Università di Genova

ISSN: 2724-1831
ISBN: 978-88-3618-064-6

Through Resili(g)ence
Nuove sfide sociali e ambientali

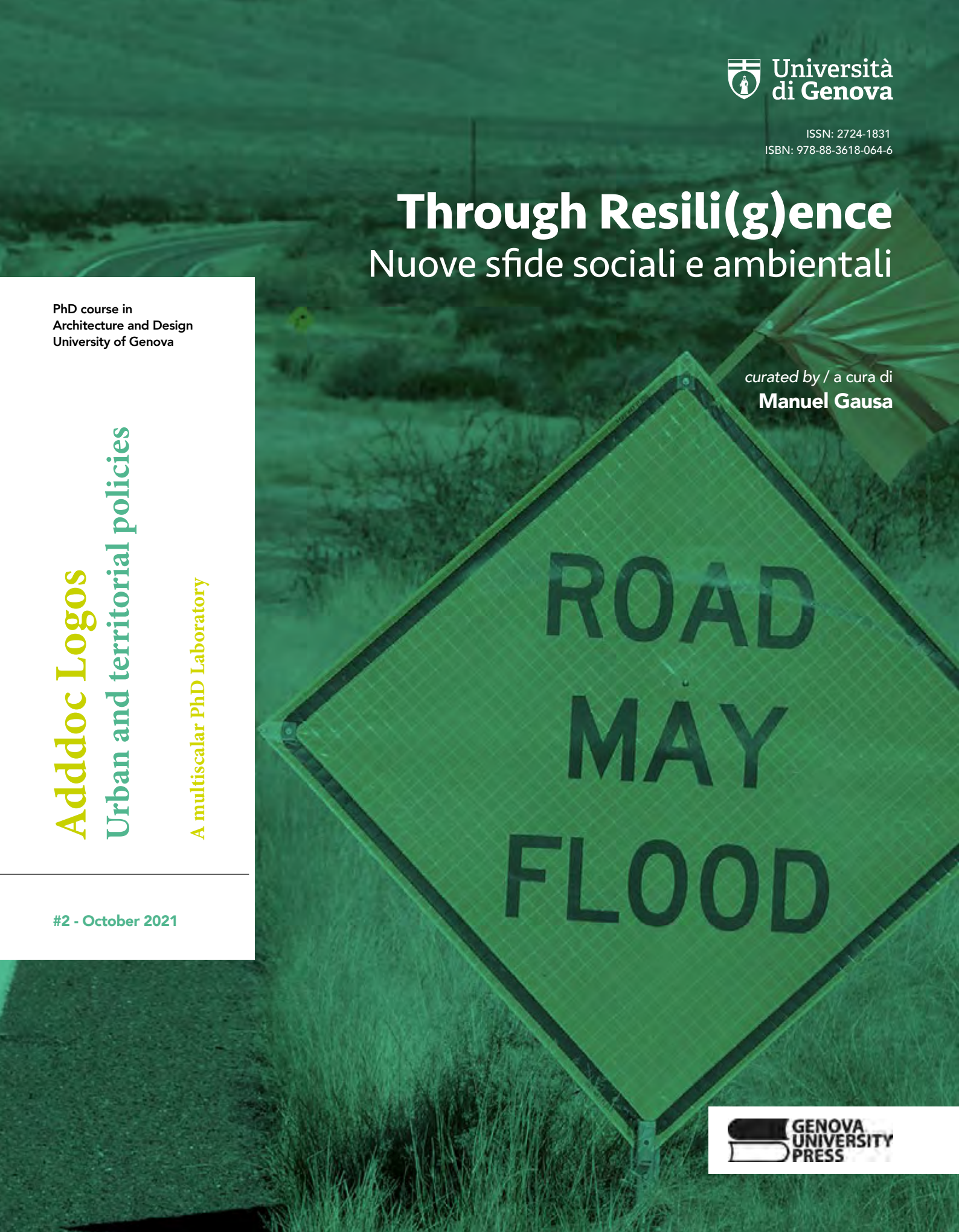
PhD course in
Architecture and Design
University of Genova

Adddoc Logos
Urban and territorial policies

A multiscalar PhD Laboratory

#2 - October 2021

curated by / a cura di
Manuel Gausa



GENOVA UNIVERSITY PRESS

ADDDOC LOGOS
2

ADDDOC - LOGOS
Urban and territorial policies

#2 | Through Resili(g)ence. Nuove sfide sociali e ambientali

A cura di / *Curated by*
Manuel Gausa

Ottobre 2021 / October 2021

Collana / *Collection*
ADDDOC LOGOS - Monografie di Dottorato

pubblicazione semestrale / biannual magazine
ISSN: 2724-184X (versione e-Book)
ISSN: 2724-1831 (versione stampa)

Direttore / *Edithor in Chief*
Manuel Gausa Navarro – Coordinatore ADD

Comitato di indirizzo / Steering Board
Carmen Andriani, *Progettazione Architettonica* (DAD-UNIGE)
Niccoló Casiddu, *Design* (DAD-UNIGE)
Maria Linda Falcidieno, *Rappresentazione e Comunicazione* (DAD-UNIGE)
Adriana Ghersi, *Paesaggio* (DAD-UNIGE)
Andrea Giachetta, *Tecnologia* (DAD-UNIGE)
Guglielmo Bilancioni, *Teoria e Storia* (DAD-UNIGE)
Roberto Bobbio, *Urbanistica* (DAD-UNIGE)

Comitato scientifico / *Scientific Committee*
Atxu Aman (Universidad Politécnica de Madrid - ETSAM-UPM, Madrid)
Pepe Ballesteros (Escuela Técnica Superior de Arquitectura - ETSAM-UPM, Madrid)
Nicola Braghieri (Université de Lausanne)
Guya Bertelli (Politecnico di Milano)
Maurizio Carta (Università degli Studi di Palermo)
Marcos Cruz (Bartlett School)
Alessandra Capuano (Università La Sapienza, Roma)
Medardo Chiapponi (IUAV, Venezia)
Daniela Colafranceschi (Università Mediterranea di Reggio Calabria)
Isotta Cortesi (Università di Napoli Federico II)
Ricardo Devesa (Urban Next/Universidad de La Salle, Barcelona)
Meltem Eti (Marmara University, Istanbul)
Raffaella Fagnoni (IUAV, Venezia)
Francesca Fatta (Università Mediterranea di Reggio Calabria)
Sara Favargiotti (Università di Trento)
Carlo Gasparini (Università Federico II Napoli)
Vicente Guallart (Institute for Advanced Architecture - IAAC Barcelona)
Arild Gustavsen (NTNU, Norvegian University, Oslo)
Michael Jacob (University of Grenoble)
Xavier Llobet (Universitat Politècnica de Catalunya, ETSAB-UPC, Barcelona)
Carles Llop (Universitat Politècnica de Catalunya, ETSAV-UPC)
Areti Markopoulou (Institute for Advanced Architecture, IAAC, Barcelona)
Nicola Marzot (Università degli Studi di Ferrara)
Giovanna Massari (Università di Trento)
Marco Navarra (Università degli studi di Catania)
Marco Nobile (Università degli Studi di Palermo)
Élodie Nourrigat (ENSAM, École Nationale Supérieure d'Architecture, Montpellier)
José Luis Esteban Penelas (Universidad Europea de Madrid, EAID-UEM, Madrid)
Gabriel Perez (Universitat de Lleida, ETSA-UdL, Lleida)
Mosé Ricci (Università di Trento)
Amadeu Santacana (Universitat Politècnica de Catalunya, ETSAV-UPC)
Vicente Sarrablo (Universidad Internacional de Catalunya, ESARQ-UIC, Barcelona)
Jörg Schröder (Leibnitz University, Hannover)
Federico Soriano (Università Politécnica di Madrid-ETSAM-UPM, Madrid)
José Luis Sosa (Universidad de Las Palmas, ETSA-ULPG)
Pedro Urzaiz (ETSAM - Madrid)

Board ADD - PhD Course in Architettura and Design, UNIGE
Carmen Andriani, Alberto Bertagna, Guglielmo Bilancioni, Enrica Bistagnino, Roberto Bobbio, Nicola Braghieri, Cristina Candito, Niccolò Casiddu, Luisa Chimenz, Adriana Del Borghi, Raffaella Fagnoni, Maria Linda Falcidieno, Giovanni Galli, Manuel Gausa, Adriana Ghersi, Andrea Giachetta, Massimiliano Giberti, Christiano Lepratti, Adriano Magliocco, Areti Markopoulou, Francesca Mazzino, Renata Morbiducci, Maria Carola Morozzo, Massimo Musio Sale, Alireza Naser Eslami, Élodie Nourrigat, Giulia Pellegri, Silvia Pericu, Katia Perini, Vittorio Pizzigoni, Paolo Rosasco, Maria Benedetta Spadolini, Alessandro Valenti, Valter Scelsi, Mario Ivan Zignego.

www.gup.unige.it
www.addgenova.org

progetto grafico / graphic design:
Alessia Ronco Milanaccio

Adddoc Logos

Urban and territorial policies

#2 | Through Resili(g)ence
Nuove sfide sociali e ambientali

Contemporary complexity requires new tools: the old approaches based on a "defensive control" and a corrective contingency responses, are replaced by new "synergy policies" addressed through preventive proactive, adaptable and reversible actions, which combine ancient "scenarios of emergency" (risk areas) with new "emergency scenarios" (areas of opportunity). The new resili(g)ent responses must work in a hybrid field: on one hand, prevention and mitigation of conflicts and risks through the interconnection and registry of systematized data (simulated or real-time), on other hand programming new kind of eco-planning and strategic interventions, referred to urban patterns and global territorial systems.

#2 - October 2021

add genova
Dottorato in Architettura e Design

è il marchio editoriale dell'Università di Genova

This book has been object of a double blinded peer-review according with UPI rules.

© 2021 GUP

I contenuti del presente volume sono pubblicati con la licenza
Creative commons 4.0 International Attribution-NonCommercial-ShareAlike.

Alcuni diritti sono riservati.

Realizzazione Editoriale
GENOVA UNIVERSITY PRESS
Via Balbi, 6 - 16126 Genova
Tel. 010 20951558 - Fax 010 20951552
e-mail: gup@unige.it
http://gup.unige.it

ISBN: 978-88-3618-064-6 (versione a stampa)
ISBN: 978-88-3618-065-3 (versione eBook)

Finito di stampare nel mese di ottobre 2021

Stampato presso
Grafiche G7
Via G. Marconi, 18 A - 16010 Savignone (GE)
e-mail: graficheg7@graficheg7.it

summary

I/FRAMEWORK: RESILI(G)ENT CITIES AND ADVANCED URBANISM
THE ADD-DAD APPROACH

13 **Manuel Gausa -** *RESILIENCE VS RESILIGENCE?*

II/CROSSING SCENARIOS: Contributions

67 **Raffaella Fagnoni -** *RESILIGENCE. DESIGNING, SOCIALIZING*

1.Environmental aims

75 **Maurizio Carta -** *DESIGN AUGMENTED CITIES IN THE NEOANTHROPOCENE*

93 **Renata Morbiducci, Christiano Lepratti -** *ATLANTI(S)CITIES. Il mito di atlantide e la realtà del sea level rise. Considerazioni sull'innalzamento del livello del mare e il futuro delle nostre città costiere.*

103 **Nicola Valentino Canessa -** *RESILIENT APPROACH*

111 **Chiara Centanaro -** *ARCH$_2$O. Strategie di intervento per la riqualificazione dell'ambiente costruito denso e la gestione del rischio acqua*

121 **Adriana Ghersi, Stefano Melli -** *MEDITERRANEAN GREEN ROOFING: IMAGES AND DESIGNS OF URBAN RESILIENCE.*

133 **Yessica G. Mendez -** *DESIGN FOR AGEING BUILDINGS. Rethinking mexican render techniques in form of climate responsive tiles*

143 **Giulia Pellegri -** *ADVANCED SURVEY APPLIED TO THE TERRITORY AND TO BUILDING STRUCTURES IN RISK AREAS*

155 **Cristina Càndito, Maria Linda Falcidieno, Alessandro Meloni -** *SMART CITY TRA ANALOGICO E DIGITALE*

2.Social affirmations

171 **Giovanni Galli -** *THE INVISIBLE HAND OF RESILIENCE*

177 **Alessandro Canevari, Davide Servente -** *EPCOT, THE DREAM OF A UTOPIAN COMMUNITY*

187 **Luigi Mandraccio -** *LABORATORIO DI QUARTIERE. Ante litteram case study*

203 **Elodie Nourrigat -** *RESILIENCE & NEW TECHNOLOGY QUESTION OF COMMUNITY, LOCALITY, TIME AND CITY*

207 **Maria Benedetta Spadolini -** *SMART LIVING. L'invecchiamento attivo a casa.*

213 **Chiara Olivastri -** *BELONGING AS RESILIENCE ENZYME*

223 **Francesca Vercellino -** *RESILI(G)ENCE AND MAPS OF PHYSICAL AND EMOTIONAL GEOGRAPHIES.*

231 **Alessia Ronco Milanaccio -** *RESILI(G)ENCE AND TEMPORARY COMMUNITIES*

241 **Salvatore Iaconesi -** *TRANSGRESSION*

245 **Ezio Manzini -** *COSMOPOLITAN LOCALISM. Scenarios of resilient sustainable societies*

III/FINAL CONSIDERATIONS

249 **Manuel Gausa -** *MED.NET 3. RESILI(G)ENCE GOA RESILI(G)ENT CITY*
Intelligent Cities /Resilient Landscapes. Final considerations

255 **Carmen Andriani -** *LOCKDOWN. Living the distance in the post-emergency city*

I
FRAMEWORK: RESILI(G)ENT CITIES AND ADVANCED URBANISM

The ADD-DAD approach

Manuel Gausa
ADD-DAD Department Architecture and Design - UniGe, Genova

RESILIENCE VS RESILIGENCE?

• *Intro: from through Resili(g)ence to towards Resili(g)ence* •

The publication *THROUGH RESILI(G)ENCE – Nuove sfide sociali e ambientali* completes the previous issue of the ADDDOC Logos collection n.1 *TOWARDS RESILI(G)ENCE - Città intelligenti, Paesaggi resilienti*, introducing new contributions focused on aspects of a more eco-systemic and social dimension.[1]

In the previous volume, the neologism *Resili(g)ence* proposed to combine the term *Resilience* (and its derived expressions: anticipation or anticipation, resistance and endurance, adaptation and integration, recovery and/or reaffirmation) with the term *Intelligence* (processing and analytic-synthetic capacity; adaptive and evolutionary; relational and connective; reactive and operational; operative and/or conceptual, empathic and emotional) from a more complex will of synergy (more interactive and informational) with the environment, with the context, with the site (and with its own local conditions) favouring the elaboration of multiple parameters of information through the development of the new digital technologies and software applications, the algorithmic simulations themselves

[1] Manuel Gausa, *Towards Resili(g)ence, Città intelligenti, paesaggi resilienti*, GUP-Genova University Press, Genova, 2020

and the proposal of new more open, flexible and evolutionary strategies (responsible-responsive and even reversible-reversible) applied not only to the prevision, the anticipation and/or the data optimization, but to the projection/prospection of the different scenarios object of attention, in order to favour the minimization of risks, weaknesses, threats and adversities and even shocks and stress, in the various equations "city-nature-landscape-community"[2].

As we pointed in the previous issue, the general growth of our anthropic "super-habitats" has produced, in fact, an increase in CO2 emissions, resulting collateral effects particularly negative on the climate and the environment, in a reality strongly marked by the continuing increase in natural disasters.

Environmental crises associated with the exponential consumption of resources (land use, food scarcity, migration and immigration, population growth, etc.), transform today's cities and urban areas and productive landscapes in increasingly fragile and vulnerable eco-systems.

Sustainable practices, linked to the reinforcement of the resilient capacity of our environments, are not only desirable but also essential today.

New protocols for urban and territorial sets and nets systems are, indeed, called to propose holistic solutions for multi-level problems related to mobility, environment, food, energy, water, security, population, housing, health, but also for situations of stress and risk associated to the weaknesses conditions of our multiple threated territories.

Today we need conscious solutions open to the potentials of the new technologies and to the innovation of more accessible, strategic and multi-scalar approaches able to push, also, dynamic and transversal, flexible, evolutionary, versatile and relational answers.

New approaches for this *Resili(g)ence* encounter, referred to two essential socio-behaviours and territorial processes:

– **LAND USE&ECO-SYSTEMS** (anthropic land occupation, food and agriculture strains, balanced transport and mobility, optimisation and attention to sustainable materials and construction systematics);

– **COMMUNITIES** (disintegration and social cohesion and relationship but also identity and community co-participation).

But approaches referred, above all, to the four basic (circular) bio-environment topics:

– **WATER** (*alluvions,* storms, floods but also management and rational use of water);

– **EARTH** (earthquakes, landslides, slips);

– **FIRE** (fires and volcanism but also greenhouse effect, global warming, alternative energies);

– **AIR & HEALTH** (pollution and emissions, but also environmental and sensorial comfort, epidemiological pandemics).

Contemporary complexity requires new tools: the old approaches based on a "defensive control" and a corrective con-

[2] Manuel Gausa, *Resili(g)ence, Intelligent Cities, Resilient Landscapes*, Actar, Barcelona, 2020, pp. 21

tingency responses, are replaced by new "synergy policies" addressed through preventive proactive, adaptable and reversible actions, which combine ancient *"scenarios of emergency"* (risk areas) with new *"emergency scenarios"* (areas of opportunity).[3]
The new *resili(g)ent* responses must work in a hybrid field: on one hand, prevention and mitigation of conflicts and risks through the interconnection and registry of systematized data (simulated or real-time), on other hand programming new kind of eco-planning and strategic interventions, referred to urban patterns and global territorial systems.
If the first issue was therefore dedicated to describing a new type of urban and territorial planning more integrated and holistic, as well as a new corrective/conductive function of the landscape, this second volume wants to bring together various contributions and researches associated with the conjugation of "environment + society" where the new techniques of recording and reading, construction and eco-systemic responses were related, in turn, to the new potentials of collective online communities (commons) multiplied by the development of the new super-connective applications that allow favouring civil responses sensibly spontaneous which, combined in turn with preventive and/or proactive public policies, would tend to mobilize and collaborate in truly traumatic or conflictive situations.

[3] Manuel Gausa, Towards Resili(g)ence, Città intelligenti, paesaggi resilienti, op.cit., p. 16

• Resilience, intelligence and critical consciousness •

Between 2019 and 2020, more than 820 catastrophic events and 300 natural disasters (earthquakes, floods, floods, eruptions, landslides, etc.) occurred in the world with a total of 900 to 1500 deceases or disappearances.[4]

[4] Source: www.statista.com

According to the statistics, the irregular and oscillatory but progressive increase of these phenomena would be an intimate consequence of an exponential climate change caused by the massive industrial and building production as well as by the irrational consumption of our natural resources (balanced and equilibrated during centuries) or by our own behaviours when promoting an increasingly artificial comfort in our ways of life and relationships as well as in our own habitats.[5]

[5] Source: Georisks Research, Munich 2019

At the same time, a new and growing social and mobilizing awareness, with a vocation to respond to the environmental threat, has become increasingly evident since the end of the 1990s – with the very emergence of a new interactive-informational logic for all levels – not only in the scientific or political-institutional sphere (*92-Rio Summit, 2000 UN Millennium Development Goals / 2002 World Summit Sustainable Development / 2002 Global Reporting Initiative / 2005 Kyoto Protocol / 2007 Climate Change Panels / 2008 Green Economy Proposals*) but at a more socially spontaneous level, in the face of progressively unsustainable developments and accelerated untenable economic-social imbalances – and conflicts –, traumatic in certain communities and caused by a fatal conjugation between economic inequality, growing poverty and environmental risks, a trinomial that has become already a global and fatal phenomenon.

Between 2019 and 2020, more than 970 million volunteers of one class or another, autonomous or integrated in NGOs[6] participated in more or less self-managed protection, solidarity or civil response works, collaborating to alleviate the "overflow" or the "overcoming" of the political-institutional steps and measures put in place (or reacting to the manifest inability, improvidence or improvisation present in many of them) to face the <1+4 C> typical topics of any situation of Crash (or sChock, *Choc* in French, *Choque* in Spanish, *Conmozione* in Italian), that is: Conflict, Catastrophe, Collision and Chaos (local and global).

[6] www.unv.org/swvr/volunteers-count-their-work-deserves-b

The economic impact – real and virtual – of these voluntary and solidarity actions is evaluated at about 1,300 trillion dollars - through a weighted assimilation of the hours dedicated - that is the 2.4% of the world economy[7].

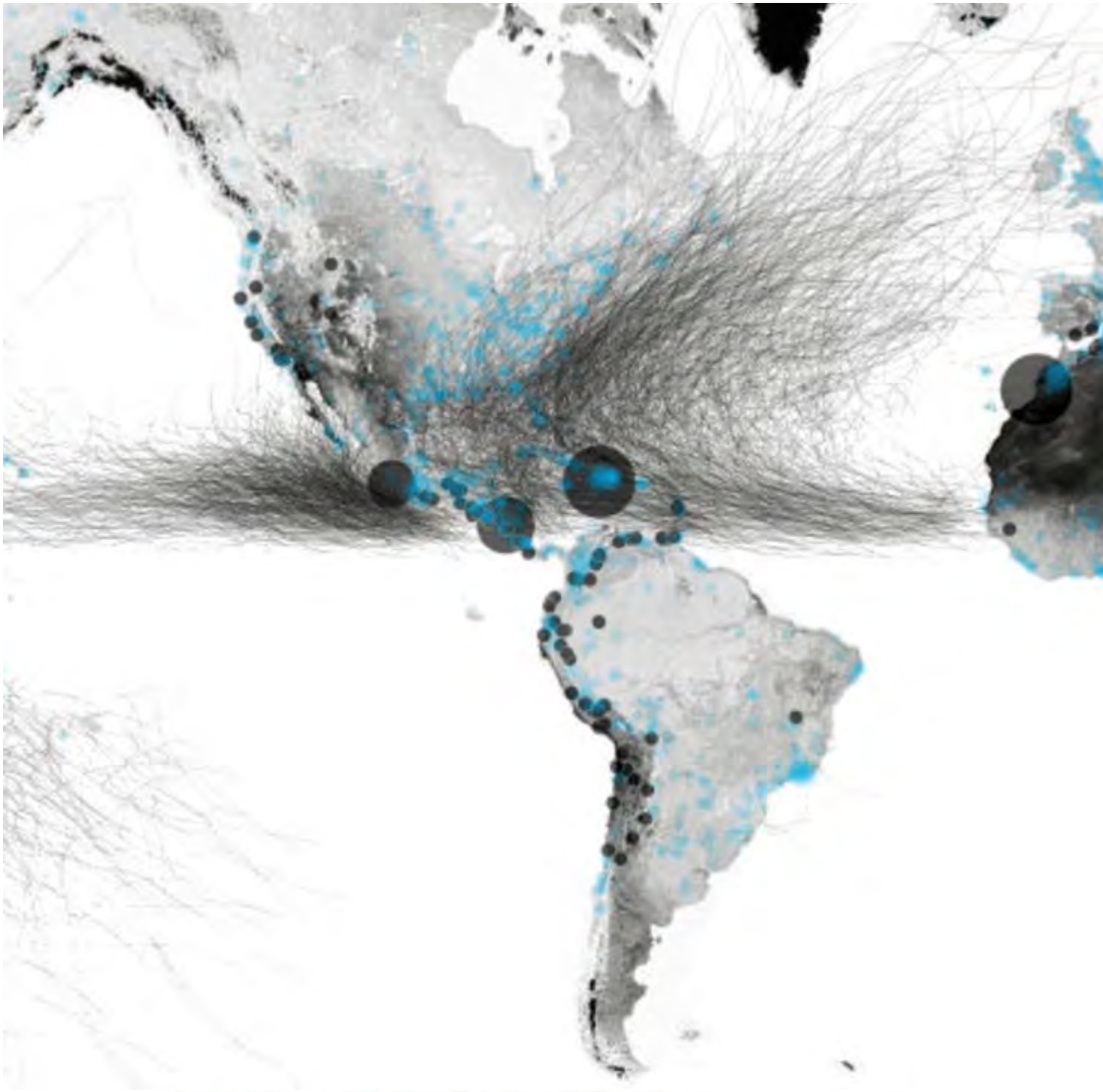
[7] Ibidem

The use and abuse of the word *Resilience* in recent years is largely explained by these reasons.

But ... what do we usually mean when we talk about *Resilience*?

The term *Resilience* comes from the Latin *resilio*, "to go back, to return (to before) jumping (back), to rebound, to restock, to re-appear or to resurface".[8]

[8] www.etymonline.com/word/resilience



Number of relevant events: 800

Overall losses: US$ 166bn

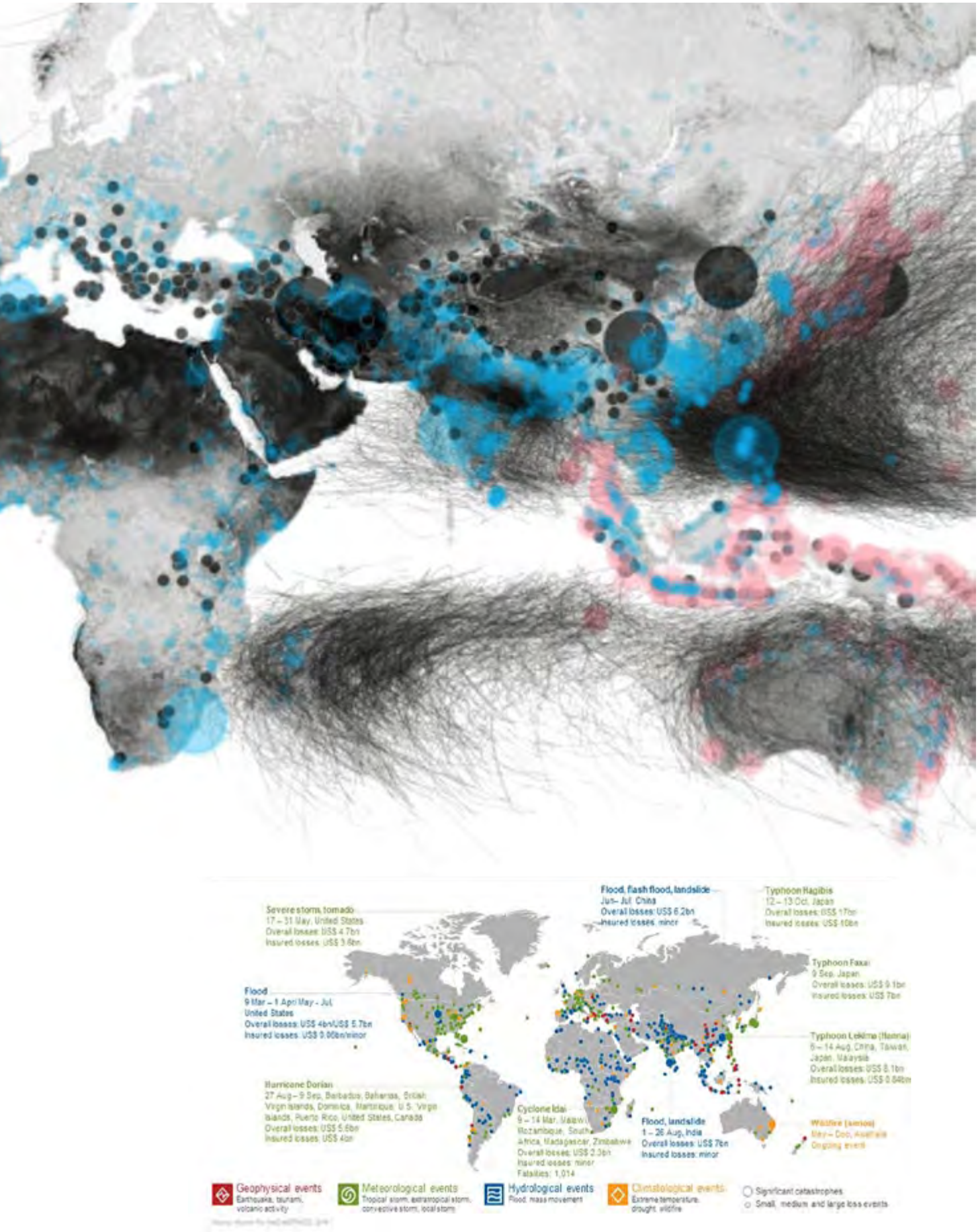
Fatalities: 7,000

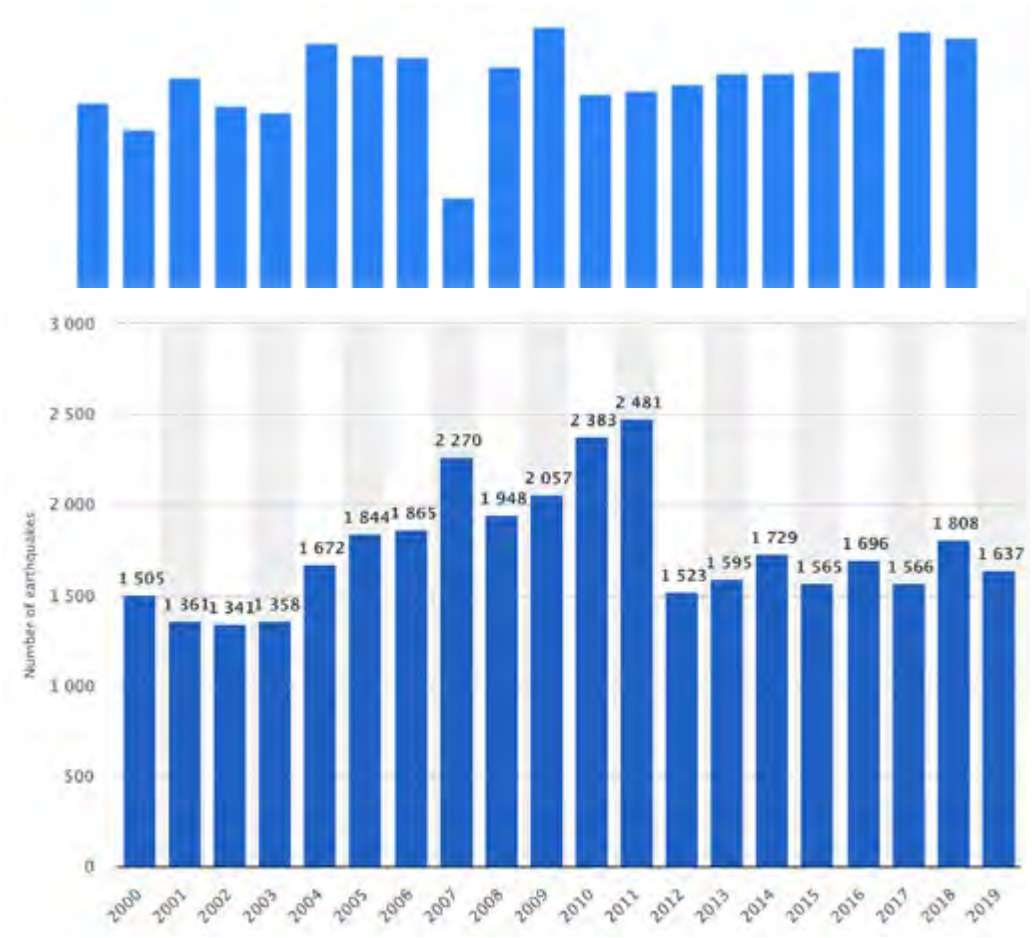
Insured losses: US$ 77bn

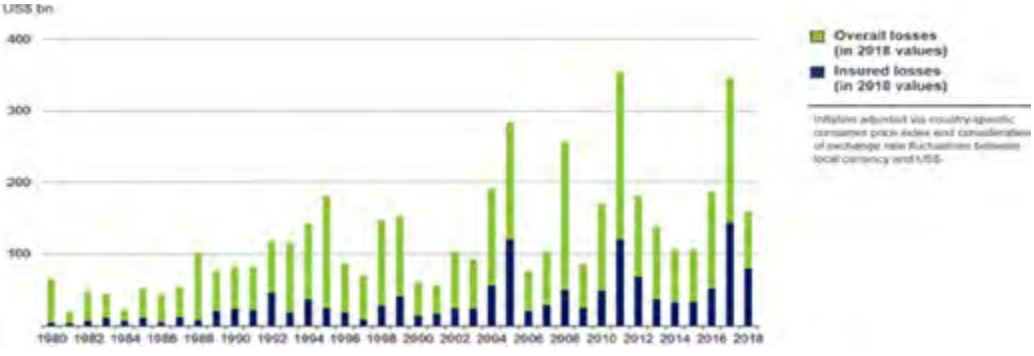
Meteorological events (Tropical storm, extratropical storm, convective storm, local storm)

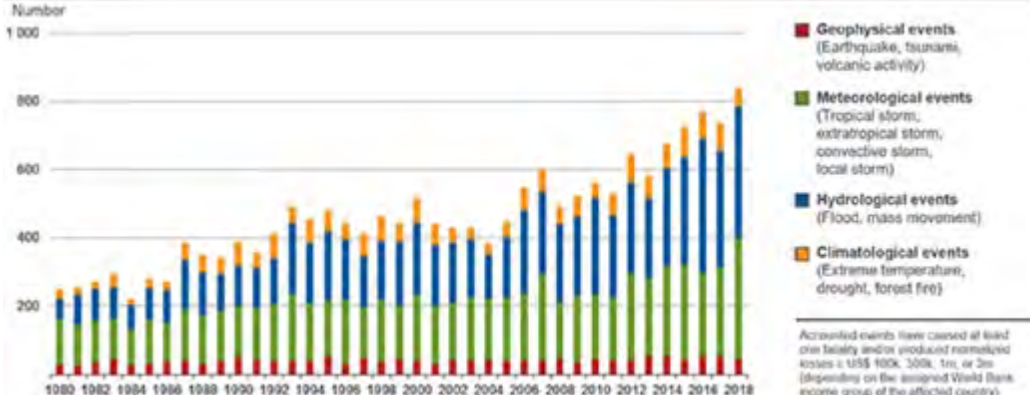
Hydrological events (Flood, mass movement)

Climatological events (Extreme temperature, drought, forest fire)


Severe storm, tornado
17 – 31 May, United States
Overall losses: US$ 4.7bn
Insured losses: US$ 3.6bn
Flood
9 Mar – 1 Apr/ May - Jul,
United States
Overall losses: US$ 4bn/US$ 5.7bn
Insured losses: US$ 3.00bn/minor
Hurricane Dorian
27 Aug – 9 Sep, Barbados, Bahamas, British Virgin Islands, Dominica, Martinique, U.S. Virgin Islands, Puerto Rico, United States, Canada
Overall losses: US$ 5.6bn
Insured losses: US$ 4bn
Flood, flash flood, landslide
Jun– Jul, China
Overall losses: US$ 6.2bn
Insured losses: minor
Typhoon Hagibis
12 – 13 Oct, Japan
Overall losses: US$ 17bn
Insured losses: US$ 10bn
Typhoon Faxai
9 Sep, Japan
Overall losses: US$ 9.1bn
Insured losses: US$ 7bn
Typhoon Lekima (Hanna)
5 – 14 Aug, China, Taiwan, Japan, Malaysia
Overall losses: US$ 8.1bn
Insured losses: US$ 0.84bn
Cyclone Idai
9 – 14 Mar, Malawi, Mozambique, South Africa, Madagascar, Zimbabwe
Overall losses: US$ 2.3bn
Insured losses: minor
Fatalities: 1,014
Flood, landslide
1 – 26 Aug, India
Overall losses: US$ 7bn
Insured losses: minor
Wildfire (series)
May – Dec, Australia
Ongoing event
Geophysical events
Earthquake, tsunami, volcanic activity
Meteorological events
Tropical storm, extratropical storm, convective storm, local storm
Hydrological events
Flood, mass movement
Climatological events
Extreme temperature, drought, wildfire
Significant catastrophes
Small, medium and large loss events

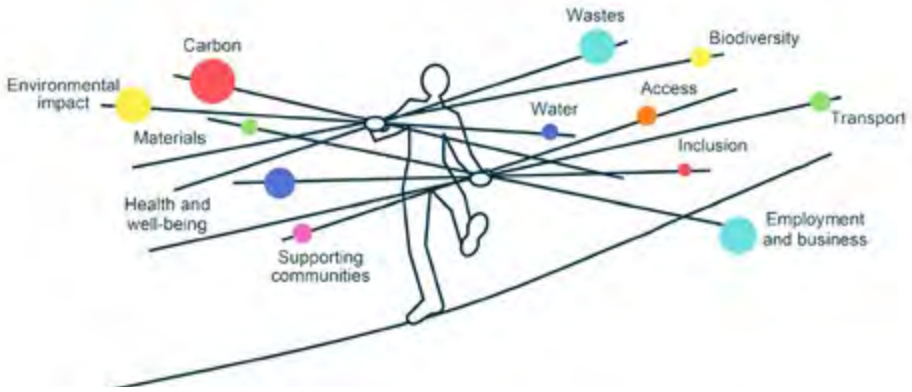

Number of earthquakes
3 000
2 500
2 000
1 500
1 000
500
0
1 505
1 361
1 341
1 358
1 672
1 844
1 865
2 270
1 948
2 057
2 383
2 481
1 523
1 595
1 729
1 565
1 696
1 566
1 808
1 637
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019


US$ bn
400
300
200
100
Overall losses (in 2018 values)
Insured losses (in 2018 values)


Number
1 000
800
600
400
200
Geophysical events (Earthquake, tsunami, volcanic activity)
Meteorological events (Tropical storm, extratropical storm, convective storm, local storm)
Hydrological events (Flood, mass movement)
Climatological events (Extreme temperature, drought, forest fire)

The term was adapted and popularized from the field of physics to that of psychology and other social sciences to refer to people who, despite experiencing stressful situations, were not psychologically affected by them.
The psychiatrist and psychoanalyst Boris Cyrulnik disclosed this concept in early 2000 that he extracted from the writings and research of John Bowlby produced in the last half of the s. XX.
The concept of *Resilience* roughly corresponds to the term "endurance" (overcoming something and, at the same time, coming out strengthened just as – or better – than before). *Resilience* would be, therefore, the ability to face adversity.[9]
– In the field of physics of materials, we talk about the concept of *Resilience*, assimilating it to the energy necessary to recover a deformed body when the elastic stress that causes its deformation ceases. In simple terms, it is the "capacity of memory" of the material to recover from a deformation, before it breaks.
– In the field of ecology or the environment, the term would refer to the capacity of communities and ecosystems to absorb disturbances without significantly altering their structural and functional characteristics, being able to return to their original state once the disturbance has ceased, product of external effort.
– In this sense, the recent transfer of the term *Resilience* to the urban and technological field has tended to show the strength of a technological or urban system to withstand and recover from disasters and disturbances or to resist a threat; also to absorb, adapt and recover from its effects in a timely and efficient manner, including the preservation and restoration of its basic structures and functions.
– A last meaning, in the field of anthropology and sociology, would summon the ability of social groups to overcome adverse results, rebuilding their internal links, in order to conserve their community homeostasis to do not fail in his own vocation of synergy.[10]

In all these meanings or definitions the conjugation "resistance + tenacity + endurance + adaptation + recovery" is revealed as essential - and we could say that common to all of



[9] Boris Cyrulnik, Resilience: How Your Inner Strength Can Set You Free from the Past, Tarcher Jeremy publ. London, 2011

[10] https://en.wikipedia.org/wiki/Resilience

them for – like the Phoenix – "to rise from the ashes", that is to say to be reborn, to return, to re-sprout, to re-appear, preserving most of its own attributes.
It is not a question - as in the case of the Saint Hubert knife - so well related by Cagliostro in the *Mémoires* d´un *Médecin* of Dumas[11] to change the blade and change the handle (deteriorated, oxidized or chipped) to continue renewing it (diverse) relic, but to conserve or preserve to the maximum the pre-existing realities, with the necessary corrections, interventions and/or operations.
Indeed, far from the metaphor, the possible resilient property related to the use of new digital and informational technologies (sensors, applications, calculation, simulation and parametric optimization, elaboration – statistics – of data, non-linear predictability, fuzzy logic, theory of dynamic systems, etc.) tends today to prioritize a more efficient management in cases of shock or incident and an analytical-preventive diagnosis of damages, problems (and unforeseen events) than to favour an authentic projective or prospective approach, anticipatory and proactive.
It is in this sense that we dissert about a new *Resili(g)ence* urban way.
The ambiguous assimilation in English between the term *Smartness* (efficiency, lucidity, ability, agility, and responsive quickness and cleverness in decision-making) and the word *Intelligence* (relational and operational capacity but also capacity for critical analysis and strategic synthesis, creative projection, emotional empathy and holistic recognition) leads to a certain type of confusion and paradoxes in often ambiguous readings when we refer to the neologism *Resili(g)ence*.
This term wants to respond more to a decidedly purposeful will of "prevision/prospection/projection" in which – beyond the mere effective and predictive management of events – the "creative-conceptual-connective-conductive" factor would be part of the process; from the analytical-synthetic capacity of *foreseeing* and the strategic-operational ability of *re-seeing* and *pro-seeing*.
That is, between the capacity to process, simulate and project (to transfer) information(s), situations, conditions and solicitations and the ability to imagine, conceive and project (to translate, not only to manage) more efficient but also more qualitative and innovative spaces and habitats.
The term *Resilience*, applied above all to the urban and landscape environment and even to the environment, would tend to suggest, therefore, a greater capacity for conservation, resistance and integrity or tenacity in the face of change, capable of preserving (or recovering) the maximum, most of the previous conditions (from the city to the landscape or the socio-identity and socio-contextual behaviours themselves) in situations of serious disturbances or transformations. In this sense, there would be much to reflect on the readings proposed by Willy

[11] Alexandre Dumas, Mémoires d´un médecin, Tome I, Joseph Balsamo, Bouquins, Paris

Müller (former director of Barcelona Regional) in his doctoral thesis and other works[12], in which – like other qualified thinkers – the *Resilience* of a system (and the application of resilient solutions in this) usually coincides (signifying or certifying it) with the last stage of "resistance" before the "breaking", that is, the obsolescence - more or less foreseen or programmed - of a scenario of/in crisis or of anticipated collapse: a scenario, therefore , threatened by mutation, disappearance or change (of paradigms) and that nevertheless tries to sustain or preserve to the maximum its characteristics, its conditions and/or volitions until its own rupture or transformation.

The case of the *Resilient Factor* in the physics of materials is, as we have pointed out, especially clear: it determines the "energy-material" potential – of resistance and deformation at the same time – of the internal particles of the material to maintain their elastic or topological properties and characteristics (and their complete and recognizable re-configuration, after alteration, of memory and "going back") before its definitive rupture.

We do not have space here to delve into this interesting critical reading of the term *Resilience* and its urban-social implications (surely it will be an obligatory subject for future and important researches).

However, it is clear that nature (or, if we prefer, the global eco-system itself), its own dynamics and movements, its fluctuating trajectories and its non-linear transformations, do not require any *resilient processes* to defend some "ideal" or "pre-setting" stage.

Its changes, its movements, its own phenomenology more or less quiet or turbulent, calm or stormy, stable or boisterous, relaxed or exuberant, is redirected, renewed and restructured at every moment, conserving itself (as the first known law of thermodynamics) holistic energy in its dynamic fluctuations and in the evolution of its unpredictable trajectories.

[12] Willy Müller - Jordi Vivaldi (eds.), New Urban Paradigms, 10 x 21. Ten Urban Paradigms for the XXI Century Cities, IAAC, Institute of Advanced Architecture of Catalonia, Barcelona 2017

But its consequences – more or less destructive, devastating and/or transforming – in our human habitats, in our cultivated landscapes, in our "artificialized-civilized" cities (or simply, in our historically accepted, socialized, experienced, ritualized or sacralized contexts) are what they refer to potential situations of shock, stress and latent threat.
The will to restore and minimize such effects, to "conserve" or "preserve" (or at least "reactivate") most of the previous situations – and realities – "inherited", "agreed", "experienced", "sensitive" and/or "civics", calls to ask ourselves if this semantic preference (and prevalence) of the term *Resilience* does not hide a will (more or less explicit or implicit, objective or subjective, calculated or spontaneous) of resistance in the face of a change of formulation in some scenarios – as diverse as substantively renewable – which are today confronted to fundamental transformations in the future approaches to global environments in crisis, destined to be rethought, restructured or even redefined in a way much more forceful and decidedly innovative than what has been planned or socio-politically accepted up to now.

• Urban space and resilience: information, interaction, integration... innovation •

In this sense, the pure technological responses currently underway (from the most immaterial and informational to the most super-structural and super-conductive) seem to tend – for the most part – to conserve, preserve and maintain said scenarios (established and pre-established) incorporating sufficiently effective "defence" or "redirection" solutions to ensure these objectives (from channels to pipelines, from docks to dikes, from screen walls to containment elements, from urban regulations to building norms) in order to create limiting parapets, barriers or shields against possible catastrophes to come.
It is difficult to think that perhaps many of more sustainable and environmental solutions would go through "abandoning" or "reversing" (by mutating or changing) forcefully many of these addressed realities, re-conducting them from new strategic project parameters in which to more clearly combine nature, landscape and artifices (human constructions) in hybrid *natufices* of new generation (as proposed by Eduardo Arroyo[13]), at all scales and at all levels.
Even psychologically, this possibility seems to be far from the conventions, solicitations or social and population expectations (for reasons, generally, of memory, identity or simple emotional atavism).
A space known, lived, experienced or already rehearsed, despite its conflicts and latent risks, is paradoxically always more "safe" (in the sense of "familiar", "known", "already ex-

[13] Eduardo Arroyo, Natufice in M. Gausa, V. Guallart, W. Müller, J. Morales, F.Porras, F. Soriano, The Metapolis Dictionary of Advanced Architecture, Actar, Barcelona, 2003

perimented" or "guaranteed" rather than in the sense of "safeguarded") than an innovative scenario, too experimental.
As a former political official said when defending a certain conservative immobility both in the typological habits and in the aesthetics of social housing: "nobody wants to be a guinea pig" for a living lab.
And, therefore, anthropology and sociology explain quite well how the human being – like any animal – moves between the survival instinct (security or fear of an unexpected movement of change, of a latent or imminent danger) and curiosity which is, in any natural behaviour, an "inquisitive" and "investigative" aspect destined to favour exploration, learning, investigation or search. That is to say, a mechanism called to drive the individual of a certain species to seek new information and interactions with their environment and with other beings, to better survive.
The great difference in the human being is that this inquiring quality is combined with an analytic-synthetic thought (let's say abstract) capable of conducting not only to mimesis (to recreate) but to fantasy, imagination and (re) knowledge – anxious and exciting at the same time – of the unknown, of creative, generative and/or constructive (positive) talent and innovation.
In socio-biology, this even leads to assimilating greater attention to processes of cooperation, collaboration and/or empathic synergy.
The human being thus moves, in a resilient way, between defence and fear – in the face of threat or change – and a necessary interest towards (more) individual and collective, qualitative and positive, forms of "projection" capable of favouring new imaginative solutions to better progress and survive.
The recent challenges want to contemplate this social dimension of the addition "*Information* (communication) + *Interaction* (exchange) + *Integration* (inter-relationship) + *Innovation* (creativity) (combined with *Impact*, in sustainable terms) new proactive (real and virtual, propositional and critical, operational and relational) common and collective spaces and neighbours.
The role of *Search* and *Research* (experimentation, exploration, expansion, *exaudition*) in relation to the new technological and digital skills, and its translation into new intelligent projective processes of conception, careful to the growth of the "open-source" applications and real-time-data and its relationship to the emergence of a new type of *co-involved resili(g)ent citizens*, bound to the collective "meta-polis" spaces.[14]
Greater attention to the local scales and contexts, combined with possible global strategies of planning and holistic resource management, are today increasingly decisive factors in those *resili(g)ent* urban policies connected to responsible economic development, spatial quality and environmental, health and social welfare, all of which are ultimately the conceptual basis and the purpose of the research and projects presented here.

[14]. Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory*, OUP, Oxford, 2007

The new – and big – challenge of the new n-cities is to combine their own existing agglomeration with a new networked reformulation of and in their own territory and of the nodal sites that make them up through a combined and articulated attention to infrastructures and to the landscape, at the same time. A set of places and inter-places (strategic *nodes-places* more than episodic *non-places*, as Marc Augé would say) capable of combining diversity and civility, urban development and mixed programs, integrated infrastructures and relational landscapes, public spaces and networked patterns into possible articulated matrices capable of meshing new inducting, innovating and attracting polarities conceived as new urban focus.
The last decades have confirmed the evidence of a spectacular jumping of scale (and paradigms) in the definition of our living and social spaces – our own habitats in general... and our cities in particular – linked to the technological progresses, to the exponential increase in mobility and long-distance communication, to the relocation of exchanges, and to the progressive technical and material capacity of transformation of our contexts and our own environments, which calls for a eco- and techno- sustainable development.
A global process linked, in fact, to the growing capacity of the digital revolution to combine and make interact – in precise and algorithmic ways (integral, integrated and integrating) informational parameters (data), simultaneous and potentially combined (and optimized) but particularly mutable at a super-urban level.
Contemporary multiplicity increasingly highlights this dynamic, complex and irregular condition linked to the proper condition of progressively informational *geo-urban* and/or territorial systems: info-, eco-, infra-, intra- and trans- structural.[15]

[15] Manuel Gausa, Periphery–Peripherals, 1980–2015. From the Postmodern Era to the Information Age in Jörg Schröder, Maurizio Carta, Maddalena Ferretti, Barbara Lino, Dynamics of Periphery. Atlas for a Creative Resilient Habitats, Jovis, Berlin 2018

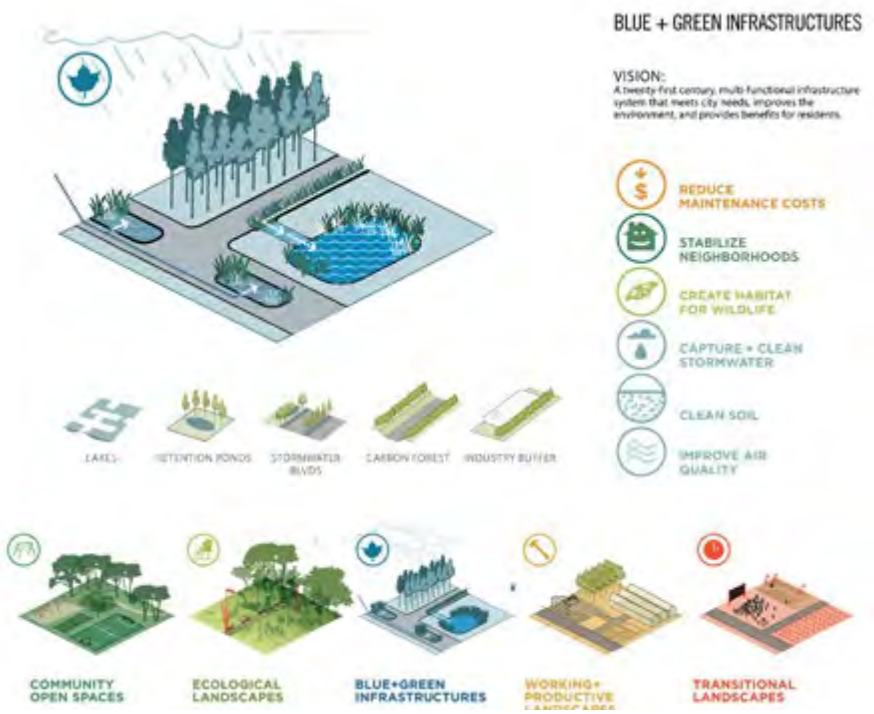
• Advanced prospective strategies •

The major meta-metropolitan cities are today confronted with the challenges of a fluctuating era linked to jerky dynamics (indeterminate, uncertain, unpredictable) where forward-looking research approaches seem more and more necessary to board this new nature of the city as an evolving system, decidedly non-linear, "chaotically plural", linked to n-dimensional processes.
Research dynamics likely oriented to favour the emergence of possible urban strategies arranged, combined and coordinated, capable of integrating – as we have indicated – information(s), conditions, situations, solicitations, volitions and/in operations capable of accept orientations (but also visualizations and simulation of multiple data-scenarios) in new qualitative, analytic and synthetic, propositional responses.
In this new, fluctuating and unpredictable condition of our time and our own environments, these prospective approaches

can highlight (and express) qualitative data-visions by proposing "horizons of certainty" (to use a scientific term); that is to say the potentials (and possibilities) associated with new criteria of action - or " game-rules" – strategically adaptable and immanent at the same time: vectors capable of driving "elastically" global strategies and local specificities at the same time. New unconventional (and non-inertial) approaches "in", "on" and "through" urban and meta-urban spaces, precise or vague, evident or latent, meshed and inter-meshed, likely to suggest (and re-launch) possible ways – scenarios – creative and qualitative, concretized and developed with more precision (and restrictions) in a varied and variable future, in the short, medium and long term.

Prospecting (and visioning) operations called upon to anticipate possible guided scenarios but open to the unpredictable as possible "undetermined determinations" (open, diffuse, adaptable and *vectorized* at the same time). These innovative contributions, associated with new urban methodological approaches, call up three lines of action, diverse but interconnected between them and associated not only with the decisive change of paradigms, already underway, but also with new frameworks, new applications, new tools, new instruments, new technologies and with decidedly proactive and operative results.

The new generation of prospectors and urban agents has to face the challenge of finding not only correct but also imaginative solutions for complex problems related to population, climate change, energy, environmental stresses and threats, food, water, security, housing, health and transport. But also



to a new rational land-use of the territory, to a more sustainable growth and to an intermodal infra-structural development linked not only to mobility but to a new conception of the public-civic space, by proposing new strategic scenarios either. productive or reproductive but "co-productive": scenarios capable of generating open and intelligent solutions, oriented and adaptable at the same time and associated with the major challenges which seem to conform, today, the essential paradigms of our contemporaneity.
From a multilevel and multi-networked "qualification" of the territory no longer based on the traditional two-dimensional zoning and mono-functional classifications (residential zones, industrial zones, green spaces, etc.), but rather based on "n-dimensional" criteria; by combining functional use layers (use, activity and programming strata sections) in new integrated mixed multi-layer operations intended to establish new spaces of interaction between traditionally separate categories (natural and artificial, landscape and architecture , public-private, volume-surface, residence-production-recreation, housing and equipment, etc.) activated not only by simple connections but also by interconnections and/or nesting relationships.
Overcoming the inertia of the traditional vision, based on 2D plans and +0 levels, through a new 3D vision (and 4D, integrating the dynamic time factor) attentive to the potential of recent technological tools (associated with new hybrids designs capable of mixing - and synthesizing - surfaces and volumes, horizontalities and verticalities, soils and subsoils, in new complex programmatic combinations, aiming to promote, as mentioned, the creative and qualitative upgrading of sites through strategic processes suitably "reformulated". The concept of n-grounds or multi-grounds meets these criteria beyond the interties that continue to "recreate" the traditional city or to impose redemtor objects in it; re-informing it infiltrating (with all the associated synonyms, sliding, inserting, superimposing, coupling, connecting) new reactive, resposnive and responsible, operations and strategically devices.

1– ECO LOCAL/GLOBAL HOLISTIC SYSTEMS, called to mobilize new environmental logics by giving priority to new urban ecosystems that are both resilient and intelligent at the same time. To express the new complex recognition (and expression) of the contemporary city and its many informational levels (data-maps and intentional-maps) that is to say, analysis(s), management(s) and strategy(s) combined and integrated.

