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"Crafting 'Scientific' Research in Architecture"

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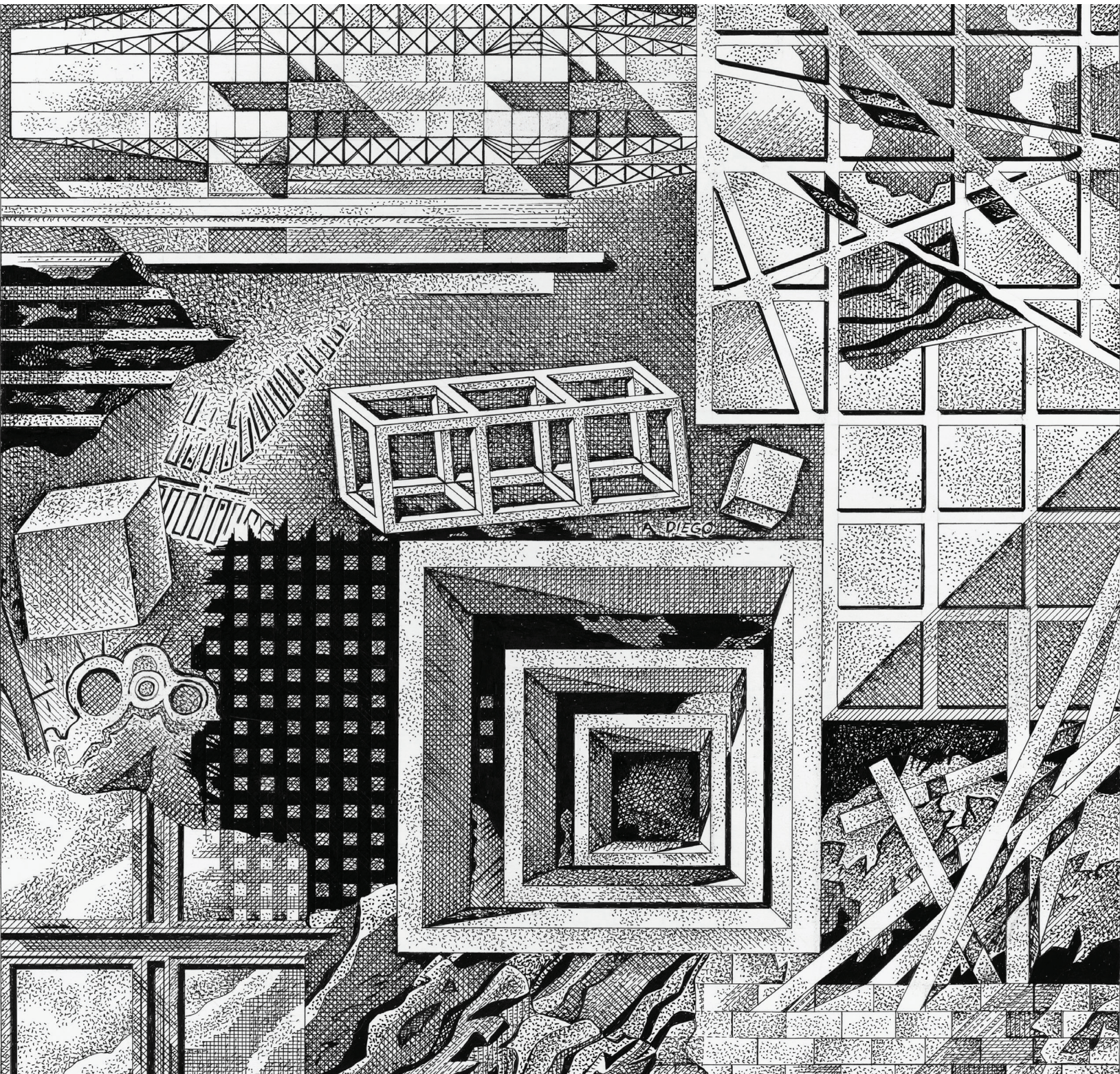

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"Crafting 'Scientific' Research in Architecture

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Crafting 'Scientific' Research in Architecture

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POLIS University
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POLIS University

"E non conta che questa sua pregiudiziale sia rinnegata da coloro che più dovrevo difenderla, o bandita da chi più, vaguemente, la tema: essa resterà, lo stesso, la fede segreta dell'epoca. Sostanza di cose sperate"

The reasons why we do scientific research can be many, from those induced by personal motives to those related with larger, imbricated social concerns, groups, or networks.

Scientific research has gained a special, all-pervasive status in academia in general, and that includes architecture. From digital modeling to tenure dossiers, from building performance to invocations of AI, from grant writing to politicians' electoral statements, scientific research holds a special value, that of *self-legitimation*. While of different kinds, origins, and know-hows, the scientific research is a product of intellectual labor, construction, and processing, rather than one of raw materials taken from nature, even if the (transformation of the) latter may be an object that scientific research. What is scientific research made of? And what are its results? Research is made of a combination of *egos* and *subjectivities* on the one hand and *objects* on the other. This combination is not simple but complex. That is, perhaps, why AI, which aims to replace many activities such as that of the driver, doctor, artisans, and so forth, has not yet replaced the activity scientific of research.

The very combination of the subject and object is at the very heart and origin of what constitutes scientific research. In *How to Write a Thesis* Umberto Eco gave quite a relaxed and operative definition of scientific research when he argued that for research to be scientific it must:

- deal "*with a specific object, defined so that others can identify it.*"
- say "*things that have not yet been said about this object, or it revises things that have already been said from a different perspective*."
- be "*useful to others*."
- and provide "*the elements required to verify ordisprove the hypotheses it presents, and therefore it provides the foundation for future research*" (Eco, 27-30, 2015)

Such "*loose*" scientific requirements trigger a multiplicity of research agendas and objects. The 26th issue of Forum A+P dwell precisely on this multiplicity.

The main purpose of research is the growth of goods that are the fruit of human intellectual processing. But how is this production related to the field of architecture or planning? What is the objective of the research in these two fields whose primary object of inquiry is the human-inhabited space? It is regarding such question that Edoardo Persico considers the quality of the form and settlements where people live as "*the secret faith of the time". Substance of things hoped for*." So, we can affirm without hesitation that the scientific research in the discipline of architecture and/or planning is that of improving the condition of the settlements where we live. Regarding the methodology used in scientific research, one could claim that traditionally, science moved forward by following a Hegelian dialectical logic where thesis and antithesis are synthesized to a conclusion, while today attempts are made to move towards a dialogic orientation of science, where there is not a clash between two different theses but an equal confrontation of both theses in order to draw, following a logical win-win, conclusions that are not exclusive of one another but sum up in one the most fruitful aspects of both. The coupling of the '*scientific*' with '*research*' may be new in architecture. In Le Corbusier, for instance, we find multiple references to science on the one hand and research (r*echerche patiente*) on the other, but rarely we find the two terms coupled into one, as in '*scientific research*'. The relationship of architecture with science, however, has a long history. In 1946, Le Corbusier met with Albert Einstein in Princeton, NJ, seeking '*scientific*' validation for his *Modulor*. His pursuit represents Architecture's eternal desire to be bound to Science, seen in both its employing science for assembling material realities, as well as in the rhetoric of a scientific design process. The history of architecture is not void of architecture-science relations: Anaximander's cartographies, Descartes tri-axial spatial matrix, Newton's static and relative spaces, the cosmic Baroque geometry of Galileo and Kepler, Giedion's histories of architectural technology, and Hannes Meyer's call for the 'scientization of architec-

ture' are some cases in point. Even passionate Borromini had to redraw the plans of San Carlino according to a geometrical scheme thirty years after the church was constructed to convey a sense of scientific objectivity… Gaspard Monge formulation of descriptive geometry at the end of the 18th and beginning of the 19th century, is a direct example of how a mathematician's contribution to the presentation of objects affects the presentation of architecture and its formation. Perhaps the French mathematician was not aware that even today in the XXI century we would still present the projects following the logic of presentation according to descriptive geometry. Jean-Nicolas-Louis Durand's modularization of architecture, Semper's emphasis on technics, Auguste Choisy's axonometric drawings of historical monuments, Wittkower's drawings of Palladio's villas, Colin Rowe's repurposing of Perrault's scientization of beauty through the dispositif of the natural and the customary, Eisenman's generative analysis, Aldo Rossi's rationalization and, thus, operationalization of the concept of type, Christopher Alexander's coding of perception and objects (*a veritable precursor of today's smart city*), as well as the digital turn in architecture – they all seek a specific relationship with science, more precisely, the scientific thinking Nor is the history of architecture void of monuments to scientists, for example, Boullée's Cenotaph for Newton and Erich Mendelsohn's Einstein Tower. In '*digital artists'* such as Nicolas Schoffer, Iannis Xenakis, Harold Bloom, Patricia Piccinini among others, both addressing and employing scientific perspectives from quantum physics, nanotechnologies, biotechnologies and so on, Modern Art and Architecture and their histories evince multiple liaisons with the History of Science. It should be emphasized that research does not always have a scientific form. It can be and in most cases it is empirical. We must say that genuine scientific research has a life of nearly four centuries. It used to be developed empirically. With the European Enlightenment, whose main figures were Descartes, Newton and Francis Bacon, the first traces of scientific research begin. The beginning of the research in architecture corresponds to the period of the birth of "*scientific*" thought in the period of enlightenment. In fact, authors such as Blondel, Laugier or even Semper, who comes almost a century later after the first two, begin to codify the origin of architecture to make it a "*scientific*" discipline such as mathematics, biology, chemistry or others. We can affirm that "*scientific*" research in architecture has the same "*age*" as research developed for other sciences, only that research in architecture has a different character from other sciences. The research hypotheses in architecture and the result cannot be verified and analyzed in the normal range (4-5 years) of research on a certain topic. At this point, the scientific value of a research in architecture is determined by the correct choice of the argument that will be treated as Eco would claim. Such a wealth of intersections of science and architecture suggest that it is impossible to separate and sometimes even distinguish between scientific research from its representation(s) as such. The latter consists of different languages, contexts, and artifacts.

A definitive answer on how and what should the scientific research on architecture be in the present and near future But, today, we can talk about the usefulness of scientific research. Why do we do scientific research? Who is the objective of research in architecture and planning? and who can be the search scenarios in the future? This issue presents contributions that deal precisely with the ideas and objects of scientific research in architecture, *broadly defined* as an inter-disciplinary approach to the built environment - from furniture, to building, to territory. This issue, then, is about the *combinations of subjectivities and objects through which the scientific research comes into being both in terms of its implementation and representation as such, as scientific research.* This issue proposes four kinds of architectural objects: historical, technical, textual, and territorial. These are not meant to be strict categories, but a "*loose*" structure that might help, however little, to distinguish among a multitude of nuances and hybridity in our vast milieu of informatics.

Planning Cities for the (Post-) Pandemic/Crisis Era. Aspects of territorial sustainability and resilience at Lezha Region, Albania

MALVINA ISTREFAJ
POLIS University

The Workshops described below, represent research activities organized under the framework of the International PhD Program, between POLIS University (Albania) and Ferrara University (Italy) in Architecture and Urban Planning. Aimed specifically for the PhD candidates, the workshops build on the previous and ongoing research work, focusing in the city and architecture scale developed under the Department of the Scientific Research and the Department of Applied Research within the Faculty for Research and Development, as well as in collaboration with Observatory of the Mediterranean Basin (OMB) unit, at POLIS University.
Each year the research activity promoted by the workshops is aimed at a specific topic, which is then open for debate and critical analysis by each PhD student individually, in order to develop their capacity for operating within any given planning context by developing theoretical tools, able to generate design processes and new research paths. The workshop is structured in a way that promotes the merger of different expertise to address the diverse aspects related to Phoeniciae and its Municipality. In these international PhD workshops, the methodology is designed to conduct a result that emerges a series of concrete proposals that will be required to become instrumental proposals in all national and international contexts that have a similar character.

Abstract
During the year 2020, millions of people around the world had to quarantine, self-isolate, and apply physical and social distancing. Our lives, our families, and work have drastically shifted into what many are increasingly calling the "new normal". People begin to work, study, shop, and even get health or medical advice remotely. Yet, the majority were not prepared in suitable spaces for conducting virtual lives. Large transformations that affected the way people gather and interact (the role of squares as collection points; the point where urban space is contemplated; the telematic square); transformations affecting financial exchanges; transport of persons and goods; the space of the apartment as a dwelling, orienting more and more towards a space that tends to contain all the functions in the interior where beyond the classic ones, pertaining a home, the space of working, creating or even recreation is added; intelligent city administration; transformations that affect social inequality; the way of nutrition; transformations regarding the working process and many other aspects. All these transformations necessarily translate into transformations of the inhabited space of man.While much of the public attention has been given to medical experts and government guidelines; it became clear that the way that it has been designed and planned so far, our homes and cities has been shaping how we were facing the pandemic at an individual and social level. The web reports and scholarly articles on the role of architecture and urban design and planning on the post-pandemic life and city are thriving daily. Through many fundamental questions raised on the societal response in the post-pandemic city, the Ph.D. Candidates for the International Ph.D. Workshop during the academic year 2021-2022 focused on matters specifically about the "new" role that architecture and built environment sciences can embrace in a dynamically evolving context. In light of the recent crises both at the national and international levels, which have generated a series of phenomena, there has been a rise in the need for different urban spaces and housing models different from what society has been used traditionally. This workshop aimed to conduct research on these phenomena, and explore possible solutions at the spatial level while keeping in mind the need for environmental preservation, thus anticipating the spatial models of the cities of the future.

Discussions and research regarding the nature of (post-) pandemic city transformations, urban qualities that stand at the core of these transformations, understanding the ways health and well-being intertwine with city-making in a post-pandemic context as well as the extension that COVID-19 has altered our understanding of urban and living space, pertaining life dialectics composed some of the main research phases to explore future solutions. Such discussions become extremely relevant the society is confronted with measures of physical distancing that will inevitably put into discussion the long-standing social distance; when new perceptions on sanitation and hygiene are emerging; and when uncertainty over the strength of the pub-

lic health system is just increasing. Understanding how society is now operating within the urban and living environment, especially regarding the houses, leisure activities, public space, mobility, and work environments has led architects, urban planners, and city experts to draw on their role in city-making and the new models of life. In short, while we adjust to new guidelines and protocols, aimed to serve as short-term solutions but arguably with long-term effects, for travel and urban mobility, urban safety, environment, leisure and sports, and social interaction; There is no place for speculation as this pandemic dissolve, the call to our collective consciousness to make cities sustainable remains. Whatever the case, the city needs rethinking and the urban space needs reinvention.

Objectives

One of the main objectives of the International Ph.D. Program, since 2014, has been to collect multidisciplinary experiences coming from different fields of architectural knowledge and to consolidate a group of researchers and professionals with a capacity to accept new complexity and challenges for future urban crises. During this workshop, the research project aimed to address and propose settlement alternatives that respond to the transformations and spatial crises generated by the situations that have emerged in recent years involving the Albanian context as well as that worldwide.These objectives touched on three different areas related to the main focus of the project which included: I) proposals for planning and settlement models II) Proposals for the protection and conservation of biodiversity and the Environment, III) Proposals for innovative housing models that reflect the needs of contemporary society.

Methodology

From a methodological point of view, this workshop started with clear research questions, which were focused on finding spatial answers that provided solutions to urban problems generated precisely by the post-pandemic transformations and the recent global crises. Addressing the issue of how should a settlement from a territorial and urban point of view be able to withstand major shocks such as earthquakes, floods, fires, droughts, and infectious situations for both people and the chain of life, the first approach to the methodology consisted in the division into several steps that were not necessarily sequential and they may even overlap with each other.

The first step was to gather information at a theoretical level that is directly related to theoretical studies on resilient and innovative cities. In parallel with this step, detailed analyses were made at the territorial and urban level on the case of the Lezha region, emphasizing the risks and dangers to which this region is exposed.

The second step had to do with the processing of the data extracted above within the workshop. In this intensive workshop beyond the analyses made, specific proposals at the theoretical and practical were provided. Three groups of researchers with members with expertise from different fields were created with a focus on three main dimensions: i) planning and development; ii) housing and infrastructure; and iii) durability and resilience. During the workshop the current situation was analyzed, including the main threats to a sustainable and resilient future: i) floods and fires; ii) earthquakes; and iii) pandemics. Other threats can be identified during the analysis.

The third step of this research was related to the detailed research for each of the dimensions mentioned above where each participant in the workshop is expected to make a theoretical and practical contribution in proposing new strategies or spatial models that can withstand shocks in the cities of the future.

Conclusions

The workshop is structured in a way that promotes the merger of different expertise to address the diverse aspects related to Lezha and its region. The results promote a pragmatic approach that combines theoretical knowledge, physical environment, and existing data. Following the methodological steps, and in regard to the objectives, during the research activities, a series of concrete proposals for the case of Lezha emerged. The proposals derived were delivered as a set of instrumental proposals in all national and international contexts that have a similar character regarding the environment, risks, and hazards at the environmental level and planning. This project provided new proposals for intelligent infrastructure, as well as new proposals at the residential level where the issues highlighted and previously raised are related to the various risks to which the Lezha Region is exposed. The results of the project are also further elaborated and published in individual detailed research, which are published in conferences, congresses, or other national and international research activities.

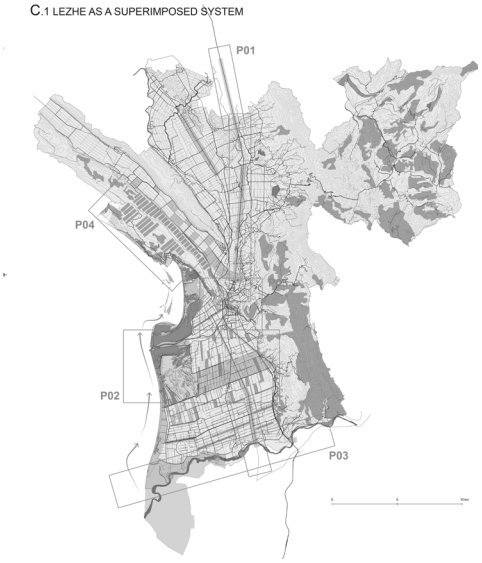
B.1 LANDSCAPE AS INFRASTRUCTURES

BLUE & GREEN SYSTEMS
Recognition of infrastructures as preponderant mutant actions on a territorial scale makes it possible to trigger design actions with direct consequences on landscape.

B.2 SYSTEMS MERGING

BLUE & GREEN SYSTEMS
The overlapping of the networks (natural and anthropic) present within an area allows the project to trigger conscious logics and strategies in its transformation.

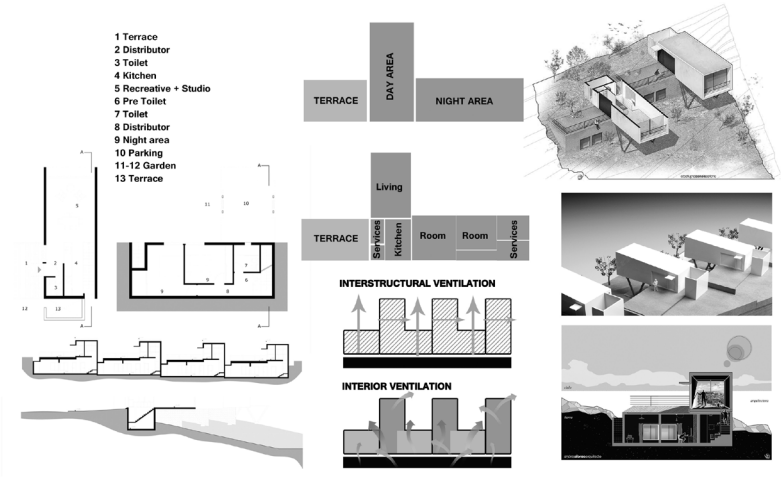
C.1 LEZHE AS A SUPERIMPOSED SYSTEM



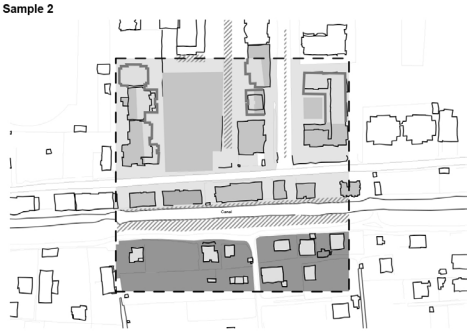
ANALYSIS

MAPS&GRIDS

Sample 1

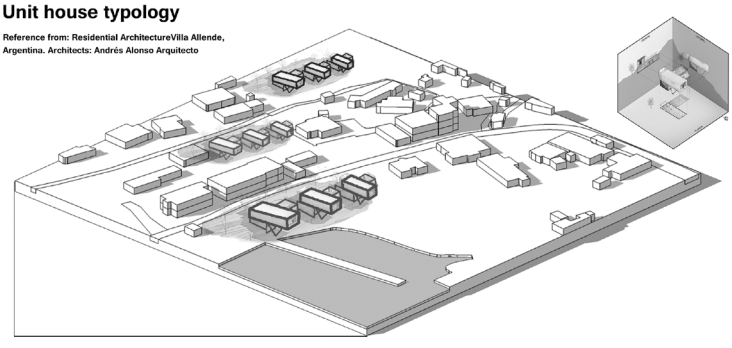


Sample 2

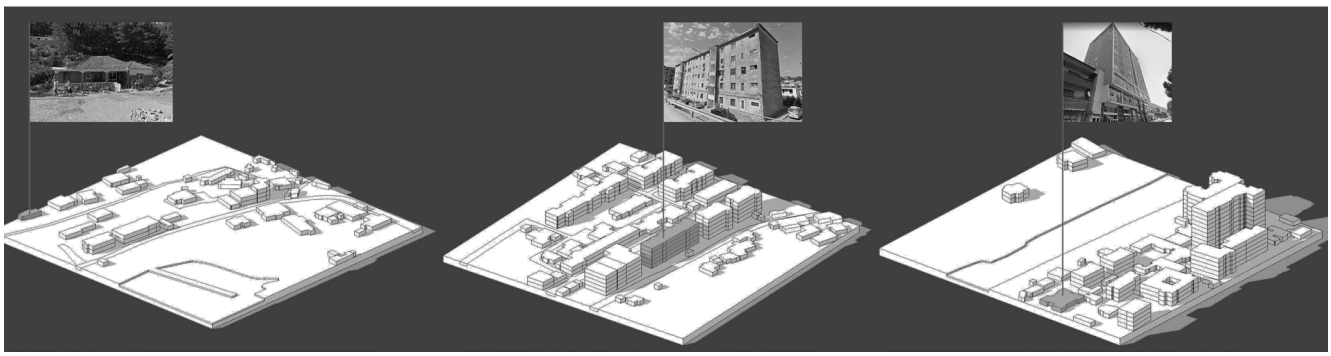


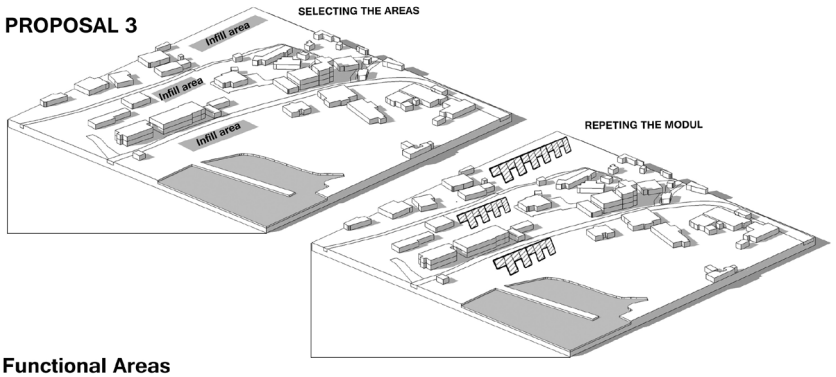
Unit house typology

Reference from: Residential ArchitectureVilla Allende, Argentina. Architects: Andrés Alonso Arquitecto



Sample 3

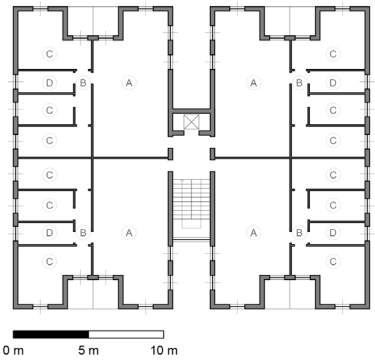


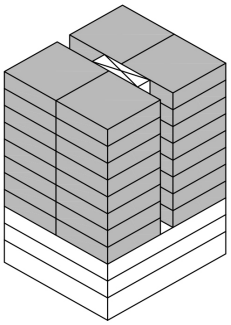


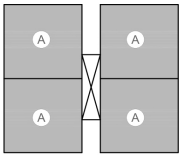
Functional Areas

TYPOLOGY: Tower house - current state

Type floor plan (1:200)





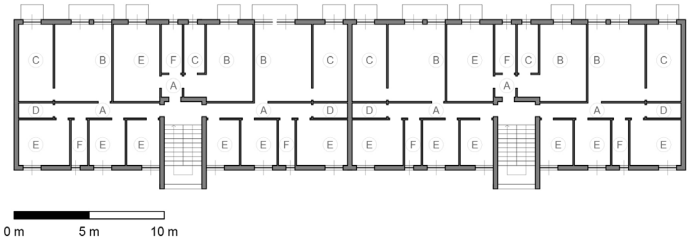


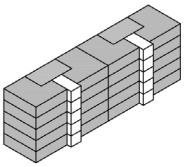
Height: 21 m
Storeys: 7
Dwellings: 28

Apartment size
A- Apartment 90 sqm + balconies

Common spaces
- Stair (70 sqm in total)

Type floor plan (1:200)

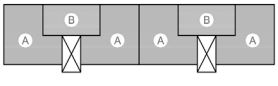




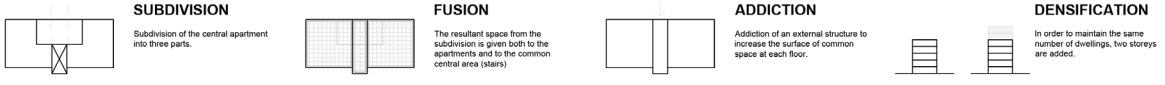
Height: 15 m
Storeys: 5
Dwellings: 30

Apartment size
A- Apartment 80 sqm + balconies
B- Apartment 60 sqm + balconies

Common spaces
- Stair (70 sqm in total)



TYPOLOGY: Linear house - proposals of intervention



Post-Pandemic Housing Proposals in Lezha. **Authors:** PhD Candidates of the 7th International Workshop

Re-Inventing Phoeniciae (Finiq): New Intersections of Tradition, Innovation, Landscapes and Tourism.

MALVINA ISTREFAJ
POLIS University

Abstract
In the period in which we find ourselves, scientific research in the disciplines of architecture and urban planning has always gone more and more toward the intersection of many other disciplines that are directly affected by inhabited space. In fact, after the decline of the great "metanarratives" (Lyotard 1979), where the "great architectures of thought" that structured the state of knowledge, were disintegrated, we are experiencing the presence of fragmentation and mixing of different "languages" and disciplines. The interdisciplinary character on which the organization of this workshop seeks to address the problem of space by interweaving a series of interventions that are influenced by the different "languages" on which knowledge is raised in the postmodern period. This workshop studied the settlement of Phoeniciae and aimed to propose some strategies for the "Re-Invention of Phoeniciae". The use of the word Re-Invention is intentional and is based on the legend of the bird "Phoenix" from which the name of this settlement was derived. Just like the Phoenix that was resurrected from its ashes, the municipality of Phoeniciae wants to be rebuilt over its current state, which appears degraded and very problematic. The main problems of this municipality directly affect the organization of social life, space, and quality of settlements.

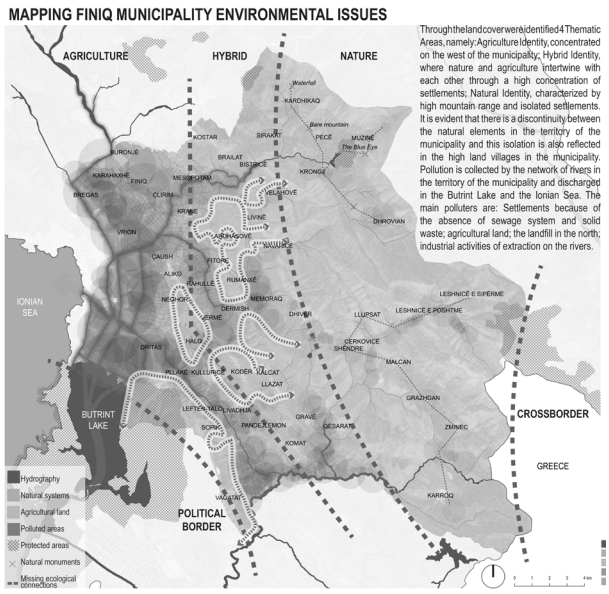
The first and most important problem is that of the shrinking number of the population living in these settlements. For various reasons; mainly economic, unemployment, and lack of services, the young population of these areas has mostly migrated to Greece.
In this panorama, what remains in these settlements results that mainly the age group from 45-65 years old lives in this area and that of aged people who have the main need for services and medical assistance. Most of the settlements that are part of the municipality of Phoeniciae present a social framework consisting of a shrinking and always aging population.

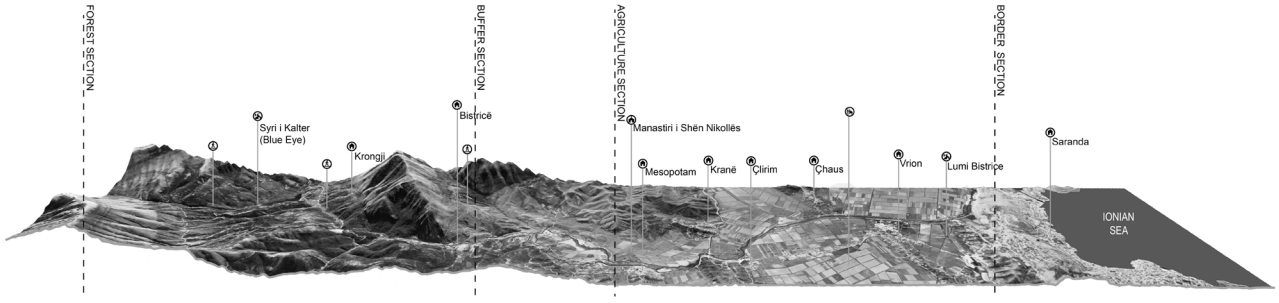
Another important problem is the one presented by the isolation of the settlements, which is expressed by their separation from the central municipality and each other. Although physical connections currently exist, isolation occurs because of the poor quality of these connections as well as the level of urban planning. In some cases, this connection is at an embryonic level, and in others, it is almost non-existent. At the level of direct connections, the main lack is the connection between Phoeniciae and Butrint. The quality of public spaces is another problem of the municipality of Phoeniciae, but also of other settlements that surround it. The identity of the public space is a problem that accompanies most settlements in Albania, but in the case of Phoeniciae, this problem is even more pronounced. Due to a public space of poor quality and without identity, the municipality of Phoeniciae, but also the settlements that surround it, are presented without spatial hierarchy. The identification of spaces that have the potential to have a public character and the creation of a spatial identity based on local tradition presented one of the challenges of this workshop. The first assumptions for the functional character of these spaces were based on the

needs that were currently manifested and organized empirically. They were also channelized into an organization of a local market where handicraft products are exhibited and sold to spaces for the organization of parking or other functions that appear sporadically throughout the settlement. Phoeniciae municipality has an agricultural character and relies on the fragmented fields at the property level by law no. 7501. The main problem of these agricultural lands is connected with the floods and the degraded soil drainage system. On the other hand, the Municipality of Phoeniciae presents a series of potentials that, overlapping, make up the "genius loci" of this area. Located in the southern region of Albania and on the Ionian coast, this municipality combines great natural, historical, and culinary assets. The history of these areas is "written in the stones" of the old settlements of Phoeniciae, Butrint and the religious buildings of Dhrovjan. These historical evidences speak of a glorious period of these areas that are now unfortunately in a state of constant shrinkage.

Objectives

To define the objectives of this workshop, the working group needed to research and discuss the character of city transformations and the problematics of Phoeniciae; urban factors and qualities stand at the core of these transformations and problematics and also how these transformations and problematics intertwine with city-making in the Phoeniciae context. The main objective is to find spatial solutions that can re-incentivize the city by creating the possible conditions so that the population does not shrink. This objective touches on three different areas related to the main focus of the research which are I) Proposals for regenerative strategies at the level of urban planning where infrastructure, services, and natural systems can be included; II) Proposals at an urban level for the Municipality of Phoeniciae and for the settlements that surround it; III) Proposals for the landscape and cultural heritage, IV) Proposals and specific projects for each settlement taken in particular.



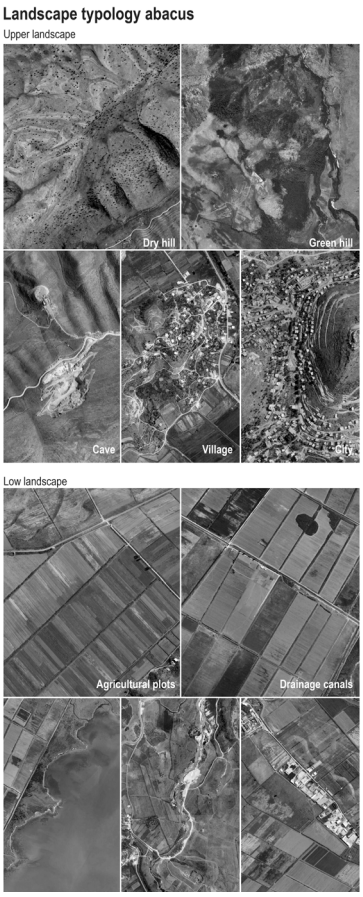


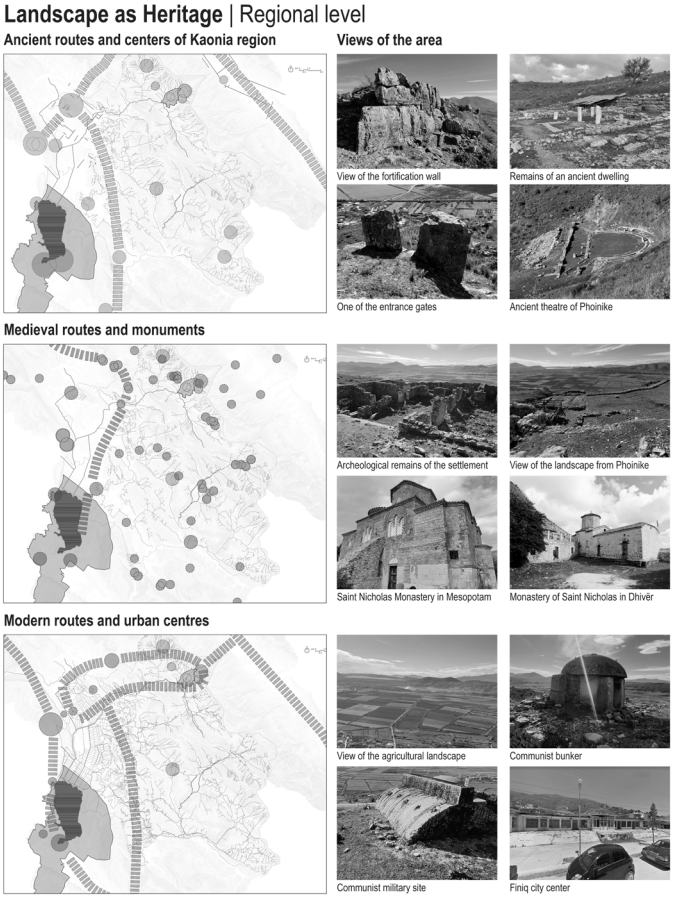
Methodology

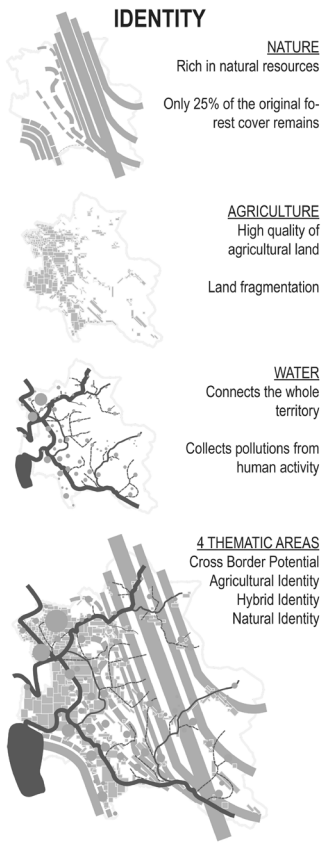
From a methodological point of view, this workshop started with a clear research question, regarding the form of the territory and the settlement for the region, in such a way that it generates well-being and creates conditions so that the population does not shrink. To develop the theoretical and practical contribution in proposing new strategies or spatial models that can withstand the shrinkage of the city, the participants focused on three main dimensions: i) planning strategies on the territorial scale; ii) urban strategies on the cities scale; iii) urban projects in architectonic scale. The methodological steps used as a pragmatic approach to combine theoretical knowledge, physical environment, and existing data consisted of an Introduction to the area through maps and literature study, followed by the enforcement with the theoretical lectures and case studies. The most important processes: are fieldwork (documentation, photographing, sketching, drone mapping), discussions, and class project work.

