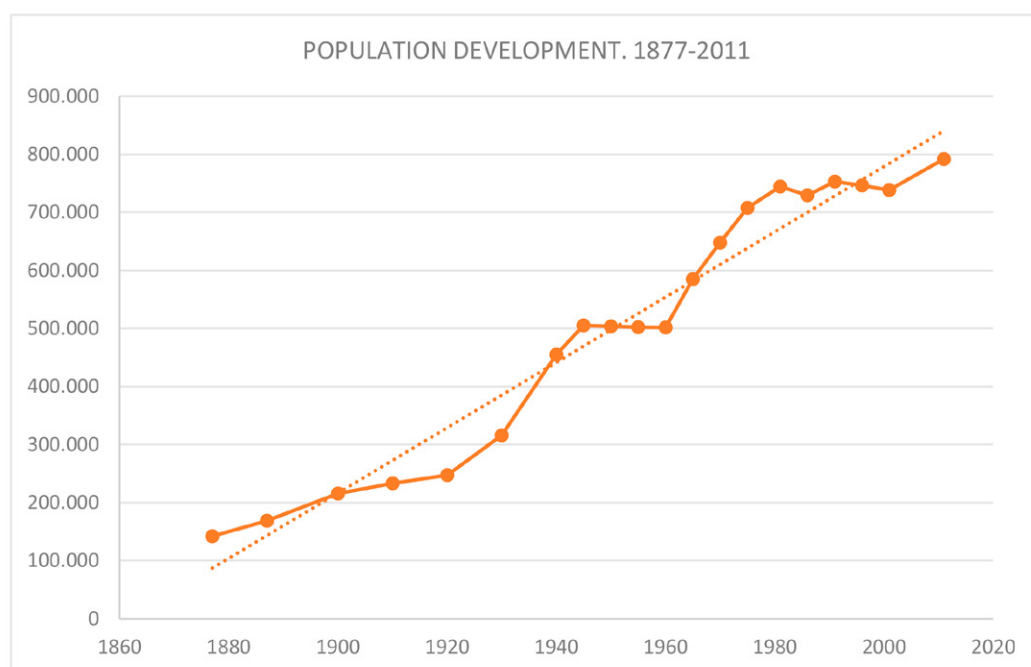
Figure 1

Line graph showing the population evolution from 1877 to 2011 in the city of Valencia.
Source: Valencia Statistics Office

The objectives of the first expansion plans were to develop and unify urban standards for the expansion of cities (fig. 2). These regulations proposed very clear grid patterns forming square blocks with chamfered corners providing great visibility at intersections. Despite the fact that the geometry was very clear, subsequent modifications and real-estate speculation have substantially modified the global vision of these historical complexes, degrading the identity of the urban landscape.

The most obvious and remarkable example is the construction of buildings much higher than the neighboring ones because a newly-enacted urban regulation made that fact possible. This extremely frequent phenomenon has lead in the case of Valencia and many other Mediterranean cities to a large amount of party walls produced by the discontinuity in height of adjacent buildings. Nowadays many neighborhoods are degraded not only by this uncomfortable disorder on the cornice line but also because of a meaningful deterioration of the construction elements revealing a lack of maintenance of the architectural heritage.

Although a state of abandonment is occasionally latent, neighborhoods of the expansion areas have always had great attractions such as urban centrality, mental connection with the upper classes, or even spatial richness. Yet, despite the current deterioration, the expansion district is usually better

Figure 2

Plan of urban development for Valencia

than the outskirts of the second half of the twentieth century. Therefore, a window of opportunity is now open in many buildings that, according to the current general plans, still have more suitable space to be built.

The current and frequent lack of urban policies and the need for restoration of these dwellings has opened a window to the previously mentioned strategy of extension by means of vertical growing in the neighborhoods of expansion areas. That is to say, the extension in height of apartment blocks that have not yet exhausted their vacant building capacity is considered. This generates a model of urban regeneration, due to the fact that the residents of these buildings give up their *derecho de vuelo* (right to overhang) in exchange for services in the common elements.

3. First urban development plans for expansion. A case study in Valencia, Spain

Theories and thoughts of expansion in cities were materialized in a set of innovative projects, which had to be developed due to the social and demographic change of the time (Layuno, 2013). As a result, historically, the morphology of cities reflects the historical context, culture and economic activity, from the first old towns to the urban extensions resulting from an industrial panorama in the 19th and 20th centuries (Capel, 2002).

Industrialization went hand in hand with a new conception of large cities in which the growing pop-

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ulation and its needs gained prominence. This caused the drafting of the first urban plans (Arriola, 2005). One of the pioneering cities in carrying out an urban expansion program was the French capital in 1853, along with the leadership of Georges-Eugène Haussmann and a remarkable team of architects and engineers (Rodríguez, 2019). Nevertheless, there are also examples in the city of Vienna with projects such those by Otto Koloman Wagner. In Spain, we can find the plan for the expansion of the city of Madrid developed by Carlos Maria de Castro.

However and without a shadow of a doubt, the most important plan was the one devised by Ildefonso Cerdà in 1860 for Barcelona and its famous Eixample district. Many Spanish cities such as Valencia, Pamplona, Bilbao or León joined afterwards this trend (Capel, 2002).

In the 19th century the first regulations for the city of Valencia began to be developed including building and street matters. An example of this is the *Reglamento de policía urbana y rural* (Urban and rural police policy) in 1844, whose seventh article states that those consolidation works which may prevent the widening of the street should be denied. It is also noteworthy its tenth article which deals with issues of façade materiality, such as the fact that the material for bars and railings should be iron (Taberner, 1987). These are only a few examples from the entire regulation which yet concern about the uniformity of a city and its possible extensions.

Just like other Spanish cities, Valencia was not going to be different. For this reason, once the city walls were demolished in 1865, ordinances began to be enforced reflecting an idea of the subsequent peripheral housing development. These ordinances continued the trend towards street alignments, regulations for the composition of facades, and even began to care about the drainage and sanitation system. In addition, there are also protocols for buildings in a state of ruin and demolition on public roads. All this can be found in the *R.O. de 12 de marzo de 1878 sobre alineaciones, planos, licencias, etc* (Royal Order of March 12, 1878 on alignments, plans, licenses, etc), or in the *Ordenanzas municipales de la ciudad de Valencia* (Municipal Ordinances of the city of Valencia), approved by the Civil Government of the province on January 2, 1880 (Taberner, 1987).

However, it would not be until 1883 when the first norms of the expansion area were established and, thereby the *Programa para la formación del proyecto de ensanche de la ciudad de Valencia* (Program for the formation of the project of the city of Valencia's expansion) was created (fig. 3). In this program the following issues and aspects are perfectly detailed: documents of the expansion project, delimitation zone, rules, and even differentiation of streets in terms of importance. This program prompted the *Ordenanzas municipales especiales para el Ensanche de la ciudad* (Special Municipal Ordinances for the Expansion of the city) in 1887. In this ordinance, the limits on heights or number of floors are compiled and it is specified that buildings cannot have less than two upper floors or more than three, but it was allowed to add a mezzanine floor as long as it was compositively linked to the first floor. In the same article, the minimum heights of each floor were also fixed as well as the total height of the facade, which depended on the significance of the street, the more important it was, the higher it was allowed to be (Taberner, 1987). Therefore, an interest in the linearity of its facades and in the harmonization of the whole architectural set is palpable.

Despite this expansion, it was in 1898 when the Programa para la formación de proyectos de ampliación del Ensanche en las zonas suroeste y el margen izquierdo del río (Program for the Formation of Projects for the Expansion of the Ensanche in the Southwest and the Left Bank of the River) was elaborated, due to the continuous demographic growth, the failure of the reforms in the historic center, and the lack of extension of urban surface (Daukšis & Taberner, 2002). In the following years, different plans were drawn up and clarified the limits on alignments and gradients, until in 1912, the plan designed by the architect Francisco Mora and the engineer Vicente Pichó was finally approved (Taberner, 1987).

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Figure 3

Topographical plan of Valencia (1883). Topographical survey provided data necessary for the drafting and approval of the expansion area in 1887. Source: España. Ministerio de Defensa. Instituto de Historia y Cultura Militar. Archivo Cartográfico y de Estudios Geográficos del Centro Geográfico del Ejército, https://patrimoniocultural.defensa.gob.es/es/

This project was dedicated to extending the axes of route that had already been previously marked, and creating a third ring road. The new plan, unlike the previous one, allowed for elevation of the maximum buildable height to 22 meters in the first order streets, and consequently the number of floors. This modification in regulations became at the same time a change in the approach to buildings and in their buildability, since it involved buildings of up to 6 floors (Taberner, 1987), making possible the punctual breaking of the volumetric continuity and harmony ambitioned by previous city planning. Another highlight was the creation of the first penthouses, not so much for residential

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use, but for open spaces. This is specified in the sixth article, where it is stated that this enclosure should be avoiding the first bay, thereby, creating rooms set back from the first line of the façade that will later serve as a guide for the subsequent penthouses.

This inclination towards the increase in the number of floors continued to grow in the following urban changes, either because of the lack of housing or the expansion insolvency of the city. It was from 1924 onwards when, by means of the licencias condicionales (conditional licenses) granted by the city council, it was authorized to exceed the building height. This position was due to the housing shortage coupled with the labor crisis of the time, and the discrepancy between the height allowed in the historic center, 24 meters, and the expansion area, 22 meters, despite having much wider streets (Taberner, 1987). Therefore, in 1925, through the Apéndice a las nuevas ordenanzas de policía urbana (Appendix to the new urban police ordinances), it was authorized to increase the height up to 30 meters for buildings located in first order streets, provided that their width was greater than 20 meters, in addition to adding a penthouse livable from the second bay (Llopis Alonso & Perdigón, 2010). The constant changes in ordinances and the successive expansions have promoted a clear trajectory to apartment blocks with an increasing number of floors. For these reasons, it is not surprising that some buildings were below the maximum permitted buildability, and, conversely, some exceeded this totality. Consequently, this progression of standards has given rise to new opportunities through virtual gaps in the rooftops.

4. Remaining buildability as a resource for urban regeneration

It has certainly been usual for urban planning regulations to always increase buildability. Along with buildings which have employed all the volume permitted, we can find other buildings which have not taken advantage of the maximum number of stories allowed for a range of reasons such as lack of elevator in the moment when they were built. Simultaneously, some of these buildings have a noticeable architectural value whose elements have been withering due to a lack of maintenance (Ibarloza et al., 2018). Some also present evidence of architectural barriers or outdated systems. All this has contributed to the formation of an occasionally irregular, disordered and neglected urban and architectural landscape (fig. 4).

The circumstances that have led to the search for new solutions are multiple. Firstly, we have to consider the constant migratory trend towards cities in an effort to seek work and new opportunities, which brought about a need for new housing. Other meaningfully important reasons such as the convenience of not creating new neighborhoods due to the scarcity of economic resources, the necessity in many buildings for interventions and repairs that the owners cannot afford, and the opportunity to increase the volume in expansion areas, have converged in this strategy model. Because of this, professionals have seen an opportunity in the construction of new houses on the rooftops of buildings in which buildability is possible. Residents, in compensation for this construction receive the improvement of constructive elements, facilities, or adequacy of the building accessibility to mention some examples. Being that said, it is intended to respond to many of these issues, in addition to promoting an urban revitalization. All this, the creation of new housing and the rehabilitation of buildings, helps to promote a balance between urban development and the conservation of the city (Zucconi 2014). Firstly, in order to understand this model of strategy through buildability, it is necessary to be aware that in order to make these over-elevations possible, it is indispensable to acquire *derecho de vuelo* (right to overhang), which is defined in Article 16.2 of the Decree of February 14, 1947 of the *Reglamento hipotecario* (Mortgage Regulations) as

We met for the first time in March 1946 with the intention to develop our interest in mathematics and in methods of treating facts and ideas that had concerned us in our fight against post-Hegelian ideologies. The first topic was presented by von Neumann. He described the idea of computers running on a Boolean mode and having as their base the number 2. His general thesis was that such machines could calculate any number and resolve any logical problem, provided it has a solution (cited in Varela, 1989).

Therefore, for the construction of new houses by means of the extension in height, it is necessary a buildability and a right to overhang, together with the compliance of all the corresponding urban and architectural regulations.

Likewise, if there is a possibility of increasing the number of floors in the urban plan, it bears men-

Figure 4

Pictures of some streets in the expansion area of Valencia

tioning that structurally speaking the same thing is happening. On the one hand, there is the bearing capacity, which is usually more than required and allows to add more floors without too many problems. On the other hand, the durability of the structure is also excessive, and makes it last much longer than the acceptability of the standards of the homes which these structures hosts. In fact, if we read through the regulations of the Código Técnico de la Edificación (Technical Building Code), we can find that the period of service must be 50 years. Even so, we find that the buildings comply perfectly with this period of lifetime. All these circumstances favor the supplementation of new floors, which must obviously be adjusted to the conditions of the existing building.

5. Opportunity for expansion: over-elevations and recovery of architectural heritage

The extension in height of residential buildings is only one more way for urban reactivation and regeneration. The attached improvements of each residential block, as a whole, generate an upgrading strategy at a global level in the metropolis.

Graphically, it is noted that a large part of the buildings in the most central neighborhoods were built between the years 1961 and 1980, an indicator that a large number of houses are close to or have already exceeded their lifetime. If we also look at the first expansions, which in the case of Valencia are the districts of l'Eixample and Extramurs, an important percentage of the buildings were built in the nineteen forties and fifties (fig. 5). Therefore, despite the lack of maintenance that the neighborhoods may have, the age of houses is a key factor in urban renewal. The presence of architectural barriers, adaptation to new systems, low energy efficiency, or repairs of aesthetic elements in facade, go hand in hand with the conservation of the building itself. These are clear evidences of

lack of refurbishment.

If a possible scenario in which residential buildings require refurbishment is stablished, it should be taken into account that some of these buildings have a degree of protection, either environmental, partial or total (fig. 6). However and based on *Planes especiales de protección del ensanche de Valencia* (Special plans for the protection of the expansion area of Valencia), even in these protected buildings, urban planning regulations permit this potential supplementation of floors (fig. 7). In these programs, possible over-elevations are marked individually plot by plot (fig. 8). They also display the number of possible additional floor, aesthetic requirements of the facade, alignments with the adjacent buildings and any other aspect related to the architectural heritage of the surrounding area. Therefore, it is not surprising that, if the existence of these "special plans" contributes to an extension in height and its attached updating of existing protected building, urban development regulations will also allow the construction of more floors in buildings without any rank of protection, with the corresponding legal, architectural and urban development limitations.

It should be pointed out that urban planning regulations take into account the height and floor limitations according to the architectural environment. Therefore, individual actions always accompany a harmonization of the neighborhoods, both on a heritage and architectural levels (De Gracia, 2001). Even so, the great problem that this type of practice could face, in case of excessive speculation, would be a greater densification than the expansion district could assume.

6. A view of the process

In order to carry out these urban renovations, an investment model is needed, so the practice of building on rooftops is a possible solution: penthouses in exchange for refurbishments. However, the form of intervention must be taken into account, because there are two clearly differentiated actions. On the one hand, we must consider the improvement of conditions of existing buildings and, on the other hand, we should think of the new housing (Millán, 2018).

First, an exploration of existing buildings must be accomplished in order to locate the points to be developed. Normally, the deficiencies correspond to restoration and improvement works such as: incorporation of elevator, actions in staircases, elimination of architectural barriers, renovation of facades, updating of systems, and general building's maintenance. All these measures are agreed with the owners, who will also get a revaluation of their homes.

As for the over-elevation, either of one or several floors, it will be determined by the building's circumstances affecting its materialization and design. To begin with, the pre-existing building structure, being able to bear higher loads, will be increased in weight. Although this is possible, it cannot be done indefinitely, so the new structure must have minimum weight requirements. This leads to a lightweight structure. Another issue that must be taken into account of the existing structure is its defined position. Consequently, the new structure will be adapted to a certain geometry and typology employing light members and special components such as sleeper beams, lattice elements, etc.

So far, we have discussed material elements. However, human factor should not be left out, since the existence of neighbors is another key factor in this modality of construction. Therefore, work on site should be minimized as much as possible. Although the length of the refurbishment works has an established timeline, the inconveniences caused by the over-elevation can be mitigated, starting with industrialized modular systems. This construction typology offers the possibility of executing most of the new dwellings in a factory, and then transporting them to their final location. In this way the possible inconveniences generated by the construction of the new houses are attenuated.