2– ACTIVE GEOGRAPHIES AND LANDSCAPES, called to model new operational landscapes by giving priority to new intertwined geo-urban logics and their various clever, intelligent and resilient, combinations. Prorising this active dimension of the landscape as a new urban and territorial inducing agent and to the new role of a plural and spongy public space, po-

rous and soft, spongeous and innovative, as a possible operational, relational and co-productive interface (intended to multiply social, generative and environmental, interactions. Taking in consideration a new creative resilient capacity of the cities generated through new flexible and adaptable strategies and through the potential - preventive and proactive – of a rich combination with new technologies: *Resili(g)ence.* [16]

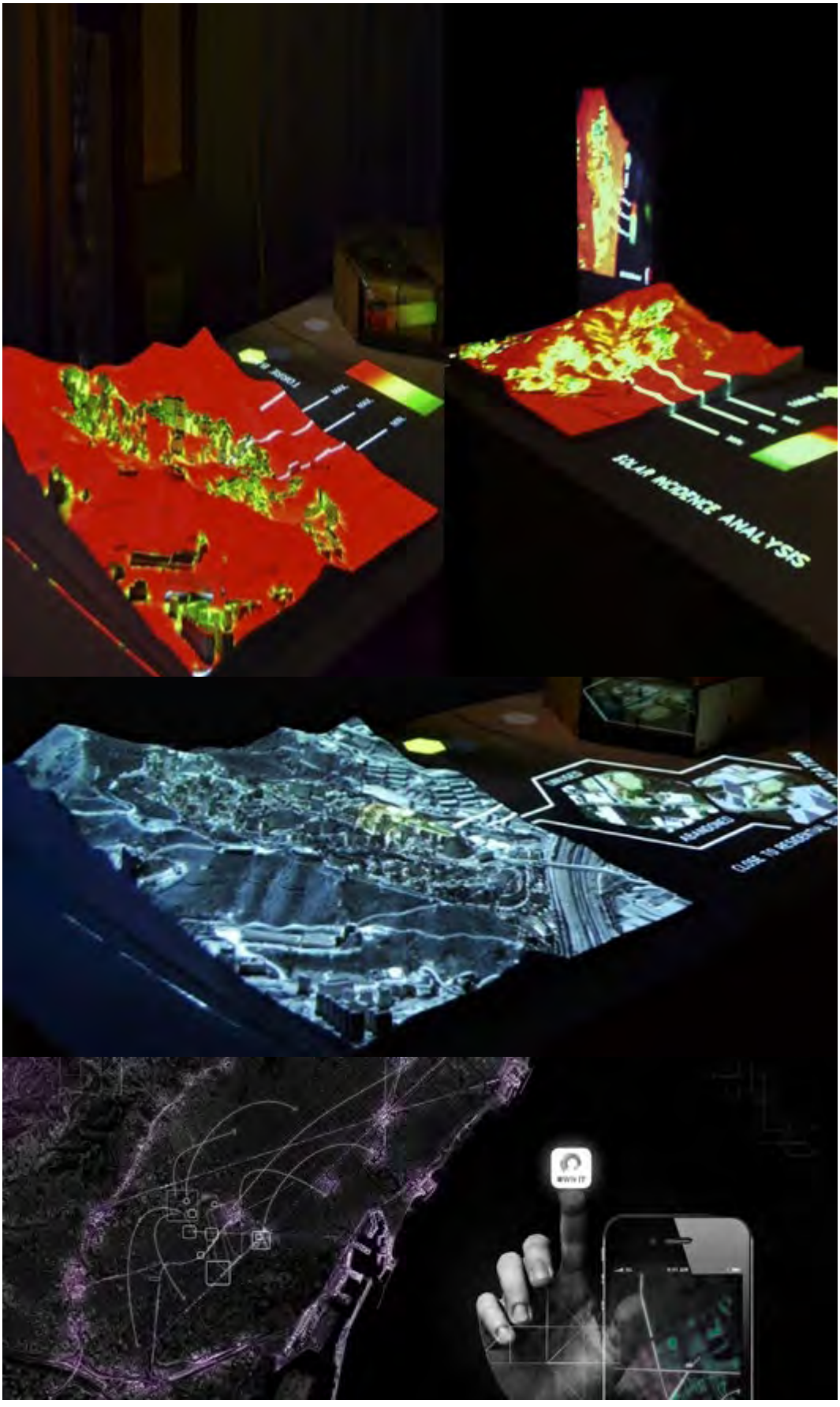
[16] Manuel Gausa, Resili(g)ence, Intelligent Cities, Resilient Landscapes, op.cit.

3– FLEXIBLE AND INTEGRATED MESH MECHANISMS, called to assemble inter-connective, infra-, intra-, eco-, trans- and info-structural devices by promoting a multi-scalar "inter-urban inter-connectivity". Favouring a new multiple concept of the mobility (efficient ... fast and slow at the same time) and the design of the various eco and infra structures arranged in new integrated models, taking into account areas margin or friction between city, infrastructures and landscapes and, in this sense, the importance of in-between treatments.

4– SITE SEQUENCES AND IN-BETWEEN VARIABLE SITES, called to combine rhythmic vibrations of local focalisations and global interrelations by favoring the meshed revitalization of points, sites, nodes, places and contexts but also of new urban emergences through a conception of the city understood as "place of places and between places but also as a "landscape of/between landscapes". Assuming the new polycentric articulations of the region-city - or territorial multi-city – capable of responding to new sustainable agendas (weighted energy self-sufficiency, intelligent management of resources, etc.) and their translation into new eco-habitats sensitive to circular retro-alimentations associated with new environmental logics and sensibilities, essential in the future "geo-urban" developments.

5– PRE-EXISTENCES, HERITAGES AND IDENTITIES VALUED, called to reuse existing urban resources with a possible value not only heritage or monumental or functional but also sensory, sensual, sentimental "atmospheric and picturesque" through not only urban recycling and reactivation but qualitative re-information itself. New demands for urban rational use of soils and "inward growth" through the reuse of pre-existences and heritages associated, at the same time, with a new sustainable and urban sensitivity able, at the same time, to combine culture and innovation, heritage and identity, local values and global explorations, in creative sets and spaces, generators and inducers of urban experimentations.

6– MULTIPLE PROGRAMS AND MIXED PLURAL FORMATS, called to promote mixed uses and activities favouring and multiplying new socio-urban exchanges between uses and users; but also innovative operations linked to the re-formulation of the existing as well as to the new. New mixed uses, functions and programs developed in a new type of a-typological and


SOLAR INCIDENCE ANALYSIS

NEW LANDING
PIERS
1500 m
1400 m
1300 m
1200 m
1100 m
1000 m
900 m
800 m
700 m
600 m
500 m
400 m
300 m

multi-layer urban repertoires of hybrid nature, combining not only diverse and diversified programs, but buildings, landscapes and matrices (of flows, of energy and of internal and external articulated accessibility and mobility).

7– NEW TECHNOLOGIES ASSOCIATED WITH SOCIO-ENVIRONMENTAL, called to combine urban digital *sensorisation* and digital applications with an eco-sustainable sensitivity, both associated to the forecasting of bio- and eco-anthropogenic risks, threats, stress and conflicts with devices and interfaces linked to socially and potentially more reactive applications (real time data) active and interactive for an urbanity experienced and transformed "in common(s)". Realising, critically and purposefully, the increase of new technologies and (tele)communications and its relationship with a new type of more autonomous and incidental citizen-actors implicated with the an increasing capacity of self-organization reliable to collective arrangements referred to possible statistic and algorithmic urban "co-generated contracts": new phenomena, in fact, of co-participation and" bottom-up "transformation of common spaces and scenarios, more or less responsive, adaptable and/or reversible.

8– DYNAMIC EXPRESSIONS AND REPRESENTATIONS, called, thanks precisely to this new algorithmic and dynamic potential of the new technologies, to simulate changing scenarios according to socio-economic and eco-cultural parameters and movements, but also able ton express translated strategic and/or more stimulating visions for collective imaginaries. New technological - and digital - capacities associated to new intelligent manufacturing and construction processes connected with new materials, more reactive in/for the environment and their relationship with a new type of more interactive urban devices

9– SOCIAL DIVERSITY, called to well manage the increase of diversified migrations linked to experiential, cultural or massive tourism (and its impact on the new leisure and knowledge society and on the redefinition of its new/old urban attractors). But called, also, to well manage the growing importance of immigrant flows linked to work and to necessity, each time more decisive in the objective of giving priority to empathetic social cohesion able to celebrate the diversity of society itself, its social, demographic, economic and civil fluctuations and contaminations and its diverse needs for conviviality, interaction and urban – individual and collective – self-esteem and/or self-affirmation,.

10– AND ... FINALLY THE TIME FACTOR (predicted/predictable and unpredicted/unpredictable events as COVID19) Called to take into account the evolutionary, by understanding the importance of the owner sequences and phases of urban dynamics and their changing, shifting, and adaptable/adap-

tive capacity of definition, combined in short, medium and long terms.
Concepts capable of combining the 4 + 1 IN of the on going urban and cultural revolution (*Information* + *Interaction* + *Integration* + *Innovation*...+ *Impact*).
But also the 4 + 1 IN of the urban and inter-urban methodology in progress
(*Information* + *Orientation* + *Strategy* + *Vision* + *Communication*), that is to say:
processing capacity, relational capacity, prospective and instructive capacity, projective capacity and expressive capacity).

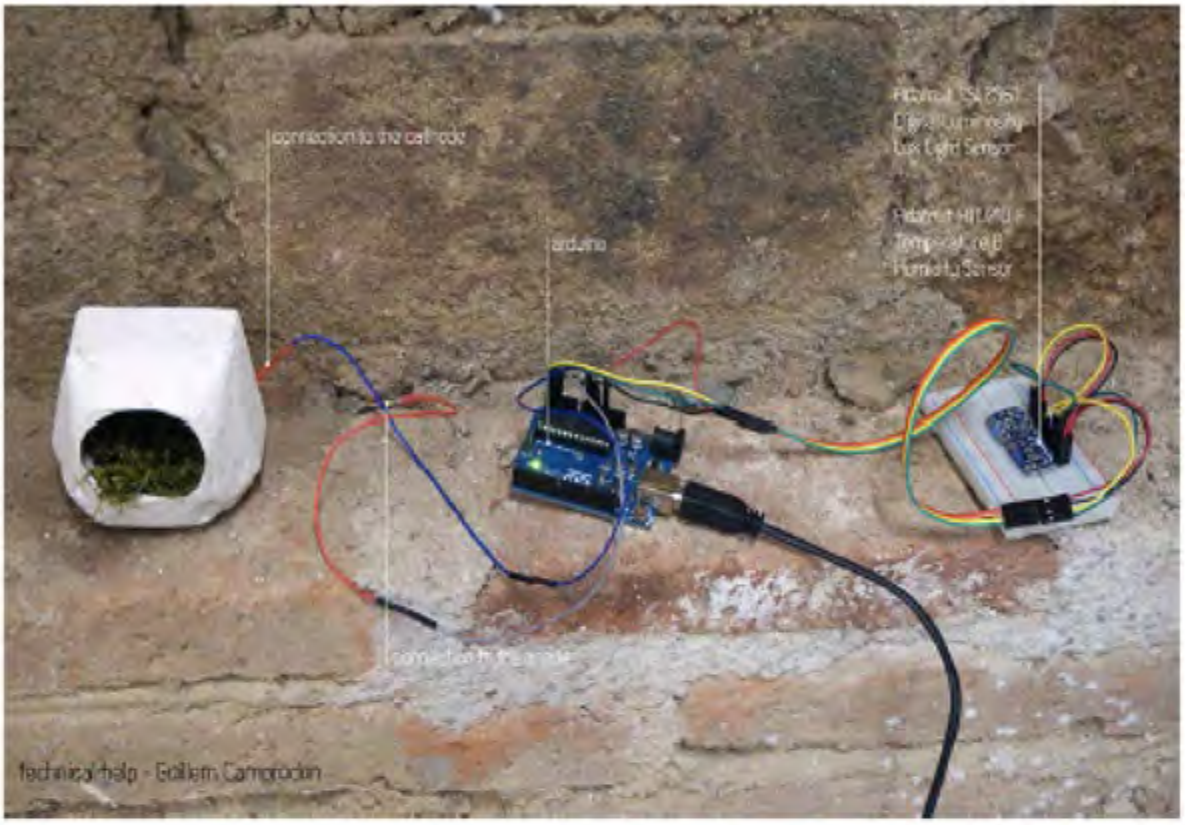
A- An eco-systemic and integrative innovation linked with a new *geo-urban* research and which would express a significant change in logic: from the old deterministic planning, linked to the built and/or figurative (drawn or composed) land occupation, we have to prioritize new holistic and synergistic strategies of interaction between systems, with the environment (and with the environments), capable of integrating multiple layers of information (complex and differential structures) in new eco-systemic scenarios of network-patterns, assemblage circuits, attractor focalisations an new multistring vectors, able to face the anthropic and natural environmental challenges; but also capable of positively making emerge and expand the evident and/or latent potentials of cities and territories (and of cities... in and with the territory) through relational (and operational) matrix, not only infra-structural but eco-structural and socio-structural.

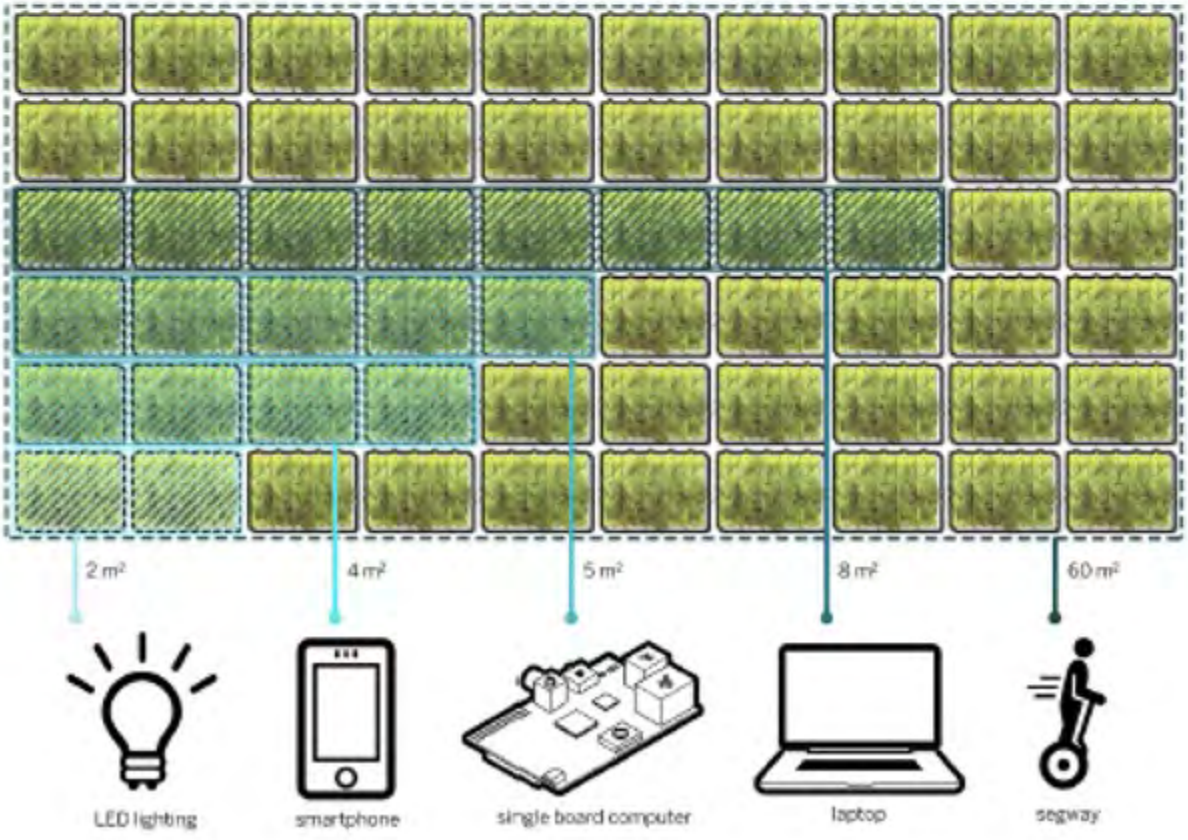
B– A digital technological innovation linked to information management but also to new programming dynamics and to the progress of open-source software and parametric records and registers or maps open to optimized data processes, generated in real time, and to the understanding of emerging "intelligent cities" – no longer just interpreted as smart-cities (data management) but as sense-cities (projection of data into sensitive and sensory and sensory scenarios, at the same time).

C- An active and activist, creative and social (bottom-up) innovation linked to new forms of participation and co-production associated to a new type of social and responsible "civilities" and collective new behaviours - implicated with a new type of convivial spaces and structures capable of fostering convolved and co-generated experiences, increasingly linked to the development of new shared technologies.

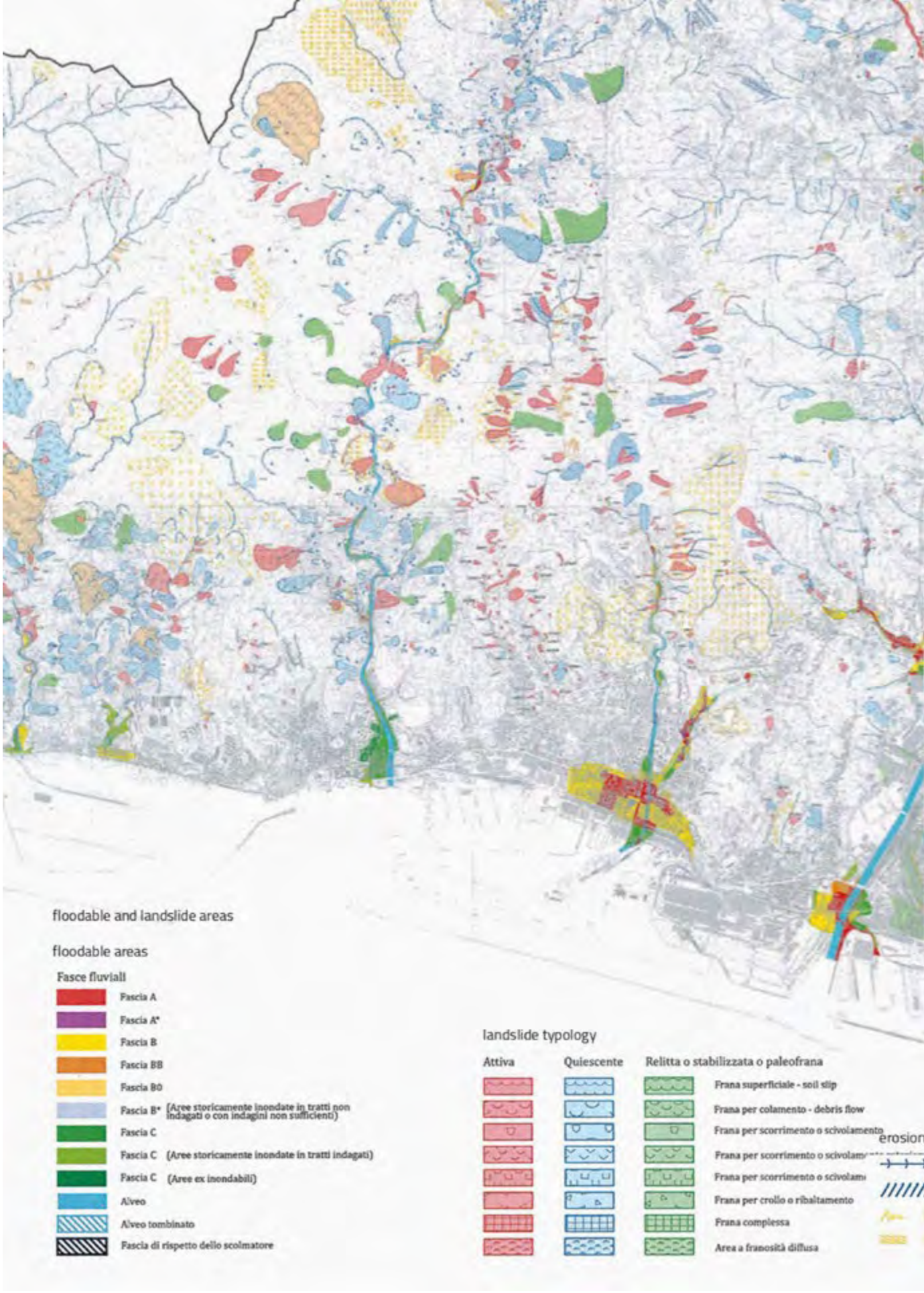
Awe talk about a new urbanism, in fact, capable of combining specific *DATA*
(environmental, territorial and social) and holistic (strategic, programmatic and - why not? - ethical-aesthetic) *VISIONS.* [17]

[17] Manuel Gausa, Advanced Urbanism / Visions & Challenges in the collection «Ka-au knowledge alliance for advanced urbanism. Deliverables» VOLUME 7, ISSN 2564-9035. http://ka-au.net/deliverables/

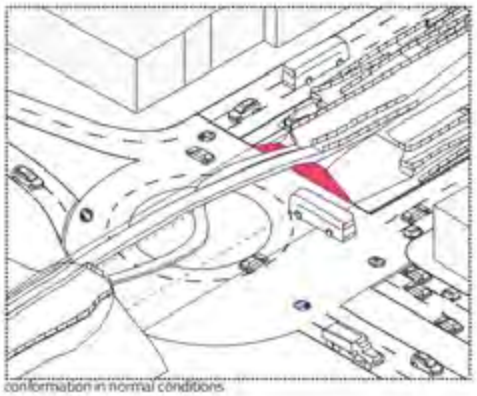

connection to the cathode
arduino
technical help - Guillem Camprodon


2 m²
4 m²
5 m²
8 m²
60 m²
LED lighting
smartphone
single board computer
laptop
segway

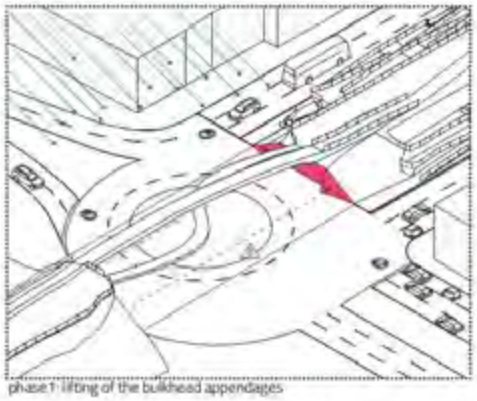
WATER SQUARE BENTHEMPLEIN - 2013, Rotterdam, De Urbanisten


floodable and landslide areas
floodable areas
Fasce fluviali
Fascia A
Fascia A*
Fascia B
Fascia BB
Fascia BO
Fascia B* (Aree storicamente inondate in tratti non indagati o con indagini non sufficienti)
Fascia C
Fascia C (Aree storicamente inondate in tratti indagati)
Fascia C (Aree ex inondabili)
Alveo
Alveo tombinato
Fascia di rispetto dello scolmatore
landslide typology
Attiva
Quiescente
Relitta o stabilizzata o paleofrana
Frana superficiale - soil slip
Frana per colamento - debris flow
Frana per scorrimento o scivolamento
Frana per scorrimento o scivolam
Frana per scorrimento o scivolam
Frana per crollo o ribaltamento
Frana complessa
Area a franosità diffusa
erosion

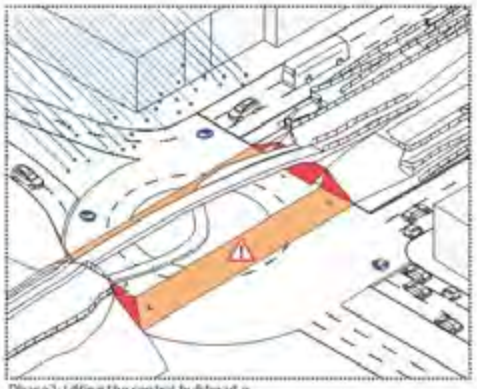
rosion
Erosione concentrata di fondo
Erosione spondale
Ruscellamento diffuso
Erosione diffusa
Scarpata fino a 5m di h
Scarpata fino a 10m di h
Scarpata oltre 10m di h



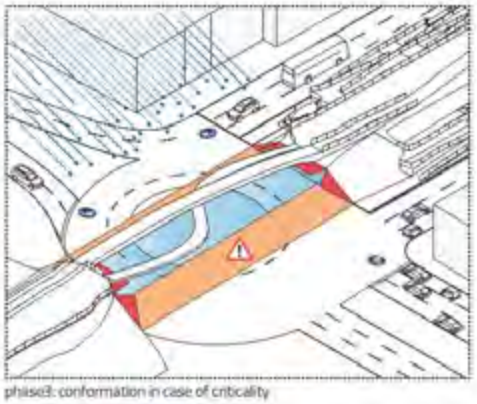
conformation in normal conditions



phase 1: lifting of the bulkhead appendages

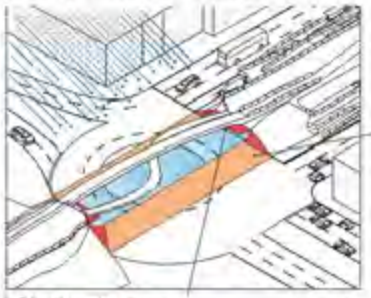


Phase2: Lifting the central bulkhead e
handling of road bulkheads

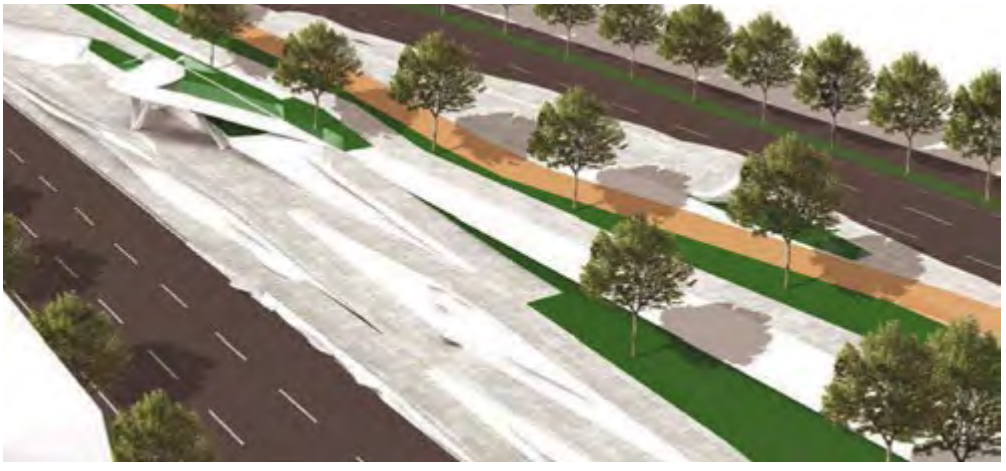


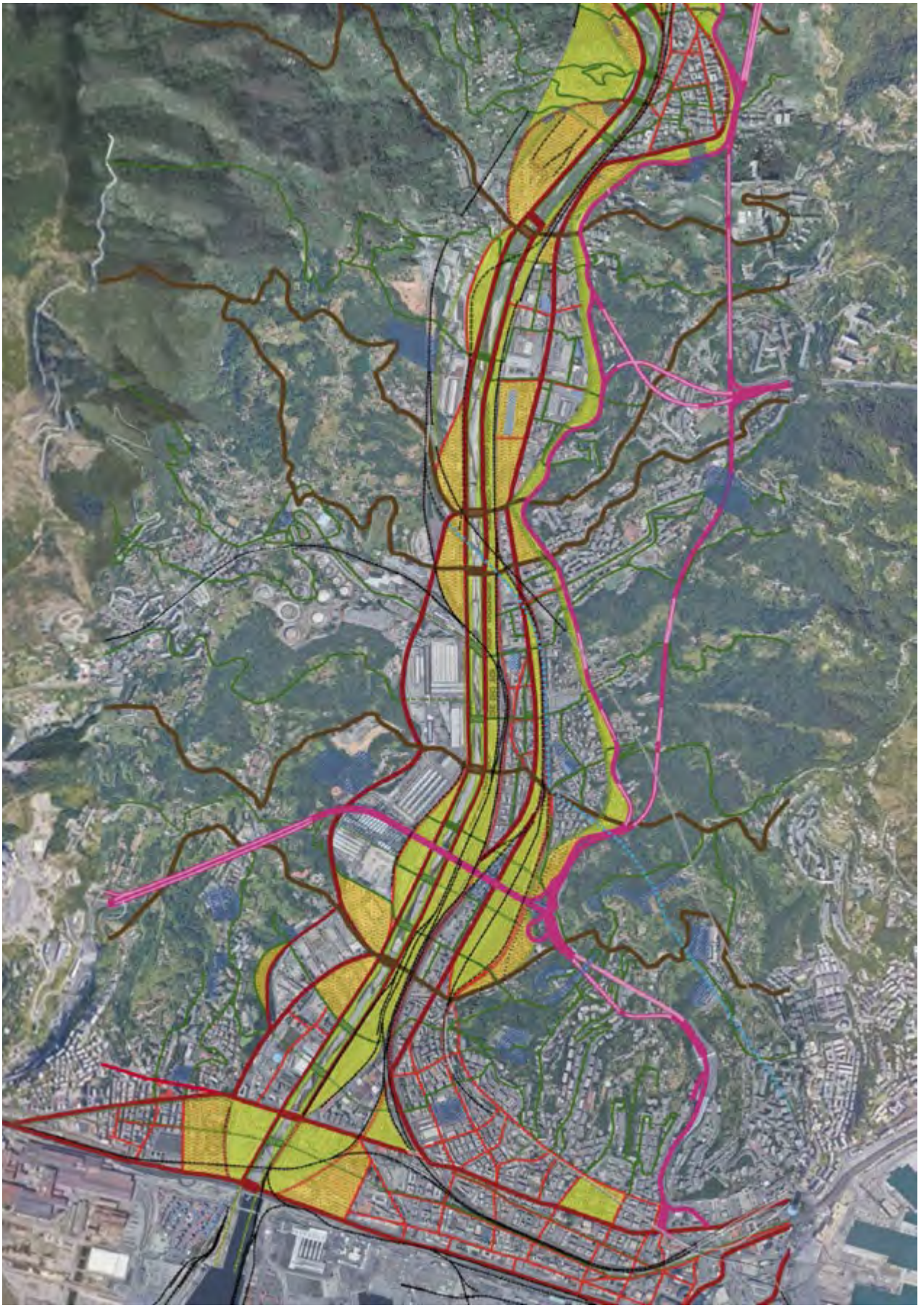
phase3: conformation in case of criticality

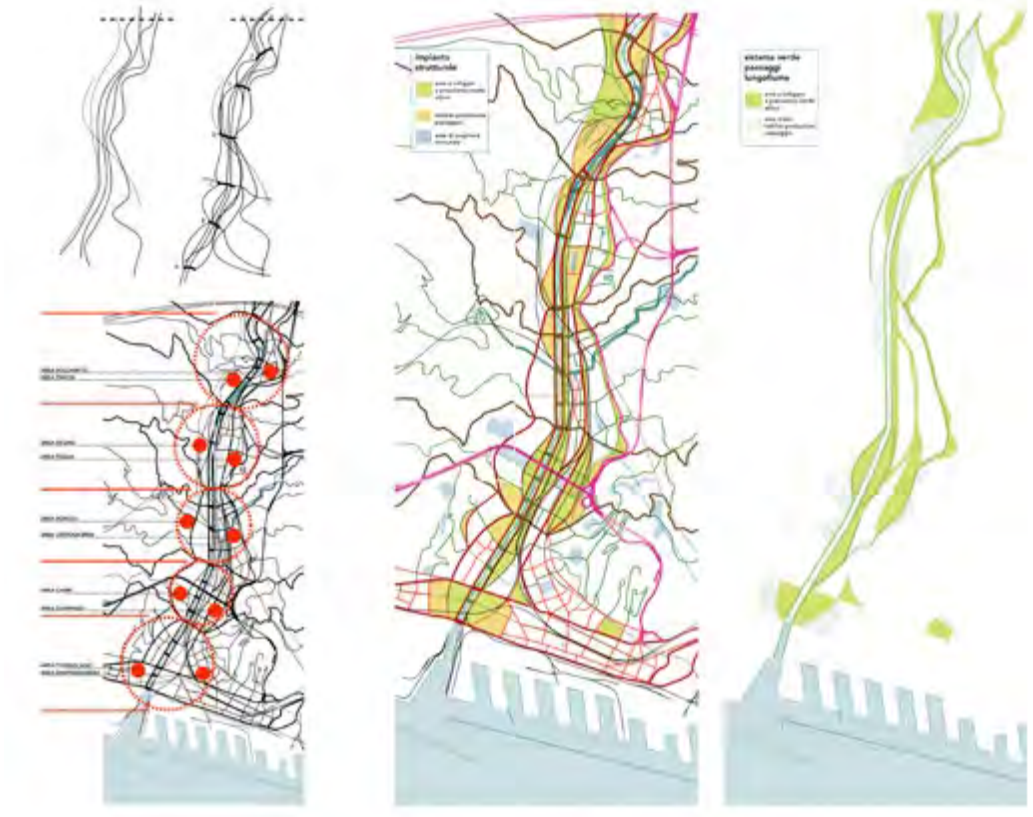
"WATER CONTROL SYSTEM" SHIELD DETAIL



bulkhead opening stages






impianto strutturale
sistema verde paesaggi longitudine

Today, in the second decade of the 21st century, the multi-scalar (and a-scalar) complexity and transfer devices that had marked much of the research of the mid-1990s give way to a new type of more empathic, more "natural" and spontaneously approach called to combine not only "sense and sensitivity", but also "sensorization and sensitization".
In the exploration of this new advanced logic of information and interaction, the pioneering advanced logics of simultaneity have been completed with the active notion of instantaneousness.
The goal of these dynamics is to propose new multi-functional and multi-level resilient and active scenarios – "co-active" – coming from the operational assessment of new intelligent and informational models (more open and "co-participated and innovated").
As an immediate response "in" and "for" the moment rather than "of" the event (or the monument) that seems able to combine a new "common logic" (active and activist, optimized or simply positive) generated beyond the exceptive (the singular, the episodic) but also confronted to the exceptional (the unpredictable, the indeterminate, the conflictive).
We talk about the force of the new tools related – as has been pointed out – with the increase of intelligent and progressively autonomous (and strategically oriented) agents able to interpretate, assimilate and process data (from sensors to robotics or responsive matters).
But we also speak of the logic of an "ordinary and collective activism" implicit in the culture of this time, not so much for its technological vocation but for its willingness to infiltrate in the system new inputs and/to re-inform it (resetting it, sometimes radically, provocatively or mischievously); reactivating it qualitatively and compromisingly.
We talk, in fact, about a new thinking correlated with a new sociocultural activism and / or mediation, in which natural and spontaneous agree directly to a processing (parametric or synthetic, but always dynamically efficient) of information, matter and context, combining (to beyond the aesthetic prejudices or stylistic filters) the optimization of the "simply necessary" (not of the minimum, not of the functional, not of the elementary but of the optimized – and qualitative – "just necessary") with a responsive vocation (reactive and responsible) without narrative or forcing claims aesthetic.
Many of the collective proposals that occur today (from the "field experience" to the experimentation with this new condition of "mediation") tend to make prevail the efficient management of information (in all senses, data, indicators, programs, conditions) and its immediate formal resolution/translation in possible (optimized) synthesized scenarios.
This direct, precise, immediate, "instantaneous" – and "resil-

ient" – set of answers (where the old systemic definition of the "element" suddenly gives way to a new epistemic condition of the "elemental") continues to resort, today, to the abilities of craft and design (and, in this sense, it does not always require the technological apparatus to formulate direct answers) but, above all, favours the search of the shared process (co-produced, co-generated from a plural and informational exchange) encouraging, incontestably, a space definitely associated with the assumption of a new eco-medium and a new eco-mediation. The new network applications and the progressive appearance of a new co-generative or *co-actant* consciousness (paraphrasing Bruno Latour[18]) that would have passed from the *Smart-Citizens*, of just a decade ago, to the new paradigm of *Co-citizens* or *Xeno-Citizens* (in which the notion of "catalytic assimilation" would allude to possible solutions in agreement and collaboration between stranger or alien items[19]) would favour the appearance of collectively involved and hyper-connected, responsible and self-organized groups, particularly co-active and inter-active, in situations of reaction, response and/or simply mobilization (as has been verified in recent years).
The exponential capacity to conjugate individual affirmations and collective demands in complicit grouping, linked to the new networks (from the *Arab Spring* to the *15th M* in Spain or the phenomenon of the *Gilets Jaunes* in France, etc., confirmed in recent times and in the face of especially conflictive scenarios), seems, however, to be combined with the exponential growth of uncritical consumption of a hyper-present diffused and informed in an increasingly homogenizing and controlled way, which would be an unexpected paradox in these mentioned synergic potentials.

[18] Bruno Latour, Reassembling the Social: An Introduction to Actor-Network-Theory, op. cit

[19] Dorion Sagan, Las Ciencias de Avatar: de la Antopología a la Xenología, ASIN B004089DDI, 2010 and Xenology in Wikipedia, www.wikipedia.org/wiki/Xenology

As we have signified the development of the new informational technologies brings us closer to a reality recorded in an increasingly precise and immediate way, in real-time, opening up an immense repertoire of possibilities in the field of the combination between *materiality-informationality-spatiality*, from a mutual collaboration (in and with the medium) more efficient and qualitative (recording data associated with urban mobility itself, energy efficiency, social economy, public space, collective self-organization, environmental response, etc.)
Hence the importance of the concept of interaction (of a positive exchange between environment, society and information) in relation to a more sustainable new development, not only as an ethical and socio-economic responsibility but also as a coherent consequence of the informational/relational revolution today in course.
This revolution is, thus, complementary with the appearance of a new type of sensitivity and social action linked to an implicated mobilisation of the immediate, the instantaneous, the direct, the unpostponable (the *improrrogable,* the *impostergable*[20]) – of a precise (and précised) hyper-moment, connected to the force of attack (*force de frappe*) of the active and activist – is marking the interest of the new generations, involved with this collective sensitivity, responsible and responsive at the same time; self-generation and self-organisation, co-pro-

[20] With the title Diàlogos Impostergables was presented the very interesting central exhibition of the 2017 Bienal of Valparaiso, dedicated to social activism in Latin America curated by Felipe Vera and Jeanette Sordi. See Felipe Varela, Diàlogos Impostergables, Metales Pesados, Santiago de Chile, 2017

duction and co-participation or multi-intervention tend to combine operations and interventions (more or less "instantaneous" and "economic", in ways and means) in possible live and relational spaces of urban reactivation or of exchange and collective affirmation, without formal pretensions, without rhetoric or spectacular gestures, but with a strong sense of commitment (of engagement) that, from the "elemental" they solve with imagination, fantasy and intensity, proposals conceived beyond the conventions for, in general, difficult, conflictive, and traumatic spaces. [21]

We can discuss whether this type of action is really "advanced "(not using, in general, new technologies). But it is evident that this strong sensitivity regarding the combination "*Information* + *Interaction* + *Integration*" conjugated in social within reach performing" terms (not only digital or material processes but socio-collective actions and/or movements) taking advantage of imaginative and innovative resources and possibilities, arises from this assimilation of a processed, diverse and unprejudiced data-evaluation in synergy, typical of our informational time.

[21] Alfredo Brillembourg and Hubert Klumpner, Scarcity as Design Tool, in «IaaC Bits», no. 2 (2014)

• New *Resiligent* goals •

The exploration of this new positive mediation (synergistic) to define our habitats, but also of a new sensitive interaction (empathic or eco-empathic) to deal with increasingly complex scenarios, marks today many of the essays produced at a time when those inertias associated with global deficit situations, related to conflicts, stresses and threats are multiplying, linked to critical geopolitical (and geo-economic) shifts, but also, of course, to climate changes with devastating effects on the most vulnerable populations (risks environmental problems, housing defects, pollution, ghettoization, increase in poverty thresholds, etc.).[22]

The researches conducted in this moment of exploration tend, in fact, to deepen in the new capacities associated with the accelerated encounter between *reality* and *digitality* (bio-technology, bio-materials, nano-technology, artificial intelligence, robotics, new interfaces, etc.); between matter (reactive) and environment (reactivated); but also, between environment (activated) and agents (activators) in progressively co-generated actions (co-produced, co-participated, co-decided, co-generated, co-activated) associated with new collective processes.

The evocative lyric of the old designed "figuration" or the gestural and iconic strength of the objectual event, seem to give way, today, to the optimized management and efficient elaboration of a reality - potentially improved or re-activated - tackled immediately, in real time (precise data and concrete facts, for possible scenarios... positive and / or proactive) giving priority – beyond predetermined *Aesthetics* – to new strategic *AST-ethics*[23] of action translated – particularly in cases of shock, adver-

[22] See in this sense, the 15a Biennale di Architettura di Venezia, 2016 – Universes in Universe – curated by Alejandro Aravena

[23] The AST-ethics neologism, similar in substance and semiotics to the term aesthetics, alludes to an overcoming of the "idealized" or "predetermined" aesthetic-form by a mixture, also aesthetic but more indeterminate and directly reactive, between processed learning (AST, Advanced Skills Teaching) and ethical factors (ethics).

sity or disaster – to the qualification/manipulation of matter, context, environment and inhabited space.
It therefore appears evident that in this new active, reactive and interactive logic (material and mental), a direct, essential and elementary, collective and shared architecture of the strategically adaptable, responds better to a new type of strange order of the responsively unprejudiced, variable, adaptable and dynamic in its manifestations. In this new information age, adaptative (open), strategies prevail over static (predetermined) aesthetics, but not necessarily *over AST-ethical* visions, over creative and imaginative perception and perception, over the ability to project "shared scenarios" –unexpected (and generally "hybrid") – understood as possible "horizons of action": not already symbolic or totemic but stimulators and orientators, conductors and inductors (catalysts) at the same time of better common habitats.
Terms as idea or concept, combined with others as representation or expression, continue to be necessaries and they are still needed to drive, guide or "design" processes.
As architects we work with a secular idea of design able to synthesize creation and technique, subjectivity and objectivity, rigor and intuition: to compress information and to transform them, to manipulate them, to reconvert them and to visualize them in creative and qualitative space: this spatial vision (a synthetic vision able to translate a whole universe of analytical data manifested in the form of expressive, visual, perceptive bets), is our strength and our main quality. Like our own individual intelligence as humans, a new collective and artificial intelligence realized through statistical parameters (majorities determined in real time) and automata natural and para-natural or pseudo-natural agents will be able to recognize, connect, react, adapt, structure, and change our habits to "perform" collectively, spatial, urban and political actions, "empathic" and "experiential"; and here the word interactivity – more than interaction – will each time take over.[24]
In this dynamic action, the complicities, the common actions, the "coagulations" or "clustering" of consensus, are formed and quickly undone, because they respond not so much to basilar or ideological sedimentations but to regrouping of "involved and organized" individuals (*impliqués* et *agencés*, to use the Deleuzian term of a new type of organization that is more open and interconnected[25]):"partners" of exploration, navigation and action, dynamically destined to "ungroup and /or to recompose in the next movement".
If the notion of homogeneous mass no longer exists (but episodically), it´s therefore true that a certain collective "actant" capacity [26], individually and collectively involved (*engagée*[27]) – a new individual and collective implicated intelligence at the same time, common and hyper-interactive, generated thanks to the exponential technologies of network exchange – call to share and act, at the same time, thanks, of course, to the pro-

[24] Areti Markopoulou, Design Behaviors; Programming Matter for Adaptive Architecture, in «ResearchGate», January 15 in https://www.researchgate.net/ (2015)

[25] Giles Deleuze and Felix Guattari, Mille plateaux: Capitalisme et Schizophrénie, Les éditions de minuit, Paris, 1980

[26] Actant: literally the person, subject or thing that intervenes or has a necessary role in the history of an action, an event, etc. However, it is a term originally created by Lucien Tesnière and later used by semiotics to designate the participant in an active/narrative program. According to Greimas, the actant is the one who performs or performs the act, independently of any other determination. We could speak of a new activism active and active, at the same time, for its provocative, mediating, narrative will ... to create awareness, implicated and / or affirmative, etc. As said, Bruno Latour popularised the term in his Reassembling the Social: An Introduction to Actor-Network-Theory, op. cit.

[27] Evidently engagé ("engaged, involved") in relation to the books of Stéphane Hessel, Indignez-vous ! and Engagez-vous!, Harmonia Mundi, Paris, 2011 and Éditions de l'Aube, Paris 2011

gressive capacity for interconnection and digital interaction.
Because in this new ability to join/combine/decline information(s) and solicitations (conditions and situations, mixtures and exchanges) crossing hybridations and operational paradoxes are generated in a way as direct as unprejudiced: paradoxes – as we indicated in the book *Open(ing)-Space-Time-Information*[28] – born of the informational union, apparently "against-nature", from/between "old essential categories" secularly divided and taxonomically differentiated: architecture and landscape, matter and environment, reality and virtuality, realism and idealism, *sciolism* and knowledge, discipline and indiscipline, criticism and proactivism.[29]
It is true that doubts and perplexities have not yet disappeared, that the maneuvers and privileges of certain (old and new) elites seem to continue (and perhaps increase); that the old conventional systems (professional, academic, economic, cultural, etc.) are apparently still standing; that the multiple capacity of a potential and exponential knowledge seems – still – mostly installed in a hedonism of zapping/surfering, of mere indifferent navigation, of distraction or of spectacle; of the simple absorption of information (messages, news, statistics) manipulated and/or banalized, etc. ...
But, nevertheless, this new "collective and interactive intelligence" – in network, of interrelations, complicities and interests – tends to emerge with power, here and there, and become an increasingly unstoppable promise, related, in turn, to the on going progress of a new *humanism* or *post-humanism*[30], reactive and artificial, as embedded as ubiquitous at the same time.
It is still too soon for us to know what kind of a new socio-spatial definition (post-human or super-human, post-social or super-social) these dynamics will tend toward.
Their translation into a new conception of the (co-produced) urban approach and (co-productive) architectural design will, no doubt, be the next great challenge we will face.

• Resilience in the era of Covid •

This issue was conceived long before the outbreak of a new type of global health catastrophe that we were not used to until now.
If, as we have advanced, resilient responses to disasters and environmental threats would indeed cover all the spectrum of the 4 major biological and eco-systemic cycles – **WATER** (alluvions, storms, floods but also management and rational use of toilet); **EARTH** (earthquakes, landslides, slips); **FIRE** (fires and volcanism but also greenhouse effect, global warming, alternative energies); **AIR** (pollution and emissions, but also environmental and sensorial comfort) – they would be also referred to the fields of **LAND USE & ECO-SYSTEMIC TECHNOLOGIES**

[28] Manuel Gausa, Open(ing)-Space-Time-Information and Avanced Architecture, Actar Publishers, Barcelona, 2018. See also Manuel Gausa, Open, Espacio-Tiempo-Información, Actar Publishers, Barcelona, 2010

[29] Sciolism comes from the Late Latin sciolus, which means "smatterer" (or "one who speaks with spotty or superficial knowledge"). Sciolus comes from the diminutive of Latin scius, meaning "knowing," which itself comes from the verb scire, meaning "to know." Of course, if you know something about Latin roots, you know that scire is the source of many other English words, including "science," "prescience" ("foreknowledge"), "nescience" ("lack of knowledge"), and "conscience." https://www.merriam-webster.com/dictionary/sciolism

[30] Francis Fukuyama, Our Posthuman Future: Consequences of the Biotechnology Revolution, Macmillan, London, 2003

(anthropic land occupation, revaluated food and agriculture, rational transport and mobility, attention to recycle materials and construction systems, etc.) and those of **COMMUNITIES** (social disintegration/integration, but also identity/community participation); and of course they would also be essential in the field of **HEALTH,** declining especially in those more collectively aggressive stages in order to ensure a balanced control. Health dangers that, obviously, would allude to epidemiological risks with all that their would entail of bacteriological, viral or simply toxic threats, confronted with the human desire of enjoying a better quality of life in our habitats, generally associated with manufacturing or building factories more or less (well) related to landscape and/or nature.

The *Resilient Factors* or *Parameters* usually applied to these health emergencies (and in the case of COVID these would have been paradigmatic) seem to follow the same patterns that have been explained so far.
– Reactive, adapted and adaptive responses, in the face of an unexpected conflict.
– Integrated management of diagnoses, with protocols for interventions, behaviours and shared information.

– Prediction and/or anticipation dynamics of possible symptoms facing future reproductions and aftershocks (outbreaks, second waves, etc.) associated with possible similar or similar phenomena.
– Exploration of possible resistance against the damage caused or to come (defences, vaccines, treatments, etc.).
– Attempt of recovery and / of a certain "return to normality" or to a previous state, substantially

Beyond a (so far not fully demonstrated) "density factor" (secularly unhygienic, from the first philanthropic studies aimed at sponging the city in the era of the second industrialization, at the end of the 19th century and all the middle of the XX) in general, the data associated with the ratios "Pandemic Propagation/Urban Configuration/Building Type" have not yet been clear or fully contrasted.
In "urban-architectural" aspects and not only "medical-sanitary" it would be very important, at a quasi-metabolic level, to know:
A– Regarding the cities themselves: the incidence rates of epidemiology according to geographic realities of the coast, interior plain, mountains, etc.; or according to the type of urban fabric (reticular, sinuous or fragmented, compact or dispersed, vertical or horizontal, etc.; or of development and density (high densities, medium densities, low densities, etc.).
B– Regarding housing: the study of the viral incidence in the housing concept itself (conventional compartmentalization, open spaces and lofts, vertical distributions, in duplex or triplex; presence of terraces or gardens; volumes interiors with higher or lower heights, etc.)
C– Regarding the typologies: the analysis of the impacts associated with morphologies in towers, blocks, screen buildings, isolated or attached singular dwellings, or of mixed constructions, combined with facilities, commercial spaces, etc.
D– Regarding psychological-spatial factors: the epidemic but also social and socio-spatial responses, according to neighbourhood experiences - of transmission and behaviour - produced in scenarios of historical fabric-abbs, of modern and/or para-modern planning, of high or low standing suburbs; or in scenarios with innovative and experimental characteristics with a greater natural-artificial relationship (*Living-Lands, Livrids*, etc.[31]); or with their different relations – to be studied – with (and between) Nature and Landscape; with the water, with the wind, with the weather, etc.
Social behaviours *vis-à-vis* space, *in* space and *between* spaces, also speak of an important need to extend said quantitative and qualitative factors of inquiry to the public space itself, its design, its configuration and its greater or lesser urban presence and arrangement.
We could speculate a lot (although without clear or precise studies) about the current pandemic phenomenon and its re-

[31] Manuel Gausa, Abi(li)tare. Abitazione, più x meno, List Lab, Trento-barcelona, 2019

lationship with the urban; about the correlation between pandemic transmission and habitat types, in order to provide us of important relational elements for critical analysis and strategic (and operational) synthesis, as well as for future and more qualitative projections and prospections.
We could elucubrate, also, on the questionable value of the data-records, of the parameters and the tests carried out.
Study and reasoning are often confronted with strangely variable statistics and a universally shared sense of perplexity and critical intrigue or contrariety, in the face of a surprisingly shared and accepted global control; and of a new type of organization (social, economic and demographic, but also productive-domestic, culturally, politically, and even structurally assumed, multiplied by medias and means that have not stopped of reiterate messages of threat, danger, defence, prudence, fear or simply fear; messages universally agreed and that seem to translate a disciplined attempt to "resiliently" stop and overcome a terrible common episode that, once passed, can leave things as they were... although a little more "controlled".
The "multiplication" of a strange conductive "homogenization" and of a disciplined collective "acceptation" that the recent pandemic and epidemiologic stress has produced in the reasoning processes, the forced confinement and the massive use of telecommunications and new pre-5G digital technologies, the exponential dynamics of online multi-work, the physical and social distancing, the crisis (if not demonization) of the old ludic-unproductive hedonism and its replacement by a new *leisure-work* simultaneity, but also by a new hyper-connectivity without apparent intimacy or capacity for "desertion", would be – surely will be – subject matter of attention (on a sociological, anthropological and even philosophical level) to analyse and reflect.[32]
This is not the place – nor perhaps the time – to go into such questions.

[32] Manuel Gausa XXL in Adriana Aguirre Such (ed.) Barcelona: Arquitectura, Pandemia, España in «Bauwelt» 10, 2020

What is certain is that, despite the arguments previously presented that defended the benefits of a hyper-connection capable of favouring a new type of collective knowledge and intelligence – co-active– from the exponential multiplicity of some exchanges and interactions associated with the exponential access to all types of network platforms (capable of increasing the knowledge and the information, by a long access to phenomena, readings and diversified cultures and structures: more than 2,271 million are followers and users on Facebook, 2 billion on YouTube, 800 million on Intagram, 145 million on Twitter, between 2019 and 2020[33]) this new "digital age of knowledge and navigation" has not yet been able to promote large social and intellectual "common" movements of vindication, exchange and proactive criticism – cultural, organizational and/or scientific – understood as authentic global and shared experiences , with a clear qualitative, rational and hori-

[33] Source: www.statista.com

zontal component (except in some marginal academic or activist cases).
A lot of perplexities are emerging today – more than thirty years ago – about the future of this expansive, ubiquitous, omnipresent and embedded digital universe, which is consolidated today in a way that is not always as idealistic and propositional as we initially thought.
The informational interaction that was to bring tolerance, diversity, socio-environmental respect, freedom of thought and action, creativity, complicity and research on the net, playful informality and, therefore, a new type of democratic and *glocal* (global and local) *AST-ethics* and politics of progress, seems to be crossed, today, with a new type of universal control; with a new productive "slavery" – without schedules, without intimacy or long isolated relax timing– a rapid consumption of stimuli, thoughts and anecdotes, a selfish hedonism more than really ludic and playful, a standard bureaucracy in the collection of personal data, efficiency indicators or statistical lists, a certain unexpected xenophobia and a socio-economic unbalanced and distanced inequality, without mediations or clear intellectual or political responses, etc.
Although the resistance of all the current powers is trying to turn the new technologies into sources of distracting and enslaving medias forms of imposition (lack of critical knowledge and immersion in production and accrochement – chaining - online) our societies probably will return to the balancinfg equilibrium between own individual freedom, tribal inertia, collective well-being and - also - the irradicable manipulation of the driving and behavioral power(s) that have always been part of the human socio-cultural equation but also of multiple dynamic systems (from crowds to herds, swarms, benches, ... etc.).
The pioneer idealism of in-between centuries was convinced that the increase in interchanges and interaction was going to favour a really common shared knowledge favouring, more and more, a more empathic and creative inter-relationship between people and a new collective intelligence not of masses but of collective diversities called to produce changing and exchanging scenarios, in all senses, also – and especially – in spatial terms, according to the ability to influence through statistically-oriented applications and variable algorithms in a new kind of urban processes where individual and collective could be able to express themselves freely and jointly (co-cities).
In these *co-cities* also collective emergencies, activist, spontaneous, indeterminate and without complex technologies (only with empathic complicities) would be fundamental, aided by the new network connectivity(ies).
In this sense, the first cities were, rightly, social machines made to facilitate exchanges (and defense) in short, dense, compact distances; today the distances of exchanges have freed and expanded (being distant and close at the same time),

but paradoxically combining the physical and the virtual. However, perhaps the increase of the digital interfaces and applications brings our societies towards a "post-human" world, as some authors and philosophers predict, destined to combine our natural body with a whole series of implants capable of increasing, expanding, our potentials in a augmented reality even in contemporary.

Cities – and habitats – will be the great interfaces of this new hyper-responsive and reactive universe, at all levels; between us; between us and the environment; between us and our spaces of life and relationship; between us and a new nature...; between us, ultimately, and a new type of material-informational scenarios.

The COVID pandemic phenomenon seems paradigmatic of an operational logic of defensive *Resilience* (traditional) – rather than of a proactive *Resiligence* (innovative) – oriented to continue apparently maintaining and reaffirming (thanks, paradoxically, to the ubiquitous omnipresence of the new technologies) a political-social-cultural (and even creative- generative) previous systems that, some years ago, seemed to begin of faltering (thanks, precisely, to the innovative emergence of the new technologies) in its more factional, institutional, conventional or banal concretion, to be – theoretically– replaced by a new logic more open, reactive and direct; individually free, collectively (and creatively) shared and progressively, co– and self–organized.

In the *Resilience* vs. *Resiligence* confrontation there is, in fact, much to be still said and done.

II
CROSSING SCENARIOS:

contribution's introduction

Raffaella Fagnoni
IUAV, Venezia

RESILIGENCE.
DESIGNING, SOCIALIZING

"You never change things by fighting the existing reality. To change something, build a new model that makes the existing model obsolete"
(Buckminster Fuller)

Everyone often talks about resilience, in the last years. It's a fashion word that has exploded on the web and among publications in every field. Being resilient seems to be the best way to face times of crisis.

I usually start from the vocabulary when I have to face a reflection on a specific concept. The meaning of a word comes from the history of its use. A word means what its use has made it become. I have always been fascinated by the idea that words - charged with meaning and therefore strength - conceal within themselves a power different and superior to that of communicating, transmitting messages, telling stories. The idea, that is, that they have the power to translate transformations that can be the instrument to change the world (Carofiglio, 2010, p.15).
The term is originally used in the field of materials. Resilience has defined as the resistance to rupture under dynamic stress, determined by a special impact test, the inverse of which is the brittleness index. In yarn and fabric technology, it indicates the ability of yarns

and fabrics to resume their original appearance after deformation. The term is used metaphorically as early as the 1950s when some psychologists chose it referring to the human ability to protect themselves from damage caused by trauma or other particularly harmful conditions. As in material science, it indicates the ability to resist and preserve one's initial structure or form, "applied to feelings and personality structure the word [...] indicates the ability to emerge from difficult experiences while maintaining a sufficiently positive attitude towards existence". (Oliviero Ferraris e Oliviero, 2014, p.15) "There is [...] in living beings a force linked to the survival instinct that drives them to explore every possibility to get out of a difficult or intolerable situation. They are afraid, they are stressed and unhappy, in some moments discouraged and depressed, but they do not give up fighting and actively look for holds on which they can hold on to recover and rebuild themselves" (Oliviero Ferraris and Oliviero, 2014, p.18). A famous example about resilient communities is that one of Detroit: here in a few years (2001-08) deindustrialization, the collapse of General Motors and the consequent economic crisis emptied the city and the remaining citizens self-organized by leaving the ruins and working on the remains. Detroit thus becomes a model, or rather *the example*, as Mosè Ricci[2] tells us, analysed by researchers and activists from all over the world to study community practices and how to start again from them, rediscovering lost lifestyles and forms of collaboration and solidarity. To be resilient, therefore, is to try to be resistant to stress, using available resources, resist critical events that challenge one's physical environment and social fabric. (Dawes, Cresswell e Cahan, 2004)

By extension being resilient also becomes an attribute of systems, places, used, therefore, talking about computer systems, or design, thinking about buildings or technical solutions able to withstand emergencies, extreme weather events, of which Genoa has frequently been the protagonist, in recent years. "Resiligence" introduces in resilience the concept of intelligence and makes us read the presence of Genoa in the term born from crasis by Manuel Gausa. Intelligence is *intus legere*, reading inside things, beyond the visible, in substance. Therefore, intelligent is he who goes beyond the visible and discovers the invisible. He goes beyond jumping from one thing to another, and here he connects himself to the concept of resilience, which in Latin means to jump while dancing[3]. The verb resilience, *resilire*, takes form by the addition of the prefix *re-* to the verb *salire* - to go up, to jump, to make leaps, to spurt, with the immediate meaning of to jump back, to come back quickly, suddenly, to bounce, to bounce back, to reflect but also to withdraw, to shrink, to contract. (Cresti, S. 2014) A meaning adapted, in time and sense, even if today it is used especially in the contexts of social and cultural innovation as a sort of active adaptation, a dowry and a rather widespread personality characteristic, linked to identity, sense of belonging, trust and the ability to have relationships, to create bonds, to cultivate optimism, to imagine. (Oliviero Ferraris and Oliviero, 2014, Testa, 2015)

Several considerations, experiences, tales and stories - collected during the three days of the international conference Resiligence - compose a map and a story about our ability to be intelligently resilient, that is, able to follow an approach, a method of resistance and constructive opposition to the crises and problems we face.
As designers, we can make our contribution by designing in a flexible and therefore economically resilient way. To do this, it is important to give space to multidisciplinary research and experiment with actions to raise awareness on issues that we know are crucial for the future and design involving all actors in the supply chain. In addition to this, we can continue to strengthen open and bottom-up networks for the dissemination of knowledge and awareness, raising actions, collecting data and monitoring and related visual feedback.
Resiligence brings along with it the ability to go beyond typical of intelligence and project, with the attitude to do so by jumping, in a sort of dance around things, disciplines, people. Resiligence involves a field of intersections and contaminations between disciplines and approaches, between actions based on control, maintenance and those based on innovation, technologies.