Conclusions

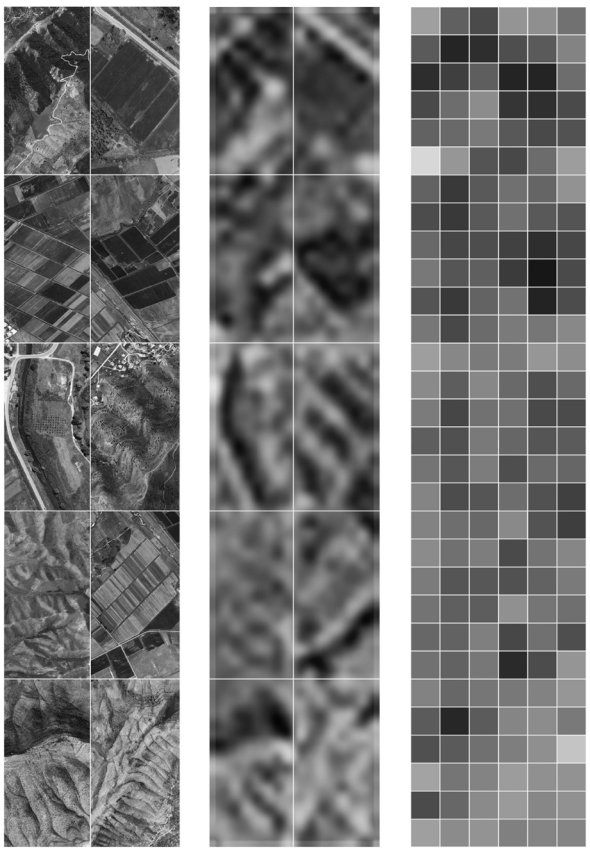
This workshop emerged a series of concrete proposals for the case of Phoeniciae Municipality which will be required to become instrumental proposals in all national and international contexts that have a similar character. Concrete proposals are mostly related to the problem of city shrinkage and raising sustainability and attractiveness for the area. The workshop provided proposals in the three different scales to tackle the problem of city shrinkage.





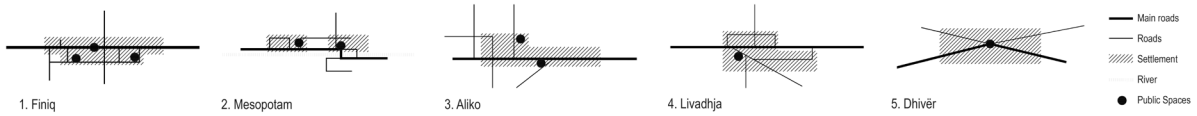


Urban, Infrastructure and Environment Analysis on Phoinike. **Authors**: PhD Candidates of 38th Cycle

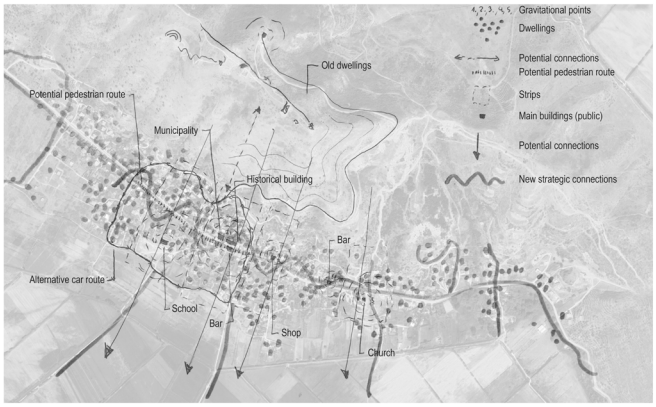


Heritage on Phoinike. **Authors**: PhD Candidates of 38th Cycle

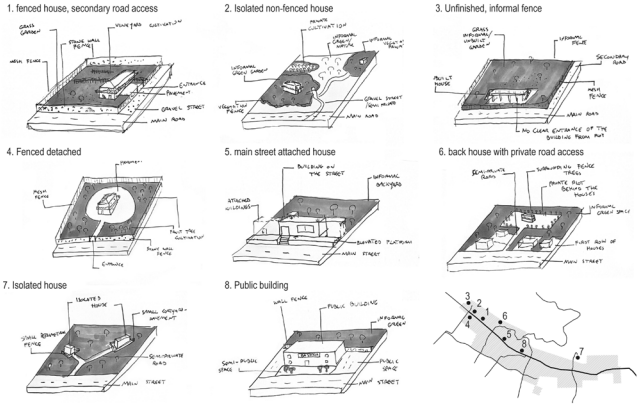
Settlement morphological diagram



Finiq settlement strategic analysis

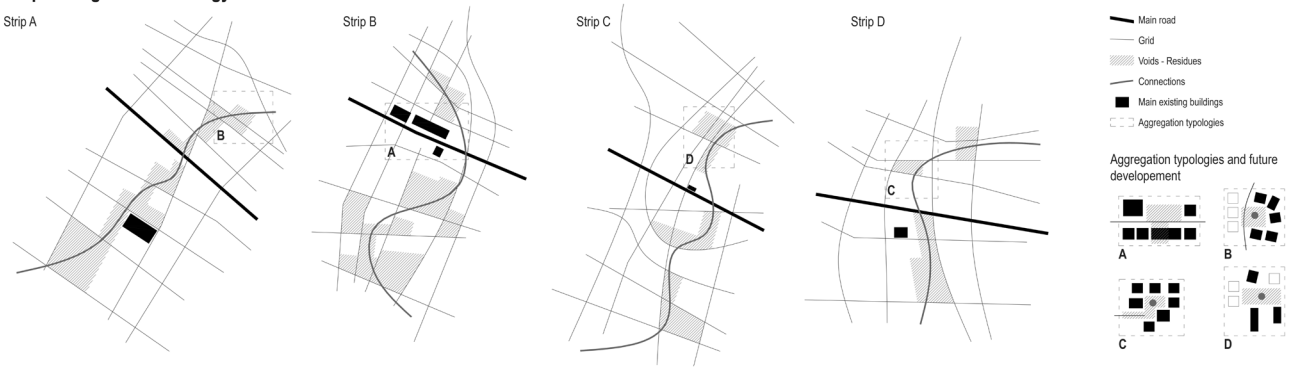


Dwelling and public building typologies



Strips - existing

Strips - diagramatic strategy



Strips - proposal

Settlements and Housing in Phoinike. **Authors**: PhD Candidates of 38th Cycle

Workshop Report

"City Sustainability through (Urban) Form"

MALVINA ISTREFAJ
POLIS University

Abstract
The joint research project between the University of Innsbruck (Austria) and Polis University (Albania) focuses on the topic of sustainability of the urban form, in the context of the urban layout in Tirana, Innsbruck, and Los Angeles but also cities of a more global scale. By 'sustainability' here we mean the disposition of the urban form to persist at different scales of the city in history and to play a formative role in the future development of the city at different scales and performative levels, such as: symbolically, morphologically, and functionally, among others. This topic has been addressed in two directions: I) How to read an existing city (or part of it) in terms of the sustainability of its form at different scales and II) How to design a future city (or part of it) according to the principles of urban form sustainability.

The research project has been motivated by special phenomena in the cities of Innsbruck and Tirana. The latter, for example, has grown from a city of 250,000 inhabitants to a city of almost a million inhabitants in the last thirty years. This transformation is not only an expansion of the city beyond its former boundaries but also a destruction of the existing historic city from within those boundaries and its replacement with new high-rises. On the other hand, in Innsbruck, the expansion of the city is limited due to the topography, so pressure is put on the historical fabric and whole areas are destroyed and replaced by high-density buildings. There seems to be a correlation then, between urban growth or sprawl and the transformation or destruction of the urban fabric. This is, indeed, a global phenomenon and is embodied differently in different contexts. It could be argued, for example, that a gated community like Hudson Yards in downtown New York corresponds to a landscape of urban decay and degradation as seen by Metro-North between New York and New Haven. However, it is noted that some urban areas have been more stable and resistant to building speculation and urban degradation than others.

Objectives:
The primary hypothesis of this research project was that such sustainability or the lack of it, is an inherent predisposition or tendency of the city form. Our hypothesis is also that more formal stratification and neighbourhood correspond to a more stable form. In this project, the specific objectives or questions regarding the sustainability of their formal and existing predisposition, in specific urban areas starting from Tirana to Innsbruck and Los Angeles, including the future potential for transformation in scales and contexts, have been addressed.

Main Issues which were opened for discussion and a baseline for offering the upcoming solutions regarding: I) the measurement, evaluation, or demonstration of the predisposition of the city form; II) The meaning of the predisposition of the (urban) form and possibilities to design by this predisposition;

III) identification of possible initial situations which have remained intact in a given context or a specific historical interval; IV) Defining the theoretical or epistemological correspondence (assuming there is one) between this indicator and the inherent formal qualities of initial situations as well as; V) identification of predisposition in such landscapes towards the future, based on the formal intelligence identified.

Methodology

Based on the research objectives and questions raised, the purpose of this project was twofold:

I) To develop a methodology or a set of methods for measuring and evaluating the sustainability of the urban form. II) To address specific urban areas or problems by measuring and evaluating the sustainability of their existing parts and speculating about their sustainable development in the future Project deliverables consisted of different analyses, and architectural and urban composition expressed through drawing. The conceptual submission consisted of compositions that show, in a visual form, the sustainability of an existing context, and on the other hand, propose a sustainable form in the future. While these blueprints are site-specific, they serve as a general intelligence and framework, able to be instrumentalized in other conditions and contexts. The final product of this collaborative research project consists of a dedicated publication.

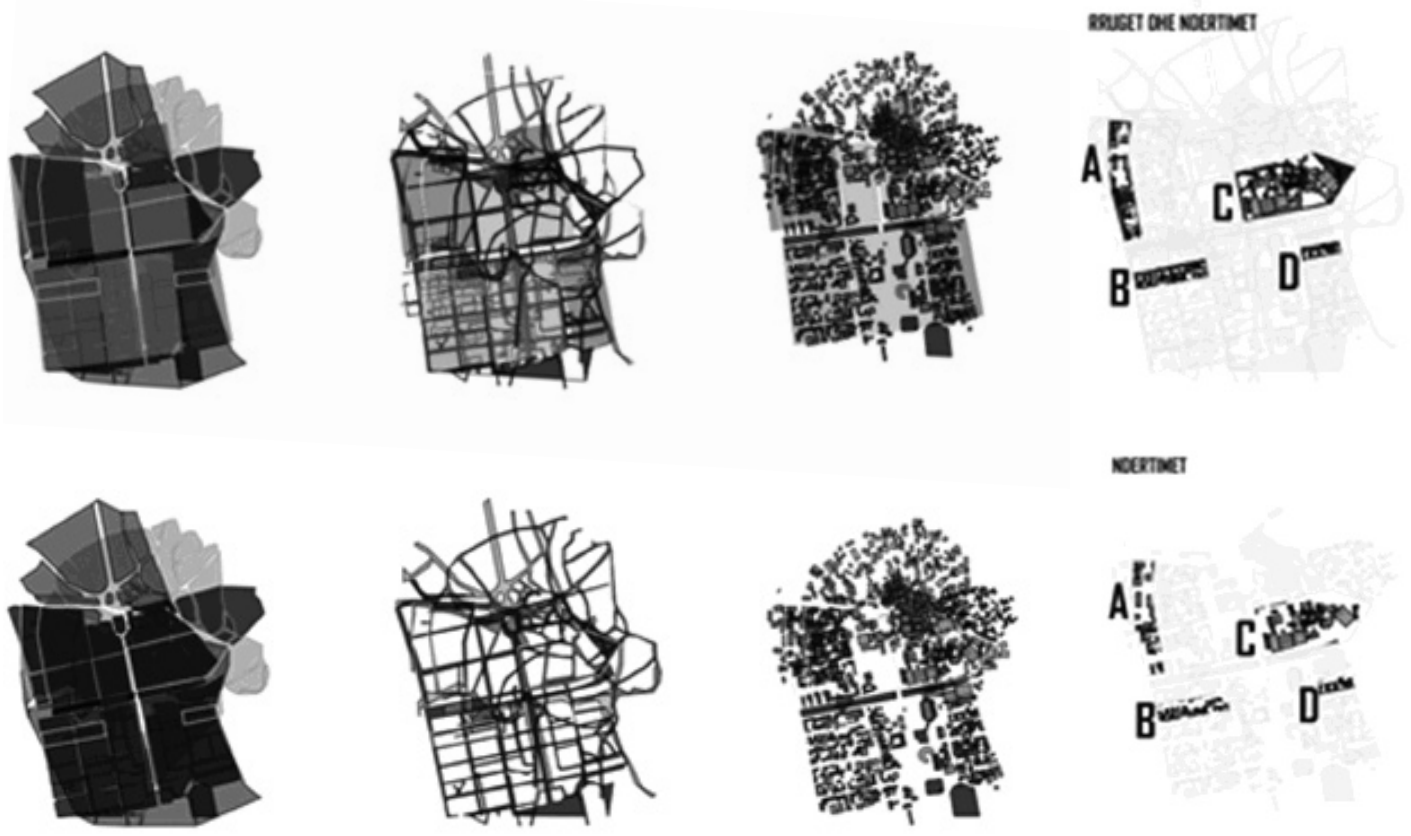
Conclusions:

During the Project Work, two different approaches were followed. The first is called a "close reading" in very specific areas in selected cities such as Tirana, Innsbruck, and Los Angeles among others, while the second approach focuses on "far reading" that uses computational techniques to identify the sustainability of form within a large number of urban data.

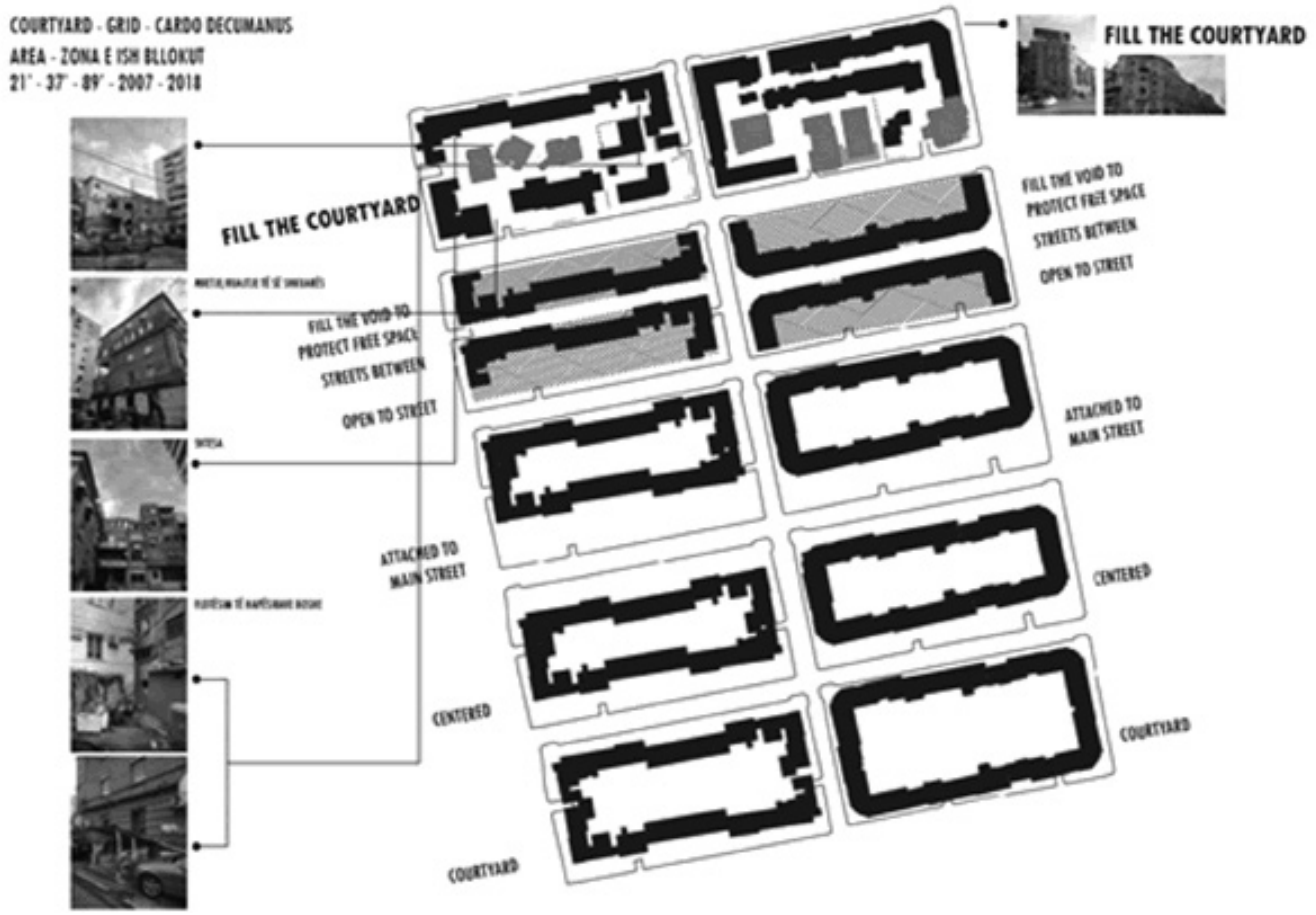
For example, the context in Tirana was the main Boulevard that consists of two parts, one in historical Tirana and one in that part of the city that has been populated in the last 30 years. The context is significant in itself as long as it is part of or represents the development of Tirana in the last 30 years. Context has been also significant because it acts as a methodological axis for this project, which moves from measuring and evaluating the sustainability of an existing site to projecting sustainability principles of form into the future. Innsbruck on the other side, is a small town and the area between the high alpine peaks is limited. However, the districts are quite different from each other. From the old medieval city to the classical countryside, to modern urban forms. In the meantime, Los Angeles is an imported country and was founded on the idea of conquering the land with many precedents. With the current developments of the 21st century, Los Angeles is repeating itself internally, more than ever before. This replication process produces built examples, in height and in itself. Instead of expanding further into the periphery, the urban fabric begins to "fold back in on itself", physically densifying the existing city and consequently creating a network of complex layers of form consistency, interweaving much like a palimpsest. The persistence of its form will be determined and categorized to prove its self-reflective identity. In addition to the close reading approach, during the Project Work, a quantitative methodology with far reading was followed, for measuring and evaluating the sustainability of urban form on a more global scale. The visualization of large amounts of urban data provided by the participants through map analyses and diagrams represented the input towards the new ideas about the sustainability of form.

In conclusion, the main task of this workshop was to observe how and why some urban areas have been more sustainable and resistant to building speculation than others. It was a fundamental hypothesis of this workshop that such sustainability is an inherent predisposition of the form of the city. More formal layering and more formal adjacency indicate more sustainability and resiliency of the form.

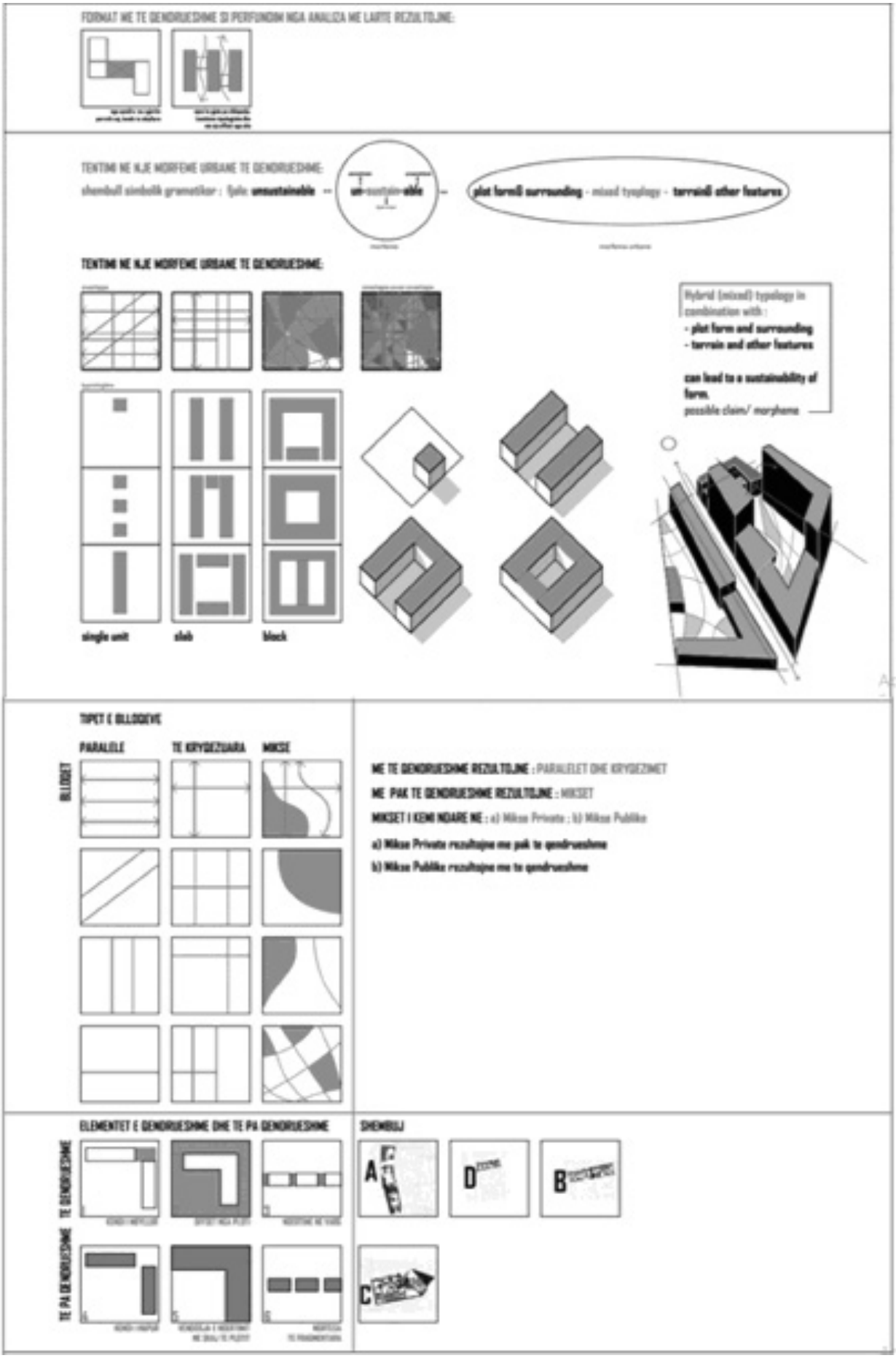
Malvina is an architect, graduated in 2012, at the Faculty of Architecture and Design of POLIS University, with the title of Master of Science in Architecture and Urban Design. After completing her studies, Malvina focused her research activities, in the professional Master's program in the field of Housing and Infrastructure Development. These studies, directed by POLIS University in collaboration with the IHS-Erasmus Institute in Rotterdam, developed her interest in the urban context and the architectural influence on the life of cities.



Urban Analysis and Changing Processes:
Author: PhD Candidate of 35th and 36th Cycle



Block Analysis.
Authors: PhD Candidates of 35th and 36th Cycle



Diagrams generated during the workshop.
Authors: PhD Candidates of the 35th and 36th Cycle

A new Vanguard
Notes on the Current Condition of Architecture

FRANCO PURINI
Sapienza - University of Rome

The architecture of the age of globalization, the age characterized by a geopolitical system that seems to be heading towards its decline, is dominant today. Almost all architecture magazines, including some of the most prestigious ones, which in recent years have played an important role in carefully reading and presenting works in their pages without propagandistic intentions; many architects and many historians and critics; a large number of simple architecture observers and even a large group of its users consider the season of building as an exciting, advanced period capable of making the future present. Everything that is not classifiable as globalization architecture is considered traditional, backward, unable to express contemporary values and achieve important objectives. For many years, I have realized that this opinion on global architecture does not correspond to what is considered an innovative, prophetic reality with extraordinary meanings. What has been realized in cities and metropolises in the last thirty years is very similar to the architecture of *Eclecticism*, which in the last years of the 19th century and until the early years of the next century transformed all the cities of the West and some in the East, giving them a hybrid identity like in an *Esperanto*, an incoherent mosaic of different linguistic fragments. From here, hybrid, casual, gratuitous works, devoid of their own necessity expressed by the Albertian idea, which in true architecture should not add or remove any element. Therefore, I believe that the true current avant-garde is not that of global architecture but a completely alternative conception of building. This conviction has been suggested to me by an observation that I believe cannot be considered inaccurate or just the result of a subjective view. This conviction consists of believing that architecture, in its first principles, which I will explain shortly, and in the authentic values that they produce, are invariant. In short, these principles are the same as when human communities first emerged. Architecture, in fact, shares the same birth as prehistory. The invariability of the primary principles, however, is confronted with social, cultural, productive, and technical changes that constantly occur over time. From this stems an endemic contradiction in building, which has a decisive and continuous positive effect. On the one hand, the primary principles always express the same human action, which serves to define living in all its breadth; on the other hand, the ways of giving utility, structural consistency, and form to interventions in the landscape-territory-environment, the city, and architecture constantly change. It is an essential task for the architect to keep this conceptual duality in mind, giving it a unitary representation that is a concrete and at the same time poetic mediation between these two conditions.

It is useful to briefly dwell on the avant-garde to define some aspects. It must first be clarified that they are as many *revolutions*, which question knowledge, convictions, ways of proceeding, types of writing, discoveries and affirmations of new visions. Furthermore, and this should not surprise us, they draw from the past determining elements along with new elements. Humanism and the Renaissance were revolutions compared to the Middle Ages, which in turn had experienced the Gothic as a reaction to the classical world. Mannerism transformed the Renaissance, favoring the birth of the Baroque, which had a continuation in the Rococo. Neoclassicism was configured as yet another avant-garde that, in the Age of Enlightenment,

would revolutionize the arts. In its own way, Eclecticism also represented an avant-garde, first overwhelmed by Art Nouveau, which paved the way for Modernism, and then by the various avant-gardes of the twentieth century. In summary, it can be said that these *serial revolutions* were as many avant-gardes largely nourished by the resumption of previous visions often brought back in a reinvented form, as happened to the movement that the Five Architects group gave birth to in the 1970s, which had rediscovered the architectural language among rationalism, the *spatial writing* of Le Corbusier and De Stijl.

Before delving into the topic at the center of this writing, I believe it is necessary to clarify some aspects of knowledge and interpretation that are at the basis of my reflection, which due to the nature of the subject itself is quite complex and challenging. The first consideration that accompanies my discourse is the impossibility of understanding the city in its thematic extension. There are in fact many areas of knowledge that intersect with it. I will list some of them, apologizing in advance for any unintended omission. Philosophy, religion, climatology, sociology, economics, anthropology, botany, medicine, physics, statistics, politics, environmental engineering, geology, astronomy, geography, legislation are some of the areas of knowledge about the city. To these we must add others such as history, literature, poetry, media, without forgetting the science of flows, transport organization, infrastructure, the hydrographic system, and industry in its various articulations. To think of arriving at a synthesis between these areas of knowledge is very far from being realized. Claude Levi-Strauss defined the city as "the human thing par excellence," but its meaning, which tells of structures, forms, and purposes, does not seem to have been fully grasped yet. For this reason, I am convinced that we can only achieve a *partial and transitory knowledge* of the territorial and urban organism. Hence the insurmountable limit of urban planning, projected over long periods of time, and the *positivity of architecture*, which is designed and built in relatively short periods. The second consideration consists of wondering whether cities have a *plan for their existence*, a constant purpose, or whether they evolve through random events. Perhaps both vital processes of cities can merge in particular temporal situations. It is probably more convenient not to have to choose between the two perspectives: the intention of making its historical objectives a reality, the *adaptation to what happens*, but realizing the interaction between the urban will to realize the vision of its future and the incidental positive and negative occasions that follow the life of the city continuously. The third consideration, descending from the second, consists of deciphering the *character of a city*, understood as a constant category to which history, literature, and the arts allow us to approach, even if such a category will remain largely inexplicable. This reflection tends as a whole towards a *synthesis* that, if not formulable, allows us to sense the presence of an area of meaning. It is a clue that, in its own way, reveals something important and lasting to us. Perhaps only the urban project, expressed by architectures tuned to the city, can give us some signal about the future that goes beyond this mysterious and happy warning.

As for the architecture of globalization, it is necessary to list some characteristics that make it recognizable. The first is a radical neo-functionalism that focuses on analyzing the uses that the individual parts of the building must accommodate. The preeminence of function over other elements of architecture is an inheritance of the Gropiusian Bauhaus, which, in my opinion, was a choice between materialism and practicality, not entirely positive. The second characteristic is a totalizing *conception of technology*, a term that has overshadowed the more proper one of technique, which I have always preferred. The difference between the two words lies in the fact that the former, the most recent, affirms a cognitive primacy considered as a sort of mysterious knowledge that only a few know, while the latter indicates the ordering, organizational modalities, and concrete actions of building with which the expected result is obtained. The content of technology, if what I have said is correct, would then be the existence of a surplus value that the discourse on technique produces with respect to technique itself. Technology is, therefore, an *augmented technique*, so to speak, a higher state of the concrete dimension of doing. The third feature of global architecture is the *disappearance, in construction, of the fundamental relationship between the city and architecture*, which involves the two further cancellations of the *relationship between urban analysis and architectural design*, and the primary relationship between typology and morphology. In short, urban studies are now almost completely absent in faculties of architecture, as well as in the profession. Closely linked to the previous characteristic is the denial of places in favor of a random dissemination of buildings. Places are the result of the dialectic between site and history, they are archives of memory, narrative fields of settlement events, outcomes of complex and often formally prestigious interpretations of the soil in a plastic transformation that is always subjectively understood and interpreted. The fifth characteristic is recognized in the *excessive importance of communication in architecture*. The landscape, the city, and the serial or special buildings that it hosts have always communicated something, but what they expressed, almost in a spoken message, was contained within appropriate limits that did not involve the totality and uniqueness of the work. The age of mass media has profoundly changed the idea of a building as an entity that no longer dialogues with other architectures, but is primarily a message that concerns either consumption or the celebration of an industry of which it becomes a flashy *urban advertisement*. Every building today wants to present itself as an entity completely different from the others because it is involved in a competition whose result must be the *absoluteness of its identity*. A revealing example of architecture's communicative intentionality is the view of London from the Thames towards Christopher Wren's St. Paul's Cathedral, whose precious monumentality is overwhelmed by a forest of skyscrapers which, behind it, offer the unpleasant spectacle of a loud and continuous architectural discord. A set of almost always bizarre, anti-typological towers, equally spectacular, produce a chaotic ensemble, foreign to the city, where buildings fight against each other to assert their presence. If

one compares this view with that of Canaletto's, from more than two centuries ago, one can understand how much has been definitively lost. No coherent relationship binds the skyscrapers, *celibate phantoms*, one could say. The sixth characteristic consists of a radical denial of the relationship between tectonics and architecture, which is the *native place* of an authentic architectural language. The seventh characteristic is identified in no longer considering the *forma urbis* as a value, as a visible representative of the city, a constant, individual, and collective narration of its human story. Through a distribution of architectures that no longer follows the implicit and explicit, evident or mysterious orientations of the evolution of the city in its various and intertwined temporal phases, the existence of the city itself as an incessant narrative of the community that inhabits it is effectively denied. The new urban parts or those rebuilt in abandoned or recently demolished areas are not in solidarity with each other but are involved in a permanent conflict. The *forma urbis* is the expression of the ancient Roman culture of the morphology of a city but it is also something more. While the word morphology, coined by Johann Wolfgang Goethe in relation to the natural sciences and then adopted by architects, structurally describes the city, the ancient term *forma urbis* reveals its essence, the symbols that animate it, its mythologization, its hidden sides, the harmonic or dissonant rules that generate it. The global city is no longer a real urban reality, but the juxtaposition of autonomous building plots which, instead of building a harmonious settlement unity, confront each other, displaying their unmistakability with the others in a game that is more than risky, useless, unpleasant, and ephemeral.

The first principles that constitute the essence of architecture, from its appearance alongside the first human communities until today, have been in recent years, as I have already said, set aside as a heritage considered now to be forgotten. The architecture of globalization has, in practice, erased them. The first of these principles is the organic relationship between *landscape-territory-environment*, cities and architecture. Living is the realm that encompasses these three scales of intervention. A realm that is not only physical but also narrative, full of memories, in which a mysterious sublimation of its physical contents takes place, acquiring a mythological dimension and an essence that proceeds from *utilitas* to intellectual understanding and finally to the sphere of the spirit. The second first principle is the *relationship, harmonious or dissonant, between tectonics and architecture*, a dialectic between loads and supports, as philosopher Arthur Schopenhauer asserts, which is a conceptual and exclusive space of architecture, the only one from which the authentic language of construction can arise. The third principle is the creation or renewal of places by architecture. The place is the result of the relationship between the site and history, a profound and, using an adjective loved by Le Corbusier, *indescribable relationship*. Places are the central nodes of living, in which its meanings are exalted, totalizing and elevating the value of what surrounds them. From the places emanates an *artistic energy* that transfigures the built environment idealizing it, giving it also a constant permanence over time. The fourth principle prescribes that every design choice must correspond to a *higher necessity*. The essence of architecture is both the goal, to be made evident, of thinking about it without any addition or subtraction, and at the same time the result of a compositional process in which this necessity is expressed by exposing Mies van der Rohe's idea that "less is more." In architecture, necessity not only involves the economic and constructional aspects, limiting, for example, any unnecessary addition to the building, but also asserts that an *architectural work is only what it must be*. Necessity is therefore, first and foremost, a higher purpose. The fifth principle concerns the duty that a building *has to represent the institution it houses*, as Louis Isadore Kahn has reminded us, and continues to remind us. Hence an idea of typology not so much as a *classificatory category*, but as an expression of the architectural meaning of a particular human activity that takes place in a building. In short, architecture is understood through three readings. The first is practical in nature, concerning uses and construction methods; the second is an intellectual interpretation through which we can see what its contribution is to urban space and its value according to the community that desired its presence in the city; the third is its spiritual significance. A value that we may not be able to understand, but which, once we know of its existence, will be for us an extraordinary gift, even if it remains incomprehensible. The beauty of architecture lies precisely in the awareness that it is with us, like a precious gift, even if it is difficult, if not impossible, to fully decipher it. One final consideration on what has been said in this paragraph. As it is a duty, now almost universally shared, to preserve biodiversity, it is equally necessary that architectural languages are in tune with the cultures of their countries, which give life to globalization. This is a condition that, by the way, I believe has exhausted its primary cycle or perhaps its final phase. It is necessary that the history of places resumes making architecture more vivid and authentically expressive, for a long time a mysterious and humanly poetic medium between the past and the future. A medium that lives and will always live in the present.