Vertical Growing as an Opportunity for Reactivating Historical Quarters

Maria Piqueras Blasco
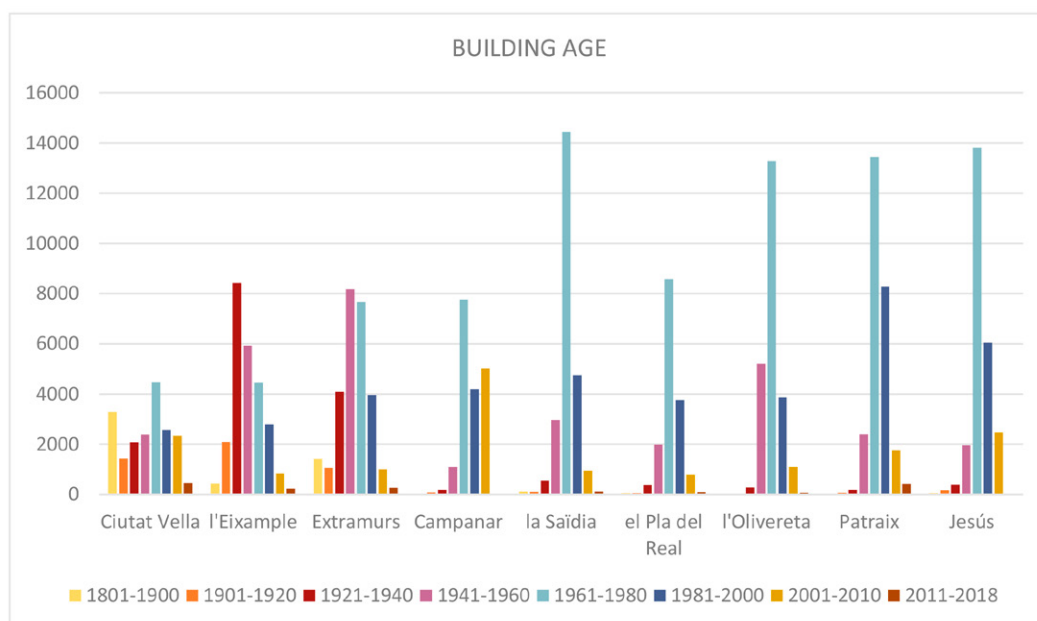
Figure 5

Bar chart of residential properties according to their age in the most central districts of Valencia, Spain

Figure 6-7

6. Buildings with a protection degree established in the 2006 special plan for the district of Russafa in Valencia, Spain.
7. Buildings with a protection degree with the possibility of volumetric expansion according to special plans for the district of Russafa in Valencia, Spain
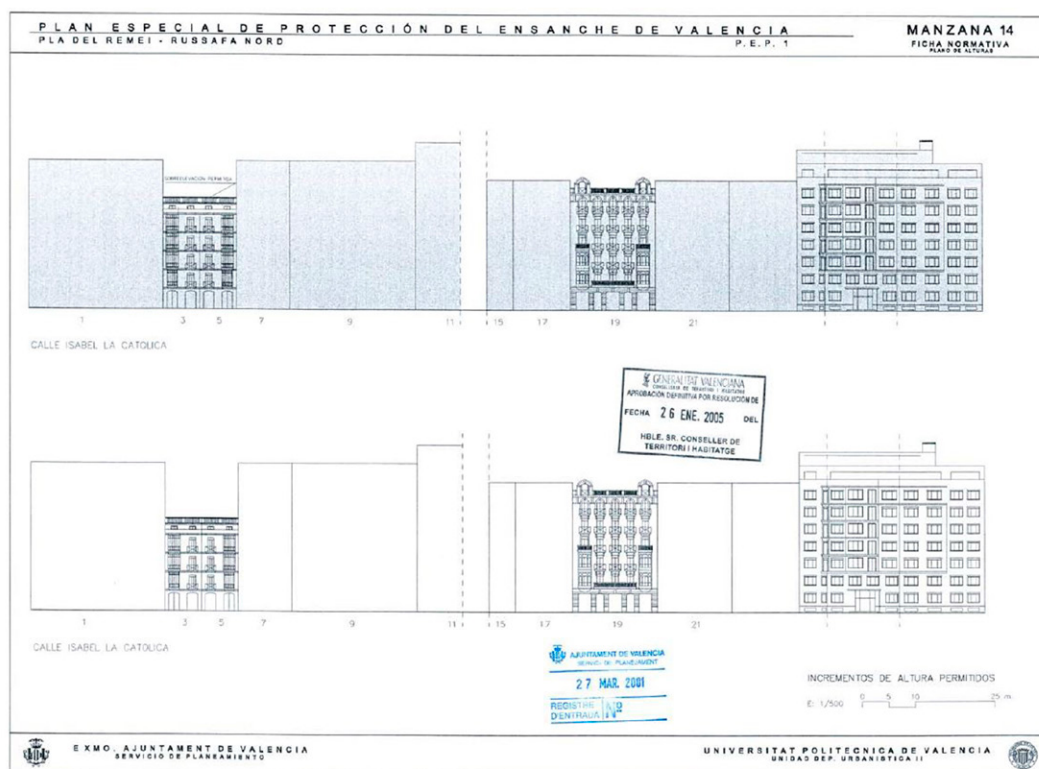
Figure 8

Examples from the archive of the "special plan for the protection of the expansion area" that indicates the over-elevation of a building. Source: City council of Valencia

As a result, the housing construction on the rooftops of buildings that have not yet exhausted their buildability, should be executed from lightweight and industrialized systems (fig. 9).

7. Conclusions

Cities need more space to accommodate new inhabitants moving from rural to urban areas. Although the usual form is extending their imprint, this type of extension is an inefficient model, as well as unsustainable, not only because of the amount of economic resources to be invested, but also because of environmental and sustainable aspects.

Historical centers' deterioration and the expansion areas caused by aging buildings and residents, suggest new opportunities for urban regeneration. Therefore, the existence of buildings which have not exhausted their buildability yet, along with current special plans, allow a supplementation of floors in buildings within neighborhoods which are assumed to be consolidated.

Not surprisingly, the deterioration of older neighborhoods generates a need for refurbishment of their buildings. In addition, lack of maintenance, presence of architectural barriers, absence of an elevator, correction of pathologies, or even restoration of heritage elements, are issues that respond to a capital investment, which in many occasions owners cannot assume.

The sum of these and other reasons enables the creation of new dwellings on the rooftops of the

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Figure 9

Over-elevation example in Barcelona made with industrialized construction. Source: Oriol Vives, 2016

expansion district buildings where more stories are nowadays allowed, in exchange for fixing these buildings. This urban regeneration proposes the updating and adaptation of houses and apartment blocks, in protected architectural environments, revaluing urban landscape. In the same way, this set of improvements, not only favors the patrimony as a whole, but also benefits the neighbors individually. Therefore, these types of actions in cities enhance the creation of housing in a sustainable, careful and methodical way.

The construction of new dwellings presents some particular features, which are motivated by the physical and human context. The limitation of duration in the work on site, the multiple structural conditioning factors, the meticulousness in the intervention, together with energy efficient and sustainable values, will be guaranteed by a methodology of industrialized and light construction.

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COVID-19 as a catalyst for collaborative city-making: from emergency to praxis

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Abstract

The crisis resulting from the spread of COVID-19 is having important consequences on the development of the contemporary city, notably in the rethinking of public and collective spaces. To avoid contagion, restrictive measures and social distancing have been put in place: the two main consequences have been the digitalization of many sectors and the spread of tactical urbanism actions. In this paper, it will be argued that hyperlocal, understood as a collective and participatory design facilitated by information technology, can be a solution not only to the ongoing emergency but to the challenges that contemporary society poses, since it appears to be a valuable practice in rethinking and redesigning our neighborhoods and cities in a more open, inclusive, and therefore more resilient way

Keywords
COVID-19; public space; hyperlocal; digital platforms; collaborative city-making.

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1. Introduction. To design is transforming crisis into value

In reality, architecture has become too important to be left to architects. A real metamorphosis is necessary to develop new characteristics in the practice of architecture and new behavior patterns in its authors: therefore all barriers between builders and users must be abolished, so that building and using become two different parts of the same planning process (Giancarlo De Carlo, 2007, p. 13).

Since its appearance on Earth, man has sought to improve his living conditions, in search of greater safety and comfort. The tool through which he has attempted to achieve this goal is design. Humans, when confronted with new problems tend to use their innate creativity and their ability to design to realize something new. (Manzini, 2015). The history of humanity is full of successes and failures, great crises, and innovations. On closer inspection, crisis is a necessary, but not sufficient, condition to achieve innovation. Moreover, what makes humans unique is not so much the ability to design, common to other species, but the capacity to self-design (Colomina and Wigley, 2017). As we continually redesign the world around us, we end up redesigning ourselves. Following this assumption, we could argue that through design we are constantly laying the basis of a new civilization. The challenges that today's world poses to us are enormous, complex, and interdependent. Between now and 2030 we are facing a "perfect storm"[1] of social, political, economic, and environmental crises. To avert the risk of sixth mass extinction, emergency and crisis will have to become the chronic scenario of our future. Despite the negative connotation we attribute to the word crisis today, its Greek etymology and its meaning in all modern languages are that of 'choice', 'change' or 'turning point' (Illich, 1996). The word crisis, historically, does not have a negative connotation. The crisis related to the spread of the COVID-19, to be included in the more general environmental crisis, is having extraordinary consequences on the development of our cities and our habits. As is often the case, crises accelerate trends already in place and there is no doubt that the crisis related to the spread of COVID-19 is acting as a catalyst for latent phenomena. Crises are periods of transition, historically they have allowed for major changes and transformations in short periods. To deal with the emergency, world governments have taken extraordinary measures, first the lockdown and then a gradual re-opening based on social distancing. This has led to the rapid digitalization of our society and, on the other hand, to a total rethinking of the spaces, both indoor and outdoor of the urban environment.

In this paper, we will first analyze the urban consequences related to the spread of the COVID-19. It will be outlined how the lockdown and the

measures of social distancing have invigorated the sense of community, and driven to collaborative and bottom-up planning, in many cases in the form of actions of tactical urbanism. At the same time, the digitalization process, accelerated by the ongoing crisis, is acting as a catalyst for these process-es. The paper aims to demonstrate how hyperlocal, understood as a collective and participatory design facilitated by information technology, can be a solution not only to the current emergency but also a valuable tool to rethink our cities to face the challenges that contemporary society poses.

2. Consequences of COVID-19 on the urban space

The emergency related to the spread of the COVID-19 has often been compared to the climate crisis. Both are manifestations of the problematic relationship that man has with the environment and are both complex and interdependent challenges. Above all, both crises force us to keep the local and the global dimension together to respond adequately.

The lockdown imposed globally meant that most citizens stayed at home, going out only to buy ne-cessities and, in some cases, to work. Schools, universities, and most jobs have continued remotely. Interestingly, the spread of COVID-19 showed, at the same time, different and somewhat opposite trends: physical and local solutions, or on the contrary, digital and global. On the one hand, people have rediscovered the sense of community, for example shifting from supermarket chains to local neighborhood shops or harvesting their community gardens instead. On the other hand, the digita-lization of many fields has almost wiped out distances on a global scale. Thus, while trade, solidarity, and care at the community level have drastically increased, the global digital infrastructure played a pivotal role in fighting the emergency. The contemporary city has clearly shown its dual nature: at the same time hardware and software. While the physical city seemed to have stopped, many pro-ductive, economic, social, and educational activities were possible thanks to the use of digital tools. The IT infrastructure allowed the operation of the physical one: 'platform delivery systems kept the stressed social fabric intact' (Bratton, 2020). The most emblematic case is the role of Amazon, that thanks to his planetary infrastructure entered the public sphere, acting as a public utility.

We are evolving into a platform society, where social and economic relations are increasingly me-diated through an ecosystem of interconnected digital media platforms. Both locally and globally 'all kinds of urban practices that use the physical city as an interface to connect citizens are now partly mediated through online platforms' (de Waal, de Lange and Bouw, 2017). COVID-19 outbreak clearly showed it: even at the local level platforms like Nextdoor had a fundamental role in sharing information, providing mutual care, and promoting local trade. Cities themselves can be understood as 'platforms', or 'material interfaces' that connect individual city dwellers with collective practices, experiences and rhythms (Castells, 2002).

3. COVID-19 and the city as a platform

The phase following the lockdown envisaged a gradual re-opening of many activities with the imple-mentation of social distancing measures, with important consequences on urban space. While many have argued that many of the rapid transformations taking place will be permanent, we are not yet able to predict the long-term impacts on cities.

Social distancing, also called physical distancing, means a set of actions of a non-pharmacological nature aimed at slowing or stopping the spread of a contagious disease. Social distancing aims to decrease the likelihood of contact of people carrying infection with uninfected individuals, to minimize disease transmission, morbidity, and, consequently, mortality. About the COVID-19, an
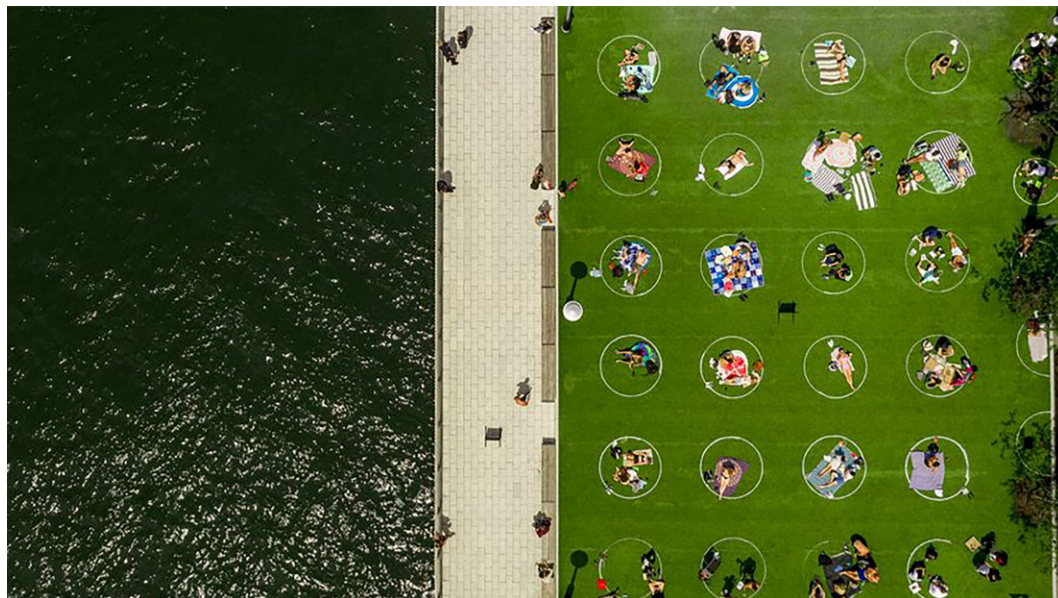
interpersonal distance of 1 meter in most cases is sufficient to limit the risk of contagion[2].

The first major consequence of social distancing was the start of a debate about public space and its quality. Social distancing measures provoked a phenomenon of spatial scarcity since the capacity of the indoor and outdoor spaces have in many cases been halved. So many activities have taken place outside. From the Afghan women who attended the university's admission test in a sports field, to the new provisions for free public land employment for restaurants in Rome, the responses to the pandemic posed new questions and prompted us to occupy the space differently. New problems have led to new solutions. The most creative ones probably appeared in the entertainment world, where maintaining social distancing was a real challenge. From the Flaming Lips concert in which both the band and the spectators were in bubbles, to that of Sam Fender, in which 2500 people were divided into platforms that ensured social distancing, or even to the return of concepts that have fallen into disuse, such as drive-in cinemas. Historically one of the primary tasks of architecture was to divide, separate, and delimit. From Greek temples to the present day, architecture has been used to divide and organize space to meet citizens' needs. Today, to cope with the emergency, all urban spaces, indoors or outdoors, have been rethought and redesigned both in use and in form: if the task of architecture is to respond to the needs of citizens, today there is no doubt that architecture is playing a key role in the safety and health of citizens, de*signing distance*.

The second consequence of this new need is that on a global scale, citizens around the world had to face their *spatial ineducation* and therefore had to measure, perceive and reappropriate the space around them. Ordinary people were asked to readjust workspaces and collective spaces to ensure social distancing. Everywhere appeared signs with prohibitions, new provisions, or suggestions. In just a few months, the way people occupy spaces has been revolutionized. When not properly reported, citizens are asked to maintain a distance of at least 1 meter between them. So, in shops or on public transport, people had to start to deal with the space around them and occupy it accordingly.

The redesign of the new spaces, given the emergency and temporary character, took place with poor and easily available materials, such as ribbons, tape and paint. In some cases, real infrastructures were created with the use of only paint: it is the case of the new bike lane in Milan or the enlargement of the sidewalks in Barcelona. Interventions such as those just mentioned are in the field of tactical urbanism, which includes under this expression all those small-scale actions that have a great effect at the urban level (Lydon and Garcia, 2015). Tactical urbanism aims to build better places, offering alternative visions and new scripts. The strength of tactical urbanism is the high degree of innovation, the replicability of solutions, and the community spirit that it promotes. Even

2. Chu, D. K., Akl, E.A., Duda, S., Solo, K., Yaacoub, S., Schünemann, H. J. (2020) Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2 and COVID-19: a systematic review and meta-analysis. In *The Lancet,* Volume 395, p. 1973-1987.

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Figure 1

Social distancing measures in Domino Park, New York City. Photo by Marcella

though the tactical urbanism approach has been using for a long time, contemporary cities have seen such actions multiply in the last decade for different reasons, including the fact that more people live in the city, the economic recession, the advent of the Internet and the growing disconnect between governments and citizens (Lydon and Garcia, 2015).

4. From tactical urbanism to hyperlocal

We have seen how the *social distancing* design quest has given rise to new and very creative solutions that have been replicated, modified, and improved on a global scale. From this point of view, the Internet and social media have been of paramount importance in sharing these practices. At the same time, we have seen how today many urban practices are mediated by the digital layer and how more and more economic and social activities take place on digital platforms. It is interesting to underline how in the last years practices of collaborative and participatory city-making are mediated through digital platforms as well. We refer to this new practice enabled by digital tools and open-source activities under the definition of hyperlocal[3]. The neologism hyperlocal suggests a sort of augmented and hybrid condition, where the local and the global, the physical and digital coexist. The prefix hyper is used to strengthen the notion of local, and at the same time to connect to the digital world, and to the seminal notion of *hypertext*. Thanks to the use of information technologies, the physical and digital layers are intertwined and they

3. Cfr. 4D Hyperlocal: A Cultural Toolkit for the Open-Source City. In *Architectural Design*, 87, 2017

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Figure 2

Reallocated road space for walking and cycling - Milan, Italy (Copyright REUTERS/Daniele Mascolo)

Figure 3

Reallocated road space for walking - Barcelona, Spain (Copyright REUTERS)

both have a positive impact on the other one. Hyperlocal supports social processes, networks and shared resources as part of community development, increasing the social relevance of planning frameworks and pilot projects (Bullivant, 2017). Hyperlocal is an emerging form of digitally facilitated - or four-dimensional - design, sort of augmented tactical urbanism, that like the latter 'it is underpinned by a belief that on-the-ground engagement and shared resources are of fundamental benefit to the evolution of communities and cities' (Bullivant, 2017). Two very innovative projects that put these reasons in place and show what hyperlocal is - and especially what it could be - are the Luchtsingel Bridge in Rotterdam and the STEEM Park in New York. Both are designed, supported, and funded by the local community with the help of architects and designers. Digital platforms played a central role in the development of these two projects. Luchtsingel can be seen as the

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consequence of a post-crisis economy, while STEEM Park is an advanced experimentation with blockchain and cryptocurrency platforms.

5. Luchtsingel, Rotterdam

The Luchtsingel is the world's first crowdfunded public infrastructure project. Over 2000 participants contributed to the idea to connect the Center and the North of the Rotterdam in order to bring back the vitality and energy to once lively spots that have become abandoned throughout the years. As the project would have been extremely costly for the township, whereas the redevelopment could not be postponed anymore, the architecture firm ZUS had launched an initiative for crowdfunded city-making. Entrepreneurs and residents were welcomed to become crowdfunders of the public space. Through a digital platform, everyone could buy a plank or a part of the bridge with his name engraved on it and support the construction of the infrastructure.