• Reagente •

"A reagent is a substance or compound added to a system to cause a chemical reaction, or added to see if a reaction occurs."
(IUPAC,1997)

A reagent is defined as any substance that takes part in a reaction. To take place, the molecules of the reagents must collide with energy, called activation power, sufficient to produce a transition state that evolves later in the reaction products. The conception of a brand starts in this way, as a binder able to amalgamate all the subjects able to activate themselves so that the state of paralysis and crisis, reflected in the urban voids, can evolve into a rebirth of spaces as a fertile ground for social experimentation, actions and events that propose reuse from below and new temporary appropriation. The reaction to abandonment implies a look capable of seeing buildings and empty spaces as a laboratory for informal actions, an instrument of anticipation.
Reagente aimed to investigate the possibility of involving people in co-design processes to create a blueprint for a quality label. The Lab re-cycle[4]., through an agreement signed with the Municipality of Genoa in the framework of the national research Re-cycle Italy, concluded in 2016, undertaken an applied research that defines a strategy for the management of policies and procedures for the temporary re-cycle, as an opportunity for design action for the enhancement of the territory. It started from the observation phase of experiences carried out by active Genoese citizens and groups of activists.

WHAT.

A trademark assigned at those interventions regenerating, reusing abandoned or disused places. It is conceived for recognize a role to those citizens involved in, to facilitate processes and to simplify assignment procedures.

HOW.

Starting from the sharing of common values the project proposes a simplified assignment procedure, evaluating the fulfilment of requirements and criteria, to obtain the label.

WHO.

A network involving activists, associations, together with institutions, municipalities. It aims at taking care of public spaces, services, social activities, as catalyst for new opportunities.

Reagente proposes to simplify policies, to embed reactivation in our cities and to enhance social innovation. Reagente aims to define a tool conceived as a brand; to test an inclusive and participatory process; to define guidelines and labelling requirements for activists in order to communicate their actions and to spread shared values. The city is perceived as an experimental laboratory, where people cooperate to produce social, economic and environmental benefits taking care of urban voids. In this direction, the label will certify the initiatives of active citizens, regulates the activities carried out and becomes a tool risen from below rather than imposed from the top.

The concept takes a look at how service design, activities and branding/labelling are connected to each other, and how a better relationship could improve people experiences. It needs to be represented through the passing of time, using service representation tools as a timeline or a storyboard. Furthermore, it works as a brand, acting as a meme, spreading from mind to mind, and able to catalyse collective changes (Fagnoni, R. 2014) The creation of a quality label can be a way for spreading values related to interventions, and for testing urban, environmental and process quality. The brand tells us a story on how we can face the present future of our cities. Working in and for a resilient society means offer citizens a chance to participate in a democratic process of co-designing future solutions.

Main References

Belpoliti, M. 2013, *Resilienza, l'arte di adattarsi*, in "Il Sole 24 Ore / Domenica", del 15 dicembre 2013, p. 44 (riportato in "Doppiozero": http://doppiozero.com/materiali/che-fare/resilienza-larte-di-adattarsi, accessed 2016)

Breton, M. (2001). *Neighborhood resiliency.* Journal of Community Practice, 19(1), 21–36.

Carofiglio, G. (2010) *La manomissione delle parole*, Milano, Bur

Clauss-Ehlers C. S., Lopez Levy L. (2002), *Violence and community, terms in conflict: An ecological approach to resilience*. Journal of Social Distress and the homeless 11(4) 265-278

Cresti, S. (2014), *L'elasticità di resilienza*, in Accademia della Crusca, (http://www.accademiadellacrusca.it/it/lingua-italiana/consulenza-linguistica/domande-risposte/l-elasticit-resilienza, accessed 2016)

Dawes S. S., Cresswell A. M, & Cahan B. B. (2004) *Learning From Crisis. Lessons in Human and Information Infrastructure From the World Trade Center Response*. Social Science Computer Review, 22(1), 52-66.

Fagnoni, R. (2014). *(Ri)costruire il senso. Verso un marchio di qualità* Re-cycle Italy, in

S. Marini, C. Roselli, (edited by) *Recycle Op-positions*, Vol. 1, collana Re-Cycle Italy, vol. 05, p. 33-37

Fagnoni, R. Ricci, M. (2016) *The Future is Backwards. Re-Cycle as Destiny*, in Project anticipation. When Design shapes futures in architecture and urban design, proceedings of the First International Conference on Project Anticipation, session "Design and anticipation", Edited by Daniele Fanzini, Maggioli Editore, p. 75-87

Fuad-Luke, A. (2009). *Design Activism: Beautiful Strangeness for a Sustainable World*, London: Earthscan

Manzini, E. (2015). *Design when everybody designs. An introduction to design for social innovation*, Cambridge: MIT Press.

Mulgan, G. (2006). *Social innovation. What it is, why it matters, how it can be accelerated.* London: Basingstoke Press

Oliverio Ferraris, A., Oliverio, A. 2014, *Più forti delle avversità. Individui e organizzazioni resilienti*, Torino:Bollati Boringhieri

Ricci, M. 2015, [*Learning from*] *Detroit, strategie di resilienza*. tsm_step, Trento (http://www.paesaggiotrentino.it/documenti/Documentazione/Pubblicazioni/Papers/2015_stepincontra_progettopaesaggio_ricci.pdf, accessed 2016)

Environmentals aims

Maurizio Carta
Università di Palermo

DESIGN AUGMENTED CITIES IN THE NEOANTHROPOCENE

• *The Neoanthropocene Revolution* •

Crutzen and Stoermer defined the term Anthropocene to indicate the consequences on the planet produced by the pervasive presence of human activities since the industrial revolution through the acceleration of territorial, social and climate changes (Crutzen, Stoermer, 2000). However, they never imagined that, in the last fifty years, a massive "anthropo-development" would have produced such anabolic effects able to generate an enormous human footprint on the planet.

The human footprint produced a steady erosion of resources, of which the soil is the most obvious and alarming. Beyond the soil, the cultural identities and the vegetation patterns of the habitats were consumed, vital urban and rural metabolisms were anaesthetised, water and waste cycles were interrupted, and mobility became sclerotic and ineffective.
This dark footprint eroded the capacity of urban settlements to entertain ecological and productive relationships with rural land, it sedated the productive and generative capacity of local manufacturing, anaesthetising the endogenous factors

of development, and neglected the regenerative value of building maintenance and care of places as circular processes have been interrupted or diverted.
After numerous planet's alarms went unheeded, after crossing many times the limits of growth, often with dramatic consequences, the economic crisis of the past decade – with its virulence that has infected the productive, social, cultural, and even political structures – showed all the critical points of the linear expansive development model. On the one hand, this process produced the evangelists of the de-growth and development objectors, prompting planners to "disengagement or a crippling sense of guilt" (Sijmons, 2014a). On the other it generated active planners and city makers – including us – as proponents of an effective sustainable development, visionary and pragmatic at the same time, and convinced us that we can live in a "good anthropocene" (Rockström and Klum, 2015). We must be able to manage the transition from consuming-based Paleoanthropocene towards emerging prosuming-oriented Neoanthropocene, reactivating the traditional alliance between human and natural components such as co-acting forces (Brugmans and Strien, 2014), guided by an ethic of the integration of man and nature, and of cities and the environment as collective responsibility against the Global Change, starting from the cities (Owen, 2009; Hall, 2013). The Neoanthropocene – for me a "rur-urban anthropocene" – challenges us as researchers, educators, and designers to adopt a responsible and militant approach and to have the courage of a metamorphosis that not only reduces the ecological footprint of human activity, but which uses the collective intelligence – the noosphere – that results from new ideas and sensitivity to environment, landscapes, and cultural heritage, spreading globally in a renewed integral ecology that becomes planning protocols, urban devices, and new life cycles (Swilling, Hajer, 2016). We must be leaders of a structural change in which cities – with their hyper-metropolitan, reticular or rur-urban patterns – are called upon to reactivate their territorial capital led by an urbanism able to guarantee new forms of convergence among cultural, economic, environmental, and social sustainability. And not only through the adoption of renewed visions of the future or the use of new paradigms, but above all through the effectiveness of the decisions, the quality of projects, and the efficiency of processes.
More advanced urban planning, sensitive to identity-oriented innovation, seeks accountability to regenerate conditions of existence, role, and involvement. And to reconsider its own epistemological nucleus in relation to new sources and forms of knowledge and to revise accordingly its toolbox, replacing some outdated regulatory instruments with more effective design tools capable of acting in concert with the growing number of non-institutional planning practices.
The recent UN-Habitat III Agenda, with the participation of

important preparatory contributions, clearly indicates that a more intelligent, sustainable, competitive, and equitable development requires a paradigm shift in which the territory is understood as a primary resource, considering it a holder of delicate developing cells that are often underutilised or damaged than seen as the real potential of use (UN-Habitat, 2016). We must change the city designed and built on rented land with cities of social and cultural profitability, of value creation, and of production of new jobs: circular cities that recycle the soil already used to prevent the scatter of energy; smarter cities that are more responsive, sentient, and capable of activating the collective intelligences; collective cities that are more dialogue-oriented and sharing-based, and therefore more responsible; open cities that reduce inequalities by reshaping connections between plural communities. Even the European Horizon 2020 strategy to support research and development advocates the use of "urban mines" (vacant areas, dismissed infrastructures, and abandoned buildings), adapting the urban policy to the Life Cycle Assessment approach – from the supply of raw materials (soil and disused containers) to the end of the cycle (new uses and functions), using a minimum of energy and financial resources, indeed reactivating the latent energy and the inner resources.

The human habitats will have to act within a new evolutionary model, the result of innovation produced by the fourth industrial revolution and the start-up enterprises' model, by the action of the makers, by the creative energy, and by the metamorphosis into a circular economy. This must include a more responsible rur-urban model able to reshape the production targets of tangible and intangible assets, to review the energy and mobility protocols, but above all capable of rethinking the settlement pattern. A new holistic thinking that produces reuse, recycle, and creative development within a new generation of capitalism – the "capitalism 4.0" (Kaletsky, 2010) – which generates the "next economy" (Brugmans, van Dinteren, Hajer, 2016) produced by the integration of renewable energy and by a circular economy, capable of creating new value by the re-cycling processes of the new urban metabolism. The commitment of decision-makers, planners, architects, citizens, and enterprises will be to work on urban settlements characterised by surplus and overproduction derived from changing urban patterns, on dismissed settlement tissue, rural areas in transition, and infrastructure networks in transformation. They will have to be addressed by modification, removal, or re-invention actions through which the components are rebooted, without destroying them but changing some functions pursuing generative perspective and increasing their creative resilience.

Recycle is not only one of the main actual keywords of planning, architecture, and design (Ciorra, Marini eds., 2011; Marini and Rosselli, 2014), but it is one of the most powerful thoughts guiding the transformation from a dissipative linear econo-

my to a circular regenerative one, for cities and territories that want to walk the stairway to heaven of sustainability, quality, and creativity. In the circular economy flows of materials are of two types: organic ones, able to be replenished in the biosphere, and technical ones, intended to be enhanced by a system in which, starting from extraction and production, all activities are organised in a way that waste of resources becomes a creative stage for the next step. According to the principles of circular economy, nothing is a waste: all that is discarded from a production process is the raw material for other generative processes, and the very product design is based on the possibility of taking off parts and reusing them across subsequent production processes based on supply chain cooperation and new production networks – a more creative "programmed recycling" in place of consumerist "planned obsolescence" (Ellen MacArthur Foundation, 2012). A more open and collaborative circular society, based on sustainability and sharing, is the catalyst that allows the economy to transfer its effects on land and on community's life cycles, activating and extending the dividend of sustainability (Bonomi, Masiero, Della Puppa, 2106).
The circular society demands a new political responsibility – hence also a challenge for urbanism – with regard to cities that return to being welcoming to people, attractive for ideas, generative for businesses, and supportive for community archipelagos. It requires implementing concrete actions to ensure a new balance between rural, urban, and land development, between landscape warps and infrastructure wefts, not only by placing limits on indiscriminate land use but especially by stimulating, encouraging, and rewarding the reuse of areas already urbanised and the densification of specialised functions connected to each other by territorial devices. To plan cities in the Neoanthropocene of circular metabolism means to refuse the consolation of a molecular approach, to get inspiration from the ecosystem approach, and to be guided by a new vision – that could be far-sighted enough to look far into the horizon of innovation, but also one that could be able to relate back by recovering wisdom, rituals, and self-sufficient/circular practices. We also need effective paradigms and practical projects capable of acting for a true "re-cyclical urbanism" (Carta, Lino, Ronsivalle eds., 2016), able to influence the urban metabolism by recombining the genetic code contained in areas and flows – to recirculate them, often fragmented or weakened, but that are still able to generate new tissue if reactivated by the vital energy produced by cycles of water, food, energy, nature, waste, people, and goods; flows that have impacts on the daily life of cities and communities, and inevitably contributing on a large scale to the reticular connection of settlements. Reconnecting them in a holistic view of metabolism is one of the biggest challenges for urban planners, designers, decision-makers, and citizens in order to give new impetus to the circular Neoanthropocene, connecting its technical and spatial compo-

nents with its social and moral dimensions (Sijmons, 2014b). At the end, we need new types of spatial plans and urban projects that work on place-making strategies and protocols rather than comprehensive plans, we need processes and projects that work with simple, incremental, and adaptive rules rather than assertive masterplans, generating actions of settlement only on regulatory levels. I called Augmented Cities the human settlements characteristic of the societies that have entered the Neoanthropocene (Carta, 2017). The Augmented City is a new paradigm that generates a spatial, social, cultural and economic device capable of providing new and urgent answers to the metamorphosis we are going through. The Augmented City is the answer to the four main revolutions of contemporary society: the knowledge society, the network society, climate change and urban metabolism (Fig 1). The Augmented City enhances the quality of human settlement through the joint action of sentient, collaborative and intelligent cognitive devices, for the increase of productivity, creativity and recycling, aimed at improving resilience, fluidity and reticularity.

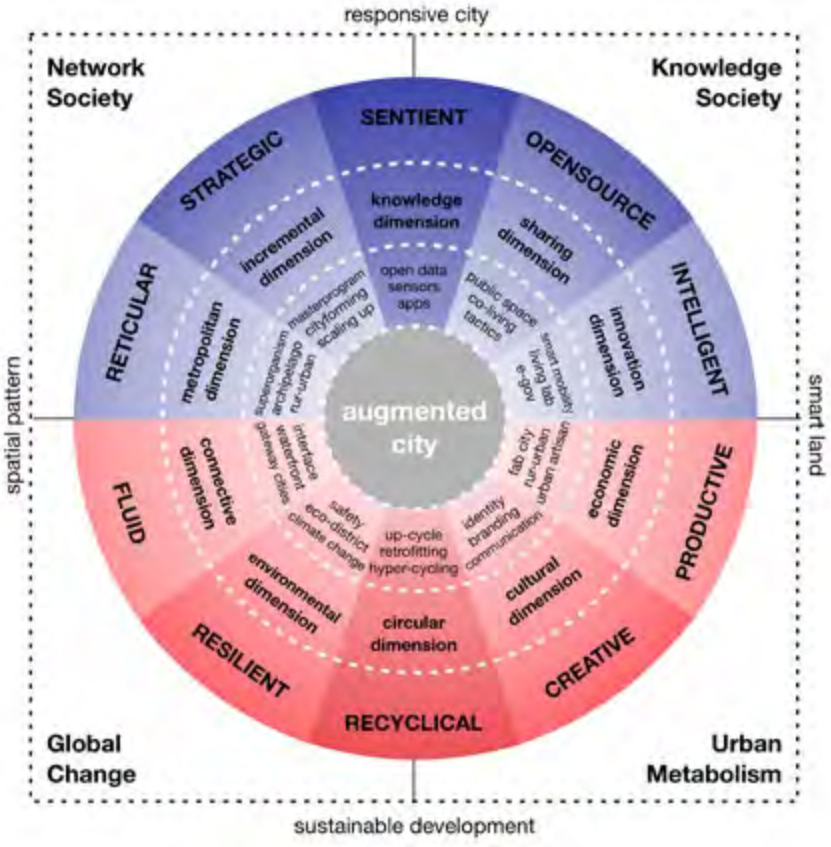


Fig. 1 - The Augmented City Circle

• The challenge of hyper-cities •

The contemporary city shows, today even more clearly, its evolution towards an increasingly complex and comprehensive system, a self-aware mix of varied functions (including rural and landscape ones) and towards a product made of locally distributed collective skills. In the new, extended, networked, and multipolar metapolis (Ascher, 2009), the city's plural nature is increasingly rebelling against single-functions and single-centre approaches. The spatially concentrated city, divided through parts and functions, is being replaced by non-gravitational networked cities, divided into epicentres and networks, with complex hubs of networked and open urban armatures, intertwined with as many global and local networks. This outcome runs the risk of an identity loss brought about by the constant search for models produced by third parties generating a fuzzy meta-urban entity instead of a multiple and rich identity. One of the responses to contemporary cities' anomia, in their progressive loss of a complex identity in favour of microspecific identities, is the creative application of the principles of reticular polycentricity, in order to ensure a greater variety and liveliness within the urban fabrics. Housing, work, production, culture, and leisure must all be linked with one another in time and space, not only to reduce the travel time, to save energy, to reduce pollution, to allow time for socialising, but more generally to rethink the parts of the city and the cities within the same functional region as a system of interacting communities (fig. 2).

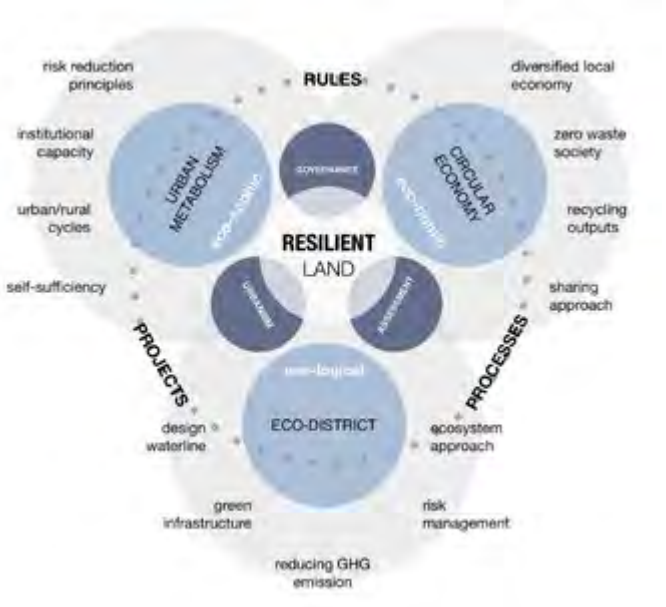


Fig. 2 - Resilient City - System of interacting communities

Rethinking the development model shall also focus on the metaphors that have accompanied it. The eco-system approach has set the example regarding the need for interaction among all development actors. But biology teaches us that the ecosystem is effective as long as the competition between organisms does not become fierce (e.g. owing to a sharp contraction of resources or overpopulation), which would eventually lead to the system's self-destruction. This is the situation of most of the existing relations between cores and belts: all active flows related to economies and services go to the centre that no longer has the resources to fulfil them effectively. The result is a hyper-attractiveness, a frustrating distribution of flows, and above all a constant congestion that generates discomfort and degradation, rather than facilitating economies of scale for which the metropolitan relation was initiated. We have to redefine the metropolitan relation with a more collaborative mode (Soja, 2000).

This is the reason why we ought to shift to the "super-organism" metaphor, this means the number of individuals organised in societies where everyone plays a clearly defined role and – as components of a perfect mechanism – move in unison, contributing to the incremental development of the organism. The metropolitan super-organism is above all a polycentric urban/rural system, a human settlement of networks and hubs, offering numerous opportunities, and diversified by places' identities and resources. The core city, therefore, is a gateway city that acts as an urban engine to redistribute the flows from itself towards other nodes. So, the super-organism is a system of specialised city nodes that acts as service core, residential core, productive core, with a more effective distribution of function regarding gateways, innovation, and efficiency. In this way, cooperation replaces gravitation and puts the system back into balance, even with a reduced amount of resources available – ready to draw on the potential of an open and distributed system: of open To achieve these objectives, at the local level, urban policies are needed to allow functional integration without forcing anybody to move to large urban centres, as well as the continued implementation of appropriate projects capable of preventing urban decay, uprooting, and standardisations that too often characterise urban belt systems. Policies will have to take into account the needs of the different communities inhabiting the urban-rural armatures of the future, avoiding uncritically privileging main hubs, producing instead new poly-centres, and focusing only on the monothematic economic capital. The social, cultural, and spatial capitals shall be enhanced by the new city-networks (Cattan, 2007).

Network polycentrism might be able to act not only as a functional integrator (of housing and services), producing positive effects on the urban and spatial planning, but also as a catalyst of new settlement cores, especially based on the cultural and identity matrix. Strengthening identity, however, is not enough

since the city lives and evolves only as a global/local network hub of mutual connections and synergies, where cities and local systems compete in a supra-local scenario to turn into development-driving forces (Albrechts and Mandelbaum 2005). The ability to catch the competitive advantage is linked with the presence of a different local innovative environments, not only characterised by functional and geographic conditions (the traditional Atlantic and Central European polycentric systems), but increasingly generated by cultural identity or territory's quality (the new polycentric systems of the Mediterranean and Latin arc). These are the new keywords for a successful strategy in the increasingly fierce territorial competition. I call these new territorial patterns "territorial archipelagos", a true ecosystem able to offer significant hubs to connect tangible and intangible resources to the global networks (e.g. through thematic networks), and to other smaller local entities otherwise excluded from larger networks. The territorial archipelago is an urban and rural settlement system connected by landscape, productive, and mobility infrastructures that act as connective interfaces.

The connective system of the territorial archipelago consists of a perimeter belt of landscape made around urban areas with different ecosystem functions: agricultural/ productive, river corridor, re-naturalisation fields, sport facilities, slow mobility, etc. In several experiences the rur-urban parks become the connective tissue of urban islands and their framework of resilience. The territorial archipelago does not act as a single organism as the previous superorganism but uses the power of its reticular relations sharing identities, roles, and hierarchies. It acts as an "urban bio-region" (Magnaghi and Fanfani, 2010) able to redefine the structural territorial relations (spatial, environmental, social, cultural, and economic) towards an ecosystem armature as a proactive complement of the metropolitan network, within a new alliance instead of a traditional conflict.

Several Mediterranean polycentric systems, such as Andalusia and Murcia (Spain), Provence, and Languedoc-Roussillon (France), the network of green cities in Murgia and Madonie, and the World Heritage historical centres of Val di Noto (Italy) have been experimenting, for years now, with the local rooting of green infrastructure and digital networks, cultural and slow-living armatures, open technological skills, as well as innovation within local administrations. This self- management ability of the local domain empowers the minor local actors to grasp the competitive advantages offered by local networked systems in the new European challenge. The EU project URMA (Urban-Rural Partnership in Metropolitan Areas) acts in the same direction, aiming to improve urban-rural cooperation and to contribute to territorial cohesion. It promotes urban-rural partnerships as a tool to strengthen the potential for the generation and transfer of innovation in European territories. Urban-rural partnerships can

be characterised by some relevant spatial aspects: a) at the small scale: inner-metropolitan area of cooperation between metropolitan core and peripheral areas (e.g. Florence metropolitan area); b) at the medium scale: inner-metropolitan region cooperation between urban areas and rural areas. This also includes predominantly rural areas with a polycentric structure (e.g. Twente-Borne); c) at the large scale: supra-regional cooperation of metropolitan core /area /region with rural areas, defined on a more global scale (e.g. Hamburg-Jutland).

• Adaptive and incremental strategies in the Neoanthropocene: the Cityforming Protocol •

In Europe, the season of urban regeneration has produced important effects both in the review of the design devices and in the rethinking of the settlement forms and their spatial and human relations. But it cannot be denied that certain diseases emerged which often have anaesthetised, if not cancelled, the regenerative effects envisaged. The transition, while it has increased the use of urban regeneration processes from the bottom, has at the same time extended the epidemic of failures derived from a top-down approach. The critical issues of hierarchical urban regeneration cannot be solved by revising the procedures for participation, improving design devices, or innovating implementation processes, but by overturning the view. For the regeneration of urban areas characterised by marginalisation and decline, by the disposal of buildings and infrastructure, and by the functional underuse or weak reactivation cycles (mobility, water, waste), we need a real and effective process that must take an approach that not only refuses the traditional and ineffective top-down strategy, but that will not yield to the, rhetorical and superficially comforting, tactical bottom-up.
We need a hyper-strategic circular approach, programmatically incremental, procedurally recursive and projectually flexible, rather than a closed and simultaneous strategy. The traditional masterplan, inflexible, instantaneous, and almost unchanging in its implementation – ineffective in areas that cannot enjoy the destination of significant public or private resources (now almost disappeared in transition European cities) – must be replaced with a "masterprogram" knowingly temporised and adaptive, capable of composing a comprehensive vision by implementing piecemeal, capable of timely and temporary action, but one that has the generative force of a new future, and that knows how to turn on some autopoietic and self-sufficient processes. In times of crisis of development models, of the transition of settlement patterns, and of the reduction of public resources, the sustainability of urban metamorphosis should be implemented through a regenerative process that proceeds by successive cycles – driven by an overall vision but capable to adapt to the concrete outcomes of

the implementation process. A hyper-strategic urban regeneration must create itself the conditions for success to feed the next steps, it should produce a portion of the value on which to trigger the subsequent investment, it must generate the oxygen that fuels the urban atmosphere – which brings housing, productive, commercial, and cultural relations to new life that will regenerate the area. An incremental process designed by a new community to bring back into life the abandoned or declining areas. It acts through the connective skills that are active in its territorial components – creating new ones, changing their composition, or facilitating interactions – in such a way as to make it capable of supporting new ecosystems. I called this process Cityforming Protocol, a planning protocol – not a standard or a model – able to reactivate the stationary metabolism of an area step-by-step, starting from its latent regenerative components, enabling multiple cycles, increasing intensity to create a new urban sustainable ecosystem over time (Carta, 2017). The strategic Cityforming acts for incremental and adaptive steps required to produce partial results that become the foundation of the next generative phase. The Cityforming, progressing through the stages of colonisation, consolidation, and development, produces the necessary "urban oxygen" for the formation of an appropriate ecosystem able to generate a new active metabolism that reactivates inactive cycles, reconnects the broken ones, or that actives new ones more adapted to the new identity of transition places.

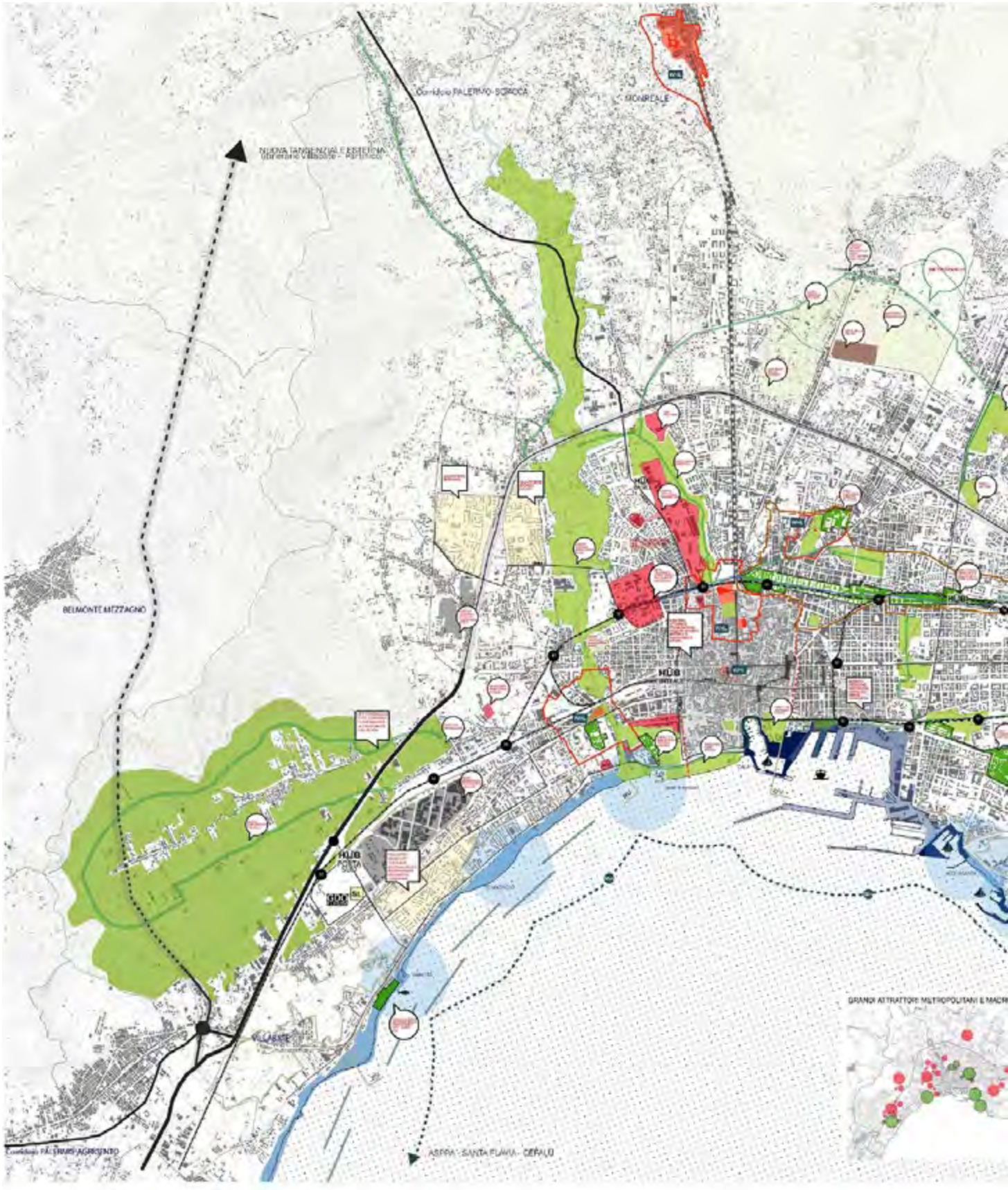
The conceptual model shows the sequence of the three phases with their characteristics and devices (fig. 4). In the first phase of colonisation, some functions are localised in order to act as reserves of oxygen for the formation of the new atmosphere. There are new functions, or the recovery of buildings or spaces, that can be called "stem cells" because, although grafted through planning action, they have not dissimilar features and functions from existing tissue. These urban stem cells act as new urbanity activators – in different forms through which we express the city – and can be ecological areas of naturalisation, plug-in energy devices, low cost smart blocks, living labs, and micro-productive districts for digital manufacturing, redevelopment of public spaces, etc. Colonisation, also, is implemented through the removal of some infrastructural or environmental detractors that reduce the vitality of the area to facilitate the reconnection of ecological networks for the reconstitution of the environmental network. The regeneration colonies are characterised by a high self-sufficiency and generated by their ability to be energetically autonomous through a massive use of renewable sources, their ability to produce sufficient profitability to support maintenance costs, their ability to activate forms of widespread partnership for management. The colonies must also have a strong recognisability factor with respect to the context, because, although low-intensity processing, they serve as landmarks of the transformation, act

as witnesses to the reputation of the district, and operate as urban marketing agents. The prevailing paradigm that is used at this stage is that of the Tactical Urbanism with a short time horizon within which the next steps are to be activated. The colonisation of Cityforming, however, presupposes subsequent local roots, and creates the conditions for triggering a chain reaction that strengthens the effects.

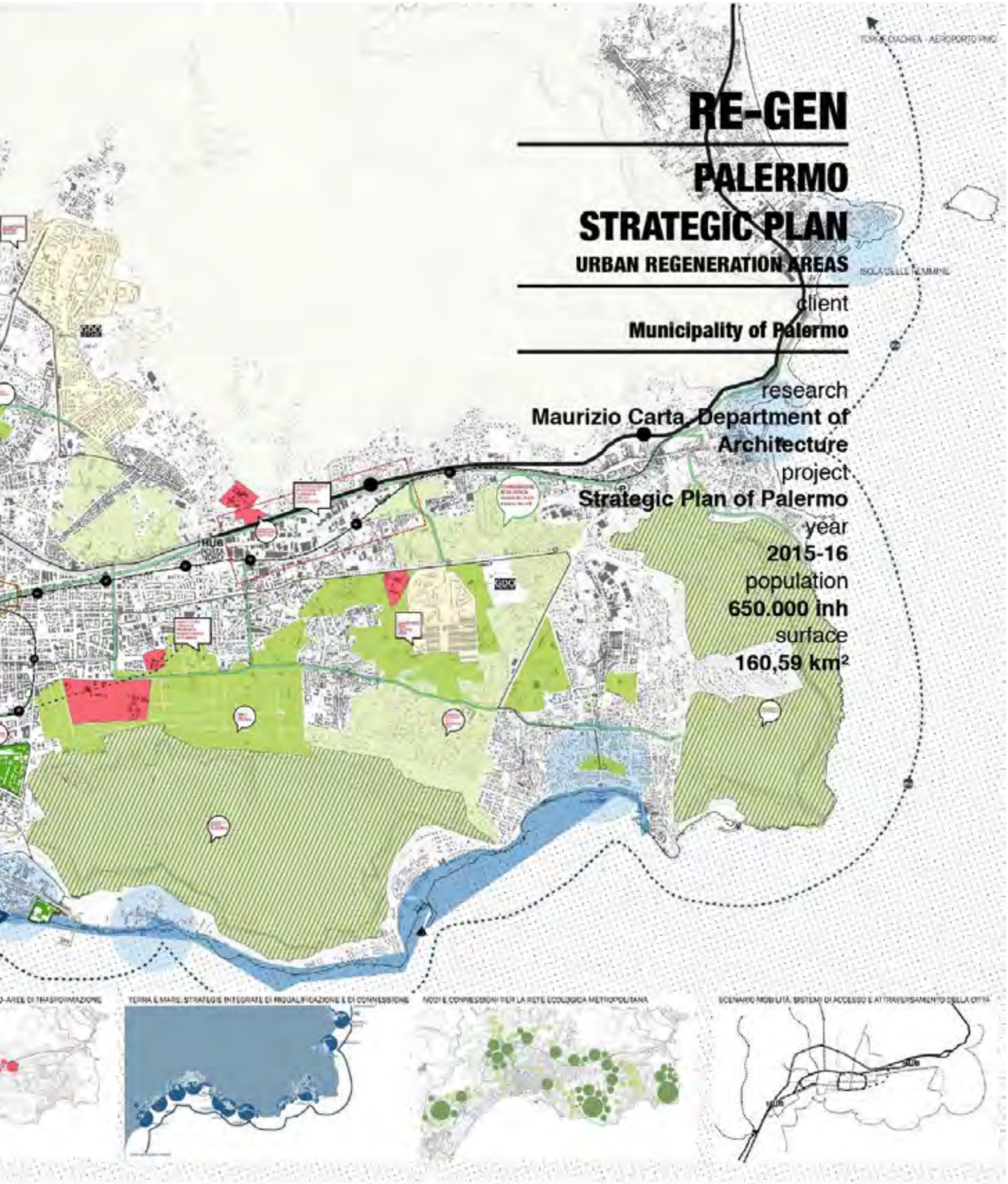
The consolidation affects the new ecosystem being formed by grafting some more valuable and powerful features from the point of view of the generation of profits and economic values. This step is financially supported by the increase of land value and attractiveness of the area. Ecological and smart neighbourhoods, makers districts and energy communities, green factories and attractors for new urban archipelagos or infrastructural gateways act through a hyper-cycling process that activates several cycles in order to achieve a sufficient supply of attractive and productive functions.

The consolidation also acts through the reactivation of latent resources already present in the area and which have been stimulated and positively perturbed by the step of colonisation. The consolidation phase acts more for networks than for nodes and loses a bit of its self-sufficiency and autonomy, often starting to use the local resources – the material ones, but more often the intangible ones – to take root and to grow, also starting a process of camouflage with the context that reinforces its presence. Often the existing residents help new users attracted to the colony in the integration process. At this stage, some tactics or some actions of the "third landscape" from the previous phase are involved in an Open Source Urbanism process that modifies them, mixing with the local intelligences and integrating with urban acupuncture actions, in order to transform them into strategies to extend their reactivation effects of urban cycles in depth. In this phase, with a middle-term horizon, the initial flows produced by the attractiveness of users is replaced with the stability of new residents that contribute to grow demand for services and to strengthen the care for places, including agreements and pacts.

Lastly, the development is the long-term phase with a horizon of at least ten years, in which the new metabolism of the area is put into operation to generate new urban values. At this stage, following the metamorphosis produced by the first two phases, a light masterplan of the whole area can be drawn up, based on the new identity of the place. It would be more fertile by the success of the previous stages, being able to tap into a greater investment multiplier effect, and able to support the infrastructural investments required for completing the transformation of the area. In this phase, the masterplan makes sense since it acts in a time of change and in a more advanced stage where the decision-makers and the community can verify the soundness of the development vision. It is not, therefore, a comprehensive masterplan that assumes in advance the con-



RE-GEN. Palermo Strategic plan, Urban Regeneration Area



RE-GEN

PALERMO STRATEGIC PLAN

URBAN REGENERATION AREAS

client
Municipality of Palermo

research
Maurizio Carta, Department of Architecture
project
Strategic Plan of Palermo
year
2015-16
population
650.000 inh
surface
160,59 km²

Fig. 3 - City Forming Protocol

ditions for its implementation or which intercepts economic and entrepreneurial resources already given – a flexible land-use plan acting on new urban ecosystems, that is specified for the changed conditions of the re-colonised and consolidated area. In this step it generates the necessary deep innovation capable of allowing the construction of eco-cities, creative districts, new metropolitan bodies, urban and rural development projects, regional parks. It is connecting urban and rural dimensions, and new integrated platforms within new development scenarios – as complex territorial equipments that allow the completion of the Cityforming process.

The Cityforming Protocol does not implement a predefined view for temporal excerpts, as it would be the result of a preliminary top-down planning process that requires huge financial resources for its full implementation, and that requires the activation of a high land income or real estate revenue for the realisation of all the infrastructures. The Cityforming generates, however, a program of actions, tactics, controlled testing, and re-appropriations that compose and define the functions of the partial results, based on the consolidation of new roles in the urban-rural area, based on values and expectations that are generated by new inhabitants, new services, and based on new forms of cooperation, by the tax facilities and by new urban economies generated in the first two phases. So, the third phase can stand on the new urban/human ecosystem solidified by the first two. The Cityforming constantly works within

the dimensions of the project and the process, by activating actions within a predicted scenario, which effects will set up the specification and definition, thus consolidating the trend scenario or helping to form a new programmatic scenario (fig. 5). The process of Cityforming, therefore, not only has to set incrementally processing and reactivating actions – of latent resources and interrupted cycles – but it acts as an antidote to the gentrification often related to urban regeneration. Colonisation, indeed, precisely because of its transformative low intensity and for its generative stem function on new spatial and social tissues, does not induce an instantaneous transformation that eradicates the local identity for the benefit of an external attractiveness. But, colonising actions act as catalysts of the local identity resources, working on the palimpsest rather than on conforming its superfluity.

The Cityforming Protocol is not just an urban design and planning strategy, or an innovation in urban policies, but acts as a powerful disruptor of territorial organisms in anaesthetised metabolism, with reduced or declining vital energy. It does not act by entering external energy, which could not keep the compromised metabolism active for a long time but takes care of the internal tissues still present as vital factors. It redials the latent ecological resources, reactivates the resilient social networks, and revives the manufactures to generate the indispensable basis of territorial and social capital on which the fruitful seed of the rural-urban sustainable regeneration projects can take root in the Neoanthropocene.

RESPIRA

CITYFORMING TARANTO

CREATIVE AND RESILIENT STRATEGIES FOR URBAN/HUMAN REGENERATION

client
Invitalia (competition)

project
Mario Cucinella Architects Srl
with
Maurizio Carta
Luigi Oliva
Studio De Vita & Schulze Architetti
Tms Engineering Srl
Patrizia Di Monte
Land Milano Srl
Carlo Colloca
Ezio Micelli
ActionAid
Domenico Mancini
Antonella Agnoli
et al.
year
2017
population
2.400 inh
surface
1.533 ha (included the Borgo)

02 STRATEGIA MASTERPROGRAM

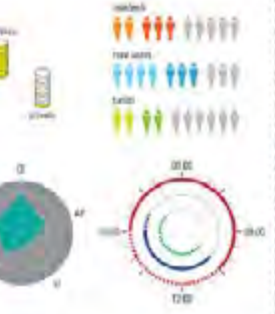
La strategia proposta per la Città Vecchia rifiuta il tradizionale masterplan rigido, inamovibile e pressoché immutabile nel tempo della sua attuazione. Propone un Masterprogram interamente temporalizzato per fasi successive, e adattivo al contesto e alla reazione della comunità agli effetti dei primi interventi.

FASE 0 | 2018
FORMATTAZIONE
SPECIFICHE POLITICHE PUBBLICHE

La fase di Formattazione è intesa come una fase preliminare che comprende l'avvio di azioni propedeutiche e complementari alla Colonizzazione e al Consolidamento. Sono previste azioni di messa in sicurezza dei luoghi e degli isolati resi fragili dall'abbandono, di demolizione finalizzata alla ricostruzione di nuovi edifici e di diradamento selettivo finalizzato alla realizzazione di luoghi spazi aperti, di infrastrutturazione di base dei principali immobili pubblici in buono stato necessaria per accogliere le funzioni previste dal progetto e messa a valore delle principali risorse storico/archeologiche (come la Colonna Arcadia e il Tempio San Martino). Vengono quindi attuate le prime azioni sulla mobilità, per depotenziare la mobilità carrabile sul waterfront e rendere fruibili le due porte di accesso, Porta Napoli e Piazza Castello.

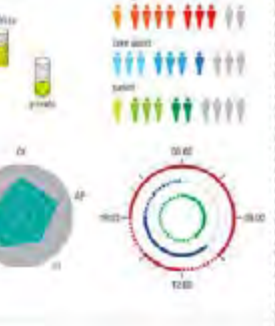
FASE 1 | 2020
COLONIZZAZIONE CREATIVA
PARTECIPAZIONE PER L'AZIONE

Nella fase di "Colonizzazione creativa" vengono localizzate le prime funzioni che agiscono come catene di ossigeno per l'innesco della rigenerazione, attraverso una distribuzione omogenea dei servizi di vicinato, maggiore sicurezza e qualità urbana. Le colonie agiscono come gli "Anelli di San Cataldo" nel Mare Piccolo che, narra la leggenda, nacquero dove San Cataldo gettò il suo anello placando le acque tempestose del mare attraverso un varco in prossimità della fondatrice. Non sono estranee al contesto, possiedono elevata autosufficienza e forte riconoscibilità.
Le posizioni e gli accessi identificano le sezioni trasversali su cui agire per connettere o riconnettere i vari livelli della città. L'asse di via Cava accoglierà una Regeneration School, laboratorio internazionale di ricerca sulla rigenerazione urbana; l'asse di via Nuova il Fab Taranto, distretto della produzione digitale e artigianale; infine, l'asse di via Immacolata realizza l'alleanza tra patrimonio culturale e creatività attraverso un Heritage Center.
La mobilità privata diventa a doppio senso su via Garibaldi e si limita la circolazione su Corso Vittorio Emanuele II al TPL, potenziato con interventi di people moving a zero impatto ambientale: i parcheggi sono razionalizzati in edifici fuori terra all'esterno dell'isola.



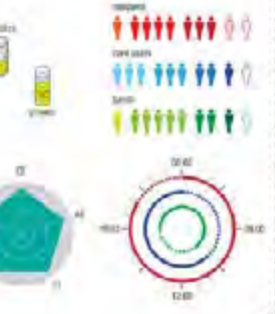
FASE 2 | 2025
CONSOLIDAMENTO
PROMOZIONE E SVILUPPO DELLE INIZIATIVE

Il Consolidamento agisce sul nuovo ecosistema in formazione attraverso l'inserimento di ulteriori funzioni più pregiate nei pressi, sviluppato economicamente dall'incremento di valore e di attrattività generato in precedenza. Nei 5 anni successivi ai lavori sulle connessioni dei vuoti e dei modi precedentemente individuati, attraverso una progressione retroattiva che comprende e rafforza le gradualità, gli spogli e le via Duomo e di Mezzo. Si utilizza maggiormente il lungomare giapponese che collega questi e frattura con l'ora, rendendolo un elemento preziosa alla nuova organismo. Si incentiva il riuso dei piani terra e degli isolati sfitti o degradati per l'avvio di attività laboratoriali, artistiche imprenditoriali e artigianali, ed arrivano agricoltori nascite ad artisti, designer, associazioni, artigiani. Vengono proposti interventi di maggiore intensità, con il restauro degli edifici e la ricostruzione in chiave contemporanea di alcune volumetrie precedentemente demolite ma importanti per il tessuto, destinate a funzioni residenziali e miste, innovative nelle modalità di gestione. Comincia l'attivazione dei due waterfront: i sistemi galleggianti sul Mar Grande permettono di recuperare il contatto diretto con l'acqua; l'ampliamento dello spazio pubblico e del verde sul Mar Piccolo recuperando la balaustra e le parti erose le mobilità.



FASE 3 | 2030
SVILUPPO RESPONSABILE
EVOLUZIONE E CRESCITA

La Sviluppo è la fase di lungo termine in cui il nuovo metabolismo dell'area funziona autonomamente per generare nuovi valori, e sorreggono degli interventi più maturi e strutturati.
Con l'accompagnamento della Regeneration School, che funge da strumento operativo permanente della rigenerazione dell'area, viene redatto un Masterplan di sviluppo dell'area non interessata dalla prima fase, che ha senso prefigurare e verificare dopo la fase di consolidamento, giacché si agirà in un tempo più avanzato della rivitalizzazione della Città Vecchia del decennio successivo.
Un progetto complessivo di sviluppo non più vellebitario e puramente previsionale, ma fondato sulla nuova identità che la Città Vecchia ha prodotto, vivo più fertile del recupero delle fasi precedenti. Non è, quindi, un masterplan tradizionale che presuppone un arrivo e condiziona della sua attuazione a cui estrusiva rigida economiche e imprenditoriali già date, ma un progetto urbanistico che agisce sul nuovo ecosistema urbano e che si specifica e pensa dalle mutate condizioni dell'area ri-colonizzata e consolidata. In questa fase il richiamo sovraliscale della Città Vecchia è come una cifra connotante il quartiere per la crescita resiliente e commerciale delle varie funzioni.



ALBRECHTS L. AND MANDELBAUM S.J. eds. (2005) The Network Society: A New Context for Planning. London, Routledge.

ANGEL S. (2012) Planet of Cities. Cambridge, Lincoln Institute of Land Policy.

ASCHER F. (2009) L'âge des métapoles. Paris, Edition de l'Aube.

BONOMI A., MASIERO R., DELLA PUPPA F. (2016) La società circolare. Fordismo, capitalismo molecolare, sharing economy. Roma, DeriveApprodi.

BRUGMANS G., STRIEN J., eds. (2014) IABR 2014. Urban by Nature, Rotterdam, Iabr.

BRUGMANS G., VAN DINTEREN J., HAJER M., eds. (2016) IABR 2016. The Next Economy. Rotterdam, Iabr.

CARTA M. (2014) Reimagining Urbanism. Creative, Smart and Green Cities for the Changing Times. Barcelona-Trento, ListLab.

CARTA M. (2017) Augmented City. A Paradigm Shift. Trento, ListLab.

CARTA M., LINO B., RONSIVALLE D., eds. (2016) Re-cyclical Urbanism. Trento-Barcelona, Listlab.

CATTAN N. ed. (2007) Cities and Networks in Europe. A Critical Approach of Polycentrism. Montrouge, John Libbey Eurotext.

CIORRA P., MARINI S. eds. (2011) Re-cycle. Strategie per l'architettura, la città e il pianeta. Milano, Electa.

CRUTZEN P. J., STOERMER E. F. (2000) The Anthropocene. In: Global Change Newsletter 41: 17-18.

ELLEN MACARTHUR FOUNDATION (2012) Towards the Circular Economy: Economic and business rationale for an accelerated transition. EMF.

EUROPEAN CLIMATE FOUNDATION (2010) Roadmap 2050. A practical guide to a prosperous, low-carbon Europe. Den Haag, ECF.

HALL P. (2014) Good Cities, Better Lives. How Europe Discovered the Lost Art of Urbanism. London, Routledge.

KALETSKY A. (2010) Capitalism 4.0: The Birth of a New Economy in the Aftermath of Crisis. New York, Perseus.

MAGNAGHI A., FANFANI D. eds. (2010) Patto città campagna. Un progetto di bioregione urbana per la Toscana centrale. Firenze, Alinea.

MARINI S., ROSSELLI C. (2014). Re-cycle Op_positions I, II. Roma, Aracne.

OWEN D. (2009) Green Metropolis, Why Living Smaller, Living Closer, and Driving Less Are the Keys to Sustainability. New York, Riverhead Books.

RATTI C. (2015) Open Source Architecture. New York, Thames & Hudson.

RICCI M. (2012) New Paradigms. Trento-Barcelona, List.

ROCKSTRÖM J., KLUM M. eds. (2015) Big World, Small Planet: Abundance within Planetary Boundaries. Yale, Yale University Press.

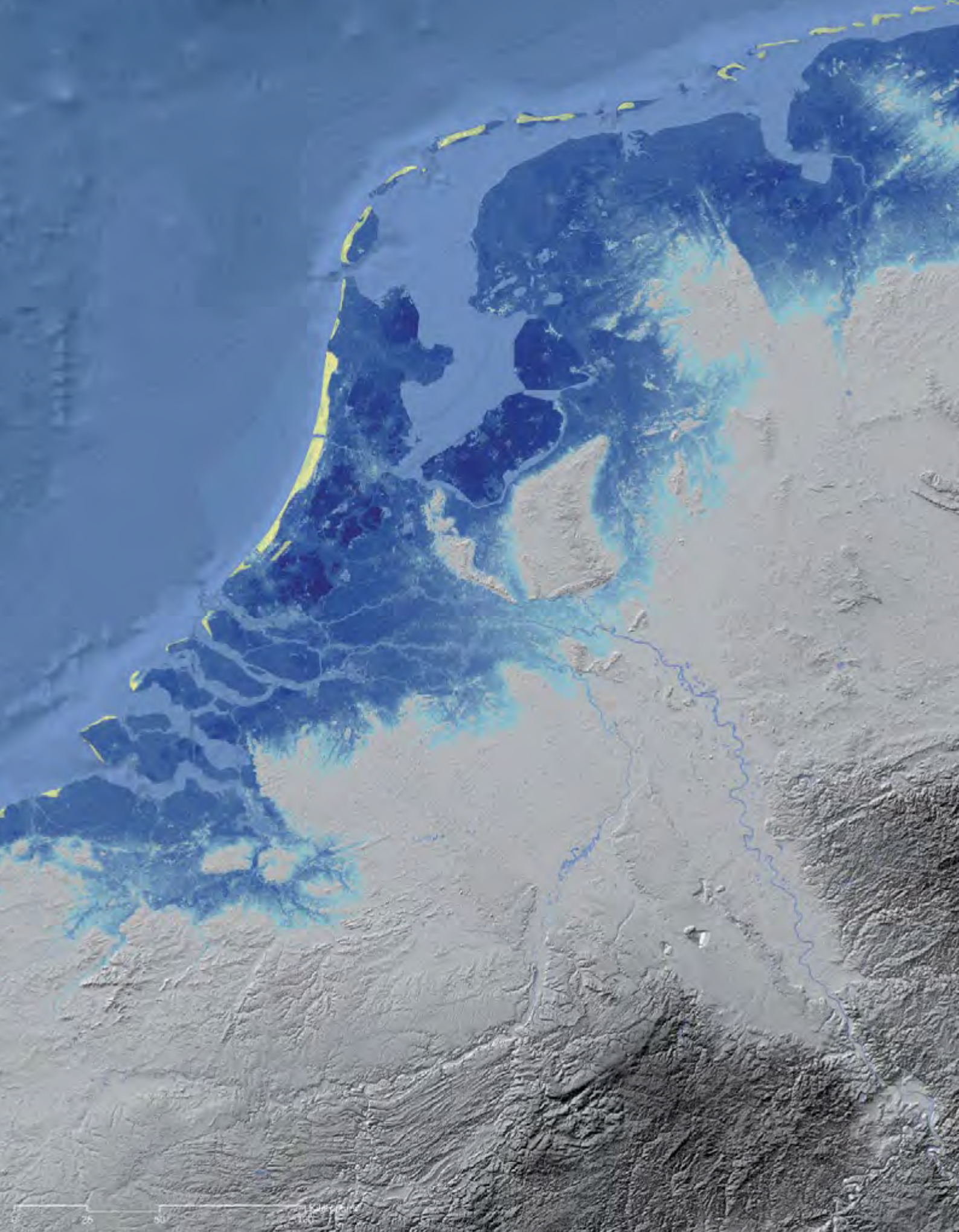
SIJMONS D. (2014a) Waking up in the Anthropocene. In: Brugmans G., Strien J. eds., IABR 2014. Urban by Nature. Rotterdam, Iabr.

SIJMONS D. (2014b) The Urban Metabolism. In Brugmans G., Strien J. eds., IABR 2014. Urban by Nature. Rotterdam, Iabr.

SOJA E.W. (2000) Postmetropolis. Critical Studies of Cities and Regions. Oxford, Blackwell.

SWILLING M., HAJER M. (2016) The future of the city and the Next Economy. In: Brugmans G., van Dinteren J., Hajer M. eds. (2016), IABR 2016. The Next Economy. Rotterdam, Iabr.

UN-HABITAT (2016) Urbanization and Development: Emerging Futures. World Cities Report 2016. Nairobi, UN-Habitat.


0
25
50
100 km

Renata Morbiducci, Christiano Lepratti
ADD-DAD Department Architecture and Design - UniGe, Genova

ATLANTI(S)CITIES
Il mito di atlantide e la realtà del sea level rise. Considerazioni sull'innalzamento del livello del mare e il futuro delle nostre città costiere.