With the eclipse, which I hope is not definitive, of the primary principles, the meaning of living has been lost, which I have summarized in a passage from the preceding paragraph. I believe that a militant orientation needs to be substituted for the widespread conviction that contemporary architecture is highly advanced, primarily through digital means, which is now not only mythologized knowledge but a genuine religion. Along with these primary principles, a reaffirmation of the human value of living expressed by the beauty of architecture needs to be put in its place. Such beauty is neither *elegance*, or the result of good execution, nor the wealth and nobility of materials, nor the formal results, which are gratuitous or casual, taken from other arts, but especially industrial design. As I have said, the true beauty of architecture is an *absolute form attained* within the dialectic between the structure and its being coherent with the plastic modeling of volume and the correct consistency of materials. All of which is resolved in a composition that is aware of itself and at the same time is the bearer of mysterious con-

tents that, although incomprehensible, move us. Reintroducing the primary principles and the totality of living understood as a great poetic text on human communities, laden with memories in the present and projections in the future, is a revolutionary act that, by subverting the current subjection of architecture to market logic, once again reveals what building should be for us. I repeat that this position is not directed toward the past but is an urgent commitment to the future. To those who think that what I am proposing reflects a traditionalist idea of architecture, I want to clarify that it is my belief, elaborated over many years, that a *new avant-garde* is needed today to reaffirm the truth of architecture, its *authentic ratio for being*, the Vitruvian raison d'être, against the current drift that denies the real foundations of building in favor of completely self-referential whimsical experiments. As in every creative activity, it is necessary for an author to have a personal, recognizable, *autographic* language, but it must be based on shared foundations expressed through *genetic* selections among the elements of architecture. In short, architecture must invent its *own lexicon* but at the same time must be understood by the greatest number of people who will know or inhabit one of its works.

One aspect of globalization's architecture that concerns teaching is that the knowledge related to building is no longer considered a unified entity. For some decades now, this knowledge has been considered a set of separate, autonomous, and specialized disciplines. This has fragmented the idea of architecture, taking away its true essence. At the same time, building is no longer believed to be an art that expresses the nature and sense of dwelling. The concept of beauty, as discussed by Vitruvius, has often changed throughout the history of architecture. The beauty of Renaissance buildings is not that of the Baroque period, just as it is not that of Neoclassicism. Modernity has reaffirmed the concept of beauty through the mxxultiplicity of its aspects, characterized by an enigmatic conceptualization, as was modified by Romanticism, which added the opposite of what was considered beautiful. Currently, beauty, or *architectural form*, has assumed new aspects, but its origin from the grammar and syntax of building is still its native scope. The beauty of architecture, as I have already said, must not be reduced simply to the technically *well-executed*, to the communicatively media-savvy, and to the logical correctness, but it is something whose presence is recognized and at the same time *inaccessible*, a dual reality that introduces us to a condition of surprise, waiting for promised discoveries, harmony with the world, potential understanding of the sphere of the transcendent and the timeless. A beauty that is also capable of regenerating and, for this reason, capable of being up to date season after season. Palladio's architecture is an unsurpassed proof of this, being what building really wants to be, beyond time.

As I come to the conclusion of these reflections, I believe that an architect must invent a *personal language*, a way of *writing*, before beginning to design. However, an important contradiction must be considered. Once a personal *style* has been identified, using a term that is no longer used, the lexicon that we have created must be, as I have already said, but unfortunately as we do not want to accept, understandable for everyone or, more realistically, for many. This contradiction is vital and positive, making the work not only *speak* instead of being *silent,* following a consideration of Paul Valery, but also sing, thus generating a harmony that is a form of beauty. In order to do our job, we also need a constancy in research, more precisely an *obsession*, which of course must be disciplined, controlled, and in some cases even accelerated, as well as a conception of architecture as a cosmic representation. Finally, the references we choose should not be cited, that is, reproduced in our own projects as they are. They must be experienced as precedents on which to do an interpretive work, transforming them into our own statements.

The urgent need for a new avant-garde that rebuilds the unity of architecture against its current and harmful separation into multiple disciplines requires a theoretical and operational reflection on various problems. We must try to progressively eliminate the homogenization of architectural languages by rediscovering the fertile diversity and engaging autonomy of the individual building cultures, which must certainly interact, including the influence of different lexicons, but always remaining aware of their own identity. We must also increase experimentation without mechanically imitating orientations far from the usual ones. It is also necessary to ask ourselves what *duration* means in architecture today, a valid concept over millennia but currently considered an outdated notion, replaced by an ever more rapid succession of architectures in the same parts of the city or by equally continuous and radical modifications of buildings of considerable quality. Furthermore, the ever more imposing flood of images must undoubtedly be contained, which ends up consuming itself, thus giving rise to a problematic *age of the ephemeral*. The idea that architecture has a long duration is intrinsic to the nature of building, even though a building may have a short life.

In summary, duration is a *conceptual aspect* of construction itself that may not correspond to a true continuity of architecture that can be destroyed or demolished. Therefore, the possibility for each architectural work to be preserved over time remains authentic, obviously by resorting to necessary maintenance. Finally, one cannot avoid reformulating a reasoned list of the languages in which creativity is a central element. In fact, it is no longer clear what the arts are, whose multiplication is now impressive, as are literary forms or cinema. All in duality such as material and ideal, real and virtual, complex and simple, existing and non-existent, true and implausible. Another aspect to which the avant-garde, of which I am delineating the problematic field, could give a new meaning is that of morphology. It has been replaced in the modern city by an informality that is not devoid of structural values, relationships with the landscape, foundational relationships, and artistic expressions. Values that are not recognized or completely forgotten today, even though they are still present and operating in the city. It is therefore necessary to rewrite the morphological theme in the light of the new and numerous characters that are defining the current cities, starting from the artificial geography of

infrastructures. Perhaps it is *psychogeography*, created from an intuition of Sigmund Freud described in the book "*Civilization and Its Discontents*," and from another of the situationist Guy Debord in his manifesto "*The Society of the Spectacle*," that with its drifts can show us the *urban invisible, the form of the formless, the secret and inaccessible side of dwelling*.

I have already mentioned that I am not against experimentation, just as I believe in the digital revolution, but it seems to me to be proceeding so quickly as not to allow us to get used to the changes it produces. I do not separate the past from the present and the future, but I believe that these three declinations of time must coexist. Recalling Pier Paolo Pasolini, I am for "progress" and not so much for "development". I also think that without a utopian tension and a visionary attitude, one cannot make a good stretch of road. Returning to the digital world, I have understood for some years now that the diffusion of BIM (Building Information Modeling) is not so much an agile tool, as one would expect, but a *priestly rite* that forces the project into a cage of consolidated solutions. In the digital universe, composing no longer seems to be an act that descends from the imagination of its author, but from the core of the notions that BIM proposes. All of this with the implicit conviction that today the virtual is the true real, while this is nothing but its simulacrum. Moreover, that today linguistic homogenization caused by a questionable Esperanto has won is not a simple opinion but a reality that is all too evident. Living the contradiction between the plurimillennial permanence of the first principles of architecture and the changing conditions in which they are confirmed is an innovative, advanced, and urgent choice that, in addition to a necessary correction of the *efficientist materialism* of the prevailing neofunctionalism and the reduction of the environmental dimension to its sole aspects, we are experiencing considerable and worrying critical moments. This requires logical clarity, great confidence, and remarkable courage. Architecture as the "substance of hoped-for things", remembering Edoardo Persico, will certainly be able to preserve, renew and give a new soul to living. What I have said is addressed to people like me who are about to conclude their journey in architecture, as well as, above all, to young architects and students. It will be up to them to decide whether to build their path in the architecture of globalization or to return to the origins, where creative energy, the conception of the nascent form, and the revealing totality of the project are still capable of illuminating living and its future.

The article was translated from Italian to English by Dr. Valerio Perna.

Managing Interdisciplinarity in Urban Planning Research

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Abstract
In contemporary research, interdisciplinarity is a common condition. This is especially true for urban planning where the need to leverage fast-evolving technology, emerging trends in social habits and globalization are challenging planners.
Interdisciplinarity is often stated, and almost always expected. But only seldom is clear what it is really expected from it. Even if the term has a common meaning easy to be understood by all people, as happens with quality, it is often hard to define it in terms of normative expectations. Another aspect of interdisciplinarity is that, following the research phase, a teaching and application phase is frequently present. And is in this phase that issues arise. These issues should be reconducted to the original research but, being it interdisciplinary, there is a probability that the right knowledge domain is missed: a problem arising from technology maybe should be analysed also in urban design to be really solved.
Is then important to create positive, effective, feedback to return these issues to the right research domain from the field and from the classroom. In addition, a trending approach is growing to move from interdisciplinarity to trans-disciplinarity, working with the stakeholders.
In this paper, the most common and recent best practices are explored and formal definitions and constraints are provided to clarify both the interdisciplinary and trans-disciplinary approaches with a special focus on urban planning.

Keywords
Urban planning, interdisciplinarity, multidisciplinarity, transdisciplinarity, digitalization

Introduction

The concept of interdisciplinarity is, today, ubiquitous in any research and academic context. It depends on both the strong impact that technologies have on modern research in many fields, technical and humanistic too, and the pervasive progression of many soft sciences like sociology or anthropology in many other fields of knowledge. But interdisciplinarity, even if it is often claimed or required, is sometimes missing and often undefined. When "interdisciplinarity" is used, a formal definition of its meaning and its relevance is almost missing. In a few words, it is not clear if the term, in a given context, must be considered a sort of generic expectation or a formal rule to be mandatorily applied. To solve this first issue, we have to define the role and the sense of the word in the given research context. Being "interdisciplinary" in research should be considered from three different points of view: the need for interdisciplinarity to consider the research successful, its importance to provide useful research results and the distinction from the implementation phase.

The disruptive impact of digital technologies on any knowledge context has further extended the need for interdisciplinarity, even widening the concept that must not be confused with trans-disciplinarity and multi-disciplinarity (Hunt et al., 2014), (Gitta et al., 2014). Digital technologies and, in general, Information and Communication Technologies (ICT) have introduced new languages into research. But language, which has always been considered a tool of interpersonal communication control, is the real vector used to transfer knowledge. And the ability to apply language also involves a strong cultural knowledge in the domain of its application, to make the language a control tool (Zhang, 2022). Consequently, the ICT invasion has introduced two kinds of languages: programming languages and knowledge representation, transfer, and control languages.

Programming languages will not be considered in this paper, even if they are a sort of multidisciplinarity that is needed to automate some tasks and compute results in a reasonable time and with the required accuracy. From this point of view, programming languages are like tools and training on their usage is also related to a very small subset of the original ICT domain because, in their application to various disciplines, programming languages are mediated by visual tools or by very specialised software libraries that reduce the programming effort to very basic and simple instructions or graphical element compositions. Today, in many fields of knowledge, is practically impossible to avoid digital technologies. In Architecture, the discipline has become, especially during the last decades, an interdisciplinary mediation between multiple political, economic, social, technological, and cultural factors (Lukasz et al., 2007).

Methodology

The methodological approach used in this paper starts from a literature review of the main concepts of disciplinarity, interdisciplinarity and trans-disciplinarity, with application to the specific context of Urban Planning research. Then the possible applications and usages of the research results have been explored to evidence if the same concepts are yet essential or can be ignored. Final results are then provided as a summary schema.

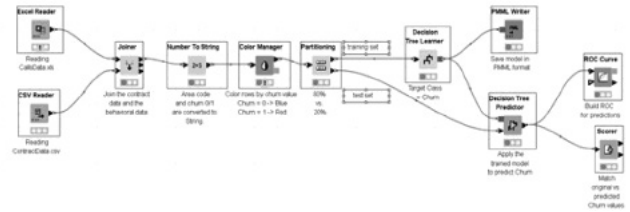

Figure 1 - Example of visual programming language (KNIME, image of the Author)

Disciplinarity, interdisciplinarity and transdisciplinarity in architecture and urban planning

Starting from the 1950s, Architecture moved from mere functionalist theories towards a more general and multi-factors point of view (Lukasz et al., 2007). Planning ceased to be considered a sole "aesthetic" or "artistic", mostly based on a single individual's efforts, and become a combination of research, best practices and policies coming from different domains like sociology, economics, politics, ecology and, last but not least, aesthetics. This perspective introduced interdisciplinarity in urban planning but this could be done with two different strategies.

The first one, with Italian Tendenza and Colin Rowe and his students as main examples, tried to preserve the core of the discipline (the form and the typology) leaving it as the essence of the discourse and disconnected from the social forces that have driven its evolution. In the second one, all disciplines are considered peers and it is claimed that each interdisciplinary approach is based on means of understanding different, interdependent domains, ruled by laws that are in continuous transformation. In both strategies, a role to interdisciplinarity is evidenced, in opposition with the modernist approach that proposed architectural space as a unifying process of architecture's multiplicities, called "interpretations", that were related, among others, to "politics, philosophy, religion, science, economy, society, technology, physiology, psychology and aesthetics" (Zevi, 1957). Scolari, Rossi and other scholars further developed these interdisciplinary discourses but their reasoning evolved overlapping two rails that were the vision of Architecture as a singularity, i.e. a single discipline (disciplinary perspective) as a unique container, question and answer to its implications and the vision of Architecture as an interdisciplinary discipline that realizes itself through the management of the contexts where it is involved. These two-dimensions definitions can be called, to distinguish from the single rails, trans-disciplinarity. What these scholars tried to do was synthesise two different aspects of Architecture, singularity and multiplicity, in a single concept, and the use of trans-disciplinarity is the right tool to accomplish the task (Tine & Hansen, 2023). The same process can be repeated for urban planning that evolved with the same issue. Formal and clear definitions of the terms disciplinarity, multi-disciplinarity,

interdisciplinarity and trans-disciplinarity can be found in (Klein, 2006), (Rosenfield, 1992) and (Nicolescu, 1999). These definitions can be summarized in the following table:

Disciplinarity	That refers to a single knowledge domain and is sufficient to develop a complete discourse on something
Multidisciplinarity	Involving many disciplines, either in a sequential or overlapped way, to fill a complete discourse on something. No integration between these disciplines is needed, nmw new knowledge is created.
Interdisciplinarity	Many disciplines are involved but they are interfaced and integrated to create a harmonious knowledge, smoothly moving from one domain to another. No new knowledge is created.
Transdisciplinarity	It completes the previous definitions, being open-minded, combining new vision and lived experience, generating new knowledge, and going beyond disciplinary research. It relies on three pillars that are: multiple levels of reality, included-middle logic and complexity

Table 1 - X-disciplinarity definitions

While multidisciplinarity and interdisciplinarity remain in the disciplinary bed, transdisciplinarity exits from it, combining complexity, different level of perception and syntheses. Multidisciplinarity generates new forms of knowledge but t is challenging: mixing different elements, often opposing each other, is a delicate task that needs to be governed, to avoid confusion, misunderstanding or lack of objectivity.

Language as a control tool for Culture

Given what was exposed in previous sections, it should be now evident that all the "*x-disciplinarity*", (i.e. multidisciplinarity, interdisciplinarity ad transdisciplinarity) are forms that require control and Language is the main tool for managing them. So, to implement x-disciplinarity, Language is the key and, at the same time, the critical point of failure. Transferring knowledge, and transferring culture, requires the use of a language that, at the disciplinary level, is the typical jargon of the domain. But what happens when researchers want to implement this control in a multidisciplinary context? The first issue is that they have many different jargon (or domain language) that are used to provide knowledge and culture but that can have ambiguities, false friends and misalignments. Fortunately, in the case of multidisciplinarity, the problem is delimited to overlapping and interfacing elements, because single disciplines remain separated and preserve their integrity: they are only applied together or as a sequence, without mixing. But, even in this case, an issue can arise if there is a need for traceability, as further explained in the section Steps after research: application. When dealing with interdisciplinarity, the challenge begins to be evident: having to integrate and harmonise the disciplines will require the definition of rules of integration and the sharing of syntax and semantics of various kinds of jargon of the involved disciplines. Having multidisciplinarity is the highest demanding task because, often, existing languages are not sufficient and new ones must be created to represent novel knowledge. In all x-disciplinarity cases, the need for traceability requires a strong dominion over the used languages and can even lead to the definition of new rules to ensure the capability to trace the discourse from one domain to another, often used not only for knowledge and culture transmission but also for impact analysis and change management in case of change of something in the discourse path.

Steps after research: education

There is a general agreement that education is moving from a traditional approach to a new one based on x-disciplinarity, especially the transdisciplinary one. For example, in the design field, many scholars have evidenced this phenomenon (Gibbons, 1994; Etzkowitz, 2003). The Etzkowitz spiral "*government-industry-university*" is an example of the multimodal research first hypothesized by Lauer (1984).

And all these modes of research have an impact on education. In Urban Planning, the migration towards x-disciplinarity is not only tangible for the already depicted reasons (ICT invasion and singularity-multiplicity perspective) but also because the need to teach these subjects to new generations of university and PhD students requires a cultural opening to let them able to use this knowledge in their future work and research, that can be dramatically different from what expected today. Disciplines are evolving at light speed and are often changing in an unpredictable way so, to produce an effective new generation of researchers it is important to feed minds with x-disciplinarity, giving raw concepts of languages needed for this purpose. Belongs to one or more specific disciplines, often from both human and technical sciences, but they have been put together to provide research and innovation in disparate fields. Another element that pushes for x-disciplinarity in Urban Planning research is the need to apply this research to the real world. In this application, many elements of the implementation phase are coming from technologies or require support from human sciences.

Any kind of Urban Planning or Design, when put into practice, will require specific construction and digital technologies. And this requires x-disciplinarity. But this is not the only reason. Often (not to say always) the need to involve stakeholders immediately takes the discourse into a transdisciplinary perspective. Participation and commitment of stakeholders to Urban Planning is today an essential element of any Urban Planning and Design development and realization and involves many different types of stakeholders. Each one of them carries its language (its jargon) and its culture. And planners must interact with them, understanding the values they would like to gather from the planning, evidencing limits and risks, and translate everything that matters into The Plan. But for doing this, the planners must be able to understand the jargon spoken by stakeholders, and put questions in their language. But the language is only the control tool, as already said, and it is required, by planners, also to correctly understand the intimate meaning of what language vehiculates. And all of these tasks require x-disciplinarity.

Case studies: Christopher Alexander

To describe the evolution of x-disciplinarity we will consider the path starting from Christopher Alexander's "*A Pattern Language*" (Alexander, 1977). In his legendary book, Alexander defined a set of design patterns that formed a language to describe the city, formed by 253 recurrent schemes he called "*patterns*". In this book and his other related operas (e.g.

"*The Timeless Way of Building*"), he proposes an extremely innovative view that can be considered disciplinary. But his ideas have spread outside the Architecture environment entering into Computer Science where his "Pattern Language" became the spark that ignited the Design Pattern Movement (Kilov, 2004) providing the homonymous software design approach that has been used in software development since 1994 when the legendary "*Design Patterns: Elements of Reusable Object-Oriented Software*" (Gamma et al., 1994) was first published. In this case, Alexander caused researchers to move out from Architecture and apply, through a multidisciplinary approach, some concepts ("*patterns*") to a different context, in a sequential process. Alexander was also the inspirator for Wiki technology (C2 Wiki), a splendid example of Web 2.0, which was an interdisciplinary approach to design, where the product was done (designed) directly by its users. In this case, the original concept of design has been translated from Architecture into Computer Science to provide a new form of design. In this case, the approach was interdisciplinary.

A last merit attributed to Alexander is having inspired the Agile Manifesto (i.e. "*Manifesto for Agile Software Development*"). In this case, we can call it a trans-disciplinary approach because the design theories from Alexander were transposed onto the software development process, which is a wide topic that belongs to software engineering, ranging from software design, software validation, project management, team building, stakeholders involvement and commitment. Each element belongs to one or more specific disciplines, often from both human and technical sciences, but they have been put together to provide research and innovation in disparate fields.

Conclusions

The use of x-disciplinarity in Urban Planning research is today pressed by the introduction of digital technologies but also by the overlapping and interaction with other disciplines like sociology, anthropology and so on.

What is important to underline is that the kind of x-disciplinarity needed must be explicitly defined depending on research objectives. For research purposes, the Interdisciplinarity and Transdisciplinarity types are those that have the highest probability to provide important results

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The research as a decision-making process
A viable system's perspective

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Abstract
The human being and its relation to the territory is symbiotically related to the evolution process. During the evolution, humans, like other species too, have always been in search for survival as an ultimate goal to conserve the viability of the system (i.e., the belonging class). Therefore, individuals are viable systems which aim the finality of survival through a dynamic equilibrium and homeostatic processes with supra-systems and subsystems with which they attempt to ensure states of consonance (structural compatibility) and resonance (systemic interaction) (Barile et al., 2019; Beer, 1985). To do so, they must decide and act, while searching for meaning that is their subjective perception on problems[1] and opportunities. The search for meaning is a natural tendency of human beings as they are inclined to attenuate the environmental entropy by giving a sense to the stimuli of the surrounding context, going from a composition of parts towards the whole[2]. In research, the measurement of meaning has been performed through the well-known scale of semantic differential, usually a 7-point scale of semantic values that describes an attribute or a person's attitude towards something (Osgood et al., 1957). Consequently, the individual behaves as an observing system, filtering information and constructing its own "invented reality" (von Foerster, 2003; Watzalick, 1984). In the field of architecture, environment, and territorial planning, the attitudes of the observer – which might be an academic researcher, an entrepreneur, a policy maker, or even the whole society – towards the territory and its ecosystem components are of a fundamental importance (Swanwick, 2009; Foroudi et al., 2020; Khandan and Rezaei, 2022).

The Researcher as an Information Variety

In its daily profession or occasional passion, the researcher is not much different from other type of decision-makers. As the decision-maker looks for information before taking his decisions and performing his choices, the same happens to the researcher. He is preoccupied with a problem that needs to resolve, and for this he needs informed decisions. We previously defined the researcher as an observer. On the other side, observation, either participant or in natural environment, is one of the diffused research methods, principally applied in qualitative research. Thus, the observer it is automatically dressed with the role of the researcher. The research takes the shape of the researcher's knowledge curve that is composed of information units (U-inf.), interpretation schemes (S-int.), and categorical values (C-val.). These three components make up what Barile calls Information Variety (Barile, 2009; Barile et al., 2011). In substance, every viable system is an information variety. Accordingly, the researcher as a viable system and as an information variety has a set of information units that is his "*database*", a series of interpretations schemes that are his attitudes, and a collection of moral values that we label as "*categorical values*". Each of these components has a predefined role during the decision-making process that the researcher will design and implement.

An information unit (U-inf.) refers to any incoming stimuli from the external environment and/or from the internal brain's memory center, subjectively perceived by the observer through the five senses in coherence with his motivations (psycho-physiological needs and desires), and further processed through internal elaborations. Therefore, the observer, through his processing capabilities, is able to transform the units of data into units of information by qualifying the data which take a defined shape and acquire significance. This process varies based on context and typology of researchers. Different observers use different loops and construct their realities relying on their

information variety endowments as well as on the relationship they establish with the designed context, taking into account the subjective finality of interaction. For instance, if a researcher travels towards a place for gathering data by the means of face-to-face interview, most probably he will recall from this process the way people responded, their characters and personalities, locations where they have been interviewed, and further aspects based on the primary finality of the researcher. But if the finality is to get quantitative data through a mere online survey, then the researcher will mainly recall technical details of platforms and social networks from where he has gathered the data. So, the motivation of the researcher or its finality of interaction with the perceived social-working context, and the emotions produced during the data processing towards meaningful information, define perception and memory which are very subjective varying the observers.

Interpretation schemes (S-int.) are filters that work upon information units through learned algorithms. These are organizational patterns or cognitive frameworks since their main goal is to organize information in a meaningful way for the observer/researcher. Within the coordination function of a schema, it can be described the attention role, the selection role, the organization role, the interpretation role, and the retrieval role. Therefore, schemas through their organizational and interpretative roles shape information units. Furthermore, interpretation schemes are divided into general *interpretation schemes* (G_S-int.) and synthesis interpretation schemes (S_S-int.) (Barile, 2009; Barile et al., 2011). The first have a general character in the sense that have a larger perspective of observation comparing with synthesis schemes that are more technical and specific. Whereas synthesis schemes are *pro tempore*, general schemes are more persistent. For instance, the general attitudes of a researcher are more consistent over time (e.g., a predisposition to use more the qualitative methodology rather than the quantitative one), instead his emergent *behaviors* are more contextually applied (e.g., the application field or the used instruments such as interview, observation method, etc.). Another illustration can be the following. It can be supposed that a team of researchers are using for their scopes the library research, applying the methods of documents' analysis and the historical records' analysis, relying on instruments like content analysis of written materials, photos, notes, tape and film listening analysis, YouTube videos and documentaries, etc. While some of them focus only on content analysis of written materials, photos, notes, the other members of the team refer to tape and film listening analysis, YouTube videos and documentaries. Thus, it can be stated that the first sub-group prefers "*static*" documents (like photos), and the second sub-group selects "*dynamic*" sources (like videos). The chosen instruments are applied behaviors of the researchers in a particular context. In other words, their applied synthesis schemes. These schemes are derived from general attitudes or schemes that in the mentioned case refer to the dichotomy structure-system, where the structure is static (e.g., photo, written document, etc.) and the system is dynamic (e.g., video, movie, documentary, etc.). Consequently, the synthesis schemes are derived by the general schemes. In the present case, the general schemes refer to structure vs. system, static vs. dynamic, particle vs. wave, and so forth. Based on these attitudes, are derived the decisions and choices (i.e., behaviors) of the researchers. Hence, the same general scheme, varying the context, produces assorted synthesis schemes. It means that a synthesis scheme is a contextualized general scheme. The categorical values, which represent the strong beliefs of a viable system, are responsible for the refusal or acceptance regarding rationally justified elaborations exercising resistance to change. They are strongly linked to the emotional level of the decision maker and qualify states of unconsciousness which tell us if something is "*good*" or "*bad*". Also, this is related to the social context to which the researcher/observer belongs. The researcher has a belongingness need (Mallow, 1954, 1962) that is manifested through the interpersonal attraction of the subject towards a particular group (e.g., a research team). This association with a group that shares a common ground of values influence the perception of the individual's membership in terms of social identity (Tajfel and Turner, 1979).

Essentially, categorical values serve as a path during the operationalization of interpretation schemes. They guide general interpretation schemes in the way the latter are used to derive synthesis interpretation schemes. While the information units refer to the structural composition of knowledge, and the interpretation schemes refer to the knowledge shape, then the categorical values refer to the resistance opposed towards change. The latter are typically related to emotions. According to Härtel, Zerbe, and Ashkanasy (2005, p. 29), "*Emotions can express meanings and understanding because strong judgments and values are anchored in emotions and struggling*".

The implications of Information Variety components (i.e., U-inf., S-int., C-val.) on the research process are both implicit and explicit. Implicitly there are methodological implications of the researcher's choice; explicitly, results are affected. For example, a Researcher/Viable System/Information Variety that predominantly considers the U-inf. will be limited to a declarative knowledge (i.e., the "*know-what*" dimension of knowledge), and most probably to a descriptive study model relying on facts and things. Therefore, the collected data will remain an end in itself without permitting a schematic synthesis. This is because the observer lacks intentionality and action which are essential elements of data contextualization and interpretation. There

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The researcher starts his journey by "crashing" into a problem, embracing and defining it. It is the so-called "problem statement" that the researcher constructs after a careful analysis of possible research gaps. It is exactly the problem that unfolds the opportunity to search for something new. As the eminent psychologist Erich Fromm reminds: "The quest for certainty blocks the search for meaning. Uncertainty is the very condition to impel man to unfold his powers" (Fromm, 1947).

[1] *"Everything is therefore caused and causal, aided and aiding, direct and indirect, and all are held together by a natural, impeccable link which ties the most distant and differing things together. I maintain that it is no more possible to know the parts without knowing the whole than to know the whole without knowing the parts individually." (Pascal, 1999, p. 71).*

are exactly the S-Int. to attribute intentionality to the thought, allowing the data that from simple symbols to be transformed into meaningful information. Thus, the researcher relying on S-int. utilizes a procedural knowledge (know-how) that usually grasps a vertical dimension of knowledge or a specialization. It might be the case of those researchers that are more focused on applied research rather than fundamental one. It might also be the case of those researchers who are specialized in a typical research instrument (e.g., questionnaire, focus group, etc.). Instead, it is different the case of those viable systems that possess an information variety which is mainly equipped with C-val. Here, the researcher might not have a strong core competency in a particular field or method, but it is gifted with a natural talent or *dynamic capabilities* that are hardly rationalized, and at the same time very effective in finding the best path in turbulent times (Teece et al., 1997). This type of researcher does not rely on a particular doctrine, yet revealing a deep knowledge of principal human problems and existence. The greatest inventions of all times have always passed through emotions and intuitions, and therefore through categorial values (as the latter are anchored in emotions and judgement). Hence, we can conclude that a researcher endowed with strong C-val. prefers the fundamental research instead of the applied one. It is more attracted by the philosophical speculation instead of data manipulation, preferring to producing ideas and discovering new horizons.

The Research Process between Information and Entropy: The Knowledge Curve

The researcher as a decision-maker constructs a dynamic reality that passes through different discovery stages, namely: chaos, complexity, complication, and certainty, depending on the possessed information and the entropy degree of the viable system. These phases are represented through a knowledge curve or the 4C-curve as it is shown in figure 1 (Barile, 2009; Iandolo et al., 2018). Referring to *figure 1*, it appears comprehensible that the higher the information units (X-axis), the higher the rationality (i.e., certainty – the pink area). However, problems differ in character; this is why Simon coined the terms *bounded rationality* and *satisficing*, describing those phenomena that are not fully understandable and for which an acceptable (not optimal) level of decision-making should be aimed (Simon, 1947, 1959; Augier and March, 2004). The more the rationality is bounded, the greater is the entropy (Y-axis), and the more the decision is intuitive. Previously, the components of information variety were explained by referring to different typology of viables systems/researchers. A researcher, in its path towards the discovery combines the information, schemes and values to reach a conclusion. His knowledge encompasses what Plato defined as justified true belief:

•*True* – what does it correspond to in the world? An object, subject, or every observable fact that is known by the community and corresponds to something in the world. It refers to a declarative knowledge (know-what).

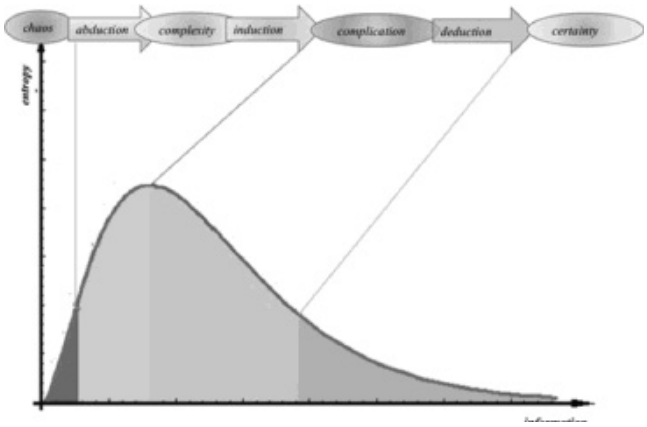

Figure 1. The Knowledge Curve
Source: Iandolo et al., 2018, adapted from Barile, 2009

•*Justified* – what procedure did you follow to acquire it? Paths of action, strategies, norms, rules, tactics, etc. It refers to a procedural knowledge (know-how).

•*Belief* – are you willing to act upon it? The willingness is rooted in subconsciousness and in some categories that make resistance towards change. It refers to a value system (know-why).

Thus, the researcher as a viable system and information variety is an entity who makes decisions and aims to solve problems relying on information, schemes, and values. While the decision-making typically happens in the first two areas of the knowledge curve (i.e., chaos and complexity), the problem solving (or the decision performing) typically happens in the areas of complication and certainty. To better understand this point, may be deemed necessary an explanation of the Knowledge Curve (*figure 1*). The curve is also called 4-C curve due to the problematical areas that covers:

•C1 = *Chaos* – a situation in which the viable system unconsciously faces a fastidious sensation but it is not aware about the origin/cause, the effect, and the solution. So, both problem and resolution scheme are incognita. For example, this is the initial stage of every big discovery (e.g., Einstein's relativity theory, Archimedes' principle, Nash equilibrium, etc.). Even the most senior researchers, before coming to a conclusion or producing a new formula/theory/postulate, first pass through a confusion state due to the lack of information with regards to the new situation they are facing. Thus, if today we are certain about touchscreen devices, before they were discovered the scientists were confused (under chaos).

•C2 = *Complexity* – a problematical area characterized by the viable system's consciousness about the problem. Although the problem is known, the viable system is convinced that there is not a pathway yet on how to solve it. For instance, these are all those health situations where a diagnosis can be accurately stated, but the cure is still missing.

•C3 = *Complication* – a context in which the viable system becomes more optimistic about the problem resolution, but the formula (i.e., the interpretation scheme) it is not yet in its hands; it is just a matter of time. As an illustration, here the researcher might need to use a structural equation modelling but it is lack-

ing mathematical and computer skills. However, the researcher knows that the skills can be either recouped or the solution can be outsourced.

•C4 = *Certainty* – this is the last area characterized by that type of problems that seems to be very easy to solve (99% certain) because a method already exists and the viable system it is equipped with that. These sound like repetitive problems, such as organizational routines. For example, a researcher who continuously manipulates data with the same software. It should be noted that certainty cannot be 100%, as it is demonstrated graphically in *figure 1,* where the curve runs asymptotically with X-axis. The reason is that every solution (e.g., theory) should be open for improvement (new hypotheses and innovations). Popper (2005) calls it *falsifiability*; Kuhn (2009) calls it *paradigm shift*; Schumpeter (2003) defines it *creative destruction.*

The above areas are distinct/connected from/with each other by three types of reasoning:

•*Abduction* – the launch of hypotheses, which is the first step of scientific reasoning.

•*Induction* – the experimentation of the hypotheses (i.e., hypotheses testing), going from particular single cases to generalizations.

•*Deduction* – the deriving of a conclusion starting from general statements (premises).

Epilogue

It might seem clearer now that the decisional activity of a researcher depends on the subjectively perceived information that a respective observer has about the problem. In this way, considering the information units and the entropy levels, the problem can be qualified as chaotic, complex, complicated, or simple (certain). If the viable system faces issues extended along the first two areas of figure 1 (C1 & C2), it means that due to the information deficiency (in case of chaos) or information redundancy (in case of complexity, where information and entropy increase simultaneously), the rationality is truly low (i.e., bounded). Therefore, the tendency is to use more categorical values and some general schemes, which is typical of those type of decisions labeled as "*decision-making*". If the viable system encounters a problem referred to complication or certainty areas, then synthesis schemes and information units are more present to solve the problem. This is the reason why the paradigm of the Viable Systems Approach makes a distinction between decision making (occupied more with strategic tasks and intuitions) and *problem solving* (focused more on operations and routines) (Barile, 2009). During the research process, scholars can benefit of this perspective because of the increased awareness on how to move along the knowledge curve.

Acknowledgements

This work is dedicated to Prof. Sergio Barile, the man who reinvented management through the Viable Systems Approach. It is because of his polyhedral nature where I found the inspiration to intellectually navigate in different fields of study. In this progress, the memories of my Master, his thoughts and lessons, are always with me. Aristotle reminds us that the arriving point of human beings is gratitude.