Firstly, the crowdfunding campaign was supposed to help with the generation of revenue that would speed up the start of the construction and could attract new funders. Secondly, such an initiative created a support for the project and helped to legitimate it and firmly embed it in the cityscape. The completion of the bridge was followed by three projects that had finally transformed Rotterdam North from neglected industrial areas into the vibrant and constantly growing neighborhood. Now there can be found the Dakakker - an example of the urban farming roof, placed in a former office building (the Schieblock), with the fruits and vegetable gardens, as well as the greenhouses and active beehives. This place has become a prototype for in-city sustainable development. Next followed the Delftsehof, which became one of Rotterdam's most vibrant nightlife areas, and then the Pompenburg Park, where a vegetable garden has been landscaped next to a playground. All together

Figure 4
Luchtsingel Bridge, photo by Ossip van Duivenbode

these four public spaces revitalized an entire sector of the center of Rotterdam, with the Luchtsingel bridge being the unifying factor and the heart of the redevelopment project. The collaborative approach and the incremental character of the project

6. STEEM Park, New York

STEEM Park is the first public design project fully funded by cryptocurrency. Based in Herbert Von King Park in Brooklyn, New York, STEEM park was created by designers Kirk Finkel and Michael Lee, co-founders of the Incubator SNDBX, in order to promote an entirely new way to establish a community network and promote interaction within the group of interested and involved members. STEEM Park is a public garden designed and funded exclusively through Steemit.com, a social media website that rewards impactful content with digital currency (STEEM). The best contents are supported directly by the users in the forms of likes and shares that give the authors financial support. In this way, the SNDBX team raised money through blog posts and cryptocurrency donations.

The idea behind this was to promote the project that is based on the history of Herbert Von King Park and its neighborhood. For that, SNDBX wrote 30 blog posts about the story of the district, local community leaders, the design process and the final installation of the STEEM Park. The appreciation and engagement of the audience helped to raise the sum equivalent to USD 10,000. Altogether, STEEM Park has become an example of a new type of public interaction and cooperation. It has demonstrated a new way of urban development and city activism independent of the government's financial support. While the park installation itself is not a massive project, the implications of this new type of process have huge implications. Moreover, this project was meant to show

Figure 5
Building and installation of the furniture in STEEM Park, New York (1)

Figure 6
Building and installation of the furniture in STEEM Park, New York (II)

how something material and valuable can be created with the use of the intangible cryptocurrency.

7. Conclusions and new perspectives

In this paper, we have seen how the Covid-19 outbreak is having great consequences on urban practices, firstly through the implementation of digital platforms. In the same way, we have seen how groups of organized citizens are taking action to transform their neighborhoods to cope with social distancing measures. Digital tools act in this case as catalysts and multipliers, facilitating collaborative and bottom-up processes. As shown in the two case studies presented, hyperlocal practices existed before the COVID-19 outbreak, even if they were not common. This paper aims to underline how the emergency we are facing can be a catalyst for this kind of practice, at least for three different reasons. Firstly, the digitalization of many realms and the spread of digital platforms. Secondly, the community engagement at the scale of the building, neighborhood, or even city that we re-discovered during the pandemic crisis. Last but not least, new necessities and wills that appeared during the COVID-19 outbreak and that will represent a new direction of urban development from the bottom-up, as the redesign of public space, the care of the urban green zones, the quest for alternative mobility solution.

COVID-19 showed as well that urban design must offload the 'dinosaurian' concept of the contemporary city, centralized, rigid and slow, and somehow incapable to adapt to new necessities. We should start thinking about our cities as open, flexible, and incomplete systems, who require continuous modifications and mediations. We should start thinking about cities as complex ecosystems 'made through a myriad of interventions and little changes from the ground up. Each of these multiple small interventions may not look like much, but together they give added meaning to

the notion of the incompleteness of cities and that this incompleteness gives cities their long lives, thereby outlasting other more powerful entities' (Sassen, 2015).

In the last decades, cities have become a keyspace for large-scale adoption of new technologies, which have today a massive imprint on urban space. In many cases, the development of the contemporary city coincides with the development of the information technologies applied to it. So, in a way, the characters of information technology pour into the city. Till now the implementation of information technologies in the city was dominated by the smart city paradigm: a vertical, top-down approach that fetishes data. The two case studies proposed are examples of a new trend that leverage technology but is not driven by it, where production is based on participation, 'democratizing the ability to make useful things' (Greenfield, 2017).

In the same way, we should start thinking about cities like hackable systems. In the world of computer science with the term hacking, we refer 'to the process of clever or playful appropriation of existing technologies or infrastructures or bending the logic of a particular system beyond its intended purposes or restrictions to serve one's personal, communal or activism goals' (de Waal and de Lange, 2019). In the process of city-making, we can refer to *civic hacking* as a powerful tool that incorporates hacker culture and suggests a novel logic to organize urban society through social and digital media platforms creating new types of public spaces (de Waal and de Lange, 2019).

For architects and designers collaborating with local communities and different actors can be a new field of intervention, with huge consequences on the development of the city. This kind of approach seems to be useful not just for the current emergency, but especially for the big challenges ahead of us. So, the established linear design methods should be replaced by flexible processes and experiential means, fostering a what…if? approach and test-feedback loops. If we want to transform our cities to respond to XXI century society needs', our goal should shift from the creation of spaces to collaboration with users, and then from centralized and vertical to distributed and collaborative processes.

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Urban densities and diffuse urbanities

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Abstract

What does the term urban mean nowadays? Although it is an established fact that the urbanization is still commonly conceived in terms of concentration, today's urban spatiality is increasingly disaggregated and challenging. As a consequence, a blurring conventional geography fleshes out new visions of an heterogeneous "urban mosaic", characterized by a surprising diversification of spatial practices. This urban mosaic is always subject to new definitions highlighting its multiple scales and polymorphic configuration both at the global and at the metropolitan scale.

The re-evaluation and the enhancement of partial and conflicting identities, coexisting in the whole urban reality, constitute the main turning point compared to the past. In line with the Lefebvre's theoretical elaborations, the essay will question the established conceptions of the urban as a closed socio-spatial condition. Hence, the necessity of redefining the real urbanity concept.

In order to anticipate some conclusions, the paper will define the urban as a complex system of different urbanities. Accordingly, several speculative tools and strategies within the design process have to be re-thought, including the much debated density issue.

Keywords

Urban density; urbanities; diffuse city; urban design strategies; contemporary urban theories.

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1. Introduction[1]

What should be considered *urban* in the contemporary reality? Despite profound differences of methodology, analytical focus and political orientation, the major twentieth century approaches have taken an entity, commonly labeled as the city (albeit with some lexical variations), as primary object of analysis (Brenner, Schmid, 2014). The epistemology of urban studies has been indeed characterized by a deeply rooted "methodological cityism" (Angelo, Wachsmuth, 2014), as a result the term *urban* has been usually referred to the city one.

However, the latter term has increasingly lost its traditional meaning. Since the first half of the 1990s, a profound reconsideration of the "compact city myth" has been arisen by means of a new perspective focused on the urbanization processes and phenomena. This has brought some methodological and conceptual consequences, such as the awareness of an increasingly disaggregated and challenging reality, and the recognition of the importance of the empty spaces as a structuring element for the urban spaces and the territory (Secchi, 1986; Viganò, 1999).

Nonetheless, the confusion resulted from this revolution of thought left the urban framework in chaos, often still tied to ancient hierarchies and dualisms such as that of "center-periphery" or "city-countryside". In addition, the blurring conventional geography fleshed out a surprising diversification of individual spatial practices inscribed in a territorial mosaic (Indovina 2009), a complex system of different urbanities, increasingly difficult to decode both at the global and local scale.

2. Urban density and territorial narratives

During the 1970s and 1980s, the "reconquest of the city" theorized and debated within the framework of urban architecture (Rossi, 1966; Aymonino, 1975, 1977; Huet, 1977) led to the emergence of the notion of "urban project". This process has been strongly influenced by human and social sciences (Lefèbvre, 1968), based on a gradual distancing from functionalist operational practice in the context of a progressive and diffused decentralization (Tsiomis, 2007). At the turn of the 2000s, the consolidation of the "urban landscape" concept (Corajoud, 1981) introduced new scales of analysis.

A new research approach arose characterized by a telescopic vision at the local and at the territorial scale, aiming at the investigation of complex interactions between the dense urban cores and the neighboring territories. In urban planning, several authors described the "limitless" aspect of a dimension in which all the boundaries seem to dissolve; a space without any dimension characterized by a radical compression of the space-time relationship in an "epoch of simultaneity, juxtaposition and dispersion where the world was seen less as something set over time, and rather as a network of connecting points intersecting with its

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own skein" (Foucault 1986). Several neologisms such as *città diffusa* (Indovina, 1990), *Desakota* (McGee, 1991) or *Zwischenstadt* (Sieverts, 1997), developed to deeply interpret the territorial forms, to the point that the term dispersed urbanization ceased being an oxymoron (Grosjean, 2010).

However, the image of the *città diffusa* used to describe this state of spatial dissolution has not yet proved to be fully operational. It is indeed tricky to elaborate an unambiguous understanding of a spatial organization defined by diffusion but also by densification, multi-polarization and integration. As described by M. Lussault, «*while the urbanization is spreading, new centralities are arising in a widespread manner, complicating the spatial organization since the number of polarizations is multiplying creating in turn new urban systems; as a result, the "unicentralization" has given way to "heteropolarization" and, inversely, peripheralization is now gradually creeping also into areas that are deemed to be the urban core*» (Lussault, 2013). The contemporary urban landscape thus appears, on the one hand, disaggregated and dispersed, and, on the other hand, dotted with peaks of density. Polarities, aggregations, territorial bodies potentially form new urban centers and represent the opposite phenomenon of dispersion.

In this perspective, even if general theoretical figures such as the "metropolitan archipelago" (Indovina, 2009) or the "territorial mosaic" (Mazzoni, d'Emilio, 2014) appear suitable to evoke, at different scales, the territorial complexity, it is necessary to revise some underlying concepts and parameters. Among them, urban density (Fouchier, 1994) should be deeply redrafted to become an interpretative key and a sensible tool for the architectural and urban project.

3. Urban density as "relational intensity"

The urban question has been always developed in close interrelation to the "density" issue, taking into consideration a multi-scale and interdisciplinary approach, and sociological, economic, environmental and hygienic-sanitary themes. It is well-known, for example, that reflections on human health in built-up areas have often raised issues of housing density, leading to the development of contrasting models.

Overcoming an approach overly anchored to merely quantitative assessments, several recent studies proposed to replace the *density* term with that of *intensity*, in order to include other parameters as well as the housing density, such as the social but also morphological and functional mix. However, *urban density* can still be an interesting and suitable notion as an interesting indicator of interaction between three main "relational intensity factors", only if used in relation to an appropriate interpretation of the urban concept. The first factor is the intensity of relationship between individuals. Starting from the assumption that the urban field concerns human life in society, urban density has to do with the way people congregate and move on a given space. This leads us to the second factor: the relational intensity between man and soil. Often reductively identified with the numerical ratio between the number of inhabitants (or dwellings) and a given surface area, the urban density linked to the way in which the land is occupied reveals the quality of living conditions. Eventually, the third factor puts the former two in relation: the relational intensity among the built spaces denotes a qualitative relationship between full and empty spaces.

The latter factor triggers a multiplicity of dynamics: first, the aggregative way of different housing cells generates a certain architectural typology, thus it generates a territorial morphology and some specific mechanisms of urban functioning; second, architecture directly affects relations between individuals on two levels that coexist at the architectural and at the urban scale. Only a simultaneous consideration of these urban properties could generate an comprehensive view which includes the rhythms and temporalities of spaces.

Consequently, urban density turns out to be a complex system composed of different equations. First of all, it is a relational measure on three scales - architectural, urban, territorial - to which the timescale and "socio-relational" one should be added.

Therefore, the notion of urban density acquires significance only as means of understanding the different and interrelated forms of urbanization. More precisely, it reveals urbanities differently defined by specific indices of proximity and relationship among architectural volumes, urban fabric and territory. Even if the debate on the urban development is still oftentimes posed in terms of contrast between compact and diffuse urbanities, vertical growth and territorial sprawl, we need to globally rethink relationships in its entirety at the scale of the urban block as well as at one of the urban agglomeration.

4. Density and urban models

The massive production of the last decades resulting from global economic expansion has been generally traced to the two foregoing development models: on the one hand, the vertical growth, oriented to an increasingly "dense" form of settlement; and on the other hand, the horizontal sprawl. This dualistic approach has generated a background biased position, based on the the condemnation of the "peripheral" and of "dispersed urbanization" territories. Since the 1990's, it has been almost unanimously attested that the "revenge of density marks a new challenge for the future of our cities" (Reale, 2012).

However, after more than fifty years of studying from and about the "architecture of the city" and the "territory of architecture" (Rossi, 1966; Gregotti, 1966), several enlightened authors explicitly affirmed the need to overcome the 20th century dichotomies in light of an hybrid approach more focused on the quality of all built forms and relationships to the surrounding space.

Specifically, the debate on the density question should not forget that the term density refers to a ratio which, in itself, does not necessarily indicate a "high", "low" nor - above all – a "right" quantity. Placing the debate once again in dichotomous terms - city versus countryside, density versus dispersion - seems to be an approach still excessively anchored to a past that is rigidly categorical declaring density at all costs and without compromises.

It is true that lot of research demonstrated the economic inefficiency and energetical unsustainability of a "low-density" territorial development, suggesting to "build the city on the city. This remains a valid principle for at least two reasons: first, the need to abandon a "foundation culture" in order to promote a transformation one; second, the compactness of human settlements is certainly desirable from a social point of view.

Nevertheless a relatively recent research line turned the tide demonstrating that some forms of urban dispersion, albeit entailing territorial risks, have the potential to develop innovative projects for the urban space (Allen, 2003; McGee, 1991; Viganò, 2013). This approach re-enabled horizontal relations which unhinge the traditional vertical and hierarchical lecture: "compenetrating rural/urban realms in a decentralized and multi-polar - but cohesive and self-organizing - system , a layered territorial construction where agriculture and non-agricultural economic activities create also an original mix" (Viganò, Cavalieri, Barcelloni Corte, 2018). Hence, it is precisely a hybrid interaction among different urban layers that can be relevant for more flexible planning approaches, incenting new practices and lifestyles[2]. For instance, a review of the traditional transport system could generate favorable solutions to overcome the trivial "centre-periphery" dualism. The density infrastructural support could ensure a widespread habitability offering "the same conditions in all directions" (Viganò, 2014).

Notwithstanding the main problems of the last century related to urban sprawl, attributable to the

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lack of coherence between the parties and of a shared logic based on collective values, the critical analysis of past dynamics should not inhibit (and rule out a priori) future alternative scenarios.

Reconsider the urban space as a heterogeneously inhabited landscape, accepting and improving its intrinsic diversity, would allow hypotheses of a more peaceful coexistence between humans and "territory as a common good" (Magnaghi, 2014).

5. Reinterpreting the urban mosaic

To bring the reasoning to a pragmatic level, the case of the Parisian agglomeration is emblematic. The above reflections are clearly exemplified by certain dynamics that have marked the public debate on development policies and operational practices over the last few decades. Overcoming old cascading operational processes linked to the "urban project" practice from the'80s, in the new century new hybrid, non-linear, and multi-scale approaches emerged, focusing on "global and transversal figures for the metropolitan territory" with particular attention to the limits, thresholds, interstices and components of the territorial identities (Mazzoni, 2020).

Since the revision of the ancient SDRIF[3] (2007), and due to the Atelier International du Grand Paris (AIGP)'s work, new design attitudes arose around the "urban intensity" theme as a key planning instrument. With the aim to achieve a "new shared sense of belonging " (Ferri, 2020) through the integration of the peripheral territories gravitating around the Parisian agglomeration, the political vision has been translated into several "territorial narratives" (Mazzoni, 2020) differently intertwined with the urban density issue. Some more focused on the "formal translation" of the urban development - such as "the polycentric metropolis" or "the multipolar metropolis" models - and others more focused on quantitative and qualitative assessments - such as "the compact metropolis", "the soft metropolis reinforcing existing poles", "the porous city", "the horizontal metropolis" or "the light and diffuse city" models. In this framework, a common denominator - the dogmatic assertion of the urgent need of a «*more and more dense and compact city*» - again revealed a dangerous approach which flattens the interpretation of the urban. It forgot to translate, consider and respect diversity and heterogeneity of components.

Nonetheless some "exploratory scenarios" (Mazzoni, Pommier, Magliacani, 2020) showed to be interesting in their attempt to understand local realities without denying the importance of an overall view (fig. 1). Among them, the BMCA[4] atelier proposed "Le grand Paris des densités dispersées" project (fig. 2, 4), focusing attention on the peripheral territories (The so-called "Grand couronne" or "Sub-agglo").

According to the researchers, these places reveal profound contradictions due to strongest demographic dynamics and social inequalities[5],

2. A similar principle underlies the approach that lead French administrations to hypothesize a new polycentric model for the Parisian agglomeration - opposed to the traditional "radio-centric" one – through the total rethinking of the regional infrastructural system.

3. The SDRIF (*Schema Directeur de la Region Île-de-France*) is the Île-de-France regional masterplan.rethinking of the regional infrastructural system.

4. Brès + Mariolle et chercheurs associés.

5. These areas are characterized by a construction index of 4.3 (compared to the 2.7 in the city of Parisian metropolis), and only 20% of rich municipalities as against 30% in the metropolis of Paris, and only 2 out of 3 municipalities who voted more than 15% in the legislative elections of 2012.

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representing also the main natural resources for the Parisian metropolis in terms of water, energy, crops, wood. On these grounds, the atelier proposed to rethink the whole urban space starting from the dispersed urbanization territories.