"Atlantide: Isola leggendaria, situata nell'Oceano Atlantico davanti allo stretto di Gibilterra, di cui si favoleggiava nell'antichità classica (Platone nel Timeo e nel Crizia) che fosse più grande di Asia e Libia riunite: l'avrebbe abitata un popolo guerriero il quale aveva tentato una volta la conquista dell'Europa e dell'Asia, ma era stato ricacciato dai Greci e si era poi inabissato in mare con tutta l'isola."
(Voce enciclopedia Treccani)

"All'inizio ha rapito isole al mare e le ha unite alla terra [...]
Ha fatto scomparire delle terre, anzitutto dove ora c'è l'Oceano Atlantico, se si crede a Platone."
(Plinio, Storia Naturale II, 204-205)

"Ma non molto tempo dopo la vendetta divina colpì quelle orgogliose imprese. Infatti, nel giro di cento anni, la Grande Atlantide fu del tutto distrutta, e non da un grande terremoto, come dice il vostro autore (perché quel territorio è ben poco soggetto ai terremoti), ma da un diluvio o inondazione, dato che vi sono in quei paesi, anche oggi, fiumi assai più grandi e montagne ben più alte per riversare acqua di quanto non ne abbia qualsiasi parte del Vecchio Mondo."
(Francis Bacon, New Atlantis, 1627)

Immagine 1 | postcard from Miami Beach 2100, (S. Grillo, A. Ingaria, C. Gerini)

"I siti internet su Atlantide nel 2004 indicavano circa 90 mila pagine (Chantal Foucrier) una ricerca condotta nel maggio 2010 sul motore di ricerca Google per le pagine in inglese indicava quasi 23 milioni di pagine indicizzate, l' elenco delle citazioni in lingua spagnola nel 2010 arrivava a circa un milione e 200 mila, quelle in tedesco a un milione e 800 mila, e infine quelle in italiano e francese erano rispettivamente di 463 mila e 380 mila. Nel 1841, T. Henri Martin indicava nei suoi Studi sul Timeo di Platone parecchie decine di seri contributi alla letteratura sulla civiltà scomparsa. Per quanto riguarda gli autori, in un classico degli studi critici su Atlantide pubblicato originariamente nel 1954, Lyon Sprague de Camp ne elencava in ordine alfabetico 216 - da lui definiti ''atlantisti" - indicandone la professione, l'anno in cui ne avevano scritto e cosa ne avevano desunto. In questo conteggio, solo 37 autori erano arrivati alla conclusione che la narrazione di Atlantide si riferiva a un luogo immaginario".
(Umberto Eco, "Storia delle terre e dei luoghi leggendari", Bompiani, 2013)

• Premessa •

Nei prossimi decenni la popolazione urbana è destinata a crescere con una progressione che non ha precedenti. I modi e i tempi di questa crescita, l'aumento della popolazione e della richiesta di spazi per vivere, di servizi e di infrastrutture, intro-

ducono scenari imprevedibili, con implicazioni che metteranno alla prova il funzionamento, modificheranno la fisionomia e interferiranno con la struttura delle città per come siamo abituati a conoscerle. Sul destino delle città costiere, come conseguenza del riscaldamento globale, incombe la minaccia dell'innalzamento del livello del mare, uno dei più importanti fenomeni di trasformazione futura, che avrà un impatto significativo sulle comunità organizzate e su tutto il paesaggio antropizzato[1].

Le città, fino dagli albori della civiltà, sono sorte lungo i fiumi e sulle coste per poter beneficiare del clima favorevole, dell'accesso ai trasporti via mare e per le riserve di pesce. Nel corso della storia questa tendenza si è sempre mantenuta e si conferma anche per il futuro. Ma quella che storicamente era una localizzazione privilegiata, e ambita, rischia di trasformarsi in una trappola. Oggi circa 100 milioni di persone vivono a una distanza compresa tra 0 e 90 cm dal livello del mare e circa altrettanti a una distanza compresa tra 0 e 180 cm[2]. Nel mondo, nelle sole città costiere è previsto che nel 2050 vivranno circa 550 milioni di persone (United States Census Bureau, 2014), mentre la popolazione delle città costiere nel 1995 ammontava a circa 100 milioni (A. Benachenhou, 2001).

• Tema •

L'innalzamento si manifesterà con intensità differente. I modelli di previsione non consentono d'individuare delle medie, perché troppo numerose e troppo disomogenee sono le variabili, e troppo complesse da prevedere le loro interazioni. Tra queste l'imprevedibilità del comportamento dell'espansione termica, provocata dell'aumento della temperatura netta (causato dall'effetto serra) che per il 90% viene immagazzinato dal mare, causandone l'aumento di volume[3]. L'espansione dell'acqua di mare aumenta con temperature e pressioni elevate, con il risultato che non è omogenea. Nella fascia tropicale ed equatoriale è molto più pronunciata che nel resto del globo. In quell'area interesserà drammaticamente città come Miami, Jakarta, Bangkok, Manila. Il Bangladesh anche secondo le previsioni più ottimistiche per un terzo della sua superficie finirà sott'acqua, il Vietnam per un quinto, sorte simile attende le Filippine. Di tutte le città del mondo, Miami è al secondo posto in termini di vulnerabilità (la prima è Guangzhou). In termini di rischi per la popolazione Miami è invece al quarto posto sempre dopo Guangzhou, che si conferma prima, Mumbai, e Shanghai. Miami, per questo motivo, è stata definita l'"epicentro per studiare gli effetti di innalzamento del livello del mare," un "worst case" e "la Nuova Atlantide".

A mettere in crisi i modelli e rendere difficile le previsioni concorrono l'incertezza sullo scioglimento dei ghiacciai della Groenlandia e dell'Antartide: il riscaldamento globale scioglierà il

[1] Le previsioni per la fine del secolo 2100 fino alla publicazione del primo IPCC oscillavano tra 30 a 180 centimetri (Rahmstorf 2007, Vermeer, Rahmstorf 2009, Grinsted et al. 2009), ripetto a quelle più ottimistiche del IPCC: 20 cm-80 cm pubblicate nel 2013. Oggi osservando il comportamento dell'Antartide l'Istituto di Meteorologia di Potsdam ha alzato le previsioni soglia dell'innalzamento globale a ca 300 cm (Feldmann, 2015). Alla luce delle ultime rivelazioni dei satelliti NASA sullo scioglimento della calotta polare la previsione si è spostata su 900 centimetri circa (H.Wansee, 2016)

[2] Dati National (USA) Oceanic and Atmospheric Administration (government agency) (NOAA 2015)

[3] dal 2002 al 2014 le rivelazioni satellitari della NASA dimostrano che i mari si stanno espandendo a una velocità di 1.4 mm all'anno.

Immagine 2 | Ravenna previsione 2100, (le parti in azzurro indicano la presenza dell'acqua)

ghiaccio riducendo le scorte d'acqua, parte dell'acqua sciolta defluirà in mare, mentre il resto evaporerà molto più velocemente di quanto non farebbe se conservata allo stato solido. Le rilevazioni satellitari più recenti condotte dalla NASA sul comportamento dei ghiacciai, porta a pensare che rispetto a tutti i modelli di previsione quello più probabile sarà quello peggiore, con un innalzamento di circa 900 centimetri (l'equivalente del ghiaccio della Groenlandia), previsione condivisa dai geologi dell'Università di Miami[4]. Il cambiamento climatico inciderà sulle variazioni dei livelli marini estremi e sulle caratteristiche delle onde dell'oceano, aumentandone l' intensità, la frequenza e la durata, e modificando i percorsi delle tempeste. L'impatto che avrà sulle città è naturalmente condizionato anche dalla loro topografia e morfologia, in pratica dalla loro posizione in altezza rispetto all'acqua. In Europa le città più vulnerabili saranno quelle affacciate sull'Atlantico, sul mare del Nord e sul Baltico. Nell'area mediterranea a una (relativa) minore gravità nel manifestarsi del fenomeno corrisponde un'eccezionale concentrazione d'insediamenti densi e storici[5] potenzialmente a rischio. In Italia il fenomeno interesserà in modo variabile tutte le principali città costiere, con conseguenze che interesseranno dal 5% dell'area urbana della media delle città tirreniche a un massimo del 40% nella regione del Delta del Po. L'area vulnerabile a Genova secondo lo scenario più ottimista dell'IPCC sarà quella del porto e del

[4] "Ci aspettiamo un incremento del livello compreso tra dieci e trenta piedi per la fine del secolo (304 – 914cm) Harold Wanless, CLEO Institute, direttore del Dipartimento di Scienze Geologiche all'Università di Miami.

[5] La peculiarità dell'area mediterranea è legata alla presenza di alcune tra le più grandi e antiche città costiere del pianeta, come il Cairo (7,9 milioni di abitanti) e Istanbul (15 milioni circa)

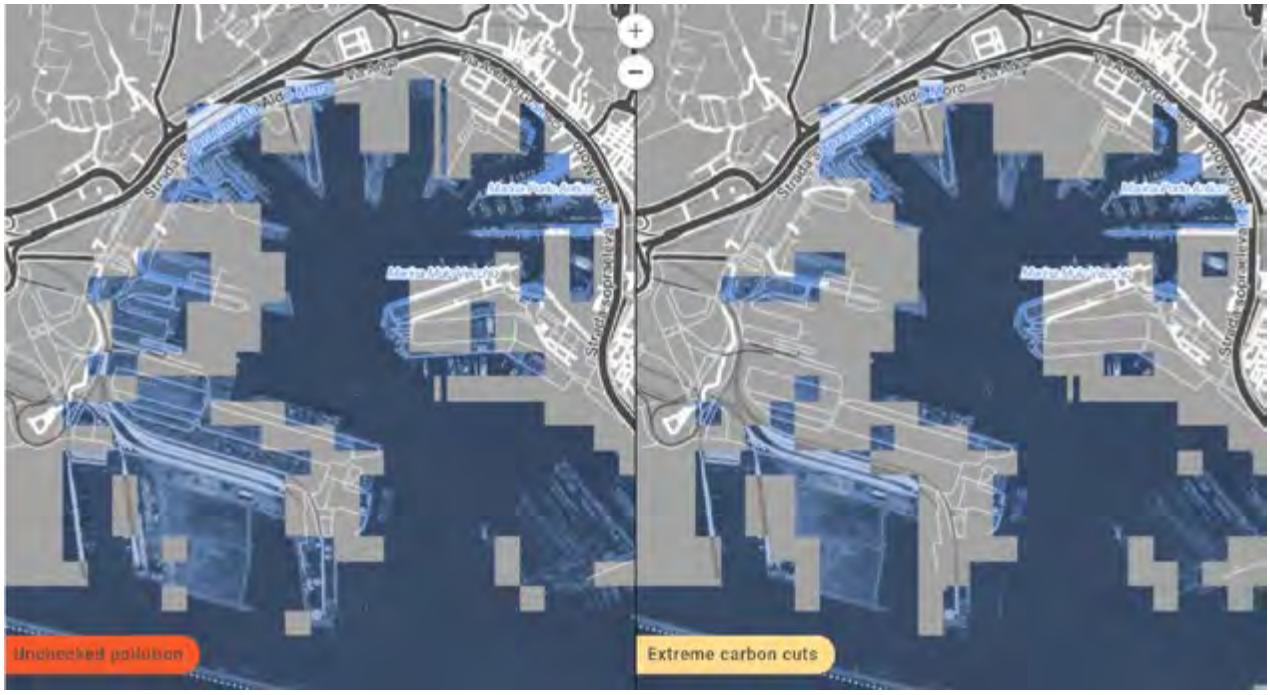


Immagine 3 | Genova, previsione 2100

lungomare, il resto della città grazie alla sua topografia articolata sarà risparmiata. Ravenna sarà con tutta probabilità la città italiana più colpita. In quella zona della costa adriatica Il problema è aggravato dalla subsidenza (abbassamento del suolo) un fenomeno di erosione collegato all'innalzamento del livello del mare. Pur essendo di natura diversa, contribuirà ad aggravare le stesse conseguenze per il costruito che avrà l'innalzamento, danneggiando (in una primo tempo) la rete idraulica e fognaria, provocando l'intrusione salina ed erodendo le spiagge[6] con gravissime conseguenze per il turismo. Dal 1955 il livello del suolo si è abbassato di circa 70 cm a Rimini e di circa un metro a Cesenatico e in corrispondenza della foce del Po. Dagli anni 90' il fenomeno è apparentemente calato di intensità ma le previsioni sono sconfortanti.

[6] Un 1.000.000 di mc all'anno (ARPAE Agenzia Ambientale della regione Emilia Romagna)

• Stesso problema diverse implicazioni •

Le città che saranno più colpite dagli effetti dell'innalzamento dovranno, con tutta probabilità, cedere all'acqua in modo irreversibile intere aree abitate. Molte le implicazioni dai caratteri diversi. Nelle città d'arte dal Cairo a Ravenna l'acqua salata allagherà i monumenti impedendone l'accesso e aggredendone le superfici. La cripta della Basilica di San Francesco a Ravenna è già oggi completamente immersa nell'acqua (ma per il fenomeno della subsidenza, e per fortuna si tratta di acqua dolce), i mosaici bizantini che ne decorano le superfici, sott'acqua, ricordano le tessere dei rivestimenti delle piscine. Nelle città

del Global South, da Lagos a Manila l'innalzamento del livello del mare interesserà insediamenti informali cresciuti come abusivi sulla costa (in alcuni casi su palafitte) dove i terreni hanno meno valore, scelti quindi nella speranza di non essere sgomberati. La conseguenza sarà l'abbandono di aree ad altissima densità e la conseguente crisi abitativa (attualmente circa 900.000 di persone, un ottavo della popolazione mondiale vive negli slums). Per le città occidentali Il caso di Miami è eclatante (mentre scriviamo il Presidente Obama ha invitato la popolazione ad abbandonare la città in previsione dell'arrivo dell'uragano Matthew). Gli abitanti di Miami Beach più edotti (e che non votano repubblicano) stanno valutando di vendere i loro immobili, come conseguenza del fatto che tra qualche decennio perderanno completamente di valore[7].

[7] Per far fronte con la sua inondazioni ricorrenti, Miami Beach ha già speso qualcosa come cento milioni di dollari. Il county ha già stanziato 1,6 miliardi

• I progetti •

Senza un'azione di contenimento i mari trasformeranno inesorabilmente gli insediamenti urbani. Pertanto sarà necessario ripensare nei prossimi anni la nostra vita sul confine, trasformando il modo con cui ne occupiamo lo spazio. Nel mondo, la convivenza tra terra e mare ha modellato la morfologia di città e territori producendo abitudini e spazi che fanno parte del patrimonio culturale di intere regioni. La reazione all'incombere della presenza del mare in situazioni estreme è riconducibile a due grandi strategie opposte, quella di respingere (walled cities) e di accogliere (absorbing landscapes). Alla prima categoria fa riferimento il progetto che ha permesso l'esistenza e consente la sopravvivenza dell'Olanda. I suoi abitanti nel corso della storia hanno strappato la terra al mare grazie alla tecnica dei polders[8] utilizzando barriere che rendono possibile la sopravvivenza di terre protette sotto il livello dell'acqua marina. Alla seconda categoria è invece riconducibile la condizione del Vietnam, dove l'acqua è libera di invadere l'entroterra e lo fa da sempre, e dove il rapporto tra terra e mare non è considerato un limite. L'acqua è presente nella scena urbana, configura grandi spazi pubblici e i loro usi, con mercati galleggianti, trasporti di tipo "veneziano", residenze su palafitte etc. I progetti che si occupano di questi temi si moltiplicano e coinvolgono sempre di più architetti famosi. Al momento sono perlopiù pensati per gli hurricanes, le inondazioni lampo (flash floods) e i maremoti (tsunami), ma queste già vengono interpretate come soluzioni utilizzabili anche per l'adattamento all'innalzamento del livello del mare, la differenza principale è infatti legata al tempo e non alle strategie: nel primo caso la presenza dell'acqua è temporanea, mentre nel secondo diventerà permanente. Molto sensibili al tema sono soprattutto gli Stati Uniti dove esiste un importante WP dell'American Institute of Architects (AIA) il Design for Risk and Reconstruction (DRFF) che si occupa specificatamente di prevenzione e adattamen-

[8] "Parola olandese, che in origine indicava un lotto di terreno erboso alquanto emergente da acquitrini poco profondi. Col progredire dei lavori di bonifica nei Paesi Bassi la stessa parola e stata adoperata anche per terreni posti sotto il livello del mare, e separati per mezzo di dighe dai terreni circonvicini, in modo che il livello delle acque "interne" del polder viene regolato artificialmente". (voce encicl. Treccani)

to. Anche l'amministrazione statunitense è molto attenta. Il Presidente Obama in persona ha bandito la "National Disaster Resilience Competition" nel giugno del 2014 sul modello del concorso "Rebuild by Design" per la costa di Manhattan, vinto da Bjarke (studio BIG con il progetto "THE BIG U") e a cui ha partecipato tra gli altri OMA. Il progetto vincitore prevede un sistema di protezioni dall'acqua, paratie, ponti, muri e parchi per l'assorbimento, progettati come spazi pubblici. Altro progetto interessante è quello di Alejandro Aravena per il piano (dei 100 giorni) di ricostruzione della città portuale di Costitution in Chile, distrutta nel 2010 da un terremoto di magnitudine 8,8. Il progetto consiste in un grande parco per assorbire l'onda dello Tsunami. Elemental in collaborazione con Arup di Londra aveva inizialmente proposto tre opzioni da sottoporre a una consultazione popolare: lasciare a maggese la terra distrutta dall'onda, la soluzione più semplice, più rapida ed economica; un muro di protezione costruito tra l'estuario e la città, per poter di nuovo abitare il quartiere del La Poza interamente distrutto dal Tsunami; l' esproprio di La Poza da trasformare in una foresta, con gli alberi come cuscinetto per i futuri maremoti, ultima soluzione scelta dai cittadini e dai pescatori de La Poza come la più gradita.
Uno dei motivi dell'apprezzamento di questa soluzione è la creazione di spazi pubblici. Aravena sostiene che prima del terremoto ci fossero 2,2 metri quadri di spazio pubblico pro capite per una popolazione complessiva di 50.000 abitanti. La realizzazione del progetto permetterebbe di incrementarne la superficie portandola a 6,6 metri quadri pro capite. Altro progetto interessante è quello di retrofitting nella città di New York, "Retrofitting buildings for flood risk" un manuale fai da te (in parte) su come affrontare i rischi dell'acqua (principalmente) legati agli hurricanes. Le misure di intervento sono classificate per tipi architettonici (dai bungalows agli skyscrapers), e riguardano in particolare la risistemazione dei piani terra, la ricollocazione degli impianti, gli accessi, gli interventi sui materiali etc.[9]
Non ultimo il progetto per Il villaggio galleggiante di Kompong Pluk in Cambogia, e per le floating "cities" (più slums che cities) nigeriane, con l'esempio che ha inaugurato la biennale di Venezia della floating school a Makoko (Lagos) di NLè, nel frattempo distrutta da una pioggia improvvisa.

[9] Step 1: Identify Your Flood Risk
Step 2: Identify Your Flood Level
Step 3: Review Relevant Codes and Regulations
Step 4: Identify Your Mitigation Strategies
Step 5: Design Your Strategy
Short-Term Adaptation Measures

NOAA
Digital Tools:
https://coast.noaa.gov/digitalcoast/tools/slr
https://coast.noaa.gov/digitalcoast/topics/

Climate Control
http://sealevel.climatecentral.org/basics/links

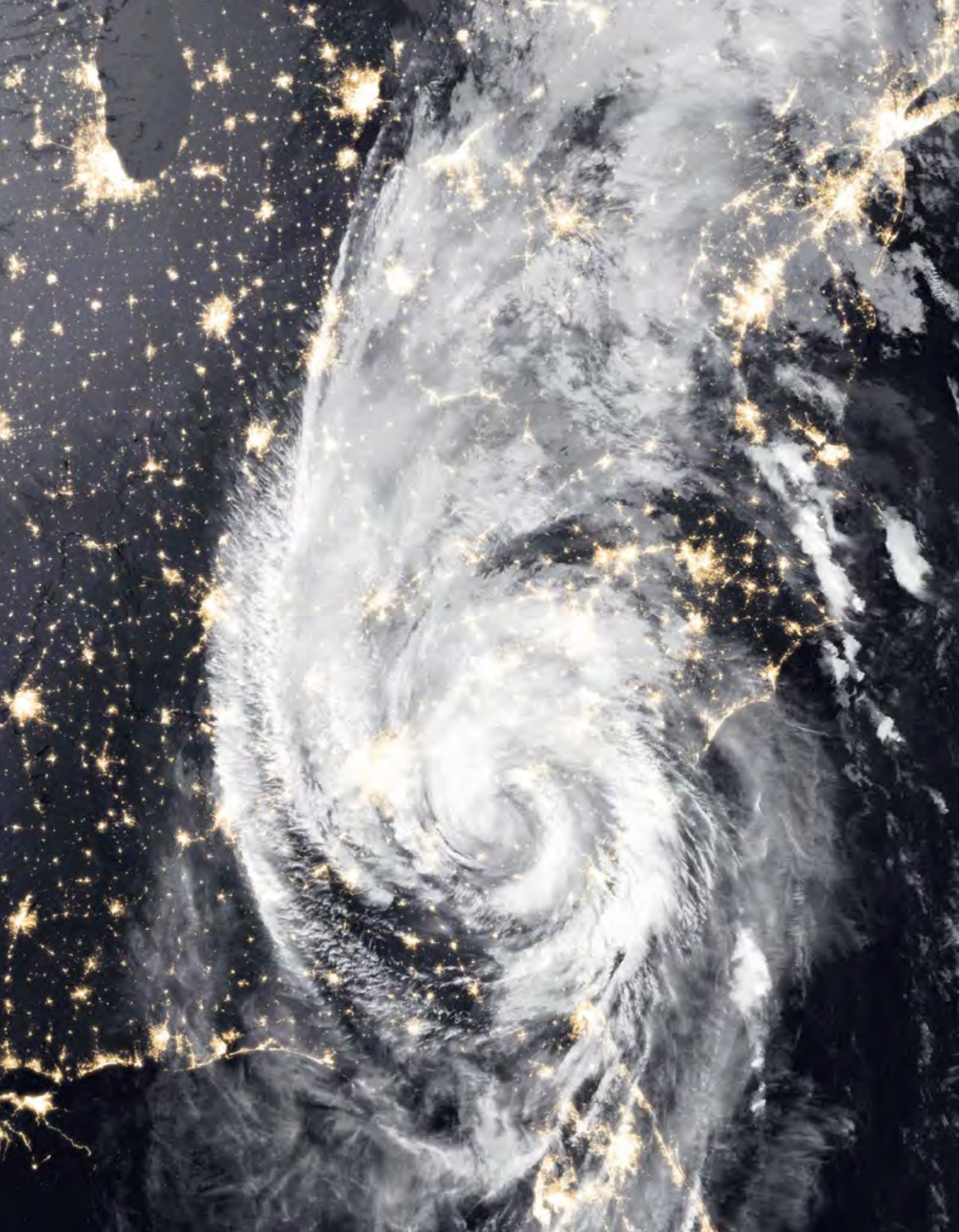
EPA
https://www3.epa.gov/climatechange/impacts/coasts.html

Australia Government
https://www.environment.gov.au/climate-change/climate-science/climate-change-future/sea-level

Miami Dade Sea Level Rise Task Force (local government)
http://www.miamidade.gov/planning/boards-sea-level-rise.asp
http://www.miamidade.gov/planning/library/reports/sea-level-rise-report-recommendations.pdf
http://www.miamidade.gov/planning/resilience.asp
Planning Reports
http://www.miamidade.gov/planning/reports-countywide-studies.asp

Miami-Dade County greenPrint
http://www.miamidade.gov/greenprint/home.asp
http://www.miamidade.gov/greenprint/pdf/climate_action_plan.pdf
http://www.miamidade.gov/greenprint/pdf/scorecard.pdf
Miami-Dade Green
http://www.miamidade.gov/green/

University Level
(FIU) Sea Level Solutions Center (SLSC)
http://slsc.fiu.edu/
http://slsc.fiu.edu/fiu-resources/college-of-architecture-the-arts-carta/
http://n.slsc.fiu.edu/research/



Nicola Valentino Canessa
DAD Department Architecture and Design - UniGe, Genova

RESILIENT APPROACH

Like many of the scientific words, the word resilience has a Latin origin: "resilire" means "to jump back, to bounce", a verb other times associated with the action of "jumping on a boat in search of salvation". For a long time in a latent state, suspended in the ambiguity of its meaning and use, it takes on a new meaning in the centuries of scientific progression, indicating the ability of a material to resist shocks without breaking, with a use however limited to technical and physical crafts.

While in English-speaking countries the expression is less timidly unhinged by its roots over time, in Italy it will have to wait for the arrival of the new millennium: the explosion and popularity of the term is in fact extremely recent and can be dated around 2010. Since then there are many fields in which resilience has been able to enter the common lexicon: from psychology to information technology, from ecology to economics.

Physics, we were saying, describes resilience as the ability of a material to counteract shock by deforming itself. In psychology we say resilient who manages to overcome a traumatic event and reinvent himself from it, becoming stronger. Ecology associates

Hurricane Michael Reaches North Carolina.
Source: NASA/Goddard/Suomi NPP — VIIRS

the term with the rapidity of restoring the stability of a biotic community following perturbations.
From a global point of view, resilience is therefore today "the science of adapting to change" as defined by Andrew Zolli in his book Resilience: Why Things Bounce Back, starting from the assumption that "all systems fail: some recover, others don't": resilience explains why.
In this article we deal with a specific field: urban resilience, i.e. within cities, contexts that, as a result of human action and technological-scientific progress, have become the emblem of the complexity of the management of external phenomena. We deal, an expression you may have heard, with resilient cities.

• Urban resilience •

The term resilience has now become common when it comes to regeneration, redevelopment and design of territorial, coastal, river and especially urban contexts. The social, environmental and economic problems, which in an increasingly perturbing way afflict the contemporary city, have in fact for some time now been the main topic of comparison and discussion in the international debate. The study of urban resilience, defined as:
- the ability of individuals, communities, institutions, businesses and systems within a city to survive, adapt and grow, regardless of the type of chronic stress and acute shocks they suffer.
- by 100 Resilient Cities, the network promoted in 2013 by the Rockefeller Foundation, which today brings together 100 cities around the world, including our Rome and Milan, to support them in defining their own Resilience Strategy.
Why is it so important to refer to cities when talking about resilience? Since the 1950s we have been living in what Nobel Prize winner Paul Crutzen called Anthropocene, the geological era of man, in which the human species is attributed the cause of the most important territorial, biological and climatic changes on the planet.
In this scenario, cities represent the most dense and complex product of this human action, and are the home of our present and increasingly of our future: more than 50% of people today live in urban conglomerates, and according to the 2018 World Urbanization Prospects forecasts, almost 70% are expected by 2050.
From an environmental point of view, one thing is illuminating: cities occupy less than 3% of the world's surface area, but are responsible for 75% of greenhouse gas emissions. More than cities, however, we are now talking about urban systems, complex organisms of economic, social and infrastructural relations in close connection with each other and with the territory on which they insist.
The challenge of our time is therefore primarily an urban issue: the growth, in terms of size, and the development, in terms of evolution, of cities must return to consider horizons of livability, opportunities, equality and, above all, sustainability.

The sky full of smoke during a fire. Photo by Olga Oginskaya.

This ability to turn negative events into positive factors, on which to embroider opportunities and possibilities for development, underlies the real challenge that resilience implies: resilience is not a condition, but a process to be built.
Shocks and stress represent in this scenario the expected change, threat and at the same time opportunity. And of changes - in progress and future - the cities of our time see many, and extremely rapid, changes.
Thus, urban systems are struggling not only with the internal dynamics that are inevitable in complex and ever-changing systems, but also with other, more challenging external changes: from demographic booms to migratory waves, from terrorist and digital attacks to climate change.
In the latter sense, urban resilience can play a decisive role if used as a tool and end to which city governance and policies must aim to proactively address climate change issues.
Climate resilience, defined as the ability to reduce the risks and damage arising from the negative impacts of climate change, present and future, by exploiting its potential benefits to adapt, must therefore have a close connection with urban resilience, given that uncontrolled urbanization is one of the main causes of the climate emergency.

The effects of this climate emergency are instead of different nature and entity in every part of the globe: the fate of Italian cities, common to other areas of the Mediterranean basin, will be linked to their ability to adapt to a temperature that grows at a faster rate than the global average (a current increase of 1.4°C compared to the pre-industrial era, with a world average of + 1°C) and an increase in periods of drought.

The effects are proportionally greater in urban conglomerates, due to their morphological configuration: Milan's temperatures, for example, rose by 2°C in the period from 1951-2017 alone, and an increase of a further 2°C is expected by 2050. A total of +4°C, well beyond the famous IPCC (Intergovernmental Panel on Climate Change) 1.5°C no-return point of 1.5°C, beyond which there is a risk of irreversible damage to much of the ecosystem and human activities.
The challenge of Italian cities, if associated with a continuous trend towards urbanization, car dependence, an energy-intensive construction sector, as well as a general ageing population and the very nature of our historic cities, is particularly complex.
This is precisely why we need resilient cities. But what does that mean?
Beyond any literary virtuosity, there are two pillars that allow a city to employ a resilient approach to climate change: adaptation and mitigation, by virtue of their complementarity.

• Adaptation projects •

The effects of global warming are already recognisable in an increase in extreme events - shocks - and constant wear and tear phenomena - stress - which in urban contexts take the form of heat waves and heat islands, floods, periods of drought alternating with heavy rainfall, pollution, loss of biodiversity, the consequences of which also affect public health.
Adaptation means activating processes, policies and projects to adapt to the changing climate, to moderate or avoid damage and impacts that are now inevitable. Having learned this concept, it is important to keep in mind that these repercussions manifest themselves in different measure and typology for each geographical and morphological context: the construction of one's own adaptive capacity cannot therefore disregard the precise and scientific knowledge of the risk and vulnerability of the reference territory which, as Bologna, Milan and other realities have done, starts from the elaboration of one's own Local Climate Profile - to know the climate change - and continues with the analysis of social and spatial vulnerabilities.
In April 2013 the European Commission published its first Climate Change Adaptation Strategy, with the aim of promoting a shared path among member states and sharing best practices and climate-proofing measures (in the ClimateADAPT platform).

Sand bags to face flood emergency.

In 2011, the city of Bologna, the first in Italy, started a participatory and incremental process to define its Local Adaptation Plan, adopted in 2015, with the BlueAp project.
In general terms, there are two macro-families of urban resilience actions that work in an adaptive key: blue infrastructure and green infrastructure.
Blue infrastructure designates a complex of technological and natural solutions able to manage the water component in the urban environment, for many decades linked to an underground issue, capable of improving water quality, increasing biodiversity and promoting urban cooling, as well as managing excess water (think of the now famous flooded squares in Rotterdam).
Green infrastructures are a system of natural elements, punctual and linear, that in the city tries to patch up all the existing fragmented green spaces, and restore an ecological continuity from the periurban greenery to the most densified areas, renaturalizing concrete and waterproof spaces. The benefits of green areas have been known for a long time, from environmental to economic and even social benefits, but it has often been difficult in the past decades to overcome the traditional approaches that bound to green areas the only filling and numerical function for the achievement of the minimum values required by law.

• Mitigation projects •

However, it is true that adaptation is a challenge lost in the long term if no action is taken to counteract the cause. We were saying that 75% of greenhouse gas emissions are due to cities: timid restrictive, incentive and propaganda policies are no longer enough.
Mitigation therefore comes into play, understood as the set of measures aimed at reducing emissions and the concentration of climate altering gases in the atmosphere, both by reducing the sources of their release and by increasing their sources of absorption.
The transition to renewable energies, the efficiency of agricultural, residential and production systems, sustainable mobility, but also forestry and CO2 storage, are mitigation measures, whose diffusion for their effectiveness must coexist on a global scale.
The effects of these measures are, for natural chemical and atmospheric processes, long-term and therefore it is of fundamental importance to act now.
We therefore understand mitigation as the switch that can, if not turn off, at least dampen the process of change taking place. For this reason, it has for years been at the centre of policies on a territorial and international scale, but also on a local scale: many cities have already set themselves the goal of becoming carbon neutral by 2050 - some even by 2025, like Copenhagen - that is, with a net carbon footprint of zero.
The global challenge cities face is to demonstrate that, by inte-

grating the resilient approach - a combination of cross-cutting mitigation and adaptation actions - into traditional urban planning tools, they will be able to re-establish the long neglected balance between man-artificial and nature.

• Resilient Genoa •

If each objective corresponds to concrete measures, we will understand from the exploration of some best practices and by asking ourselves some questions, the determining factors for the construction of resilient cities: the complicity between plans and actions, between public and private actors, the transversality between the sectors involved, the activation of citizenship, in the awareness that the answer is never unique, but always plural and calibrated to the different characteristics of different urban realities.

The race for urban resilience is and will be, by will or necessity, extremely rapid: in a few years we have gone from unconsciousness (or carelessness) to words and deeds. Once again cities, understood in their systemic meaning, have shown their extreme dynamism and their growing transformative will. Citizens in this process have never been so aware.
Genoa in this context can be an excellent test case for a resilience that looks to the future, an urban resilience that is not only made of physical and immobile structures, but also intangible. As seen in the KAAU project mentioned several times in these books, resilience is also information, data collection and management, arriving at their manipulation and final transformation into something built and changeable at the same time, arriving at the RESILI(G)ENCE invented by Manuel Gausa, the combination of resilience and intelligence.
Just as in the first volume there were many significant works of the KAAU project research group, in this second book you will see several works carried out in the university field on the city of Genoa and which use intelligent resilience as a common thread.

Chiara Centanaro
DAD Department Architecture and Design - UniGe, Genova

ARCH$_2$O
Strategie di intervento per la riqualificazione dell'ambiente costruito denso e la gestione del rischio acqua

"Forse stiamo avvicinandoci a un momento di crisi della vita urbana, e Le Città Invisibili sono un sogno che nasce dal cuore delle città invivibili. Oggi si parla con eguale insistenza della distribuzione dell'ambiente naturale quanto della fragilità dei grandi sistemi tecnologici che può produrre guasti a catena, paralizzando metropoli intere.
La crisi della città troppo grande è l'altra faccia della crisi della natura."
(Italo Calvino, *Le Città Invisibili*)

Genova 4 novembre 2011 – Idrografie nascoste
Il fenomeno meteorologico che ha avuto luogo il 4/11/2011 è tipico del periodo Ottobre/Novembre ed è denominato Ciclone di Genova dove le depressioni secondarie vengono a presentare il loro centro sul golfo; la genesi di queste depressioni secondarie è da mettersi in relazione con la configurazione delle alpi e degli appennini intorno al Mar Ligure, che determina una piccola depressione, oltre alle correnti meridionali del Tirreno che tendono a scontrarsi con la massa di aria fredda N-E[1].
L'evento improvviso ha generato problematiche all'intera area metropolitana: sono stati chiusi i caselli autostradali, l'aeroporto, la sopraelevata, il tratto ferroviario tra la Stazione di Genova Brignole e Genova Principe e ha avuto effetti devastanti sulle persone causando 6 vittime.

[1] Ruggiero R. (2012), Alluvione di Genova, novembre 2011. Cronaca, notazioni e considerazioni, Comando Provinciale dei Vigili del Fuoco di Genova, p. 19.

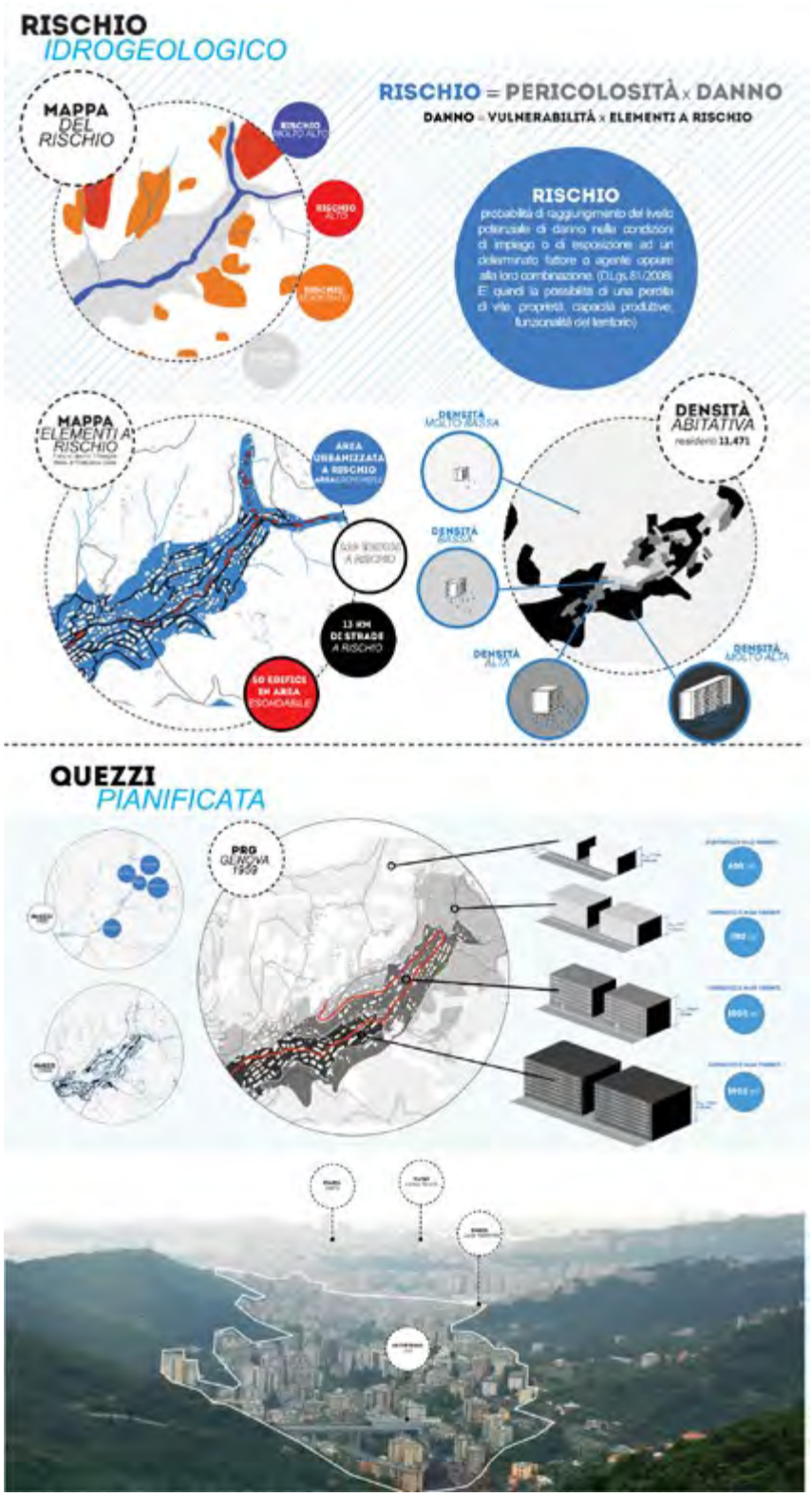


Immagine 1 | Rischio Idrogeologico e pianificazione.

Genova ha 583.482 abitanti di cui 91.700 vivono in area a rischio e 9000 nella zona rossa del Piano di Protezione Civile.
I Capi Squadra dei Vigili del Fuoco Parodi e Brizio in servizio durante le fasi di soccorso, descrivono come la dinamicità e la violenza di un evento alluvionale non ha eguali nel panorama interventistico VF e la risposta operativa deve necessariamente adeguarsi ad uno scenario così particolare, ricco di insidie e di variabilità.
Con l'uscita dall'alveo di un torrente si crea un parziale blocco della circolazione, creando una paralisi del traffico, aggravato dall'abbandono delle macchine sulla carreggiata da parte dei proprietari. Le strade assumono una veste completamente diversa: spariscono corsie e marciapiede, a causa della colorazione del fango, molteplici sono le insidie che si creano (tombini aperti, motorini, contenitori dell'immondizia, ringhiere, ecc.). Diventa quindi difficile la conduzione anche di mezzi adeguati[2].
Durante la fase dei soccorsi sono saltati i collegamenti telefonici, collegamenti radio quasi inesistenti e alcune strade allagate non hanno permesso ai mezzi di arrivare in tempi brevi ai luoghi di soccorso.
120 persone sono state evacuate e successivamente sono entrate in vigore 3 ordinanze del Sindaco di Genova (Ordinanza 280/2012, Ordinanza 258/2012, Ordinanza 275/2012) tutt'ora in vigore, che definiscono 119 appartamenti da evacuare ad ogni allerta diramata dalla Protezione Civile.
Il Ciclone incide su un sistema idrografico genovese che presenta 88 rivi di cui 28 tombinati; non è presente mappatura che possa identificare con precisione il tragitto di ciascun rivo o conduttura a causa della stratificazione nel tempo degli interventi.
Alcuni rivi esondati tombinati, come ad esempio il Rio Vernazza, non erano conosciuti da molti abitanti del quartiere a causa della tombinatura storica e della presenza della strada.
La natura fluviale della città di Genova rimane poco definibile durante l'anno; l'evento del 4 novembre ha fatto emergere alcune idrografie dimenticate dalla collettività, fattore di rischio durante gli eventi.
I dati previsionali a disposizione sono stime ed è la stessa percezione del rischio ad essere uno dei fattori di salvaguardia per la vita delle persone e dei manufatti: la vulnerabilità della città dipende dalla capacità dei sistemi di rendersi resilienti e flessibili durante le fasi del possibile evento di rischio e risulta fondamentale conoscere il territorio in cui si abita.
Il bacino del rio Fereggiano.

[2] ivi, p. 35.

• Una questione urbana •

Il Rio Fereggiano nasce e si sviluppa all'interno del quartiere di Quezzi nel Municipio Bassa Val Bisagno; durante l'evento alluvionale è stato soggetto a maggiori criticità a causa dei fenomeni intesi sulle strade e della piena del rio a valle: quasi la totalità degli

Immagine 2 | Sistemi allagati, case argine.

edifici - più di 200 a rischio e 50 in area esondabile - e delle strade presenti si trova in area urbana a rischio puntuale (immagine 1).
II rio Fereggiano nasce dalla confluenza tra il rio Molinetto e il rio Finocchiara in località Pedegoli; iI bacino imbrifero si chiude alla confluenza con il torrente Bisagno all'incrocio tra Via Monticelli e Corso Galliera.
Il Bacino si sviluppa per 5 kmq e ha una pendenza media superiore al 10% e una distanza lineare inferiore ai 4 km. Il tratto terminale del Rio Fereggiano è tombinato per circa 1 km. La stima di pioggia caduta sul Bacino del Fereggiano, desunta dai dati pluviometrici forniti dagli strumenti di misurazione della rete metereologica comunale, con particolare riferimento alla stazione localizzata a Quezzi, mostrano una quantità di precipitazioni complessive di 350 mm nell'intera giornata del 4 novembre, con intensità massima di circa 100mm/1h; nei periodi in cui sono presenti normali perturbazioni, si attestano valori pluviometrici per Genova di circa 1300 mm l'anno[3].
L'evento è stato caratterizzato da un periodo di ritorno superiore ai 500 anni.
Tutta l'acqua caduta sul quartiere non ha avuto possibilità di raccolta o di riassorbimento; il torrente è esondato a valle del bacino mentre le strade presenti erano già state interessate da acque con un'altezza di quasi mezzo metro.
Il quartiere è stato protagonista di una forte espansione residenziale normata dal Piano Regolatore Generale del 1959 e successive varianti che prevedeva una crescita degli abitanti genovesi nel ventennio successivo tra i 7 e i 9 milioni, con conseguente definizione di circa 8 milioni di stanze.
Questa previsione ha portato a indici molto alti in quartieri morfologicamente problematici come nel caso di Quezzi, alterando in maniera radicale l'assetto iniziale in pochi decenni (immagine 1).
Nella tradizione degli antichi conglomerati, il quartiere ha sempre avuto uno stretto rapporto con il fiume; oggi l'assetto urbano genera problematiche sia nella gestione delle acque sia nella qualità della vita degli abitanti.
In 20 anni il quartiere ha raggiunto la saturazione edilizia ed ospita circa 11.000 abitanti.
L'Agenzia Europea per l'Ambiente, che monitora le città che rischiano maggiori danni da parte delle alluvioni ha generato una mappa che mostra la percentuale media di ogni città coperta con superfici impermeabili, dove l'acqua non può filtrare nel terreno e dove il sistema infrastrutturale non è in grado di far fronte ad una grande quantità di acqua. Genova è indicata con una percentuale di terreno impermeabilizzato tra il 50% e il 74%, percentuale che la rende soggetta a maggiori rischi.
Le strade diventate alvei impropri paralleli al rivo, hanno reso gli accessi agli edifici adiacenti inagibili; si presentano totalmente impermeabilizzate dall'asfalto e inadeguate a ricevere quantità ingenti di acqua.
La conformazione del tessuto del quartiere presenta alcune case argine che durante l'alluvione sono state investite dall'in-

[3] ivi, p. 47.

nalzamento del fiume (immagine 1).
La gestione delle acque degli edifici risulta poco efficace poiché viene concentrata la totalità di acqua in pochi punti di scarico: questo porta ad un maggiore deflusso superficiale lungo le strade già caratterizzate da sistemi di scarico insufficienti: l'acqua incidente sul sistema non ha quindi trovato possibilità di raccolta defluendo a valle.
La dimensione del connettivo è pari circa al 45% della superficie dell'intero sistema a Rischio Puntuale; può essere di competenza dei condomini, di negozi o interamente pubblico, si compone di spazi non pensati, impermeabilizzati e abbandonati che possono diventare luoghi attivi per la gestione delle acque e per la riqualificazione del quartiere (immagine 2).
I Periti del Tribunale all'interno della Relazione Tecnica hanno definito come le case argine più antiche a fianco del Rio siano posizionate in modo da non essere interessate dalla piena se non marginalmente, sfruttando i tratti curvilinei del tracciato dell'alveo e ponendo le costruzioni sulla sponda interna delle curve, con la piena che, per forza centrifuga, interessa soprattutto la sponda opposta. In tale modo può essere sfruttata la vicinanza delle acque del rivo (per annaffiare, per lavare ed anche per bere) restando protetti dalla sua piena (immagine 2). Tale criterio (successivamente non seguito, tanto che sono stati costruiti edifici a bordo alveo anche nei tratti rettilinei), ha salvaguardato tali antichi edifici: alcuni di essi sono tuttora esistenti ed anche il 4 novembre scorso, per tale favorevole posizione, non hanno subito danni, se non molto limitati; gli altri edifici a bordo alveo (edifici-argine) che non hanno ottemperato a tale antico criterio, addirittura a volte ingombrando l'alveo con opere collaterali sono stati allagati e/o danneggiati[4].
Emerge una relazione storica sottotraccia tra conoscenza della struttura idrografica, progettazione di manufatti, sfruttamento di risorse e gestione del rischio alluvionale che, nonostante la saturazione edilizia del quartiere avvenuta in epoche successive, si mantiene efficace ancora oggi.

[4] Bellini A., Masetti M., Siviglia A., Tubino M. (2012), Relazione di consulenza tecnica, Procura della Repubblica presso il Tribunale di Genova, p.37.

• Strategie progettuali •

La necessità di gestire il rischio definisce alcune tematiche progettuali da effettuarsi con interventi piccoli e diffusi.
La pianificazione ha portato ad una forte espansione della città privata: nel quartiere non esistono piazze, l'unico luogo inteso come piazza è la tombinatura del fiume Fereggiano in Largo Merlo a valle. Il fiume è all'interno del costruito: in molti casi non è accessibile e fruibile e alcune case che hanno l'affaccio sul fiume non possono accedervi facilmente. Per i residenti la consapevolezza di vivere in una zona a rischio può essere un incentivo per imparare a gestire gli eventi, conoscere il territorio, migliorare la qualità della vita e riqualificare il quartiere stesso.

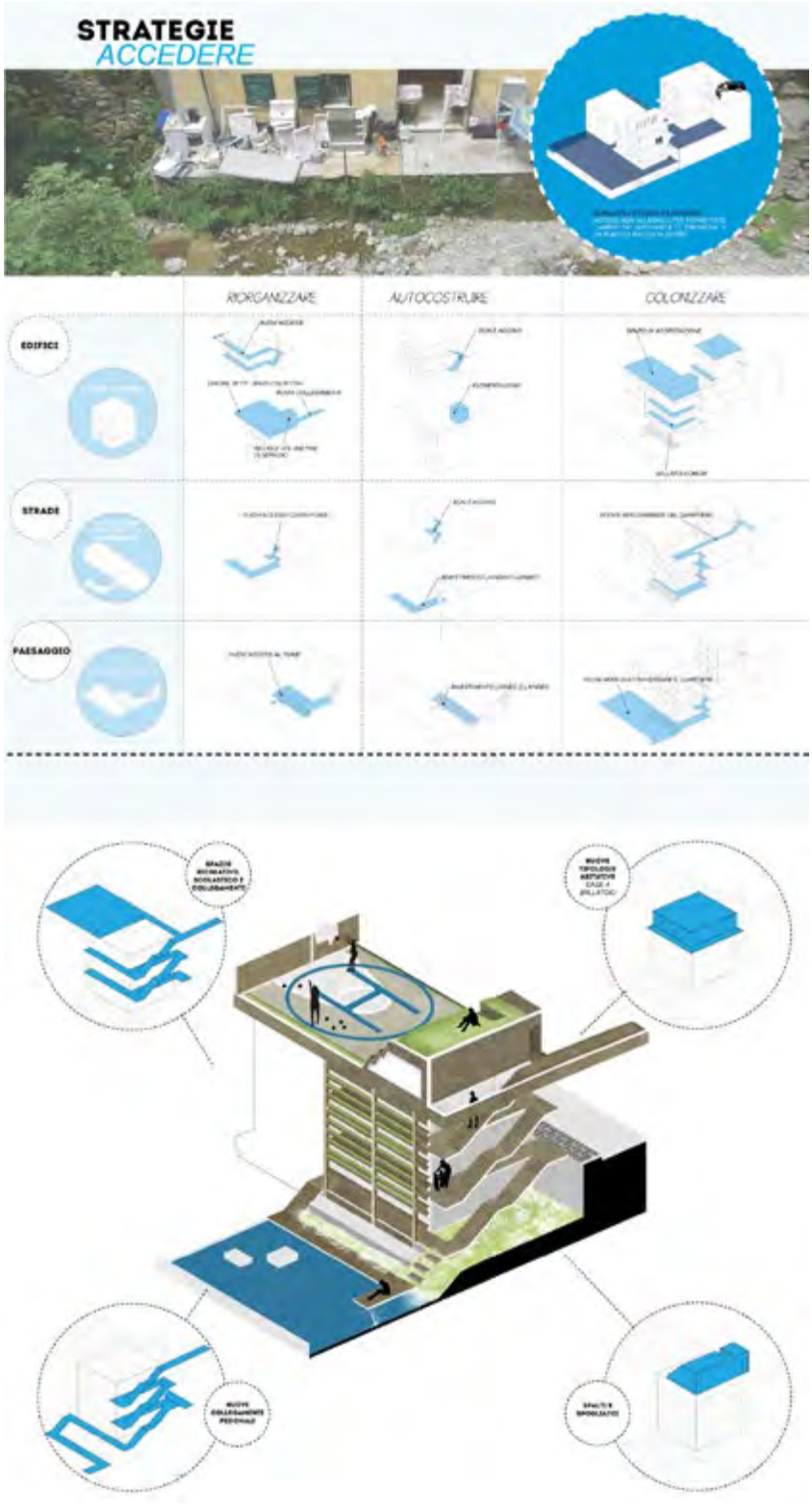


Immagine 3 | Strategie progettuali: accedere.

Il progetto sfrutta l'apparente svantaggio delle situazioni di rischio per ripensare ad interventi fatti dai singoli proprietari per la riorganizzazione delle case al fine di renderle resilienti agli eventi tramite partecipazione attiva.
La conseguenza di una riorganizzazione del costruito porta ad una colonizzazione di parte di territorio in stato di abbandono e può aiutare le persone a ricucire il rapporto con il fiume.
Sono state definite tre tematiche di progettazione: accedere, abitare e autosostenersi; le strategie di intervento sono strutturate per i 3 elementi costitutivi del sistema (edifici, strade e paesaggio).

• Accedere •

Partendo dal problema dell'accessibilità agli edifici durante un'alluvione a causa della presenza in molti casi di accessi a quota allagabile, vengono pensate nuove passerelle esterne collegate alla strada che danno la possibilità di accedere dall'esterno della propria abitazione integrando la possibilità di frazionare le abitazioni e generare nuove tipologie abitative.
Il punto di raccolta, come definito dal Piano di Protezione Civile, può essere realizzato su tetti dei manufatti generando spazi che forniscano la possibilità durante l'evento di diventare un luogo di raccolta delle persone. Durante il resto dell'anno possono diventare luoghi collettivi per il tempo libero e lo sport vista la carenza di tali spazi nel quartiere. Sono pensati sistemi di passerelle tra gli edifici per facilitare l'arrivo delle persone dei soccorsi nei luoghi di raccolta durante l'emergenza.
Tutti i collegamenti verticali pubblici sia tra quota strada e quota fiume sia tra le quote delle strade sono in calcestruzzo; ciò provoca un forte indebolimento del terreno su cui insistono e un veloce deflusso delle acque superficiali verso le quote più basse. Si sostituiscono con sistemi leggeri di acciaio ancorati alle strutture portanti degli edifici stessi. Nei luoghi dove non esistono collegamenti verticali e non è possibile quindi accedere al fiume attraverso un accesso pubblico, si prevedono sistemi di collegamento che possano essere integrati esternamente con gli edifici. La sezione del fiume, Per la maggior parte dei casi, non è pensata per essere accessibile: ciò porta ad una mancanza di manutenzione; l'argine viene rimodellato per permettere agli abitanti di accedere facilmente al fiume utilizzandolo come spazio pubblico. Nei casi in cui non sia possibile modellare l'argine per la sezione troppo ridotta, si prevede l'inserimento di accessi metallici. (Immagine 3)

• Abitare •

Il progetto ridefinisce il piano allagabile degli edifici come ambito fluviale; la volumetria può essere ricollocata a quota sicura e smembrata in piccole stanze, elementi abitabili in le-

gno che possono essere venduti agli edifici esistenti come possibili ampliamenti. Gli elementi possono essere aggiunti sui tetti (ad oggi sotto-sfruttati) usufruendo della possibile progettazione del tetto giardino che migliora la gestione dell'acqua piovana riducendo quindi lo scorrimento superficiale. I piani a quota fiume diventano sistemi di filtraggio delle acque che possono essere depurate e riutilizzate per uso domestico. La parete dell'edificio perpendicolare al corso del fiume è permeabile in modo da diminuire la spinta idrostatica che può provocare danni alle strutture portanti mentre favorisce l'ingresso dell'acqua nei filtri.
L'inserimento di raingardens[5] che possono essere fatti in autocostruzione può rallentare il tempo di immissione dell'acqua in strada, proteggere le murature degli edifici dall'erosione e rinaturalizzare la strada con elementi verdi che non sono presenti.

[5] I raingardens catturano l'acqua piovana da superfici come strade, cortili e tetti tramite pluviali. Melbourne Water, organizzazione governativa che gestisce e bacini idrici della città di Malbourne, ha definito un programma per l'inserimento di 10.000 raingardes; sono disponibili sul sito raingardens.melbournewater.com.au schede con modalità di realizzazione in autocostruzione.

• Autosostenersi •

Lavorare distante dall'abitazione può causare, durante un evento alluvionale, la presenza di auto in strada che possono trovarsi coinvolte nell'onda di piena. Si pensano quindi spazi per autosostenersi all'interno della propria area domestica. Il problema dell'abbandono di molte volumetrie porta al loro ripensamento con attività stagionali diventando possibili luoghi di vendita o ricreativi mentre l'esterno, allestito con strutture smontabili, diventa luogo di aggregazione lungo il fiume. È previsto un aumento di spazio verde coltivabile: moltiplicando i suoli verdi, si aumenta la possibilità di raccolta dell'acqua e la diminuzione della velocità di scorrimento superficiale.
Alcuni abitanti del quartiere hanno la buona pratica di coltivare piccoli orti, sia lungo gli argini del fiume, sia negli spazi circostanti; questa pratica può diventare di autosostentamento per i singoli abitanti degli edifici progettando tetti verdi con sistema di copertura intensivo pesante che può sopportare un'ampia gamma di vegetazione: alberi da frutta, piante aromatiche e coltivazioni intensive di verdura. L'agricoltura urbana contribuisce anche alla risoluzione di problemi legati allo smaltimento dei rifiuti perché li rende, almeno in parte, una risorsa produttiva in quanto compostaggio. Questa pratica potrebbe essere una lotta all'emarginazione poiché si può prevedere l'inclusione di anziani e ragazzi in queste attività. Sono pensati sistemi di rampe per permettere la messa in sicurezza degli autoveicoli solo durante le emergenze.

Adriana Ghersi, Stefano Melli
ADD-DAD Department Architecture and Design - UniGe, Genova

MEDITERRANEAN GREEN ROOFING: IMAGES AND DESIGNS OF URBAN RESILIENCE.

• *Iconic projects for a new green roof imaginary* •

In the early 2000s, some projects strongly influenced the design of public spaces, resulting in a new way of thinking about green roofs. Two of the most representative projects are Lurie Garden in Chicago (2004) and High Line in New York (2006), both designed by Piet Oudolf. In these projects, the usage of perennials and the deep knowledge of their associations reflect a new aesthetic expression, which aims to give emotions through lightness and seasonal changes (Oudolf, Kingsbury, 2013).