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Flow As An Operative Methodology Generating The Time Of Intersection Through The Relationship Between Architecture And Artwork In Public Space

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Abstract
Time has always fascinated men for its (apparently) inviolable structure and for the poetic dimension that this concept brings with it. During the history of civilization, time has been a crucial concept to understanding reality. At the beginning of the Twentieth century, thanks to the scientific discoveries, above all, Albert Einstein's general relativity theory, the notion of time became an important element also for science for understanding the structure of the universe. The continuous and ever-faster scientific discoveries have also dissolved the linearity of time and its very nature, offering new possibilities to rethink space-time, as a series of connected, but not necessarily linear, events. Something we are experiencing today through the multi-temporality of the digital world, but which at the same time also shifts our way of perceiving physical reality.
Everything we do and produce is inevitably part of a space-time dimension. We can therefore interpret time - also - as a distinctive structural element of the things that human beings build, whether small or large, from tools to metropolises.
In this background, it is very interesting to understand how time works in two of the most symbolic categories of objects of human creation, art, and architecture, focusing more specifically on the category of art in public space.
The time that works into the artwork is naturally different from the time that works into architecture, that is, observing art in public space, there are two different times that overlap, or rather the architectural space (and time) houses inside of it, the space (and time) of the work of art. The overlapping of these two different times, inevitably creates a third time, that we will call a "Time of Intersection", which becomes the subject of this paper.

Keywords
art, architecture, art in public space, public space, body, perception, time, duration, temporality, flow

Background, Time Dynamics and Questions (ONCE)

Time is naturally part of our action, inasmuch it is a dimension of our being, we cannot think, nor act, without taking it into consideration both consciously and unconsciously, it is an integral part of our very idea of existence. And throughout its existence, human beings have always tried to define time, from an ontological and epistemological point of view, to try to make sense of their existence and to use time as a quantity that can be calculated and applied to their doing.

In ancient Greek mythology, time was defined by four terms, each representing a specific moment or aspect of life. *Aión* which basically indicated life and time - in the sense of eternity; *Chronos*, time in succession, indicated the quantity of time as opposed to quality; *Kairós* indicated the brilliant moment, the quality of the instant; *Eniautòs* finally represented the cyclical time of the eternal return, the time of the seasons. Many philosophers have associated the notion of time with the notion of space beginning with Aristotle who associates the passage of time with movement and the inner and outer change of things. The philosopher goes so far as to say that time is a property of movement because without movement (or change) there is no time.There are certain elements of the notion of time that return in various theories throughout our History, at least Western History, for example, the idea of the cyclical nature of time, or at the opposite that of its linearity; the latest developments in quantum science even theorize that all the time in the universe has already all happened both in the past and in the future. And this calls into question many of the concepts that have permeated the very idea of existence, first and foremost, that of free will (or cause-and-effect in the Eastern view), if all the time in the universe has already happened, my actions in reality are absolutely irrelevant. Time is an inexhaustible and complex issue, in our everyday life it is also called into question by the development of the internet and the development of so-called virtual reality, in which we can decide "*where*" and "*when*" to be. Some platforms even give us the opportunity to stand next to our deceased loved ones and dialogue with them, or to live a different life from the one we are experiencing in the physical world, challenging our perception of time as we perceive it in our daily lives. What the virtual world is undermining is not only the timeline of our lives, but also the spatial one; it is clear that if we are in a time, we must necessarily also be in a space, whether physical or virtual. This makes it obvious how the problem of time is also a problem of space. In our ontological and epistemological approach, we refer to time by following as the basis of our discourse the theories of the French philosopher Henri Bergson, who distinguished between perception of time through duration and spatialization of time, the homogeneous repetition of units identical to each other, as Bergson himself makes clear:

«*When I follow with my eyes on the dial of a clock the movement of the hand that corresponds to the oscillations of the pendulum, I do not measure duration, as it might seem; instead, I simply count simultaneities*». (Bergson, H., Saggio sui dati immediati della coscienza, 2000, p. 63)

Instead, duration as understood by Bergson is what living beings experience in the form of continuous inner flux and transformation; it is consciousness.

«I*nner duration is the continuous life of a memory which prolongs the past into the present*». (Bergson, H., An introduction to Metaphysics, 1903, p. 44)

That is, in consciousness, time is perceived as a continuum of impressions that do not follow one after the other but rather refer to one another, extending duration with each new impression. Even in the development of his phenomenology, Edmund Husserl speaks of time as an "inner measure", since in his phenomenological approach he suspends judgment (*epoché*) on questions about an objective time in the world. In Husserl's words:

«*Each actual mental process (we effect this evidence on the ground of clear intuition of an actuality characterizing mental processes) is necessarily an enduring one; and with this duration it finds its place in an infinite continuum of duration — in a fulfilled continuum*». (Husserl, E., Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy, 1983, p. 194)

Objective time becomes the time of physics, the time of our being necessarily a point in a spatial, or better said, spatiotemporal coordinate. Even though scientific and technological breakthroughs continually challenge our spatiotemporal perception, even though today we can be sitting at our desk and simultaneously observe the Martian soil through the "eyes" of NASA's "Perseverance" probe[1] , our internal perception of the fact that we continue to change through the *duration* of our sensory experience, remains unchanged. Our present could be defined as a "*thick present*" that contracts or expands in the duration of our sensory experiences, related not only to our inner world, but in a continuous exchange between the inner and outer worlds.

To visualize this notion of duration and the thick present, we dwelt on two fields of human production that perhaps better than others, compare inner perception and outer objectivity, content and form, change and stillness. Namely art and architecture, interpreting the notion of time, as a constructive category of the artistic or architectural project. In this specific case, we are concerned with art in public space and the physical relationship that the work creates with the architecture that surrounds it, in a mutual exchange of external form and internal functioning, which also determines each individual temporality.

Philosopher Dino Formaggio points out how art has a "*liberating*" power over reality because it

«T*ransforms chronometric and spatialized time into an "other" time, no longer inexorably real and irreversible, but qualitatively infinitely variable*». (Formaggio, D., Estetica tempo progetto, 1990, p. 28)

Architecture and artwork in their overlapping in the space of our gaze in different ways (across a distance, juxtaposing each other and so on) determine a flow of different temporalities, which becomes duration of our inner perception. Besides, as Merleau-Ponty already pointed out:

«T*he perceptual synthesis [of the perceived world] is a temporal synthesis, and subjectivity, at the level of perception, is nothing but temporality, and this is what enables us to leave to the subject of perception his opacity and historicity*». (Merleau-Ponty, M., Phenomenology of perception, 2006, p. 278).

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The main objective of this research is to identify a possible temporal relationship between the work of art in the public space and the architectural object on its background, choosing six different physical connections between artwork in public space and architecture. The physical connection between the artistic and the architectural subject, takes place within the dynamics of the urban form which relates the transformation of the perception of the architectural object in its relationship with the work of art in front of it, creating a new temporal dimension. What are the characteristics of what we called the "*X*" derived from the superimposition of architectural and artistic objects in the public space. To answer this question, we have mainly used a post-phenomenological approach; we chosen some architectural key-concepts circumscribed by thematic areas, which become the framework of the comparative study artwork-architecture. Considering the "*Time of Intersection*" as a system of relationships that generate new points of view on reality, this research will demonstrate how this relation affects our perception of reality by modifying the spatial, emotional and temporal perception that we have of public space and the daily landscape that surround us.

What is your time? Dynamics of Time in Art

First of all, we must position art as a temporal practice, and to do so we start with this statement by Martin Heidegger:

«*The "origin" indicates that from where and through which a thing is what it is and how it is*». (Heidegger, M., L'origine dell'opera d'arte, 2012, p. 3)

We can use this statement by Martin Heidegger to try to understand what the concept of origin means to us, perhaps adding another concept that comes from a feeling, that of the origin as the moment when something begins. A concept that connects us with time, if we think about an origin, a beginning, automatically our mind moves back in time to a moment positioned somewhere in the past. Therefore, we could say that the origin is a time-based concept. In his dissertation, Heidegger continues stating that the origin of the work of art is the artist, but that also the origin of the artist is the artworks, none of them can exist without the other, but they are in themselves because of a third element, which is we would say, the first: the art. Following this logic, we can state that the art is a time-based concept because gives origin, it generates two other elements, the artist and the artwork. In this time-based tryptic, we could read the all history of all human kind cultural developments. Because of its origin, art has always been a temporal discipline.The evolution of what we consider a work of art has to do with technological, social, thought developments and how changes in these fields affect our perception of reality; especially in the second half of the twentieth century we have witnessed an enormous speeding up and widening of the methodological spectrum of what we consider and call Art. New categories of production and of thought have been added, including that of art in public space. Descending from the idea of sculpture in the urban context, art in public space is a broader category, which fits into the contemporary discourse on the complexity of the very idea of the city (or open space more generally). The methodological broadening that leads to the possibility of considering space outside the spaces designated for art as another possible exhibition space makes us think about what we mean when we talk about public space. The definition of public space given by the UNESCO is:

«*A public space refers to an area or place that is open and*

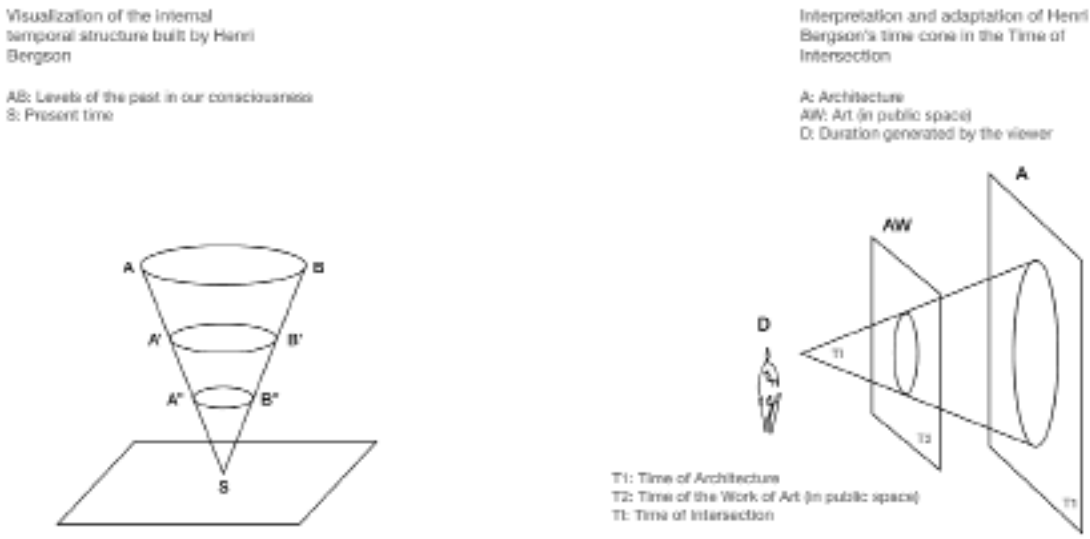

Figure 1. Author's drawings of Henri Bergson's temporal scheme and interpretation and adaptation of Henri Bergson's time cone. Romano, 2021

accessible to all peoples, regardless of gender, race, ethnicity, age or socio-economic level. These are public gathering spaces such as plazas, squares and parks. Connecting spaces, such as sidewalks and streets, are also public spaces. In the 21st century, some even consider the virtual spaces available through the internet as a new type of public space that develops interaction and social mixing». (Inclusion Through Access to Public Space United Nations Educational, Scientific and Cultural Organization, 2021)

We could extend this characteristic of pluralism also to the concept of art in public space, because since the beginning of its usage to define artworks located outside institutional spaces, the term has been variously defined by different critics, according to their views on the different topics or approaches uses by artists to develop their works. In this way the work of art in its specific context acquires a unique value because it needs the physical presence of each person and the unique approach that that person has with the work, at that specific moment, thus acquiring a temporality beyond than to a completely new spatiality. The site-specific work of art is a structural and temporal reorganization of the viewer's aesthetic experience. It is in the phenomenological experience of the artwork that it becomes such and it is in its relationship in a dialectical way with the site, that this too changes and becomes a lasting and conscious experience, contributing to the formation of our own idea of reality.

What is your time made of? Dynamic of Time in Architecture

To position the architectural object in a temporal framework, let us begin by recalling how, according to Lynch, the city is a construction in space, like architecture but of a vast scale, and the city (and so architecture) can be perceived only in the course of long spans of time. When we walk in our cities, we are actually making a journey through time, because objects made at different times continually surround us. This leads us to think that to be aware of the architectural object we need a fourth dimension, in addition to the three in length, width and height; the time dimension. When we are in front of an architectural object, we cannot perceive it in its entirety if we exclude the temporal dimension, the dimension through which we create a memory of what we experience through our senses. This means that beyond even the moment of its realization as a material thing, when we experience an architectural object, we can only experience it in time, as well as physically. On the other hand, architecture is absolutely conceptual art, unrelated, unlike visual art, to an iconic or symbolic representation of any idea of reality or object. Architecture only expresses itself and does not simply do so through the sum of the three vectors that make up its objects, width, length and height. That is, of its manifestation as a material, but also and perhaps above all, through the void that these dimensions define, the internal space of architecture. The internal space is the space that more than any other characterizes the field of architecture and distinguishes it, for example, from sculpture, whose main feature is the plastic space of the subject.

Dino Formaggio notes that we can understand the emptiness of the plan according to the principle of complementarity, because it presupposes spatial continuity:

«*Evidently, a thing, the form, is only the complement of the void, the void is only the complement of the form, and all this in a continuous interconnection, in continuous, unstoppable changes*». (Formaggio, D., Estetica tempo progetto, 1990, p.46)

This continuous shifting between inner and outer space, between emptiness and fullness, brings us back to the basic notion of our research, the notion of duration of our sensory experiences and the definition already unequivocally expressed by Karatami that:

«*Architecture is an event*». (Karatami, K., Architecture as Metaphor: Language, Number, Money, 1995, p. 126)

And for this reason, it is connected to what surrounds it, from the empty urban space to the other buildings, to the flow of people and the use they make of the architectural object, and also, and this is the specific case of this research, by the presence of the work of art in the public space.

Methodology (AFTER)

For this research we will mainly use a post-phenomenological approach based on the definition of Dino Formaggio, the phenomenological approach is no longer naturalistic or spiritualistic, but has as its founding principle that of intentionality, that is, of the dynamic aggregations of meaning and the consequent temporal flows. As Formaggio clarify:

«To broaden the phenomenological method, held firm in its fundamental structures of highlighting and description, to the point of giving a more concrete relief to natural, cultural and social objects in their historical dynamics of different and multi-layered, temporalized and temporalizing practices, finally of a time "external" or, better, of a temporal objectivity as temporally acting intersubjectivity». (Formaggio, D., Estetica tempo progetto, 1990, p. 14-15)

Thinking about the structure to follow in this research, we imagined six ways of experiencing space in the relationship between architecture and the work of art. These ways of experiencing space represent six key concepts recurring in both architecture and art, also in different historical periods and ways of understanding the two disciplines. The idea of crossing the space in the middle, the idea of defining the shape or rhythm and therefore of the persistence of the vision, the idea of ephemeral, the addition or subtraction from the architectural space and the notion of re-writing an architectural space through an artistic intervention. Through this approach we will analyze how these key concepts are revealed through a physical relationship between the artistic object and the architectural object capable of transforming our perception of space. The key concepts will then become single categories that will allow us to explore the characteristics of the architectural object and the work of art from the point of view of Time, in order to understand how their overlap can generate the Time of Intersection subject of this thesis.

The perception of time as distance.(The space in between). For this kind of experience, we will analyze what kind of relationship is established between architecture and artwork in public space when there is a physical distance between the two subjects. First, we will have to define what it means that there is "*space*" between two objects. Instinctively when we think of an empty space we think of it without anything inside it, but we will have to make an effort and change our mental perspective to conceive of an empty space and start from the fact that it is nevertheless defined by two (or more) objects that delimit this same space. Arnheim defines empty space thus:

«*...It is the mutual influences of material things that determine the space between them: distance can be defined by the amount of light energy reaching an object from a light source, or by the force of gravitational attraction exerted by one body on another, or even by the time it takes for one object to move to the next*». (Arnheim, R., The Dynamics of the Architectural Form, 1977, p. 10)

If we think of it in this way, we cannot help but think of the extremities, the boundaries that delimit empty space, namely the objects that define it. What then becomes crucial in this kind of relationship is what we might define as the force of attraction between the two extremities of the vector through the space. Indeed, the balance between full and empty spaces is fundamental in architecture, and the distance between the former and the latter affects our perception of them. These reflections also apply when we consider the notion of distance in art. Just think of how an observer approaches or moves away from a painting depending on its physical and stylistic characteristics. Obviously, this reasoning also applies to sculpture and installation and consequently applies to works installed in a public space. The force field generated visually by the work makes us move through the space to try to perceive it in the correct way.

In defining a relationship involving a distance between the architectural object and the artwork in public space, we must take into account the force field that each of the subjects generates and consider the force field relative to the observer's point of view.

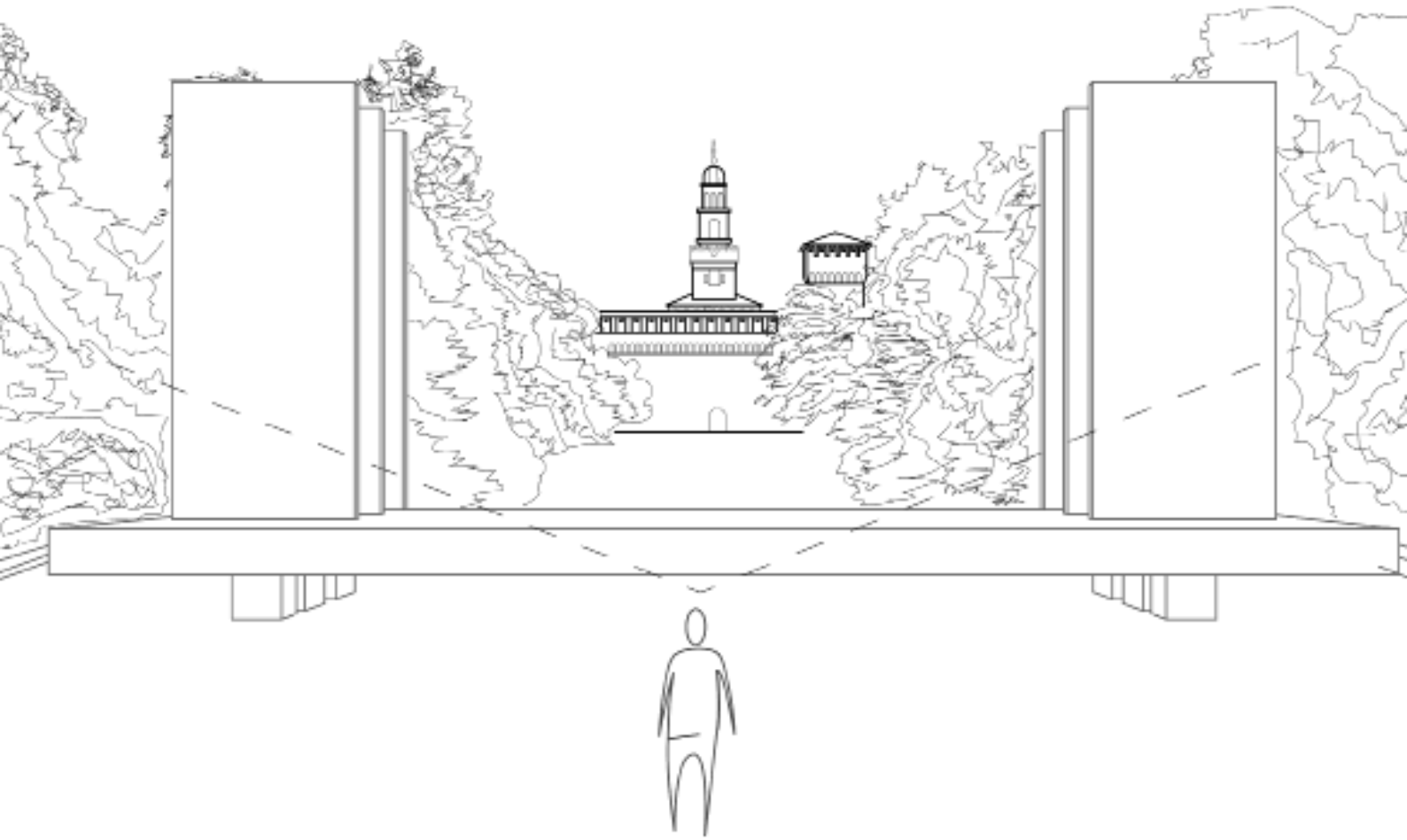

Figure 2. The Castello Sforzesco in its physical relation with the artwork Teatro Continuo by Alberto Burri. Romano, 2022

The continuous flow of two close (adjacent) shapes.
(The definition of the Form by Superimposition or Juxtaposition).

For this type of experience, we will analyze what kind of relationship is established between architecture and artwork in public space when the artwork is superimposed or juxtaposed on the building. The two subjects of the analysis are physically on top of each other. In this type of relationship, the spatial order that the two subjects create between them becomes decisive. The visual forces acting on the building, and also on the artwork, must be reorganized to create a new visual order that will be the sum of the visual forces of both subjects of the composition. In architecture, the simplest way to conceive of a visual order that starts from a superimposition or juxtaposition is the idea of simple modular units. These modules are geometric figures that define sections of the subject that, superimposed or juxtaposed, shape the building. So these elements are visually independent of each other but if well used can create visual order, or symmetry. As Moretti points out:

«*An architecture is read through the different aspects of its figure, that is, in the terms in which it expresses itself: charoscuro, constructive fabric, plasticity, structure of interior spaces, density and quality of materials, geometric relationships of surfaces, and other more alien ones, such as color*». (Moretti, L., Spazio - Gli editoriali e altri scritti, 2019 p. 123)

Even in the definition of a work of art, especially since the twentieth century, the final form is often the result of the superimposition or juxtaposition of different materials, which contribute to the definition of the visual balance of all the forces acting on the art object. The aesthetic rules are more or less the same for both an architectural and an art object; visual order, symmetry, proportions between the different parts. What is different is the function. In any case for both architecture and art, the final form of the object does not represent its function, rather the form translates the functions of the object into its visual expression.

Figure 3. The Prime Minister building in Tirana in its physical relation with the artwork Marquee by Philippe Parreno. Romano, 2020

Single and collective memory.
(Of the rhythm, or of the continuity of the impression).

The universe is permeated with rhythm, we can find it in any physical law and in any life process. Rhythm is composed of an alternation, a succession, thus of an idea of movement, flow, physical, and perceptual, and this leads us to clarify that therefore in order to obtain a rhythm, we need a memory, an internal trace that makes one element last until the next one appears, be it a sound or an image. That is, rhythm is composed of an element in relation to the element that precedes it; it exists in the decomposition of elements in their temporal succession. As Ginzburg also makes clear:

«Under certain conditions we can simultaneously perceive and conceive all the elements of a given artwork. The concept of time is here replaced by the concept of extension of each constituent element, which is always a however a function of time. Temporal correlation is replaced by the introduction of elements into space, by their different coexistence in each case». (Ginzburg, M., Ja., Saggi sull'architettura costruttivista, Il ritmo in architettura. Lo stile e l'epoca - L'abitazione, 1977, p. 8)

We therefore speak of extension of the constituent elements, or in the temporal parallel we explained earlier, of duration, which is the subject of the art-in-public-space-architecture relationship analyzed in this section.

Figure 4. Judenplatz (Vienna) in its physical relation with the artwork Memorial for the 65.000 Murdered Austrian Jews by Rachel Witheread. Romano, 2021

The instant impression.
(The estrangement in the practice of the ephemeral).

We can find the need to go beyond the dimension offered by the canvas and painting already in some historical avant-gardes such as in Cubism, with the attempt to see the subject from several points of view at once, which therefore presupposes the possibility of rotating, of moving around the subject. Or through the practices of collage involving the integration of everyday materials on pictorial surfaces, or in the creation of what were called *objet-trouvé* (ready-made) by Marcel Duchamp and the Dadaists in general. This shifts the artists' attention to an

ontological and epistemological dimension of art making, to the possibility of the work conjoining itself directly to the real, becoming more and more actively present in our everyday lives as a symbolic representational object, moving into what Lefebvre refers to as “representational spaces”.

«Representational spaces, embodying complex symbolisms, sometimes coded, sometimes not, linked to the clandestine or underground side of social life, as also to art». (Lefebvre, H., The Production of Space, 1991, p. 33)

That is, a representational or symbolic space that is literally shaped around the bodies of people participating in the public space of cities, a space that is always in motion and in a continuous process of semantic reconstruction. If the category of space becomes fluid, this certainly poses a challenge for architecture to integrate within itself the notions of flow, movement, contingency, and to do so through the spatial categories we know, the discriminant then becomes the temporal category. Can the public space of our cities, be affected by events that take place in it in an ephemeral manner, thus limited in time? Certainly yes, but how can an event that happened in a limited period of time create a lasting impact that extends over time? This has to do with the symbolic power of the event in question and its ability to be remembered.

Figure 5. The neighborhood in its physical relation with the artwork Monument Against Fascism by Jochen Gerz and Esther Shalev-Gerz. Romano, 2021

Modify the shape to modify its time.
(Space and Time by Addition or Subtraction).

For this kind of experience, we will analyze what kind of relationship is established between architecture and artwork in public space when the artwork physically adds to the building or subtracts parts of it. Architecture is a science that relies on geometry for the coordination of individual elements and the whole. This method of working has been the basis of architectural design since time began. By extension of method then any element I add to a starting form becomes an addition to it, and of course any element I subtract from a starting form becomes a subtraction from it.

Arnheim also tells us about the relationship between whole and parts of a building noting how:

«*It will by now be evident that in dealing with architecture we must constantly shuttle back and forth between the building as an object seen as a whole in space by a contemplating mind, and the building as an event in time experienced by man in action*». (Arnheim, R., The Dynamics of Architectural Form, 1977, p. 130)

The conception of the building as a space–event in time is pivotal in defining the relationship between art and architecture analyzed in this section. They have a different physical link between them in this case than that established through the overlap or juxtaposition analyzed earlier. The spatial order that the two subjects create is not a sum of the two, but a new unique, a *crasis* that arises as a consequence of the physical action that the artistic object operates on the architectural object, shaping the architecture differently from the original design. The addition or subtraction made by the artistic intervention is added to the additions and subtractions thought of in the design phase by the architect, shaping a new temporal perception of the crasis born of their physical relationship.

The definition a new layer.
(To rewrite our perception).

The technique of rewriting is often used in reading the layout of a city, its urban design, to rethink parts of it or the nature of its urban layout itself. The city is in fact a complex set of events layered over time, as Lynch brilliantly summarized, and the continuous manipulation of the city's space is an operation that indivisibly combines different tools, planning, economy, identity, creativity, memory, interacting with architectural space. As Assan reminds us:

«*The core of the "ars memorativa" are the "imagines", which encode mnestic data in the form of meaningful images, and the "loci", which order these images within a structured space at a specific location. Between the representation of memory according to this topographical quality and as an architectural complex is a short step: it is the transition from space as the mediator of mnemonics to the building as the symbol of memory*». (Assmann, A., Ricordare - Forme e mutamenti della memoria culturale, 2002, p. 175)

In the context described in this research, the rewriting of the architectural-urban process is framed in the relationship between art in public space and architecture. More specifically, in art's ability to generate new semantic content for the architectural object. This is because of the inherent quality of the work of art to subvert patterns and canons, to reread reality through a different filter than the one, necessarily more adherent to a function, that is proper to architecture.

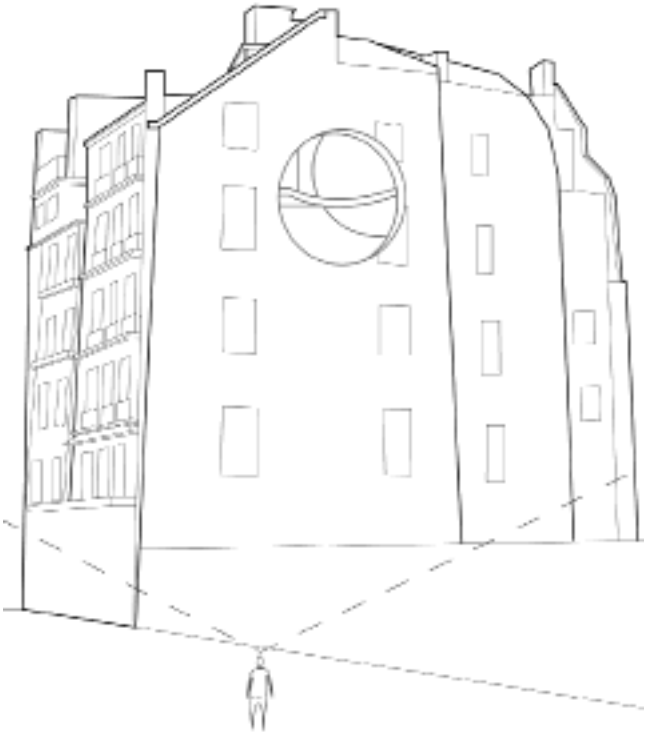

Figure 6. The apartments in 27 and 29 rue Beaubourg in their physical relation with the artwork Conical Intersect by Gordon Matta-Clark. Romano, 2022

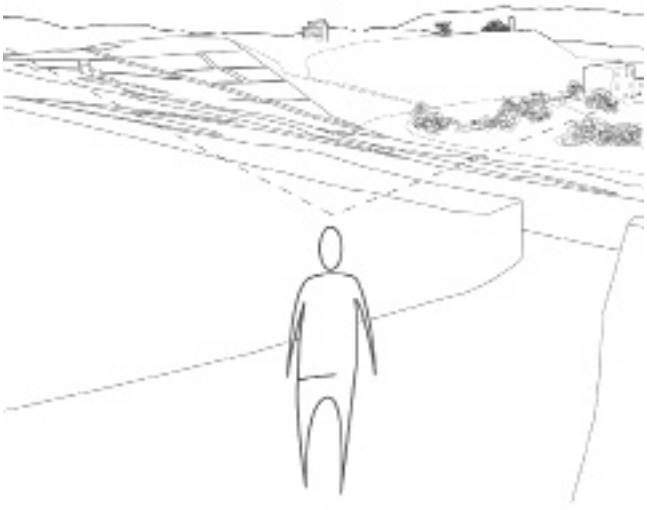

Figure 7. The surrounding landscape in its physical relation with the artwork Grande Cretto by Alberto Burri. Romano, 2022

Conclusions: Studies and Obsessions (NOW)

In the previous sections, we analyzed six different possible relationships between the work of art in public space and architecture. We decided to focus on these two subjects in particular because of the high symbolic value they possess in our definition of reality and simultaneously in our idea of spirituality. In fact, when we speak of the real, we refer to our phenomenological experience of the space around us, and in this space, man has built his objects. The objects that give meaning and shape to our landscape more than any other are architectural objects and artistic objects (placed in public space). In fact, to describe the city in which we live, we would use elements of the architecture that constitutes it, or of its streets, or of a monument in a square, or of a particular event that has characterized this or that spot in the city. These objects that fill the environment in which we move thus have the dual function of constituting our real, physical, phenomenological landscape and at the same time they become symbolic spaces, linked to our acting in and around them.

In our thesis we have also seen how the notion of space is inseparable from that of time, we refer on the one hand to the discoveries in physics that have made these two concepts indivisible and on the other hand to a metaphysical view, related to the philosophy of Henri Bergson who sees time as an uninterrupted flow that unites past, present and future so that what we feel flowing in our lives, are the elements that are part of it, people, objects and not time. There is a reversal of roles such that things are not in time, rather it is time that coincides with the flow of things in the universe. This definition is based on the transformation of the concept of space–time into a becoming that redraws a space–event of the action of art and architecture in our perception of reality. In fact, the "*Time of Intersection*" that is generated by this relationship changes dynamics precisely according to the different articulations that the work of art creates with the architecture and the point of view of the viewer.

The path developed through the analysis of the typologies of the different ways of physically relating architecture and artwork in public space, leads us to the conclusion that at the moment of the superposition of the two subjects under consideration, the time that results from their superposition with respect to our point of view is a temporal flux that originates and diversifies as we have understood, precisely depending on the physical relationship of the architectural object with the artwork in public space. An anisotropic time that is determined and in turn determines, our perception of the two subjects we are observing. The shift in our perception of the space and time in which we move affects our idea of reality because it changes the way we move and perceive the space in which we are.

This nonetheless influences our actions because the way we actively act and respond in space depends on the perceptual *stimuli* we receive in reality. The six categories identified through the keywords, do not represent the only possible ways in which an architectural object, or an urban space can relate to a work of art in public space. Architecture and art are susceptible to epistemological and ontological changes related to the time of their creation and the time of our perception, this means that as ways of creating art or architecture transform, new ways of relating will arise or existing ones will change, for this reason, our research becomes an initial platform that will be continually developed and verified depending on subsequent developments in the making of art and architecture, which will consequently create new perceptual approaches through which to read the temporalities arising from their relationship.

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The formal, the temporal and the modern
A historical view on the unfinished urban transformation of the city of prishtina

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Abstract
Following Walter Benjamin's thinking of "the modern" – which is an important theoretical contribution to the study of form – one could understand that the term designates both a formal temporal structure and the diverse range of its historical instances, past and present, whose reinterpretation and critical reading can stimulate possible future scenarios for urban spaces, or the understanding of specific developments related to them. For Benjamin's theory to be applicable in the discipline of architecture, particular knowledge and methods are required, through which unfold the processes of modernity in relation to the temporal and formal phenomenon. Thus, the aim of this essay is to re-read Benjamin's modernity within the discussion on temporality, by using architectural form and language as tools.
Temporality and modernity are widely discussed topics of scientific research, particularly linked to the tradition of the Frankfurt School. However, we are interested in deciphering these two topics through a historical category, as an object through which the scientific architectural research is crafted. And in order to connect this category to a practical level contextualized within an urban setting, this essay studies the urbanization of modernist cities, the historical events impacting it, and the stages of modernity, focusing on the city of Prishtina in Kosovo. Prishtina is used as a case-study on account of its particular history in the course of the twentieth and twenty-first century. It is the capital city of a post-socialist state that experienced a radical shift in ideological and political systems, characterized by a complex architectural and urban form with distinguished modern features.
This paper will study the unfinished modernism in Prishtina (1945-ongoing), – interrupted by politico-ideological instances – which led to a fragmentation of the urban form and the presence of multiple urban realities. In so doing, this paper will decipher specific events from different time periods, to be defined as critical junctures of Prishtina's modern history, which had a particular outcome in architecture and its urban setting. The study of the temporal and the formal in modern architecture and city planning will focus on two plans: 1) The political and economic context in Prishtina, within former Yugoslavia, which produces an ideological condition within which architecture becomes ideological; 2) The discipline of architecture, which impacts the form and aesthetics of buildings and cities through modern ideology and normativities.

Keywords
Architecture; Urban Form; Temporality; Modernity

Introduction

Architecture is not an isolated discipline but is one of the manifold manifestations of the human activity. It is effectively capable of embodying different ideological meanings and can provoke various social and cultural responses related to a temporal and spatial context. Within this context, architecture uses its formal and aesthetic modalities to participate in the organization of the city space and human life, by signifying historical events from the past, intervening into an existing condition and simultaneously structuring a vision for the future. Thus, architecture is a representation of the material existence of the society and the time of this existence, expressed essentially in a spatial dimension.