This inverted perspective has been translated in an inclusive design approach that enhances the interfaces with natural environment and incentivizes the integration of agricultural lands and various forms of production in the urban texture. A logic of productive exchanges makes it possible to consider the anthropized environment as a potentially positive part of the whole ecosystem. Moreover, in response to the sustainable mobility challenges posed by dispersion, the proposal reveal also an intention to seek efficient solutions connecting the local micro-reticular system to the large high-level transportation network and enhancing the nodal points of interconnection with new services and functions. Furthermore, the project focuses on the proximity housing conditions at the local scale (fig. 3). Reconsidering how to favor the fundamental relationship between residence and services, they theorize innovating ways of life which would retroactively enrich the living conditions in the more densely built-up areas. A new "Contemporary vernacular" design (BMCA, 2013) thus starts from here.

6. Conclusions

The raised awareness of the urban condition - made by different "urbanities" with featuring intensities, ways and rhythms of life and different relationships with the environment - actually reflects the famous "genius loci" already described by Aldo Rossi (1966). At the time, he proposed that the architecture of the city is something that directly arises from the dialogue among the parties, as well as their symbolic characters and meanings: the tension between the city's elements, the territory and their memories reflects the real essence of the urban intensities.

When transposing this mindset to the contemporary debate on the urban condition, it becomes clear that this awareness should not be neglected but further deployed. It is therefore essential to reason in terms of flexible exploratory approaches which take into account all the factors related to the urban issue. Last but not least, the "uncertainty" factor should also be included since it leads us away from passed models built on convictions and resulting from functional and quantitative approaches.

The richness of the urban landscape originates from the dialectical relationship between unity and multiplicity. It is the respect, the improvement and the integration of the constituent singularities, and not their isolation, that strengthens and gives value to the urban intensity.

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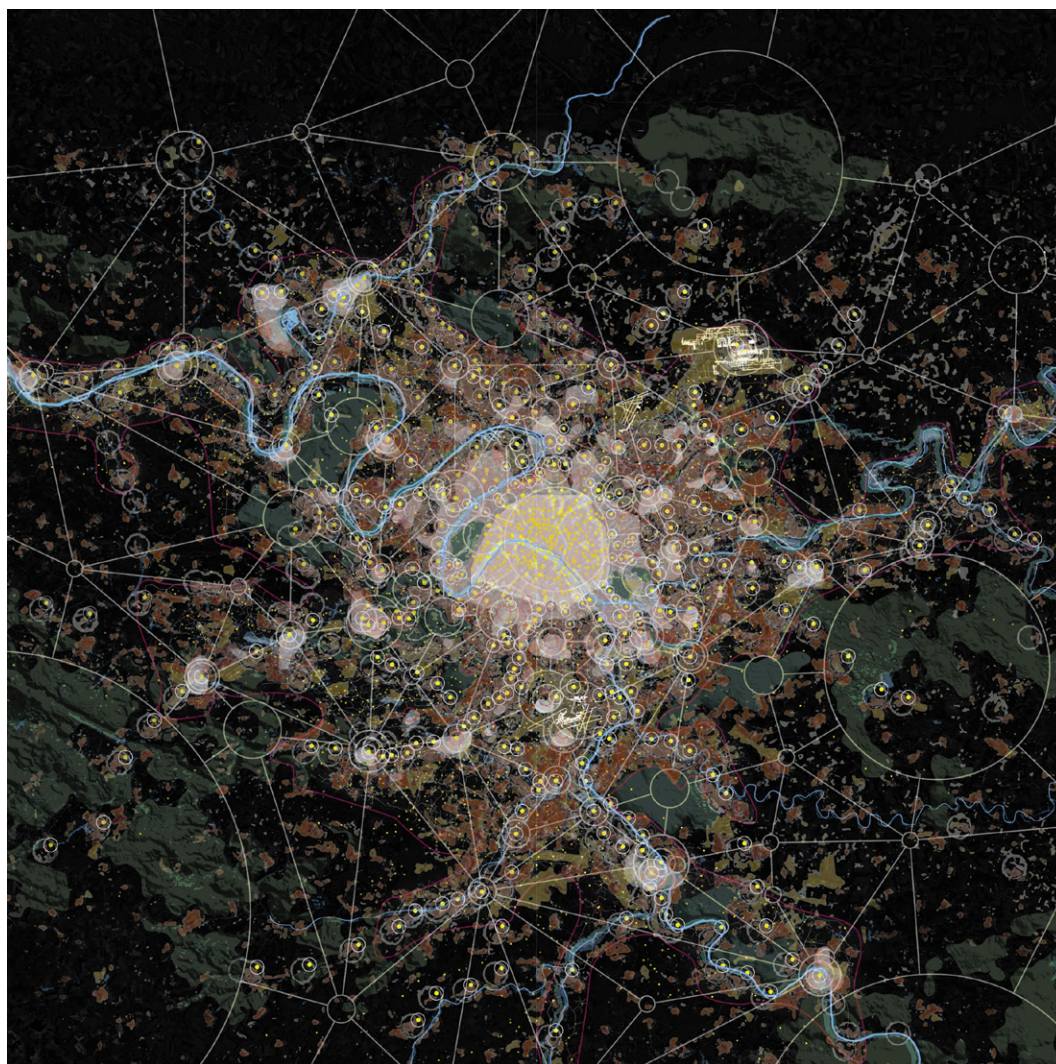
Figure 1

AIGP study seminar " Metropolitan systems", 2013-2014. Personal re-elaboration of the maps produced by the Ateliers. 6

The Atelier International du Grand Paris was created in 2010 at the request of the Head of State, following the international consultation "Le Grand Pari(s) de l'agglomération Parisienne" (2008). During the "Systèmes metropolitains" work session, in occasion of the "Métropole du Grand Paris" administrative unit creation, the Atelier debated on Parisian "metropolitan systems" in accordance with the regional scale planning (cfr. SDRIF Horizon 2030: Île-de-France 2030 Master Plan) and the redevelopment of the Ile-de-France transport network (Cfr. the "Grand Paris Express" project). Some " exploratory scenarios "and proposals of several atelier showed an interesting field of research in their attempt to interpret local realities without denying the importance of an overall view.

The picture above represents a personal re-elaboration of the author that summarize and hybridize some of the contributions.

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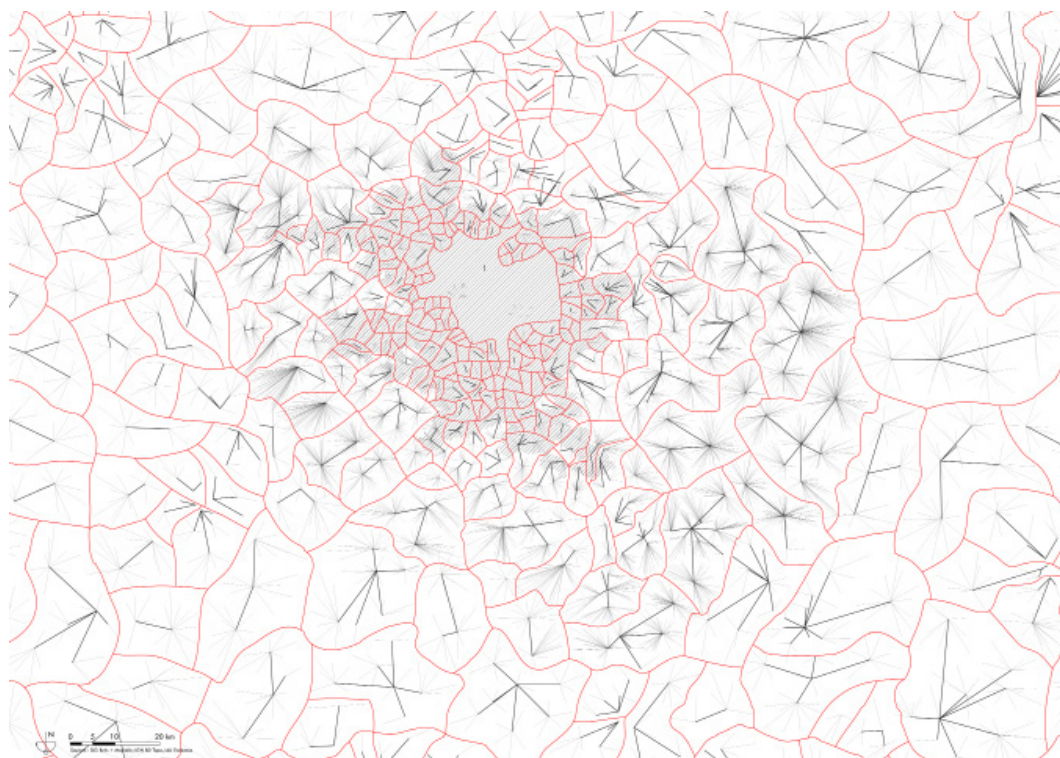
Figure 2

AIGP study seminar " Metropolitan systems", 2014. " Le Grand Paris des densités dispersées ; chapitre 2,
MÉTROPOLE EN RELATIONS", Brès + Mariolle et chercheurs associés. hercheurs associés.
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Through the notion of "dispersed urbanization", the atelier tried to understand and represent the properly spatial characteristics of the contemporary urban reality featuring the Parisian agglomeration, focused on territories "where things are moving and going badly" (BMCA 2013).

To demonstrate that "dispersion" and "proximity" are not irreconcilable condition in the contemporary urban space, they focused above all on the local scale, elaborating the concept of "proximity clusters" (represented in the figure above). The latter reconsider the basic relationships to be favored between residence and service, hypothesizing new forms of living.

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Figure 3

AIGP study seminar " Metropolitan systems", 2014. " Le Grand Paris des densités dispersées ; chapitre 2,
MÉTROPOLE EN RELATIONS", Brès + Mariolle et chercheurs associés. hercheurs associés.
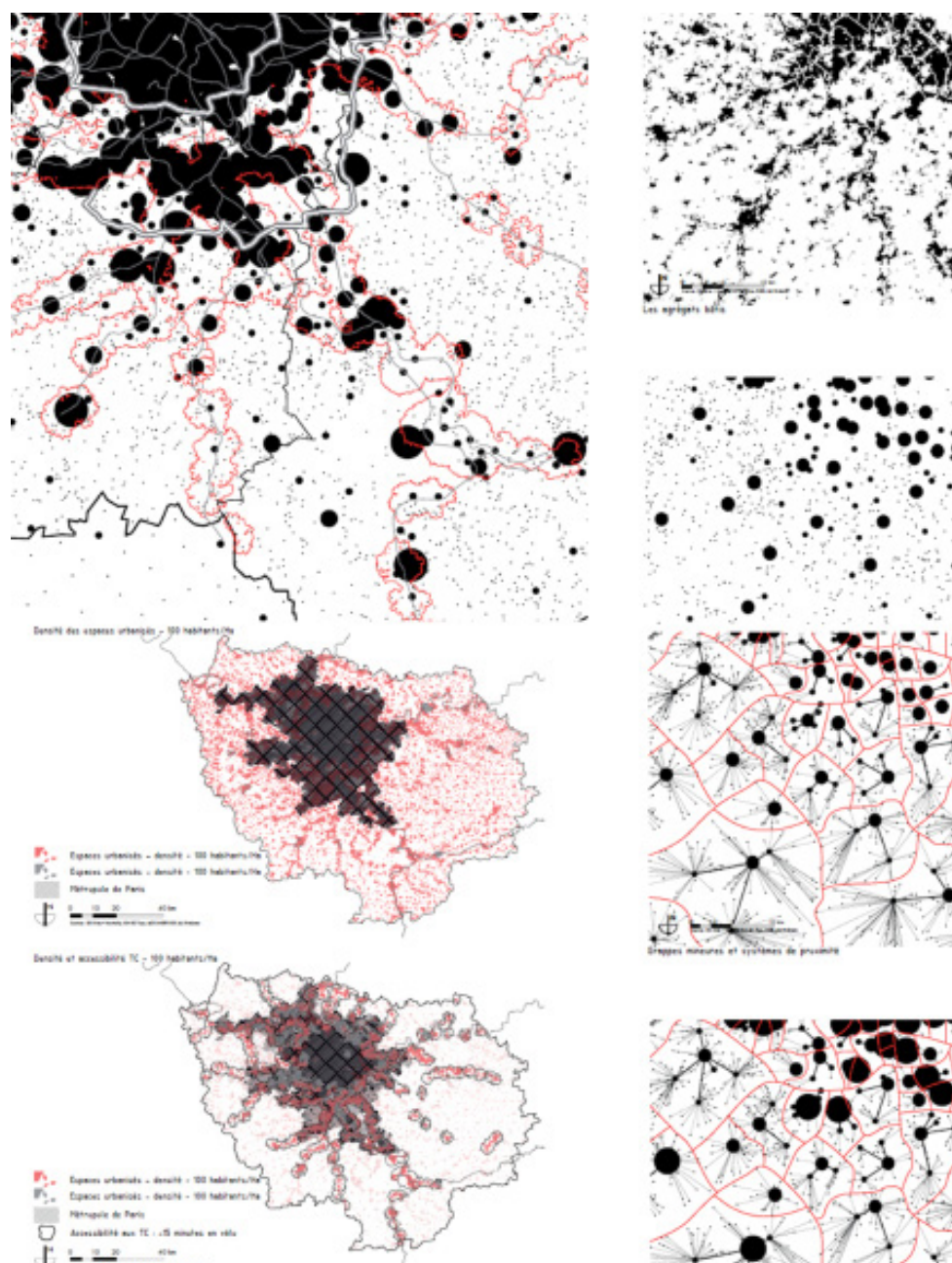© Brès + Mariolle et chercheurs associés

Figure 4

AIGP study seminar " Metropolitan systems", 2014." Le Grand Paris des densités dispersées ; chapitre 2,
MÉTROPOLE EN RELATIONS", Brès + Mariolle et chercheurs associés. hercheurs associés.
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Recovered materials for participatory urban design processes: The case of Struga City

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Abstract

This research aims to show methods of urban design that utilize recovered materials as transformative resources for design. Different materials are available on earth in different states and different usages of said materials can change depending on how architects and designers view them. Different perceptions of findings also give us different urban situations that may be able to change the urban fabric. This process, tested several times in different communities, has resulted positively in the participation of residents as well as in the subsequent maintenance of the transformed space. The projects and experiments conducted below are born from the possibility of recovering materials and reusing them in a new life cycle to ignite urban transformations. Through this process not only do we delay the materials from going into a wasteland but we can also extend their life and their impact on the built environment. Through the process of participatory design, waste materials are recovered and reused as resources for urban interventions.

Keywords

Material waste; city; participatory design; urban design.

1. Introduction

Globally, almost all economic systems rely on the consumption of natural resources to produce economic output and fabricate large amounts of waste as a result a result (Hebbel, Dirk E.; Winsleska, Martha H.; Heisel, Felix, 2015). While the system itself seems effective, it causes deep environmental burdens to our habitat, and, most importantly, disrupts social integrity and sustainability. An example par-excellence of this phenomena are the images we are offered of the poor living in urban areas, which search for materials among large piles of waste. This symbolizes the clash between two worlds: the overproduction and overconsumption economy we are thriving in, on one part, and the deep social segregation of vulnerable groups on the other. These images coincide with the largest urban agglomerations, where most of the waste is produced, especially non-organic waste. Unfortunately, waste is still majorly treated linearly, by being disposed of in unsanitary landfills, or burnt in incinerators, and is not included in a circular flow of transformation from product to resource.

If we consider the output of these processes in a more general term, we can conclude that it is a 'waste of waste'. Cities produce 1.3 billion tons of solid waste per year, which is expected to grow to 2.2 billion by 2025 (The Economist, 2012).

It comes as no surprise that the countries that produce more waste are the 34 OECD countries[1]: indeed, more than the other 164 countries together. China is about to become an outlier in this regard, with statistics estimating that it will produce more than 50% of all global solid waste in the next 5 years[2]. There are two approaches which can address these countries that produce the most waste: either consider them biggest pollutants and an environmental problem, as the traditional point of view; or to look at them under new light: countries with full potential for recycling (Hebbel, Winsleska, Heisel, 2015). This optimistic standpoint asks for a paradigmatic shift in the way we consider garbage and waste.

Although many believe that waste should be valued as a resource. «*Waste and its meticulous handling are valued as gifts, offered by society to itself. Where we turn the parable's missed opportunity to our advantage, a modified economy would be set into motion. Perhaps then we would come full circle in being sustained by the constant transformation of matter and energy at hand, without beginning and end*» (Angélil & Siress, 2010). They emphasize that waste needs to be considered a gift, rather than a 'negative output'. In the end, it is understandable that waste is considered an investment, which needs to give back value and profit. "So far, this investment is deadlocked and we seem to have lost the key to how to open its potential and benefit from it as a life-long revenue" (Hebbel, Winsleska, Heisel, 2015).

1. Organization for Economic Cooperation and Development.

2. The Economist online, last accessed 29/07/2020.

When the waste is disposed of, as the final output of a production or consumption system, societies need to have access in it through different forms and make revenues from it. But in our economies, the profit from the use of waste once it is disposed of is captured by another subsector of economy. They are other by-products. Problems in our current waste management system have been highlighted by Leonard in several contributions, such as "The Story of Stuff" and "Take, Make, Waste" (2010).

She argues that the current system in which we manage waste is not environmentally unsustainable, because still waste is included in another economic system. The problem is that it is considered as secluded from the initial input system. «I*n fact, we follow a linear process where the outcome of our consumption is not valued as a resource but seen as a product excluded from the cycle of our economic system belonging neither to the natural resources nor the desired products*» (Hebbel, Winsleska, Heisel, 2015).

There is a nonsensical allusion to the waste management process: municipalities are paid by citizens to collect and dispose of their waste, thus considering it not as a resource, but rather as a negative by-product. In the US, out of 250 million ton of solid waste produced each year, only about 90 million tons are recycled, while the rest is incinerated or disposed of in landfills (United States Enviromental Protection Agency, 2018).
This can be considered a 'waste of waste', and influences negatively the whole production cycle: the water consumption, energy, wood or other materials needed to produce the original products, which will turn to waste subsequently. According to Timechange.org, during the production of a plastic bag oil is needed as a base material, and also, in the same amount, as energy during production techniques.

Even more troublesome is the fact that for each plastic bag that is produced, 250 grams of CO2 are released in the air[3]. This is a very alarming situation, which can be rapidly improved if the plastic is recycled appropriately. Indeed, almost half of this amount of CO2 can be contained.
This example takes into consideration one industry, but in other industries, the situation is even more problematic in terms of CO2 emissions and other toxic gases. For example, recycling steel would save 75% in energy. "And to produce 1 ton of paper, 98 tons of natural resources are needed" (Hebbel, Winsleska, Heisel, 2015). In this context, recycling becomes also the perfect way to efficiently get raw materials that can continuously be reintroduced into the production chain.