Oudolf identifies layers of connections among plant compositions, abstracting specific patterns and configurations from nature, based on the variations of sizes, colors and textures, in order to give to his design the appearance of a dynamic iridescent painting. In the middle of Lurie Garden, there is not a static and walkable lawn, but plants and their changes (flowers, leaves, seeds, etc) are the main characters. In a similar way, for the High Line, Oudolf started from the study of the ruderal plants in the site location to convert the disused railway in a raised promenade of hardy and sustainable vegetation, as if it

spontaneously settled the rails and the linear paving elements, evoking the memory of the abandoned place.
Nigel Dunnet's approach about pictorial meadow is slightly different. According to Dunnet and the Sheffield school, it is important to increase the awareness and the enjoyment of spaces of high biodiversity value, through a selection of native and low water, soil and nutrients requiring plants (Dunnett, Hitchmough, 2004). The interaction with pollinators and other ecosystem aspects are also sought: ecology and sustainability become guiding principles of a minimalist aesthetic for helping people to understand the role of green areas in the urban framework, in order to emphasize ecological aspect in addition to the aesthetical one (Dunnett, 2009).
Garrigue, xerophilous plants, low-density shrubs - main references for the green roof - are strong, low-input, multi-layered and dynamic associations, which grow and evolve in harmony with nature.
For Barbican Centre, London (2013), Dunnet turned the existing green area – with high requirements of water and maintenance – into a radically different place, composed of ecological systems of plant communities. Groups of plants emphasize seasonal changes and give waves of color mutating in time and space.
Another project of demonstration value is the coverage of ETAR, the wastewater treatment plant of the Alcantara valley in Lisboa (2011). Designers Joao Nunes and Carlos Ribas (PROAP) suggested native shrubs and aromatic plants for reconnecting the wastewater treatment plant to the rural landscape of the valley, composing a sort of mosaic of agricultural fields, that can be seen from the close highway (Ferreira Nunes, 2013). It's a reconstructed landscape that describes the chance to find a balance between environment and building, succeeding in linking the new element to the context and emphasizing its positive role.

• Socio-ecological resilience •

The word *resilience*, formerly used to describe the ability to reconstitute an earlier state of balance after a risk situation, today refers to the answer to a perturbative event, for finding – throughout self-organizational processes – a state of balance not necessarily identical to the origin, actually, with unpredictable properties.
This type of adaptive, self-organized and unpredictable process (Levin, 1999), results in the so-called Complex Adaptive Systems (CAS), which include the urban environment, a particular adaptive system strongly influenced by all the social process involved in it; in order to understand those processes, it's necessary to identify what establishes the adaptive capacity of people, that is the *social resilience*.

Fig.1. A Roof Garden of the palaces of Via Garibaldi, seen from Piazza del Ferro (GE). Photo by A. Ghersi.

Fig.2. The Mirador Roof Garden of the Galata Museum in Genoa, facing the hills behind the historical centre. Photo by S. Melli.

Social resilience is the skill of a population to reply to an environmental, political or socio-economic shock. Among other factors, such as the empowerment, education standard, poverty level, etc, social resilience is strengthened by the sense of community and belonging to a certain place (Voghera, 2015); especially green areas, which, bringing essential services for inhabitants and increasing their standard of living, represent an expression of identity and the opportunity for leisure and wellness.

In this context, green roof technology is considered a nature-based solution, an integrated system of measurable performance of its mechanical, hydrological, and physical components, which represents an excellent strategy for urban

regeneration and ecological resilience (Carlile et al., 2013, Fiori et al., 2017). It provides ecosystem services (Oberndorfer et al., 2007; Scolozzi et al., 2012), dealing with contemporary challenges and regarding the single building such as the entire urban system (Banting et al., 2015). Green roofing mitigates the Urban Heat Island effect, due to evapotranspiration of plants (Dover, 2015). It has a thermoregulation effect on building, which implies cost and energy saving (Coma et al., 2018). It preserves the waterproof covering and extends its lifetime (Vietti E., Vietti M. 2018). It increases the financial value of the building (Neonato et al., 2019). It helps to reduce CO2 in the air with a positive effect on pollution (Rowe 2018). It captures and collects storm water, decreasing the runoff impact on the management system of the city, especially during extreme flood events (Palla and Gnecco, 2018). The green roof can ecologically be linked to landscape, particularly if chosen plants manage to generate a quality micro-habitat for biodiversity conservation (Abram, 2011; Braaker et al., 2014).
Green roof is frequently related to private dimension - hence restricted access - yet it includes several design expressions in public and semi-public context. It proves its strong ability to bring people together, especially, in urban commons (condos, schools, hospitals, clinic, hospice, etc.), where a small group of people share the utilization of one green area. In such cases, green design assumes ethical contents and suggests new models of social aggregation, radically transforming the way of living of some groups of citizens.
Green roof amplifies its role of social promoter with facilities and public structures, such as library, bar, restaurant, swimming pool or sport fields (*Amenity Gardens*). When underground parking occurs, the green roof takes on the role of an accessible public green area; it can be used as a collective kitchen garden, both for private usage and for creating social company (*Growing Garden, Roof Farming*); if designed for therapeutic purposes in clinics or hospices, green roof help to improve psychophysical wellbeing (*Healing Gardens*).
Both as public space or urban common, it's relevant how people do perceive green roofing and its role in the urban framework. Green roofs can be meeting places for generating a strong sense of identity among the involved members, thus creating a close social bond.

• Innovative Mediterranean green roofs •

In the Mediterranean context, the green roof should be realized considering the specific climatic conditions characterized by dry summers and mild winters (Catalano *et al.*, 2014), in order to change the way to perceive green roofing and perennial gardens. Some projects have been able to go beyond a simple technical expression, to create a dynamic, integrated

Fig.3. The CASID roof garden, perfectly merging with the contextual landscape. Photo by Ieva Saudargaite (Courtesy of Fouad Samara Architects).

and resilient design process, becoming imaginative models to stimulate a sense of belonging by the citizens.

• Sheikh Nahyan Center for Arabic Studies & Intercultural Dialogue (CASID), Al Koura, Libano •

In 2017, just south of the campus of University of Balamand, in Al Koura (Lebanon) a new building for Sheikh Nahyan Center for Arabic Studies & Intercultural Dialogue (CASID) was built. Designed by Lebanese Fouad Samara Architects studio, CASID building stands on a hill surrounded by a walnut forest (*Juglans spp.*), facing Mediterranean coastline; the building blends in the landscape thanks to the green roof on top of the building. It is a wide open, not-autorithary, accessible and identitary architecture and the design expresses a multi-level concept of dialogue.

Physically, CASID establishes a dialog with the surrounding morphology, starting with the slope of the terraced court on which it leans, visually related to the existing forest. The green roof on the top gives a privileged perspective of the surrounding landscape, visually and perceptively connecting it to the

users, as a hanging balcony between hills and sea; this connection is emphasized by the use of plants borrowed from Lebanese floristic heritage, which make the landscape entering the green roof and metaphorically merging with it. In the roof garden open to visitors, a rectangular place that recalls a sort of green carpet, stripes of shrubs and grasses are strictly connected with the plants on the green roof in the uppermost terrace, inviting users to go up over.

Socially, the building represents a place where students and visitors can meet and dialogue: it is perceived as a recognizable and recognized space, an informal and comfortable place of meeting, that gives the opportunity for leisure, studying and cultural exchanges.

From a chronological perspective, CASID architecture takes up the challenge of establishing a dialogue with the future, reinterpreting from a modern viewpoint some of the archetypal building typologies of Lebanese architecture in order to provide a progressive image of the Arab world.

The whole architecture is perfectly integrated with its context, both for the historical and cultural references and for caring for the contextual Mediterranean landscape: all these features contribute to empower the sense of identity - hence, the social resilience - of its community.

Fig.4. Close-up on the vegetation for CASID roof garden. Photo by Ieva Saudargaite (Courtesy of Fouad Samara Architects).

• Caja Badajoz HQ, Badajoz, Spain •

The headquarter of the bank Caja Badajoz, completed in 2012, can be considered as a homage to the landscape of Estremadura: the design of its green areas represents the so-called *dehesa*, a high biodiversity pastoral and forest agro-system, derived from the combination between the traditional farming and productive activities of Western Spain and the distinctive landscape of Mediterranean forest. It represents the economy and the identity of Estremadura, together with the regard for traditional landscape.
The almost twenty thousand square meters of green area include: 1) a public city park for users of all age groups; 2) a semi-public garden, which is divided in 5 courts for 5 different uses of the space - cultural Centre, kindergarten, gym, housing and garage; 3) a green roof for the employees, which can be visited by appointment. Half of the nearly two hectares of green areas are green roofs.
Dehesa comes with extreme climatic conditions: sparse oaks (mainly *Quercus suber* and *Quercus ilex*) and olive trees, with a lower layer used for - depending on morphological conditions - wild pastures, especially for the winter acorns, whence the famous "*Jamon de bellota*", cereal cultivations or *matorral* (a phytocoenosis that is similar to the Mediterranean scrub and garrigue).
Dehesa is essential for maintaining a high level of resilience in the ecological and socio-economic system of the territory, throughout the several synergies among anthropic and natural actions, resources conservation, self-sufficiency of population and its cultural values (Observatorio Virtual del Paisaje Mediterràneo, 2007).
The cultural, landscape, social and economic value of *dehesa* has been caught by Cristina Jorge Camacho (Cjcpaisaje studio), who decided to recreate its imaginary as an identitary aspect. The main feature of the project is the smart geometric pattern, where circles, ovals and ellipses represents *dehesa* landscape: an archipelago of scattered *vegetated islands* with lone trees, which offer shelter and refreshment to plants and animals under their canopy and share a balanced use of resources with them. Geometric elements clearly refer to *pop art* and certain international and significant projects, like Martha Schwartz's; moreover, the *dehesa* reference managed to translate them in a new language, strongly rooted in the cultural context, by designing *oasis-islands* of priceless shadow, humidity and plants, in contrast to the dryness of the other surfaces.
The "*islands of vegetation*" are placed on the track of linear elements, which define red humus-earth stripes, like waves, that take several morphological shapes.
The design involves different dimensional levels: at micro-scale, it is interested to explore shapes, materials, permeability and networks (inert elements, microorganisms, humidi-

ty) in the ground, made of humus and gravel, on a limestone layer, that ensures the survival of plants. The selected species are able to survive in very hot and moist regions, like halophiles, who thrive in salty environments. At middle-scale, the project looks into the activities of the human, animal and vegetal dimension, focusing on the dynamic process of the spontaneous evolution of the vegetation asset, including the arrival of new pioneer plants, which are going to colonize the fertile and not yet vegetated areas. It is a dynamic and constantly evolving design, whose original configuration tends to change unpredictably like its reference landscape. At macro-scale, the main features are the distribution system of energies and resources, the thermodynamic parameters and the connections among climate, vegetation and the surrounding landscape (Jorge, 2015); at this dimension, the primary objective is to create a link between the riparian landscape of the close Guadiana river and the city.
It is a project that focuses on its landscape and cultural context and, above all, that aims to design with the almost unpredictable dynamic process of nature, considering all the multiscalar relations: two essential features for enhancing the social and ecological resilience of the region.

• Conclusion •

The challenge for designers is to use the intrinsic potential of green roofing in order to create a resilient system for ecological and sociological purposes as part of a larger cultural landscape. Seen as an identitary and integrative space, it is relevant to show the contents and the potentialities of these elements, composing a wider sustainable framework in which people can experience integration and strengthen their identity.
Especially in the Mediterranean area, the image of green roof can no longer be linked to that of the *foreign* and conventional mowed lawn, but must take root starting from the cultural and environmental references of its landscape, for example, the garrigue and the spontaneous prairie of the dry environments (Van Mechelen et al., 2013). It must be realized considering the specific climatic characteristics, with long summer periods of aridity, identifying the most suitable species, especially among the spontaneous native plants. The use of these types of plants, particularly suffrutic and aromatic, can today be more representative and identitary for an innovative model of public roof spaces, on the suggestion of some interesting examples, in relation to the Mediterranean context.
The perspective to create a multifunctional, ecologically and socially resilient green system, integrated in the context of the Mediterranean culture and tradition, also means

Fig.5. The islands of vegetation offer shadow and humidity, in contrast to the surrounding dryness. Photo by Cristina Jorge Camacho (Courtesy of Cjcpaisaje).
Fig.6. Islands of vegetation placed on waves of red humus-earth. Photo by Cristina Jorge Camacho (Courtesy of Cjcpaisaje).

the search for meeting and welcoming situations, opened to all kinds of stakeholders. That is the case of *rooftop farming* (see, for example, the recently inaugurated one, in Paris Porte de Versailles), which suggest further solutions to find new enrichment from productive roof gardens, using the richness of light and sun, to grow food and cultural exchange experiences, mixing new resilient designs with aggregative occasions.

Fig.7. Aerial view of the green roof with some pioneer plants starting to colonize on the right. Photo by Cristina Jorge Camacho (Courtesy of Cjcpaisaje).

Abram P. (2011). *Il verde pensile. Progettazione dei sistemi. Manutenzione*. Pozzuoli (Na): Sistemi Editoriali.

Banting D., Doshi H., Li J., Missios P., Currie B. A. and Verrati M. (2005). *Report of the Environmental Benefits and Costs of Green Roof Technology for the City of Toronto.* Toronto: Ryerson University. http://www.toronto.ca/greenroofs/pdf/fullreport103105.pdf.

Braaker S., Ghazoul J., Obrist M.K., Moretti M. (2014). Habitat connectivity shapes urban arthropod communities: the key role of green roofs. *Ecological Society of America*, 94 (4): 1010-1021.

Brenneisen S. (2003). The benefits of biodiversity from green roofs: key design consequences. In: Cities Alive, *Proceedings of the 1st North American Green Roof Conference*. Chicago, 29-30 May.

Carlisle S., Piana M. and Timberlake K. (2013). Growing resilience: long-term plant dynamics and green roof performance. In *CitiesAlive 11th Annual Green Roof and Wall Conference 2013 Conference Proceedings,* 1-15.

Catalano C., Aprile S., e Guarino R., (2013). Verde pensile estensivo ad alto valore ecologico in ambiente mediterraneo. Aspetti progettuali e funzionali. In: Moccia F.D., a cura di, *La città sobria*. Napoli: Edizioni Scientifiche Italiane, 489-497.

Coma J., Pérez G. and Cabeza L.F., (2018). Green Roofs to Enhance the Thermal Performance of Buildings and Outdoor Comfort. In: Pérez G. and Perini K., eds., *Nature Based Strategies for Urban and Building Sustainability*. Oxford (UK): Butterworth-Heinemann, 109-117.

Dover J. W. (2015). *Green infrastructure: incorporating plants and enhancing biodiversity in buildings and urban environments*. Routledge.

Dunnett N., Hitchmough J., eds. (2004). *The Dynamic Landscape: Design, Ecology and Management of Naturalistic Urban Planting*. London & New York: Spon Press.

Dunnett N. (2009). People and nature: Integrating aesthetics and ecology on accessible green roofs. *Acta Horticulturae*, 881: 641-652.

Ferreira Nunes J. (2013). Landscaping the ETAR de Alcantara. *Domus* 972, sept: 96-107.

Fiori M., Croce S., Poli T. (2017). *Città resilienti e coperture a verde*, Santarcangelo di Romagna: Maggioli.

Jorge C. (2015). Macro meteorology, electricity and micro-gravity of dry landscape in Spain. *Scientific Journal of Latvia University of Agriculture.* Landscape Architecture and Art, Volume 7, Number 7: 80-86.

Junta de Andalucía. 2007. *Observatorio Virtual del Paisaje Mediterràneo: PAYS.DOC*. Firenze: Alinea.

Levin S.A. (1999). *Fragile dominion: complexity and the commons*. Reading: Perseus

Montacchini E., Tedesco S. (2017). *Tetti verdi*. Torino: Città Studi.

Neonato F., Tomasinelli F., Colaninno B. (2019). *Oro verde. Quanto vale la natura in città*. Milano: Il Verde Editoriale.

Oberndorfer E., Lundholm J., Bass B.,et al. (2007). Green Roofs as Urban Ecosystems: Ecological Structures, Functions, and Services. *Architectural Science Publication and Research*, 57(10): 823-833.

Oudolf P., Kingsbury N. (2013). *Planting: A New Perspective*, London: Timber Portland .

Palla A. and Gnecco I., (2018). Green Roofs to improve water management. In: Pérez G. and Perini K., eds., *Nature Based Strategies for Urban and Building Sustainability*. Oxford (UK): Butterworth-Heinemann, 203-213.

Rowe B. (2018) Green Roofs for Pollutants' Reduction. In: Pérez G. and Perini K., eds., *Nature Based Strategies for Urban and Building Sustainability*. Oxford (UK): Butterworth-Heinemann, 141-148.

Scolozzi R., Santolini R., Morri E. (2012). Territori sostenibili e resilienti: la prospettiva dei servizi ecosistemici. *Territorio*, 60: 1-9. http://hdl.handle.net/10449/22136.

Van Mechelen C., Dutoit T., e Hermy M. (2013). Mediterranean open habitat vegetation offers great potential for extensive green roof design. *Landscape and Urban Planning,* 121: 81-1.

Vietti E., Vietti M. (2018). *Tetti verdi e giardini pensili. Manuale per migliorare l'ambiente urbano e il microclima, ottenere risparmio energetico e diminuire l'inquinamento*. Palermo: Flaccovio.

Voghera A. (2015). Resilience Through Community Landscape Project, *I Quaderni di Careggi*. Uniscape's online publication, 2: 103-108.

Wall installation, prototype.
Image source: Yessica G. Mendez

Yessica G. Mendez
Institute for Advanced Architecture of Catalonia

DESIGN FOR AGEING BUILDINGS
Rethinking mexican render techniques in form of climate responsive tiles

• *Context: Biological processes in architecture* •

"Recurrir a un arquitecto todavía parece la única forma conveniente de abordar el "desorden natural". Es una manera de decir que el orden biológico- de una naturaleza completamente "diferente"- todavía no se ha percibido como una posibilidad de generación de nuevas ideas[1]".

Historically, the awareness of an environmental agenda was never as prominent as today. The realization of the importance of the environment started in the early 19th century, when the impact of the industrial revolution in the environment was noticeable. As a result the first environmental laws were created.

Nevertheless it was not until the early 70's when the ecology movement addressed officially the environmental issues that at the time were concerning our society, and different instances that have different ranges of action were created, being the ones in control of that subject nowadays.

[1] Clément, Gilles, and Susana Landrove. El Jardín En Movimiento. Barcelona, España: Ediciones Gustavo Gili, 2008.

From an architectural point of view, since ancient times we have considered the environmental conditions in our design processes, to the best of our knowledge and the accessibility of information. Hence the approach is directly related to those conditions.
Nowadays the relation of architecture with biological processes that affect our environment it's still deficient and needs to be explored further. In the last two decades architecture has experienced a special interest of exploring biological and chemical processes as part of the architectural practice in our built environment and our daily life.
This change of paradigm has produced an important impact in the way we perceive architecture nowadays.
A building is not anymore only a structure which hosts human being's activities, but also a mechanism that allows and enhances the interaction of many other life forms in different scales, that play an important role in the environment, function and maintenance of the building.
The ageing process is a biological condition given by the pass of time. The pass of time and its interaction with matter is given by a manifestation of visual features that are non reversal, progressive, accumulative and repetitive, the more the matter ages the more changes we can recognize.
This process is unavoidable and affects everything that surround us in our daily lives. Therefore, the matter that our built environment is made of, is bound to age as well.
The above mentioned process changes the characteristics of matter adding adjectives that most of the times are found unpleasant or detrimental, such as decayed, deteriorated, old, eroded, wasted, decomposed, vulnerable, etc. But what are the conditions that determine the effects of the pass of time in matter? Is it possible to control them? Is it possible to design the ageing process of matter and take advantage of these conditions?
Nonetheless, given our obsession to deny any physical manifestation of the pass of time in any circumstance surrounding us even in our own bodies, we try to keep a young appearance in the built environment as well, mantaining a pristine and clean appearance of buildings, even though the passing of time and the changes those buildings undergo could have a positive impact and a potential functionality if that process is embraced. The aim of this research is to analyze which factors lead to the ageing process, understand their relationship and how they affect each other. Once these factors interact with the matter a new understanding of the built environment could be created and used to do architecture that includes all these elements rather than get rid of them.

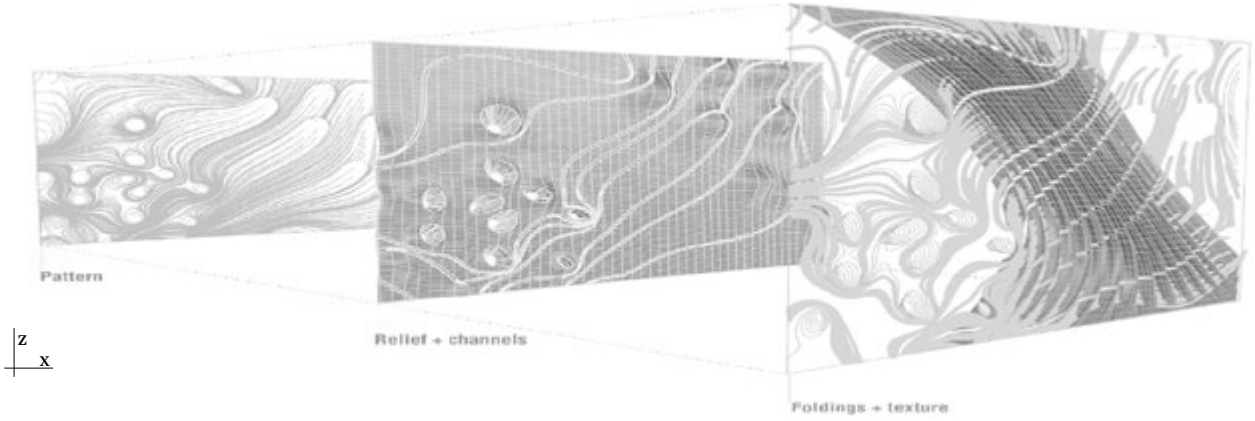
• Principles: bio-integrative design •

Our first and usually unintentional interaction with buildings is through their facades, and since our urban environment is a reflection of the cultural, social and conventional system we live in,

man tries to maintain them as clean, pristine, fertil and homogenous as possible. These maintenance processes of that look in buildings need a lot of effort to be preserved, thus adding a load to the consumer in terms of economy, sustainability, work, etc. given it needs to be repeated several times during the lifespan of a building.
Buildings at the beginning always try to be something that later on they will never be, given the tendency of having only one projected logic into one facade, not accepting or allowing anything else to happen in the coming years. But when matter is exposed to the environment different conditions, such as invasion of small species, patches of wasted material, colonisation of microorganisms, discoloration and irregularity, start happening at the same time in different areas of the facade, coexisting, giving us a multidimensional logic on vertical surfaces that we ignore and that has to be analyzed.

• Case study •

As a case study traditional housing in Monterrey, Mexico was analyzed, given that vernacular construction techniques make use of local and natural materials and thanks to its composition they have a closer relationship with the environment, allowing interaction and physical reaction to it, almost like if they were alive unlike man-made ones.
As a starting point, several images of deteriorated facades of vernacular houses were used as samples, to recognize the main features that vertical surfaces have after being exposed to the environment for a long time. The main features found were erosion, bacteria colonies, small species growing in facades, dis-



Juxtaposition
Unfolded surface

Image 2 | Juxtaposition of morphological principles.
Image source: Yessica G. Mendez

coloration and irregularity, which we can classify in three main concepts: bio-receptivity, bio-deterioration and erosion.
Once the main characteristics were recognized, an understanding of which variables are provoking this specific conditions on the surfaces was needed, concluding that climatic factors (water, air and light in form of rainfall, wind and temperature) are the ones controlling the environment and in constant variation. The images of the deteriorated facades were classified according their orientation, facing either north, east, south or west and later on the images with the same orientation were overlapped in order to identify patterns.
This analysis was possible thanks to a specific condition that the centre of Monterrey has, the traditional buildings were designed according to a geometric grid of the Spanish colonial planning, which limits the geometry of the building to a boxed shape volume, oriented mainly to the north.
Although the traditional buildings take some climatic factors into consideration in their design, their environmental agenda was very limited. Nowadays there are more factors that we are aware of, increasing the complexity of the topic.
As a result of the study, a higher density of plants and moss was found on northen facing facades, hence higher bio-receptivity, decreasing gradually from north to west and east, while in the south it was almost non-existent. The environmental conditions on north: less heat exposure, more humidity and less wind flow, allowing small species to grow on the facades.
In terms of erosion, the facades facing north and south are the ones most affected, given that the main wind flow comes from south east, south west and north west as well as significant heat exposure in the south. While bio-deterioration on the other hand has an impact in four of the orientations, fact that can be more related to the irregularity or geometrical changes on the surface, such as friezes, ornamentation, porosity, etc.

• Considerations •

All the data collected from the case study will helps us to define the parameters that have to be considered, according to our intention of taking advantage of ageing processes. The main parameters to control according to their classification:

1. Bio-receptivity, the growth of small species can be controlled by humidity, wind flow and sunlight they receive.

2. Erosion, mainly provoked by water and wind flow.

3. Bio-deterioration, microbial growth is affected by moisture, temperature and light.

• Matter: Material characterization •

The effects that nature has on the vertical surfaces, is completely related to the material that is in contact and interacting with the environment. The material in which the surface is made of, plays an essential role in this interaction, and its chemical and physical characteristics might define the impact that nature will have on it.
One of the techniques used throughout history all around the world, is the construction with earth. In Mexico, traditional buildings use blocks made out of it, called adobe. A prehispanic render technique to protect adobe walls is the use of lime mortar with natural additives, technique that vernacular architecture still uses nowadays.
Considered a natural material, the lime mortar with natural additives has the possibility to interact with the environment, although the use of lime has been related to the sterilization of surfaces. One of the reasons it's used in combination with earth is because the lime allows the wall to "breathe" and interact according to the conditions of the environment
The material of interest is the lime mortar with cactus mucilage as an additive, combination typically used in Mexico given the availability of the material. This additive adds fluidity, adherence, contraction control, compressive strength, consistency, workability and finishing to the mixture.
The material characterization was based on the most common mortar mixture, which is used to covering the wall with thin layers, repeating the process three or four times. However, given the morphological characteristics of the geometries a casting process was chosen, allowing higher control of the finishing, accurate details in a micro-scale and the control of porosity.
One of the disadvantages of lime mortars is their carbonation process which requires a long period of carbon dioxide exposure in order to harden, and would require a long casting process in comparison with other materials. Given the hardening process is long, the pieces need to be removed from the mold before the process finishes, therefore soft molds are required. An efficient solution for this problem is the agar-agar (vegetal jelly), which is a low cost, natural and recyclable material, allowing a high resolution finishing of the casted piece.

• Morphology •

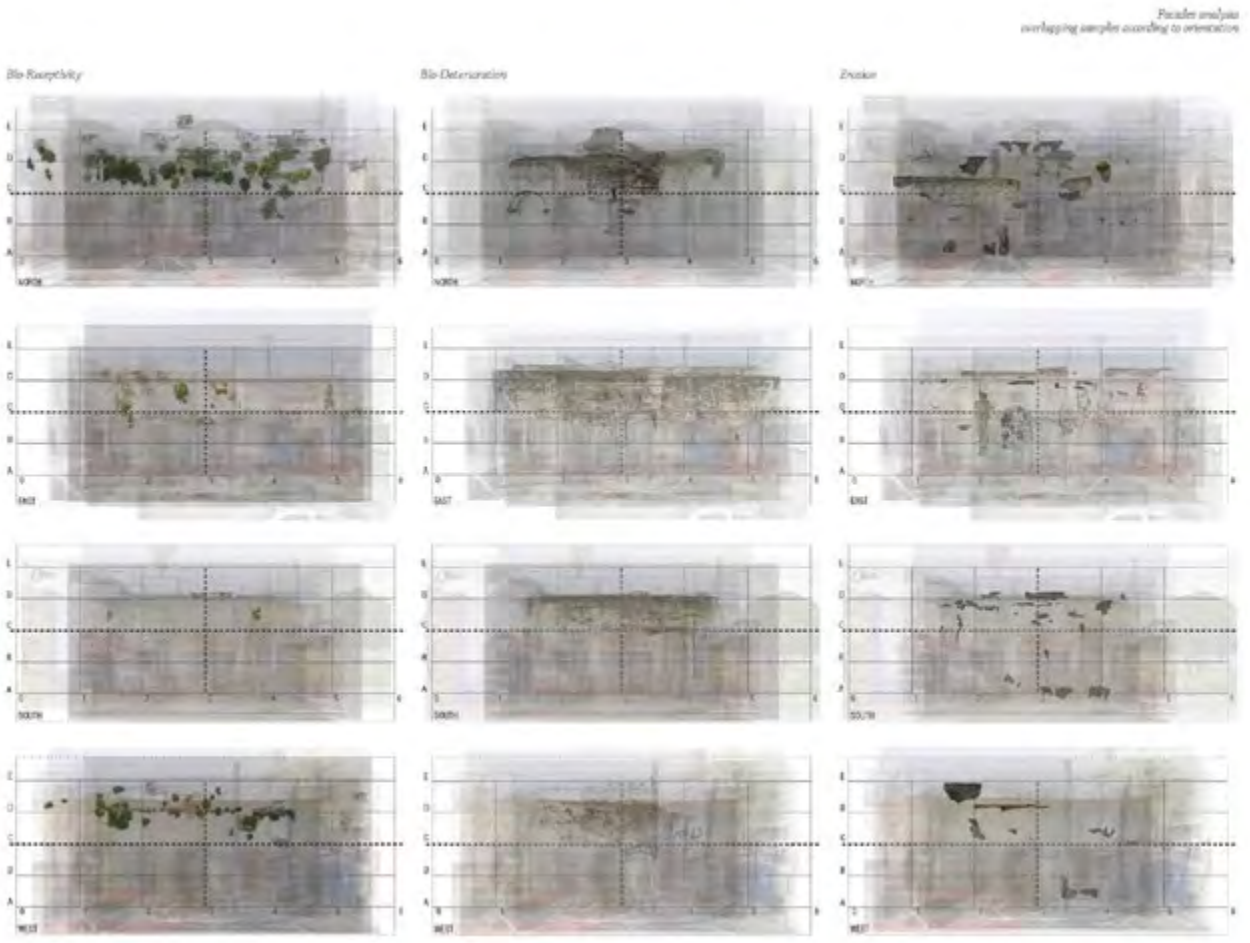
The manipulation of geometry on vertical surfaces through computational design inform the design process, using as input the data collected from the parameters that control bio-receptivity, erosion and bio-deterioration, which lead us to the exploration of three main fields:
Fluid dynamics, since water and wind flow behaviour is ruled by its laws.

Aerodynamics, which needs to be explored in a micro scale, to determine the impact of the wind flow on the surface of a building, therefore the strategies to be controlled.
Biomimicry, analysis of the mechanisms that cactus use to control the impact of temperature and sun exposure on their surfaces.
Often digital simulations of vector fields are used to model and explore the physical behaviour of moving fluids, allowing to understand in a visual way through coordinate systems the basic rules of fluid dynamics. The most explored aspect in this case was pattern generation, following the logic of archetypical movements of water such as oscillation, circulation systems and train of vortices. The vector field was controlled by the use of charged and spinning points with positive and negative values with strategic locations and by evaluating the field, line patterns are generated, focusing on water distribution and retention, creating irrigation and collection systems.
The exploration of the impact of the wind on the surface was achieved thanks to the computational analysis of the basic concepts of aerodynamics, which are transit and laminar flows, boundary layer, collision of high and low pressure flows which create moments of turbulence on the surface, etc. As a result of the analysis in terms of geometry, the need of wind barriers, reliefs, and texture in the surface was found, given that the most important aspect is the creation of turbulent areas, which will decrease the impact of the wind flow on the surface by slowing down the wind speed. By having a low wind speed on the surface the erosion process will be delayed.
The most peculiar feature in some species of cactus are their foldings, which are used to control the impact of the sun light on their surface. By folding the surface, areas of shade are generated, and thanks to the moisture captured in between the foldings a microclimate is created, helping to cool down the surface.
Folded surfaces were explored through sine functions, a series of curves were analyzed changing their parameters such as amplitude, frequency, phase, damp and length. Then by combining these curves and loft them, a catalogue of folded surfaces was created. The main variations of the foldings are in the depth and width of the curves, which have an impact of the shade they project, the deepest the curves are the more shade is projected. Nevertheless this variations are limited by the fabrication processes in which there is a maximum depth to work with according to the characteristics of the machine that is used to generate the physical models.
Since the surface has a multidimensional condition of all the factors (air, water and sunlight), a juxtaposition of the main morphological principles explored so far, is needed. Therefore the overlapping of line patterns, reliefs, textures and foldings increased the complexity of the geometries, which were at the same time trated in different scales. From the micro scale to the global geometry of the building.

One of the most important topics on the morphology of the surface is its capacity to be bio-receptive, converting the surface in a living facade, allowing small species of plants and microorganisms colonies to invade it and coexist. Given that the plants need space and certain level of roughness for the roots to be trapped, cavities, cracks, fissures and holes are an essential consideration, completing the list of topological operations that will be applied to the surface.

• Implementation: Bio-integrative design •

Given the singularity of each part of a building in relation with the environment and the a 360 degrees condition is needed in order to have the opportunity to treat each part of the surface in a different way according to its needs.
As well, the patterns found in the case study suggest that the intervention should not only happen in a small scale on the surface, but also on the overall geometry of the building. The gradient that the patterns show suggest an exploration of geometries without sharp edges, allowing a smooth transition between the different orientations.
Ancient civilizations were more aware of a 360 degrees condition in geometries of buildings in relation with their environment and actually use it to design their cities, in Mexico several pre-colombian cities were calculating specific orientation according to a environmental events.
Digital simulations of environmental analysis and evolutionary algorithms were used to find a typological geometry that enhances the required conditions, the inputs given to the solver were to have less heat exposure in the areas in which the temperature needs to be controlled, and apply foldings in the areas in which the exposure is unavoidable. The second stage of simulations is to calculate the impact of the wind on the surface, analyzing the areas of high and low pressure according to the wind speed that the wind profile has in Monterrey, according to the average environmental data.
Once the overall design of the building is defined, the surface is intervened, applying the topological operations: pattern generation according to water flow, definition of wind barriers in high pressure areas, manipulation of foldings to control the temperature and definition of cavities and holes for plant growth.
The final outcome was developed in form of tiles that create the surface of the building, Given each part of the building it's treated in a particular way, all the tiles are unique pieces, enhancing the relation with the environmental, biological and chemical processes that surround them. A bio-integrative envelope is created, allowing nature to take place in our built environment, blurring the rigid boundary the the built and natural environments still have nowadays.



Facade analysis.
Image by Yessica G. Mendez

• Conclusions •

The use of environmental analysis to inform design processes is not a new topic, nevertheless in the last decades the architectural practice has had more interest in other subjects. They disregarded and underestimated the ones related to biological and chemical processes, missing the opportunity to take advantage of them in our built environment.
One of the biggest disadvantages in our relation with biological processes is our different perceptions of time. The lifespan and duration of natural processes is much longer than our expected waiting time, a situation that the current innovative technology is taken to an extreme, speeding up the processes and our rhythm of life. As much as the technology nowadays allows us to deepen our understanding of nature, it creates a bigger gap between the course of time in nature and our time.
One of the main topics of discussion in this research is the fact that it is impossible to control every single event that will occur, even more when we come to talk about environmental and biological processes. Nevertheless to enhance a closer relationship to the conditions that surround us, room has to be given for new and unpredictable things to happen.

Main References

SCHWENK T. (1965), *Sensitive Chaos, The Creation of Flowing Forms in Water and Air.* Reprint ed. London: Rudolf Steiner Press, 82 123.

ALLSOPP D., KENNETH S., GAYLARDE C., (2004) *Introduction to Biodeterioration*, 2nd Edition ed. New York, NY: Press Syndicate of the University of Cambridge, 111 160.

Rosell I Amigo, Joan Ramon. "*Algunas Consideraciones Sobre La Cal Y Sus Morteros 1*" Epsebupc,Materials: 616

CASTILLA, F.J. "*Revestimientos Y Acabados Superficiales En Construcciones Con Tierra Contemporáneas.*" Informes De La Construcción 63 (2011): 14352. doi:10.3989/ic.10.019.

ZHANG L., GUILBERT E. (2012), "*A STUDY OF VARIABLES CHARACTERIZING DRAINAGE PATTERNS IN RIVER NETWORKS*." International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences XXXIXB2: 2934.

Jiménez M. (2009) *Uso De La Cal En Las Edificaciones De Tierra*, Slide Share. August 27, http://www.slideshare.net/mauricio-benjamin/usodelacal.

Leon Martínez F.M., Cano-Barrita P.F., Medina Torres L. (2014)"*Study of Nopal Mucilage and Marine Brown Algae Extract as Viscosity-enhancing Admixtures for Cement Based Materials.*" Construction and Building Materials 53: 190202.

A.UD Lecture Series 20122013: *Antón GarcíaAbril*. Performed by Antón García. UCLAArchitecture, https://www.youtube.com/watch?v=1_nKMd1fO7w

Clément G., Landrove S. (2008), *El Jardín En Movimiento*. Barcelona, España: Ediciones Gustavo Gili

Moussavi F., Kubo M., (2006) *The Function of Ornament*. Barcelona: Actar

Giulia Pellegri
ADD-DAD Department Architecture and Design - UniGe, Genova

ADVANCED SURVEY APPLIED TO THE TERRITORY AND TO BUILDING STRUCTURES IN RISK AREAS

The use of UAV technology, mainly aimed at military purposes, is evaluated as a possible alternative to surveying tools aimed at knowledge, conservation and intervention in the territorial and architectural context in all those cases in which places are inaccessible because of hydrogeological, seismic and structural risk.

Against an initial financial commitment, this detection technique falls into a category of low economic impact and high security of use of the same. In order to avoid the access to people directly in places at risk and the use of highly scientific technology is encouraged with the aim of verifying the advantages linked to: cost reduction compared to classic topographic and aerial photogrammetric techniques; high speed of realization; centimeter cartographic accuracy.
The objective of the research is the experimentation of the new instruments on the market, currently used mainly to deal with RISK SITUATIONS, in order to develop a survey methodology with UAV technology.
The history of the development of micro-UAVs began in the early 2000s with the creation, by Daniel Gurdan, of the first prototypes subsequently developed, with the contribution of Jan Stumpf. The first commercial 4-rotor aircraft was the X-UFO in 2005.[1]
Four small motors with brushes and counter-rotating propellers, very light carbon frame with EPP protection, electronic

[1] Daniel Gurdan is the Co-Founder at Ascending Technologies.

control. Horizontal stabilization is carried out by a mechanical gyroscope.
The rotation on the vertical axis is not stabilized. The radio receiver is incorporated in the main board. Following the marketing of the X-UFO, an extremely more advanced model was created and marketed, the X3D-BL, equipped with brushless motors, mosfet regulators, stabilization with 3 piezoelectric gyroscopes, LI-PO battery, ACT radio receiver.
From this background the micro-UAVs (acronym for Unmanned Aerial Vehicle weighing less than two kilograms in flight attitude) were born, which represent the last frontier for shooting the territory at high resolution and at low flight altitude. These objects are in fact located in an altitude range hitherto occupied by some aerostatic or ultralight balloons, without however presenting problems related to the use of gas (balloons) or the need to have aircraft take-off surfaces.
Worldwide, manufacturers of multi-rotor aircraft with different vocations are emerging, from hobby to professional surveying of portions of the territory up to video surveillance. Following are some of the most relevant, both from a commercial point of view and for the high quality of their products.
The most recent production of this instrumentation puts in place the laser scanner drone which not only carries out the consolidated aerial photogrammetry operations but creates the real POSSIBILITY of urban architectural surveys aimed at the monitoring of risk situations and protection of architectural heritage.
The Directive of the President of the Council of Ministers of 9 February 2011 “Evaluation and reduction of the seismic risk of cultural heritage with reference to the technical standards for buildings referred to in the Ministerial Decree 14/01/2008”[2] specifies a path of knowledge, assessment of the safety level in case of seismic risk and planning of interventions for the cultural heritage. The aim of the directive is to produce an objective judgment on safety and conservation in relation to the seismic improvement referred to masonry constructions. The different chapters of this document provide information to define the seismic action, in relation to the danger of the site and the intended use of the building, and the capacity of the structure, through proper knowledge and modeling of the building. Chapter 4 of the Directive concerns the “knowledge of the built” where the method of acquiring data is required by the program for monitoring the state of conservation of protected architectural heritage prepared by the Ministry for Cultural Heritage and Activities - Directorate General for the Architectural and Landscape Heritage and aimed at acquiring knowledge of the Italian Cultural Heritage. This includes the new digital survey and representation technologies used in the acquisition of data to be used for monitoring the state of conservation of architectural assets in the context of seismic risk.

[2] Directive of the President of the Council of Ministers February 9, 2011. Assessment and reduction of the seismic risk of cultural heritage with reference to the Technical standards for buildings referred to in the Ministerial Decree 14/01/2008. (Published in the Official Gazette no. 47 of 26/02/2011 - suppl. Ord. No. 54).

The aim of the research is to experiment with the latest instruments on the market, currently used mainly to address RISK SITUATIONS both of the territory, infrastructures and housing structures through a process of knowledge also through the photogrammetric drone technology.
From traditional Photogrammetry to Photogrammetry by UAV.
***Architectural photogrammetry**, characterized by a distance between the sensor and the object to be observed of a maximum of a few tens of meters. This technique is mainly used for architectural survey (survey that, however, can also be integrated with the Laser Scanner) and for the calibration and calibration of instruments for airplane or satellite shooting, especially to correct the distortion effect of the atmosphere.*
***Aerial photogrammetry**, which is carried out by mounting photographic equipment on planes flying above the territory to be observed. Depending on the size of the area to be surveyed and the scale of representation required, the height of the area to be surveyed ranges from 300 metres to a maximum of 20,000 metres.*
***Satellite photogrammetry**, realized by Space Shuttle, meteorological satellites or for the study of terrestrial resources. This technique is mainly used for large areas to be surveyed.*
***Photogrammetry by UAV** (unmanned aerial vehicle) (also called Remote Pilot Aircraft or DRONE), which is realized by mounting different sensors (optical cameras, thermal cameras, multi spectral sensor, ...) of reduced dimensions on the systems used. To ensure a good quality level of the final product, it will be necessary to follow a calibration procedure of the sensor to take into account, during the data processing, any geometric corrections. This technique is mainly used for not particularly large areas and can be used alongside architectural photogrammetry for the survey of buildings and infrastructures.*
Photogrammetric drone technology can be used for multiple applications.

TERRITORIAL AND URBAN PLANNING
· Topographical survey and return of detailed technical maps
. Thematic cartography (geological, geomorphological, land use, maps)
· Ground survey for monitoring phenomena linked to the risk of landslides and floods;
· Excavations and mining activities;
· Survey and monitoring of coastal erosion;
· Survey of railway and road routes;
· Updating of municipal plans on a detailed scale;
· Updating cadastral maps;
· 3D modeling of buildings and infrastructures;
· 3D urban and architectural renderings

ENVIRONMENT
· Landfill survey and monitoring;
· Survey of the areas subject to reclamation;

· Simulation and environmental impact assessment for feasibility and design studies;
· Measurement of the concentration of pollutants in the atmosphere with the installation of special detectors on the drone.

BUILDING
· Survey for building design studies;
. Surveys for construction sites Monitoring;
· Visual inspections and structural checks of buildings;
· State of pipelines and roofs;
· Infrared structural surveys;
· Photo-interpretation surveys;
· 3D rendering of building works and their landscape impact;
ARCHEOLOGY AND CULTURAL HERITAGE
· Survey of historical and artistic heritage sites;
· Survey of archaeological sites for the study and documentation of the areas affected by excavations;
· Geoarchaeological analysis with photo interpretation;
· 3D reconstruction and rendering of areas and buildings.
. data detected by the drone into territorial information systems (G.I.S.)

In particular, the LiDAR survey, associated with a contextual aerial photogrammetric survey, allows you to monitor the evolution of active landslide bodies by evaluating the progressive extent and direction of the movements and therefore the real conditions of the risk. The multi-temporal comparison between DTMs acquired in different periods allows to identify the areas subject to lowering or lifting and to estimate the speed of vertical deformations, representing the most suitable monitoring technology in the case of extended slow gravitational phenomena of active type. The periodic detection with LiDAR, accompanied by simultaneous aerial photography, allows to monitor and evaluate the trend of the phenomena, both from a qualitative and quantitative point of view.
LiDAR (Light Detection and Ranging) is an aerial survey technique that allows you to determine the spatial coordinates and the elevation of points on the ground based on the return time of a laser pulse, providing a mesh of high density and high precision topographic data in a very short time, even over large areas, allowing the identification, characterization and mapping of the morphologies, both natural and anthropogenic.
The processing of the grid of coordinates provided by the LiDAR allows the formation of the Digital Models of the Terrain (DTM), of the surface (DSM), of the Elevation (DEM), of the Building (DBM). It is also possible to evaluate the qualitative and quantitative evolution of quarries, landfills, as well as the detection of overhead power transmission lines. The dense mesh of high-precision points allows accurate modeling of slopes, river beds and

mountain basins, as well as floodplain areas and all elements exposed to hydrogeological and / or alluvial risk.
The aim of the research is to experiment with the latest instruments on the market, currently used mainly to address RISK SITUATIONS both in the territory, infrastructure and housing structures. The survey project provides for a knowledge path that, in line with ministerial directives, it is a fundamental prerequisite both for the purposes of a reliable assessment of the current seismic safety and for the choice of an effective improvement intervention.
The problems are linked to the knowledge of : the original characteristics of the building, the changes that have occurred over time due to damage resulting from anthropogenic transformations, the aging of materials and disasters. Therefore, there is a need to refine the analysis and interpretation techniques of historical artifacts through cognitive phases with different degrees of reliability, also in relation to their impact.
Knowledge can in fact be achieved with different levels of the research: accuracy of survey operations, historical research, and experimental investigations, aimed at the definition of an interpretative model that allows, in the different phases of its calibration, both a qualitative interpretation of the structural functioning, and the structural analysis for a quantitative assessment.
The path of knowledge can be traced back to the following activities:
- identification of the building, its location in relation to particular areas at risk,
and its relationship with the surrounding urban context; the analysis consists of a first schematic survey
of the building and in the identification of any valuable elements (equipment fixed decorative items, movable artistic assets) which can affect the level of risk;
- the geometric survey of the building in its present state, intended as a complete stereometric description
of the factory, including any cracking and deformation phenomena;
- the identification of the sequence of phases of building transformation, from the hypothetical original configuration to the current one;
- the identification of the constituent elements of the resistant organism, in the material meaning e constructive, with particular attention to the construction techniques, to the details construction and the connections between the elements;
- the identification of the materials, their state of degradation, their mechanical properties; _ knowledge of the subsoil and foundation structures, with reference also to variations occurred over time and related failures.(fig.1)

In consideration of the specific methods of structural analysis of the collapse mechanisms of historical masonry artifacts, the cognitive investigations should focus mainly on identifying the

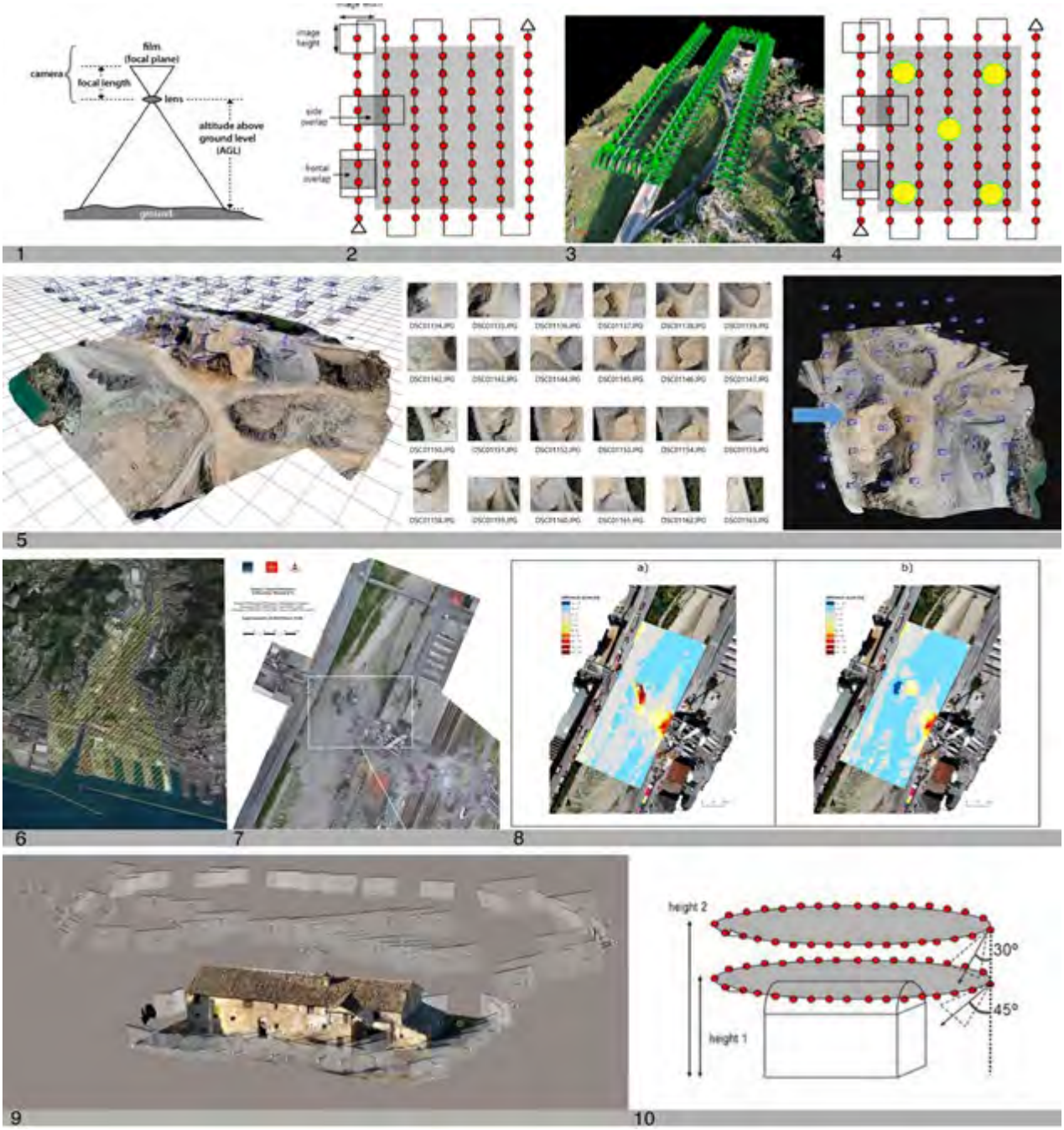


Fig.1 1. Diagram relating to the focal length, the sensor and the angle of view for a correct flight plan; 2. Nadir Flight Plan for quarries, mines .. with 75% frontal overlap and 60% side overlap; 3. Automatic flight mission for photogrammetric survey; 4. Automatic mode, single rectangular grid and identification of Ground Point Control GCP; 5. Example of photogrammetry through SAPR of a quarry, import of frames and generation of the 3d point cloud; 6. Aerial photography from drones on the site of the collapse of the Morandi Bridge in Genoa. Drone operations were carried out in close collaboration and under the coordination of the SAPR Nucleo of the Piedmont - Liguria Fire Brigade and with the prior authorization of SOCAV (Flight Coordination and Assistance Operations Room) in order to avoid interference with helicopter activities, particularly intense on the days of 15 and 16 August. The drone acquisitions included nadiral and inclined shots, at variable altitudes between 30 and 65 m from the ground, carried out with DJI Phantom 4 PRO in mixed mode (manual / automatic) and visual inspections (in manual mode) to verify the persistence of the signals previously installed on the ground; 7. GNSS measurements in the debris accumulation area (15/08 at 13.00, photo V. Ortelli); 8. On the basis of the data acquired, the CIMA Foundation has periodically updated the 1D hydraulic modeling for the calculation of the flow that can be crossed in the riverbed and the floodable areas, and the Functional Center of the Liguria Region has redefined the new hy-

drometric alarm thresholds and the estimate of floodable areas . Consequently, the Municipality of Genoa prepared a "Shipping plan for the weather-hydrological risk for the val polcevera area affected by the morandi bridge collapse". Collapse of thePolcevera viaduct, evaluation of the maximum flowable flow and of the related flood areas;[3] 9. Example of flight for photogrammetric survey with Remotely Piloted Aircraft System (SAPR); 10. Shooting scheme with photographic shots in SFM and overlap.[4]

history of the artifact (especially in relation to previous seismic events), on the geometry of the structural elements, on the construction techniques (with reference to those usually adopted in each territorial context) and on the phenomena of instability and deterioration in order to continuously monitor the state of affairs. On the other hand, the difficulties associated with knowledge, also in relation to available resources e the invasiveness of the investigations to be performed often make it necessary to compare with a posteriori interpretative models, based on observation and ascertaining the functioning manifested by the construction. The information acquired must be organized and returned in accordance with the provisions of the monitoring program of the conservation status of protected architectural heritage (Annex A), elaborated through cards by the Ministry for Cultural Heritage and Activities and finalized to the acquisition of a systematic knowledge of the Italian cultural heritage (fig.2).

• Advanced Geometric Survey •

The survey refers to both the geometry of the building and that of the construction elements, including the relationships with any adjacent buildings. The stereometric description of the building involves the identification of the plano-altimetric characteristics of the constituent elements: of the vaults (thickness and profile), of the floors and of the roof (typology and warping), of the stairs (structural typology), the location of any niches, cavities, openings closed (in what manner), flues, extraneous elements included and the type of foundations.
The representation of the results of the survey will be carried out through plans, elevations and sections beyond and with detailed construction details to identify the resistant structural scheme.
The survey in the risk area requires particular attention to the shutters of the horizontals and archivolt systems and the loads weighing on each wall element.
The difficulties of the geometric survey are related to the accessibility of some spaces, such as attics, volumes between false vaults or false ceilings and roofs, or at the excessive height of the elements.
Any cracking pattern must be detected and represented, in order to allow the identification of the causes and possible evolu-

[3] Figg.6.7.8 Images taken from U. Morra di Cella (1) - S. Gabellani (2) - A. Massabò (3) - L. Ferraris (2) - F. Diotri (1), *The contribution of ARPA Valle d'Aosta in the emergency of the collapse of the Morandi bridge (Genoa)*, 1) Regional Agency for the Protection of the Environment of the Aosta Valley 2) CIMA Foundation (International Center for Environmental Monitoring), Competence Center of National Civil Protection Department 3) Regional Operations Manager (Liguria), VVF pilot instructor.

[4] Figg. 1.2.3.4.9.10 Workshop "Photogrammetric drone survey at low altitudes in a confined environment. La Certosa di Genova ", held on the TEAM platform as part of the Fundamentals and Practices of Representation 2 course, a.y. 2019-2020, and the PhD course in Architecture and Design of the Department of Architecture and Design, University of Genoa. Teachers: G.Pellegri and F.Salvetti; Scientific tutors: S.Eriche, M.Scaglione. Images taken from the seminar held by Mauro Rattone, head of CA APR Aeroclub Genova Enac FI-FE-Droneacademy and Antonio Sondrio FI apr Enac- dronepromotion. Fig.5 Images from the workshop "Drones and laser scanners in architecture. From the survey project to data processing. Integrated experience of survey of architecture, topography and laser scanner ", as part of the course of Fundamentals and Practices of Representation 2, ay2018-2019, and of the PhD course in Architecture and Design of the Department of Architecture and Design, University of Genoa . Teachers: G.Pellegri and F.Salvetti; Scientific tutors: S.Eriche, M.Scaglione. Speakers and demonstration by:

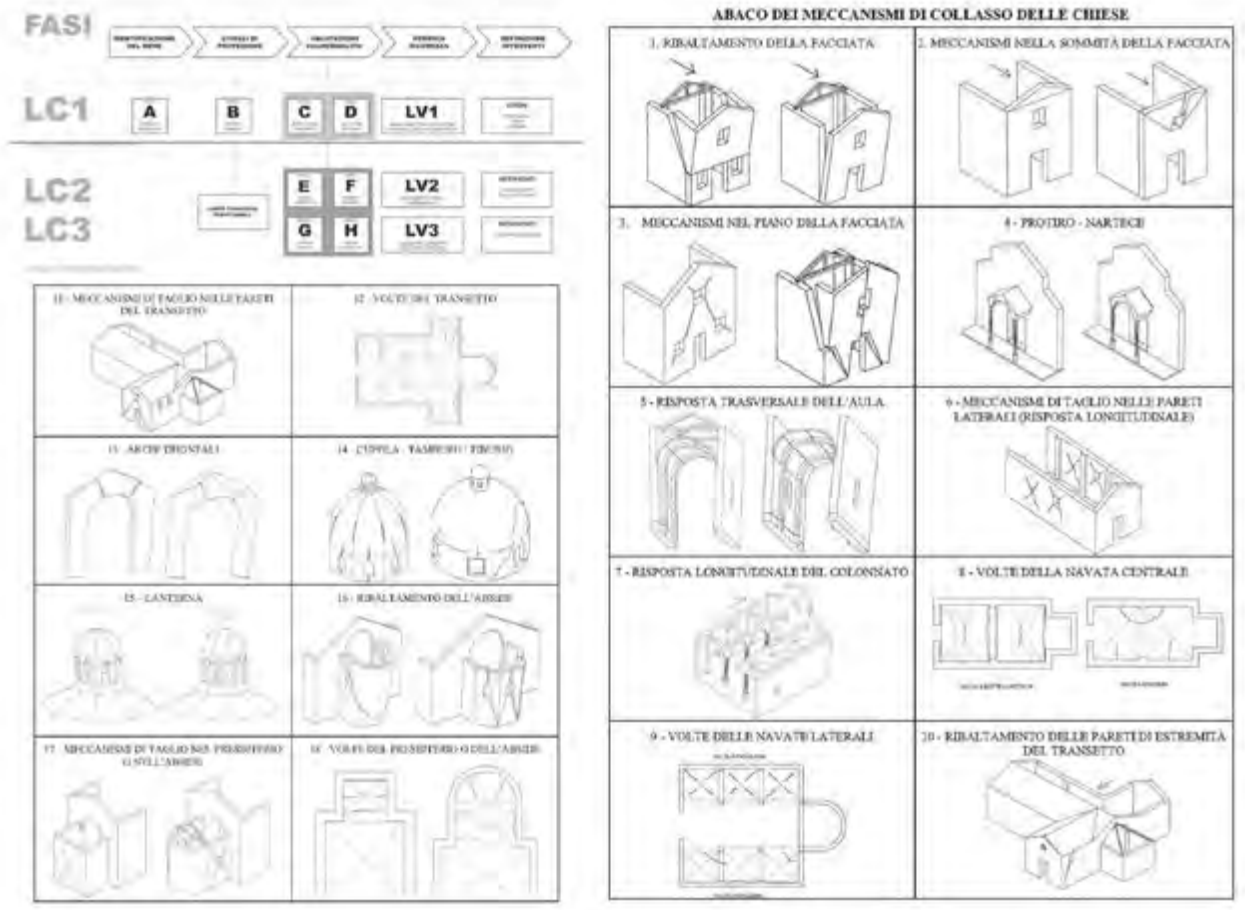


Fig.2 Cards from the Ministry for Cultural Heritage and Activities and aimed at acquiring a systematic knowledge of the Italian cultural heritage. Modello A-DC PCM-DPC-MIBAC 2006[5]

tions of structural problems of the organism. The lesions will be classified according to their geometry (extension, width) and their kinematics (detachment, rotation, sliding, displacement out of the plane). Subsequently, considering that the stages of knowledge are not sequential, it can be associated with each injury, or with a set of injuries, one or more damage mechanisms compatible with the geometry of the organism and its foundation, with the transformations undergone, with the materials present, with the events suffered. Similarly the deformations will go classified according to their nature (evident out of lead, lowering, swelling, bulging, depressions in the vaults, etc.) and associated, if possible, with the respective mechanisms of damage. In this phase of survey and identification of the current state of affairs, the use of the laser scanner system via drone is of fundamental importance and usefulness. This system can have innovative applications under experimentation such as the study of the three-dimensional visualization of urban areas for the perception of spaces aimed at the color project of historic villages.