Changes in spatial organizations affect our understanding of time and place (Benjamin, 2000). Space is considered to be an order of coexistences as time is an order of successions (Benjamin, 2000). Following Kant, we understand that time has one dimension, in the sense that different times are not simultaneous but successive (Benjamin, 2000). Jacques Rancière (2018/2022) goes further by arguing that time is not simply the line between past and future, but is also a distribution of forms of life. While space, according to Gotfried Leibniz, is not only an order of things which exist at the same time, but furthermore of things which existed before and of possible future existences (Benjamin, 2000). Thus, we are using the term "temporality", which, while it may denote an individual's experience of time, it also refers to how the past, present and future are tied together in a particular narrative (Gokmenoglu, 2022). Temporality then, does not refer to simply being at a time, at one moment after another, but it is the unity of past, present and future, and its construction is based on memory, experience and vision.

Space and time are elements of social experience (Lefebvre, 1991) and are constructed on memory and vision. This makes space not only dependent on historical events, but fundamentally historic (Goonewardena et.al., 2008). Dealing with past, present and future, with heritage, intervention and (re)creation, architecture is in constant interplay with concepts of time and temporality. On one side, aspects of a building such as form, style/language and technology, which constitute the *material* in architecture, are exposed to changes and transformations imposed by the temporal phenomena. On the other side, the city – conceived here as an architectural work – is the spatial, formal and aesthetical outcome of political, economic, social and cultural forces which have operated before or are currently in play. This paper belongs to the fields of history and critical theory of architecture, rendering them as integral parts of scientific research. As an intellectual enterprise, architectural theory follows an inter-disciplinary approach. It draws upon the larger events of its time (or different time periods), seeking for their legitimation, objectivity and universality, and it often cannot be understood outside them. While the history of architecture in this case, is not simply related to the remembering of architectural works from the past, but it is a critical history of the social relations of production, exchange and consumption of 'architectural products'. Thus, architecture is not only what appears before the body and the eye; it is a complexity of relations, signs and representations, occurring in multiple spatial and temporal realities.

Setting the context

Temporality and modernity are widely discussed notions within the discipline of architecture, mainly at a theoretical level. The fundamental premise of this research is that these theoretical concepts are related to the practical level of the discipline of architecture, and have a distinct outcome in the (re)creation and development of urban and architectural form. In this context, this research will unfold 'modernity' through the study of twentieth-century architecture and city planning. Within this time period, we will analyze ideological-political concepts related to socialism, capitalism, modernism, postmodernism – as instances of modernity – and their impact on the architectural discourse. This will contribute to the understanding of how past events – by imposing what was novelty at the time – have shaped the conditions of our existence in terms of the organization of the city space and possible future scenarios related to it. The methodological approach is based on a mix of research methods, such as literature review, text-discourse analysis, and morphological-typological analysis. This research will take into account the theoretical concepts of *temporality* and *modernity*, as presented by Walter Benjamin, and interpret them through the case-study, Prishtina (the capital city of Kosovo). Benjamin's legacy as a critical theorist – together with Theodor Adorno, Ernst Bloch and others – has been formative for authors such as Manfredo Tafuri, Joan Ockman, K. Michael Hays and Fredric Jameson, indicating that architectural theory as we know it today, is thoroughly informed by Western, neo-Marxist theories of the Frankfurt School and others (Heynen and Loosen, 2019). The critical theory of the Frankfurt School is inserted in the architectural thought presented here, for two reasons: 1) the aim to distinguish its own methods, theories and forms of explanation from standard understanding, both in natural and social sciences; 2) its claim that social inquiry must combine the poles of philosophy and social sciences: explanation and understanding, structure and agency, regularity and normativity (Bohman, 2021).

The discussion of all these concepts, is often limited to the context of western culture. By utilizing the findings in the case of Prishtina, this research extends the discourse on architecture, modernity (and its multiple stages) and temporality in the context of post-socialist states in former Yugoslavia and Southeast Europe. Prishtina is used as a case-study on account of its particular history in the course of the twentieth and twenty-first century, a period which is studied within the timeline of 'modernity'. By bringing into discussion time-related notions such as interruption, fragmentation and unfinished modernization of urban settings, we will decipher the 'architectures' and 'urbanities' of the modern city.

Considering the impossibility to study architecture and city planning in Prishtina – or anywhere else – in a linear fashion through the entire period of the twentieth century, we are in-

terested in relevant particular moments in Prishtina's modern history, which are identified as 'critical junctures'. The term 'critical juncture' does not refer to a specific moment in time, but it implies a set of events that have left traces on architecture, the city's form and identity, and the memory of the individual which inhabits the city. Thus, we are looking to identify the moments of particular developments in architecture and the city, which represent the stages and expressions of modernity in the region. Within these junctures, we will analyze urban plans and architectures, which resulted in the construction of unfinished urban forms.

The temporality of the modern

Walter Benjamin provided a theory of time and modernity – a theory of the temporality of the modern – which could be interpreted in terms of the architectural and urban product. He developed a conception of time, which does not imply any distinction between past, present and future time, but is based on the temporal continuity of past, present and future, were different events are understood as connected (Osborne and Charles, 2021). Alongside this, Benjamin proposed an alternative image of modernity, which does not include a homogenous understanding of time (Mack, 2009). In The *Arcades Project* – the unfinished research on nineteenth century Paris – he interprets the architectures of modernity as "images in the collective consciousness, in which the old and new interpenetrate" (Benjamin and Rice, 2009). Modernity is rendered as a continuous, incomplete, process, that would not necessarily destroy the past which precedes the presence of the modern, neither it would be the temporal endpoint where history's long progress finds its culmination (Mack, 2009). Thus, we have a concept of history that is compatible with modernity.

Modernity has an architecture, in the sense that the elements of modernity have points of connection and coherence, and it is a genuine object of research which demands a necessary interdisciplinarity (Benjamin and Rice, 2009). The city was Benjamin's testing ground: "*Modernized city, the city realized in the Paris of the Second empire and afterwards…the city as the nexus of modern circulation, perception, cognition, experience and shock*" (Sussman, 2009, pp. 9-38). In The Arcades Project we face the experience of the capitalist metropolis through the construction of relations between its elements "then" and "now". The two terms, capitalism and modernity, are inextricable for Benjamin in the context of 19th-and early 20th-century Europe (Benjamin, 2009). Benjamin's thought combined the experience of the capitalist metropolis, with some fundamental elements of Marxist socialism, and the Romantic idea of the reconciliation between man and nature (Markus, 2009). Thus, we are faced with a multiplicity of modernity related to either socialist or capitalist contexts. In this regard, modernity – being continuous and multiple – necessitates forms of interruption.

Benjamin's modernity is compatible both to the periodization of modern architecture introduced by Manfredo Tafuri, and the definition of Postmodernism by Friedrich Jameson. Tafuri formulates the entire cycle of modernism as unitary development (Hays, 1989), where changes occur in terms of socialist and capitalist ideological and political systems, or in the function of an architecture. While Jameson defines postmodernism as a cultural production of late capitalism, emerging from the 1960s and onwards (Jameson, 1991). In this context, the Benjamin's modernity takes the form of a "pre-history" of both modern and postmodern architecture and city planning (Male, 2022, p. 347). Benjamin, as well as George Simmel, used the concept of the "*metropolis*" as an "*expressive platform of modernity*" (Abruzzese and Mancini, 2011, p. 19), and also as a phenomenon through which we can understand the development of a postmodernity that is contemporary to us (Male, 2022, p. 347).

4. Case-Study: The City of Prishtina

The concept of modernity in the case of Prishtina is interpreted through post-World War II urban plans and architectures, presenting them both as historical layers on pre-existing urban forms and unfinished visions of the future. The modernization tendencies in Prishtina emerged as early as in the late nineteenth century, during the Tanzimat Reforms enforced by the Ottoman Empire, mainly introduced in architecture and street infrastructure (Navakazi and Jerliu, 2019). However, the urban development during the nineteenth century and the first half of the twentieth century, was based on a spontaneous evolution of a town (Sadiki, 2019), with distinguished oriental morphological and stylistic features.

After WWII Prishtina became an administrative centre and later the capital city of the former Autonomous Socialist Province of Kosovo, within the Socialist Federal Republic of Yugoslavia. In socialist Yugoslavia, modernist architecture and urbanism were critical in the construction of socialism, being means for differentiating new typologies from the capitalist form of urbanization, aiming at the de-Ottomanization of the urban space (Jerliu, Navakazi, 2018). The socialist Yugoslav city was the field where political power intended to express the social progress by destroying the former – capitalist/bourgeoisie system, spatially represented by Ottoman buildings and public spaces (Gjinolli, 2019). The dominant ideology of the period was that of "Brotherhood and Unity", built on the idea of social unification, political and economic centralization. It aimed at transcending all forms of ethnic, religious or regional identity in order to develop a 'Yugoslav identity'.

Starting from the late 1960s, development in architecture and urbanism occurred simultaneously with wider social, political, economic, cultural and constitutional changes, that somehow allowed the fostering of a sense of identification of each entity within Yugoslavia, leading to the idea of 'national identity', which would contribute to the general image of the former federate. Prishtina experienced the most significant urbanization and architectural modernization between 1970 and 1980, a process which was interrupted with the revocation of Kosovo's autonomy by the Republic of Serbia in 1989 (Hasimja, 2016).

In order to unfold the phases of modernity in the case of Prishtina, we have identified two critical junctures in the city's modern history:

1) Post-World War II modernization tendencies 1945-1968:

Planning the 'New'
2) The episteme of (modern) architecture 1968-1989
Within these junctures the concept of modernity and its temporality is studied by focusing in two contexts characterized by the ideological and political conditions in Prishtina and former Yugoslavia, whose outcome is an interrupted and unfinished urb-architectural product. First, we have the political and economic plans which impacted the form of the city and its architectures, and produce an ideological condition within which planning becomes ideological. The second context is the discipline of architecture, impacting the form and aesthetics of landmark buildings and the urban fragments they create, through the modern ideology and normativities.

Planning the 'NEW'

Starting with "voluntary" deconstruction-construction activities from 1947, the focus of modernist interventions was the core of the city centre, where the old bazaar, mosques and other structures from the Ottoman period were demolished (Jerliu and Navakazi, 2018). Actions taken during this period were referred to by modernist planners as "urban activities…operative works necessary for preparing a study on the development of Prishtina City" (Jerliu & Navakazi, 2018). This period is characterized by a strong ideological expression through architecture and urban planning. As impacting forces are identified the political and economic plans of the state (i.e., of former Yugoslavia), aiming the construction of socialism.

Following these activities, the first spatial document of post-WWII, the General Urban Plan for Prishtina, was drafted in 1953 [Fig.1]. The most important contribution of this plan was the reconstruction of the pre-existing north-south axis in the type of a boulevard with avenues on the sides – reminiscent of late nineteenth-century layouts – where the principal administrative and cultural buildings would be located alongside collective housing blocks (Sadiki, 2019) [Fig.2]. Such planning was a contradiction of large public spaces for the mass, represented through urban squares, promoted by socialist modernism [Fig. 3]. Reading this plan, we understand that there was a fragmented urban development. The plan included only few areas within the city center which underwent radical transformation, and provided the general framework for some new constructions distributed in fragments. The plan did not project a 'new' city, as it was the case with the extension of existing cities in Belgrade or Skopje (Jerliu & Navakazi, 2018), nor did it create a vision for the future, as the modernist architectural ideology indented (Tafuri, 1976).

This type of planning document – the General Urban Plan (GUP) – is characterized with a lack of scientific analysis in terms of both socio-cultural and territorial context, being presented in the form of maps showing land use, projected functions and the volumetry of the buildings (Hasimja, 2016). GUP's were designed-led plans that had no relation with other disciplines and had very little or no support for the existing physical strata. Those were addressed through other types of policies that fell under the economic development domain, the outcome of which had totally disregarded the complex problems connected to space (Hasimja, 2016). A similar methodology was followed in later plans, drafted for specific areas within the city, as it was the case with the 1962 plan entitled "*The program for the urban solution of three residential neighborhoods and the centre of the region of city's new part*".

Figure.1. Dragutin Partonić, General Urban Plan of Prishtina, 1953 (Source: Prishtina City Archive, Fund SO-KK, Box 1/1-21, No.587-589)

Figure 2. Modernist buildings along former Marshal Tito Boulevard, Prishtina, 1950s (source, Sadiki, 2020)

Figure 3. Skanderbeg Square in Tirana and Socialist Landmarks, Tirana, 1960s

The episteme of (modern) architecture

After 1968, the discipline of architecture is characterized with an expression of different stages of modernity, from the Existenzminimum promoted by CIAM, to the emergence of other modernist languages such as regionalism, metabolism and brutalism. Thus, the avant-garde architecture in Yugoslavia was a direct representation of the avant-garde status of Yugoslav socialism, conveying the image of a socially, economically and politically progressive state. An important contribution of the time, is the plan "Conceptual and Urban Solution for the University of Prishtina Centre", drafted in 1971 by the Urbanism and Design Institute in Prishtina [Fig.4]. The main author was the Kosovo Albanian architect Bashkim Fehmiu, who collaborated with the architect from Belgrade, Bogdan Bogdanović, both being regular CIAM delegates.

Fehmiu designed a network that would accommodate all the faculty buildings, the Academy of Sciences and Arts, the Rector's Office, the Art Gallery, the Amphitheater and the public squares with green spaces, while at the center would be the National Library [Fig.5]. To avoid the transformation of the complex into an isolated island within the city, the ground floors were open spaces treated as interconnected yards (Sadiki, 2020). All the buildings inside this complex form an urban structure completely accessible to pedestrians, positioning them at the centre of this planning strategy (Sadiki, 2020), what reminds us of Le Corbusier's layouts.

Fehmiu's plan could be considered as the architect's vision for creating the new city of Prishtina, that started with the heart of the modern city, the University Centre. Dealing with concrete works of architecture, in particular with the National Library, the plan aims at the (re)creation of the city of Prishtina through landmark architecture, positioning architecture as a determiner of the destiny of the city (Tafuri, 1976). This approach was also followed in all construction activities in Prishtina – defined by an ideological background based on the concept of identity, – in which we distinguish a strong presence of landmark public architecture and a lack of an overall plan for the vision of the city as a whole.

Architectural works of this time, were constructed in unbuilt and undeveloped urban plates, by creating new centralities in the city and forming separate urban fragments, leading to the reproduction or recreation of the city through architecture. Large scale architecture landmarks were constructed almost spatially autonomous from each other, but having a strong character of space formation (Papa, 2019). In this conception of space, unity is given by the sequence created along the path which works as a system made of elements in contrasts and interruptions.

Examples of this phenomenon are the National and Library of Kosovo, the Palace of Youth and Sports, Rilindja Publishing House and former Ljubljanska Bank. These buildings are expressions of different modernist stylistic/linguistic and technological features, unfolding multiple layers of modernity. The National Library is an example of regionalism by using the combination of cubes and domes, representing layers of Islamic and Byzantine architecture to be found in Kosovo and the region [Fig.6]. In addition, the hexagonal metallic grid covering the façade, reminds us of the grid used by Frank Lloyd Wright in the plan of Hannah House. The Palace of Youth and Sports is similar to Metabolist architecture and the idea of megastructures, which became popular in Yugoslavia through Kenzo Tange's masterplan for Skopje (Jerliu and Navakazi, 2018) [Fig.7]. The brutalist style is embodied in the Rilindja Publishing House, while the former Ljubljanska Bank is associated to the curved glass facades of postmodern architecture [Fig.8 & Fig.9].

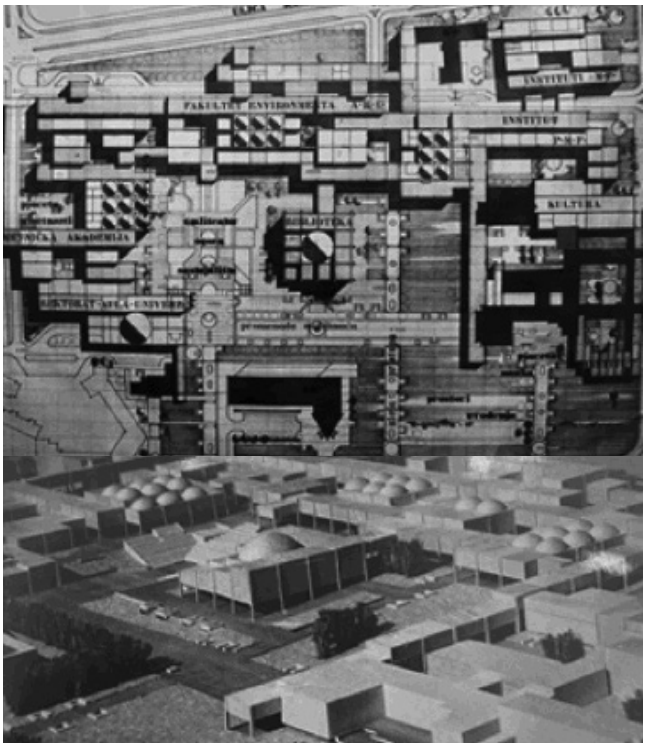

Figure 4. Bashkim Fehmiu, The University Center, Ground Plan, Prishtina, 1971/ 3D Model, (source: Sadiki, 2020, p. 35)

Modernity in prishtina: fragmented, interrupted,unfinished

The lack of a vision to project the future from the present, which according to Tafuri (1967), has to be the main objective of 'the plan', led to the recreation of the city through landmark architecture, differently put, the construction of landmarks "without" a city (i.e., without being part of an overall urbanization). The city in this case is constructed by a spatial concept made up of various episodes, determined by singularities and peculiarities of place, related to a particular object or spatial configuration. Being connected to each other in a formal continuity as urban patterns, these episodes contribute to the formation of the image of the city as a whole. (Papa, 2019). Yet, it is important to note that modernist landmarks in Prishtina are quite dispersed in spatial terms. A system of public spaces that would allow for spatial integrity, and unhindered mobility between landmarks located in close vicinity, was never considered (Jerliu, 2013).
Despite the criticism, the examples presented above are the most visible signs of progress and have contributed to the construction of the image of Prishtina as a capital city of an autonomous state. They represent different phases of the modernization the city of Prishtina, interrupted by the installment of the parallel system after the revocation of Kosovo's autonomy in 1989 until the Kosovo War in 1998-1999. This led to the creation of parallel urbanities within the city, determining a reorganization of the urban space.

The interruption of the city's modernization resulted in the unfinished modernist urbanization of Prishtina. The urban space, time, architecture and the state are manifested in fragments, which are developed between the influences of socialist, capitalist, or nationalist forces. At some times these fragments represent the great narratives of socialism and modernism, while at other times they abandon them in favor of a conception of the city as a simple collection of architectures (small narratives), and not a whole and coherent organism.

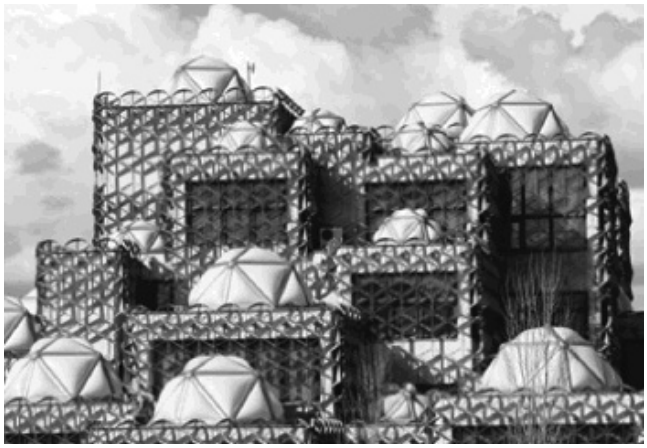

Figure 6. Andrija Mutnjaković, The National Library of Kosovo, Prishtina, 1971-1982 (source: Facebook page "Socialist Modernism);

Figure 9. Zoran Zekić, Former Ljubljanska Bank, Prishtina, 1984 (source: Sadiki, 2020, p. 90)

Figure 7. Živorad Jankovic, Halid Muhasilovic and Srecko Espak, The Palace of Youth and Sports, Prishtina, 1974-1981 (source: http://hiddenarchitecture.net/sport-and-recreation-centre-boro-and/)

Figure 8. Georgi Konstantinovski, Rilindja Publishing House, Prishtina, 1972-1978 (source: https://architectuul.com/architecture/priting-house-rilindja);

Conclusions and Further Studies

By defining the 'critical junctures' in Prishtina's modern history and their urban and architectural outcome, we have introduced a set of events as different time sequences, which represent a past connected to the present and the future, and unfold multiple layers of modernity in the city space. Thus, we are introducing a temporal structure, in which different stages of modernity and different ideologies are put in play in the unfinished process of the city's modernization.

First, the modern image of Prishtina is informed by the architectural works presented in this research, each conveying specific (at times, different) modernist architectural languages, occurring simultaneously and reflecting the multiplicity of modernity as introduced by Walter Benjamin. In this context, re-reading modernity through Prishtina's architecture, also confirms Rancière's thesis that "there is no one modern time, only a plurality of them", introduced in his recent work Modern Times: Temporality in Art and Politics (2018/2022, p.7). Secondly, modernist architecture and urban spaces in Prishtina reflect the character of modernity as a temporal continuity of past, present and future, being an interrupted and incomplete process, and not a temporal endpoint. What was presented as novelty in the socialist city of Prishtina is today an unfinished vision for the future of the city.

The problem of unfinished urbanization remains the greatest challenge for the city of Prishtina, which can be regarded as a specific case to comprehend and interpret. The modernity and the form are unfinished. The space is informed by filling the fragments without integrating them. What follows in the aftermath of socialism, – with the installment of democracy and capitalism, and replacement of modernism with postmodernism, – is an overlapping of fragments, with the same methodology. Due to this fragmentation and unfinished modernization, the city is impossible to be planned as a continuous and unitary whole. Therefore, the fragments – landmark buildings and urban settings – can be used as a tool to regenerate the city, by promoting diversity and multiplicity, and stimulating the development of the surroundings.

At this point, we can suggest a comparision to the concepts regarding the image of the city, introduced by Aldo Rossi (1984). What Rossi argues that is compatible to the case of Prishtina, is that the city is made up of fragments with a principle of individuality, which evolve in time and can be brought back to autonomous facts, to evoke a "*past we can still experience*" (Rossi, 1984). To this extent, it would be important to develop a multidimensional relationship between the city and the architectural works. Using the multi-scale concept in Prishtina allows for the discovery of a new sustainable design approach concerning the relationship between architecture and urbanism, in the framework of modernity as a continuous historical process.

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A Multi-Criteria Methodology For The Integration Of Risk Assessment Into Spatial Planning As A Basis For Territorial Resilience. The Case Of Seismic Risk

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Abstract
Rapid urban development and continuous demands for space have increased the pressure on the territory. The need for this "usable" space, no matter the purpose, leads to an excess of capacities of existing areas and the creation of new areas, both significantly increasing the level of exposure to natural disasters. Statistics show that within a period of almost two decades from 1994 to 2013, 218 million people were affected by natural disasters annually (CRED, 2015). In the situation where the demand for growth is accompanied by an increasing potentiality of damages in economic, social, environmental or cultural terms, disaster risk management (DRM) is having an important focus in terms of research. The way communities and urban systems react to a natural distress is tightly related to the economic and technological development as well as data availability. Developed countries have the capacities to consider mitigation strategies in pre-event situations, which is not always feasible for developing and poor countries. Also, as emphasized by (Gaillard & Mercer, 2012), the issue is related to the fact that disasters affect those who are marginalized and have partial or no access to resources and means of protection. Such paradigm imposes the need to develop preventive strategies focusing on the community, which is directly affected by aftermath of these natural events. The purpose of this research is the analysis of a possible way to integrate disaster risk information within planning instruments aiming towards an inclusive disaster risk reduction (DRR) process through the proposal of a risk assessment methodology at a local scale for the case of seismic events. The main objective is that the proposed methodology will serve as a preliminary tool for several decision-making processes in terms of strategic risk reduction measures, policies, prioritization, fund allocation etc. The methodology is also aimed to serve as an important node that connects the community, the experts and responsible authorities with one another towards an inclusive disaster risk reduction approach.

Keywords
earthquake, resilience, risk assessment, urban system, vulnerability

Introduction / Motivation and problem statement

One of the greatest challenges of human society over the years has always been adapting and living in the constant presence of natural hazards. A detailed study by (Ritchie & Roser, 2014) showed that only in the last decade natural disasters have affected a total of 186.5 million of people (injured, affected and homeless), with an average of 47000 fatalities, making such disasters responsible for 0.1% of deaths. The historical data show that losses to natural hazards tend to be centered in low-to-middle income countries that lack of appropriate infrastructure to cope with such events (Ritchie & Roser, 2014). In the last decades the losses from such events have decreased considerably, with earthquakes being the main event causing losses and fatalities due to the low-frequency but high-impact nature.

One of the latest events that reflects such situation is the earthquake that struck Albania on 26 November 2019 at 02:54:12 (UTC) with a magnitude Mw 6.4 and an epicenter close to the Adriatic coastline 30 km west of Tirana and a focal depth of 22 km due to the thrust faulting near the convergent boundary of the Africa and Eurasian plates (USGS, 2019). The event caused 51 fatalities, injured around 3000 people, left up to 14,000 people homeless and caused serious damages to over two thousand buildings of different typologies (Charleson et al., 2020). Considered as the strongest earthquake to hit Albania in 40 years after the Mw 6.9 Montenegro earthquake of 1979 which was highly felt in the northwestern part of the country near to the epicenter. In engineering terms, taking into account the magnitude of the event, it is considered as an earthquake which even though may be classified as strong, was definitely not in the levels of what is known as the design earthquake used to design seismic-resistant structures. Nevertheless, the damages and the aftermath were quite severe.

The aforementioned summary in terms of statistical data and events, puts forward two key issues related to natural hazards and the behaviour of humans and systems; that of exposure and vulnerability. Not every hazard can lead to a disaster, the combination of the hazard with specific poor conditions of the built environment leads to disasters which is defined as:

"*A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impact, which exceeds the ability of the affected community or society to cope using its own resources*." (UNISDR, 2009, p.9)

The disaster represents the impact and the consequences and to talk about consequences in addition to the hazard, the exposure and vulnerability introduced above must be analyzed and combined. Both exposure and vulnerability are components whose aim is that of answering the following questions:

- Which are the affected elements?;
- What levels of damages can potentially happen in these affected elements?;
- Would these levels of damages lead to a disaster or to a slight disruption?;
- How long would it take to recover?

The approach towards these events and the ability of the system to absorb the stresses from the events in the past was focused in the phase of emergency response and the eventual reconstruction phase, while nowadays there is a shifting paradigm toward prevention strategies before the disaster strike (Sutanta et al., 2010).

Being able to prevent the damages from an event before it even happens implies the need to try and predict the damages that this event might cause in a certain area, so it might be considered as an ex-ante analysis. This analysis is widely known as risk analysis and assessment. The entire process of the risk assessment and eventually the reduction of this risk involves many disciplines and is seen from different perspectives, as such there is an essential need for an integrated approach and a cooperation between different actors in different levels. Based on the large number of studies on disaster-related issues, (Gaillard & Mercer, 2012) emphasize the emerging of two major paradigms; hazard and vulnerability paradigm. The former asserts that disasters occur due to the insufficient perception of risk of the affected people which consequently fail to adapt and adjust to reduce such disasters, therefore can be considered as a generalized approach. On the other hand, the latter paradigm asserts that disasters affect mainly those who are marginalized and lack access to resources and means of protection. Within the second paradigm it is believed and supported that Disaster Risk Reduction should be inclusive in terms of:

- the form of knowledge (scientific and local knowledge);
- combination of top-down and bottom-up actions;
- collaboration and operation of large array of stakeholders.

The lack of this inclusive process together with increasing vulnerabilization levels is believed to be one of the main reasons of why disasters are on rise worldwide. Spatial and urban planning is one of the disciplines that is involved in the matters of risk assessment since its function is to regulate utilization of land, therefore can be considered as an important link in the entire process and can be very useful to reduce the exposure and vulnerability of the entire components affected by the hazard. It is also believed that planning instruments represent a fundamental link in bridging the aforementioned gaps that hinder an inclusive process. As stated by (Suri, Johnson, Lipietz & Brennan, 2020) to be able to create resilient cities planners need to approach disaster risk reduction (DRR) as an issue at the center of a good urban development, whose integration however is often limited.

Purpose of the study

A vast amount of research has been conducted in the last decades with the aim of assessing the risk of a hazardous event. The approaches vary from a specific level, where the risk is analyzed only for a certain hazard, to a multi- approach where several hazards are analyzed simultaneously taking into consideration their common effect in a certain area. Another way

of choosing the right approach is by taking into consideration the level of detail required and data availability, based on which the risk is estimated in qualitative or quantitative terms. Despite these approaches the entire process must be seen as a holistic one. Therefore, the integrated variables having a different nature have to be unified to produce an output that is targeted to decision- making structures and actors The holistic perspective of the problem at hand raises a number of issues, mainly related to the way the information is transmitted and understood by different experts. Among these experts are the spatial planners which as mentioned in the previous section are easily considered as a fundamental link in matters of risk assessment in an applied context since the information provided by them is more tangible and understandable from a decision- making point of view. Within this perspective the main issue would be that of integrating the information from this assessment into spatial planning in such way to be understandable, reliable and translatable into planning policies and land- use restrictions together with an analysis of the impacts it might have in planning systems and instruments.

The general objective of the research is the focus on assessing seismic risk at a local territorial scale. The state of the art gives a number of methodologies to assess the risk, so a realistic objective would be that of focusing on existing methodologies and theories with the aim of interpreting them in such a way to be easily integrated in different levels among different stakeholders. The specific objective of the research is directed towards the integration of a semi- quantitative risk assessment model in planning instruments by using inclusive information and variables in a multi-scale approach. A multi-scale approach is believed to facilitate the integration of Disaster Risk Reduction in urban planning processes. Such integration can foster the collaboration between stakeholders, help in bridging the gap between scientific and local knowledge and also improve communication and risk perception.

Based on the general and specific objective the main research question may be elaborated as follows:

How to effectively integrate risk knowledge within planning instruments towards an inclusive Disaster Risk Reduction (DRR) *process*?

In order to answer the main question of this research, it is necessary to put forward other complementary questions, that will serve as important nodes in creating a path towards the fulfillment of the final objective of the research.

a.How to combine multi-scale information to define the levels of risk?

b.Which are the most inclusive and context-adaptable parameters that can be used to define seismic risk?

c.What is the best way to produce and communicate the risk information for decision-making purposes and to increase risk perception within the community?

Proposed Methodology

The methodology proposed for assessing and integrating seismic risk information into spatial planning can be summarized in the following scheme: The proposed methodology, is based on the risk-index approach. Risk Index is an approach in which the risk and its constituting elements are derived through a scoring process using ordinal scales. Such approach is more rigorous than a qualitative approach, but is not considered as a purely quantitative approach since the risk is categorized by comparative scores rather than explicit probabilistic terms. Therefore, such approach is categorized as a semi- quantitative. Risk Indices are used in situations where the lack of data makes it difficult to quantify the components of the risk and also when the assessment is carried out in large areas. The input is derived from a detailed analysis of the system thus, the assessment of risk in terms of indices should be preceded by a detailed analysis and a good understanding of the sources of risk. In this stage of the process additional tools such as fault tree or event tree analysis can be used to structure the problem and represent the relationship between each component of risk and each of the indicators selected to represent such components at different levels.

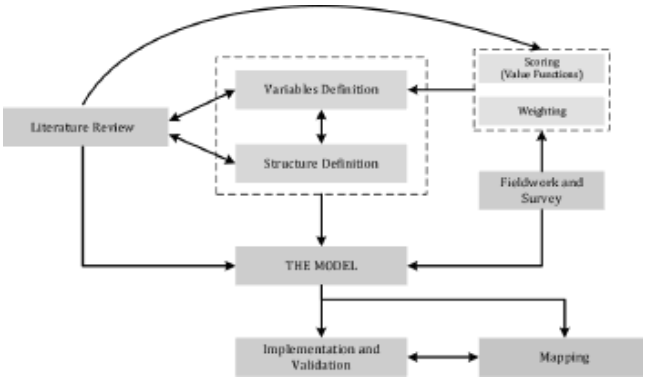

Figure 1. An overview of the methodology

In the field of disaster risk reduction and natural hazards, the information is often given in a spatial way through maps. In cases where the input is a number of geographical data that can be used for choosing alternatives and making decisions the process is known as Spatial Multi- Criteria Evaluation (SMCE). Spatial Multi- Criteria Evaluation is considered as a complementary method to the already existing approaches for qualitative and quantitative risk analysis and zoning. For instance, as it is the case of this research, indices at a local scale are combined with the SMCE to provide a single risk value that can be used for decision- making purposes or preliminary evaluations.

Based on the relevant literature (Eastman, J.R, 2005; Sinha, Priyanka & Joshi, 2014 and Patel, M. R. et al., 2017) the procedure for converting various parameters into a single risk index that can be later used for decision-making processes goes through four general steps as given below:

Step 1- The structure of the decision problem
Step 2- Standardization
Step 3- Weighting Process (Prioritization)
Step 4- Aggregation

Structure Definition

For the purpose of this research the structure is divided into four levels, with an addition of a fifth level as shown in Figure 2. Each variable is selected to better represent all the constituting elements of seismic risk.

Literature provides a considerable number of studies dealing with seismic risk, from qualitative to advanced quantitative methodologies, each one of which having its own indicators. Many indicators, are undoubtedly common no matter the approach, but others differ. One of the reasons for such change is the scale of the problem at hand.

From a structural point of view, assessing the risk means focusing on the building scale and predicting possible consequences to the specific building. Such assessment, requires a high amount of data in this scale, for instance (Kassem, Mohamed Nazri and Noroozinejad Farsangi, 2020) in their work investigate the indices and methodologies in seismic risk to quan-

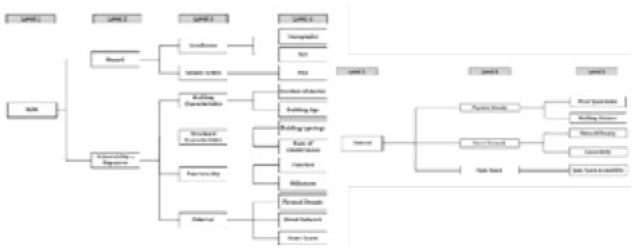

Figure 2. Proposed hierarchical structure for the assessment of seismic risk

tify the level of damages to structural elements or to the entire structural system. Parameters like the organization of structural system, configuration of plan layout, configuration in heights, elements of low ductility, non-structural elements etc. are analyzed and quantified to evaluate seismic risk.

Instead, from an urban planning point of view the focus is in integrating such building scale into a larger urban scale to help decision makers in defining prevention strategies. Therefore, the indicators have a more inclusive nature with the aim of connecting these two scales. In addition, for planning purposes beside physical indicators other non-physical indicators are quantified to evaluate economic or social vulnerability like population density, social disparity, development level etc. In the proposed hierarchy such interrelationship between scales is given by combining into the vulnerability and exposure indicators that are related to building scale (building characteristic, structural characteristics) with external indicators (physical density, street network and open space). In addition, indicators related to functionality (function and utilization) are also introduced to take into account the level of people exposure and critical structures.