3. 'Plastic bags and plastic bottles – CO2 emissions during their lifetime', Timeforchange.org, last accessed on 27/04/2020, http://timeforchange.org/plastic bags-and-plastic-bottles-CO2-emissions.

2. Related Works

2.1 Urban Mining

Urban mining is a relatively new approach, promoting recycling of materials and components from waste goods or, more extensively, from buildings containing high amounts of useful materials, or at least undesired goods. Ilka and Andreas Ruby explain the current shifting knowledge in their text "Mine the City", stating that base materials in raw form cannot be found in nature, but rather in more 'cultural' milieus, i.e. buildings.

> *At the sight of their natural roots, the material resources of construction are being rapidly depleted thus accumulating inversely inside buildings. Today, for example, more copper can be found in buildings than on Earth. Our buildings become mines in themselves as mines become increasingly dry.* (Ruby, 1989)

The city, in their opinion, must be viewed as a grouping of buildings and mines, much required for its reproduction.

Urban Mining studies and issues of the number of resources that can be recovered in landfills or buildings are blended in Thomas Graedel's studies. As Graedel puts it, buildings store not just the resources to be recycled, but a huge amount of energy that could be reactivated along with them. He claims that only 5 per cent of the energy originally used for its manufacture is required for the reuse of aluminium that could be recycled from buildings. «*Aluminium is extensively employed in buildings, but it does not remain permanently in place. Buildings are remodeled periodically and even deconstructed, thereby freeing the aluminium for recycling. Therefore, it is not inaccurate to regard this aluminium as 'urban ore' and cities as 'urban mines»* (Graedel, n.d.).

Urban mining illustrates the ability and possibility of resourcing waste materials by being transformed, reshaped, remodelled, or reconfigured at the end of their first life cycle as they join a second. Dirk E. Hebel in his book Building from waste states that "it also opens up the question of whether the consideration of the waste state of a product should not become the starting point of its design proper" (2015). This clearly shows a different approach from the traditional design process where materiality and its source are introduced through later stages of the design. Open urban landfills, which in most developed nations have been declared illegal during the early 2000s or even before, have been converted to recreational, green space upon their closure. Interestingly, they are experiencing a 'comeback' as important suppliers of metals and rare earth, rather than being considered merely waste disposal sites. In 2009, 8.4 billion euro was saved in Germany alone by recycling useful materials from waste goods. It is understated, however, that putting into function former dumpsites has a deep impact on the urban environment. Moreover, it is understandable that many citizens are reluctant to use them, due to possible health hazards caused by a toxic compound, which were isolated previously in many earth layers. It comes as no surprise, therefore, that focus has shifted to buildings, because they serve as a real mine for recovery of materials, especially high-value ones, like copper or aluminium. Indeed, the cost of recycling these materials is lower than the cost needed to demolish these types of buildings. Urban mining illustrates the ability and possibility of resourcing waste materials by being transformed, reshaped, remodelled, or reconfigured at the end of their first life cycle as they join a second. It also lays down the question if the state of the waste product should become the starting line for each new design.

Figure 1

Roma Camp in Tirana where shelters and housing are built from the waste collected from landfills. Photo: L. Plani

Taking into account Maria Voyatzaki (Voyatzaki, February 2016) in *The solid and the liquid in environmental design education*, the environment can and must be appreciated as an innovation catalyst of architectural design; as a framework from which new ideas, forms and immaterialities can emerge offering innovative advancements in architectural contemplation and creation.

2.2 Tirana Urban Bundle

This has been a kind of unconscious process before, where the need for shelter precedes over the quality of materials used to make such shelter. A kind of vernacular approach to building with what the land offers with the main difference is that nowadays the land also offers waste.

The initial life cycle of the product, in this case, is of little concern to the user, with the ability for the product to perform another purpose coming into focus. As the intended purpose falls into the background, geometry and ability of the recovered material to aggregate with other objects become integral. This means seeing any waste from other processes with a potential of serving more than the intended and first life cycle. The definition used by Hebeel during his book Building from waste on recycling says: «*recycling takes given objects in their context and re-applies them in different contexts and with different functions with little or no physical modifications*» (2015).

And while this definition opens up a resource that is presumably worthless to society, this merely welcomes the possibility of tapping into a resource but does not change that resource as applicable to building processes.

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Figure 2
Roma Camp near the Center of Tirana (Source: Diagram Authors, Images: Google Maps)

The proposal frames a series of urban guidelines and recommendations to initiate a territorial participative project that could affect the whole neighbourhood.

This methodology was consulted and successfully tested on several other occasions in area and contexts. In this framework, some of the urban participatory design were implemented over the past years during Tirana Architecture Week and Tirana Design Week. Some of this actions are quoted by Ciro and Dajko in "Urban Provocations - Taking Inside Outside (Albania)" (2014) such as Tirana Urban Bundle (TUB), which is a shared area that offers first opportunities for people to participate in the producing and maintaining their own urban space.

TUB is a transparent construction without doors and walls, composed as a particular modular system combining wooden, metal and other recyclable elements. "TUB is a temporary installation in the public space that encourages transparency and facilitates gatherings of the administrators, citizens, investors and experts to maintain their discussions and negotiations on developing Tirana urban conditions" (Dajko, Ciro, 2014).

Another project is called "In the Hood" which was attended by 20 students from Polis University who together with the participation of the residents managed to transform "local scrap material into a temporary installation". Dajko and Ciro emphasize that: "If you want the cities to offer something for everyone, it is important to engage people in the city-making processes" (Dajko, Ciro, 2014).

In this sense, urban planners have demonstrated a strong interest in communicating with residents in creating a friendly neighbourhood by constructive listening activities and spaces for urban dwellers to express their view of the city's future (Crewe, 2001)

3. Methodology

The habit of refusing our waste as a possible resource comes as a result of the bad stigma that follows it. On the other hand, recycling data shows that we are passing up on a possible resource that can greatly impact the effect we have on the planet. As our cities continuously grow and expand, more and more of the earth's resources are now found in our built environment. Therefore the process of urban mining (Ruby & Ruby, 2010) comes as a logical solution. Recycling, as stated above, becomes an effective way to get raw materials that can be reused for new purposes and cheap solutions. In this logic, the city itself and it's waste become the perfect source or 'mine' where material is collected from new building processes.

The methodology used during this study follows a participatory design approach in urban design that introduces material reuse in order to promote urban design participatory processes. This study works towards the aim of finding ways of engaging the less fortunate communities in improving their public spaces with cheap solutions based on recovered materials. Due to economic difficulties, such communities are much less likely to take action or initiate in improving their social space.

Urban spaces inhabited by these sections of society are often destined to degrade over the years. However participatory design methods adopted before in Albania have proven to be successful in engaging highly divided. Divisions come as the communities are fairly new to each other but also as they have been often lied to from local authorities. As a contribution to this part for Albania, is also the non-profit organization Co-PLAN[4] who has developed many project in collaboration with communities. One of the recent project was "Performing Democracy: Urban Activism for Civic Democracy"[5] which addresses the need for the community to take its role and responsibility in city-making process by increasing their participation in the process of conception, design and building.

Another project is the case of 'Qyteti për Qytetaret, Qytetarët për Qytetin' (City for Citizens, Citizens for the City), a design workshop that the authors participated in 2013 and conducted by Elvan Dajko, as a great example of participatory design process involving actors from the community, stakeholders and students of architecture. Their aim was to design an urban playground which utilizes recycled material. Spaces that had been taken over by car parking and completely void of other functions are transformed through participatory design processes in functional spaces for the community.

The experience and outcome of the workshop serve as evidence that local governance involvement is important by making communities dependable. What happens if municipalities are not responsible anymore

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Figure 3

In the Hood Workshop Implemented by Co-PLAN, in collaboration with the municipality,
(Source: http://www.co-plan.org/en/qyteti-per-qytetaret-qytetaret-per-qytetin/)

for semi-public or public spaces?

The study then shows the case of Struga as a practical example where a participatory design methodology, coupled with material reuse and detached from local governance can be applied. The whole workshop that lasted two weeks was based upon a new law being passed where local governance would not be required to design, maintain or clean semi-public and public spaces for inhabitants. These puts many spaces at risk of degradation over time due to communities being unable economically, or in knowledge on managing their space. A participatory design phase of negotiating with the community and a group of designers to activate transformative processes was applied.

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The participatory design phase was framed in a way of understanding the community and its peculiarities to facilitate the process towards the goal:

- Planning short-term and long-term strategies with communities to ensure the effectiveness of the process;
- Giving knowledge and guides to the most involved community members;
- Generating ideas with different ages and groups either through debates, public presentations or craft workshops;
- Identifying key community actors that can be put in charge;
- Letting the community do most of the work as a way for them to take charge;
- Providing them with enough material, information and assistance to continue the process.

Through these two case studies, the paper tries to present an overview of two participatory design processes where local governance takes two completely different roles, one of the main stakeholders, and one where it is not involved at all. Defining the achievable scope in this case completely changes and importance is given to cheap solutions based on material reuse. The important aspect here is to understand how communities can transform and take charge of their own spaces when they are given all the resources possible. By concluding these cases, the study tries to formulate a connection between the urban design participatory processes and using recovered materials as a main resource.
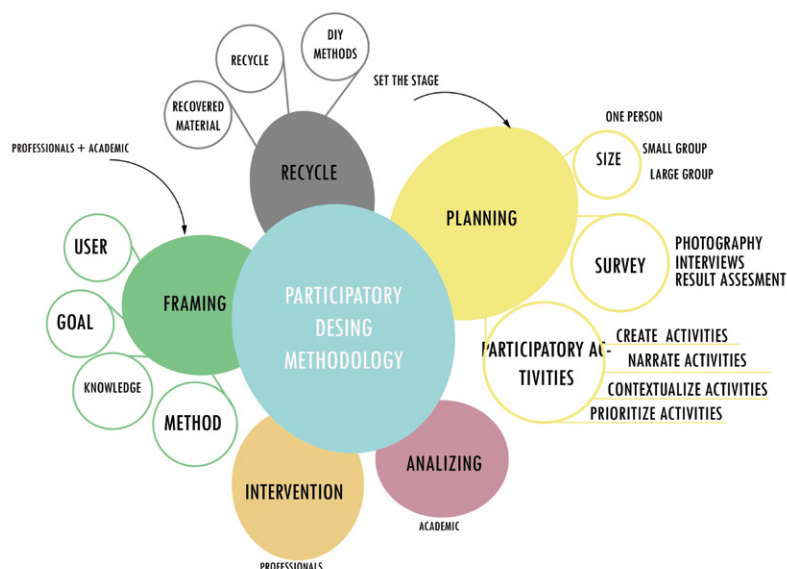
Figure 4
Participatory Design Methodology

4. The case of Struga | North Macedonia

There is no simple solution or one fit all approach to identifying an effective participatory method. UrRe[6] is born as a project of community involvement in Struga, Macedonia, organized by the EU and organizations such as CreativeActive Struga, EU for You and the Local Development Agency. The workshop is born as a way to promote community engagement in urban design processes especially due to changes in Macedonian law which sees public space ownership passing from the municipalities to neighbourhood administration.
Due to the implementation time and also to a history of neglect even under municipality ownership, the fear that these areas would fall into a process of degradation became real. The workshop aimed at finding a solution and creating a set of operations that can be replicated in different neighbourhoods in Struga. A lack of funding, previous disorganization by local authorities and disbelief between the inhabitants made the task harder. A participatory process was followed during the discussion and design phase to create a sense of ownership and agency in the new spaces.

It quickly became clear that these processes for these neighbourhoods would have no funding with habitats that were directly connected unwilling to pay due to mistrust. This is how the idea of engaging the community in using local recovered materials that they would view as waste became a reality. Waste in this case would imply anything abandoned or seen as worthless in the area.

The workshop below starts from Urban Mining as a way to find the resources needed to understand the underlying qualities of the waste that was "mined" around Struga. Design and solution were thought of only after the participatory process and after having a stock of materials which could be used for the interventions. Therefore, aiming to engage the most marginalized communities especially young people and children, as the sub-category of vulnerable groups, to thrive and involve in active participation of urban life, a combination of a range of complementary participatory methods shall be used. For each phase of the workshop, a specific participatory method was implemented.

- Online Survey and Facebook-based campaign
- Area mapping
- Partnership with the community
- Meeting with the local governance
- Waste collection and categorization / Mining
- Designing
- Child-friendly and participatory Design Process
- Future Recommendations

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4.1 Material and human resources

Materials gathered through recycling can be of various forms and functions and most importantly can be adapted to fit new uses that the community needs. Simple shipping pallets, collected from markets or shops can be adapted as outdoor furniture through simple woodworking techniques like cutting and assembling. Benches, tables, orchards organizers, fences, bicycle parking, movable platforms etc. can be made through little effort and practical knowledge. Recovered tires which can be found in numerous scrap tire yards, and easily gifted by mechanical shops can be a free solution to be used as space dividers, sitting elements, flower pots, children playgrounds etc.

Other materials which can be cheap or provided by the community resources like stones, flowers, paint, beer cases, plastic bottles, bolts and nails can be adapted by the community using DIY techniques to transform the objects and the space to either temporary or final solutions.

5. Results

A workshop for kids was developed where they were asked to design a playground of their dream. On the other hand, a large model was prepared to generate discussion amongst adults concerning specific topics.
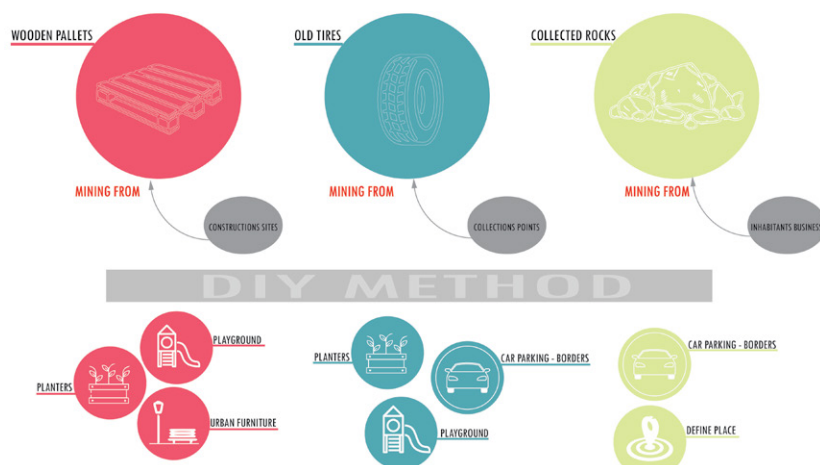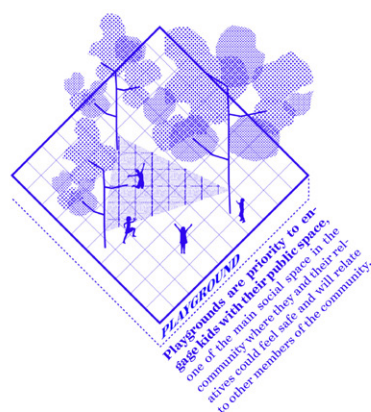
Figure 6

The three main materials collected and transformed into useful urban furniture or elements

Figure 7

Catalogue of actions proposed during the workshop with practical actions taken on site: Creation of Playground through used tires. Credits: North Macedonia UrRe 2.0 Workshop (2018)

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Figure 8

Catalogue of actions proposed during the workshop with practical actions taken on site: Creation of Playground through used tires. Credits: North Macedonia UrRe 2.0 Workshop (2018)

6. Observations

Although no digital tools were used (apart from normal drawing) during the UrRe 2.0 workshop, the challenge of using reusing waste in order to active an urban participatory process proved quite interesting. The final project and intervention were limited to a single neighborhood in Struga. While fairly successful in transforming a space and creating functional urban furniture and design elements, the project was created as a pilot for other public spaces in Struga.

In the interest of our research, the ability to quickly respond to a design problem through the use of 'local waste' shows once again the ability of waste to be a resource when viewed as one. The impact of waste being a dirty, unhealthy and non-sanitary material was easily changeable when habitants were faced with the cost of the shelf products.

They were also quite ready to take part in all parts of the processes, as becoming part of building and making created a different connection between user and space. While the average citizen probably does not have the skills to build or design their furniture, through the use tested designs and support from local experts, these processes can become disseminated in order to be replicated later. Replication of these methods can offer solutions for future neighborhoods which will be required to take charge of the upkeep or even design the future of their own urban spaces.

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Figure 9

Catalogue of actions proposed during the workshop with practical actions taken on site: Creation of Playground through used tires. Credits: North Macedonia UrRe 2.0 Workshop (2018)
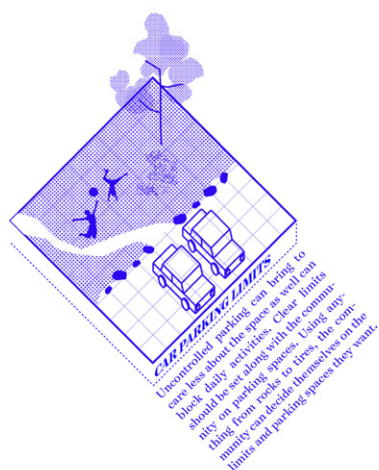
7. Conclusions and future work

Globally, almost all ecThis ongoing research is based on a practical response to an ongoing problem in a particular context. While it is important to mention that the results of the UrRe 2.0 workshop proved quite successful for that context at that time, specifically due to the pass of ownership in public spaces under the new law. Therefore this methodology becomes specific to the conditions and context and cannot be replicated in other communities. In order to allow for an autonomy of future responses in Struga, a publication in the form of a manual was created and distributed to inhabitants and the municipalities with the aim of seeing this processes replicated in future interventions by the citizens of Struga. Although this has yet to be promoted by local municipalities. The participatory processes create a sense of ownership with the space, with locals becoming aware of preserving the new interventions, although it was built out of waste. In this context, we can say that participation plays a large role in processes where citizens are expected to be the main stakeholders.