[5] D.P.C.M February 23, 2006 (Official Gazette 7.3.2006, N.55) Approval of models for the detection of damage, following calamitous events, to assets belonging to cultural heritage. Annex A of the Directive of the President of the Council of Ministers 9 February 2011 Assessment and reduction of the seismic risk of cultural heritage with reference to Technical standards for constructions referred to in D.M. 14/01/2008. (published in the Official Gazette No. 47 of 02/26/2011 - Ordinary Suppl. No. 54)

The simultaneous visualization of the three-dimensional models for an immediate conversation between reality in fact, transformations in continuous updating and final project, would allow to frame the entire scientific and critical process, making explicit the different spatial relationships in a unitary image.[6]
The three-dimensional rendering of the organism can be complex and fundamental in the visual analysis of the object even in motion through a new system of moving section with holographic display (fig.3).
This kind of research must have a multidisciplinary approach in order to identify every aspect of the problem.
In this phase of survey and identification of the current state of affairs, the use of the laser scanner system via drone is of fundamental importance and usefulness.

[6] S. Eriche, G. Pellegri, F. Salvetti, Procedural applications of chromatic values in mormative matters: the village of Zuccarello, in De-Sign Environment Landscape City, Genova, 2019.

The geometric survey must be integrated by the compilation of named card forms morphological, which make it possible to uniquely identify the elements resistant and related constructive relationships. The geometric control of the construction can be performed trough topographic and photogrammetric survey procedures using innovative techniques, such as the point cloud generated by the laser scanner.
The monitoring project requires a preliminary interpretation of the failure mechanism, in order to identify a series of significant points to check.
As part of the research agreement stipulated between the Ar-

Fig.3 Digital processing of the images by F. Salvetti, taken from Zuccarello three-dimensional digital model of Microgeoand Geomax and supplied by Instrumentrix. I.Cappelletti.

Fig.4 Photogrammetric survey with Drone of the historic cobblestone pavement of the ancient cloister of the Certosa of San Bartolomeo del Fossato in Genoa. Data related to the technical characteristics of the drone DJI Mavic 2 Pro and the flight plan data set on the Cloister; Reference Planimetry of the flight plan (F.Salvetti elaboration); detail of the photographic sockets. 3D Zehyr image processing with advanced settings and scalar definition via the control points (S. Eriche elaboration); Photomerging and dense point cloud with texture by G.Pellegri.[7]

chitecture and Design Department – Cts ColourLab - and the Certosa of San Bartolomeo del Fossato in Genoa, about: "Development of a research on the survey by drone in a limited environment for the photogrammetric restitution of the historical pavement" in 2020. The a survey was developed with a low-altitude drone for the acquisition of high-definition nadiral images returned with 3d modeling software and photographic processing aimed at identifying the deficiencies and the state of decay for the restoration (fig.4).

The general steps for the assessment of safety and the consequent project of interventions to improve the protected cultural heritage includes:
-Obtain adequate knowledge of the structure, which allows to identify the characteristics of the elements that determine the structural behavior with different levels of detail, according to criteria based on the accuracy of surveys and historical investigations, on the recognition of the use of rules of the art, on the identification of the level and type of damage;
-Adopt appropriate detailed rules in the implementation of

[7] G.Pellegri, F.Salvetti, (2020) . Advanced representation for preservation and communication of cultural heritage. In XVIII International Forum Le Vie dei Mercanti World Heritage and Contamination - ISBN:978-88-492-3937-9

interventions, aimed at ensuring the compatibility of the new elements with the original ones, the durability of the materials, the maximum ductility to structural elements and to the construction as a whole.
It is therefore essential to have a global approach to environmental values, developed through the analysis of all the factors that contribute to its formation and therefore, first of all, through the systematic recognition and objective documentation of all building structures pre-existing, which constitute the most conspicuous and most consistent metric aspect of the environment itself.

Main References

C.G. Ratti, *Instruzione di quanto può vedersi di più bello in Genova in pittura, scultura ed architettura*, Genova 1780, pp.244.

G. Oggiero, *Cenni sulla vita dell'apostolo S. Bartolomeo con aggiunta di notizie storiche sulla Certosa di Rivarolo,* Genova, 1872, pp. 169 – 197.

G.Pellegri, *New applications of integrated survey on UAV platform for architecture and environment*, In AA.VV. Proceedings of VII Convencion de Agrimensura, La Habana, 23/26 Septiembre 2015. p. 1-8, La Habana:La Habana Editorial Obras, ISBN: 9789592471368.

A.A.V.V. (2004), *Metodi e tecniche integrate di rilevamento per la realizzazione di modelli virtuali dell'architettura della città*, Gangemi Editore Roma.

R. Brumana, C. Monti (2004), *La Carta del Rischio del patrimonio culturale in Lombardia. Guida per la georeferenziazione dei beni storico-architettonici*. Guerini e Associati, Milano.

K. Ikeuchi & D. Miyazaki (2008), *Digitally Archiving Cultural Objects*, Springer. Istituto Centrale per il Restauro (1994), Carta del rischio del patrimonio culturale, Arcad Editore. ISCR. "Carta del Rischio".

V. Cardone (2015), *Modelli grafici dell'architettura e del territorio*, Maggioli Editore.

M.A. Gomarasca (2004), *Elementi di geomatica*, Edizioni AIT Firenze.

J.A. Richards, X. Jia (2006), *Remote sensing digital image analysis. An introduction*, Fourth Edition Berlin.

F .Nex, F. Rinaudo (2009), "New integration approach of photogrammetric and LIDAR techninques for architectural surveys", *Int. Arch. Phot. and Rem. Sens.*, XXXVIII-3/W8, 12-17.

G.Pellegri, F.Salvetti, (2020) . Advanced representation for preservation and communication of cultural heritage. In XVIII International Forum Le Vie dei Mercanti World Heritage and Contamination - ISBN:978-88-492-3937-9

https://www.d-flight.it/
https://www.enac.gov.it/
http://www.cartadelrischio.it/
https://www.microgeo.it/it/default.aspx

Entebe Airport, Uganda. Photo by Hennie Stander on Unsplash

Cristina Càndito, Maria Linda Falcidieno, Alessandro Meloni
ADD-DAD Genova, UNIGE

SMART CITY TRA ANALOGICO E DIGITALE

Il neologismo *Resili(g)ence*, che si deve a Manuel Gausa, coniuga perfettamente i due concetti fondamentali che impregnano la storia dell'umanità: la resilienza e l'intelligenza. La resilienza va qui intesa non in senso letterale, come capacità di resistenza dei materiali, bensì in senso *ecologico*, come la capacità di ritorno a un rinnovato equilibrio, di norma post traumatico e l'intelligenza come *Complesso di facoltà psichiche e mentali che consentono di pensare, comprendere o spiegare i fatti o le azioni, elaborare modelli astratti della realtà, intendere e farsi intendere dagli altri, giudicare, e adattarsi all'ambiente* (Enciclopedia Treccani on line).

Nella vita contemporanea, si può parlare perciò di "città intelligente e resiliente" a indicare una città che riesce a coniugare le capacità di adattamento all'ambiente (inteso anche come collettività sociale) a quelle di nuove ideazioni tecnologiche, fruitive e di relazione, amplificando, quindi, il concetto di "città intelligente" (*smart city*), che definisce una *Città caratterizzata*

dall'integrazione tra saperi, strutture e mezzi tecnologicamente avanzati, propri della società della comunicazione e dell'informazione, finalizzati a una crescita sostenibile e al miglioramento della qualità della vita (Vocabolario Treccani online).
In tutto ciò, si pone il quesito se tali caratteristiche siano esclusive della contemporaneità attraverso le nuove tecnologie informatiche e attraverso la conseguente interazione e comunicazione, o non vi sia la possibilità di inquadrare la città intelligente e resiliente anche in ambito prevalentemente analogico.
Un caso che appare di potenziale interesse è quello dato dal *wayfinding* ovvero dal concetto di "trovare la strada" messo a punto da Kevin Lynch, che ci porta a ragionare proprio sulla capacità della città contemporanea di comunicare in maniera corretta e immediata le informazioni necessarie agli utenti per orientarsi; e se il livello minimo di risposta a tale necessità è senza dubbio quello della segnaletica, ben più articolato e complesso è il quesito, quando ci si rivolga ad un'utenza debole.
L'impiego di alcune tecnologie, l'attenzione alla differente percezione che si può avere (ad esempio non visiva, ma tattile – per ipo e non vedenti – o da differenti punti di vista –per chi si muove su sedia a rotelle) sono senza dubbio elementi che non coincidono con la logica corrente di una segnaletica, ma che maggiormente si appoggiano a quanto detto sulla città intelligente e resiliente; in questo caso, infatti, si tratta di utenti con necessità specifiche, che si *adattano* all'ambiente e che cercano nel contesto urbano risposte *intelligenti*. Cittadini di una *smart city*, secondo la definizione riportata in apertura.
Di seguito si propongono, quindi, tre punti di vista tra loro correlati, che presentano – nell'ordine – tre temi di riflessione, tutti collegati dal fil rouge dell'orientamento nello spazio e sviluppati secondo ragionamenti e soluzioni non convenzionali; innanzitutto alcune riflessioni generali sulla questione *wayfinding,* seguite da contributi sul *wayfinding accessibile.*

• *Wayfinding* e rappresentazione •

La questione dell'orientarsi dall'esterno all'interno e all'interno di uno spazio è ampia e densa di implicazioni: dalla tipologia dei luoghi (zone aperte, chiuse, filtro), alla loro estensione (percorribile a piedi, con comuni mezzi di trasporto, via aereo), fino al target del fruitore, che necessita di attenzione e modalità specifiche.
Lo strumento principale per farsi guidare e, quindi, riuscire a muoversi in maniera efficace e certa è senza dubbio quello delle segnaletiche, che mettono a disposizione elementi informativi a vari livelli e con differenti finalità: dalla corrente e imprescindibile segnaletica del codice della strada, che impone ritmi e comportamenti a autisti e pedoni; ai pannelli turistici, che propongono itinerari o singoli episodi di interes-

se, sia esso relativo al costruito, così come all'ambiente; alle indicazioni che segnalano la presenza di attività commerciali, produttive o di servizio; agli elementi che possono essere assimilati alle segnaletiche, pur non essendone parte specifica. In tal senso, vale la pena menzionare i "segni" che pertengono a determinati spazi: le bandiere sui luoghi pubblici (scuole e istituzioni), così come i simboli religiosi sugli edifici di culto e così via, poiché rappresentano un fondamentale "punto di appoggio" per chi percorre uno spazio.
La segnaletica, in fondo, funziona proprio così, con l'imparare a riconoscere segni e segnali, in modo da costituire un bagaglio di informazioni a disposizione; e ciò accade anche istintivamente, quando si riconosce un panorama, una città, un monumento grazie a "qualcosa" che è rimasto impresso nella memoria e che assume, quindi, il ruolo di "punto di appoggio" della memoria stessa. La differenza maggiore tra i due sistemi di orientamento è dato dall'essere frutto di un codice – il primo – e di una elaborazione personale – il secondo –; in breve, il prodotto segnaletica deriva da ragionamenti critici e si attua prevalentemente per simboli codificati (la forma del cartello, il colore...) e icone, portando ad un modello collettivo, mentre la capacità di orientarsi data dalla memoria è dovuta ad una sintesi mentale soggettiva, che varia con il variare delle capacità cognitive, di memorizzazione e così via, legate al singolo individuo.
Già da queste prime note appare chiara la generale difficoltà di produrre buone comunicazioni per supportare e semplificare l'orientamento dei fruitori all'interno di uno spazio; difficoltà che diviene sempre maggiore via via che lo spazio si amplia e/o si articola in presenza di utenti con difficoltà sensoriali.
In questa sede – prima di affrontare il quesito del wayfinding accessibile – si vuole portare come esempio di segnaletica particolarmente significativa ad uso collettivo quella relativa alla metropolitana e, in particolare, la prima segnaletica derivata dall'applicazione di una rappresentazione codificata introdotta per la metropolitana di Londra, che ha cambiato il modo di orientarsi all'interno del sistema di trasporto sotterraneo, divenendo modello riconosciuto per tutti gli sviluppi futuri.
Quale è il quesito che pone una viabilità sotterranea e quali le implicazioni che rendono la sua comunicazione per la fruizione particolarmente complessa?
Innanzitutto, ovviamente, l'essere ad un livello differente negli accessi, rispetto allo sviluppo: in superficie si accede e si esce, ma a quote inferiori si procede e si deve scegliere – riconoscendole – le fermate ottimali rispetto al luogo di destinazione personale; inoltre, l'indubbia complessità di una rappresentazione che deve tenere in conto l'articolazione dei percorsi, dei poli in superficie di riferimento, della variazione continua dell'andamento.
Il rimando immediato è, appunto, alla mappa della metropolitana di Londra, dalla quale è derivata anche quella attuale, ideata da Harry Beck, che ha scardinato tutto il mondo di riferimento precedente: prima del suo approccio, si rispondeva a logiche

1908 1911 1920 1925

Fig. 1. *Principali evoluzioni della rappresentazione della viabilità metropolitana londinese*

di trascrizione sul medesimo piano dei due livelli in contemporanea: distanze realistiche, rimandi a elementi naturali (il fiume Tamigi) e edificati realistici, sviluppo delle percorrenze realistico. Naturalmente il tutto contaminato con gli inevitabili segni in codice, quali l'indicazione degli snodi e delle fermate, il colore (in alcuni casi) per identificare le direzioni dei differenti percorsi e così via.
L'intuizione di Beck – perfettamente descritta da Alessandro Baricco in una sua *Mantova Lecture* del 2017 – si basa sullo stravolgere quanto fino ad allora attuato e risultato ostico al pubblico: rifiutare la logica della componente iconica presente nella redazione tradizionale delle mappe, ovvero rifiutare la trascrizione il più possibile fedele della realtà, a favore di una totale astrazione. Codice, dunque, e codice portato alle estreme conseguenze, con la raffigurazione di una realtà non reale, estrema sintesi grafica efficace e chiara, proprio in virtù del suo essere distaccata da ciò che accade in superficie.

Cinque i punti essenziali della rivoluzione grafica di Beck:

1. La mappa è costruita secondo un asse centrale orizzontale teorico, eco lontano di ciò che accade nella realtà;
2. Le molteplici direzioni sono rappresentate attraverso due soli angoli possibili: 90° e 45°;
3. Tutte le stazioni sono rappresentate attraverso la medesima distanza le une dalle altre;
4. Non è rappresentato alcun riferimento a ciò che accade in superficie in corrispondenza delle stazioni o di altri nodi significativi;
5. Anche il riferimento territoriale dato dal Tamigi segue la medesima logica dei percorsi viari.

Ecco, quindi, che il codice all'interno delle scelte progettuali per supportare l'orientamento appare in tutto il suo valore, pur nell'indiscutibile necessità che detto codice sia riconosciuto e noto ai fruitori; tuttavia è quanto abitualmente accade in ogni linguaggio "dedicato" (basti pensare al codice Braille o alla lingua dei segni) e di ciò occorre tener conto anche e soprattutto quando due codici vanno a sovrapporsi, proprio come accade per la segnaletica delle metropolitane, nelle quali alle mappe visive si vanno ad inserire quelle tattili, accompagnate da percorrenze tattili a terra.

2

3

4

Fig. 2. *Punto di riferimento per l'orientamento: il Big Ben a Londra.*
Fig. 3. *Metropolitana di Londra: stazione Morden.*
Fig. 4. *Mappa della metropolitana di Londra di Harry Beck (1933).*

• *Wayfinding* accessibile: la varietà dei punti di vista •

I principi del *wayfinding* trovano un'applicazione anche nella configurazione e nella distribuzione degli spazi architettonici, di cui ci occupiamo in questo capitolo con una attenzione alla percezione e alla fruizione da parte delle persone con difficoltà motorie.
La teoria di psicologia della forma (*Gestaltpsychologie*) e i suoi successivi aggiornamenti [Palmer 1999] hanno fornito alcuni elementi che permettono di comprendere i meccanismi interpretativi della percezione visiva. Esistono diverse teorie ma possiamo riassumerle nei concetti di individuazione della migliore riconoscibilità delle forme semplici, della modalità di distinzione tra figura e sfondo e del raggruppamento degli elementi secondo i principi di vicinanza, uguaglianza, connessione, destino comune, simmetria e parallelismo, nonché la migliore leggibilità delle forme lineari continue e delle forme bidimensionali chiuse.
Può essere interessante analizzare il punto di vista di Ludovico Quaroni [1977], che descrive un esercizio di mutazione dinamica delle forme, definendo lo spazio come elemento deter-

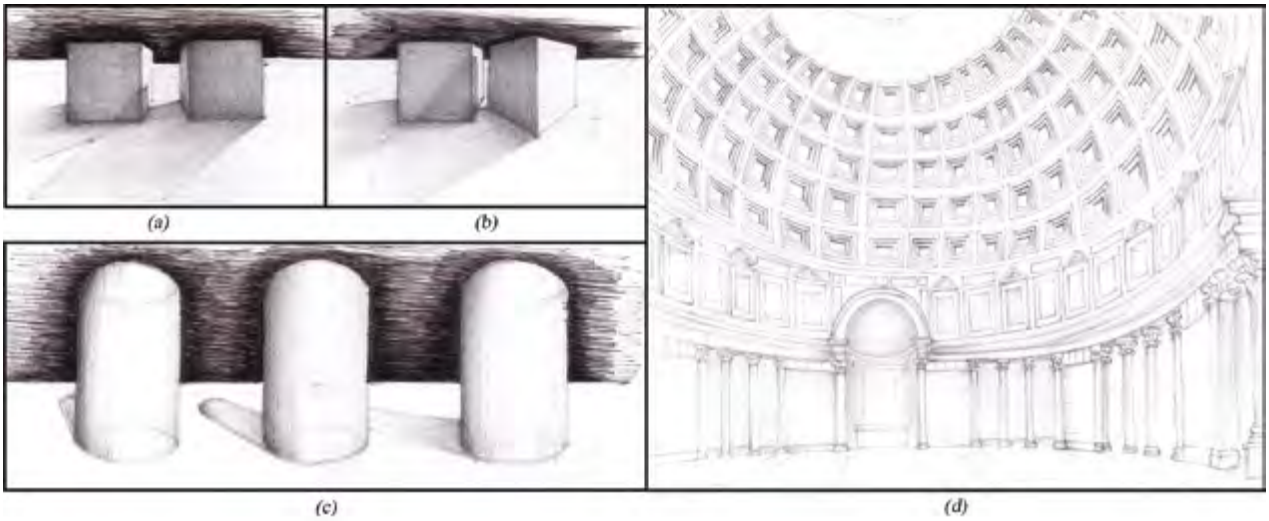


Fig. 5. *Dalla geometria all'architettura: i disegni come traduzione della descrizione di Ludovico Quaroni [1977].*

minato dalle superfici, con le loro caratteristiche formali e cromatiche. Quaroni comincia descrivendo un ambiente neutro, privo di particolari caratteristiche o di punti di riferimento, a parte la linea d'orizzonte quale elemento riconoscibile che funziona quale separazione tra suolo e cielo. All'interno della scena sono presenti due cubi di uguale dimensione e orientamento (fig. 5a). Per identificare ulteriormente il fruitore di questo spazio immaginario, Quaroni paragona la scena a un dipinto surrealista di Giorgio De Chirico, per stimolare l'immaginazione attraverso la memoria.
La descrizione prosegue con la modifica delle posizioni degli elementi che compongono la scena e delle conseguenti sensazioni che si generano nell'osservatore. Inizialmente i cubi appaiono paralleli e distaccati, trasmettendo una visione statica, mentre, in seguito, uno dei due cubi viene ruotato e il dinamismo percepito è inversamente proporzionale allo spazio che lo distanzia dall'altro (fig. 5b). La fase successiva riguarda considerazioni circa il passaggio dai volumi esterni agli spazi interni – contenente e contenuto – collegati tra loro ma diversi per carattere e linguaggio. Si immagina l'interno con tre cilindri di uguale dimensione (fig. 5c), uno dei quali viene a sua volta concepito come contenitore di uno spazio che si modifica plasticamente, accoglie un'apertura superiore, identificandosi infine con il Pantheon (fig. 5d), archetipo dell'architettura classica.

La descrizione di Quaroni, che abbiamo qui tradotto in una possibile rappresentazione grafica, illustra le fasi di trasformazione da spazio astratto ad architettura reale, stabilendo un legame tra percezione e conoscenza acquisita, capace di guidare lo sviluppo dalla fase di osservazione a quella di orientamento e utilizzo dello spazio. La percezione può servire anche per favorire la ricono-

scibilità degli edifici. Paul Mijksenaar [2009] si sofferma sul caso delle stazioni ferroviarie del XIX secolo, spesso caratterizzate dalla tipica forma rotonda del tetto che le rende facilmente riconducibili alla loro funzione. Questo aspetto formale è stato ripetuto nella Gare de Montparnasse di Parigi (1987, di Jean-Marie Duthilleul), in cui un arco in vetro e acciaio è stato aggiunto all'edificio esistente, come chiaro elemento di riconoscibilità della stazione. Mijksenaar sottolinea come l'architettura debba essere in grado di garantire un'interpretazione intuitiva dell'ambiente. Il suo progetto per l'aeroporto di Amsterdam (1990) è diventato un riferimento per il miglioramento del *wayfinding* all'interno di uno spazio architettonico complesso. Mijksenaar definisce una lista di priorità che dovrebbero guidare gli architetti nell'articolare le caratteristiche di uno spazio e i disagi percepiti degli utenti durante la fruizione dell'aeroporto sono stati analizzati e risolti con metodi innovativi. Il progetto prevede un sistema completo di mappe e segnali, supportato dall'uso di forme e colori associati alle diverse funzioni (fig. 6): questo facilita notevolmente il processo di orientamento ed è in grado di costituire un riferimento per il perseguimento dell'obiettivo di una fruizione autonoma da parte di varie categorie di persone. I collegamenti interpiano e i servizi, ad esempio, sono opportunamente collocati sullo stesso lato rispetto al percorso all'interno degli edifici pubblici e si caratterizzano con forme e colori riconducibili alla specifica funzione. In questa sede, si vuole osservare come non sia possibile concepi-

Fig. 6. *Progetto di segnaletica per l'aeroporto di Amsterdam (https://www.pinterest.es/pin/407786941264522487/).*

Fig. 7. *Leggibilità di uno spazio da diversi punti di vista (https://en.wikipedia.org/wiki/File:Bus_Queue.jpg).*

re uno spazio contemplando la sola percezione di una persona priva di disabilità, ma occorra comprendere come un'architettura possa essere fruita diversamente a seconda delle diverse tipologie di utenti.
Ad esempio, nel caso di un punto di vista più basso rispetto alla posizione eretta, caratteristico di una persona sulla sedia a rotelle, la percezione risulta differente e in molti casi non permette di avere una lettura chiara dello spazio, come può accadere, ad esempio, quando ci si trova in un luogo in cui la visuale è impedita dalla presenza di molte persone (fig. 7).
Un altro problema molto spesso riscontrato riguarda lo stato di manutenzione e le caratteristiche della pavimentazione. La *walkability* è un indice che considera alcuni parametri dello spazio architettonico, tra cui le condizioni della superficie camminabile, per determinare la vivibilità del tessuto urbano [Livietti 2016]. La qualità del piano di calpestio delle strade pedonali è una componente fondamentale sulle scelte di movimento, sia per gli utilizzatori di sedia a rotelle sia per le persone con differenti tipologie di difficoltà motorie [Gray 2012].
La pavimentazione irregolare, composta da elementi sconnessi e privi di continuità superficiale, ad esempio, crea delle evidenti difficoltà ad una persona su una sedia rotelle (fig. 8).
Esistono, inoltre, una serie di impedimenti generati da restringimenti – anche temporanei – della larghezza del percorso o da dislivelli, notoriamente antagonisti alla percorribilità su ruote, come illustrato anche da un video realizzato nel contesto del progetto europeo RiseWise, sull'inclusione delle donne con disabilità (fig. 9).
È importante riflettere su questi elementi, per evitare di limitare la possibilità di muoversi in autonomia, cercando di progettare spazi che mirino a risultare totalmente accessibili e inclusivi per tutti.

Fig. 8. *Le difficoltà della percorrenza con la sedia a ruote in presenza di discontinuità della pavimentazione (Peds, https://peds.org/campaigns/sidewalk-maintenance/).*

Fig. 9. *Le difficoltà della percorrenza con la sedia a ruote in presenza di restringimenti e dislivelli (Video: "Walk with me" di Clara Sanchez-Rebato Valente; Risewise, https://risewisejam2020.wixsite.com/risewisejam2020/barrier-free-city?pgid=k8a2qdd7-e17f8ed7-79da-4d70-a474-1e415c5b91d2)*

• *Wayfinding* accessibile: mappe e disabilità visive •

Ai fini di una migliore configurazione degli spazi urbani, si ritiene utile considerare i diversi fattori che possono caratterizzare gli individui nella loro capacità di recepire un luogo ed interpretarne le potenzialità esplorative. La percezione visiva è fondamentale per la conoscenza dello spazio ed è per questo interessante provare a interpretare i principi del wayfinding attraverso il filtro di una modalità di percezione visiva limitata o, addirittura, totalmente preclusa, tenendo conto come occorra effettuare una distinzione circa i diversi gradi di disabilità visiva e la loro origine, congenita o acquisita.

Possiamo in primo luogo riferirci all'introduzione del termine wayfinding da parte di Kevin Lynch che, nella sua descrizione della formazione dell'immagine della città, ha insistito sul concetto di "leggibilità" di un luogo ed ha citato gli elementi che contribuiscono alla sua identità [Lynch 1960, 47-48]: i percorsi, come direttrici lungo cui l'utente si muove, i bordi, come confini lineari, i distretti come zone della città, i nodi e i punti di riferimento, come elementi strategici che differiscono tra loro in quanto i nodi sono praticabili dal fruitore.

Al wayfinding si interessano svariate discipline, come la psicologia, la geografia e l'antropologia, l'architettura e la pianificazione urbana. Le fasi del processo possono iniziare con il riconosci-

mento della propria posizione, per proseguire nella pianificazione, nella percorrenza e nel monitoraggio di un tragitto finalizzati al raggiungimento di una destinazione [Golledge 1999].
In alcuni casi viene contestata l'efficienza delle mappe anche in funzione del presupposto cognitivo che fa assumere loro una posizione esterna rispetto all'individuo che le ha concepite [Ingold 2000]. A livello cognitivo si effettua una distinzione tra modalità di rappresentazioni spaziali egocentriche, basate sul rapporto del proprio corpo con lo spazio, da quelle allocentriche, fondate sulle reciproche relazioni degli elementi spaziali [Tolman 1948]. Un'integrazione delle due logiche è quella che permette una migliore acquisizione e, quindi, una più efficace trasmissione dei dati: sembra evidente come i temi legati alla leggibilità descritti da Lynch appartengano esclusivamente alla categoria allocentrica, mentre quelli di Golledge coinvolgono anche la modalità egocentrica.
Per quanto riguarda la possibilità di conoscenza spaziale da parte delle persone non vedenti, si individuano diverse teorie: la *deficiency theory*, per la quale queste non siano capaci di decodificare lo spazio, la *inefficiency theory*, per la quale siano in grado di comprendere lo spazio, ma ad uno stadio diverso, e la più diffusa *difference theory* [Golledge, Stimson 1997, 509] per la quale le persone non vedenti presentano necessità differenti in funzione delle diverse capacità di acquisizione dei dati spaziali.
In una recente sperimentazione [Papadopoulos et al. 2017] si sono testate le modalità di formazione di una mappa cognitiva intesa come il processo della rappresentazione mentale della conoscenza spaziale. L'esperimento coinvolgeva persone vedenti e non vedenti chiamate a redigere una mappa di un grande spazio urbano, con l'individuazione di elementi utili per l'orientamento e per l'effettuazione dello spostamento (strade, palazzi, fermate del bus, etc.). Si è potuto dimostrare come i risultati conseguiti da persone vedenti siano stati molto simili a quelli delle persone non vedenti, purché fossero messi a disposizione gli adeguati strumenti conoscitivi. Si conferma, quindi, quanto sostenuto dalla *difference theory* e si sottolinea l'importanza nel fornire una buona leggibilità dello spazio alle persone ipovedenti e ai non vedenti. È opportuno, infatti, valutare la difficoltà che si incontra quando gli elementi di riferimento non sono percepiti visivamente in maniera integra (fig. 10), necessitando di ulteriori canali di informazioni, ad esempio tattili.
Dal punto di vista del supporto sul quale effettuare la rappresentazione, la sperimentazione citata rileva quanto anche le mappe tattili debbano rispondere a requisiti specifici: i tratti grafici devono prevedere un'adeguata adozione di spessori [Linee guida per il superamento delle barriere architettoniche nei luoghi di interesse culturale, Decreto Ministeriale 28 marzo 2008] e si deve effettuare un'opportuna selezione di contenuti per non affaticare troppo i processi di memorizzazione (fig. 11). Un modo

Fig. 10. *L'orientamento nella città: le due versioni in funzione delle diverse capacità visive (Via Balbi, Genova; foto di Ilenio Celoria).*

per superare queste difficoltà può essere quello di impiegare mappe portatili o app che permettano un'interazione *touch* ed emettano informazioni in formato audio [Papadopoulos et al. 2017, 376].
La verità non può trovare una piena espressione [Lacan 1966] e anche lo spazio non può essere descritto esaurientemente, a causa dei limiti caratteristici di ogni forma di comunicazione, necessariamente selettiva, e perché i suoi componenti sono collegati alle percezioni e alle esperienze individuali. L'obiettivo di rendere leggibile un luogo può tuttavia essere ottenuto grazie alla varietà di messaggi proposti che possono essere percepiti da diversi punti di vista o attraverso altri sensi, nel fornire modalità che sfruttino la stimolazione sinestetica per una migliore fruizione degli spazi, non solo a scopo funzionale.
Per una persona non vedente, la sensazione tattile del bastone, che permette di individuare una superficie verticale delimitante lo spazio percorribile, può essere ad esempio integrata dagli effetti sonori prodotti naturalmente in uno spazio urbano, ad esempio con il suono riflesso del traffico che si amplia in presenza di elevate superfici verticali (fig. 12). Nonostante appaia trascurabile, questa informazione è riferita come molto significativa dalle persone non vedenti, in quanto consente anche a loro l'apprezzamento non solo delle qualità funzionali dello spazio circostante, ma anche di quelle caratteristiche formali

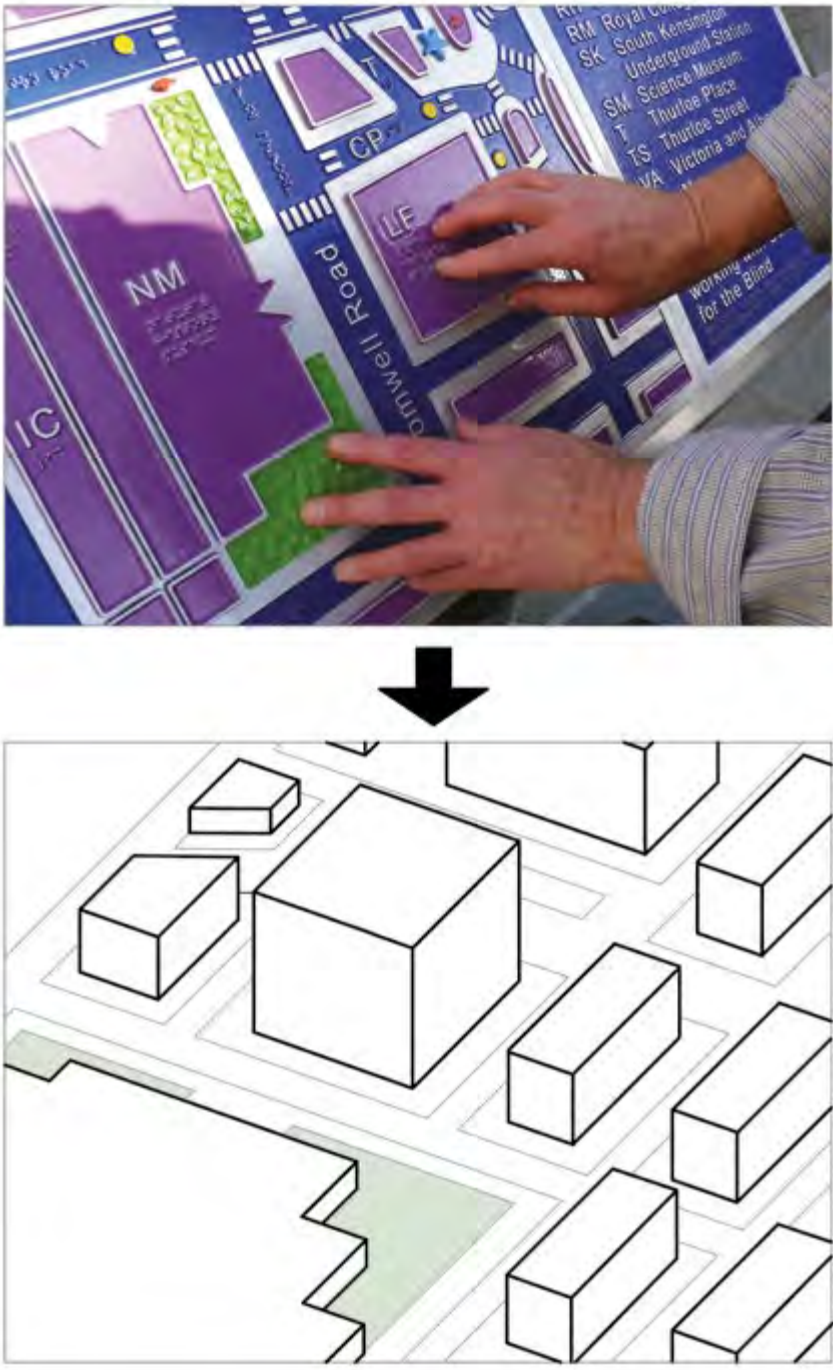


Fig. 11. *Una mappa tattile (https://www.pinterest.it/pin/281615782925673107/) e la formazione di un'immagine cognitiva delle persone non vedenti.*

che permettono di immaginare lo scenario delle proprie azioni. Le persone interagiscono con l'ambiente da cui traggono informazioni attraverso gli elementi della percezione visiva (forma, colore e caratteristiche della luce), ma anche multisensoriale, in un'ottica di conoscenza dello spazio che si approfondisce proprio attraverso l'esperienza del percorso.

Fig. 12. *L'integrazione dei messaggi tattili e dei messaggi sonori nel riconoscimento da parte dei non vedenti (Via Balbi, Genova, foto di Ilenio Celoria).*

• Conclusioni •

In definitiva, una città smart, che coniughi la capacità di adattabilità all'ambiente urbano in maniera accessibile, è una città che sa fare sistema e creare nuove forme di comunicazione e condivisione tra gli abitanti; è una città contemporanea in senso pieno, che unisce le tecnologie a disposizione con le soluzioni analogiche consolidate e che riesce realmente a coniugare i due termini inizialmente esposti – resilienza e intelligenza –, qui declinati secondo una visione "laterale". Le considerazioni proposte traggono spunto da comportamenti innovativi dei singoli, come nel caso della soluzione per rappresentare in maniera efficace l'orientarsi nei percorsi della metropolitana, per poi articolarsi secondo differenti approcci all'accessibilità centrati sulla formulazione linguistica visiva. La percezione architettonica e urbanistica, poi, deve tenere in considerazione le sensazioni e le interpretazioni relative alle persone con disabilità motoria e a quelle con disabilità visiva, queste ultime grazie all'ausilio di effetti multisensoriali. Certo il riconoscere il valore delle innovazioni, per contribuire a migliorare la qualità della vita quotidiana appare senza dubbio un fondamentale completamento delle esperienze pregresse, secondo un continuo e proficuo rinnovamento.

• Acknowledgement •

Il contributo è stato concepito ed elaborato in collaborazione, ma introduzione e paragrafo *Wayfinding e rappresentazione* sono stati scritti da Maria Linda Falcidieno, *Wayfinding accessibile: la varietà dei punti di vista* da Alessandro Meloni, e *Wayfinding accessibile: mappe e disabilità visive* da Cristina Càndito.
Le rielaborazioni grafiche dalla fig. 3 sono di Alessandro Meloni.
Sono citati e illustrati elaborati (fig. 7) prodotti da partner del progetto RISEWISE (H2020 Marie Skłodowska-Curie), progetto sull'inclusione delle donne con disabilità a cui partecipano Cristina Càndito e Alessandro Meloni.

Agamben, G. (2008). *Che cos'è il contemporaneo?* Roma: Nottetempo.

Baricco, A. (2017). *La mappa della metropolitana di Londra*. Mantova Lectures [video] https://www.raiplay.it/video/2017/01/TEATRO---MANTOVA-LECTURES-7c1954c2-e8b7-4137-9ab2-d64901097822.html 21/01/17.

Baur, R. (2010). *Anticiper, Questionner, Traduire, Distinguer, Irriter, Orienter, Inscrire.* Baden: Lars Müller Publishers.

Bistagnino, E. (a cura di) (2010). *Disegno-Design. Introduzione alla cultura della rappresentazione.* Milano: FrancoAngeli.

Càndito, C. (2020). *Rappresentazione e Accessibilità per l'Architettura,* Morrisville, NC: Lulu

Caniggia, G., Maffei, G.L. (1979). *Composizione architettonica e tipologia edilizia.1.* Firenze: Alinea.

Carattin, E., Tatano, V., Zanut, S. (2010). Analisi dei sistemi di orientamento spaziale e wayfinding per il progetto di ambienti a elevata complessità ambientale. In: P. Capone (Ed.), *Proceedings. Ricerche ISTeA per l'ingegneria dell'architettura.* Firenze: Edizioni Medicea.

Falcidieno, M.L. (2006). *Parola disegno segno. Comunicare per immagini. Segno, significato, metodo*. Firenze: Alinea.

Falcidieno, M.L., Castellano, A. (2015). *City Signs*. Milano: FrancoAngeli.

Farr, A.C., Kleinschmidt, T., Yarlagadda, P.K., Mengersen, K. (2012). Wayfinding: a simple concept, a complex process. *Transport Review,* 32 (6), 715-743. doi:10.1080/01441647.2012.712555.

Follis, J., Hammer, D. (1979). *Architectural signing and graphics*. London: Whitney library of Design.

Frutiger, A. (1998). *Segni e Simboli. Disegno, progetto e significato*. Milano: Stampa Alternativa e Graffiti.

Gausa, M. (2020). *Towards Resili(g)ence: Città intelligenti, paesaggi resilienti.* Genova: GUP- Genova University Press

Gibson, J.J. (1979). *Ecological approach to visual perception.* Boston: Houghton Mifflin.

Golledge, R.G. (1999). *Wayfinding Behavior: cognitive mapping and other spatial processes.* Baltimora: The Johns Hopkins University Press.

Golledge, R.G., Stimson, R.J. (1997). *Spatial behavior: a geographic perspective.* New York: Guilford Press.

Gray, J.A., Zimmerman, J.L., Rimmer, J.H. (2012). Built Environment Instruments for Walkability, Bikeability, and Recreation: Disability and Universal Design Relevant?. *Disability and Health Journal,* 5 (2), 87–101. https://doi.org/10.1016/j.dhjo.2011.12.002.

Ingold, T. (2000). *The Perception of the Environment. Essay on livelihood, dwelling and skill*. London and New York: Routledge.

Lacan, J. (1966). *Ecrits*. Paris: Edition du Seuil.

Livietti, A., Zanini, M. (2016). *Camminare con la testa, camminare con il cuore*. http://www.lisdhanews.it/di-cosa-parliamo/mobilita/1120.

Lynch, K. (1960). *The image of the city*. Cambridge, Mass: MIT Press.

Marzo, M. (2004). *VivereVenezia3-in the labyrinth: orientamento urbano e segnaletica a Venezia*. Venezia: Marsilio.

Mijksenaar, P. (2008). *Wayfinding at Schiphol: on the how and why of signage at Amsterdam Airport Schiphol*. Amsterdam: Miijksenaar.

Mijksenaar, P. (2009). La città navigabile. In: *La città senza nome. Segni e segnali nel paesaggio contemporaneo*. International Conference, Bari, 22-23 October, 54-93. http://www.blueforma.it/wp/wp-content/uploads/2015/01/mik.pdf.

Norberg-Schulz, C. (1979). *Genius Loci. Paesaggio, ambiente, architettura*. Milano: Electa.

Palmer, S.E. (1999). *Vision science: photons to phenomenology*. Cambridge, Mass.: The MIT press.

Papadopoulos, K., Koustriava, E., Barouti, M. (2017). Cognitive Maps of Individuals with Blindness for Familiar and Unfamiliar Spaces: Construction through Audio-Tactile Maps and Walked Experience. *Computers in Human Behavior*, vol. 75, pp. 376–384. doi:10.1016/j.chb.2017.04.057.

Quaroni, L. (1977). *Progettare un edificio: otto lezioni di architettura*. Milano: Mazzotta.

Rauch, A., Sinni, G. (2009). *Disegnare la città. Grafica per le pubbliche istituzioni in Italia*. Milano: LCD.

Tolman, E.C. (1948). *Cognitive maps in rats and men. Psychological Review*, 55 (4), 189–208. doi:10.1037/h0061626.

Social affirmations

Giovanni Galli
ADD-DAD Department Architecture and Design - UniGe, Genova

THE INVISIBLE HAND OF RESILIENCE

The word "resilience", and the concept underlying it, is having a great success in the world of up-to-date architecture. At a first glance, it also seems to have all what it takes to be considered a democratic, even left-wing tinted, word.
Most of the words and concepts it is habitually related are there to testify for it: "cooperation", "bottom-up", "self-organization", ... each one of them normally frequents semantic fields cognate with most of what we associate with democracy, equalitarianism, even compassion (in its purest etymological sense: to suffer and struggle together for something).

Problems arise when from the surface of the words we plunge into the deep of what they actually, necessarily and/or inadvertently, entail.
For starters, one should deeply reflect on what concepts like resilience, self- and auto- organization, could implicate for the disciplines of architecture and urbanism. A literal inter-

pretation of those democratic prefixes could mean that architects and planners are not only superfluous but even noxious: artificial disturbers of natural phenomena. Taken seriously, resilience could require a serious reconsideration, of what the disciplines of design are for, going far off the limits we could be prepared to accept. Surely enough, at this point we can already hear the remonstrations of all those who, championing resilience, still preach at least a semi-demiurgic role for architects, as humble (hence democratic) facilitators, producers of semi-finished artefacts to be independently perfected afterwards.

But this would mean missing the real point, a point having to do with the very ontological nature of architecture. Since modernity (meaning XV century) a new thought has begun to rule in every field of human activity, including architecture, one born from the fundamental idea of giving up any uncritical acceptance of given traditions, in order to take responsibility of humanity's own future and fate. Since then, man has been haunted by the spectre of arbitrariness and driven to a spasmodic search for Truth, a truth that could no more be granted by habits unthoughtfully inherited or by an ever more fading idea of God. After the end of modernity (XX century), God's will has become inscrutable, "artifact" has increasingly become to resemble to "artificial", and comparisons between culture and nature have become more and more unfavourable to the former. So the hype of terms like "resilience" mostly appears now as the result of a lack of confidence, the last resort of a centuries-old search for a truth now granted by the fact that man's action and will are absent from her. Auto-organized, bottom-up phenomena are true because they happen independently from us: the lack of subjectivity is what grants them objectivity. In a way, they are true because they are. "What must happen necessarily happens": this could be the new axiom of a truth dispensing with purpose and free will; a secular and, to think of it, melancholic conclusion of a long tradition of Stoic, Spinozian and Hegelian determinism, but for the fact that now it is deprived of any supernatural buttress. How much this new perception of truth could result from an error of perspective (a passive, après-coup acceptance of what is there, in absence of counter proofs) goes beyond the scopes of this paper. What has to be clear, though, is how much in the end this line of thought is not just anti-humanistic but anti-human; and how severe is the blow it deals to any poietic thought and discipline. So, if science - who claims only to observe and understand nature - still appears as a quite solid recipient of general trust, already technology does not seem equally in shape, not to speak of politics, economics, ... architecture.

If these reflections appear to be a little too much the outcome of a walk on the shaky and insubstantial clouds of philosophy, we can always come back on the solid ground of one of the countless urban-sprawls disseminated at the outskirts of the more or less planned cities of the world. Walking around, we could reflect about how these places were not long ago the object of harsh cen-

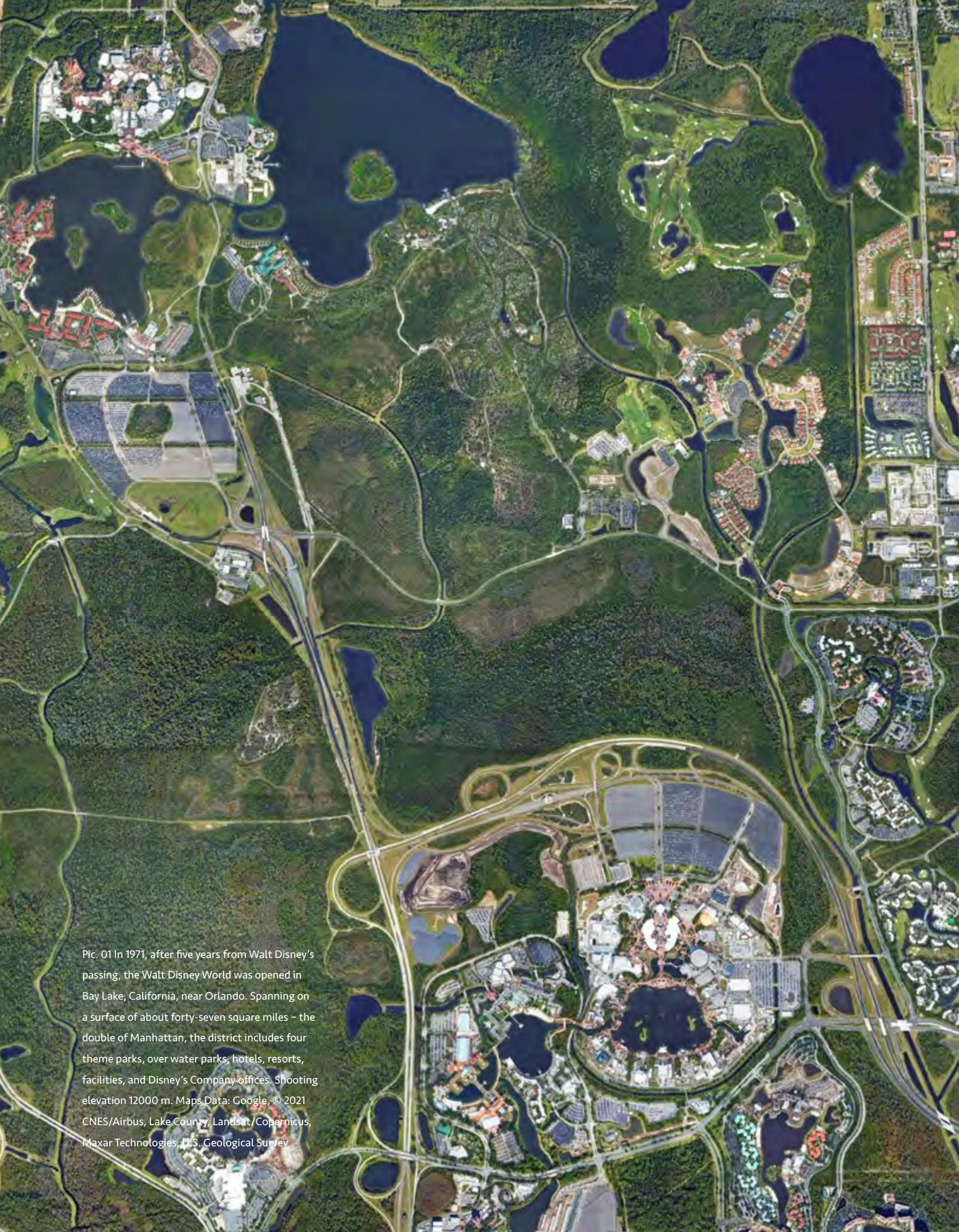
sures from the part of disciplinary thought. They were aesthetically and ethically condemned as the perfect example of how much land's destruction and massive energy's waste come from the absence of control and planning of the land ...until recently, in a typical après-coup fashion, they have become accepted, sometimes even the object of ecstatic admiration, praised as manifestations of oh so good bottom-up (democratic) processes. One cannot but read this U-turn as a clear manifestation of the yielding determinism just described. And, even if we could find some words of praise for the honesty with which this new admirers of deregulation confess their newfound passion, what irritates is the blindness with which they seem incapable to fully comprehend the logical conclusions entailed by such suicidal (from a disciplinary point of view) penchants.

We should, now, take a look at the political side of the whole question; in our humble opinion, a much darker side. Nobody still seems to have realized how much theories about resilience and the likes resemble to those of Adam Smith, the thinker widely regarded as the "father of capitalism". His theory about the so-called "invisible hand", in particular, is strikingly similar. It was the scientific device through which Smith tried to give theoretical substance to the then rather naïve theories of laissez-faire. The world of the market, he maintained, was ruled by an abstract entity granting a self-organizing homeostasis to the whole system, competition (free competition) being the only reliable defense against all excesses: an invisible hand, made of the sum of the independent and unaware individuals acting in the free market. The invisible hand was the only real guarantee for a society granting equal possibilities to succeed in life, no matter his origins and social status. Governments, this was the corollary, should abstain from any kind of intervention in the life of the Nations and the individuals, other than the one of safeguarding the juridical law, since any planned economical action from the top would be an unwelcomed disturbance of "natural" processes.

The resemblance seems close enough to strip any left-wing flavor to resilience & co. But, it could be argued, not enough to deprive them of the democratic connotations too, since, many would agree, Capitalism is the son of Democracy, they are the two faces of the same coin (they share the same inevitability). But again, there is another thing many tend to forget: that there is one enemy feared by Smith and his ultra-liberalists followers, like von Mises and Hayek, perhaps more than Communism itself (which is much more identifiable, thus much less difficult to oppose): monopolism. The prevalence of monopolistic practices is what imposes intentional direction to an otherwise blind market and tends to polarize forces otherwise healthily disorganized. Social gaps become larger (the rich richer and the poor poorer), social-climbing stiffer. Governments abstain to intervene not because they restrain themselves, but because they lack the politi-

cal and economic strength to oppose powers stronger than they are. Even their law enforcement role is weakened, because they become part and parcel of the powers they should monitor. This is how the invisible hand gets crippled, replaced by entities still quite elusive, but not for that less concentrated and effective.

Many would recognize these symptoms in the world's current state of affairs, not just between individuals of the same nation, but even more between different nations (richer or poorer). A situation where welfare state is falling apart, social subsidizing cut short, public infrastructure in all social and cultural fields forcefully reduced. If this is true, then the word "resilience", meaning the ability of things to react and adapt by themselves to adverse circumstances, acquires two new flavours. From one part, it translates the last hopes of those who, having lost the capacities to fight, dream that, nevertheless, things will adjust by themselves. From the other, it becomes another demagogic opium for the people (the fate of many nowadays buzzwords): an ideological mask using the apparently neutral concept of "Do It Yourself" to soften harsher ones, like "fend for yourself, you're on your own", if not "whatever your condition, you can manage. So please stop making such a fuss".
It could be argued that the current situation is the inevitable outcome of a near past when, in the collective imagination, public expenditure seemed to have inexhaustible funds to tap from and public debt raised to levels we are still paying now. But what strikes mostly is this kind of "windscreen wiper effect", where you switch straight from one extreme to the other. Enough to make you want to dust off long forgotten Karl Marx, if not to regret Soviet five-year plans.
No, perhaps not that. What really is regrettable is this kind of schizophrenic attitude, society's incapability to tread more than one path at a time, as if a dichotomous logic was hardwired in our brains. Dichotomies are a wonderful tool for reasoning, their postmodern impairment has plunged us in a state of confusion strong enough to be a proof for that. What is hard to understand is why dichotomies should rule our praxis too, why a reasonable practical equilibrium between two logical opposites should be so difficult to attain and to maintain. Perhaps we do not need another Soviet Revolution after all, perhaps Aristotle μεσότης (golden mean) could suffice. An Aristotelian revolution: that would be some really good news.
And urgent too: because systems can readjust themselves in many ways, not all of them necessarily harmless.



Pic. 01 In 1971, after five years from Walt Disney's passing, the Walt Disney World was opened in Bay Lake, California, near Orlando. Spanning on a surface of about forty-seven square miles – the double of Manhattan, the district includes four theme parks, over water parks, hotels, resorts, facilities, and Disney's Company offices. Shooting elevation 12000 m. Maps Data: Google, © 2021 CNES/Airbus, Lake County, Landsat/Copernicus, Maxar Technologies, U.S. Geological Survey

Alessandro Canevari, Davide Servente*
DAD Department Architecture and Design - UniGe, Genova

EPCOT, THE DREAM OF A UTOPIAN COMMUNITY

EPCOT is an experimental city. **The project synthesizes selected parts from different scales of urban models – metropolis infrastructure, small-city pedestrian downtowns, ancient urban radial structures – in an eco-systemic dynamic balance.** *EPCOT is the prototype of an experimental city*. **The project offers an instantly viable and replicable model, a pragmatic, resilient answer to the city's problems, combining the present and the past with an eye toward the future.** *EPCOT is the community animating the prototype of an experimental city*. **The project focuses on people's creativity and self-organization skills in order to build a prosperous, cohesive, and proactive community.** *EPCOT is the tomorrow of a community animating the prototype of an experimental city.*

* The essay is a collaborative work by both authors, who are equally responsible for the content. The text from the beginning to "...

On October 25, 1966, *The Chicago Tribune* published an interview with Walt Disney that the editor did not hesitate to define as a "rare and wonderful experience."[1] In this double-column space,

Mickey Mouse's visionary father – who had already left an indelible cultural imprint on the 20th century[2] – outdoes himself, revealing his dream of building in Florida what he believed ought to be the perfect future community.

Walt Disney is not only a dream maker in whose fairytale world every "dream is a wish,"[3] but he can afford to pursue his goal with the successful Hollywood entrepreneur's means and influence. Setting up theme parks[4] and installations for fairs and exhibitions[5] gives the Disney Company advanced operational skills. Such expertise drives Walt Disney to raise the stakes, shifting his focus from pursuing the exceptional spectacularity of entertainment to taking action in the ordinariness of everyday life. This time, his dream that "will come true"[6] consists of bringing a utopian 'model' city to life, a constantly evolving community of the future where each individual might endeavor to pursue the right to happiness, meanwhile actively contributing to the survival of the community.[7]

Disney's futuristic plan stirs up the American real estate market in the mid-Sixties while criticizing some established trends of the star-spangled urbanism of the time.[8] Disney firmly believes that the problems of cities are the most critical issues facing American society.

However, the leading villain to be opposed in this story is the anti-urban sprawl gradually established as a by-product of the model of life promised by the American Dream, taking over the territory around American cities. The widespread diffusion of automobiles – almost doubling between 1950 and 1965[9] – and the strengthening of the highway system due to the Interstate Highway System promoted by President Eisenhower make the countryside less isolated and the cities increasingly deprived of a center, like "strangely rootless regions."[10] Such a turn weakens the cohesion of communities.