Standardization

Decision-making processes require the integration of a number of variables of different nature, the combination of which provides alternatives. Based on the alternatives, decisions are made to choose the most acceptable one in terms of objectives and feasibility. The integration of numerous variables in such processes to define the worst and/or the best scenarios requires an analysis in which these variables are compared and combined to one another. Making two or more variables comparable requires a scaling or standardization of them, thus resulting at the same unitless scale. The process of switching from a variable of a certain nature to unified variables is defined as standardization process. Such standardization can be achieved using mathematical equations that are represented in the form of the graphs, known as value functions, which are defined by (Beinat, 2012) as:

"*…mathematical representation of human judgements.*"

Explaining that this function translates performances of the alternatives into value score, which on the other hand represents the degree to which several decisions are matched. After the application of such functions all the variables used for decision are analyzed for their meaning and impact in the decision rather than analyzed as explicit numerical values or qualitative measures. A key component in the decision-making process is the accurate determination of value functions. Once a value function has been defined, the results for a given set of choices can be calculated directly. Since value functions represent a preference there is a need of proper and clear evaluation instead of just the graphical representation of such functions. For each of the selected parameters in the proposed structure the following elements are defined:

a. Tendency

Depending on the nature of the indicator (criterion) the value function can have either an increasing or a decreasing tendency. An increasing function shows that as the level of the indicator increases so does the level of satisfaction of the decision maker. In contrast a decreasing value function shows that an increase in the indicator results in a decrease in the level of satisfaction. In addition, there might be value functions that have a mixed tendency; thus, the functions have an increasing/ decreasing tendency up to a certain level of the criterion after which the relationship is inverse.

b. Range

The range consists in defining the points which have the minimum and maximum level of satisfaction from the decision-maker's point of view. If using a scale from 0 to 1, the point of minimum satisfaction would give a value of 0, while the maximum would give a value of 1 or vice versa. It is important to notice that this range represent limits in the satisfaction level only, not in the entire range of values for the considered criterion. Thus, there might be values of the criterion which are not considered because they are outside the defined satisfaction limits.

c. Shape

The next step in the generation of value functions is the definition of the shape that will connect the points within the defined range. Literature suggests several types of functions that can be used for decision-making. For the purpose of this research based on (Alarcon, et al., 2011) and (Rezaei, 2018) the value functions are classified into two groups linear and exponen-

tial. Both linear and exponential value functions following the tendency (Step 1) might be classified as monotonic when the tendency is always increasing or decreasing or non- monotonic when it has a different shape (mixed).

A linear function reflects a constant increase or decrease in the level of satisfaction generated by the alternatives. Throughout the range, there is a proportionate relationship meaning that the rate of change is constant. The exponential functions reflect change rates that are not constant, thus the rate of change near a certain value might be higher than that near another value, emphasizing that the influence of a variable (criterion) changes within the same value function. As with linear functions, the

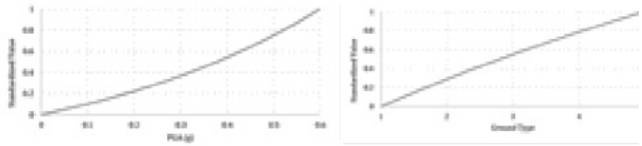

Figure 3. Proposed hierarchical structure for the assessment of seismic risk

exponential functions also have monotonic and non-monotonic nature.

d. mathematical expression.

Each of the value functions are represented by a mathematical expression based on their shape and range.

For the proposed methodology, each variable is standardized using appropriate value function, two of which are given in the following graphs:

Prioritization

In the same way decision making involves many criteria and sub criteria to evaluate alternatives, so does the process of assessing a risk. The inclusion of several criteria into the analysis, as mentioned before, requires their comparison so that decisions are made in a proper way. In a certain analysis, decision-maker might consider that some aspects or criteria are more relevant and important than others, thus their impact in the alternative is greater. The relative importance of different criteria is otherwise known as weight. One of the most used techniques to assign weights is the Analytical Hierarchy Process (AHP) which is developed by (Saaty, 1980). The essence of such method is the development of what are known as pairwise comparison matrices at each level of the hierarchy. As stated by (Saaty, 2008), making a decision to organize priorities requires the decomposition of the general problem and the decision into the following steps:

- Problem definition and determination of the knowledge sought;
- Structure of the decision from top with the main goal up to the lowest level;
- Development of a set of pairwise comparison matrices for each level;
- Use the results of the matrices to weight the alternatives in the same level and to obtain the overall priority.

One of the main advantages of such method, is the fact that the results can be verified by the means of the Consistency Index and Consistency Ratio, based on the n-order of the developed matrix. To verify the coherence in the values attributed to the pair-wise matrix a consistency check ought to be done. A matrix and subsequently the weights assigned are consistent if they are transitive. This condition indicates that the order of

	Building Age	Nr. Storeys
Building Age	1.00	3.00
Nr. Storeys	0.33	1.00
Total	1.33	4.00

	Building Age	Nr. Storeys	Total	Weights
Building Age	0.75	0.75	1.50	0.75
Nr. Storeys	0.25	0.25	0.50	0.25
Total	1.00	1.00		
			CI	0

Table 1. Pairwise comparison matrix and assigned weights of the "Building Characteristics" elements

the different elements is respected. The matrix with the defined attributes can either be absolutely consistent when decision-makers give perfect judgements or not absolutely consistent (Alonso and Lamata, 2006). The weights are assigned starting from the lower level of the hierarchy by comparing elements at the same level. The determination of the relative importance of each variable is done taking into consideration previous studies and extensive literature review combined with expert opinions using a simplified survey which includes a total of 13 questions. The following, is the developed matrix for the comparison of the weight of building age compared to the number of storeys.

Aggregation and Risk Categorization

The procedure of standardization and weighting at each level of the defined hierarchy is followed by the aggregation process. In the aggregation process the entire information is combined to give a final decision model, which in the context of decision-making is known as the alternative while for the purpose of the dissertation it represents the risk level.

One of the most used aggregation methods is the weighted linear combination, in which each standardized factor is multiplied by the relative weight and the results being summed to give the final goal. The following equation might be used to evaluate alternatives (Malczewski, 2000):

$$V(x_i) = \sum_j w_j v_j(x_i) \quad \text{(Eq. 1)}$$

where wj is a normalized weight such that $\sum wj=1$, vj(xi) is the value function for the j-th parameter (attribute) while V(xi) represents the value of the alternative or main objective based on the value of the j-th attribute.

The interpretation of the risk results obtained in the form of indices according to the aforementioned analysis can be carried out by going through a process of categorization. This process corresponds to the division and grouping of the obtained

Risk level	Range	Description
R1	$R \leq 0.2$	LOW
R2	$0.2 < R \leq 0.4$	MODERATE
R3	$0.4 < R \leq 0.7$	HIGH
R4	$R > 0.7$	EXTREME

Table 2. Risk categorization based on four classes

information and results in different predetermined categories. Each category has its own ranges (in terms of standardized values) and based on the position where the actual result falls into, the corresponding category is selected. Many recommendations suggest that a good approach to categorize consequences and severity is by using a scale from three to five points (ISO 31010). It is believed that the larger the number of points used, the better is the judgment regarding the actual situation in terms of vulnerability levels and risk. Based on literature review and expert opinions it was decided that four classes are to be used to categorize the level of risk

Implementation

The proposed methodology is implemented in two case studies, the first one in the historical city center of Guimaraes, Portugal and the second one in the city of Lezhë in Albania. Each selected case study for implementation represents different situations. The first one is a UNESCO protected area with old buildings, while the second one is a modern representation of chaotic de-

Figure 4. Risk Map for the city center of Guimaraes, Portugal

velopment characterized by high-rise buildings and a complex street network. The output of the implementation of the methodology shows that such approach is feasible and easy applicable no matter the context. In this way, one of the main issues of holistic risk assessment approaches, which is the context-specific nature, is successfully tackled making the methodology easily transferable no matter the specific site.

The results for both cases are given in the form of risk map and as expected Guimaraes has a combination of low hazard with high vulnerability, while Lezhë has a combination of high

Figure 5. Risk Map for the city center of Lezhë, Albania

hazard and medium to high vulnerability, reflecting in most of the buildings high level of risk

Conclusions & recommendations

As concluded by (Gaillard & Mercer, 2012) the main problematics are related to the low levels of perception from the local community and authorities, together with lack of proper integration of a comprehensive risk information aiming to foster the collaboration between stakeholders. The inability for such communication among other factors represented gaps that needed to be analyzed in order to improve the efficiency of Disaster Risk Reduction (DRR) intervention and strategies. This research focused on the possible ways to bridge the gaps in the form of knowledge, top-down and bottom-up approaches and the collaboration and operation of large array of stakeholders

Taking into considerations the demands and needs for an inclusive DRR, the research was oriented towards the proposal of an updated methodology that could integrate specific variables aimed at combining firstly the information at different scales (building and zone), and secondly information from different perspectives: engineering and planning. The main objective was that of generating an effective and essential information which is depicted spatially and would serve as an input for preliminary decision-making processes. Since there were numerous variables that could be integrated in the proposed methodology a selection procedure was necessary. The variables were selected based on three main criteria; complexity, information and importance.

The research showed that a multi-disciplinary approach imposes a multi-scale approach from the operational scale (the building) to the strategic scale (zone scale). A detailed analysis on a building scale would definitely give a complete information regarding the expected level of damages from a possible seismic event, but would lack in giving the relationship between the object itself and the surrounding urban environment. Such aspect is of a greater importance not only during the emergency phase of a disaster, but also during a later recovery phase, since the analysis at such scale generates possible alternatives accelerating such process.

In terms of the main research question regarding the effectiveness of integrating risk knowledge within planning instruments, it can be concluded that a multi-scale approach is necessary in switching towards inclusive DRR processes since it

gives the possibility of combining different form of knowledge context specific with generalized scientific data. It also fosters a top-down and bottom-up approach because the data collection and elaboration is context specific giving an output to local and national authorities, while on the other hand such approaches require an understanding of the event at a regional and national scale, implying the need for coordination and information in these levels. Such approach imposes also a vast majority of stakeholders. On one hand there is the local community, which is directly affected from such events and on the other hand there are local and national institutions. In addition, social and physical scientists are the other important actors. It is recommended that the output of the research after "filtering" in the national and local institutions can be used to target local community with the aforementioned dissemination objective. By creating a clear, open-source and easy structure the community is not marginalized in terms of information and means of protection

XFuture improvements might imply the integration of new variables to take into account other aspects of risk assessment, for instance social components or environmental impacts to switch into a holistic approach. From this point of view, the proposed model is flexible allowing for integration of new variables or new hierarchical levels. The tool in the form of an application and software can be used by specialists to assess and map the risk based on appropriate research, by the local institutions to define interventions and by local communities to raise awareness and risk perception.

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An Approach On The Formal Sustainability Of The City And The Definition Of Sustainable Elements On City And Urban Scale. The Case Study Of The City Of Tirana

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Abstract

The context in architecture has always been a special place of discussion. Many architects and philosophers who dealt with cities and urban planning always tried to find ideal solutions for the community, for the city, and beyond. As a result of continuous studies, thoughts, and numerous analyses, there are many definitions, questions, and conclusions about the ideal city and inevitably in each conclusion or result from the identity of the country came naturally as a component.

The objective of this project is to develop a methodology or set of methods for measuring and evaluating the sustainability of the urban form. The outcome of the project will be instruments of analysis and architectural/urban composition expressed through drawing. The concept will be compositions that indicate the sustainability of an existing site and propose a future sustainable form. The objective of this collaborative research project will orient in solutions to sustainable elements by itself and at the scale of the city of urban by differentiating sustainable and unsustainable elements.

The idea of belonging and place are parameters that will always be stable and that people naturally look for, therefore, here the local identity, stability, belonging, memory, and connection with the place where we live and work come to the fore. This raises the question of what makes a place sustainable in terms of form, architecture, and belonging. What are those elements that contribute directly and indirectly to the formation of the country ? (T. Jashari Kajtazi and R. Zogiani, 2021) From the case study, during two workshops in the framework of doctoral studies and scientific research on this topic, analyses were made in Polis and Ferrara with groups of students of different profiles to determine the elements and those indicators that have given a result of gender and the construction of cities- theoretically and practically. As Rossi claims in Architecture of the city (Rossi, 1984)- critiques modern architectural practice for its lack of awareness of the city in this book. Rossi contends that a city must be examined and cherished as something built through time, with special emphasis on urban artifacts that outlast the passage of time – that seems to be correct in some aspects of the city. On the other hand, (Sitte, 1945) examined successful public spaces in ancient towns in terms of patterns and relationships between town features, as well as the sequence and complexity of plazas and roadways – so by analysing the city of Tirana practically will be seen the elements relevant to each theory and claims fit in or not.

From these two organized workshops, systematic and professional work was done in the fields of architecture, urban planning, and the environment so that the research was as real and comprehensive as possible. Tirana was the city that was studied by us and the outcomes were derived from analysing Tirana, so that they serve for other approaches with same complexities and difficulties for other cities with similar issues.

Keywords

Sustainability of form, sustainable cities, Tirana case study, urban form

Introduction

During the analysis of the maps in the time line from 1921-1937-1985-2005-2020 there are changes, overcomes of the city of Tirana. The boulevard represents the dividing and coupling axis in terms of areas to be analyzed. In the part which our group analyzes from Skanderbeg Square to the so-called New Tirana and continues in the south, in early 1921 was the suburbs of the city or sub-urb. Also, the tracks of the Lana River imply that neither the river nor the surrounding spaces were yet treated. It was mainly peripheral residence with the accompanying parts such as religious facilities and families farms and administrative facilities in small numbers. As an urban pater it is noted that it was empty therefore, uninterrupted compared to the upper part of the axis we are talking about. The circular/ distinctive elements for this area were the Lana River, the hills at the Lake and the villas (groups of villas built in the area). To approach into urban analyses and investigate how conventional perceptions of urban space have been lost in modern cities (Krier, 1979) investigated whether, and on what grounds, the idea of urban space holds any value in current town planning by describing the concepts of urban space and its structure – especially the timeline of city of Tirana development and its reasons.

In the footsteps of the map of 1937 there is a difference regarding the regulation of the riverbed and the predisposition prepared to build/ handle empty spaces in this area. The two sides of the axis were built as public spaces- the left side with recreational sports fields and the right side of the royal blacksmith and the existing sleep continued to be the American Embassy- on the right side.

Until the 1985 map it is noted that the upper part is shaped along roads and dreams of a certain importance to residents (more or less Donkey's Way - Le Corbusier) and the bottom is distinguished by square and mainly social/ complementary buildings missing in The upper part such as: Pyramid, Park Rinia, New Ministers, Theater, the Queen's Park at the Palace of Pioneers, Assembly, Prime Minister, Palace of Congresses, Academy of Arts, Rectorate, Corps, Polytechnic University and Tirana, have been re-conceptualized. Qemal Stafa Stadium.

At first glance it is noted that the bottom was "filled" with missing or needed buildings over the years that supported the population growth - as social, cultural, sports, administrative facilities. After the construction of these buildings the spaces that remain again without construction were filled with buildings for the various functions needed over time, such as residential buildings, shopping mallsetc.

Sustainability increases from the transition to the "Donkeys Way" system and below the "Man's Way" (Corbusier, 1987). This is because it is not experienced violently or dramatically/ dreaming of the extreme person to another.

Cardo and Decumanus, therefore the main grid or cutting two main roads imposes the durability of the geometric rule shape and imposes the separation of blocks in this mere. We result in the sustainability in the buffer the area that divides and at the same time connects these two parts of Lana River.

Then to the greater degree the same is repeated with the shape of the building and its placement in full and this is a disposition for sustainability or non -sustainability. Given a Big Picture axes determine urban plaques, then they are predisposed to take the form of these axes or buffer elements (separating or merging) and to the staircase still setting the object in full determines the sustainability or without it. Benevolo emphasizes the unifying philosophy that drove all achievements of thinking and action—even the simply technical—and proves their correlation in spirit up to the period of the Renaissance (Benevolo, 1971). So, in the analyzes that have been done it results that the object located in a given position has subsequently determined the stratification of the objects, the addition, the closure of the block or even the collapse –as a generalization.

From analyzes it is observed that when the objects are adjacent or in the range there is a greater enlightenment than when they are free from the four sides have predisposes to accept root, attachment or increase. In some cases, these combinations have been adapted to stratification and have achieved a form consistency in other cases has resulted in the opposite. These may mainly have no sustainability in placement by not following the form.

Materials and methods

Considering the analyzes done in the first part of the workshop and the results of these analyzes we have come to some conclusions that have proved sustainable in time and in the space we talk about, the southern part of the city of Tirana. From city readings through various methods, first mapping, incorporating the existing state, diagrams and schemes, the dismissal of other fragments from the part that has been analyzed, the chronology of city development, actresses and other factors emerged that influenced that kind of development and growth of the city and other elements emerged that in one form or another determined the development of the city.

In the observation that the city grew over the years and that construction was made in certain ways starting from the filling of the blank initially that it is easily observed in the comparison of the 1921 map with the 1937 map and the distribution of follow -up functions in the years to continue from 1937 to 1985. (Figure 1,2,3) The main division and coupling determinants were the Boulevard at first and then the Lana River along with the landscape and natural element of the Dajti Mountains that served as a natural boundary until the construction had not yet reached. The southern area developed differently from the northern area. While the northern area was developed along the roads and in irregular geometric shapes while indications of the development of the southern area were other and the area was divided into two parts as a result of the boulevard and these parts were divided into regular geometric shapes. While the northern area can be characterized by Le Corbusier's terrain for the development of the so -called 'Donkeys Way' (Corbusier, 1987) part of Figure 4. Study areas A, B, C, D along with overcrowding over the years.

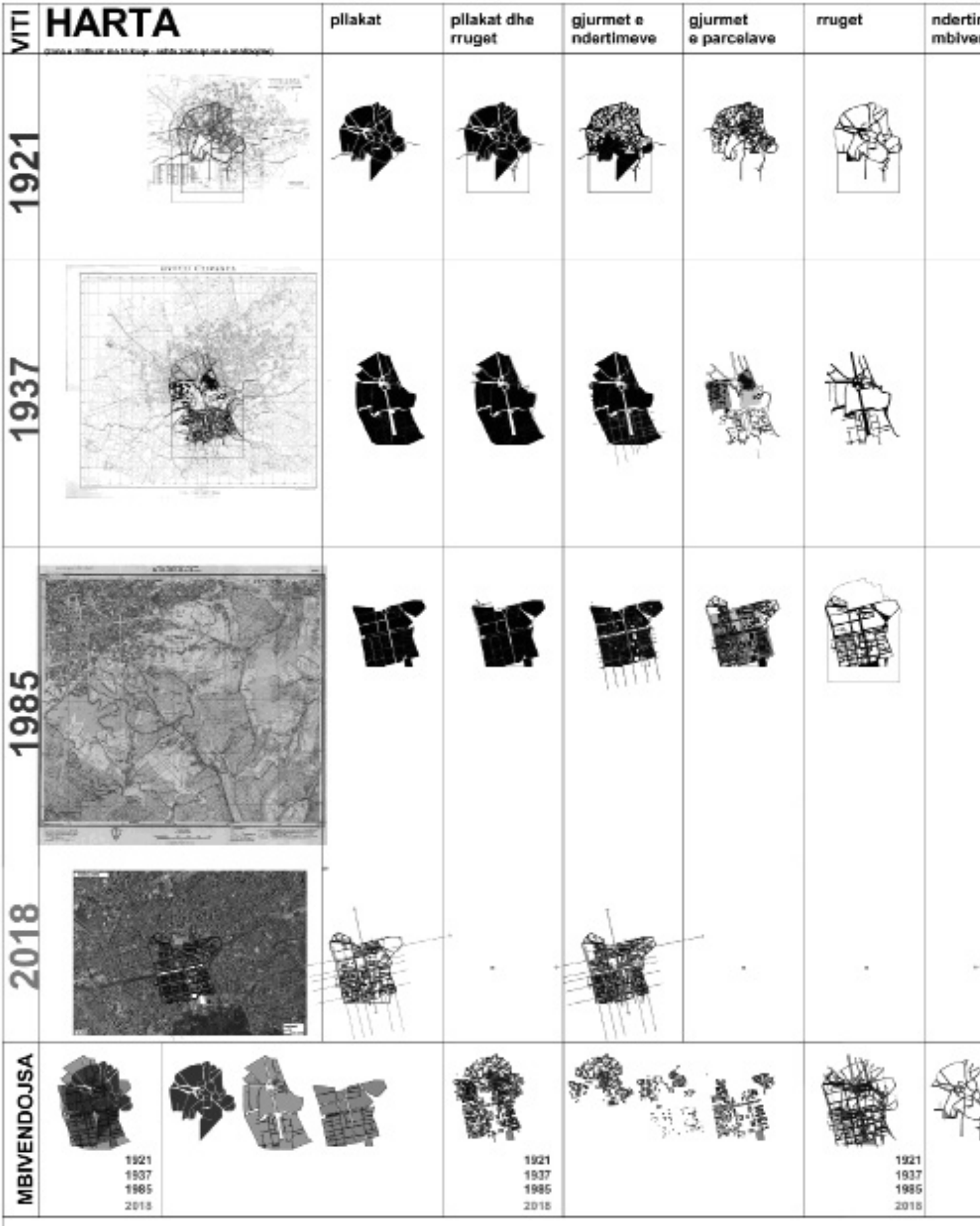

Figure 1. The analysis began on a time axis by reading maps from 1921, 1937, 1985, 2018 to 2021.

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Figure 2. Basins through 1921-2021 Diagram/ Artistically expressed

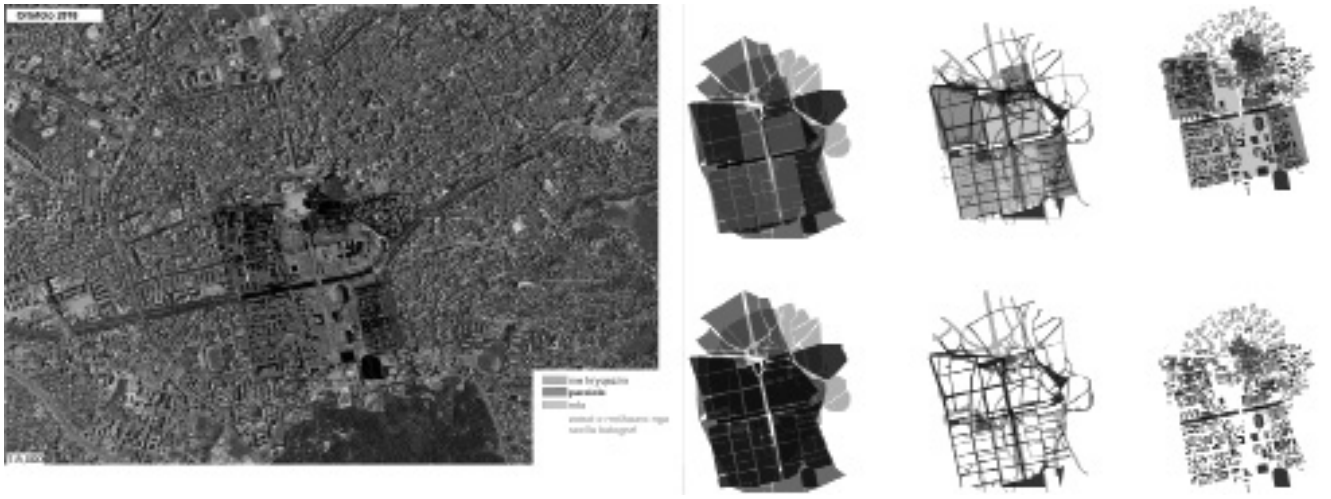

Figure 3. Overlaps in the years 1921-2021 and separation Zone. Removing the study areas, marked with yellow.

The southern area was developed according to the opposite of it in 'Man's Way'. In the area developed according to Donkeys Way according to, Corbusier thus developed some of the largest cities that passed from the outskirts, the provincial neighborhood in the city to the metropolis such as Paris, Rome or Istanbul. Here, in fact, it is noted that the most stable form turned out to be a triangular shape or trapezius -shaped block which had some special features. In 'Man's Way' we also encounter in the southern area of the city the rectangular forms and the networks that have been presented have resulted as the most sustainable forms that were developed without much overlap, changes and the mixture of functions turned out to be one of the key factors after networking, block rectangular shape and tracking forms of construction according to the block. To illustrate the findings in the precedent 4 different blocks in the form, function and location in both parts of the city, from the High Lana and from Lana down, so -called northern areas and southern areas. We have also studied the same areas and read overlaps for years and in Figure 4 can be seen with: A, B, C, and D. From here we generated small blocks units that proved stable or unstable and the reasons and findings of why these areas had resulted

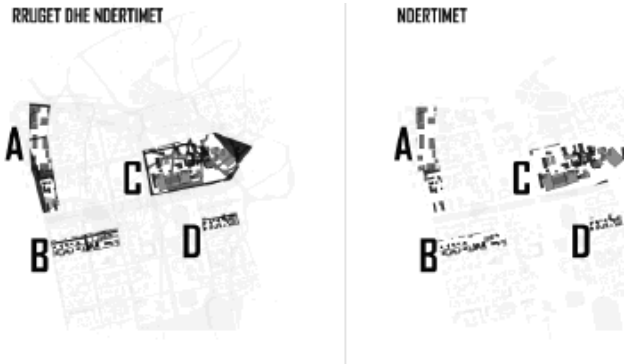

Figure 4. Study Areas A, B, C, D together with overcrowding over the years.

in. These can be observed in the following diagrams. Some of the elements that proved to be unstoppable were the open angle between blocks and buildings (which was also observed while visiting the field and observation, photography and contemporary), as well as setting up construction at the edge of the block without any distance caused to have caused certain problems and the stimulation of some spaces, and the buildings fragmented in a string let's say. Here they had resolved to be built between them and in all unclosed spaces, inexpensive in-

formal housing or other similar informal constructions and had made the block or united unit in terms of form and had created other urban problems, widespread social throughout the city. Through the diagram we illustrated and identified these resistant and non -diligent elements and their reasons and identified our areas alongside these elements when it turned out that the areas (a, b, d) were central and zone C proved sustainable. For these reasons, many construction overlaps were overlapped and problems were created by the most architectural, urban, environmental, and resulted as an unstable area. (Figure 5)

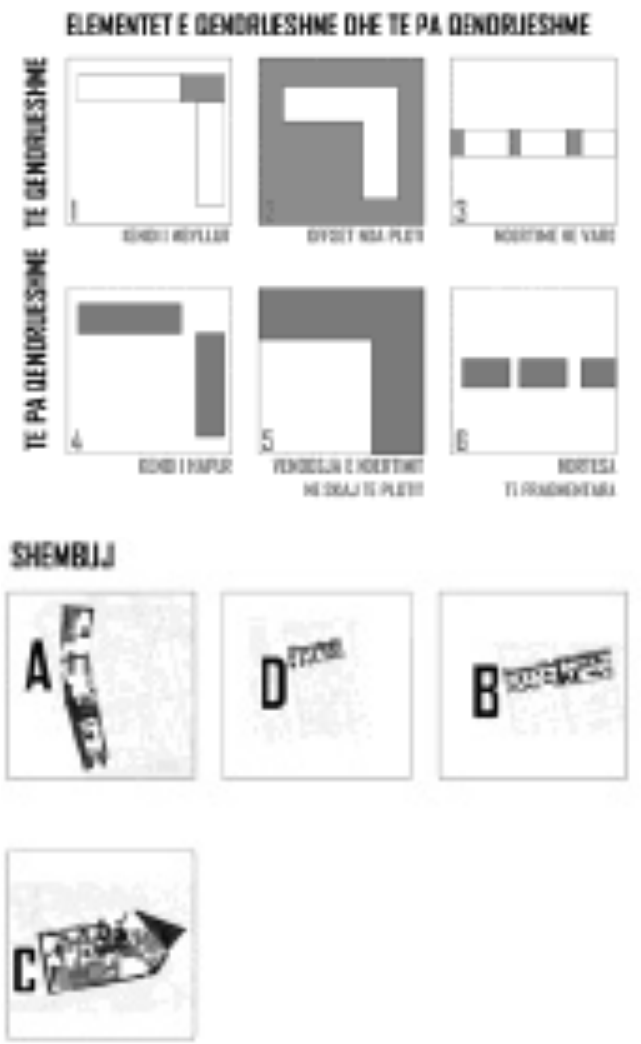

Figure 5. Diagrams of shape stability analyzes next to study areas A, B, C, D.

From here we continued and analyzed by means of the diagram method also the sustainable forms, taking into consideration the environmental elements, the configuration of the terrain, the shape of the plots, in short, all the architectural and environmental elements taken into consideration to find the so-called 'morpheme' urban through which we will give a finding of what has turned out to be sustainable by profiling the factors in question. By means of the diagram, these parameters have been identified and laid out as such to analyze further along with the formal stability of the block found on the ground. (Figure 6)

From these analyzes as a conclusion we derive two sustainable forms within the urban block. So, taking into consideration the

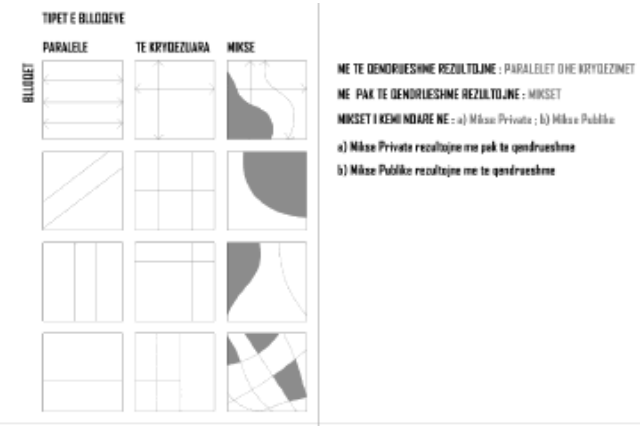

Figure 6. Analysis diagrams of blocks, roads, terrain configuration and functions of built blocks.

form of the block, the network of blocks with roads and the morphology of the terrain, the following forms support and contribute the most to the stability of the form, including the friendly or mixed functions.

Closing the block and corners, variable height and allowing air circulation. These parameters resulted from the architectural, urban and environmental analysis of the area and this for the

Figure 7. Analysis diagrams of blocks, roads, terrain configuration and functions of proposed blocks

reason of the sustainability of the form, the avoidance of informal housing and informal spaces that cause various problems in the city, the more efficient control and maintenance of spaces within closed or corner blocks closed, avoiding spaces with predispositions for possible urban vandalism, offering the possibility of solarization and ventilation as efficiently as possible by changing the storeys, enriching them with different functions so that these areas are not active or passive in a certain part of the day as well as the analysis of the environmental condition of the morphology of the terrain and the blowing of the winds (that is, the rose of the winds), elements with which the location of the building in the block is determined and the ventilation, the cleaning of the air from various pollutions is possible, the opportunity is offered to plant greenery that is essential for the quality of life, and are they facilitated or not natural processes characteristic of the country are hindered.

From the above findings and proposals, we come to a conclusion or an urban morpheme based on the above analysis through the reading of the city and the diagrams that the essence of the sustainability of the form or the so-called urban morpheme is made up of these elements: The shape of the plot/ block and surroundings + mixed built typology + terrain with other characteristics of the country. The morpheme illustrated with diagrams can be seen in Figure 8.

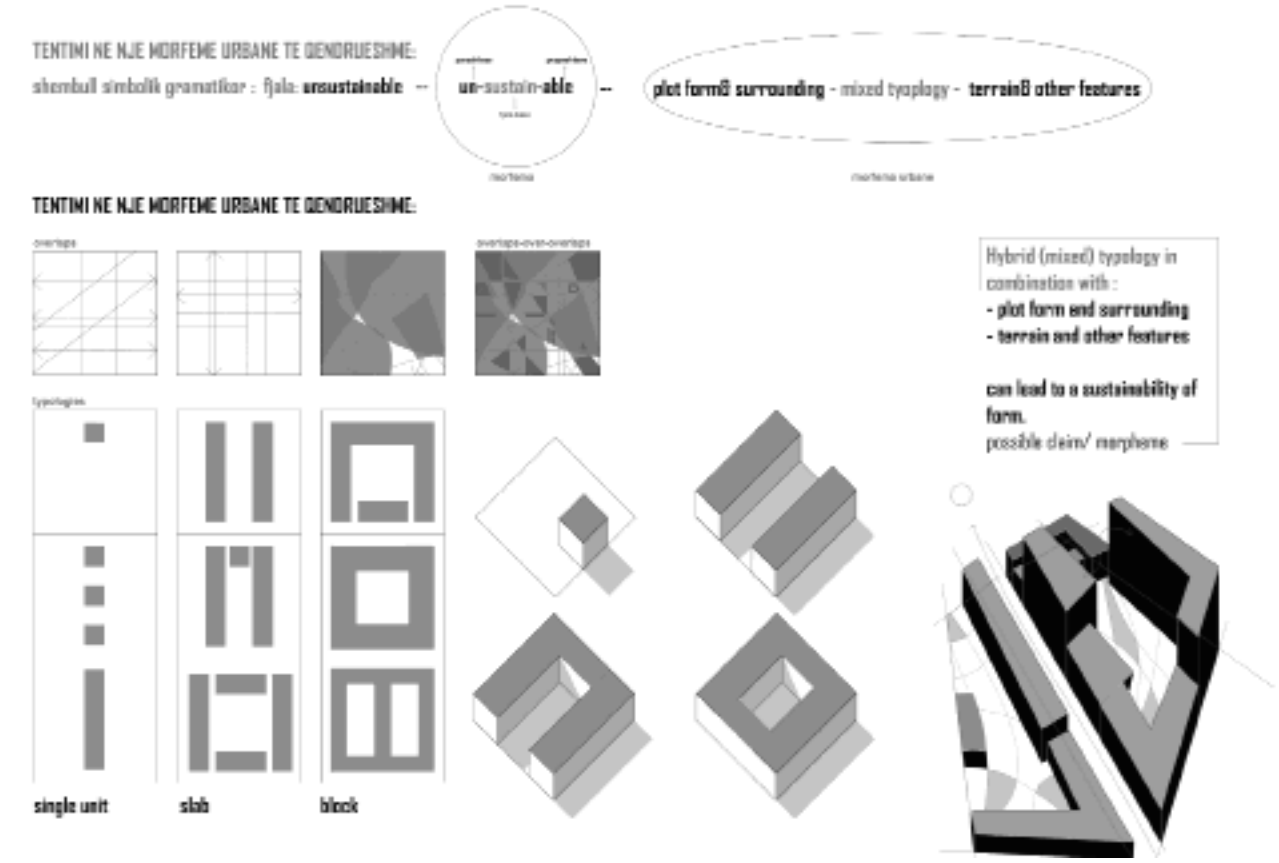

Figure 8. Morpheme illustrated in diagrams.

Therefore, living structure is dependent on traits that have a close relationship with the human self, and that living structure has the potential to foster human well-being. (Alexander, 2003-2004)

From the findings of the first part of the workshop, it has been found that the most sustainable form is that of orientation and following the natural features of the terrain, morphology and other characteristics of the context. (Figure 9)

From here we have extracted the directions from the overlays of the maps during the reading of the city and analyzed them by overlaying these grids, which have generated the most stable forms. From this part, the idea was to speculate in the northern part of the city and take the years 1975-1985 to see how the city could have developed and how the findings would possibly be implemented in a new situation, to achieve stability of form.

The same procedure in principle has been applied in this part, where it first started with the analysis and reading of the city in this period to see the agents that were indicators in the development of the city and the predispositions. Mumford (Mumford, 1938) studies the evolution of cities from medieval times to the early twentieth century in The Culture of Cities to demonstrate the patterns and forces that generated the contemporary "megalopolis" and its faults. So, this analogy, the maps and drawings also show a similar or mirrored configuration of the terrain and environmental characteristics as in the lower part of the city that was analyzed earlier. Here again is the river as a natural element that separates and unites two different parts of the city, we have the mountain configuration that limits and sets a kind of

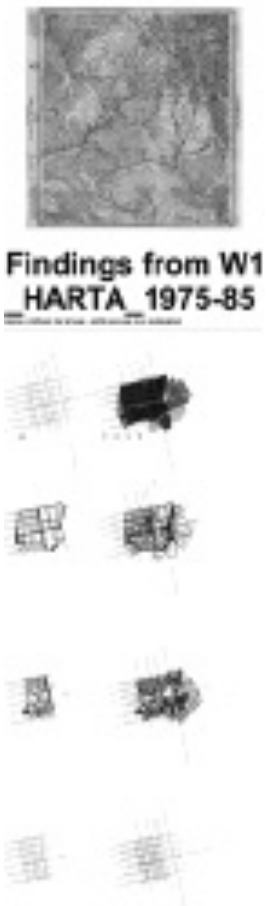

Figure 9. Networks and their overlaps to find the most stable form of the whole and then the block

Figure 10. Map of the northern part of the city of Tirana in the years 1975-85. The yellow marked area is the study area.

border of the city, as well as the boulevard, which is unfinished and that penetrates and predisposes developers or coming to it. which the city will develop. The railway is on the same line and it is noticed that there are few buildings, mainly there are industrial buildings of the time, so, a suburb at that time was conceived as the end of the city, charged with complementary functions necessary for the development of the city, while the rest it was accommodated with residential and social functions.