Further research work will aim toward using digital tools in the stage of the design process. More specifically, helping in the purpose of understanding the main processes where digital tools can become impactful when dealing with waste. In this sense, are used as literal tools that bridge the

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gap in the complexity of dealing with materials that do not fall into the standard categorization. The example of the workshop in Struga, on one hand, had very little use for the digital tools as the collection of recovered material was completely was based on manual processes, the same as the design. In this context, a research that works on creating more user friendly and top down and bottom up processes can be seen as very useful. The ability of such tools to provide low-cost design services for semi-public

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Roman Diaforentities. Interdisciplinary insights for urban regeneration in Rome

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Abstract

The essay introduces a research proposal built from a new awareness on the approach to the urban existing heritage acquired after studying the anthropological meaning - not only architectural and spatial - of the concept of border. In his books, the anthropologist Piero Vereni develops the concept of "diaforentity" as the ability to build and affirm one's own identity thanks to changes that can occur by will or due to unexpected external phenomena. This concept, used as a disciplinary loan for architecture, renews the meanings of non-place and junkspace and overcomes that of resilience for the regeneration or redesign of spaces and architectures modified by time or by catastrophic events. The case study taken to apply this theory is the Mandrione district in Rome, choice due to the recognition of its historical and cultural qualities despite the urban decay in which it lies after the demolition of the shacks built during the World War II.

Keywords

Diaforentity; Roman aqueduct; urban regeneration; self-constructions; public art.

1. From anthropology to architecture: a new insight

The anthropologist Marc Augé, in the autograph preface to the 2009 edition of his famous book *Non-lieux*, writes

> *I have defined an anthropological place as any space in which the inscriptions of the social bond (...) and of collective history can be read. These inscriptions are clearly rarer in the spaces marked with the ephemeral and passage seal. And yet in reality there are, in the absolute sense of the term, neither places nor non-places. The place-non-place couple is an instrument for measuring the degree of sociality and symbolization of a given space* (Augé, 2009, p. 8).

This is a necessary adjustment to the definitions of place and non-place that he had provided in the first draft of the 1992 essay. The aim is to recalibrate his own considerations according to today's contemporary modernity, which we could define as "post-postmodern", in which the inhabited space is identified with the surface occupied by the single individual. He carries everything he needs to stay (connected) to the world: digital ubiquity neutralizes the need for the presence - and therefore - for localization, the minimum existential coincides with the minimum soil.

To say that a "place" and a "non-place" do not exist in themselves but only by the use we do of them, means to crack the buttress of the identity of the places, which has always been placed as a barrier to the modification of historic centres or sites of archaeological interest, which are threatened from the bulldozers of modernity aimed at the accumulations of memory and recognition. Augé re-establishes a two-way relationship: if a new existential condition can switch non-spaces of *transit* into spaces of *being* (for example introducing art in the subway stations: the distracted flow of the passenger is contrasted by the contemplative act of the savant), the excessive "museification" of places (endowed with identity, relationality and historicity) shifts their condition from being as stratification and multitude, to not being as a landscape to be crossed. Historical cities become theme parks in which the stratigraphy of life is replaced by the consumption of the moment. The dichotomy of place/identity and non-place/non-identity generates the further combination of permanence/mutation associated with the concept of resilience, understood as the ability of a place to maintain its own identity characteristics unaltered - as individuality, locus, design and memory (Rossi, 2000) - despite the modifications occurred in the face of an external shock.

To defuse the stalemate created by the fear of uncertainty, it is proposed to overcome the principle of identity in favor of the concept of diaforentity described by the anthropologist Pietro Vereni (2004, p. 19):

> *Diaforentity expresses the person's ability to vary syn- and dia-chronically while continuing to feel herself. From what has been said, the relationship between diafor-entity and identity, understood precisely as permanence, should also be clear. The discriminating feature between the two is already in the etymology: diaforon-entity vs. idem-entity. In identity, what constitutes the entity is its permanence, and the variations are nothing but accidents. Diaforentity is instead the mutability that recognizes itself, the subject as hic et nunc, which adheres to itself without measuring itself against the immobile touchstone with an abstract self given once and for all.*

Translated into a place, the diaforentity allows the mutation to occur without the need to resist, reversing the clash between existing and new in a dialogue capable of metabolizing the Fuck the context! by Rem Koolhaas, giving back to the city (or to the landscape) a living object that mends the tear between pastism and futurism. The diaforentity would allow to shift the topic of the debate from whether to modify to how to modify, at the same time favoring the spirit of the times and redefining the ways in which the architectural/landscape self can «*remain in becoming, that is, to recognize itself not despite, but in the difference»* (Vereni 2004, p.18).

The effectiveness of this theory lies in its transversality: it can be applied to an infinite number of situations and can be declined in an infinite number of attitudes, thus guaranteeing the experimentation of infinite combinations until finding the most suitable solution for the purpose of the places.

2. A case study: the Mandrione district in Rome

Rome is a round shaped city crossed in every directions by ancient aqueduct lines, many of them still functioning for the water supply. They stand out gloriously in the middle of the traffic jam, they face the blocks of flats without fear, they still are used as "crutch" for parasite buildings. The case study chosen is the proximity of Mandrione street that follows the line of the Acquedotto Felice, crossing the Casilino district in Rome[1], because of the stratified layers of historical evidences that this

1. The place has been study theme of the international workshop *On Pasolini's footsteps: the Mandrione landscape. recycled landscapes between urban space, the Appian archaeological park and residual agricultural areas*, organized by the Faculty of Architecture of Sapienza University of Rome and the Université de Liège, by professors: Pier Paolo Balbo di Vinadio, Fabio di Carlo, Enrico Genovesi, Rita Occhiuto, Sophie Dawance, Anne Rondia, Marc Gossens

Figure 1

Indication of the line of the Felice Aqueduct and the Mandrione canal in a map dated 1884

stretch retains in its morphology. Situated in the South-Est quadrant of the city, inside the G.R.A. and between San Giovanni and Cinecittà neighbourhoods, this quarter had been modified over time, but the most affecting ones were the building and the demolishing of a great amount of shacks that for decades welcomed displaced people from the Second World War. There were no reconstruction or restoration after the dismantling of the hovels' settlement, leaving the regenerating process unfinished. Its existential condition is by now trapped between a glorious ancient past (that must be preserved) and a recent past of misery and rubble (that has been indiscriminately demolished). Therefore, due to a new sensibility, Mandrione district is becoming part of local and national culture through the revaluation of the work of intellectuals (such as Pier Paolo Pasolini[2] and Alberto Moravia) who have told of a poor human condition - of which one cannot have nostalgia but which one cannot forget.

2. "I remember that one day driving through the Mandrione in the car with two of my Bolognese friends, anguished at that sight, there were, in front of their hovels, tumbling on the filthy mud, some kids, aged two to four or five. They were dressed in rags: one even with a fur coat found somewhere as a little savage. They ran here and there, without the rules of any game: they moved, fidgeted as if they were blind, in those few square meters where they were born and where they had always remained, without knowing anything else about the world except the little house where they slept and two palms of slime where they played. Seeing us go by with the car, one, a boy, now well planted despite his two or three years of age, put his dirty hand against his mouth, and, on his own initiative, all cheerful and affectionate, blew us a kiss. [...] The pure vitality that is the basis of these souls means a mixture of pure evil and pure good: violence and goodness, wickedness and innocence, in spite of everything.", Pier Paolo Pasolini in "Vie Nuove", May 1958.

Figure 2

Between 1936 and 1973 about 650 immigrant families lived in makeshift shacks built between one arch and another of the Felice Aqueduct in the Appio Claudio district in the south-east of Rome. Source: https://www.dinamopress.it/news/ne-an-dato-don-roberto-sardelli-preti-lottava-gli-ultimi/; feb. 19, 2019.

These *minima moralia* of living generate two realities: one of degradation, misunderstanding and demolition, the other of illegalities and the perpetration of a private use of a public good (Farina 2016):

> *The response that the inhabitants have found in the self-produced or self-promoted house is very coherent with the values of contemporary housing culture, so much so that living in the former abusive villages appears today much more desirable than the life that is led in large public housing complexes.*

This consideration appears powerful for the Mandrione district, in which, immersed in neorealist suggestions, small artisan businesses, architectural studios and artists' residences have begun to occupy, in a different legal way, the residual residences of the post-war shackle phalanx. Re-evaluating the shacks, means restoring dignity to an offended existence, to the existenzminimum of a spontaneous living that has been able to "use" the ancient beyond its role as a ruin, giving it a new life and a new urban meaning. The adoption of these urban anomalies to reconvert them into everyday places is driven by numerous anthropological mechanisms of projection and social reconquest, of re-appropriation of spaces and therefore of history, of rehabilitation of places and human destinies, of acceptance of degradation and of its cancellation thanks to the beauty of artistic creation. The dominant feature of the two settlement principles is the symbolism of measure, directly proportional to the human condition of the builder: the heroic of the Roman aqueduct is flanked by the misery of the shack. Inhabitants build what they need with what they can (Giancotti, 2012): it is the exaltation of an obligatory existenzminimum that becomes an essential requirement for an effective typological declination of new models for contemporary living (Riciputo, Salimei, 2019).

The complexity of the cultural and architectural stratifications of the Roman villages requires the doctrine of conservation to take on the evidence of a near past, albeit inconvenient, whose action has produced modifications with the potential to rewrite landscape, urban and architectural projects through which memory is reconverted into future. Furthermore, it is also necessary to doubt the principle of unchangeability of the ancient space when inserted in peripheral contexts characterized by discomfort and abandonment, in which the presence of an archaeological asset could become the trigger for a broader regenerative action and deep site specific interventions. It is necessary to affirm the one-to-one non-correspondence between the "city" and its historic centre, claiming its constitution as a multiple organism of which the suburbs represent the last bulwark before the external landscape, a threshold place between the inside and the outside, a privileged habitat of the social, planning and building legality contrasts that an architect can help resolve thanks to a work aimed at understanding the spirit of the place in order to be able to convert it from problematic to potential to experiment with new theories and new forms of responsible living.
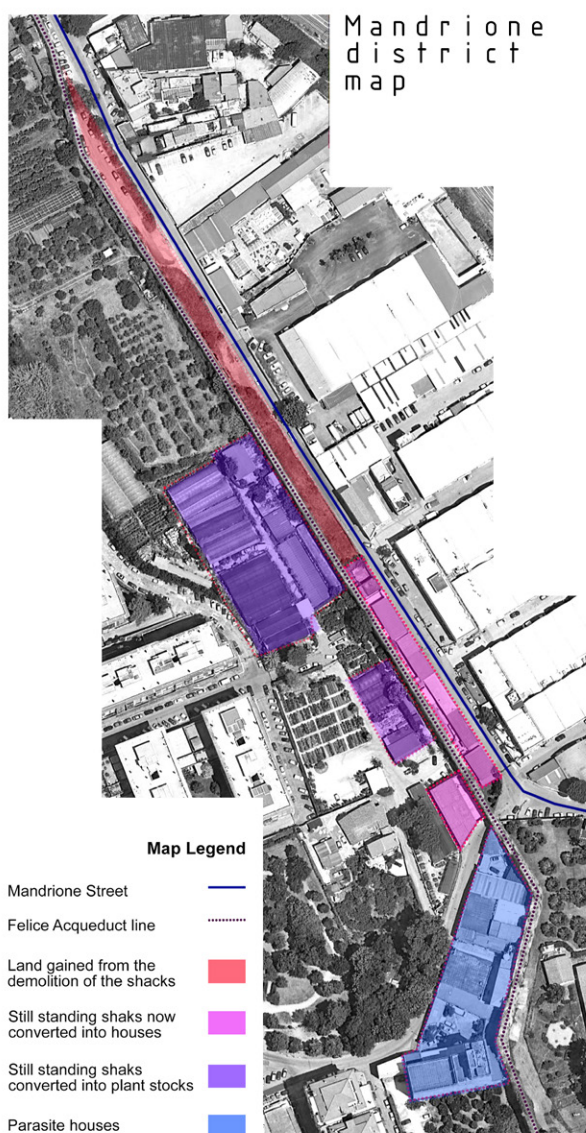
Figure 3

Mandrione district map

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3. Steps of the research

Theoretical consolidation. The multidisciplinary nature of the research requires the focus of the theoretical approach, the derivation of which from an anthropological neologism guarantees originality in the architectural field which therefore requires a disciplinary study and the preparation of a solid argumentative basis. This can be done using the extensive literature on the relationship between archeology, landscape and urban context[3], but it will be necessary to start from the concept of diaforentity to consolidate the urgency of compositional thought as an aid to conservation and restoration so that the integration between the archaeological object and the city does not shy away from the reasons of contemporaneity.

Reconstruction of history. This step involves research in both private and pubblic archives, to find unpublished or little-known drawings and documents to be re-read according to the approach proposed by this study; a bibliographic research that allows in order to take a new position and be able to fill any gaps. In this way, different types of data will be obtained: historical, social, cultural, artistic, design, technical, constructive. In addition, we could gather any variation of the morphology of the Felice Aqueduct starting from Porta Furba, collecting the eighteenth-century views (including an engraving by Piranesi); the photographs (such as those of Thomas Ashby and Franco Pinna) kept in the private archives and in the Photo Library of the Central Institute for Catalog and Documentation; the films of the Istituto Luce and the films of Pier Paolo Pasolini (among all from Accattone movie) and other neorealist directors; at least, the texts by Alberto Moravia, Goffredo Parise and others, from which it is possible to outline a story through images and words of the changes that occurred over the centuries of Mandrione whose diaforentity made it a hamlet, a historical periphery.

Draw a reasoned map of the Mandrione, of the path of the aqueduct, of its surroundings and of its interactions with the roads, the railway and the town, detecting the points where the buildings come in contact with it, evaluating and detecting the modalities, the depth and degree of modifiability.

Draw up a time line in which to trace all the urban and morphological variations undergone by the Aqueduct and the Mandrione district from the Roman period to the contemporary, evaluating the consequent variations in the identity of the places.

Systematize all direct sources from which evidence of the different architectural and social realities that the neighbourhood has taken on over the centuries and in particular over the last sixty years can be extracted.

3. In particular, some researches carried out within the projects of the Department of Architecture and Project of the Sapienza University of Rome are: *L'intervento nelle aree archeologiche per la musealizzazione e la comunicazione culturale*, resp. Lucio Altarelli, PRIN 2008; *Roman infrastructure. The urban walls and the central area in new vital cycles of cultural promotion, technological innovation, socioecological reactivation and new competitiveness for the city of Rome*, resp. Orazio Carpenzano, 2018; *Colosseum_ Square and Museum. Moving through history in the time of global tour*, resp. Orazio Carpenzano; *Il patrimonio come armatura urbana. Servizi e mobilità per la Piazza del Colosseo*, resp. Filippo Lambertucci, 2017; *Tra Monte Mario, Ponte Milvio, Villa Glori e Porta del Popolo. Analisi urbane e strategie di progetto per il quartiere Flaminio, distretto culturale di Roma*, resp. Piero Ostilio Rossi, 2016; *Il nuovo nell'antico: valorizzazione e riuso delle testimonianze storiche nei processi di riqualificazione e rigenerazione urbana*, resp. Maurizio Pietrangeli 2018-2019; *Metodi e strategie di trasformazione per tessuti urbani accessibili ed ecosostenibili. Studi e proposte per due quartieri della periferia romana*, resp. Domizia Mandolesi, 2014.

Figure 4-5

The land gained from the demolition of the shacks // Still standing shacks converted into houses

Figure 6

Shape of the shack demolished "printed" on the aqueduct wall

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Study urban self-constructions, virtually reconstructing those demolished and analyzing those that remained, drawing a typological potential from them; understand the role of the aqueduct as a structural and formal element, the variation of its meaning within the urban structure and in the perception of the inhabitants.

Assess the state of the existing and the possibility of urban regeneration of the entire sector, considering the modification as a state of affairs and preparing strategies for a possible evolution of parasitic architectures into architectures of interest for public use.

Experimenting with new forms of living, space occupation, plant infill, ephemeral architecture, public artworks for an integrated museographic approach, the conservation of the remains of the recent past not as scars but as signs of life on the past ancient.

Designing a model of urban regeneration in which the archaeological ruin is not flanked in a paratactic way by greenery, but fits into an entire system consisting of a linear park (Capuano , 2017), public facilities and special homes, capable of becoming the backbone of the entire district by reconverting the pre-existing structures in responsible architectures and reconnecting the areas of the Mandrione District, reinserting the neighbourhood in the wider fruition basin of Casilino and Pigneto by studying a system of infrastructural connections. Although the Mandrione has overcome its suburban status to become a hamlet - a quarter that is foreign to the original nucleus but subsequently incorporated into the compact urban sector, which over time has developed its own historical, social, cultural and architectural identity - the importance of a correct system of connections to avoid the (self-) exclusion of the outer districts from the orbit of the centre is a topic well studied for others roman unconnected territories (Caravaggi, Carpenzano, 2019),

4. Suggestions and aims

Since the research is at its starting point, it is not possible to provide specific results, but suggestions and objectives can certainly be proposed. Within the history of urban experimentation in which art is used as an instrument of regeneration, it is considered interesting to propose experiences from the Italian 60s and 70s thanks to their declared social as well as cultural intent. In fact, searching for a greater integration between artistic sense and civic sense, urban voids and archaeological sites where turned into museums through the temporary and widespread installation of sculptures and the creation of a exhibition on an urban scale. Among the most successful occasions were: *Sculptures in the city* in Spoleto in 1962 (conceived and edited by Giovanni Carandente, still functioning in nowadays with the exposition of contemporary artworks in archaeological places); *City space sculpture* in Rimini and Contemporary sculptures in urban space in Parma both in 1973; the most complex *Volterra 73* exhibition; *Sculptures in the city* in Fano in 1974 (Pioselli, 2015). In all these cases, the objectives aimed at bringing the inhabitants closer to art (through the breakdown of the front museum system to achieve a sort of "democratization of art ") and to prepare a new dialectical strategy between old and new. The choice reaffirmed that it was not urban decoration: the works provoke a different interpretation of the environment, underline its salient points, introduce the screech of contemporaneity into the old city, give an indication of the changing and stratified character of the urban fabric, grafting a more problematic temporality than the idea of immutability of historical space.