> Why be a governor or a senator when you can be king of Disneyland.[11]

In his few but enthusiastic words to the reporter, Disney describes his vision for such a community as "a world, a new, different kind of world,"[12] specifying "it's like the city of tomorrow ought to be."[13] Designed to house between 20,000 and 30,000 inhabitants, EPCOT – Experimental Prototype Community of Tomorrow – declares its experimental nature in step with the times beginning with its name: an acronym, like an industrial prototype or a scientific experiment.[14] The city is conceived with the intent to be "a planned, controlled community, a showcase for American industry and research, schools, cultural and educational opportunities."[15] However, it should at the same time be a "laboratory for administering municipal governments,"[16] too. The 'showcase' role for the project makes it a perfect descendant of the late nineteenth century's great international exhibitions. In those pavilions, the technological prowess (and vogues) of each

science-fiction of Sforzinda" was written by Alessandro Canevari, while Davide Servente wrote the text from " The city idealized by Filarete..." to the end.

[1] Lee Browning, N., 1966. *Disney to Build Futuristic 'World' in Florida*. The Chicago Tribune, October 25, 1966. p. 37.

2 In the vast literature about this matter, see, for example Watts, S., 1995. *Walt Disney: Art and Politics in the American Century*. The Journal of American History, 82(1). pp. 84-110 and Rojek, C., 1993. *Disney cultures*. Leisure Studies, 12(2). pp. 121-135. The impact of Disney's work on 20th-century culture is so deep that sociology even coined the term 'Disneyfication,' often used with negative meaning. (See Kehoe, A., 1991. *Christian Contradictions and the World Revolution: Letters to My Son*. Dublin: Glendale Publishing). In the debate about such an impact, it is impossible to neglect the contribution of Jean Baudrillard, who defines Disneyland as the most real place in the United States (Cf. Baudrillard, J.,1981. *Simulacres et simulation*. Paris: Galilée.).

[3] David, M. – Hoffman, A. & Livingston J., 1950. *A Dream Is a Wish Your Heart Makes*. RKO Radio Pictures. Song from the motion picture of Jackson, W., – Luske, H., & Geronimi, C., 1950. Cinderella. Walt Disney Productions.

[4] Disneyland Park, Los Angeles, is the only theme park opened personally by Walt Disney on July 17, 1955.

[5] Walt Disney Company attendance in several pavilions of the New York World's Fair of 1964-1965 is undoubtedly relevant for the development of the Disney parks and for the EPCOT project. See Kiste, A., 2016. *Walt Disney and the 1964-1965 New York World's Fair: Great moments*. Theme Park Press.

[6] David, M. – Hoffman, A. & Livingston J., 1950. *A Dream Is a Wish Your Heart Makes.* cit.

[7] The American Declaration of Independence of July 4, 1776, start with the inalienable

rights belonging to any human being, among them the right to the pursuit of happiness. Every man is free in seeking the happiness in the life, while the government's role is to ensure the happiness of all people.

[8] For an overview of the topic see Krissoff Boehm, L. – Corey S.H., 2015. *The Frontier of Imagination: American Cities in the 1960s. in Id., 2015. America's Urban History*. Oxon-New York: Routledge. pp. 268-288. See also Kaplan, M., 1974. *Urban planning in the 1960s: A design for irrelevancy*. Cambridge: MIT Press and Scully, V., 1969. *American architecture and urbanism*. Londra: Thames and Hudson. For a systematic survey of the evolution of sprawl in American cities see Barrington-Leigh, C., & Millard-Ball, A., 2015. *A century of sprawl in the United States*. Proceedings of the National Academy of Sciences of the United States of America, 112(27). pp. 8244-8249.

[9] Cfr. *Federal Highway Administration, State Motor Vehicle Registration by Year*. https://www.fhwa.dot.gov/ohim/summary95/mv200.pdf (Last access October 2020). See also Fischer, C. S. & Carroll, G.R., 1988. *Telephone and Automobile Diffusion in the United States, 1902-1937*. American Journal of Sociology, 93(5). pp. 1153-1178.

[10] Squires, R., 2008. *The Interstate Sprawl System*. Society, 45(3). pp. 277-282. p. 279.

[11] Walt Disney in Skylar, M., 1967. *Walt Disney World: Background and Philosophy*. Harrison "Buzz" Price Papers, 160. p. 71.

[12] Lee Browning, N., 1966. *Disney to Build Futuristic 'World'* in Florida. cit.

[13] *Ibid*.

[14] See an E.P.C.O.T. bird's eye view rendering (George Rester - Herbert Ryman, 1966) at: https://lapisblog.epfl.ch/gallery3/var/albums/20140709-01/disney_walt_project_x_1966.jpg (last access 2/15/2021) An extensive collection of documents about Walt Disney's last dream can be found at: www.the-original-epcot.com (last access 2/15/2021)

Pic. 02 The actual Epcot park, spanning 305 acres, is situated where Walt Disney would have built his dreamed experimental, utopian community E.P.C.O.T. Organized as a permanent world's fair, the actual park is a celebration of human achievement, and in particular technological innovation and international culture. A 14.7 miles monorail links Epcot to Magic Kingdom. Shooting elevation 1800 m. Maps Data: Google, © 2021 CNES/Airbus, Lake County, Maxar Technologies, U.S. Geological Survey

era were exhibited as attractions alongside ethno-anthropological curiosities from all over the world,[17] limiting visitors' experiential distance to souvenirs and stereotypes in costumes, cuisine, and architectural forms to avoid them from becoming "threatening or incomprehensible."[18] Though the analogy of the original project for EPCOT with the theme parks has often been evoked, the city imagined by Disney shows a closer affinity with the world exhibitions' structure, and in particular with the World's Columbian Exposition in Chicago in 1893 and the New York World's Fair in 1939. Like the designers who worked at the Chicago fair, Disney imagines a "model of urban perfectability, a beacon to the future," in which technological prowess and emerging ideas serve a real community of residents and not one of occasional visitors.[19]

Pic. 03 Magic Kingdom, Bay Lake, Florida, is the first Disney theme park near Orlando. More than twenty million people visit the park every year.
A series of tunnels called utilidors cross under the park, allowing employees and mascot-style costume characters to move through the park out of sight. Shooting elevation 1150 m. Maps Data: Google, © 2021 CNES/Airbus, Lake County, Maxar Technologies, U.S. Geological Survey

The first EPCOT project – as Disney imagines it – anticipates a theme park, but as a pole outside the new radial settlement[20] on which Walt Disney has been working since 1962, called *Project X* or *Project Florida*. The original version of EPCOT is a truly unique and visionary project. Evidence of this is the gigantic and thoroughly detailed maquette of about 630 square meters consisting of 4,500 buildings – most of them furnished and illuminated, 20,000 trees, 2,500 vehicles, and 1,400 streetlights. Disney commissions such a vast scale model to show in the best way the audacity of both the forms and the layout of his cutting-edge urban vision.[21]

> A vista into a world of wondrous ideas, signifying man's achievements... a step into the future, with predictions of constructive thing to come. Tomorrow offers new frontiers in science, adventure and ideals: the Atomic Age... the challenge of outer space... and the hope for a peaceful and unified world.[22]

In addition to the community prototype, Disney's project sets a covered twenty-hectare space at the center of the urban settlement to hold the city's economic and social heart. The colossal pavilion accommodates a "regional mall-sized" themed shopping area offering stereotypical reproductions of vernacular architecture from various cultures and traditions.[23] Dominated by a hotel tower of over thirty floors,[24] the covered area is surrounded by schools, recreational centers, and administrative and government buildings. This core is encircled by a high-density residential ring that is enclosed, in turn, inside a wide green 'belt.' Beyond this, low-density residential neighborhoods are ordered as radial 'petals' beyond the greenery.

[15] *Ibid*.

[16] *Ibid*.

[17] Nelson, S., 1986. *Walt Disney's EPCOT and the World's Fair Performance Tradition*. The Drama Review, 30(4). pp. 106-146. p. 106.

[18] *There*., p. 118.

[19] *There*., p. 127.

[20] See the plan of E.P.C.O.T. showing the urban center and the transportation hub (Marvin Davis, 1966) at: https://archithese.ch/files/archithese/Blog/2016/2016.12/Disneys%20Zukunftsarchitekturen/5.jpg (last access 2/15/2021)

[21] See the picture of the original E.P.C.O.T. maquette, exhibited at the Carousel of Progress (Disneyland, 1967) at: https://bradkay60.wordpress.com/tag/experimental-prototype-community-of-tomorrow/#jp-carousel-1075 (last access 2/15/2021)

[22] Walt Disney in Skylar, M., 1967. *Walt Disney World: Background and Philosophy*. cit. p. 16.

[23] See the rendering of the interior of E.P.C.O.T. Spanish district shopping center at: https://urbanutopiasnet.files.wordpress.com/2018/09/spanish-quarter.png (last access 2/15/2021)

[24] See the rendering of the Cosmopolitan Hotel tower (George Rester, 1966) at: http://archivesdelimaginaire.epfl.ch/gallery3/var/albums/20140709-01/disney_walt_epcott_hotel_1966.jpg (last access 2/15/2021)

What makes the settlement highly efficient is a multilevel radial road[25] network: both underground tunnels for mid-size and heavy transport linked to an external highway connector and science-fictional people-mover solutions converge at the downtown interchange hub, under the central tower. The entire city is served by a monorail that connects the theme park in the north with an airport "of the future" in the south, first traversing the city itself and then an industrial park equipped with a nuclear power plant. Despite the hyper-efficiency of such a detailed system, Disney's ultimate goal is giving a human-scale city back to the people, where – despite the size – they can find the pedestrian main street characteristic of the American tradition.

In 1964, Charles Moore underlined the way Disneyland's success pivoted on being a counterpoint to "many of those elements of the public realm which have vanished in the featureless private floating world of southern California, whose only edge is the ocean, and whose center is otherwise undiscoverable"[26]. Armed with such a remark, the EPCOT project seems attentive to confronting the American urbanized landscape drift through careful management and clear planning of the whole at different scales.

In spite of an architectural form contaminated by science fiction and the daring challenge of the infrastructure, the prototype for the experimental community of the future looks to the past, anchored in tradition. Paradoxically, the bolder and more futuristic each solution implemented by Disney appears, the more rooted it actually is in the past. Even though the radial layout, the social policy, and the green satellite cities seem to look to late-nineteenth-century England and in particular to the Ebenezer Howard's garden cities – delved into by Disney and his designers, the transdisciplinarity[27] that Walt Disney himself imagines for the EPCOT development has the Renaissance as a lodestar.

The fear that excessive specialization could undermine the general 'fresco' and directly affect people's quality of life in a significant way brings out Disney's passion for the polyhedral masters of the Italian Renaissance, particularly for Leonardo da Vinci. Therefore, Disney surrounds himself with a heterogeneous working team: not only architects and engineers but also illustrators, historians, sculptors, and set designers. A descendant of the Wrightian Broadacre City, the appealing Googie style forms, winking at a bright atomic and intergalactic future ruled by a high level of specialization, inform and keep up to date the ancient EPCOT ideas for which man's knowledge thrives without any disciplinary barrier.

The very idea of a utopian city to be realized in the immediate future, with a radial street design converging towards a market's central square dominated by a tower, immediately brings to mind the technological science-fiction of Sforzinda.[28] The city idealized by Filarete in his *Trattato di Architettura* dating from around 1464 has been the matrix of many other urban design experiments, which were sometimes realized, like Palmanova, Sabbioneta, and Fort Bourtange.[29] Reminiscent of his antiquarian taste and passionate knowledge of the Classical world, the theoretical

[25] See the rendering of the infrastructure hub at E.P.C.O.T. downtown underground (Herbert Ryman, 1966) at: https://i.pinimg.com/originals/69/fc/72/69fc72a00d48caef5af388035ca34c95.jpg (last access 2/15/2021)

[26] Moore, C. W., 1965. *You Have to Pay for the Public Life*. Perspecta, 9/10. pp. 57-65 & 68-106. p. 65.

[27] Piaget, J. 1970. *Pluridisciplinarity and interdisciplinarity in universities*. Le Monde, September 10, 1970.

[28] Kruft, H.-W., (1985) 1994. *A history of architectural theory: From Vitruvius to the present*. New York: Princeton Architectural Press. p. 54.

[29] De La Croix, H., 1960. *Military Architecture and the Radial City Plan in Sixteenth Century Italy*. The Art Bulletin, *42*(4), pp. 263-290.

Pic. 04 Opened on May 1, 1989, Disney's Hollywood Studios is a theme park spanning 135 acres at the Walt Disney World Resort in Bay Lake, Florida. The park is dedicated to the imagined worlds from movies, television, music, and theater, drawing inspiration from Hollywood's Golden Age. The peculiar main street that distinguishes every Disney park is here inspired by Hollywood Boulevard of Los Angeles, California. Shooting elevation 2000 m. Maps Data: Google, © 2021 CNES/Airbus, Lake County, Maxar Technologies, U.S. Geological Survey

Pic. 05 The Walt Disney World Resort in Bay Lake, Florida, has thirty-three hotels with a total of 29402 rooms, over a camping zone, a luxury residential area, and six golfings. The picture shows one of the hotels and resorts districts near Epcot and Disney's Hollywood Studios. Shooting elevation 4000 m. Maps Data: Google, © 2021 CNES/Airbus, Lake County, Landsat/Copernicus, Maxar Technologies, U.S. Geological Survey

drawings of the father of the first fully theorized ideal city remain unpublished. Yet, they are disseminated in the Milanese circle of artists of the late Quattrocento, of which Leonardo da Vinci is part.[30] The great admiration of Walt Disney for Leonardo's versatile genius emerges both in EPCOT's radial urban structure and in the desire to bring the multilevel road system drawn in the famed urban sections, collected in the *Paris Manuscript B*, up to date. The folio 36-*recto* and 37-*recto* of the *Manuscript* show respectively the section of a vaulted architecture on four levels fitted out with an underground 'infrastructure' for vehicular traffic, and urban schemes with bridges and tunnels close to what is believed to be a radial urban planimetric sketch.[31]

> ...here, age relives fond memories of the past... and here youth may savor the challenge and the promise of the future.[32]

Several, sometimes discordant, adjectives describe EPCOT: technological and organized, optimistic and permissive, educational and amusing, pleasant and efficient. Even in Disney's intentions, the city probably has to express its multifaceted versatility, dis-

[30] Kruft, H.-W., (1985) 1994. *A history of architectural theory: From Vitruvius to the present*. cit. p. 51.

[31] Leonardo da Vinci, 1485-1488. *Manuscript B*. Ms2173, folio 36-recto and folio 37-recto. Bibliothèque de l'Institut de France, Paris. Images of the pages can be found respectively at the links: https://www.photo.rmn.fr/archive/19-554013-2C6NU0AHZ6FJE.html; https://www.photo.rmn.fr/archive/19-554015-2C6NU0AHZ6X70.html. (Last access October 2020)

[32] Walt Disney in Skylar, M., 1967. *Walt Disney World: Background and Philosophy*. cit. p. 14.

tancing itself from both the rigor of Manhattan's orthogonal fabric and the tentacular chaos of the Los Angeles sprawl. The futuristic white monorail that connects every district to the downtown coexists with the characteristic vernacular aspect of the pedestrian American main street – already tried out at Disneyland – to promote commerce and sociality. Furthermore, the 'atomic' architectures yearning to take off towards the sideral space – like the downtown hotel tower – coexists with the Renaissance structure abundant with symbols, cross-references, and values. Such a synthesis of technological comfort with the reassuring, friendly image of a human-scale city offers people "a sense of orientation – they know where they are at all times."[33]

The familiarity of the typical Victorian Main Street – in stark contrast to EPCOT's Googie image – is the driving force behind both the invention of a tradition and its staging. Thanks to a sort of *déjà-vu* induced by an image inherent in the collective American imagination, the lively pedestrian shopping street engages the city dweller in a reassuring, nostalgic identification with the community, strengthening the sense of belonging. Such a serene and habitual scenario enhances in the eyes of Americans an idealized version of the past considered obsolete by the Sixties – confident in a radiant technological future, as the anthropologist Jane Jacobs underlines.[34]

> Main Street, U.S.A. is America at the turn of the century – the crossroads of an era. The gas lamps and the electric lamp – horse-drawn car and auto car. Main Street is everyone's hometown – the heartline of America.[35]

Neither Disney – entrepreneur and filmmaker – nor Jacobs, journalist and activist, are urban planners by training. These starkly different figures converge unexpectedly both on the idea of conceptualizing cities around people's needs and on the influence of their legacies on urban studies. Disney's playful space focused on people's creative nature and their ability to self-organize to form cohesive communities shares many resemblances with Jacobs' ideas about the ideal community. The three 'revolutionary' principles devised by Jacobs in the early 1960s in order to inspire a new way forward in urban design – the mixed-use of space, the settlement density, and the permeability of the urban fabric – emphasize the crucial role of a human-scale city center. Thus, her key points criticize the American city development model, just as Disney's utopian project does. During those same years, the Disney dream of EPCOT seems to inform her theory, showing how to overcome the aseptic, depersonalizing metropolis of Modern architecture. Like Jacobs, Disney believes in cities defined not by huge buildings and streets but "by corner groceries."[36]

EPCOT appears as an alternative, equally *radieuse* answer to the *contemporaine villas* conceived by Le Corbusier for three million inhabitants, planting the seed that would soon mark the end of the

[33] Walt Disney reported in Disney, W., Smith, D. (editor), 1994. *Walt Disney: Famous quotes*. Lake Buena Vista: Walt Disney Co. p. 34.

[34] See Proffitt, S., 1997. *Jane Jacobs: Still Challenging the Way We Think About Cities*. Los Angeles Times, October 12, 1997. p. M3. See also the classic of sociology and urban planning Jacobs, J., 1961. *The Death and Life of Great American Cities*. New York: Random House.

[35] Walt Disney in Skylar, M., 1967. *Walt Disney World: Background and Philosophy.* cit. p. 15.

[36] Proffitt, S., 1997. *Jane Jacobs: Still Challenging the Way We Think About Cities*. cit.

Pic. 06 Celebration is a planned city in Osceola County, Florida, originally developed in the early 1990s by The Walt Disney Company on an area of about 4,900 acres. Shooting elevation 2000 m. Maps Data: Google, © 2021 Maxar Technologies, U.S. Geological Survey.

Modern architecture. Even though planning a new town is inevitably a sort of demiurgic act, Disney opts to leave 'space' for each person's individuality, and for the coexistence of many voices and forms – while devoutly respecting the American Mid-century customs. The programmatic choice to admit many universes and to avoid speaking through a single voice, form, or language, establishes EPCOT as the 'urban forerunner' of the epistemological and linguistic break that, a thousand miles northeast, is consumed in architecture by the rift between the determinancy of Modernity and the fragmentation of Postmodernity. In the same period, Vanna Venturi House – the manifesto of postmodern architecture – in Chestnut Hill, Philadelphia, liberates the horizon of American architecture from a suffocating stylistic impasse, introducing an abundance of new references, contradictions, and irony.
Within the Disney parks, pirate galleons and intergalactic rockets live side by side in the eternal, synchronic present of postmodernity. Thus, fully in keeping with the Disney spirit, at EPCOT, "anything goes,"[37] while still retaining the confidence in a bright becoming – a cultural bulwark that the American society of the Sixties has derived from its technological achievements.

> The only problem with anything of tomorrow is that at the pace we're going right now, tomorrow would catch up with us before we got it built.[38]

EPCOT's project anticipates the following decades' urban planning issues, experienced mainly by Asian and Middle Eastern megalopolises' sudden growth. Encouraged by the technological leaps seen through the eyes of a man born in the early twentieth century, Disney imagines the city programmatically in a 'becoming' state.[39] In so doing, he tries to prevent the obsolescence inherent in the very image of the future – as already detected in Tomorrowland, a future-theme Disneyland sector subsequently recast in every theme park. To succeed in always presenting vanguard visions – still a strictly modern concept – he involves leading American com-

[37] Cfr. Feyerabend, P., 1975. *Against method: outline of an anarchistic theory of knowledge*. London: NLB, Humanities Press.

[38] Walt Disney in Skylar, M., 1967. *Walt Disney World: Background and Philosophy.* cit. p. 32.

[39] See Walt Disney in *Florida Film – Final Script*. WDA, p. 7.

panies with high technological content, able to go on 'injecting' into the city the necessary dose of novelty and progress.
Disney produces a filmed documentary in October 1966, appearing personally to illustrate the entire project, the significant assumptions, and the underlying philosophy. Filmed on a set that reproduces the rooms of the Project X *imagineers* – creative technicians responsible for designing the company's parks – the pictures show, via technical drawings and full-color hand-drawn animation, the installation, the structures, the modes of operation, and life in the revolutionary city. Though articulated and complex, the project is straightforward in both assumptions and formal solutions. Therefore, the entire philosophy of EPCOT can be summarized in five key points.[40] The first point concerns EPCOT's programmatical state of 'becoming,' allowing it to proceed with an unparalleled topicality and adaptability. As a direct result, there is then the programmatic intention to make the community a sort of laboratory in which to test American industry's excellence, carrying out trials of new technologies, materials, and construction systems for the cities of tomorrow. This makes EPCOT a descendant of the great international exhibitions, showcasing industry's prowess and American society's core values. The fourth point identifies EPCOT as the possible actual formal, infrastructural, and *governance* reply to the urban problems that grip the society of the "second machine age". Finally, the utopian community dreamed of by Disney should have generated the conditions for the development of cutting-edge technology, focusing on people's needs and happiness. EPCOT's original project is disposed to change, adapting to needs in light of these simple cornerstones, integrating every novelty. In doing so, the original EPCOT project is configured as an *ante litteram* proactive manifesto of urban resilience.[41]

Two months after *The Chicago Tribune* interview, Walt Disney's passing makes the project slip into oblivion, so the dream will never come true. EPCOT remains just the name of a sector of the Walt Disney World Resort in Florida, a didactic-recreational attraction inaugurated in October 1982, showcasing the life of tomorrow and the cultures of the world.
After years of total indifference in the dream of building a real city – and no longer just the "*Foire du Trône en rase campagne*"[42] – to host an ideal community, in the early Nineties and fifteen kilometers south of the Walt Disney World Resort, the Disney Development Company founds a town called Celebration. Inspired by New Urbanism principles, and far from showing off technological prowess and trends, the small town looks back to an idyllic past, offering a sober and familiar everyday life.

> Here you leave today – and visit the worlds of yesterday, tomorrow and fantasy.[43]

[40] Cfr. Mannheim, S. 2002. *Walt Disney and the quest for community*. Aldershot-Burlington: Ashgate. pp. 6-7.

[41] Cfr. Bruneau, M. – Reinhorn, A. M., 2018. *Structural engineering dilemmas, resilient EPCOT, and other perspectives on the road to engineering resilience*. Gardoni, P. (editor), 2018. Routledge Handbook of Sustainable and Resilient Infrastructure. London, Routledge. pp. 70-93.

[42] Augé, M., 1997. *L'impossible voyage: Le tourisme et ses images*. Paris: Payot & Rivages. p. 21.

[43] Walt Disney in Smith, D. (editor), 1994. *Walt Disney: Famous quotes*. cit. p. 38.

Fig. 1 – View by night of the Laboratorio di quartiere.
© Gianni Berengo Gardin/Courtesy Fondazione Forma per la Fotografia / Courtesy of Fondazione Renzo Piano per la fotografia

Luigi Mandraccio
ADD-DAD Department Architecture and Design - UniGe, Genova

LABORATORIO DI QUARTIERE.
Ante litteram case study

Between the 1970s and 1980s, Italy experienced several alternative approaches to urban transformations. The Laboratorio di quartiere – "neighborhood laboratory" – was an extraordinary experiment in resilience that arose from a community made up of architects, economists, sociologists, computer scientists, administrators.
The challenges of contemporary cities were unimaginable forty years ago, and we don't know how to find effective strategies. Even if we set the goals, now clear and widely shared, now we must define the method. Within this challenge, the Laboratorio di quartiere can offer a valuable reference.

• Data and main actors •

In a short time, the Laboratorio moved across Italy. The first definition of the Laboratorio was in Otranto for a week (July 1979). In fall 1980, again for a short period, the Laboratory was in Burano in the Venice lagoon. Otranto and Burano are two

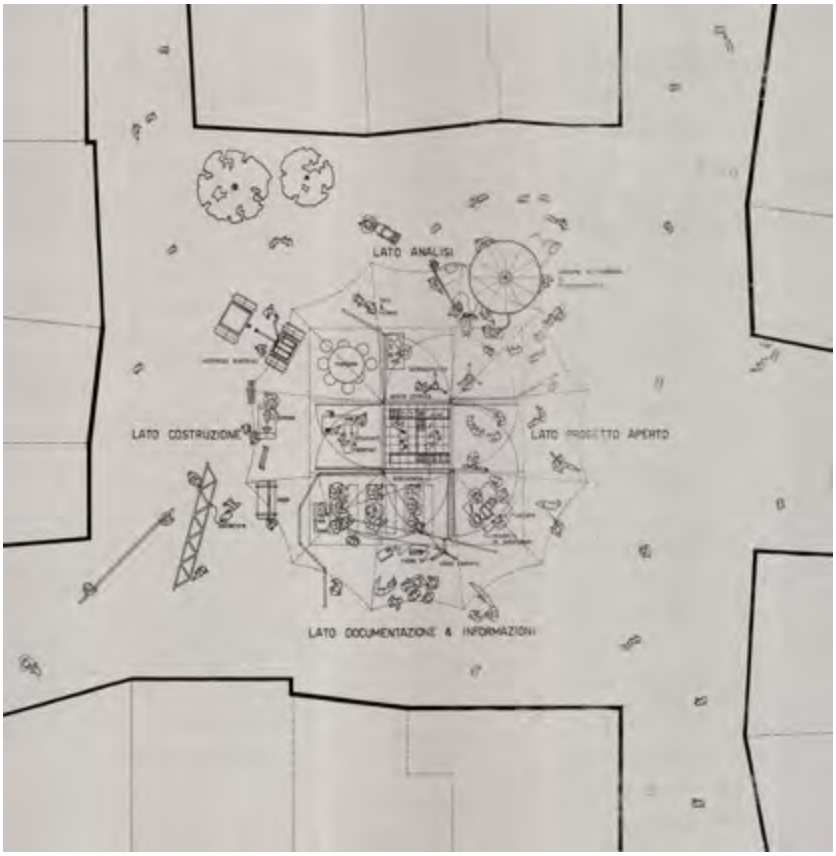


Fig. 2 – General plan of the Laboratorio di quartiere. © Fondazione Renzo Piano

historical contexts with specific conditions and problems, albeit within a similar genre. They partly share the settlement patterns, but above all, they have both suffered, like many fragile contexts, a deep crisis. Finally, in spring 1981, the Laboratorio made a natural evolution, moving to work on an expanding suburb – the Japigia district in Bari.

The three main episodes were born not only as an idea or provocation, but also as demonstrative acts. Between 1981 and 1985, there were hypotheses for the proliferation of the experience and its systematization in urban planning, following some seminars in Bari. Unfortunately, it did not happen.

The heart of the project lies in its protagonists. UNESCO is the patron, but also the promoter in some way. Thus, the Laboratorio is part of the global framework for researching housing emergencies – recorded in various geographical and cultural areas. UNESCO collaborated with the Piano & Rice & Associates studio from Paris/London/Genoa. It was the creator and leading promoter of the Laboratorio – even before being the "designer" or the manager. Above all, the figure of Renzo Piano stood out, personally leading the accomplishment of the Laboratorio and its activities.

The Laboratorio had many collaborators with different roles and specific *weights*. The first position was occupied by the company F.lli Dioguardi S.p.A. of Bari/Rome/Milan. Including the contribution of Gianfranco Dioguardi: he helped not only materially,

but above all with ideas and thoughts. His role emerged mainly during the Apulian stages.
Alongside Dioguardi, there were also the I.d.e.a S.p.A. (Institute of Development in Automotive Engineering) of Turin, Ove Arup & Partners, and many sponsors who supported the initiative with the availability of staff and equipment.
Finally, the various public administrators were another kind of collaborators – or, rather, spectators. In fact, sometimes there was a very positive report, but overall it was disappointing because they were indecisive and ambiguous. The conclusions of this experience will be determined above all on this aspect.
Two books narrate the Laboratorio through the voice of its protagonists: first "Antico è bello" (1980) and then "Nuovo è bello" (1985), to which this essay is indebted for all the testimonies and information they report, but also for the presentation of the premises that determined its birth.

The Laboratorio crossed Italy but took root where someone sensed the strength of this vision. In this sense, Gianfranco Dioguardi and the Dioguardi Foundation's primary commitment was to keep the experience of the Laboratorio and its principles alive in the Apulian territory. In 1992, they proposed a re-edition under the name of "II Laboratorio di Quartiere di Otranto *Dignitas Urbis*." Then they contributed to the exhibition "Laboratorio di quartiere Unesco di Renzo Piano a Otranto. 1979-1992. Piano-Dioguardi: diario di una rinascita" by Elio Paiano – scheduled for spring 2020 in the Triangular Room of the Aragonese Castle in Otranto, has been postponed due to the health emergency from Covid-19.
Renzo Piano continued the operational reasoning on these themes, parallel with the evolution of his business and his commitment. Both the logic of the "mending" and also the work of the G124 group finds in the Laboratorio di quartiere almost a sort of premise, the *incipit*.

• Premises •

The Laboratorio had some premises which arose from the context, both in international and local terms. The overall meaning of the Laboratory arises from the intertwining between multiple levels, not only describing the preconditions, but also developing the intervention strategy.
At the end of the 1970s, the demolition of entire neighborhoods and the inhabitants' consequent transfer to new suburban ghettos was usual. This is the response of city administrations to the deterioration of historical centers and relatively recent districts and neighborhoods, which are already subject to considerable degradation. It seemed that large areas of cities were no longer compatible with the new way of life. There was also, it cannot be denied, the thrust of the real estate market, which hoped for

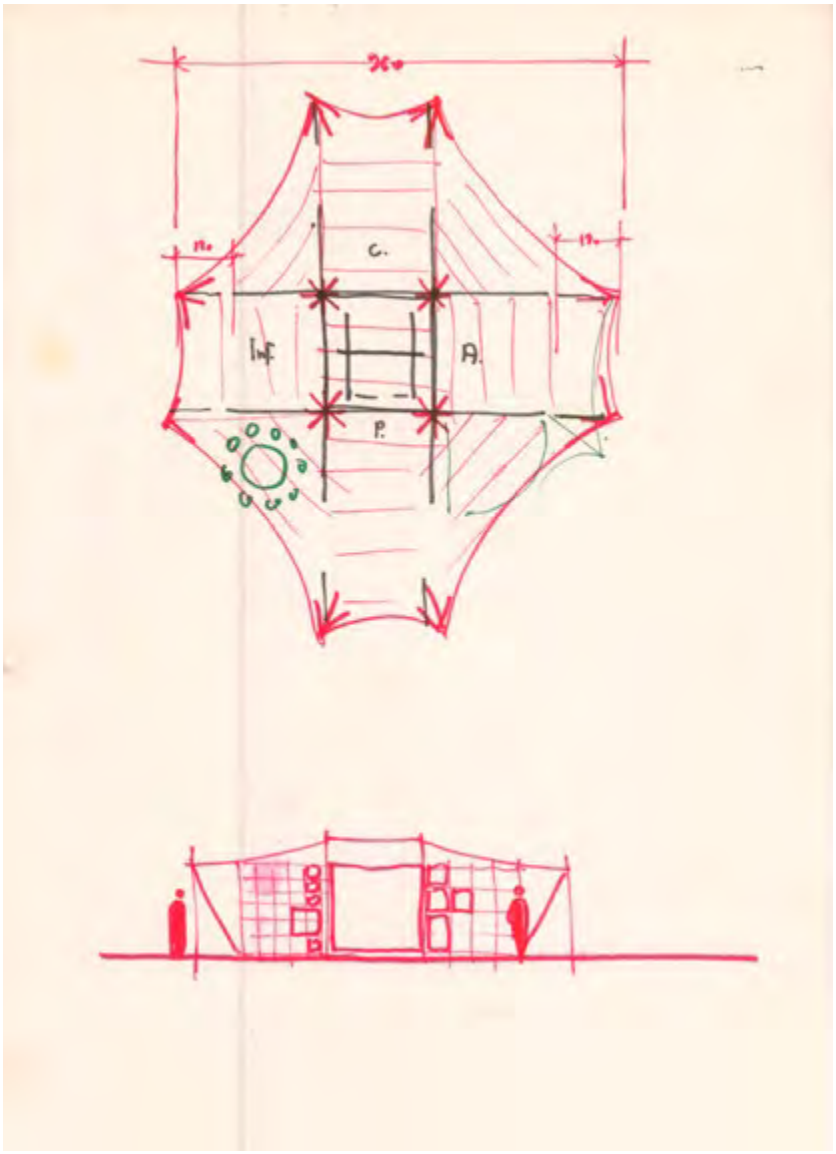


Fig. 3 – Renzo Piano's plan/section sketches of the Laboratorio di quartiere.
© Fondazione Renzo Piano

consistent speculation on the central areas of the cities. «On the one hand, the city as a place of *otium*, a place of human exchange, certainly effective, active, intelligent, a home in short, and on the other the place where the *nec-otia* can be appropriately developed» (Cacciari 2012, 23). These tensions resulted in clear urbanistic consequences: «there was the destruction, in the name of the instrument city, of everything that in the previous city prevented this movement, hindered the dynamics of the *negotia*» (Cacciari 2012, 24).

Demolitions were wrong answers because they meant losing both material and ideal/cultural heritage. Moreover, the replacements were not up to par with either the traditional process of designing/building the city or the challenges. Today we can fully analyze the limits of that approach because we measure its harmful consequences in the cases carried out. This attitude was fought by the populations involved in those operations: alongside the op-

position to those urban policies, there was also the request for people's direct involvement to reach a change of strategies.
The removal of hills and parks and demolition/reconstruction – or restructuring for other purposes – by driving out the inhabitants and pushing them towards the "new" suburbs have happened everywhere in the 1970s. Paris, Genoa, London, Amsterdam bear the marks of this generalized and completely normalized attitude. However, the most suitable interventions were done anyway with traditional procedures and techniques, which keep the citizens out of the process and operate in the city with cumbersome construction sites that temporarily upset their lives.
However, even before the beginning of the 1980s, most European countries created conservative rehabilitation programs for historical centers and the nineteenth/twentieth-century districts – deemed unrecoverable due to the degradation of the urban form and structure during the Industrial Revolution and demographic development. In Paris, from 1979, on the initiative of the mayor Jacques Chirac, the slums were no longer demolished but were restored by offering subsidies to owners, especially the less well-off. A shared strategy, with different formulas, also in Edinburgh, Amsterdam, Rome, Bologna, Modena, Turin, Pavia, Genoa, and Taranto. The real turning point came in 1975 with the Amsterdam Declaration, which arose from the principles of the plan for the historic center of Bologna. Outside of Europe, the United States also embraced this trend, with twenty-three major cities involved in the federal's abandoned house recovery program, allocating a great amount of funds. The World Bank financed conservative rehabilitation programs, with the inhabitants' involvement, in the poorest areas of cities such as Calcutta, Rio de Janeiro, and Caracas.

• Otranto: first act •

The Laboratorio was part of this innovation, but it also wanted to go further. It operated mainly on the decision-making process and construction site's approach. «The proposal contained in this book has a specific purpose: to offer citizens, where

Fig. 4 – Otranto, section of the houses, and front view of the Laboratorio.
© Fondazione Renzo Piano

Fig. 5 – Mounting phases of the Laboratorio di quartiere.
© Gianni Berengo Gardin/Courtesy Fondazione Forma per la Fotografia / Courtesy of Fondazione Renzo Piano per la fotografia

the necessary conditions exist, the possibility of obtaining the "recovery" of their homes and neighborhood, without leaving during the works, without suffering the trauma of building operations, with less expense, and with constant information that gives guarantees to make participation effective» (Piano, Arduino, Fazio, 1980: 15-16).
The Laboratorio went beyond the horizon of the reuse practice thanks to the idea of a continuous-building-city. For the formulation, in the best ways, of special plans for the conservation of cities – to be carried out quickly to limit inconvenience – the idea was to return to the constant maintenance of the buildings and city. From a technical point of view, this does not mean going back to outdated artisan uses but rather enriching and implementing those practices.
In Otranto, there was the first real opportunity to apply the idea of the Laboratorio. It consisted of a sort of small container that is easy to transport and assemble in any square in Italy. Above the cube, a large white tent was opened – perhaps to recall the ancestral places of the first forms of community, the tents of the nomads – to cover the four sections of the Laboratorio created at the opening of the cube, with structures and partitions made of sturdy panels. The simple forms and technologies recall some experiences of the Piano & Rice studio, such as the project for a mobile construction unit for Senegal – small itinerant factories to start production processes in disadvantaged areas (Dini, 1983: 60-61).

The four branches of the Laboratorio – analysis, and diagnostics; open project; work and construction; information and teaching – are designed to give the maintenance of degraded buildings and their "rehabilitation" the characteristics of scientificity, elasticity, economy, and co-construction together with the inhabitants who remain in their homes during the works.
For "analysis and diagnostics," the main goal was to increase the knowledge of the places and then improve the effectiveness of the responses put in place. Therefore, the effort was to bring into the recovery process, some diagnostic techniques, and knowledge that were systematically applied to other works/sectors. This means working on two fronts: knowing, through external skills, new opportunities, and reflecting on construction work to understand where and how to insert the novelties. First of all, thermography and the photogrammetric technique were used, and the photographic survey at high altitude through a small aerostatic balloon. Through these applications, innovative for the 1970s and 1980s, it was possible to intervene more effectively. Still, it was also possible to collect the "memory" of the city, that is, the progressive composition of the knowledge heritage.
The "open project" sector was strongly integrated with information and teaching activities, for the belief that splitting them drastically would mean questioning the "continuous-building-city" and "open-building-process" approach. The inhabitants must be involved in the design action in various technical, architectural, energy, legal, economic and social aspects. Its creators also define the Laboratorio as a "technical consultancy" in the sense that is the place where «the inhabitant and the local operator [...] receive general information, technical-design advice, cost estimates for the definition of a functional-architectural project» (Piano, Arduino, Fazio, 1980: 65). The transition from the project to the search for the tools to make it happen will thus be within everyone's reach. It was a real glass box on the building process, which had increased personal and collective awareness of the phenomena in progress and actions as its objective. The ultimate goal was to realize everyone's aspirations for better living conditions.
In the "work and construction" sector, everything took shape through, once again, a series of innovations brought within a construction site. Here the goal was twofold: to innovate the techniques and make them better and at a lower cost but to ensure that the techniques are "lightened" to the point of becoming compatible with the permanence of people inside their homes. Understanding how to do it and sharing this result with people has meant that they have entirely changed their approach to renovating their home or neighborhood. It said that you shouldn't give up your home and change your life, not even temporarily. The small but precious technical innovations were valuable to continue the experience of the Laboratorio even after Otranto. Once down to the level of minute and specific in-

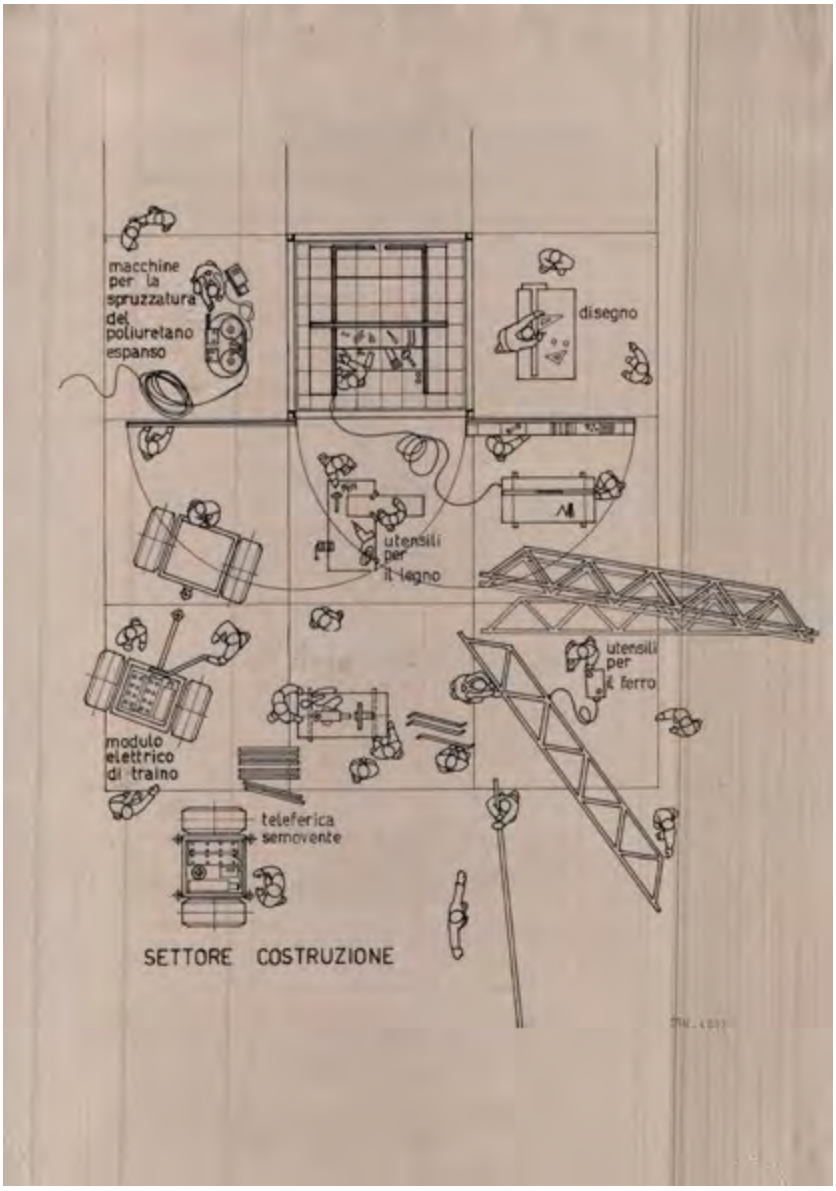


Fig. 6 – Plan of the "work and construction" sector of the Laboratorio.
© Fondazione Renzo Piano

terventions, the continuous-building-city took shape. These operations became daily routine maintenance of the buildings (potentially of any nature or era), as it has been for a long time in our historic cities.

Finally, "information and training" was the final piece because it fueled the exchange of knowledge and needs that has always animated these processes. Everything must be documented and archived, and not only at the technical-operational level. Multimedia, a significant novelty for the 1970s and 1980s, was heavily used to register all operations phases, including all encounters and dialogues with people. This contributed to that memory of the city that was mentioned earlier. «It is clear that the Laboratorio is at the same time a museum, a consulting room, a conservatory, and a school, a permanent professional training center. Adequate information and learning about the use of new technologies, tools, and materials are intended to promote the

Fig. 7 – Light structural restoration: the internal beams were replaced without the inhabitants having to leave their homes. Otranto.
© Gianni Berengo Gardin/Courtesy Fondazione Forma per la Fotografia / Courtesy of Fondazione Renzo Piano per la fotografia

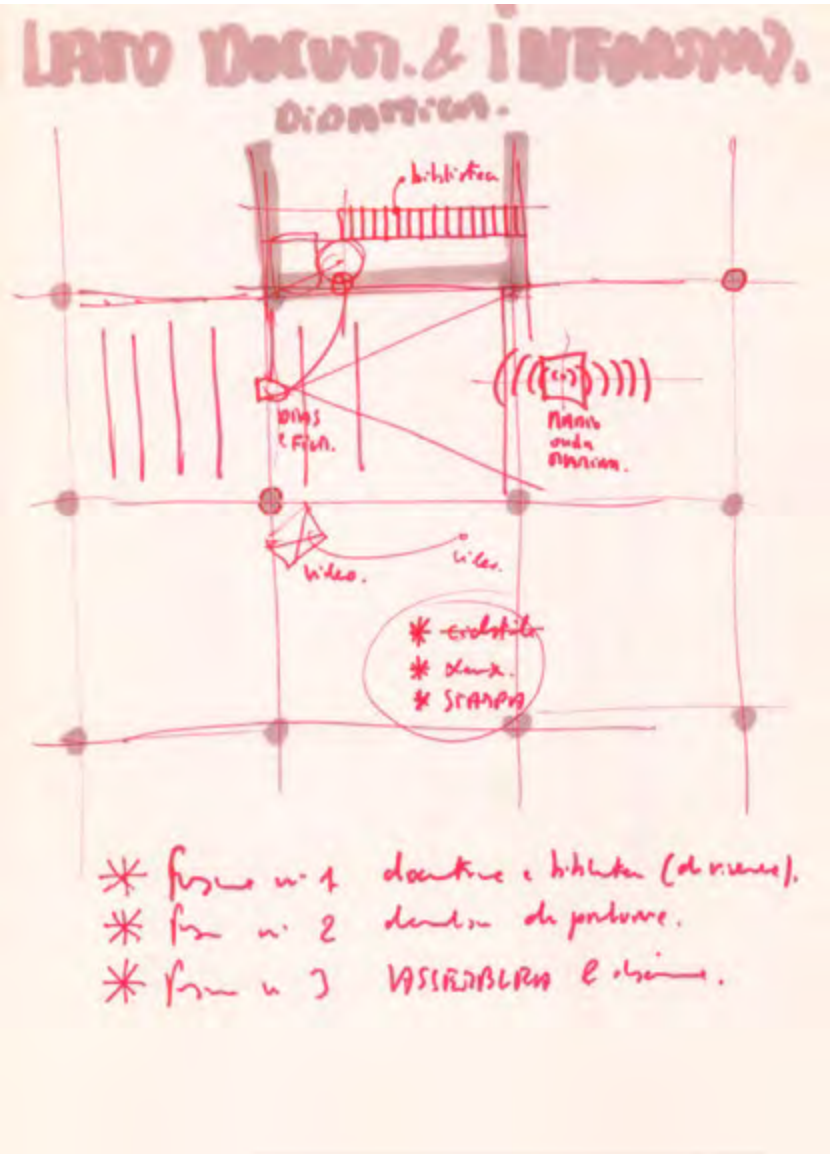


Fig. 8 – Renzo Piano's plan sketch of the "information and training" sector of the Laboratorio.
© Fondazione Renzo Piano

training of a specialized and organized local workforce, capable of inventiveness and working autonomy, with the possibility of continuous employment» (Piano, Arduino, Fazio, 1980: 110).

• Following stages: Burano and Japigia •

Otranto and Burano were two similar cases. The problem of rising damp, one of the most common, had the worst consequences in Burano. Maintenance, however, in Burano is pretty good and continuously done, but with not very effective solutions. Therefore, it is necessary to update buildings in terms of materials and technologies as far as possible. Furthermore, the houses' functional and technological issues often concerned abuse, mostly due to the kind of constraints imposed on the island. This requires an overall reorganization of the elements of the

town and the general regulations. The Laboratorio faced these problems together with the population, as it did in Otranto, proving very useful in Burano's case.
Then the subject of the study and the intervention changed. The management of complex systems, both urban and human, became more global and moved to an equally urgent front. The principle was that in the past, as today, the urban scenario can only be read as the composition of fragments, in which overall care must be associated with specific attention to the various contexts. More or less complex, even the urban analysis must take place by the composition of fragments (Romagni, 2019). According to this spirit, as Dioguardi recalls several times, the Laboratorio moves to another fragment.
The F.lli Dioguardi company was commissioned by the Municipality of Bari to build eighty-six prefabricated houses in the Japigia district. They were the first object of study for the new Laboratorio, which obtained the support and funding of the Cer (Committee for Residential Construction of the Ministry of Public Works), which considered it as a tool to find a sustainable way to maintain buildings, innovating technologies and energy aspects, as well as seeking a housing model more suited to people's needs.
In spring 1981, the Laboratorio arrived, well received by the inhabitants after the first mistrust, mainly related to prefabricated houses. People were then informed about the technology of prefabrication, and this favored the settlement. Soon the Laboratory and its protagonists became part of this new community. The Laboratorio renewed its structures, becoming less temporary. The spirit remained the same, but the method adapted to the new object of the study. It was thus enriched with a library and a computer station inside the central body of the Laboratorio complex – on the one side, there was a tent for public meetings and on the other the experimental nucleus on energy saving. The computer equipment was used for the storage and processing of the questionnaire's data that was distributed among the families of Japigia. The housing reports received were intended to lead to a review of decision-making and design processes. The activity in Japigia should have been the launch of a dense network of laboratories for the study and action on cities' body.
Leonardo Benevolo commented on Otranto's experience with the essay "Non ci sono scorciatoie" within Antico è bello (1980). His disappointment concerned an open issue still after Japigia, despite the progress that had been made. «The problem of clients and the distribution of roles remain in the shadow: anyone can highlight the inertia of the responsible authority.» Renzo Piano confirmed this critical point even after Japigia: «by these [the responsible authorities ed.] the Laboratorio is viewed with terrible distrust because such an experiment could damage the traditional entourage» (Milella, 1985: 35). The Laboratorio soon extinguished its relaunch's propulsive action in the suburbs and was, finally, a missed opportunity. But that doesn't make it insignificant.

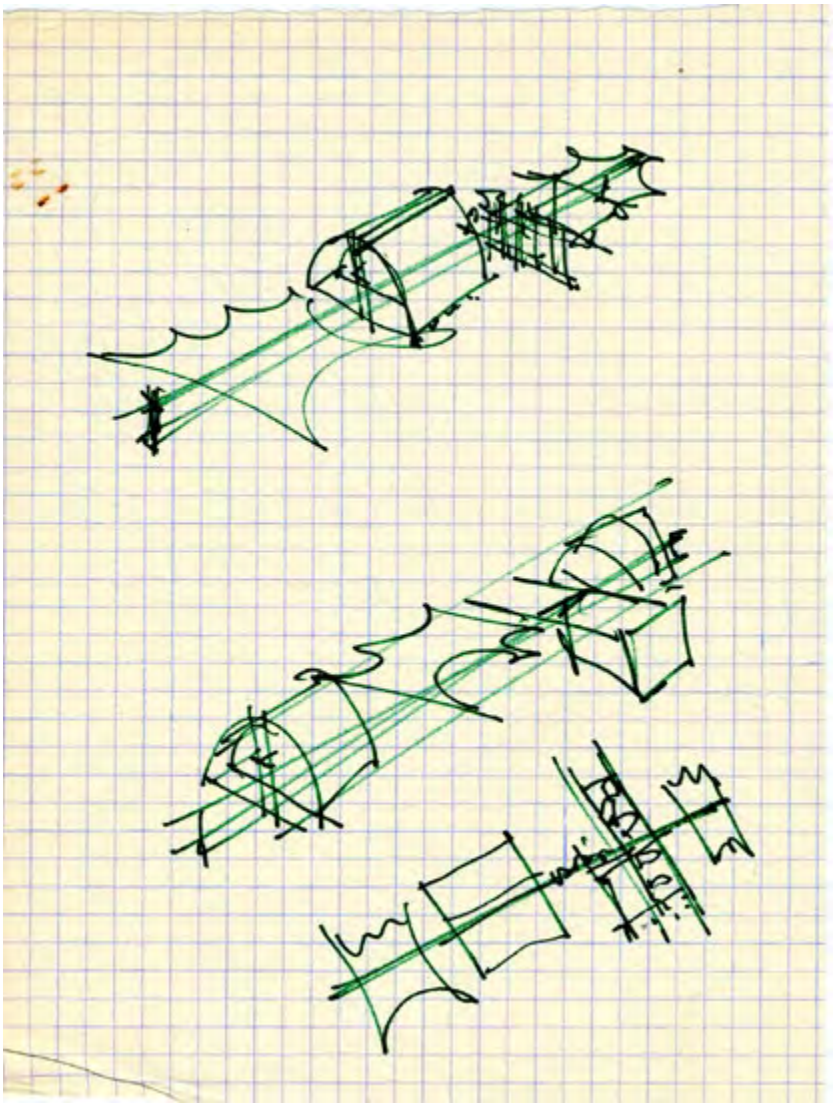


Fig. 9 – Renzo Piano's sketches for the Japigia's Laboratorio di quartiere.
© Fondazione Renzo Piano

• Resilience paradigma •

«Resili(g)ence aims to combine a new "intelligent city" (information, knowledge, projection, and adaptation) with a "resilient city" (resistance and recycling, reaction and recovery, renovation and adaptation) in a new responsive and sensory condition, sensitized and sensitive at the same time» (Gausa, 2020: I).
The experience of the Laboratorio di quartiere fits perfectly into this definition. It would have all the tools to best face global challenges according to the consolidated most advanced international practices (Andriani, 2018: 141-147). It represents a resiligent subject, but perhaps it went even further, highlighting two further aspects. Whatever innovations you bring – the technological ones have been at the center of the Laboratorio, and the digital ones are today the main element – you must make every possible effort to establish the maximum degree of proximity with the issues and with all the players in the field. With-

Fig. 10 – Young and old gather to watch a replay of a video documenting the ongoing process. Otranto.
© Gianni Berengo Gardin/Courtesy Fondazione Forma per la Fotografia / Courtesy of Fondazione Renzo Piano per la fotografia

out being actively involved in situations, entering communities, and acting within them, there is no hope for success. This also means setting the human factor at the center: everything begins and ends in man's dimension, and only by placing him at the center of one's actions can one hope to be successful. The Laboratorio is a prototype of human-centered resiligence.

Laboratorio di quartiere – steps and credits

1979
Otranto Urban Regeneration Workshop
Otranto, Italy
Client: UNESCO (S. Busutill, W. Tochtermann)
Studio Piano & Rice
Design team: S.Ishida, N.Okabe (associates in charge), E.Donato, G.Fascioli, R.Gaggero, R.Melai, G.Picardi, P.Rice, R.Verbizh with M.Arduino Piano, M.Fazio, G.Macchi, F.Marano, F.Marconi
Consultants: Ove Arup & Partners, IDEA Institute, G.P.Cuppini, G.Gasbarri, Editech; G.F.Dioguardi (coordination and administration)

1980
Burano Island Regeneration Workshop
Burano (Venice), Italy
Client: Municipality of Venice
Studio Piano & Rice
Design team: S. Ishida with P. H. Chombard De Lauwe, University of Venice, Coordination Foundation 3 Oci, G. Macchi and A. Macchi assisted by H. Bardsley, M. Calvi, L. Custer, C. Teoldi
Curator: M. Arduino Piano

1980–82
District Laboratory for Local Maintenance Services
Bari, Italy
Client: Impresa F.lli Dioguardi, Bari
Renzo Piano Building Workshop, architects
Design team: N. Costantino, S. Pietrogrande, G. Ferracuti, S. Ishida, F. Marano, E. Frigero, E. Donato, G. Fascioli, C. Teoldi
Consultants: Impresa Dioguardi, SES Engineering, L. Malgieri assisted by A. Alto, G. Amendola (structure); M. Arduino Piano (curator)

Andriani, C. (2018). "Terra fragile. Sfide globali e strategie di adattamento dell'architettura, della città, del territorio" in Bertelli, G., ed., *Paesaggi fragili*. Canterano: Aracne.

Cacciari, M. (2012). *La città*. Villa Verucchio: Pazzini Editore.

Dini, M.(1983). *Renzo Piano: Progetti e architetture 1964-1983*. Milano: Electa.

Gausa, M. (2020). *Towards Resili(g)ence: Città intelligenti, paesaggi resilienti*. Genova: Genova University Press.

Milella, L., (ed.), (1985). *Nuovo è bello: Laboratorio di quartiere, computer manutenzione della città. Un progetto di Renzo Piano*. Roma-Bari: Editori Laterza.

Piano, R., Arduino, M., Fazio, M. (1980). *Antico è bello: Il recupero della città*. Roma-Bari: Editori Laterza.

Piano, R. (2015). *G124: Diario delle periferie 1 / Giambellino*. Milano: Skira.

Piano, R. (2018). *G124: Diario delle periferie 2 / Marghera*. Milano: Skira.

Romagni, L. (2019). "Compose with fragments" in Carlotti, P., Ficarelli, L., Ieva, M., *Reading Built Spaces: Cities in the making and future urban form*. Roma: U+D Editions.

Note to the text

The author would like to thank Fondazione Renzo Piano for granting access to the Laboratorio original documents – thanks in particular to Nicoletta Durante for her patient support. The author is also grateful to Archivio Gianni Berengo Gardin, especially Susanna Berengo Gardin, regarding the kind agreement on using their photos.

Highline, New York

Elodie Nourrigat
ENSAM, Montpellier

RESILIENCE & NEW TECHNOLOGY QUESTION OF COMMUNITY, LOCALITY, TIME AND CITY

In the last years the biggest change is the influence of technology in our society. Also communication and community change. Now they don't need their own place, people could be connected remotely without a place of connection. We moved from an individual and physical community to a connected individual and virtual community. What are the consequences for the city?

There are new ways to manage and understand the city.
The city became "smart, intelligent, creative city'', because it is able to offer more services.
That change have a positive impact on the territory and the urban cities structure, in order to make a perfect harmony between the human and the city, in ecological and environmental way.
In Smart city society, communication and socialization are a necessity. The use of technologies in our contemporary era improves the community's interaction making events in private or public spaces (cultural, social, architectural, sporting, etc.). In that way use and design become very important in public spaces. Those public spaces must be re-appropriating so people can find their own useful space.
The city is "smart" not because it is technological, but because it is able to offer more services better access to education, culture, and healt, thanks to technology.