Figure 11: E. Howard - Garden cities (https://www.gutenberg.org/files/46134/46134-h/46134-h.htm)

The cities of the garden the next day begin describing "Three Magnets": City, Country and City. The Howard makes it to why we are drawn to the best aspects of both the city and the country. The cities of the garden in their heart and their own have a central garden, with housing rings, shops, roads, industries, fields and farms. The commissioned presentation aims to improve biological, social, economic and personal life for everyone. Ebenezer Howard thought that the cities of the garden would work because the plans were based on understanding human nature.

-RedBurn- New Yersy

Situated in the town of Fair Lawn, New Jersey was a small community of 3,000 people named Radburn. Despite its small size, Radburn stands between individual groups, commercial belts and unplanned growth of fairlawn. I plan the 1920s fund, Radburn was thought to be a self-contained community of 25-50,000 with unique green spaces, transport systems and secret neighborhoods. It was supposed to represent a solution to the problem of drinking. Of the 77 visits sites, the City Housing Corporation (CHC) chose to develop Radburn in Fairlawn, New Jersey for different arseye: land costs in fairlawn were ultrated because it was a tender in fairlawn were to have innovative planning spaces On the site, and the fairlawn was only 16 miles from New York City. The ERIE railway line can take the road to the center of New York Citizen for 45 minutes. Also, he traveled to New York City by car was facilitated with the end of Uras George Washington in 1931.

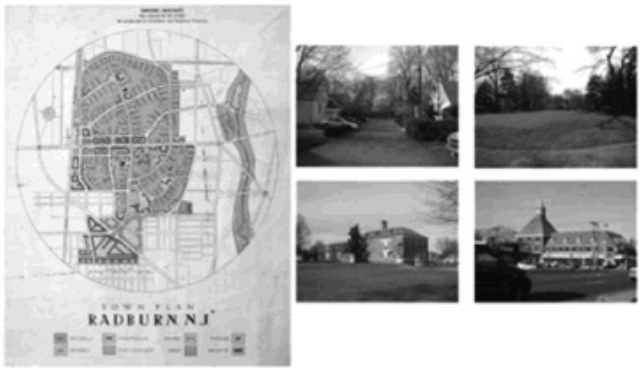

Figure 12. RedBarn- New Yersy(https://www.greenbeltonline.org/radburn-nj-garden-city-model-greenbelt/)

Radburn was conceived as a balanced city. Make it contains one intertwining of industry, open space, trained and residential areas. In Radburn, the Irishtur neighborhood community the topic of city construction. The neighborhood consists of markets, schools, superblock, road traffic system and open space.

The shape of the super block was related to the earth and the friendly of life. Super blocks are 35-40 hectares surrounded by wide roads and depressed with suburban alleys.

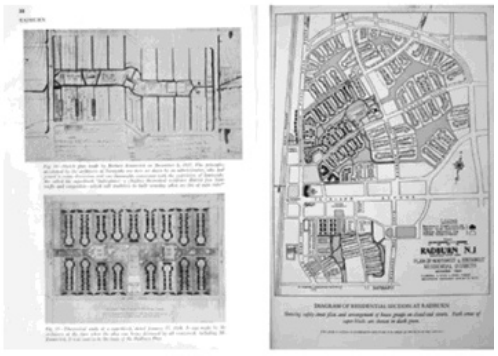

Figure 13. RedBurn- NewYersy (https://www.greenbeltonline.org/radburn-nj-garden-city-model-greenbelt/)

-City of Broadaccre: A new community plan

During the study of models, one of the most obvious characteristics of Broadacre City Isture that it unmasks many small lands and intertwined states. Almost every independent extension has one agricultural land attached to Toa. During the Soh Depression Age Toh 1930, Wright was not his own person who theorized that if people had a land, however small, they would make you able to live.

The city was a process, in leading a form. “

Nthony Puttnam, an architect of Taliens, who worked with Wright, believed that "the city of Broadacre challenges us to understand what we mean by democracy and how a city can be expressed. Urban America often seems indifferent to its physical composition. the majority of its people and shows a similar indifference the city of Broadacre proposes a physical structure and social adjustment to achieve the broader values of democracies. However, we can debate the practical foles of Broadacre City, we cannot overlook the challenge his. "

Rule the world. He had to understand that ideas inspired by spiritual integrity will alter the modern world. “

Figure 14. City of Broadaccre: A new community plan (http://courses.washington.edu/gmforum/Readings/Wright.pdf).

"The city must be everywhere and nowhere." This, according to Cornelia Brierly, as Frank Lloyd Wright described his concept Pair City Broadacre - a new type of city to pour landscapes changed with the ground and individual needs.

Wright saw this idea as lying on the ground and that it would take on different features depending on the terrain. The main thing was to have an architect who understood construction about the country and understood people's needs. “

The methodology is relevant to the project's unique issues and premise, which is that greater formal layering and adjacency reciprocate a more sustainable shape. This will be analyzed at form's sustainability in relation to the number and quality of formal layering and adjacency. Such information and characteristics were discovered, measured, and explored using typological, morphological, geometrical, and topological analysis. The success of such research was determined by the creative reinterpretation and reconsideration of concepts that we normally take for granted, such as: What are an intrinsic formal qualities and formal layering. Yet regarding the formal adjacency determination. The distinction between a typological, morphological, geometrical, and topological analysis on the case study of Tirana city through drawings provided within city visits and observations also analysis showed the sustainable and unsustainable elements theoretically and practically.

Conclusions and discussion

Further on in the readings of the maps as below, the foot of the building, the void, the roads, the natural-environmental networks, the natural elements and the overlap of the previously generated networks are highlighted as sustainable in this situation to speculate on a sustainable form of possible on which the city could be developed and a map with red color showing the development of the city until 2021 to see the differences of the

Figure 15. Reading the city through the combination of elements and the map of 2021 in red.

city's development in a visual form. (Figure 15)
The central idea of "After the Planners" (Goodman, 1972) is that planning and architecture are not goals in themselves, but rather exist to address the needs of actual people. Large-scale urban construction projects invariably serve to trivialize the in-

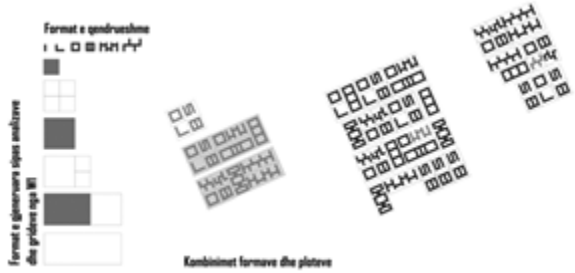

Figure 16. Generation of stable block shapes and their combinatorics together with the grid unit (square)

dividual's importance in the urban landscape.
Therefore, based on the recent findings and the presented diagrams, we have generated an alphabet with the combinations of stable forms of plots/plots from which we have also derived the stable forms of blocks. In addition to this alphabet and the analyzes of the early networks that have proved to be stable, we have obtained a resultant unit - that is, the shape of the square, which, combined with full and half, again creates larger square or rectangular shapes. Starting from a small unit of the form of the block inside the whole going to composite forms and variations on the same principle, many stable forms of the whole and the block can be generated without limit and with the combination or multiplication of this unit to create wholes bigger up to the cities. (Figure 16)
We place this alphabet of forms in the principle of sustainable networking, sustainable form, function and urban morpheme in a speculative way on the map of the years 1975-85 to see on another level the speculative implementation of the findings.

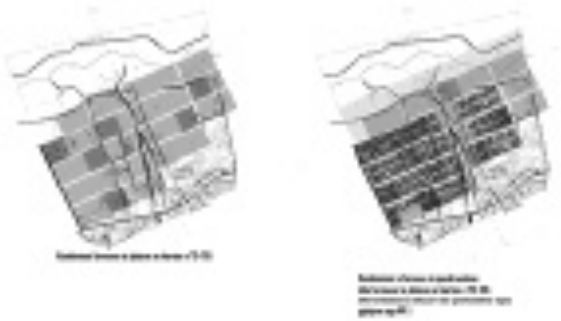

Figure 17. Speculative implementation of stable forms on the map of 1975-85.

These can be seen in figure 16.
From this point we combine the urban morpheme and the alphabet in diagrams, which is actually the method by which we arrived at the earlier conclusions, and now we read and interpret the findings through the diagram.

We first take the diagrams generated from the first findings and superimpose them with the sustainable forms of the blocks and based on the principles of sustainability that we have found, we build possible combinations depending on the characteristics of the terrain, the place, environmental factors and sustain-

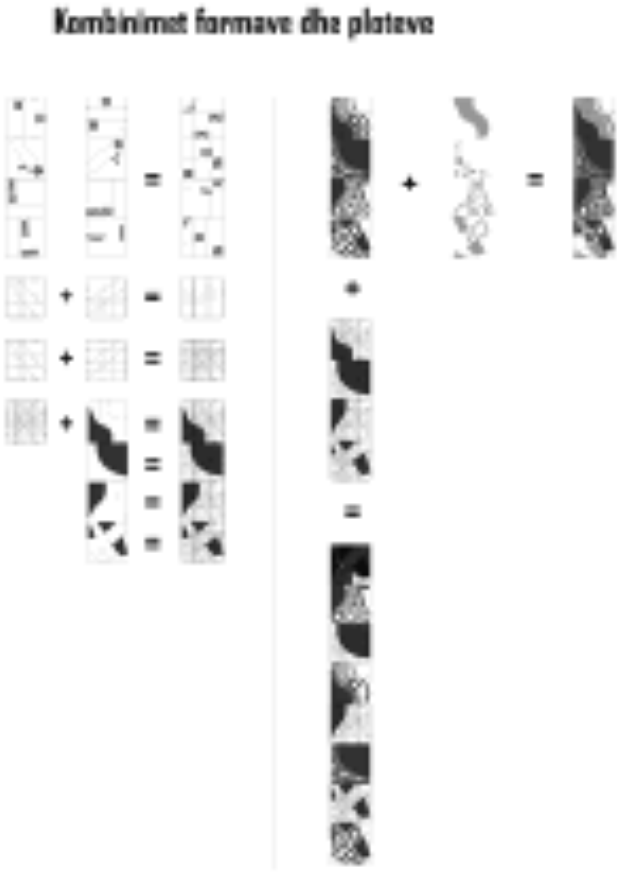

Figure 18. Combinations of diagrams with stable forms from earlier findings.

able forms. We present these as an equalization equation or with the analogy of a mathematical identity where the left part of the equation must be solved to be equivalent to the right part that is already solved or to be more precise it is a certain value. (Figure 17)

In this point of analogy of the mathematical identity, we try to synthesize the findings from the field, the diagrams, the reading of the city, the empirical way of analysis and from the literature. We divide the left side of the identity into 2 pairs of variables: variable variables and fixed variables, and both of these have a common denominator, which is shape. Variable variables include the specific environmental conditions that consist of a total of 5 elements named a,b,c,d,e. These are: terrain and specific conditions, climate, environment, and wind rose. These are variable because they are not the same for any country/city. On the other hand, we have the static variables that are urban morphemes, the buildings that follow the shape of the plot/block and their overlaps according to the diagrams. From this, consequently, we have the layout of an equation (that is, the left side of the mathematical identity consisting of: the shape of the plot plus the variations of the shape and the stationary block plus the variable variables (a,b,c,d,e) equal or equivalent to sustainable urban form. This is also illustrated through chronological diagrams. (Figure 18)

As a conclusion the urban morpheme and environmental conditions as variable variables and stable urban architectural forms as static variables - with the common denominator form,

because environmental conditions also have a certain form in a certain place and the urban architectural form also has a certain form. So, with the combination of the invariable element of the urban architectural form and the variable variables of the specific conditions, we come to ideal sustainable forms in the formal aspect and the aspect of environmental, social, economic –so diversity and expansion were as an opportunity and added value at this big city still expanding in new ways. (Jacobs, 1961)

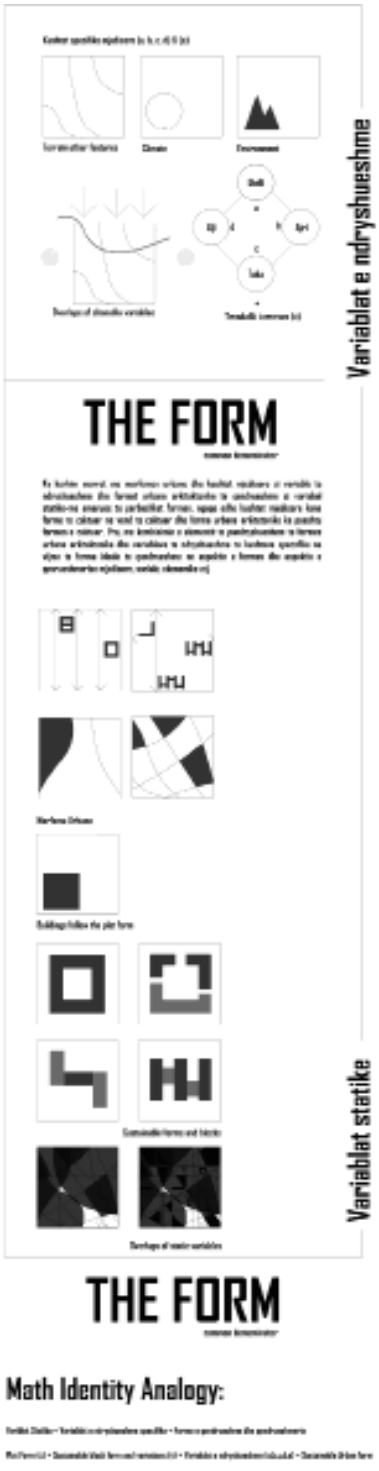

Figure 19. Diagrams and analogy of achieving sustainable form and sustainability

At this point the analogy of mathematical identity we tend to synthesize the findings from the terrain, the diagrams, the reading of the city, the empirical way of analysis and the literature. We divide the left side of the identity in 2 pairs of variables: variable variables and unchanging variables and both have a common denominator that is the shape.

Variable variables include specific environmental conditions consisting of a total of 5 elements named A, B, C, D, E. These are: terrain and specific conditions, climate, environment, and rose of winds. These are variable because they are not the same for any country/ city. On the other hand we have static variables that are urban morphemes, buildings that follow the shape of the parcel/ block and their overlaps according to the diagrams. From this consequently we have the laying of an equation (ie, the left side of the mathematical identity consisting of: the shape of the parcel+ variacone variacs+ variable variables (a, b, c, e) equal or equivalent to the incomplete urban form. This is illustrated even through chronological diagrams. (Figure 19)
This research deals with urban morphemes and environmental conditions such as variable variables and urban architectural forms stable as static variables-with common form, since environmental conditions have a certain form and urban architectural forms are alsothe specified form. Thus, with the combination of the unchanging element of the architectural urban form and variable variables of the specifical conditions in the formal constant forms and aspect of environmental, social, economic, etc. Figure 18.

At this point the analogy of mathematical identity we tend to synthesize the findings from the terrain, the diagrams, the reading of the city, the empirical way of analysis and the literature. We divide the left side of the identity in 2 pairs of variables: variable variables and unchanging variables and both have a common denominator that is the shape. Variable variables include specific environmental conditions consisting of a total of 5 elements named A, B, C, D, E. These are: terrain and specific conditions, climate, environment, and rose of winds. These are variable because they are not the same for any country/ city. On the other hand we have static variables that are urban morphemes, buildings that follow the shape of the parcel/ block and their overlaps according to the diagrams. From this consequently we have the laying of an equation (ie, the left side of the mathematical identity consisting of: the shape of the parcel+ variacone variacs+ variable variables (a, b, c, e) equal or equivalent to the incomplete urban form. This research deals with urban morphemes and environmental conditions such as variable variables and urban architectural forms stable as static variables-with common form, since environmental conditions have a certain form and urban architectural forms are alsothe specified form. Thus, with the combination of the unchanging element of the architectural urban form and variable variables of the specifical conditions in the formal constant forms and aspect of environmental, social, economic.

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Status Of Air Quality In Tirana During Quarantine Imposed Due To Covid-19 Global Pandemic.

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Abstract
This research paper builds on the analytical work conducted by Co-PLAN, Institute for Habitat Development under the "Green Lungs for Our Cities" project, supported by the EU Delegation in Albania. This specific publication consists on the analysis of data from a dedicated ground-based monitoring process conducted from March 11th to May 11th, 2020 in 4 different locations of Tirana on $PM_{2.5}$, PM_{10} and NO_2, based on the protocol and practice established by the Alternative Monitoring Methodology of the Green Lungs project (link). Other sources, such as publications from World Bank "Regional Note on Air Quality Management in Western Balkans", +IQAir "2019 World Air Quality Report", European Environmental Agency "Air Quality in Europe – 2019 report" and "Assessing air quality through citizens science", were also consulted during the analysis of data from this 62-days monitoring practice. The data provide an overview of how concentration levels of the selected air pollutants changed during the lockdown phase and after the removal of measures. The purpose of the monitoring process and of the report was threefold: (i)to verify the direct linkages between air pollutants and sources of pollution, (ii)raise awareness on air pollution among state and non-state actors, (iii)propose relevant measures to reduce urban air pollution for the near to mid-term future.

Keywords
Sustainability, sustainable cities, COVID-19, post-Pandemic, air quality

Introduction

Air pollution in Albania constitutes the most pressing environmental and urban health risk facing the population. Ambient air pollution (AAP) is a serious local health problem that accounts for an estimated 5350 premature deaths per year and an average of 184 days of life loss country-wide (European Environmetal Agency, 2019). Most common health implications related to high concentration of pollutants in air are, acute lower respiratory infections, increased risk for lung cancer, strokes, ischemic heart disease, chronic obstructive pulmonary disease and increased stress level. Polluted air damages vegetation and habitats whereas most commonly it leads to severe decrease of ecosystem services especially those close to urban and industrial areas. In Albania air pollutants originate from a range of sources that can be ranked by their impact:

- Combustion from vehicle engines combined with low fuel quality;
- Construction sector and heavy industry;
- SME that operates Medium and/or Low Combustion Plants;
- Illegal burning of waste and agriculture corps.

It is mandatory that from most of pollutants (*Sulphur Dioxide SO2, Nitrogen Dioxide NO_2, Ozone O_3, Particulate Matter PM, Carbon Monoxide and Dioxide CO & CO_2*) monitoring practice have to report more than 75% of time during a year (6570 *hrs. per year*) so that it meets the requirements of the Ambient Air Quality Directive (European Union, 2008). From 2015 there were no accredited station in Albania that monitors and reports statistically accepted data on air pollution. Therefor most of citations on Albania's air pollution in any status reports from EU agencies, World Bank, WHO are referring to an information more than 5 years old. In the meantime, it is exactly the period between 2015-2020 when uncontrolled emissions have increased significantly and pollution concentration is considered to be the most important environmental risk to human health especially in Tirana and Elbasan. Given the contexts where the Albanian public in not informed in specific regarding the status of urban air quality and in the overall regarding the urban and environmental health from years now, citizen science and initiatives to fill this gap have contributed to a level in factorizing Air Pollution as a main concern in Tirana. Nowadays there are there main sources of information and fully accessible for public at large, namely:

1.*Green Lungs for Our Cities.* A project funded by the EU Delegation in Albania and implemented by Co-PLAN Institute for Habitat Development and Milieukontakt Albania. Indicatively monitoring the concentration of 8 different types of pollutants in Tirana, Durres, Elbasan and Shkoder Municipalities. Providing information via the dedicated Online Platform link regarding 2340 monitoring practices and results.

2.*Air Quality monitoring also on 8 components*, conducted by a cooperation between Vodafone Albania and Tirana Municipality for a total of 3 stations in Tirana. Providing real-time information via the dedicated app Tirana Ime.

3.*Two sensors from IQ Air Visual* program were privately installed in Tirana, thus providing real-time data on the concentration of $PM_{2.5}$ via the global online platform link. As from the state institutions there are no publication of any monitoring practice nor a status report on air quality during the last years the national and social media was feed by civil society initiatives during 2019 and kept this issue in their highlights as there are more than 45 articles and broadcasts dedicated to this topic. On the other hand, communities are now fully aware regarding the unhealthy status of the urban air in Tirana and other main cities. Immediate effects in the decrease of pollution concentration were seen and sensed by all, this due to the restrictions imposed from March 2020 amid global pandemic caused by COVID-19.

A unique case-study

By conducting regular daily monitoring practices from March 11th to May 11th, 2020 for a total of 62 days, in order to identify the changes of Air Pollution in Tirana for NO_2, $PM_{2.5,}$ and PM_{10} and address indicatively the correlation between measures and pollution level. Four locations were selected for this monitoring campaign, following the project findings from 2019 whereas these areas were all exceeding the allowed standards both in terms of concentration and days exposed. These locations are situated on the western part of Tirana's ring, namely Vasil Shanto crossroad, 21 Dhjetori crossroad, Architecture and Civil Engineering crossroad and Zogu Zi roundabout. A total of 681

Figure 1. Photos from the monitoring locations.

monitoring practices were conducted for an overall coverage by 10% of the total time.

In order to fully interpret the findings, a detailed correlation with imposed restriction by the central government was kept. Chronologically on March 11th public transport, construction sector and public gatherings were halted until a second notice. Two days later the full quarantine was imposed and there was no activity happening anywhere in the city. The very first finding can be addressed to the decrease of pollution level by 12.7% two days after the public transport and heavy vehicles were not circulating in the city. Following with the second finding, it took just one week without vehicles and construction for the pollutants (NO_2, $PM_{2.5}$, and PM_{10}) concentration to drop below the EU standards in the Albanian Capital. On March 14th a high concentration of smog was inexplicably present in the city during the afternoon and evening. None of the sensors used during this campaign indicated any increase, as it was for the odour of Sulphur that oriented us to measure and control in various resources the real-time concentration of the Sulphur Dioxide. The result was that from 18:00 to 23:00 the SO_2 concentration reached a peak of 166 µg/m³. Even that there were few media's reporting the unprecedent situation, none of them explicitly identified the source causing this pollution. Nevertheless, it can be addressed to the waste being burned either in Tirana or Durres Municipality due to increased amount of waste generated from over-consumption that characterized first days of quarantine in our country. My results indicate a difference by 14% from day to day in terms of pollution concentration decreasing in the monitored areas. From April 5th to 7th we registered a record low pollution level in all the locations whereas the results are as following:

a.PM_{10} = 6µg/m³ (6 times lower than EU standard and 3 times lower than WHO standard)

b.$PM_{2.5}$ = 1.5µg/m³ (13 times lower than EU standard and 7 times lower than WHO standard)

c.NO_2 = 7µg/m³ (6 times lower than EU and WHO standard)

From the second week of the April, when the construction sector restarted their work on full capacity and also private vehicles were more and more present on the streets, until the end of my monitoring campaign it can be noted that slight increase of pollutant concentration in daily basis with moderate factor of 9% difference from day to day. It can also be noted the impact that strict measures on closing activities and movement during weekends had in regard to significant decrease of pollution in the city. To conclude with the fact that it was unprecedent for Tirana citizens to experience healthy air quality for a consecutive 52 days in a row. It is also important to note that from last week of April activities and circulation was moderately open without time restriction, beside public transport (urban-inter-urban and schools) that is foreseen to reopen on 15th of June. Nevertheless, the increase of concentration during the second week of May are not only attributed to the mass opening of all activities and transport in the city rather than to the meteorological conditions that characterized the whole Balkan Peninsula with Sahara Sandstorm. Which for the sake of the citation were present for 10 days and more aggressive in terms of fine dust particles present in the air and latter covering urban and natural surface after the rainfall.

Technical Findings

A more specific interpretation for each of the monitored pollutant: a. PM10 average from March 11th to May 11th 25.76µg/m³ and the lowest registered value 6µg/m³ (6 times lower than EU standard and 3 times lower than WHO standard)

Therefore, indicating a substantial decrease by 41% comparing to the 2019 yearly average and standing at least 36% below the EU standard but nevertheless it didn't reach to meet the WHO standard whereas even during COVID-19 in Tirana we were at least 6% above their exposure standard. Tirana was reported to have a yearly average concentration of PM_{10} = 50.6µg/m³ during 2016 (RGJM, 2017). While the same source reported an increased concentration during 2017 PM_{10} = 62.4µg/m³ which is also the last report on Air from the state authorities. On the other hand, form the Green Lungs project. on same component we registered an average yearly concentration of 43.8µg/m³ during 2019.

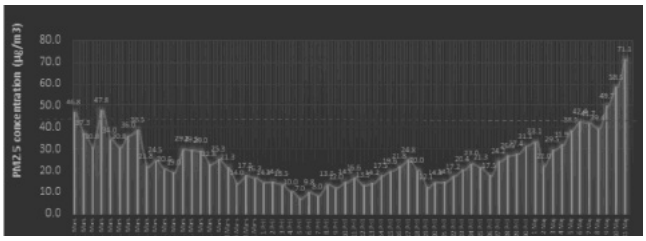

Figure 2. Daily concentration of PM_{10} during the lock-down

b. $PM_{2.5}$ average from March 11th to May 11th 19.1µg/m³ and the lowest registered value 1.5µg/m³ (13 times lower than EU standard and 7 times lower than WHO standard)

Given the context where numerous researchers have cited direct link of fine particular matter to the aggravated effects of COVID-19, such pollutant in my case indicates a substantial decrease by 31% comparing to the 2019 yearly average and standing at least 25% below the EU standard but nevertheless it didn't reach to meet the WHO standard whereas even during COVID-19 in Tirana we were at least 91% above their exposure standard. Tirana has not reported a yearly average concentration of since 2015 therefore we can referee only to the data provided by Green Lungs project. During 2019 we registered an average yearly concentration of 27.8µg/m³. It is important to be

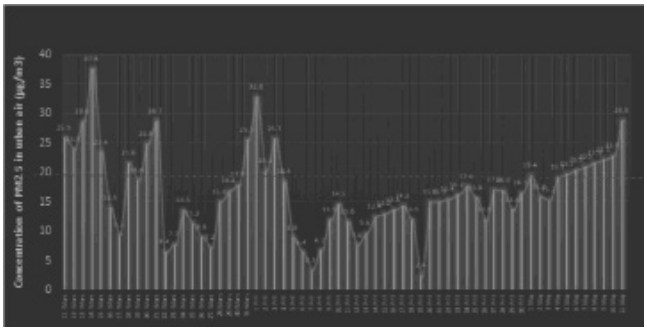

Figure 3. Daily concentration of $PM_{2.5}$ during the lock-down period in Tirana (11.March.2020 – 11.May.2020)

noted that the second week of May was characterized by meteorological conditions caused by the Sahara Sand-storm that was present in the whole region.

c.NO_2 = average from March 11th to May 11th 42.1µg/m3 and the lowest registered value 7µg/m³ (6 times lower than EU and WHO standard)

Nitrogen dioxide is considered to be the main problem in Tirana during the last 5 years now. It is directly linked with two acute problems that our city faces on a daily basis. Low level of mobility within the city whereas traffic congestions constricts most of the drivers and passengers to endure 200 hours of traffic per year and an average of 244 liters of fuel being burned in traffic (GJOKA, 2020). The second problem consist on a worst-scenario combination for a city as dense as Tiana, whereas the low quality of fuel is being burned in ICE vehicles that are part of one of the oldest fleet in the region. As a first finding it can be stated that even-though we experienced around 35 days in a row with NO_2 concentration below the EU AND who standard of 40µg/m³ the overall average of these monitoring campaign stands 5.3% above the EU and WHO standards. In terms of comparison with the concentration of previous years. Tirana was reported to have a yearly average concentration of NO_2 = 24.5µg/m³ during 2016 (RGJM, 2017). While the same source reported an increased concentration during 2017 NO_2 = 67.5µg/m³ which is also the last report on Air from the state authorities. On the other hand, form the Green Lungs project. on same component we registered an average yearly concentration of 112µg/m³ during 2019. Finally, we can state that enforced restrictions banning all transport means in Tirana contributed directly by reducing the NO_2 concentration in urban air by 62% from the previous year. Nevertheless, it should be mentioned that by the end of the monitoring campaign, when transport means were gradually open in full (beside public transportation) the concentration started to increase by an average of 1.47 µg/m³ per day.

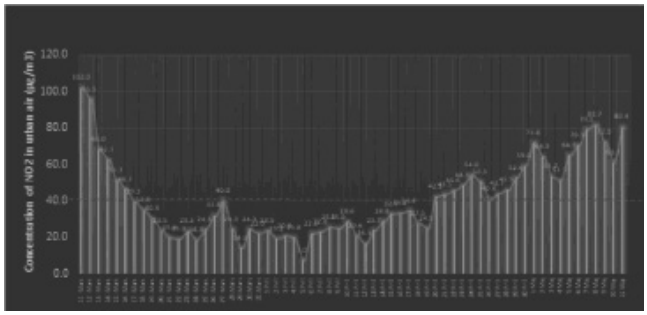

Figure 4. Daily concentration of NO_2 during the lock-down period in Tirana (11.March.2020 – 11.May.2020)

Conclusions

From the very beginning of the global pandemic caused by COVID-19 there were two main in regard to Air Pollution. One that indicated a rapid decrease of pollution right after quarantine was imposed and the other one linking the clinical effects of the virus with populations living in polluted areas. For example, that someone who lives for decades in a county with high levels of fine particulate pollution is 8%* more likely to die from COVID-19 than someone who lives in a region that has just one unit (one microgram per cubic meter) less of such pollution (Harvard University, 2020). While across Europe the EEA database with more than 4000 monitoring stations indicated in real time how the NO_2 concentration decreased by 24% in Milan, 40% in Barcelona and 56% in Madrid comparing to the same period of 2019. Similar air quality information was visually provided by Copernicus Atmosphere Monitoring Service via Sentinel 5 satellite that indicated in detail the decrease of pollutants especially in high dense urban areas. Tirana on the other hand registered a 64% which strengthens my statement that pollution load emitted from fuel burning in the transport sector also from traffic and emission standard of the existing fleet are the very foundation of air pollution in our city.

There is an increased risk that cites of western Balkans could suffer an increased pollution load being emitted in their cities where the energy systems is depending from Thermal Power Plants. Quarantine during the spring of 2020 indicated significant increase of energy demand by house-holds. Cities such as Prishtina, Belgrade, Skopje and Sarajevo local and central governments should be prepared if there should be a second wave of the pandemic and requiring people to quarantine during wintertime. This means that emissions from the coal/lignite power plants will increase significantly. In the case of Albania the central government should be prepared to avoid such situation in cities such as Korca, Pogradec, Kukes, Tropoja, Dibra and Shkodra, where citizens are still using wood, coal and pellets with very low calorific input also not applying any standard of emissions from these products being traded in the upper mentioned locations. The World Bank report "Regional Note on Air Quality Management in the Western Balkans" not only requires for increased efforts to avoid the potential increase of pollution during this year winter time but also reflects on a larger scale that such emissions will affect also the neighbouring countries (World Bank, 2020).

This said, in specific for Albania as we are do not have a coal-based energy system, we are more likely to face an increased pollution concentration since early winter 2020. Also more emissions are expected to increase concentration of urban ait pollutants especially during day time since most of activities will be conducted in active day-hours. Nevertheless we already have to bear in daily basis with NO_2 concertation 2-times above the National, EU and WHO standard of 40µg/m³, with toxic emissions (dioxins and furans) from waste being burned in incinerators and open dump-sites, public works and private construction activities that do not invest any cent in terms of reducing their air pollution footprint.

Nevertheless, the current crisis, beside its multiple impacts on our socio-economy, offered a glimpse of what a resilient and sustainable society should look like once the Paris Agreement commitments are met and EU Green New Deal is implemented. Decarbonisation of energy, transport and industry sectors appears clearly to be the most resilient solution for a sound socio-economic shift toward a climate friendly and clean future.

Policy Suggestions:

1.There is an emergent need that Albania invests and establishes an Air Quality monitoring and reporting network in line with the National Strategy for Air Quality DCM No. 594, date 10.9.2015 and National Plan for the Management of Air Quality DCM No.412/2019.

2.Finalize full transposition of the following directives in the Albanian Legislation:
-2008/50/EC on Ambient Air Quality
-2016/2284/EC on National Emission Ceiling
-2016/802/EC on Sulphur Content
-2009/126/EC Stage II of VOCs from petrol
-2015/2193/EU Directive on Medium Combustion Plants
-2010/75/EU Directive on Industrial Emissions Directive

3.Capacitate and enable a close cooperation of NEA and IPH where form one part there is a scientific interpretation of the pollution concentration and the other evaluates economic value in terms of the welfare-based approach of pollution exposure and overall urban-environment health status.

4.Transition toward a low-carbon economy will significantly decrease most of fossil fuel combustion sources. This should be a mid-term objective, therefore investments should be oriented and defined at a central level with a climate-neutral approach. Investments cannot continue to be made without an orientated decision making process, whereas in Albania and mostly in Tirana we are still not aware of both immediate and long-term footprints that private and public investments have in terms of Air Pollution and Ecosystem Services. There is by far not a single practice of Benefit-Cost Analysis that includes the ES, Air Pollution and Urban Health in the exercise.

5.The local government of Tirana and its Council should immediately should put emphasis on restricting air pollution from public and private transport, traffic congestion, construction and industrial sector, as these appear from the last 5 year to have become very-well known stationary sources.

6.In Tirana, the most exposed category of the population toward the exceeding concentration of pollution in daily basis is disproportionally distributed. There should be a feasible solution that any action taken to reduce air pollution do not burden poor and vulnerable people.

7.Public investments should be oriented toward climate-friendly interventions therefor a National Emission Target should be set after the Air Monitoring Network is established and the National Emission Analysis is conducted.

Concrete Measures

Emission from public transport is assessed at 22kt per year in Tirana, sourcing by a fleet of only 305 busses. An immediate renew of these fleet should be subject of Tirana Municipality. Either any buss part of the public transport fleet meets EURO-6 standard or we attempt to electrify the fleet or the system. An alternative for public transport could consist also on developing the appropriate infrastructure that either Tram, Train, Metro or Trolley is offered for Tirana outer Ring, Kombinat Kinostudio, Inner Rign, Train Station to Rinas Airpot (along the economic area of the Highway) All these combined could reduce by half the usage of the private cars in Tirana for daily basis purposes.
-Emissions from heavy vehicles mostly used for public service operations and largely nowadays by the construction sector do not meet at least the EURO-3 standard of emission. Therefore, both central gov. institutions in collaboration with local authorities should enforce that these operators either meet the emission criteria to operate within the high dense urban area or they will be subject to a polluter pay tax for the air emissions.
-Emissions from private vehicles and motors are subject to technical control by the SGS company that licenses the vehicle technical conditions. Their practice includes a quantitative measurement of the exhaust system. Therefore, we insist that is important for each vehicle to be monitored for each of the specific pollutants causing problem with air pollution in Tirana (PM, NO_2, VOC, SO_2, HC, CO). Whoever does not meet the threshold of EURO-IV or above should not be provided with a renewed license.
-Electric vehicles are more present in Tirana more than ever before, introduced in large by Taxi companies that immediately felt the opportunity and now are expanding as they appear to be economically benefiting and facing traditional ICE with unequal competition. Fiscal policies should be drafted for that private owners of ICE vehicles can transit toward E-Vehicles. A practice now presents in all EU countries whereas in some other there are objectives to phase out all ICE by 2030. For Tirana this would be the ultimate solution in terms of removing for good the main source of Urban Air Pollution but it would require that the whole mobility and accessibility system is revised as a new charging network would be needed in Tirana but also country-wide.
-There is an initiative to prohibit vehicle circulation and transport during weekends in Tirana as a practice that had successful result on the decrease of certain pollutant in ambient Air. In our opinion, such intervention would affect and implicit significant economic sectors and also family routines that basically are ensured by the fundamental human rights. We as Co-PLAN would be more in favour, that for a dense city as Tirana that lacks urban parks at a neighbourhood level it would be beneficiary for citizens and also Urban Air to creat Low Emission Zones that would allow the circulation with a reduced speed only for vehicles that meet EURO-5 standard ore above and Ultra Low Emission Zones that wither do not allow any transport mean at all or could regulate only the presence of E-Vehicles.
Finally, it is sound to at least require that the law on Environmental Protection and Permitting and monitoring for the Construction, Transport and Industry Sector is respected. That all the activities being provided an environmental permit shall be subject to spot-monitoring from the institutions and that they

report their pollution foot-print accordingly. The abuse with irrelevant and non-sense data being provided by self-monitoring report, whereas not a single public investment nor a private construction activity didn't calculate from 2018 to nowadays their pollution load from their process and transport nor their delivered a scientific monitoring practice to indicate their daily-footprint. This should end immediately as the law is there to be respected and implemented equally by all.