A pioneer city has always been Naples in which art has been used as a "seed" to regeneration both social and urban. Architect and artist Riccardo Dalisi still works to convert urban space into

Figure 7-8
Parasite houses

Figure 9
"Vision on the Mandrione", original artwork from the author

social laboratories (among which we remember the workshops with the children of the Traiano neighbourhood from '71 to '74 and with the inhabitants and artisans of Ponticelli, Siberia, Sanità and Marianella since 1975). In 1972 Pierre Restany had promoted Operation Vesuvius, an attempt - unrealized - to organize an artistic and cultural park in which to exhibit the works of over one hundred national and international artists, many of whom exploited displacement as an act to create utopian and atopic contrasts and screeches with the context, which remained essentially natural. Nowadays, started in 1996 and still under construction, is the project for the enhancement of the Metro stations (settled in historical, archaeological and suburban neighbourhood) and the urban regeneration of the adjacent areas. Inserted within a practice already widespread elsewhere in the past (in Europe there are notable cases of the Moscow and Stockholm subways), the project of the Naples Art Stations differs in the attempt to create widespread centralities in the spaces at the exit of the actual stations. The intervention mediates the nature of the site-specific with the authorial landmark: the need for the emergence and recognisability of the new iconographic, environmental, structural and artistic systems remains clear, aware that the "spectacular" component would have distinguished the artistic nature of re- signification of the place from a simple restructuring that would have ensured the decor but not changed the urban role (Natalini, 1966).

Using these suggestions as a starting point, it is possible to define the two main objectives that the research *Roman Diaforentities* sets itself. The first one is to draw up a project for the regeneration of the Mandrione district capable of responding to the real needs of the inhabitants of the IX Municipality. This project will propose both the possible configurations of the neighbourhood and the immediate surroundings of the Aqueduct, and the experiments of special homes that reinterpret and renew the memory of the system and of the pre-existing types, responding to the needs of contemporary living, including the insertion of a public park (to be included in the largest program of parks in Rome). The second wide-ranging objective aims at extrapolating from this project a series of general strategies applicable to other cases of cities in which the concept of diaforentity can be defined as the very reason of the urban structure, helping them to accept changes as opportunities to resettle living habits and shapes.

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Architecture within infrastructure: the habitable bridges as a vector for social urban regeneration

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Abstract

The human desire to connect man and nature, architecture and environment seems to result in the imaginary brought by the concept of the bridge, often conceived as a new space of the city, a different soil and a public space. Considering the actual environmental situation that our contemporary cities are nowadays facing, it is possible to recognise in the architectural model of the living bridge a valid approach to confront the needs of the city and of its inhabitants. Despite its old origins, this type of architecture shows a strong flexibility, adding to the infrastructural features also new characters. Starting from the Thames Water Habitable Bridge Competition, this article aims to underline how architectural features such as multi-scalarity, multi-temporality and multi-functionality are needed to design new urbanities and which type of re-generation recent projects can produce.

Keywords

Urban infrastructures; Inhabited bridges; urban regeneration; adaptivity; multifunctionality.

1. Introduction

Most of the cities in the contemporary age are fragile, weakened by a perpetration of urban practices that for a long time have ignored external phenomena. Among the major causes of the actual climate change, natural catastrophes, and the resulting urban disasters, it is possible to recognise land consumption, chaotic urbanization, unauthorized construction and obsolescence of infrastructures. The city of the Modern Age, in fact, guided by a positivist spirit and a constant trust in knowledge and technology, gave rise to a physical re-proposition of the mechanistic vision of reality: therefore, the city, conceived as a determinable element, has inevitably led to the absolute domination of man over nature (Mandoul, T. et al., 2012).

This clear separation between man, city and nature, unquestionably a reflection of a society projected towards the future with an industrial-chain approach, has put in place a mono-functional and highly hierarchical paradigm that underlines an anti-ecological approach. Moreover, dividing the urban fabric into mono-functional areas, although it certainly brought great advantages to the issue of the un-healthiness of the suburbs, determined that phenomenon of zoning as a formal revival of the production cycle linked to growing industrial development. The perpetuation of this approach towards the city explains the contemporary urban difficulties in facing climate changing and environmental disasters.

The urban environment, in its moment of trend reversal with respect to the homeostatic[1] characteristics of the last century, appears today as the most suitable environment for experimenting and welcoming this transition, through the definition of new paradigms and design approaches.

Therefore, it is a belief of the author that the most appropriate response to the sudden changes (not only in climatic but also in territorial conditions), refers to an 'adaptive'[2] conception of the design of the city and of its buildings. It is therefore possible to consider adaptivity as an approach capable of defining different characters and tools for an integrated and systemic design, in order to create new relationships between buildings, man and the environment.

Although adaptivity has evolved from the responsive approach underlining the importance and the role of time (Elmokadem et al., 2016) and leading to a design that is often data driven, it is possible to consider as adaptive and adaptable a specific type of architecture that has been perpetuated in time for centuries and that in the early Nineties emerged again in the architectural scenario: the (in)habitable bridge. It is, in fact, at the same time, a vector that physically joins man, the city and the environment and an element of a bigger informational infrastructure. Its adaptiveness is related especially to the multi-functionality that has always characterized it and that has consecrated the social role of this urban device.

1. Homeostasis is the natural tendency to achieve relative stability of all living organisms for which this regime dynamic must be maintained over time, even when external conditions vary, through self-regulating mechanisms. It is interesting to notice that such definitions that we derive from biology, could be easily applied to loads of Modern cities because of their behaviour over time. Architecture, indeed, has always tried to maintain the same characters despite the changements around, differently from what it is proven to be necessary: the evidence of adaptation to external factors.

2. In an active sense, the term indicates the ability of a system to change its structure as external parameters change, while in the passive meaning it indicates the inherent ability of the system to trigger mutation processes for the environment.

2. City and Infrastructure

Starting from the definition of a city as a complex system and meaning by it a combination of elements that are individually autonomous but capable to collaborate in unison, it is believed that this system will be more complex the more it is able to incorporate the necessary skills to activate processes of regeneration and adaptation in respect of external phenomena (Manigrasso, 2012). With this aim, architecture needs to modify its characters and invariant aspects, defining new matters and paradigms. The already mentioned complexity that we recognise nowadays in the architectural field, we derive it from a turning point in the architecture design process: it is the passage first from the Industrial to the informational era and then to the digital Age (Picon, 2010).

The characters of multi-scalarity, multi-temporality and multi-functionality can be considered as a consequence of the complexity that the informational network needs in order to work properly. And for the same reason, an architecture that must face continuous changes and new social needs, has to augment its features in order to better respond to new social, political and human values. Despite the continuous evolution of the Smart paradigm, broadly declined into different facets that try to merge HCI with human condition, behaviour and also with the environment[3], it is needed to understand what constitutes the smartness of this approach, that does not often show a clear purpose for human beings (Halpern, 2017).
The introduction of informational systems into architecture, especially through cybernetic processes, has consecrated buildings (and the city in general) as performance places and big data visualisation interfaces whilst instead it would be better to interrogate about the spatial impact of this digital and physical transformation.

As said, conceiving architecture as part of a broader system that collects many external facts (or data) from different fields is the result of a way of thinking that belongs to the information technology and that supports a strong bond between man, architecture and the (social, cultural and physical) environment. It is therefore not necessary to individuate a high-tech architecture to read this complexity: instead, it is possible to consider some processes of regeneration that involve re-building and re-thinking the existent as valid responses to a claim for adaptivity.

3. The paradigm of the Smart cities has been exploited a few decades ago but recently has unveiled its fragility in the lack of consideration of human features, needs and interests. For this reason, which also implies the neglection of the social and the democratic dimension, leading from an utopian to a dystopian idea, it seems necessary to focus on variation of this smartness. It seems in fact fundamental to reintroduce the human figure into the relations between men, architecture, environment and technologies: this brought to the idea of the Senseable city, as well of the Sentient city or Cognitive city, meaning systems able to sense, perceive and respond to changes in their environment. (Psaltoglou, 2018)

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What is evident from a historical point of view is that urban transformation and infrastructural evolution moved during the Twentieth century on parallel lines and at similar speeds. The infrastructure highly modified the space and the environment affecting urban activities in a concrete way and defining different new clusters of mobility figures, which are fundamental for a social process of regeneration. The definition, during the Twentieth century, of a vast imaginary in which architecture and infrastructure merged, has welcomed the definition of new spatial suggestion: many architects, have in fact tried to combine the two figures, aiming to transpose the elements of the infrastructure into the architectural project[4].

The results of these first years of experiments, however, did not yet reflect the combination between the two disciplinary areas, but were limited to create relations (as for example juxtaposition and overcoming) between the architectural and infrastructural elements. In this way, infrastructure, with characteristics and needs proper of a technical element, became in years the matrix of architectural projects thus transforming elements of the road into architectural components and giving them the character of public and liveable spaces. Therefore, the attractiveness of this new type of public space is the variety of scale, the possibility of hosting transit and destination at the same time and the hybrid programmatic potential it offers. Designing the mixed uses of a single urban artefact, together carriage-able and pedestrian, private and public, no longer means to design on the edge of the infrastructure, but instead to define an extensible and open approach for the city.

Among the old and new infrastructure that seek a relation with architecture, it is possible to individuate one figure which has always found a way to evolve over time, re-thinking and adapting itself to the contemporary needs: the (in)habitable bridge. Thanks to the flexibility that it gained in centuries and that allows it to merge with the city, the environment and the buildings, this figure shows an interesting way to approach the contemporary design requirement by embodying the architectural complexity at different scales. This dual character then absorbs also the connection that infrastructure typically incorporates between both the geographical and urban element in the territory: in fact, the separation produced by the bed of a river that flows into a city, has the same impact as a large urban artery imposed on the urban fabric and requires the same connection between the two sides. Although the characters of this particular type of bridge have varied over time, two components can always be recognised: the infrastructural element, which allows the overcoming of the obstacle (the river, the road) and the architectural device capable of giving the bridge a cultural, economic, functional and social advantage[5].

Thanks to the presence of these two elements, the (in)habitable bridge is configured as an element of strong urban coherence, capable of establishing a linear continuity where there is a separation in the urban fabric. It becomes a generator of urbanity thanks to that prerogative that has

4. A relevant result of the intersection of infrastructure and architecture is the Solomon R. Guggenheim Museum in New York, designed by the American architect Frank Lloyd Wright and built in 1943: it is a building that clearly expresses the will to transpose into architecture the element of infrastructure through the figures of the parking ramp, here merged to the concept of a walkable space for exhibition. Later on, moreover, the Dutch studio OMA recalled in the project for the Utrecht University, the Educatorium (1992-1995), the idea of designing an infrastructural element of mobility into a building, fading the difference between public and private, indoor and outdoor spaces.

5. This leads to the expressions used in the world to describe a habitable bridge. Whereas Italian, French and English haven't a proper expression with this specific meaning, but instead several which suggest the compresence of the two facets, German is the only language that has it. The word *Überbautenbrücke*, in fact, means exactly "bridge which is built upon, defining a clear category of this building type.
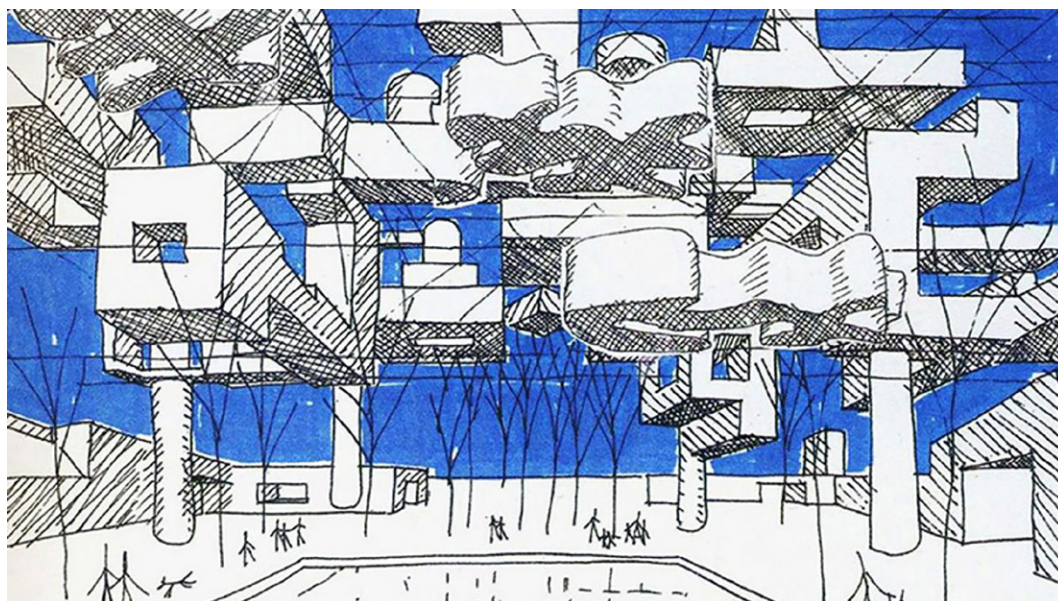
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always assured its unique character: the functional *mixitè*. Thinking of a project that holds together the architectural and the infrastructural figure allows in fact a new reflection on the new forms of regeneration of the city of the contemporary age.

3. Habitable bridges

Starting from the Middle Age, the figure of the habitable bridge has been spread all over Europe[6], especially in the United Kingdom, France and Italy: Florence and Venice as well as London and Paris explored the infrastructural element of a bridge that hosted small commerce and habitations, often defining in this way a landscape project. The bridge defined a hybrid between a functional element and public urban spaces, which allowed to solve the lack of living space (Pizzetti, 1981) and at the same time to host an unthinkable presence of people and commerce that wouldn't find space anywhere else in the city (Cassani, 2014). As explained by Jean Dethier, "people crossing the Seine would not have been able to see the river, so tall and tightly packed were the buildings on its bridges" (Murray, 1996, 25): the bridge brought to the cities a new soil and a new identity with squares and public facilities. In fact, differently from a pure vehicular bridge, a habitable bridge provides on a hand a continuity with the urban tissue, and on the other, an economic, cultural and symbolic value. Later, during the Machine Era and the Industrial revolution it lost its crucial and urban meaning. It was only in the Nineteenth century, during the Romantic Era that habitable bridges' imaginary rose again, especially because of their influence on the definition of the landscape. During the prolific period of the Modern Movement, the living or habitable bridge benefitted from a modest interest among many architects, probably due to its natural attitude to flexibility in use and space. It is possible to remember, in the latter part of the century, several projects in Europe, referred to figures such as Yona Friedman (Munich, 1959; Paris, 1960) (Fig. 1), Cedric Price (London, 1988), Richard Rogers (London, 1986) and many others. A different condition can be recognised in the US where the new form of the skyscrapers was defined, new cities were founded and innovative infrastructure designed. Here the idea of an infrastructural building was at the core of architects' interest and it is perfectly shown in the projects of L.C.Mullgardt for San Francisco (Fig.2) and Hood for New York. They merged the new type building of the skyscraper with, on a hand, elements of commerce and living and on the other, the infrastructure of air and soil. These new continent-bridges, that faced the economic crises and were never built, were illustrated as a symbol of social, economic and technological progress, the same progress that the US had tried to realise in response to the utopian cities from the '10s and '20s. In more recent times then, the idea of a living or habitable bridge has become more common among contemporary architects which inherited the feature of multi-functional spaces as a way to re-generate the economy of the city by creating a new sense of urbanity.
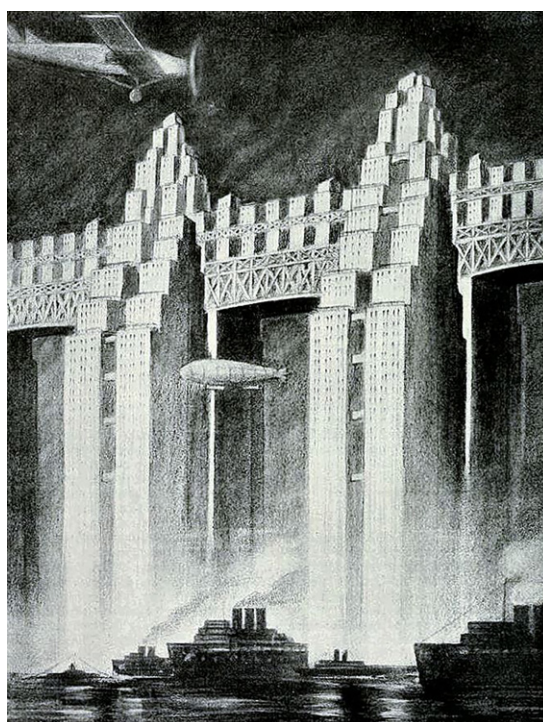
6. It is quite rare to individuate examples of Habitable Bridges in the Middle East, but it is possible to find some isolated ones as the Isfahan Bridge in Iran. However, in most of these projects it is not recognisable the residential function that is typical of the European ones: instead, they were mostly used as technical objects implemented for social leisure activities.

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Figure 1
Munich Spatial, Y. Friedman, 1959 ©Yona Friedman

Figure 2
Skyscraper bridge, L.C.Mullgardt, 1924

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4. Thames Water Habitable Bridge Competition

Le temps est désormais venu de les exhumer de notre oubli, d'en comprendre la logique, d'en apprécier les qualités ou les potentialités, et finalement d'en imaginer de nouvelles applications susceptibles de remédier aux déficiences et aux dysfonctionnements de la ville contemporaine. (Dethier, 1997, p. 34)

Within the context of the exhibition "Living Bridges: the inhabited bridge, past, present, future" curated by Jean Dethier, the Royal Academy of Arts of London organised in 1996, in collaboration with the Centre Georges Pompidou an international competition about the regeneration of a portion of the river Thames, in London. Seven international firms were invited to participate in the "Thames Water Habitable Bridge Competition", with the precise scope of submitting realistic projects that merged commercial, recreational, residential and cultural use, on an only-pedestrian platform. The competition resulted in two ex aequo projects: the deconstructivist inhabited bridge of Zaha Hadid (Fig.3) and 'The Garden Bridge' of Antoine Grumbach (Fig.4).

The interest of Z.Hadid for the imaginary of the bridges goes back to her MArch thesis project, designed under the mentoring guide of Rem Koolhaas in 1976-1977 at the Architectural Association of London, where she conceived a fourteen-levels hotel at the Hungerford bridge on the river Thames. The project submitted for the international competition then presented a series of cantilevered volumes linked in the centre by pedestrian walkways. All public activities found place on the (new) ground floor whilst five different buildings host the residences, the commercial activities and the offices. The iconicity of the project is strictly linked to the structural element of the trusses that form each a different building. They are, in fact, lifted high on the water defining in this way suspended public pathways.

On the other hand, 'The Garden Bridge' of A.Grumbach has been defined by Murray as "the more traditional urban approach" (Murray, 1996, p.135). The bridge consists in fact of three main elements: first, on the south side, a covered public space with tropical plants, restaurant and shops as well as concert and leisure activities called the "world's culture greenhouse"; then, the "Hanging Towers" to support the cables and hosted a hotel and a restaurant; finally, the "Garden Arcade" which links the latter elements and allows pedestrian access through boardwalks at the water level. What this competition brought into the architecture scenario is a strong interest in finding a connection between landscape, environment and built architecture by adding the new features of multi-functionality, multi-temporality and multi-scalarity. Due to the need of regeneration and aiming to define an efficient economic and social network, in the last decades it became necessary the process of re-thinking and re-building separated, marginal and almost forgotten areas of cities. (Metaphorically) Bridging them to the existing allows thus to create new connections via physical and virtual means.

In the following paragraphs two declinations of the habitable bridge in the contemporary city are presented, both regarding water or highway infrastructure, in order to understand how the architecture process found a path to re-generate the urban tissue by creating new different forms of connections. The first attitude identified intervenes where it is possible to visually separate the architectural and the infrastructural elements; the second one instead, shows projects that merge the building and the bridge, often intervening on the element of the soil, modifying the infrastructure.

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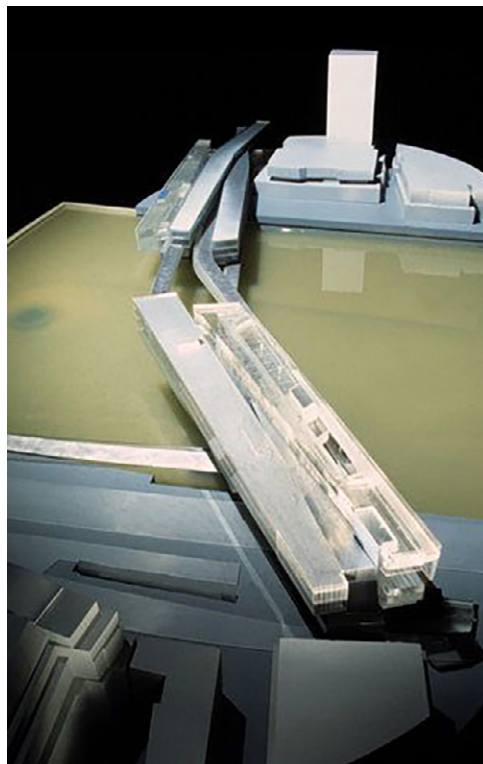
Figure 3

Proposal for "Thames water habitable bridge competition", Z.Hadid, London, 1996

Figure 4

Proposal for "Thames water habitable bridge competition", A.Grumbach, London, 1996

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4. Bridges + buildings

The first category includes projects where characters and morphology of the two elements are noticeably distinct so that it is easy to identify the infrastructural part that hosts the mobility and the architectural one, concerning the social, cultural, private and public activities.

Despite this, it is in their intersection that the 'habitability' of the bridge is shown, where architecture and infrastructure merge and define an interface that allows different flows. We reckon in this group two contribution for the competition of "Réinventer Paris" (organized in 2016 in the site of Pershing): one is the project Mille Arbres (Fig. 5) by Sou Fujimoto Architects + OXO Architects and the other is the project named PXP (Fig. 6) by OMA + DATA Architects + Arup. "Mille Arbres" shows a bridge that frames the underpass of the highway with a layer of commerce, public spaces that allows different fluxes, function and mobility, and above which a high rise complex building takes place.

The OMA proposal instead is defined by a composition of four buildings that host several functions. Here, the different rotation of the buildings creates private and public courtyards that allow various fluxes and mobility.

Similarly, the Pont Jean Jacques Bosc (Fig. 7), conceived by OMA with Clément Blanchet for a competition in Bordeaux (2013), declines this approach on a bridge above the Garonne river. They design a new soil as a tray and place on it several artifacts, temporalities, functions and mobility. The bridge is a means to cross a natural limit and at the same time it deconstructs and fragments its habitability into pieces adapting to different circumstances and needs. Although the projects here briefly introduced have all been designed for competitions, it is possible to reckon the implementation of new forms of mobility and of new mixité as a way to reinforce social and economic regeneration. These projects aim to create a fracture in the ordinary city by joining neighbourhoods or territories separated by an artificial boundary. The habitable bridge here creates the link and the means for connecting diversities and defining new forms of sociality even maintaining separate the morphology of its elements.
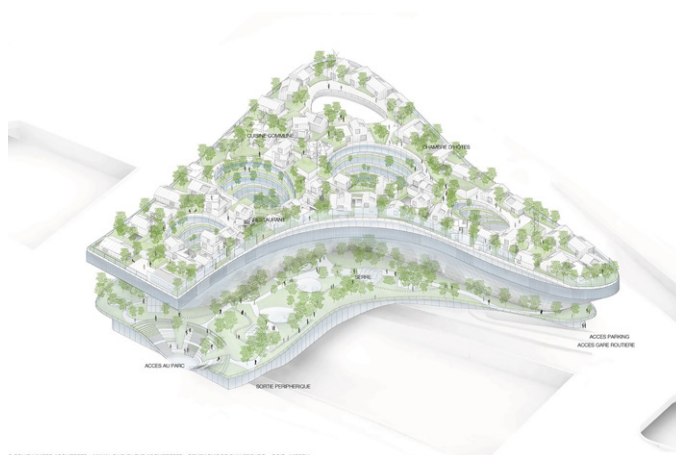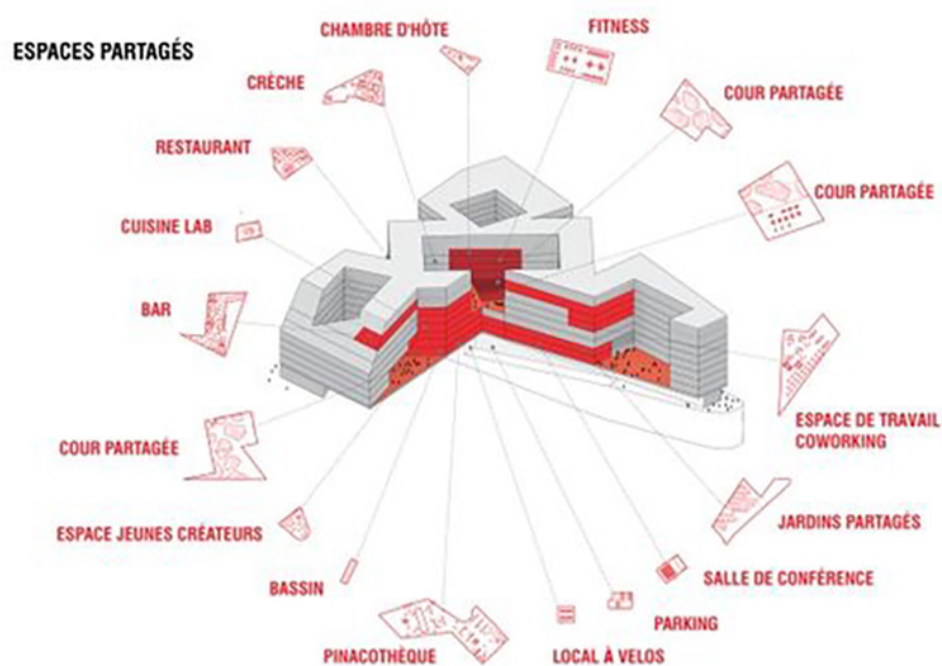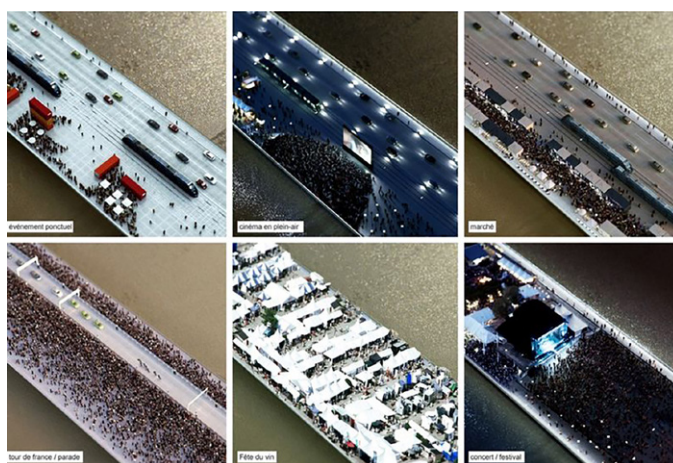

Figure 5
"Mille Arbres", Sou Fujimoto Architects + OXO Architects, Paris, 2016 © Sou Fujimoto Architects + Manal Rachdi OXO Architects + OGIC MORPH

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the habitable bridges as a vector for social urban regeneration

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Figure 6
"PXP", OMA + DATA Architects + Arup, Paris, 2016 ©OMA

Figure 7
"Pont Jean Jacques Bosc", OMA + Clément Blanchet, Bordeaux, 2013 ©OMA

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5. Bridge ≡ Building

The second category includes projects where the infrastructure is entirely merged into the archi-tectonic composition, designing spaces that allow different activities in different moments of the day, and guaranteeing the multi-temporality and the multi-functionality feature. Taking as an example the Halle Commune - Pont Pleyel by OMA, designed for Saint-Denis in 2006 (Fig. 8), a new soil bypasses the railway trench, weaving continuity with the existing tissue. The declared intention of this project, that did not result as a lauréat of this competition, is to provide the city a homogenous volume, here represented by the continuous façade that resembles a greenhouse. At the same time, it gives the bridge its character of habitability and contains all the different functions within it. Similarly, the 11th Street bridge park, designed by OMA and Jason Long for Washington DC in 2014 (Fig. 9) doubles the close highway overpasses by defining two new intertwined soils where only public activities take place. Therefore it will use the infrastructural value of the bridge to define a landscape horizon able to relate several functions at different scales: from the pedestrian path to the public amphi-theatre, the two platforms define outdoors covered places and allow the coexistence of fluxes and activities diverse in time.

In the manner of the 11th Street bridge park, it is possible to recognise as part of this group the intervention attributed to Diller & Scofidio + Renfro on the existing elevated railway of New York, the High Line (Fig. 10) and the similar intervenes that derived from it. Built in 1929 in a contest in which architecture and infrastructure were trying to merge their characters, based on the utopian cities of 1910-20, the High Line was a first step to seek new relations between architecture and the city. Its superimposition about the urban tissue, often regardless of the existing, and the bond of interrelationship with the close buildings, defines a peculiarity for the time that allowed years later to avoid its demolition. The action of regeneration designed first by the Field Operation group and then improved in collaboration with the association Friends of the High Line, consisted in the reconversion of the infrastructural viaduct into a public space, allowing the economic regeneration of the West Chelsea and the Meatpacking District.

Figure 8
"Pont Pleyel, Halle commune", OMA, Saint-Denis, 2016 ©OMA, OLIN

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Figure 9
"11th Street bridge park", OMA + Jason Long, Washington DC, 2014 ©OMA

Figure 10
"High Line", Diller Scofidio + Renfro, Manhattan, 2006 ©Iwan Baan

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Although the High Line may no longer be considered a proper bridge[7], it is still possible to consider it as part of the (in)habitable bridge type due to the complex network of services it supports and by which it is supported. In fact, the viaduct hosts a slow mobility in a separated lane that does not entirely follow the underlying roads layout, allowing the link between distant areas of the cities through dedicated, healthy and public paths, thanks to the support of the associations that occupy it. To complete the process of economic regeneration developed by this project, it could be interesting to involve new private actors, as the owners of the buildings that the High Line crosses, in order to transform these intersections, which at the moment are the least successful part of the entire operation (Tesoriere, 2010). The impact of this project on the physical location of the city, as well as on its identity, has led over time to the design and implementation of autonomous systems, on existing or new infrastructures, such as Skygarden by MVRDV, realised in Seoul in 2015-2017 (Fig. 11), which allows the pedestrian connection between parts of the city and that tried to solve the lack of intersection with surrounding buildings. Therefore, this type of operation reveals the potential of this urban device (the bridge) and at the same time the importance of the cohesion between the public and private operators, as they help to redevelop, albeit for parts and according to different times, urban portions with great potential. Furthermore, the characters of multi-temporality and multi-functionality are fundamental in order to guarantee an inclusive process or regeneration that links architecture, infrastructure, and users in a systemic and complex way.

7. After the abandon, some portions of the viaduct have been demolished in the years: the southern part in the Seventies, the northern part in the Eighties (in order to build the Javits Center9 and lately a small section in the West Village in 1991.

Figure 11
"Seoullo 7017 Skygarden", MVRDV, Makkink & Ben Kuipers, Seoul, 2015-2017

6. Conclusion

In conclusion, the concept of habitable bridges can be considered as a valid design figure to re-think and thus regenerate the contemporary city. Its peculiarity to adapt is in fact an essential condition to intervene on the urban tissue with the intention of including different flows (in terms of people and resources),functions and temporality. This approach would then promote the continuity of the city, erasing the inequalities and the distances by creating an unicuum with the environment. It is also a constant element of the desire to exploit all the spaces that can implement the potential of the new architectural element, thus ensuring a dual combination with the infrastructure. As the study cases mentioned show, the collaboration between public and private actors, together with the design of an infrastructure-architecture, has a relevant role in obtaining a result that is both economically and culturally regenerative. Furthermore, it allows to implement architecture with those features derived from the IT conception, such as the multi-scalarity, multi-temporality and multi-functionality in order to design for the re-generation of our urbanities.

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Bianca Andaloro studied architecture at Università degli Studi of Palermo (Italy) where she graduated in 2017. She is currently part of the PhD program at Università degli Studi of Palermo researching about how adaptive architecture can manifest its transformations in matter of space and time when it is conceived as a response to catastrophic situations. Her interests are related to the digital revolution in architecture and the involvement of big data into the architectural design approach due to the potential to spread a network of digital infrastructure within architecture. From 2015 she is part of the Research Unit "InFRA_Lab, led by Professor Zeila Tesoriere at the Università degli Studi of Palermo, that investigates about the interrelationship between architecture and infrastructure and, later on, about the crise of public in the XXI city. She is teaching assistant in the Architecturla design courses led by Professor Zeila Tesoriere at Università degli Studi and tutor of the Master Degree Lab Thesis'. In 2019 she has been a visiting student at Hogeschool van Amsterdam at and she collaborated to the Media Digital Design Master organized by the Lectoraat Play and civic media.

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Guest editor: Dr. Valerio Perna

**INNOVATION_Factory Coordinator, Faculty of Architecture
and Design, POLIS University, Tirana**

The 17th issue of the ArchiDOCT e-journal welcomes papers that explore the theme of 'data' in the built environment at various degrees of granularity, that can further change to better or to worse life on and beyond the planet. The contemporary debate expands the limits and the new possibilities of data for, from, with, and, against the built environment. This debate further focuses on the consequences of data on either on the theoretical or the applied aspect of the disciplines involved in the built environment.

In 1989, at the International Society for General Systems Research, American organizational theorist Russell Ackoff presented, for the first time, a graphical representation of the DIKW pyramid. Rather than a simple descriptive model, the latter defines purported structural and/or functional relationships between **d**ata, **i**nformation, **k**nowledge, and **w**isdom. In regards to Ackoff's theorization, data represent a set of pure symbols and signals, hence stimulus, that was considered not usable until discretized and inserted within a reference system that would give them specific meaning and presence in the realm of existence.

Here stands the difference between data and information: while data is raw material without any kind of intent, information is "knowledge by description" and indeed useful in the process of answering interrogative questions and capable of affecting decisions and action. Information then can be considered data with a "purpose".

The last four decades of research in the field of architecture and the urban environment have been strongly influenced by the presence of data. This ongoing relationship between the latter and the struggle to instil in them an intention. Whether we refer to the macro or the micro-scale, architects have been trying to collect and give meaning to the magmatic amount of data in which we are constantly submerged. Sensors and actuators in the city, computational design process, script-based generative procedures, AI disruptive speculations, the Interner of Things, Big Data, are just some of the examples of almost half a century of heterogeneous research trajectories. From a first phase of inebriating experimentations based more on pushing the technological tools to their limit, a second phase of the research on 'data' relates more to their capacity to ontologically address the meaning of the discipline itself and disclose new strategies to manage the complexity, and ethics, of the world at large.

With these premises, the 17th issue of ArchiDOCT invites academics, researchers, and PhD students, that can relate their doctoral thesis as solo authors, with their supervisor(s) or with fellow doctoral students or doctoral holders to deliver an essay focusing on any field related to the entanglement within architecture, cities and data - and indeed, information - to define a new epistemological horizon for architecture. The

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aim is to explore the theme of 'data' in the design process through both a theoretical or practice-based approach and highlight the breadth and scope of the results their possible implementation can bring about. For this reason, and considering the breadth of possibilities contained in the topic itself, we are interested in contributions that approach the topic in the human and non-human actualization of it, and we invite discussion concerning tangible examples of their implications either for applied design strategies or for research purposes, with the main aim to 'in-form' the debate regarding data with a new and lateral perspective that could clarify, and hopefully untie, the inner structural dichotomies such 'structural vs. functional', 'symbolic vs. subjective', 'quantity vs. quality'.

Relevant subthemes include:

- Complexity (of data)-based computations;
- Contemporary theories of data and architecture;
- Contemporary theories of data and the city;
- Pure data implementation within contemporary design processes;
- Mediated practices developed by ICT applications, data implementation and analysis;
- IoT for built environments;
- Critical contributions concerning 'data' and 'information' and the eventual liminal zone where they collide and merge;
- Ethics, politics, aesthetics of contemporary usage of data;
- Speculative tools and strategies within the design process;
- Data Mining.

Important dates
Submission deadline (full papers): 15 March 2021
Review period: 16 March - 15 April 2021
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Follow-up review: 01 May - 15 May 2021
Final revision: 16 May - 31 May 2021
Publication date: 01 July 2021

Submission policy
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