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Abbreviations List

AAQ	Ambient Air Quality
AM	Air Monitoring
AAP	Ambient Air Pollution
AKBN	National Agency of Natural Resources
CC	Climate Change
CO2	Carbon Dioxide
CO	Carbon Monoxide
COP	Conference of Parties
EC	European Commission
EU	European Union
EV	Electric Vehicles
HC	Hydro Carbons
ICE	Ignition Combustion Engines
IPH	Institute for Public Health
LEZ	Low Emission Zone
MIE	Ministry of Infrastructure and Energy
MTE	Ministry of Tourism and Environment
NOx	Nitrogen Oxides
PA	Paris Agreement
PM_{10}	Particular Matter 10micrometer
ppm	Part Per Million
WB	World Brank
ULEZ	Ultra Low Emission Zone

Vertical Tirana 2023: When an elephant enters into a glass shop

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"Who controls the past controls the future: who controls the present controls the past." (Orwell 1948: 34)

«There is no end to bad things and laugh today because tomorrow will be worse»

The above expressions may seem pessimistic and cynical, but unfortunately, it seems to represent the real architectural panorama in Albania. In fact, these expressions are very optimistic about the current situation and want to make the reader aware that tomorrow will be worse than today and that yesterday was better.

Let's understand each other. I am not at all pessimistic and not at all nostalgic for the past. On the contrary. For some things, I think that the future will be much better, and these things include services, medicine, traffic, maybe food, and others, while I have my personal doubts about architecture. These doubts arise from the comparison of buildings that were designed and built in the past with those that are designed and built today. Especially in Tirana and all of Albania.

Let's start to analyze the case of the composition of vertical buildings in Tirana with what was designed or built in the past by international architects. The comparison is very valid because the projects of the towers of Tirana are also made by international architects who are supposed to have finished their studies in architecture before making projects. The fact that these projects are made by international studios that have built all over the world is not a guarantee for their architectural quality or for the innovation they bring. On the contrary, when architecture becomes a mass product, like all other products, then its quality reaches the mass level. Let's understand once again. I have nothing against the mass. I like the ordinary "middle" man of the mass as much as Orson Wells liked him in Pasolini's Ricotta.

Here we will talk about architecture and mass architecture. Mass architecture is what is done the same for everyone, in all countries as if it were an industrial design product. Like all low-quality products with which the mass is "fed", the architecture of the mass becomes the same for everyone wherever, and in general it is done badly and violently.

Let's go to the comparison better. In this writing, we will compare an unrealized project and some built projects of towers or skyscrapers with the towers built in Tirana.

The unrealized project is that of Maurizio Sacripanti for the Peugeot Skyscraper competition in Buenos Aires in 1961 (Fig. 1). Sacripanti's project is composed of a highly articulated structure with suspended blocks, detached from each other, which carve out the spaces between them and the gardens. The skyscraper project appears so innovative and combines the needs of Peugeot offices with the natural aspects that are very fashionable in recent times. From this point of view, the Bosco Verticale Project in Milan and all its embarrassing imitations made in the world do not constitute innovation. Even the concept of " facciata mutevole " through greenery is preceded by the "mutevole" that we find in the

Figure 1. View of the model of the Peugeot skyscraper in Bones Aires 1961. (Source: collezione-MAXXI-Architettura-Fondazione-MAXXI-Roma)

moving panels of the Peugeot tower and greenery voids.

The built projects are Torre Velasca designed by Studio BBPR in 1950 (built from 1956-1958. Fig 2) and Pirelli skyscraper by Gio Ponti built from 1956-1960 in Milan.

For the design of the Velasca tower, BBPR was inspired by the Italian medieval tower, re-interpreting it according to a modern design. In this way, they guarantee the continuity of the building tradition even in the modern period. Torre Velasca enters the Milanese urban reality in an almost natural way, conveying the modernity of the post-World War II era and keeping its freshness even today.

Figure 2. Torre Velasca Milano Designed by BBPR 19250 (Source: Photo by Paolo Monti in 1973)

The case of the 127-meter-high Pirelli Skyscraper is even more emblematic. A very elegant skyscraper with all the supporting structures in concrete. In fact, the four main columns start with a width from the ground of 2 meters and end at the top of 50 cm. Pirellone's design is an expression of the modernity of Milan not only in the 60s of the last century but also today.

In fact, if we want to make a comparison of the three aforementioned projects designed by the architects of the Italian school with the towers built in Tirana in these 10-15 years, we immediately notice a degradation of the "*competence to build*" even though more than 60 years have passed since the above projects. How is it possible that more than 60 years later, the projects mentioned above, are built in Tirana towers that have no relation to the context and the urban reality of this city? Tirana is and has been a city of towers, minarets, and bell towers. All vertical elements could have been interpreted to have a continuity with the local tradition. But no. In Tirana would be built the Intercontinental (fig. 3), which brings facades and colors that even a weak student, even among those who do not pass the class, in the second year in the weak schools of architecture, could do better. The reader can say that my criticism is very harsh and that there could be worse cases. I agree that there are worse cases and that it can be even worse.

Even seeing how the construction is going in Tirana, *it can be said there is no end to bad things and laugh today because tomorrow will be worse*. In fact, in Tirana, it is built very badly, and it can be built even worse than the Intercontinental as shown by the tower with arches that have climbed above the clock tower and the mosque. The arched tower out of proportion (Fig. 5) clearly shows that you can design a tower very badly,

Figure 3. View of Intercontinental (Photo by Author: 2023)

Figure 4. Photo of Palazzo della Civiltà Italiana (Photo by Author: 2023)

Figure 5. Photo of the tower with arches in Tirane (Photo by Author: 2023)

except in the wrong place. You can build an office or residential tower that also resembles a *Parking* building. Yes, in Tirana you can do it because the permission to build if you have more than 15 floors is given directly by the prime minister's office or the prime minister himself according to some “not official” sources. If we are getting into the not official sources, they say also that a part of these buildings (20-25%) belongs to ... it is better to leave this topic because we don't know where it will end.

Let's go back to the analysis of the "parking" tower with arches. The arch in itself is not an "architectural crime". Modern architecture has used the arch as in the compositions in the layout - the stairs of Lecorbusier, the Tugendhat villa has stairs and a part inside with an arch, Gropius' Total Theater or the spiral of the Guggenheim Museum - but also in the facade as in the case of the Palazzo della Civiltà Italiana alias "Colosseo Quadrato" (Fig. 4) in EUR-Rome (1939 - 1953) by architects Giovanni Guerrini, Ernesto Lapadula, and Mario Romano. These architects, even though they were not international architects or the most skilled in the Italian panorama, nearly a century ago designed the *square Colosseum* in Rome which is incomparable to the "*parking*" building of the center of Tirana in 2023. Compare Figure 4 with Figure 5 and make your personal evaluation because I can also be accused, unfairly, of professional jealousy. Compare by yourself the regularity and proportions of the square colosseum with the parking building of Tirana, which has no two arches the same or in relation to each other. All the arches of the parking building are badly made, without relation to each other, some higher and some lower, some wider and some narrower. A building without metrics. Architectural disgrace and a crime against the city. A crime that, unfortunately, once it is built, will prove the violence and ignorance of those who gave the permission to build it and those who built it. A shame that we will have in front of our eyes for years to come and that will remind us how fragile we are as a people and as builders.

But you think that the worst came out and now we are cured of this evil that had drowned us. Yeah. Enjoy the moment because it will get worse. From the scaffolding of the tower next to the parking, some triangular "openings" windows can be seen, which I hope are not real. What do you think, if they are real, they will be better than the parking? I have my doubts and most likely they will come true. When a building with triangular windows will "appears" in the city, we will say "We have blamed in vain the plaza, downtown one, the Intercontinental, or the parking" There was even worse"

All these towers built in the center of Tirana have been aggressively inserted into the urban fabric of a fragile city. It seems like a kind of perverse urban rape where found an empty "hole" is inserted into a tower. It is not the unbridled imagination of the author of this writing. The above statement is based on the desire to insert a tower in the courtyard of the Historical Museum. Empty "hole", we insert a tower.

From this point of view, the old, delicate Tirana no longer exists and it is broken as a glass shop. Inside it, elephant towers have been inserted and will be inserted to destroy it even more and to make a Tirana that has nothing to do with the past and, consequently, with the future. It's like an elephant that moves inside a glass shop and destroys everything, and the towers of Tirana today are destroying the past, thus erasing the future of this city.

On Berat, the City of the Necklaces of Light

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A lot of facts and stories have been recounted about Berat in history, by historians, architects, tourists, and travelers. But one questions has not been asked yet, or it is taken for granted: What is the *form* of Berat? We think we know it, given that we have seen so many pictures of the old quaint city, or have taken these pictures ourselves, particularly the famous one of Mangalem with on the right side and Gorica opposite the River Osum, as if to prove to ourselves that we have really been there… But no sooner one takes a pencil to draw the form of Berat (or its neighborhoods), the mental map disappears, as if sucked out by the narrow, empty 'canyons' of Mangalem, or the mute walls of Gorica. It is easier to draw the form of, say, Gjirokastra. One could start with the topographic or street lines and then infill nodes or buildings. The form of Gjirokastra has a rather legible syntax, predicated on distinctions and oppositions, the open and the closed, the continuous and the interrupted, the street and the building, the skeleton and infill, the public and private, the individual and the collective; Gjirokastra has parts that can be taken apart and analyzed; Gjirokastra is more modern… Berat, on the other hand, while sharing similar morphological features with Gjirokastra, it resists such binary structures. And if one were to insist, in an act of methodological obtusity and arrogance, to 'divide and conquer' Berat in terms of such structures, then one would find oneself either outside, or drowned in it, which amounts to the same thing… The old town, Berat, is "generous" (to quote Papastefani) on everything, except its 'overall' underlying form, if there is such thing at all... Indeed, it is the very possibility of an *overallness* of form that the town throws into question. In essence, it is this problem of form that Papastefani's book addresses: how to draw the form of a city that does not yield easily yield one, *overall form*. The solution given is to draw multiple moments or 'folds' of the city's body and then string them in a necklace, which is the book itself. The thing with necklaces is that they do not have a beginning or an end; one enters them from anywhere and discovers journeys anew. The question of form is one of drawing, which is about drawing parts in relationships, until they make a form. But which part is drawn first? That is the radical question in and of every drawing. Because if part two were drawn before part one – and here lies the inexhaustible virtuality of drawing, then there would be a completely different (reality yielded from such) drawing… This is the difference between photography and drawing: photography requires just one click and things are captured simultaneously in the image; drawing, on the other hand demands choosing a first part, and a second…, and then a third one, which radically and irreversibly depends on the first two. What would be the first part of drawing (in) Berat? Where would we start? Berat does have a form, but it is a *form without parts*. One

could argue that Mangalem, Gorica, and the Castle, among others, are its parts. But they are far from being parts that form a whole, which, in Albertian terms, nothing can be added on or taken away from. There is no formal relationship between, say, Mangalem and Gorica other than the fact that there is a river between them. Together they do not form one whole but rather a com-position of two things: Mangalem + Gorica, being always more or less than a whole. Mangalem could very well exist without Gorica and Gorica without Mangalem. They are not parts but more like zones or *patches of figural intensity* whose form is not determined by their extensive border or contour. The last time I was in Berat with Andi we climbed all the way up to the last house of Mangalem, where we were also offered a glass of raki by a hospitable owner. It was amazing to see that that last house and did not partake in any bordering or thresholding function. Mangalem simply ended there.

It is only upon entering and walking in these zones that one could start to read its form. Upon entering Mangalem, for instance, one is immediately trapped in narrow streets bounded by crooked and tall blank stoned walls, occasionally punched with a door, and ending with flying cantilevered volumes with rows of windows above – a dramatic experience of involution and oscillation between contraction and expansion, between pressure and release. But these are not streets in the sense of a skeleton or a spine organizing the town – they often end abruptly into dead ends or front doors. Or in the sense of a public space vs. private one, there is a minimal interaction between the interior spaces and the streets, other than the one provided by the doors. These streets are more like bowels or intestines that have only one function: to upload or download people to and from the houses. These bowels often end with multiple steep steps and abrupt platforms that enable access to the front doors of the houses. Sometimes these steps and platforms are accommodated inside the houses and continue in the exterior spaces either as part of the çardak or as stairs within interior spaces. These cracks, tunnels, and chutes bring people in the upper floor, toward the light. Mangalem has only one formal idea: the trans-formation of topography into light. Both Mangalem and Gorica (which never receives any actual sunlight) are kaleidoscopic forms, but not for viewing Osum's valley or Tomor – though that is a desirable by-product, especially in a touristic milieu…, but about receiving light. *The form of Berat, is the form of light: the food of life…*

Where in Berat, then, would we start to draw these forms of light? And where would we start to draw other, new forms of light? The thread can be picked up anywhere in Papastefani's book. These drawings capture the *form of reaching light: how topo-graphy – as a writing or drawing of place becomes a pho-to-graphy* – but now understood in both its etymological and expanded sense – as a writing or drawing of light. These drawings reach for light *elementally*, through the architectural elements and details of the house, the mute stones of the ground floor walls, the door porticos, the white stucco protruding volumes, the cubist *erker* foldings of the walls, the dark çardak's carving the mass of the house, the flying *qoshk-s,* and finally the dark windows, the *retina* of the city. Because each of these drawings draw the form of light, then it is simply a matter of piecing or stringing them together into necklaces, without a blueprint.

The current perspective has already been documented and published in the following book: Luarasi, S. (2022) On Berat, the City of the Necklaces of Light. In A. Papastefani (ed.), In Berat walking and sketching (pp. 29-36), Tirana: Gent Grafik.

Biomimicry in Architecture

SANTINA DI SALVO
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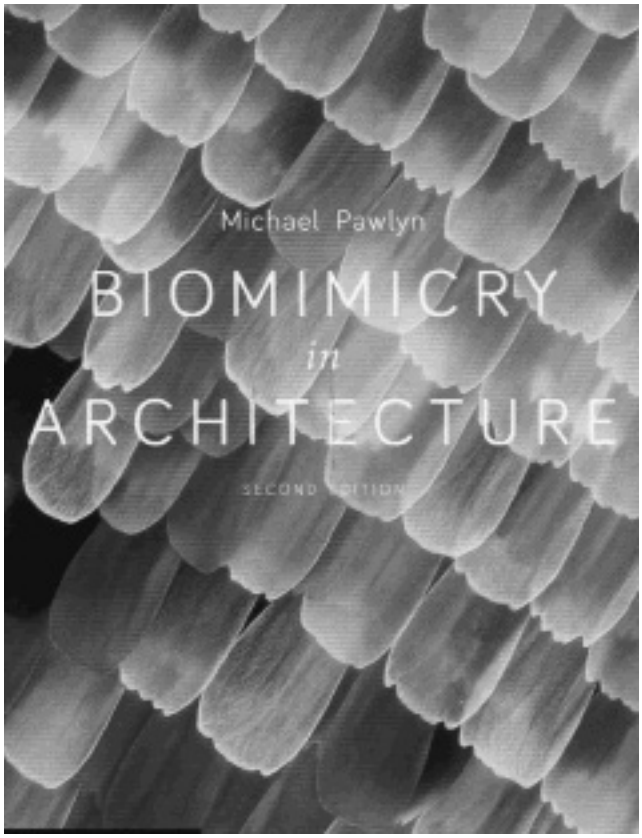

Author: M. Pawlyn
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Michael Pawlyn is an architect and biomimicry expert, known for his pioneering work in the field of sustainable design. He has written extensively about the application of biomimicry in architecture, and his book, "Biomimicry in Architecture", published in 2011, is considered a seminal work in the field. The book is an informative and engaging book that explores the principles of biomimicry and how they can be applied in the field of architecture. Specifically, it explores how architects can learn from nature to create buildings that are more efficient and resilient.

The book is divided into three sections. The first section, "Understanding Biomimicry", provides an introduction to biomimicry and its relevance to architecture. It discusses the scientific concepts of biomimicry, which involves studying and imitating processes to create more sustainable designs by drawing inspiration from the natural world. Considering on how nature has evolved over billions of years to create efficient and sustainable systems, Pawlyn explains how architects can use biomimicry methods to solve some of the most pressing environmental challenges facing our planet, such as climate change, resource depletion, and biodiversity loss.

The second section of the book, "Case Studies in Biomimicry", provides a detailed analysis of several projects from around the world where biomimetic principles have been applied in architecture to create self-cleaning surfaces, responsive facades, and energy-efficient structures, providing examples of urban planning interventions that mimic natural systems, such as using green roofs and walls to imitate the way that plants absorb water and filter pollutants. These examples include:

- *The Eastgate Centre*, designed by architect Mick Pearce, which uses termite mounds as a model for natural ventilation. Termites build mounds that maintain a constant temperature despite the fluctuations in the outside environment. The Eastgate Centre mimics this by using a system of vents and fans that draw in cool air at night and expel warm air during the day, reducing the building's energy consumption by up to 90%.

- *The Eden Project*, designed by architect Nicholas Grimshaw, which is a series of interconnected geodesic domes that house a range of plants from different biomes around the world. The domes were inspired by the structure of soap bubbles and are made of lightweight materials that allow them to be self-supporting. The project uses natural ventilation and other sustainable strategies to reduce its environmental impact.
- *The Bullitt Center in Seattle*, which is a commercial building designed to be net-zero energy and net-zero water, using a variety of strategies inspired by nature to reduce its energy consumption. Specifically, the building's design is inspired by the human body and uses natural ventilation, daylighting, and solar energy.
- *The Water Cube*, which was the aquatic center for the 2008 Beijing Olympics. The building's design is inspired by the structure of soap bubbles and uses ETFE cushions to create a lightweight and efficient structure.

The final section of the book looks at the future of biomimicry in architecture. Pawlyn argues that biomimicry has the potential to transform the field of architecture and that architects who embrace this approach will be better equipped to create buildings that are not only more sustainable, but also more beautiful, functional and enjoyable to inhabit.

Some of the strengths of "Biomimicry in Architecture" include:

1) In-depth case studies. The book includes several detailed case studies of biomimetic designs, which help to illustrate the concepts discussed in the text with diagrams and pictures. These case studies cover a range of scales, from individual building components to entire urban systems, and provide insights into the design process and the challenges and opportunities of biomimetic design.

2) Interdisciplinary approach. Pawlyn emphasizes the importance of interdisciplinary collaboration in biomimetic design. He highlights the need for architects, engineers, biologists, and other experts to work together to develop effective biomimetic solutions that consider both form and function.

3) Focus on sustainability. The emphasis on biomimicry as a means to create innovative architecture is a significant strength. It shows how biomimicry can help to reduce the environmental impact of buildings and create designs that are more responsive to their environments.

In summary, the compelling argument for why biomimetic science is a crucial and effective approach in architecture and design, makes "Biomimicry in Architecture" a must-read for those interested in innovative materials and sustainable design solutions, because of its comprehensive coverage, real-world case studies, future trends, inspiring design solutions and authoritative source. "Biomimicry in Architecture" by Pawlyn is a must-read for those interested in innovative materials and sustainable design solutions. The book presents a compelling argument for the importance and effectiveness of biomimetic science in architecture and design, providing comprehensive coverage, real-world case studies, future trends, inspiring design solutions, and authoritative source.

It presents extraordinary design solutions that not only promote sustainability but also enhance functionality, aesthetics and resilience of built environments. Throughout the book, Pawlyn gives a wealth of information on the latest research and developments in biomimicry, offering valuable insights and practical guide on how architects and designers can incorporate biomimicry into their work. In fact, the innovative and creative design solutions showcased in the book serve as an inspiration for architects, urban designers and product designers looking to push the boundaries of sustainable design. For that reason, it is highly recommended for architects, engineers, and anyone interested in the intersection of design and biology. "Biomimicry in Architecture" challenges to have a different thinking about the design process and technologies, providing a solid foundation for understanding the fundamentals of biomimetics for contemporary green design. Actually, the book covers various aspects including structures, materials, waste, water, thermal control and energy, providing a comprehensive overview of how biomimicry can be applied to different areas of architecture and design, making it a valuable resource for professionals and students alike, encouraging readers to think critically about the opportunities of innovative materials in the future, making it relevant and forward-thinking.

The Postmodern Condition: A Report on Knowledge

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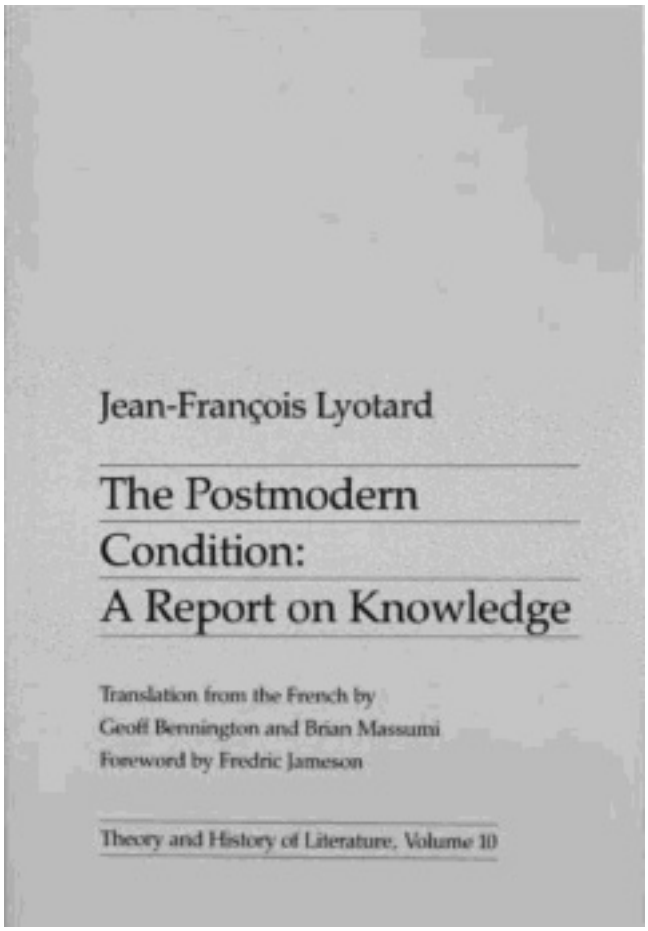

Editors: : Jean-François Lyotard
Publisher: Manchester University Press
Pages: 110
Year: 1983
ISBN: 0-7190-1454-9

The Postmodern Condition is the most known and renown work of French philosopher and sociologist Jean-François Lyotard (1924 – 1998). The book, originally published in 1979 with the title *La condition postmoderne: rapport sur le savoir*, relatively quickly gained traction all over the world thanks to its original views on contemporaneity, science and technology. The resonance of this work lingers even today and it has reshaped the philosophical, sociological, cultural theory discourse. This book is a commission from the president of the *Conseil des Universities* of the government of Quebec as a report on knowledge in the most highly developed societies. As Lyotard himself states it is an occasional one. Nevertheless, despite it not getting much consideration by Lyotard himself, the book ended up being not only his most renown, but one of the milestones of last second half century philosophy. The 1983 English edition translated by Geoff Bennington and Brian Massumi contains an extensive foreword by Frederic Jameson (who would become himself an important postmodern theorist), and an appendix written by Lyotard by the title: Answering the Question: *What Is Postmodernism?*. At the center of this work is the topic of knowledge. Specifically the acquiring and transmission of knowledge in the changing conditions of society starting from the 1950s. Here Lyotard individuates the major trait of the paradigmatic change of what he calls postmodern society, which is the *decline of metanarratives*. The main preoccupation is scientific knowledge and its legitimation. In a time when metanarratives, as the scientific system itself, become dissociated from society, the need for alternative thinking and methods raises. The challenge here is not to dismiss the scientific method, but to find ways to open it to new horizons according to the new condition of postmodenity. Lyotard tackles the problem in a systematic way. He starts by analyzing knowledge in relation to computerized society, individuating the relationship between knowledge and power, and pointing out how science, especially computer science, is driven by a principle of *performativity*. Successively, a new analytic method of *linguistic games*, is introduced. Here

Lyotard extracts from Ludwig Wittgenstein's studies on language the method of analysis of knowledge. Particularly the differentiation between types of knowledge and their rules. After a social analysis of modern and postmodern society we are introduced at the heart of this book, where Lyotard makes a comparison between Narrative Knowledge and Scientific Knowledge, arguing substantially that the latter is a particular function of the former, or more exactly that Scientific Knowledge uses Narrative Knowledge to legitimize itself.

This is a very technical and dense book but the writing feels very fluent, and in the panorama of comparable theoretical books on postmodernity is one of the most accessible and surely a milestone for whoever is interested in avant-garde research or postmodern theory. The methodical deconstruction of society and scientific knowledge de facto opened a plethora of new ideas changing irreversibly the perception of contemporaneity. In theorizing the evolution of science, and western thought in general, Lyotard proposes a new mean of legitimation that he calls *Paralogy*. This implicates the return of *small narratives* instead of the various metaphysical systems of knowledge. The return of narrative knowledge in the legitimation of scientific knowledge through open *systems, localism, anti-method*. As opposed to the Hegelian dialectic in which the *thesis* an *antithesis* are pacified in a *synthesis*, Lyotard argues that this consensus *is only a particular state of discussion, not its end*. Furthermore, he makes an ethical point (as opposed to the scientific performative one) considering consensus unjust and totalitarian, and finding in dissent true freedom. Arguably, the greatest legacy of this Lyotard's work is the introduction of the term postmodern in philosophy. There is much debate even today about the term and there is no consensus about the truthfulness or usefulness of said. To start, postmodernism is a posthumous term used to categorize a heterogeneous group of French thinkers of the second half of last century. Very few of postmodern theorists identified as such, the others were indifferent or actively contrary. Even in the cultural sense postmodernity is not always accepted. Most notably Zygmunt Bauman denies the existing of such thing as postmodernism arguing that there are no sufficient changes that differentiates it from modernism, while proposing the liquefaction of modernism. Semantics. I, personally tend to agree with Jameson when he points out the much-needed usefulness of the term when describing contemporaneity. There are two aspects in which we can look at postmodern: as a theoretical framework (that we will call postmodernism); as a cultural condition (that we will call postmodernity). Lyotard tackles them both in his book. Postmodernism extended to pretty much to all the field of social sciences but not only, literary theory, architecture, anthropology, sociology, psychoanalysis, cultural theory and philosophy. The main exponents of the movement in philosophy include Lyotard and other thinkers such as Michel Foucault, Jean Baudrillard, Jacques Derrida and Gilles Deleuze. Postmodernism starts as a reactionary movement against the structures of power of the totalitarian states be it capitalist or communist. Many of the above (except for Derrida) were part of the structuralist movement and sometimes are referred to as post-structuralists. Theoretically, the connection between these philosophers is to be found in the decline of the metanarratives, which is the starting point of Lyotard's reasoning. This, in practical terms implies the rejection of Marxism as ideology and historical materialism as a critical apparatus of contemporaneity. New methodological approaches rise. From the multiplicities (instead of monadic) of the *rhizome* and the interpretative relativisation (instead of Truth) of the *lines of flight* proposed by Deleuze, to the *deconstruction* of Derrida, to the *genealogic* (instead of classical historic) analysis of power structures put forward by Foucault.

As a cultural condition, postmodernity might be characterized by: the fall of metanarratives; the economical shift from industrial economy to service economy; the emergence of new media and technology. The decline of metanarratives can be safely traced as a phenomenon to the Enlightenment and the decline of the Christian metanarrative and the concept of God. Lyotard just happened to reveal it as a phenomenon. In this sense, Lyotard views postmodernity as a generally good thing, as liberating. The fall of a single interpretative system or worldview should lead to a prosperous multiplicity of discourses that undermine the monolithic structures of power, conducing therefore to a more just and free society. To emphasize the difference between postmodern as a cultural condition and a theoretical framework we can make a comparison between Lyotard and Jameson. While both agree that we live in a postmodern condition and that metanarratives are in decline, Jameson views postmodernism as a temporary and somewhat negative condition to overcome, and advocates for a return of the Marxist metanarrative. The last aspect pertinent to the contemporary condition and scientific research that I would like to address is the recognition of the ascent of what Lyotard calls *computerized society*. In unsuspected times Lyotard predicts accurately the world changes due to informatisation and their repercussions on power and knowledge. There are two main points that he makes. The first is a political one. "*Suppose, for example, that a firm such as IBM is authorized to occupy a belt in the earth's orbital field and launch communications satellites or satellites housing data banks. Who will have access to them? Who will determine which channels or data are forbidden? The State? Or will the State simply be one user among others? New legal issues will be raised, and with them the question: "who will know?"* (p. 6). The rise of multiple mega companies like Google, Amazon, or others that in several aspects are actually competing with nation-states is evident. Furthermore, the fact that our personal data is stored by multiple sources on clouds, and often used in various ways without our knowledge, poses some questions. The second point that Lyotard makes is the connection of *knowledge* and the *knowledgeable*, or better, their disconnection. In our time, we have easy access to more knowledge that we could ever consume. Knowledge therefore becomes more abstract and dissociated from the *Bildung* (training of the mind). To push the point even further, with the advent of AI (artificial intelligence), not only we as a society are capable of easily and without particular competence accessing knowledge, but also producing it.

Franco purini – Verba volant disegna manent

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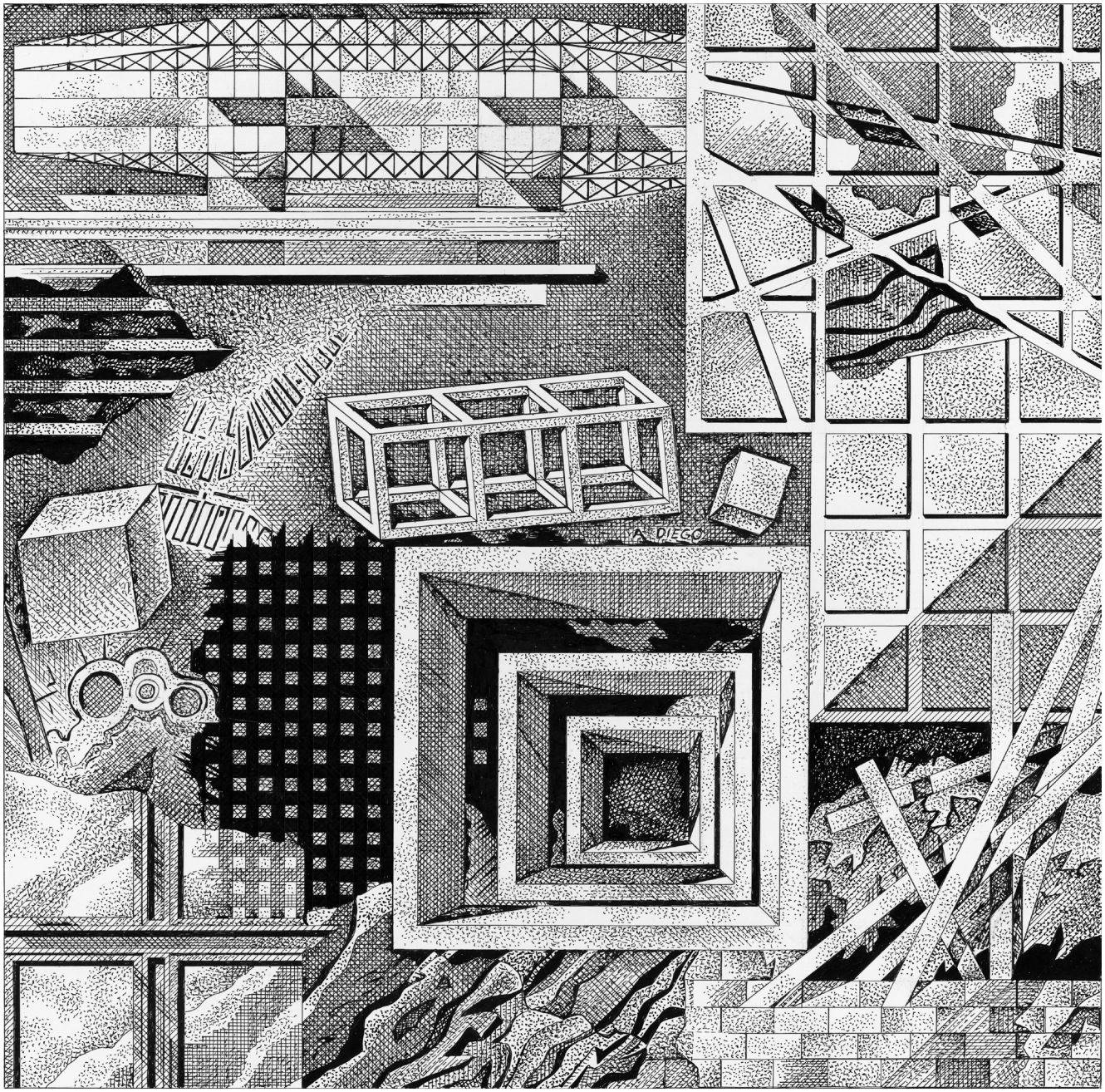
The Latin phrase "*verba volant, scripta manent"*, translates to "spoken words fly away, written words remain." In the realm of drawing, this can be reinterpreted as "Verba volant disegna manent," meaning "spoken things fly away, drawn things remain."

This phrase encapsulates the essence of Franco Purini, who has made drawing a pivotal part of his professional and intellectual journey. Purini's drawings serve as a manifestation of an unseen world conceived by the artist. This world, while nonexistent in reality, materializes through the act of drawing. It emerges from the artist's mind, akin to the goddess of wisdom, Athena, springing from the mind of Zeus. In this light, all architects who draw, especially Franco Purini, are creators of new, unimagined worlds. These worlds may not exist yet, but they hold the potential to shape reality, much like all human thoughts.

Purini's drawings are not merely an externalization of the creator's inner world; they are also construction. They construct an architectural form, a well-crafted architecture. Purini's drawings are a declaration and an order of the world we inhabit. They are precise because the act of drawing leaves no room for misunderstanding. The drawing exists because it is manifested on a sheet, and its expression eliminates any potential confusion. It is as it is because it is drawn that way.

Drawing. Franco Purini, Nel pensiero dei maestri, 2022.

Drawing is a form of construction as it exists in its nascent form, but it also serves to construct an analogous world. Numerous architectural treatises, such as those by Vitruvius, Alberti, and Serlio, despite their intellectual richness, have not left as significant a mark on the world as Palladio's drawings in his four books. As a result, just as we are "Palladio's children" today, future architects will also be "Purini's children." All thanks to the power of drawing.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