The base of Resili(g)ence is the new social designing.
La communauté affrontée of Jean-Luc Nancy is not just about "geopolitics" or "economy", and it's not just about "religion" or "culture": the event engages all the forms of life and thought that is "globalized."
So this is an invite to open our eyes:

• the community must have a common project and people wants to create:
• the community around project;
• the community speak about family like instead of sharing;
• the community of 'with' it in fact is with social media: we're in the center and the community is around us;
• community and locality: the community in a specific space.

Individuals members of a community are remotely connected through mobiles and they don't necessarily need or belong to a physical or defined locality.
The first thing of technology is phone: individual community connected remotely with a place of connection but people not connect with place are more individual.
The passage of individual community to the connected individual is making his own sense of community.
The time goes fast and the sensation change faster but the only difference with connection is the consequence for the city.
We have to effect efficiency and sharing is the new way to create energy communication and data is new to share experience in the city, to play game like *Pokemon Go*. There is important on the public space: we could re-appropriate the public space creating new type of division of the city.
The community that becomes a single thing: necessarily loses the in of being-in-common.
Or, it loses the *with* or the *together* that defines it.
It yields its being-together to a being of togetherness.
The truth of community, on the contrary, resides in the retreat of such a being. (Preface)
If you have a bit of imagination, every place could be used for every purpose, even for temporary cultural events: you can use your environment or the shape of the public space as an important part of the exhibition itself. Some examples could be "chairs out of stairs" or "squares like antlers", or even find a way to create your own use of that space with the aid of different tools (Nike Laser Soccer Field). We can consider the example of Piazza del Campo in Siena: just with the use of a great amount of sand the entire shape of the square changes and it can be used for the Palio.
Technology is the node, not the finality: everybody is a dot in *society* and *globality*.

Project manager
1,2 km
System engineer
837 m
Software achitect
360 m

Maria Benedetta Spadolini
ADD-DAD Department Architecture and Design - UniGe, Genova

SMART LIVING.
L'invecchiamento attivo a casa.

Il cambiamento demografico rappresenta una delle principali sfide che la nostra società si trova ad affrontare nel corso di questi ultimi anni. La sinergia tra la crescente sensibilità dei progettisti e la notevole influenza delle tecnologie ha sviluppato nuovi paradigmi e nuovi scenari per garantire la possibilità di un invecchiamento attivo e di una vita indipendente ed assistita per una popolazione sempre più longeva.

Alla luce di ciò, si è avviata nel 2010 un'iniziativa di programmazione congiunta, del Ministero Federale di Ricerca e di Educazione tedesco (JPI)[1], *Più Anni, Una Vita Migliore: Il Potenziale e le sfide del cambiamento demografico*, che affronta le principali problematiche connesse al cambiamento demografico innescato dall'accrescimento della speranza di vita ed allo stesso tempo la diminuzione del tasso di natalità. L'iniziativa ha avviato un processo di definizione di nuove linee strategiche, che si avvale di competenze interdisciplinari, sulla base del principio per cui si deve partire obbligatoriamente dallo scambio delle conoscenze tra ricercatori afferenti a campi diversi, in particolare nell'ambito dell'invecchiamento attivo e della vita indipendente e assistita, ambito che coinvolge le scienze umanistiche, comportamentali, gerontologiche e digitali.

[1] JPI - *Joint Programming Initiative More Years, better Lives - The Potential and Challenges of Demographic Change 2010-2012.* Il JPI coinvolge studiosi afferenti a varie discipline scientifiche, mediche, umanistiche, sociologiche sui temi della: salute & performance, sistemi sociali & welfare, lavoro & produttività, educazione & formazione e infine housing, sviluppo urbano-rurale & mobilità. Su quest'ultimo asse M. B. Spadolini e N. Casiddu hanno partecipato in qualità di membri esperti al tavolo di lavoro del *Working Group 5*.

La rivoluzione demografica in atto ci pone di fronte alla necessità di ripensare gli ambienti di vita ad ampio raggio: dallo spazio urbano, ai temi della mobilità, dell'accessibilità ai servizi, al *senior tourism*, perché si afferma sempre più una nuova percezione dell'anzianità, condizione che va ripensata anche in base all'autonomia e alla capacità di soddisfare i propri bisogni, per arrivare allo spazio domestico e alla necessità di adeguare il patrimonio edilizio delle nostre città.
Il lavoro del JPI è stato, quindi, propedeutico alla definizione del programma *Horizon 2020*[2], dal quale emergono alcuni obiettivi specifici d'importanza strategica, che coinvolgono il mondo del progetto a tutti i livelli e il campo della ricerca del design, tra cui quello di evolvere soluzioni di facile uso, caratterizzate da un adeguato rapporto costi/benefici per garantire agli anziani o alle persone disabili una vita quotidiana, indipendente e assistita, nella propria casa.
Da questo punto di vista l'approccio *Ambient Assisted Living*, trova nelle tecnologie ICT la possibilità e gli strumenti per definire un insieme di soluzioni destinate a rendere attivo, intelligente e cooperativo l'ambiente nel quale viviamo, efficace nel sostenere la vita indipendente e capace di fornire maggiore sicurezza e semplicità. Lo scopo principale è quello di estendere il periodo in cui le persone possono vivere nel loro ambiente preferito, aumentando la loro autonomia, autosufficienza e mobilità, aiutare a mantenere la salute e le capacità funzionali delle persone anziane, promuovere stili di vita migliori e più salutari per le persone a rischio, aumentare la sicurezza, prevenire l'esclusione sociale e mantenere la rete relazionale delle persone, sostenere gli operatori, i familiari e le organizzazioni dell'assistenza, migliorare l'efficienza e la produttività delle risorse nella società che invecchia.

[2] Il 2013 ormai iniziato costituisce l'ultimo anno di sviluppo del Settimo Programma Quadro dell'Unione Europea, a cui seguirà il nuovo programma, denominato Horizon 2020, che si svolgerà nel periodo compreso fra il 2014 e il 2020, e che supporterà economicamente la realizzazioni degli stati membri, in un momento in cui l'Europa ha subito una forte inversione di tendenza, raggiungendo livelli di debito eccessivi, indebolendo la crescita strutturale e incrementando il fenomeno della disoccupazione.

• La ricerca •

L'università all'interno di questo panorama, ha un ruolo fondamentale in qualità di polo di ricerca e, allo stesso tempo, in qualità di istituto di formazione dei futuri progettisti. In entrambi i ruoli l'attività di ricerca svolta dal gruppo afferente al Dipartimento Architettura e Design dell'Università di Genova, è orientata sui temi del *Design for better Life. Longevità: scenari e strategie*, con tre differenti linee di azione: il progetto e l'adeguamento di spazi residenziali al fine di fornire supporto alla vita in autonomia di tutte le utenze deboli, la definizione di prodotti semplici e facilitati per orientare gli utenti verso una sana qualità di vita e, infine, l'integrazione di nuove tecnologie con l'esistente. La base di tutte le attività di ricerca è la piena comprensione dell'utenza, che porta a mettere l'anziano con le proprie necessità e con i propri desideri al centro dell'attività di progetto per creare una sinergia tra chi progetta e chi fruisce di un ambiente, di un prodotto e di un servizio.

• Adeguare gli spazi dell'*housing* •

Occorre rifunzionalizzare e ridisegnare l'intero ambiente domestico, che parte dal sistema del vicinato, agli spazi comuni interni ad un edificio, fino a giungere all'unità abitativa singola per fare in modo che sia adattabile in funzione delle necessità dell'utente.
Questo adeguamento dell'habitat alle mutate esigenze della popolazione degli *elderly* deve interfacciarsi con il patrimonio edilizio, di arredo e di artefatti d'uso già esistente, da ripensare in termini di accessibilità, mobilità ed orientamento, per rispondere al contempo ai bisogni e alle capacità delle persone diversamente dotate, senza che questo rappresenti oneri rilevanti per la nostra società. Ciò è realizzabile, oltre che con un progetto attento e consapevole, attraverso l'introduzione di nuove tecnologie di domotica, così come attraverso un'attenta selezione di materiali e componenti edilizi.
La casa a misura di anziano non può e non deve essere una casa particolare, speciale, ospedaliera. Deve essere la sua casa, una casa familiare, nella quale poter ritrovare le cose della sua vita, che lo fanno stare bene, alle quali è legato e che gli permettano di proseguire, anzi talvolta svolgere sempre più intensamente, le attività che prima faceva nel tempo libero. Tutto questo, senza la presenza di tutti quei pericoli che prima riusciva facilmente ad evitare.

• Prodotti *age-friendly* •

La possibilità di rendere disponibili una nuova generazione di prodotti pienamente fruibili dall'utenza anziana, parte necessariamente dall'affermazione di una nuova cultura sociale ed economica che riconosca il diritto di ognuno di poter partecipare alla vita della comunità in ogni fase dell'esistenza. È, quindi, necessario ripensare e riposizionare il cosiddetto *silver market* tramite la diffusione di prodotti non connotati per la disabilità, l'ampliamento dell'offerta e la creazione di un *design vintage*, che si avvicini ai gusti di questo tipo di utente.

• *Interface design* e nuove tecnologie •

Il rapporto delle persone anziane con la tecnologia non è una questione da dare per scontata: è, quindi, necessario che l'interfaccia tra la tecnologia e l'utente venga immaginata e progettata al fine di rendere universalmente fruibili i componenti tecnologici, che devono diventare strumento di facilitazione per vivere gli spazi abitativi, assecondando le abitudini e plasmandosi alle caratteristiche di ogni singolo utente. Fino ad ora, il progetto delle interfacce, è stato affrontato in senso mono direzionale, mentre oggi l'AAL, le ICT e la robotica in particolare, vanno oltre questa relazione aprendo la strada a nuovi scenari multi direzionali: muovendosi dall'attenzione verso le macchine, all'attenzione che le macchine stesse devono avere nei confronti dell'uomo. L'attenzione deve focalizzarsi non solo sulle categorie più penalizzate, ma bensì anche spostarsi verso la fascia di età delle persone attive, per fare in modo che in un futuro, l'integrazione delle differenti tecnologie all'interno dell'abitazione siano ben accettate, vantaggiose per massimizzare l'efficienza e minimizzare le situazioni di potenziali criticità al fine di giungere in età avanzata nelle migliori condizioni possibili in maniera autosufficiente e attiva. Nel 2017 una visionaria mostra dal titolo *New old*, andata in scena al Design Museum di Londra ha posto l'attenzione sul tema dell'invecchiamento in un'ottica molto più ampia, futuristica. Chi sono i nuovi vecchi? In sostanza i vecchi del futuro siamo noi, una generazione abituata alla tecnologia, quasi schiava della tecnologia, che però, col passare degli anni, corre sempre più in fretta, mentre noi, inesorabilmente, perdiamo delle attitudini. Con uno sguardo al domani l'esibizione ha ripensato il ruolo del design nell'accompagnare le persone nell'invecchiamento, una delle fasi più complesse della vita, senza tralasciare il fattore tecnologico, con il quale in ogni caso, dovremo fare i conti. Ecco quindi che la tecnologia, i sistemi informatici, un design sempre più accattivante connotano i nuovi sistemi per la casa e la città. Tra le installazioni l'appartamento intelligente Amazin dello studio Future Facility ha così esplorato l'idea di come la tecnologia

digitale che può rendere la vita più semplice ad una fascia di popolazione giovane, possa invece essere un impedimento per una popolazione più anziana, proprio nel momento in cui questa ne avrebbe necessità. “Invecchiando, diventiamo meno propensi ad esplorare le possibilità che i negozi e i produttori offrono ai consumatori più giovani”, hanno detto. “Questo mette la popolazione che invecchia in una posizione sfortunata - abbandonata nel momento esatto in cui ha bisogno di prodotti migliori, di maggiore assistenza e servizio”. L’appartamento Amazin ha lo scopo di eliminare le preoccupazioni e gli oneri associati alla manutenzione domestica, permettendo alle aziende di registrare e analizzare i prodotti nelle loro case, facilitando di molto la vita.[3]

[3] Intervista di Alice Morby a Future Facility, Dezeen, 25 January 2017

• Small, Smart, Safe, Comfortable •

Le riflessioni sulle condizioni sociali ed economiche nelle quali viviamo, ci portano ad individuare parole chiave per la progettazione degli interni domestici che devono quindi essere: piccoli, sicuri, tecnologici e confortevoli. L’intelligenza dell’arredo sta nella sua capacità di rispondere e soddisfare ai diversi bisogni.[4]
Le tre differenti linee di azione verso cui abbiamo indirizzato e indirizziamo sempre i progetti degli studenti sono dunque: fornire supporto alla vita in autonomia di tutte le utenze, soprattutto le più deboli, definire prodotti semplici e facilitati per orientarli verso una sana qualità di vita, integrare le nuove tecnologie con l’esistente e progettare il miglior spazio-arredo possibile in termini di benessere e comfort.

[4] Crf. M. Benedetta Spadolini, *Small*, *Smart*, *Safe*. Area Numero 151, Marzo/Aprile 2017

Main References

M.B. SPADOLINI (2013). Design for Better Life. Longevità: scenari e strategie. vol. 1, p. 1-160, MILANO: FrancoAngeli, ISBN 9788820421229

M.B. SPADOLINI (2009). Design Scuola Territorio. vol. 1, p. 1-286, FIRENZE: Alinea Editrice, ISBN: 9788860554086

M.B. SPADOLINI (2000). La progettazione amichevole. L’evoluzione del concetto di accessibilità per l’utenza debole. Dall’habitat al design dell’oggetto. p. 1-184, MILANO:Rima Editrice, ISBN: 9788885109223

N. CASIDDU, E. MICHELI (2011). Human Centered Robotic Design. p. 1-176, FIRENZE: Alinea Editrice, ISBN: 9788860556707

N. CASIDDU (2008). Il valore dell’accessibilità - Contributi per la progettazione residenziale. p. 1-160, MILANO:FrancoAngeli, ISBN: 9788856802450

N. CASIDDU (2004). Anziani a casa propria – linee guida per adeguare spazi ed oggetti. p. 1-176, MILANO:Franco Angeli, ISBN: 9788846453693

Genova, the flood of November 2014.

Chiara Olivastri
DAD Department Architecture and Design - UniGe, Genova

BELONGING AS RESILIENCE ENZYME

Resilience does not mean triumph of individual abilities, it does not correspond to success, it expresses the feeling of being part of a wider society. It also means offering the possibility of restoring social and spatial ties with a place that everyone can perceives as own.
In Elena Malaguti's definition (2006), 'the sense of belonging' becomes the key element capable of feeding resilient systems.

Identifying the reference contexts on which to re-establish this link involves defining the areas of action from which to reset resilient logics: belonging to a community, feeling the spaces of living and being part of a participatory process are the three strong elements on which to rebalance the dynamics of design.
The extension of design to an unprecedented sphere, the public and social sphere, is becoming increasingly evident, in the sense that it differs from its traditional sphere of application, which has always been the market, the private sector. An extension that is clearer if we focus our attention on the beneficiary of the design action and on the transition that goes from the consumer, to the user, to the citizen, from the user-centred design to the citizen-centred design (Selloni, 2015).

Community is nowadays the last remnant of the ancient utopias of good society; it represents what remains of the dreams of a better life shared with people ready to respect better cohabitation rules (Bauman, 2000, p.100).
From a sociological point of view, communitarianism is an all too predictable reaction to the accelerated "liquefaction" of modern life, which leads to the ever-increasing imbalance between individual freedom and security. The reborn communitarianism, therefore, responds to a very concrete and important question: the radical departure of the pendulum from the pole of security in the dyad of human values sine qua non (ibid, p.198).
This return to the neighbourhood was described by Maffesoli in 2007, who defined it as the return to the tribes, groups, associations, networks, we are witnessing the return of an emotional and passionate investment, thanks to the acceleration of technology; not by chance the paradigm of the network can be considered as the actualization of the ancient concept of community that shares in the network products and services previously present in markets.
If it is true that we cannot not communicate, it is equally true that we cannot not share.
The phenomenon of sharing on social networks alludes to a participation with a large community of the network, virtual, and there is also a proliferation of concrete and active communities. Sharing is the basis of every social phenomenon, to be part of a community it is necessary to share its values, rules and codes of communication (Arena, 2007).
In fact, we speak of a collaborative revolution, that is, the transformation of the role of the citizen, who becomes a co-producer of services; like all revolutions, it starts from the bottom, invests in civic intelligence, that is, in enabling citizens to collaborate, regenerate, manage and produce common goods, finding unprepared institutions.
Design enters in this gap, becoming the interpreter and the link between resilient communities and public subjects. The role of the design expert is the activist who promote initiatives together with citizens, but it stands out in a constant process of connection, mediation and facilitation is a design activism applied to the public sphere. The integration of strategic design, service design and participatory design can be defined as design for social innovation. The participatory design encompasses the practices and actions that focus on collaboration, in an approach that evolves from that of user-centred design to community-centred design (Meroni, 2008) in which the communities of citizens are the protagonists.
In fact, if the user-centred considers the user as a subject, in participatory design it is considered a partner in the process.

In the last ten years, especially in Anglo-Saxon and Nordic contexts, design has been seen as a type of approach capable of creating innovation in services in the public sector, and therefore capable of intervening in the common good because it is capable of interpreting complex contemporaneity as a systemic activity, rather than reducing the variables at stake, and reconfiguring them as a function of possible solutions.

• Belonging to the spaces •

The reconstruction of the country is underway, based on the care and development of material and immaterial common goods; thousands of citizens are taking care of common goods, without the awareness that their initiatives could be part of a wider movement of material and moral reconstruction.
These people are rebuilding their community, taking care of the bonds that unite them, producing and developing social capital, integration, sense of belonging (Arena, 2015, p.20).
Common goods are goods of which a certain community has the enjoyment but, being by definition shared goods, they are at the same time goods given, "in custody" by humanity to that community. The latter certainly has the right to enjoy them, but also the responsibility to keep them in conditions that allow their use by all other human beings potentially concerned.
The practices of re-appropriation of abandoned spaces become places of experimentation where these communities are activated to restore value and identity to urban voids, which are often perceived as common goods.
Temporary reuse becomes the immediate solution to the problem of the impoverishment of real estate value and the ever-increasing state of degradation in these areas, because it is capable of reconstructing the identity of the places and re-establishing the sense of belonging of the spaces by the social context.
The disused spaces can function as extraordinary magnets of the creative energies present on the territory and as incubators of social planning.
The projects of temporary use, based on a model that is not authoritative but inclusive, determine a considerable increase in the number of subjects involved in various ways and therefore the creation of complex processes.
Cottino and Zeppetella (2009) identify in the wide offer of disused spaces an interesting opportunity for the identification of concrete occasions in which social and institutional actors can verify on the field the practicability of forms of collaboration and practically test forms of governance for the production of public goods.
An interesting example of the re-appropriation from below of an abandoned space is that of Sale Docks (image 1) in Venice, born in 2007 from an occupation by activists, students and cultural operators in the entertainment sector of the Venice area.

It began as a totally illegal operation, occupying two of the seven buildings in the complex of the Salt Warehouses in Dorsoduro, a building owned by the public and the other of the Academy of Fine Arts, just to emphasize the presence of empty spaces and fascinating in disuse for some time in one of the largest historical centers of Italy.
The desire to operate without any initial budget is intended to emphasize the gap with the astronomical figures with which spaces are rented during the period of the Biennale, and then be abandoned without providing for their effective reuse. Currently inside Sale Docks there is a small association mainly dedicated to cultural aspects. In 2012, after having convinced the public owners of the good intentions of the project, they obtained a five-year agreement until 2017. The events are mainly cultural, thanks to the involvement of a large European network, with which are organized workshops, exhibitions, seminars, small theater performances, especially with an alternative program during the Biennale. In addition, a satellite event "Re-Biennale" is organized to recover materials from the installations of the pavilions of the Biennale aimed at giving them a second life. Most of this material is stored in the Salt Warehouses and then made available to artists and curators of new exhibitions.
Through these dynamics of re-appropriation we are witnessing a reversal of the process of spatial-individual identification: no longer codified and institutionalized spaces that assign social identity to the individuals who attend them, but individuals, or rather actors, with their ability to design and invention to restore identity, function and meaning to abandoned spaces.
Identity is understood as an authentic and effective expression of the attitude to design, the ability to feel and see reality not as something already accomplished and defined, which is limited to take note of, but as a process in progress, which can take different forms and methods than those currently exhibits and therefore requires the observer to perceive and think otherwise. Identity becomes a task that has not yet been accomplished, as an appeal, as a duty and an incitement to act.

• Belonging to the process •

The social dynamics are complex, multifaceted and change rapidly. There are more and more variables and variances to take into account. New configurations of actors, open solutions and constant dialogue are needed to change and encourage the resilience of a society.
It is the duty of citizens to provide them with tools to engage and dialogue with institutions at a more informed level.
It is also necessary to push the institutions to activate policies in support of spontaneous bottom-up initiatives capable of facilitating and integrating them into processes, in order to avoid isolation and the sense of exclusion that penalises and weakens actions.

1.

2a.

2b.

1. Sale Docks, Venezia.
2a. 2b. Cittadini Creativi, Milano (2013) by Daniela Selloni

The role of design is to create democratic spaces, social spaces, where different and conflicting voices can be freely expressed and where institutions can mitigate and resolve disputes (Björgvinsson et al., 2012).
In this way, design contributes to creating a resilient society in which diversity and experimentation make it able to face challenges (Manzini and Till, 2015). Policies must be rich in context, not always being able to standardize rules, they must work on behaviours. The challenge of policies in our time is to produce dynamism.
If an active citizen is a fundamental condition for a stronger democracy, so is a public policy that lives, that does not believe itself to be an immutable object, that creates community value and stimulates behaviour, that creates ecosystems.
Public innovation can be the approach to understand sociality, stimulate emerging skills, put the design of services and experiences at the center, govern hybridity and organizational change. (Lanfrey, 2016)
The "ideal city" for Lefebvre in 1970 is a continuous work of the inhabitants, themselves mobile and made mobile for and by this work. The right to the city manifests itself as a superior form of rights: to freedom, to individualization in socialization, to habitat, to living.
In 2001 the principle of horizontal subsidiarity was introduced into the Constitution, with this formulation:
"State, Regions, Metropolitan Cities, Provinces and Municipalities favour the autonomous initiative of citizens, individuals and associates, for the performance of activities of general interest, on the basis of the principle of subsidiarity" (art. 118, last paragraph).
The new rule, recognizing that citizens are able to act autonomously in the general interest and providing that institutions must support their efforts in this direction, confirms that people have the ability, and that they may be willing to use these capabilities to solve not only their own individual problems, but also those affecting the community.
Administrations can act as enablers of processes that must maintain that character of spontaneity and unpredictability in order to be effective.
Working as a facilitator means conferring tasks and enabling social actors, creating the necessary conditions, the right infrastructures to support synergies of reuse and production of goods and collective services: for example, guaranteeing places where active citizens can meet and interact, open tables for writing agreements, where projects can be discussed and built, putting in place technical skills, resources, networks and ideas.
The enabler-administrators are not refereeing but an active part of these processes. They also have the arduous task of learning from these practices and updating public planning, putting as a resource those skills and projects that transforming the "voids" into "full" produce in fact a new public city.

On 22 February 2014, the Municipality of Bologna, under the scientific direction of Labsus Laboratorio per la sussidiarietà and with the support of Centro Antartide, Centro Studi e Comunicazione Ambientale, as part of the project "Cities as common goods", issued the "Regulation on collaboration between citizens and administration for the care and regeneration of urban common goods".
The growing demand of citizens to participate in decisions and actions concerning the care of interests of social importance, present in our reality as in that of many other European countries, has therefore its legitimacy today. The latter also provides for the duty on the part of public administrations to encourage such participation in the awareness of the positive consequences that can result for people and the community in terms of spiritual and material well-being.
Indeed, the application of this principle has a high potential for modernising public administrations, since the active participation of citizens in collective life can help to improve the capacity of institutions to respond more effectively to the needs of individuals and to the needs of the public.
In this case, design is the one who deals with policy, but policy and politics feed on each other, stimulate each other, are complementary, are part of the same team that has different skills (Lanfrey, 2016).
Good policy provides policy work with energy and momentum. It collects instances, moves territories, creates participation, provides guidelines, making policy means educating and informing good policy.
In this case, participatory design becomes an action strategy within the city and in all those urban contexts that attempt to improve one or more aspects of people's lives.
Co-design practices and services that are implemented in these collaborative ecosystems involve the local population, activate and encourage dialogue between local forces, resources and urban governance mechanisms (Rizzo et al., 2015).
Ecosystemic, strategic and participatory approaches acquire considerable relevance in the urban and public sphere, where the paradigm of innovation and collaborative systems is becoming a consolidated framework.
In this case, co-designing means developing increasingly useful public policies on social and economic dimensions.
But participation and listening are not enough.
The processes that try to bring stakeholders to the heart of the decision are a strengthening, but they can have a limited impact compared to what happens afterwards, it is instead in the game of implementation, that a good policy makes impact a design condition.
Playing the game of implementation properly means putting those who will benefit from the policy that is built in the conditions to make it their own, to carry it forward, to adjust it, to improve it.

Collaboration and dialogue are able to distribute competences in order to make the management of processes more horizontal. This clearly does not reduce the number of actors, but makes them responsible within the processes.
In response to these needs, in 2009 DESIS (Design for Social Innovation towards Sustainability) was founded, a network of design labs, groups of academics, researchers and students, autonomous but interconnected, that focus their projects, research and activities towards social innovation. They operate on a local scale, with local partners and stakeholders trying to build discussion spaces for the development of complex processes through the use of tools that facilitate dialogue and finalize it to the conception of concrete projects.
An example of the activities carried out is that of Creative Citizens (image 2), developed on the case of Cascina Cuccagna in Milan, which started from the identification of an existing creative community, which presents a good number of social initiatives and informal mutual aid services. Thanks to a program of weekly meetings with associations active in the neighborhood, from February to June 2013, six types of services have been developed, ranging from services of sharing and exchanging goods and skills, to those of legal, bureaucratic, administrative, a food network that combines producers and consumers, to local tourism services.
The project has acted as a bridge between citizens and institutions, has experienced a new format of intervention and collaboration in the city, a structure to support the most promising resilient communities, is less and less a question of writing rules, and more and more to transfer capacity from the center to the periphery, to create dynamism in the social structures on which we go to act.
Good planning introduces enzymes of change. To strengthen this idea, enzymes are needed: catalysing agents of shared value that work on the basis of practices or belonging (Lanfrey, 2016). A sense of belonging that is built and elaborated by acting on the community value, on the need to give meaning to the spaces in which we interact and on the need to return to broader processes, where even political and administrative subjects are an active part of it and contribute to nurture resilient societies.
We have fewer and fewer resources to design, and more and more need to design policies that can demonstrate their impact. The implementation of policies depends on the ability to transform content and actions into motivation to change. A good policy develops behaviour and nurtures resilience.

Arena G. (2007), *Cittadini e capitale sociale*, disponibile in www.labsus.org/2007/06/ cittadini-e- capitale-sociale/ [15.6.2016]

Baumann, Z. (2000), *Modernità Liquida*, Cambridge: Polity Press.

Björgvisson, E. Ehn, P. Hillgren, P.A. (2012), *Design Things and Design Thinking: Contemporary Participatory Design Challenges.* Design Issues, 28(3) (pp.101-116)

Cottino P., Zeppetella P. (2009), *Creatività, sfera pubblica e uso sociale degli spazi, Forme di sussidiarietà orizzontale per la produzione di servizi non convenzionali*, Fondazione Cittalia, ANCI ricerche, Roma

Lanfrey D. (2016) *Il passo successivo delle politiche pubbliche* disponibile in http:/damienlanfrey.nova100. ilsole24ore.com

Lefebvre H. (1970) *Il diritto alla città*, Ombre Corte, Verona

Malaguti E. (2006) *Resilienza e coscientizzazione per educare nel tempo della globalizzazione progetto politico* [disponibile in http:/www2.comopace.org/ riflessioni/articolo.asp?id=15&label=POLITICA%20 E%20 SOCIETA'&cod=694]

Manzini E., *Till Cultures of Resilience. Ideas*. London, Hato Press. p. 11-13. [Available at: http:/www. culturesofresilience.org/ wordpress/wp-content/ uploads/2015/03/ CoRBookletforHomePrinting.pdf]

Manzini E. (2015), *Design when everybody designs. An introduction to design for social innovation.* MIT Press, Cambridge

Meroni A.(2008), *Creative Communities. People inventing Sustainable Ways of living*, Edizione Polidesign, Milano

Selloni D. (2015), *Il design per la collaborazione* in Gregorio A. e Iaione C. (a cura di) L'età della condivisione, Carocci, Roma.

Rizzo F., Deserti, A.; Cobanili, O. (2015), *Design and social innovation for the development of Huma Smart Cities*. In: Nordes 2015, Stockholm, 2015. p. 1-8. Disponibile al: http:/www.nordes.org/opj/index.php/ n13/ article/view/383/362gmhmbmssss5y0

"cittadini creativi" project avaible at http://www.cittadinicreativi.it

The rules between urban municipalities and citizens is avaible at: http://www.labsus.org

Francesca Vercellino
ADD-DAD Department Architecture and Design - UniGe, Genova

RESILI(G)ENCE AND MAPS OF PHYSICAL AND EMOTIONAL GEOGRAPHIES.

“Queequeg was a native of Rokovoko, an island far away to the West and South. It is not down in any map; true places never are.”
(Herman Melville, Moby Dick)

The first decades of the twenty-first century are opening today to the exponential development of new technologies that have multiplied the interaction potentials between spaces, contexts, media and users, thus opening a new stage of increasingly ubiquitous, augmented and embedded capabilities) in a new material-virtual dimension called to define one’s own “expanded” condition of contemporary reality.

The coexistence of a hyper-connected and a hypo-connected societies thus expresses a new reality to be managed and balanced with a new type of governance more sensitive to a new type of holistic, equitable and empathic logic (empathicities)
In this changing framework of action we could ask ourselves what has been the role of representation (that is, of analytical and projective expression) and its possible evolution over time.

The “hard” reaction of the late eighties (with the mean attention to the ambiguously peri-urban spaces of the new fragmented city) was going to be supported, rather than in the (re)layout in the (re) treatment (from the Latin, re-trahere, to bring back) of the new spaces; but also, in the minimalist abstraction (and the volumetric deconstruction), as new instruments of analysis and design called to break with the previous “Platonic” imaginary .
The dichotomy between “evocative landscapes” and “combative margins” was going to give way, however, at the beginning of the nineties, to a new dimension of the urban in which the super-structural and the fragmented would give way to the infrastructural and the definitely fractal.
The scenario of this change of scale would appeal, already entering the new decade, to a new type of holistic, strategic and integrative recognition, in which representation would no longer be that of postmodern iconographic figuration or that of alternative photometry (and volumetry), neo-modern, but that of more advanced “synthetic capacity”; that of new systemic processes (and registers), multiple, increasingly coMplex.

• (Re) presentation and expanded realities •

“Action maps”, “open devices”, “network systems” – info, eco, infra and intra-structural – would give way to a new instrumentation made of multilayer cartographies, evolutionary schemes, compressor diagrams and/or conceptual ideograms that would send , in turn, at a clear moment of transition – in the nineties – between the old analytical-analogical approaches and the new synthetic-digital logics (remember the appearance of the first laptops with the diffusion of windows systems, GIS and Scans, in that decade).
The increase of new technologies in the information age and a new expanded condition in which the co-participated processes will multiply, makes us think today of a new type of concerns in the analytical approaches to the city at the beginning of the century.
The generation of “open programs” (more than maps or registers) associated with the instrumentation of “open source” software such as Grasshopper or interactive devices such as Arduino, refers to a new type of approach where evolutionary spaces and dynamic processes would be combined in the projection of possible simulated scenarios, as multiple as varied and differentiated in their diverse responses (responsive, reactive, interactive) to information, conditions and changing demands.
The digital age we live in is putting available a huge amount of data that we can use to improve the resilience of our cities and territories. The Big Data are in fact becoming a dominant theme, not only in the business world, but at every level of social organization, and in particular in the pursuit of environmental sustainability of cities of the future.

In fact, over the last fifteen years the concept of urban space design has been deeply changed. On the one hand, the spread of social problems, with a consequent mutation of the geographies of living, on the other, the migration phenomenon has brought into play overall social practices responding to plural solicitations. By fragmenting the urban space into versatile and heterogeneous geometries, networking has largely succeeded in overcoming the physical and gnoseological concept of planned boundary / space, giving shape to a new border etymology. That boundary is found, however, in the fragile urban space, what Foucault calls heterotopia: "a place without a place, which lives for itself, which defines itself and which is abandoned at the same time".

The info-sphere is staged by WhatsApp, Facebook, Twitter, Instagram, places of social relationship in which new models of collective management are experimented, of dialogue between migrants, local communities, institutions and NGOs, of exchange of solutions to everyday problems. A hybridization process in which "the Internet has facilitated the development of global networks, but paradoxically its influence in local areas has been less recognized".
The heterotopia is, instead, represented by the refugee camp and the reception center, a synthesis of the "in transit" community of our century. These spaces, entering in already poor and marginal contexts, occupy a low position in the urban and social hierarchy, they become peripheries of the suburbs: "places of crisis and deviation of the individual-environment set-up".

The urbanism of the twenty-first century, in a continuous dialogue with discipline, thus manages a fluid and hybrid urban habitat, in its diaspora transience, attempts to define itself. There is a question whether the urban planning of the future will be conceived starting from Google Maps or Instagram, from the study of the United States, in the case of the first service, and of the emotional geographies that outline the collective spaces, in the case of the second. Do we live in the full heterotopy of hybrid space or in a digital jungle?
It is in this cultural horizon that an embryonic design of the future city is inserted, which sees its trace in a new form of urban planning, a link between Design, Psychology and Programming. Taking in analysis the daily practices of the contemporary citizen, the analysis of his experiences, expectations, needs and physical spaces of everyday life, some specific dynamics are reproduced that can be reproduced on a physical-urban map and a psycho-emotional map. In this scenario the role of the planner is inserted, a professional figure who, observing the context from different points of view, is able to respond in a temporary and versatile way to the needs of the city, which is increasingly experienced in a temporary way as to be considered a "city of passage ".

"A planner that takes the planning tension and the attention to the local reality from the urban planner, while in the sociologist's tradition he finds the tools for a richer and more problematic interpretation of the local context and for a greater attention to the institutions within which the plan develops; and finds in the contributions of the pedagogue and the social worker some stimuli for the clarification of an idea of an increasingly participatory project intervention, increasingly aimed at making people aware of what can be done"[2]

Aware of the social dynamics of the physical-emotional and virtual tissues of urban space, the urbanist-designer's gaze focuses on connections, discontinuities, relationships and urban syntax, promoting a continuous interaction between "temporary" inhabitants, communities " permanent ", psychologists and programmers. Acting on the strong bonds of the community and analyzing the weak ties of society that emerge from social media.
Hugo Zaragoza, at Smart City World Expo 2016, said that "social media is the best sensor network in your city". As part of everyday life, people share their social concerns on public platforms, from Facebook and Twitter to personal blogs. Studies from New York University and the University of Vermont now show that people can be more honest online than in person. This means that looking at unfiltered social media can tell us what citizens really think.

[2] G. ATTILI, *Rappresentare la città dei migranti. Storie di vita e pianificazione urbana*, Jaca Book, 2008.

Social media, although often part of a weak bond within society, can become the object of analysis by urban planning in order to promote strong ties within the community. For example, by sponsoring the growth of a conscious community that redesigns the territory according to its individual needs.
Let's think about FragneBenan, a social platform born in Vienna to promote the development of the neighborhood unit, promoting the exchange of favors and services among the citizens of the same neighborhood. Will the observation of community relations and psychological reactions by studying social media increasingly be a marker for community participation? In the redesign of a space and an urban context? The knowledge made available by big data processing, if properly used, will make us more responsive to changes in the complex space in which we orient ourselves. Today we are faced with the need to seek new forms of development and enhancement of environmental resources. The digital revolution should visit more carefully the assessment of the effects and externalities produced by the spread, on a planetary scale, new products and behaviors.

• Methodology •

"Where language breaks up and opens up a silence, a space, a question, the further dimension of our language living begins to make its way."[3]

[3] I. CHAMBERS, *Paesaggi migratori: cultura e identità nell'epoca postcoloniale,* Meltemi Editore, 2003.

The purpose of the study is to understand the causes and effects of the transformative process that underlies the emergence of the space experienced by the citizen and to demonstrate that the future development of the city can be planned and / or planned starting from the overlapping of geographical maps and physical-emotional maps traced starting from the data extracted from the social networks.
To trace urban-emotional geographies we can use the data and a qualitative survey on the territory carried out on a large sample of citizens through a semi-structured questionnaire. The aim is to analyze perceptions, opinions, behaviors that in part can be considered predictable but which, for the rest, may have been underestimated or ignored. In other words, the freedom that the semi-structured questionnaire allows to acquire information on known and unknown aspects.

The passing citizen thus traces an image of the city on an experiential-affective learning, where the space of everyday life translates into geography of appropriation and familiarity. By studying the relations between the inhabitant and the neighborhood it is possible to draw a fil-rouge and outline the dynamics that are generated by living a space according to one's mental and emotional geographies.
Let us think of the city experienced today by the migrant, in many

cases “citizen of passage”. For the migrant, feeling at home in a new physical and socio-cultural context is a processual, gradual and reversible experience, which goes beyond traditional boundaries to come into contact with the receiving society by negotiating over time, through successive “thresholds of domesticity”[4], spaces for recognition, independence, intimacy and well-being. We find ourselves having to quickly build a familiar spatiality for survival instinct, going to recreate mobile and spatial dynamics in the urban context that reproduce rooted psychological mechanisms.

[4] P. BOCCAGNI, *Fare casa in migrazione. Una chiave di lettura dei processi di integrazione e di riproduzione sociale e quotidiana in contesti multietnici*, [PDF file], 2017.

The question is raised on several points:
- What are the factors and the dynamics of living the city “in a temporary way” that are repeated?
- What elements are repeated in the mental map of the migrant? Which spatial and cultural logics are intertwined between permanent citizen and passing citizen?
- From which religious and cultural phenomena depend?
- How much do the reasons for expatriation and the geographies of your own country affect?

“These elements of the image, not tied to objects, are rather relationships between things within a dynamic and variable reciprocal structural link: something can be - depending on the case, the day and the scale - node or neighborhood, path for some and margin for others.”[5]

[5] K. Lynch, *The image of the city*, MIT Press, 1964.

From the study it derives a mental map that illustrating the dense network of socio-cultural relationships, is able to trace the elements that govern the life of the city of passage. We then examine a new topography that, apart from the topographical-Euclidean geography that has limited the cognitive process of an often transparent human geography, made up of small phenomenological details that, taking root, go to outline a physical geography “made and finished”.

The research has been developed to be in-depth on several sample cities including the city of Genoa to identify which elements are perceived as “home” and whether these factors depend on community dynamics and factors. Genoa is a multicultural city and its social strength has manifested itself over the last 25 years in which the city has welcomed various phases of immigration of foreign communities, whose incidence on the Genoese territory is most evident in the area of Central-West and Sampierdarena, Val Polcevera and Central-East. Starting from the study of these metropolitan areas, the aim is therefore to understand the dynamics that tend to repeat themselves within them and the factors that regulate these dynamics in order to represent and predict the future developments of what James Holston calls the rebel city. The goal is therefore to understand the dynamics that tend to repeat themselves and the factors that regulate them in order to represent and predict future developments of what James Holston calls insurgent city.

"The spaces taken from the modern and planned dominion of the city: the territory of the homeless, the networks of migrants (...) the spaces in which practices take place that disturb the consolidated stories of the contemporary city".[6]

[6] J. Holston, *Insurgent Citizenship. Disjunctions of Democracy and Modernity in Brazil*, Princeton University Press, 2007

• Conclusions •

"To the foreigner not to ask for the place of birth, but the place of the future."[7].

What are the trends that regulate "feeling at home" within a space? The goal is to study the visible and non-integrative dynamics that govern the space, starting from the superimposition of psycho-emotional and geographic-spatial tendencies emerged from the mental maps of the sample under examination. A geography of the city emerges that is built up in the process of affection for places, in the acquisition of awareness of the meaning of some spaces in relation to the activities that take place in them. What trace remains of the passage of the temporary inhabitant within the urban space and its community? What spaces emerge most from the overlap of emotional geographies? What from the overlap of urban ones? Do they coincide? Taking in analysis the social and emotional heat-maps, how far in advance can the socio-spatial dynamics of the future city of passage be predicted? Will a future city of passage exist or will each city be lived temporarily so that it no longer even makes sense to complement the "passing"? Through the study of such geographies, will it be possible to foresee in advance the birth of future urban spaces or the change of existing ones? If this were the case, the theory of psychologist J. C. R. Licklider, presented in an article from the 1960s entitled The symbiosis between man and computer, would be confirmed. The machine is presented as an extension of the human body on an emotional and spatial level.

[7] E. Jabès, *A Foreigner Carrying in the Crook of His Arm a Tiny Book*, Wesleyan University Press, 1993

Main References

Krase J., Uherek Z. (2017), *Diversity and Local Contexts Urban Space, Borders and Migration*, Palgrave Macmillan

Manzini E. (2015), *Design, When Everybody Designs: an introduction to design for Social Innovation*, MIT Press

Manzini E. (2018), *Politiche del quotidiano. Progetti di vita che cambiano il mondo*, MIT Press

Lynch K. (1964), *The image of the city*, MIT Press, Harvard-MIT Joint Center for Urban Studies Series

Pezzoni N. (2013), *Città sradicata. Geografie dell'abitare contemporaneo. I migranti mappano Milano*, O barra Edizioni

Price M., Chacko E. (2012), *Migrants' Inclusion in Cities: Innovative Urban policies and Practicies*, Prepared for UN-Habitat and Unesco Conference paper.

JE SUIS CHARLIE

Alessia Ronco Milanaccio
DAD Department Architecture and Design - UniGe, Genova

RESILI(G)ENCE AND TEMPORARY COMMUNITIES

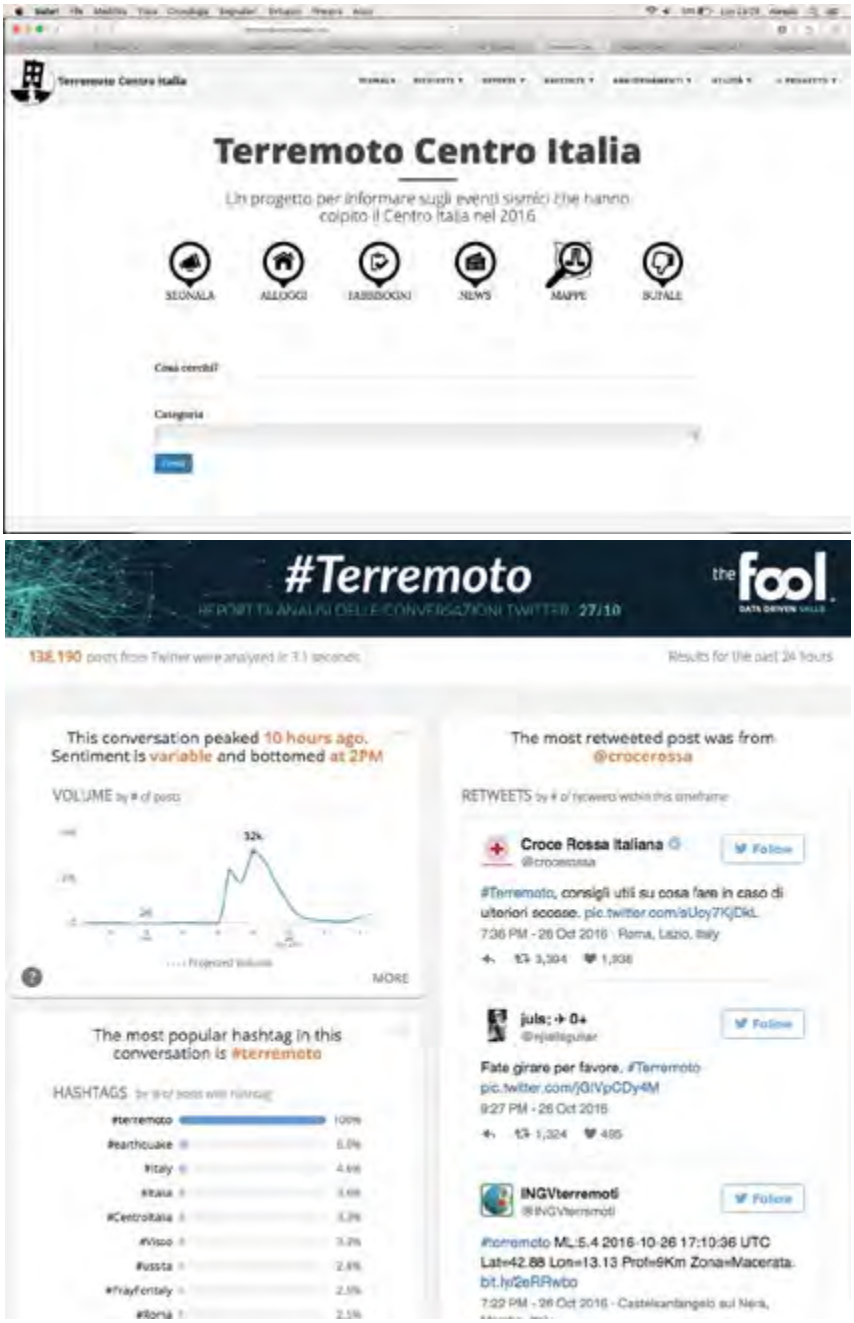
"There is a painting by Klee which is called Angelus Novus. There is an angel who seems to be moving away from something on which he looks. His eyes are wide open, his mouth open, his wings spread. The angel of history must have this aspect. His face is turned to the past. Where a chain of events appears to us, he sees only one catastrophe which accumulates ruins on ruins and stops them at his feet. He would like to stay well, to rouse the dead and reassemble the broken one. But a storm blows from heaven, which has become entangled in its wings, and it is so strong that he cannot close them. This storm that pushes him irresistibly into the future, to which he turns his back, while the heap of ruins rises before him to the sky. What we call progress is this storm".
(W. Benjamin, Thesis on the philosophy of history)

According to the 2014 Human Development Report, the solution to the crisis is, by countries and local communities, in the active construction of "resilience", a term that is now increasingly used, associated with different definitions and applicable in many contexts. Its complex meaning finds space within of ecological, biological and social systems and concerns generally the "survive, resist and react to negative events." The concept is taken up by different disciplines and applied in different contexts, from the technological field -resilience as resistance dynamic rupture, determined by means of a special test shock - to the psychological - capacity of an individual to generate biological, psychological and social factors which to resist, adapt and strengthen, in the face of a risk situation, generating a individual, social and moral result. Often, in the last few years in particular, is also associated with the communities, understood as the aggregation of individuals, and not just individuals.

The ability of a group to be resilient inevitably influences economic processes and social issues that lead a community to avoid the collapse, reacting positively and proactively even in contexts of continuous instability, always most often subject to natural and not natural shocks such as floods, earthquakes, economic and social crises, terrorist attacks, etc. To the term "resilience", therefore, one cannot but to associate the term 'crisis', also understood as 'crisis', with all its different applications (environmental, economic, social...). Without crises, the following are not generated reaction and innovation: the resilient community cushions and absorbs the impact of a shock, summarizes the original form and -with an approach that can no longer just be resilient, but that becomes resilient [1] - turns threat into opportunity.

By overcoming the crisis, the following can be achieved new forms of balance, reorganising and protect the members who are part of the community itself. The state of equilibrium achieved in following a traumatic event can no longer be compared with the state preceding it when traumatic experience - in the resilient response comes assimilated, transformed and turned into positive. It is precisely this intrinsic capacity of man to respond to and follow up on the disasters which afflict our daily lives. Protagonist during the 56th Venice Art Biennale (2015 - All the World's Futures). The main theme of the Exhibition, says curator Okwui Enwezor, is that of the deepening of the contemporary global reality such as "a reality in constant realignment, adaptation, recalibration, mobility and continuous forms change". The starting point is precisely the observation of the "state of things," awareness of the fractures and the contemporary crises that "evoke the evanescent rubble of previous catastrophes accumulated at the foot of the angel of history in the Novus Angel" (Enwezor, 2015). The artistic action aims to make the public aware of the "state of things" and make it react in order to make sense - and a proactive change - to the events that upset our era. As Enwezor states, "we live in a moment of great anxiety", of continuous emergency and the artists are called to

exploit the great shocks to produce new ideas for the future; and so should the public, society too.
It is in this context that the artist Jaša realizes the installation of the Slovenian pavilion inside the Arsenal, curated by Michele Drascek and Aurora Fonda, in collaboration with the students of the Academy of Fine Arts of Venice.
The artist and the public are called upon to participate in the construction of an "action architecture" which lays the foundation of artistic performance in the sharing of reactions triggered by events unexpected, creating, albeit in a way temporary, ephemeral, community based on the sharing a common experience during a stressful action.
UTTER / The Violent Necessity for the Embodied Presence of Hope works with three main themes - resistance, collaboration, hope - and it seems wish to underline the fact that an act of urgency it seems today always necessary in this world fragile, constantly changing. The pavilion itself is a kind of dynamic laboratory where different artistic actions define numerous variants in the relationship between the public and the artist through various disciplines such as architecture, painting, literature, Singing, Music, Acting: It's the action of man, who has to change from week to week for the entire duration of the Biennale, which defines the space and the type of the bond that is created between the visitors. [3] The artist and his collaborators modify with their actions the architectural space conceived as a large sculpture within which the public moves; it is a violent modification of the state of things, alternating comfortable and harmonious states, during which the public hardly lingers, much less paying attention to who else is inside the installation, to moments of instability and anxiety. This creates within the architectural envelope a specific tension (due to the discomfort) to which the public urgently needs to react by developing, in a spontaneous manner, temporary aggregation dynamics.
A kind of intimate and tacit collaboration between strangers, a collective sensitivity with the aim of overcoming stressful action thanks to the presence of other individuals with whom to share the experience.
The violent shock, the stressful action, becomes therefore necessary to stimulate the concepts of community and unification. People react, perhaps unconsciously, with the formation of a sort of community - often temporary - real and / or virtual, whose purpose is to unite forces in view of a common goal according to precise processes of cooperation, understood as a "group that acts for its own mutual benefit", sometimes in addition to the concept of solidarity, which instead implies a meaning of ethical-social commitment in favor of others. This phenomenon alone does not prevent - of course - the shock, but serves to strengthen the structural and psychological resistance of societies, acquiring awareness and educating to new policies and behaviour useful for improving future conditions.



The ability of reaction and self-organization of the individuals and the community as a result of a shock is therefore fundamental factor on which the resilience of a territory.

The resilient community uses social infrastructures to react to stress conditions, to adapt and transform itself transforming to cope with possible future risks and affect the decision-making process by actively participating in the formation of policies, since "the community can decide what could be its structure and its function, has the ability to forecast what could happen in the future and, therefore, can plan structure and function accordingly "(Lerch, 2016).

It could therefore be assumed that a functioning resilient strategy is a collaborative strategy, which also involves cooperation between individuals; that man is a social animal, that he cannot live individually without aggregating with his peers, is in fact known. But there are particular events that favor today the formation of groups of people. Nowadays, almost every day we are provided, especially through web platforms, examples of how stressful conditions following emergencies, natural disasters or terrorist attacks succeed in stimulating particularly strong aggregation and cooperation dynamic groups. More and more often, citizens experience "resilience practices" to find new formulas for living together and surviving crises, rediscovering the opportunities of a new sense of community where belonging, identity and cooperation become key elements of the development of well-being.
The citizens themselves, in fact, become an active part of the (virtual) communities by creating and supporting a network of information that demonstrates a particular moment of crisis that is being experienced at a given moment.
Facebook, Twitter and social media in general play a major role as a real-time information body, capable of disseminating information useful for crisis management. The virality of information is given by the simplicity of the language used on social media and the ability to group all related information to the same topic through the use of simple hashtags. A significant example is the case of the # earthquake phenomenon triggered by the seismic events of October 2016: thefool.it, site of analysis and monitoring of Brand Reputation and Influencers, analyzes and illustrates through an infographic the mapping of tweets published between 26 and 27 October with hashtag #terremoto, over 138,000 in just under 24 hours. The other trending topic [4] are #centroitalia, #perugia, #visso, mostly conveyed by official pages such as those of the Italian Red Cross or INGVterremoti and then taken from private profiles.
This process makes it possible to continuously create small virtual communities of simultaneous information, some of which can actually be transformed into strategic elements during the detection and management of emergencies, while others run the risk of turning out to be a double-edged sword if not conscientiously administered, producing unjustified disinformation, instrumentalization and alarmism.
Among the most significant episodes are projects such as terremotocentroitalia.info, a non-profit portal supported by volunteers, whose purpose is to share in real time useful and verified information on the seismic events that involved central Italy during 2016. The opensource site it is constantly updated and contains in a single community, based precisely on social media, all the useful contents in the event of an emergency, from the maps of the roads to that of the available accommodation, from the requests for needs, to the news, to the important "buffalo" section, which denies unreliable news that easily circulates on the web.
On the other side, the main risk of this great opportunity for dem-

JE SUIS
CHARLIE
JE SUIS

CHARLIE HEBDO
JOURNAL IRRESPONSABLE
TUERIE EN ÉGYPTE
LE CORAN C'EST DE LA MERDE
ÇA N'ARRÊTE PAS LES BALLES
CORAN

CHARLIE HEBDO
JOURNAL IRRESPONSABLE
FRANCIA
EL CHARLIE HEBDO ES UNA MIEEEELDA
NO PARA LAS BALAS
CHARLIE HEBDO

je suis CHARLIE
Monde de merde
JE SUIS CHARLIE

ocratic sharing in real time due to the widespread use of social networks is that, in the absence of an infrastructure based on "civil resilience" and designed consciously through awareness-raising operations, the answer to high reactivity in a condition of high stress reduces people's ability to develop a slower strategy in favor of a "collective hysteria" that triggers human primitive instincts.
The community - and consequently the community - then becomes no longer a potential instrument for an "active construction of resilience" with the aim of coping with catastrophic situations, but a representation of a freedom to claim rights, discontent, anger at the event stressful. The unbridled individualism that Bauman claims to have undermined the foundations of modernity prevails again, transforming the forms of virtual aggregation into "movements of indignation, which know what they don't want but not what they want" (Eco, 2015).
And, as shown by the trend topics of the last few years, the step from #jesuischarlie to #jenesuispascharlie has never been so brief; demonstrations of solidarity born with purposeful intentions soon become void of their original value and become a pretext for creating controversy.
These are usually temporary phenomena, positions that we can almost define as "fashionable"; as # jesuischarlie (or jenesuispas) we find temporary virtual groups that react to numerous phenomena, to the cry of #brexit or #baltimoreprotest or still #refugeeswelcome, and that if unchecked they risk to pour into the "real" communities and destabilize the society and the behavior of man, but if used with conscience and intelligence they can be transformed into effective tools for managing crisis phenomena.

A praiseworthy example of this possibility is shown by the entire network of initiatives born by the web and poured into the "real" community linked to the so-called "Angeli del Fango", during the floods that hit the city of Genoa in November 2011 and in October / November 2014. Dozens of young people have used social networks as the main tool to create not only a virtual network of solidarity, but also a concrete help by organizing, through appointments launched on twitter or facebook, groups of volunteers rushed from all over Italy, to go to help and shovel the mud (literally) in the areas most affected by the floods. These spontaneous behaviours have given rise to a series of actions that have gradually become really structured, from born of facebook pages *ad hoc*, where the numerous photos that portray citizens with volunteers communicate a sense of hope and above all of community, to the institutionalization of the role of "mud angel" within the civil protection, the naming of a street in honor of the volunteers, the sale of t-shirts with the claim "Non c'è fango che tenga" (made in 2011 and "dusted off" in 2014), the proceeds of which went to charity and which, still today, is, in some way, a source of pride for the wearer, a visible sign as evidence of their active role in the community that works together in their reconstruction.
In this increasingly fragile and complex world, where "if there are

Macelleria Equina
solo
cavallo

no difficulties, man is not stimulated to evolve" (Bauman, 2015) therefore an awareness of the potential that the intrinsic capacity of man to react gives us is necessary in the face of destruction events. Capacity through which it can make the most of changes to re-build a collective identity and create a collaborative network based on the spirit of solidarity, cooperation and civic engagement. The community, real or virtual, is necessary for man to face and react to states of crisis since "the fact that the community is always present makes us feel secure. It is not something fluid, liquid. He never abandons us; whenever we need to refer to the place to which we belong, it is always there waiting for us and this gives us comfort" (Bauman, 2013). This ability to create cooperation, together with technological development, can help generate a reorganization of the new stress reaction and prevention policies, in order to develop new strategies for territorial resilience.

Main References

AA. VV. (2015), *56a Esposizione internazionale d'arte. All the world's futures*, Marsilio Editori, Venezia

Bauman Z., Bordoni C. (a cura di), (2013), *Communitas. Uguali e diversi nella società liquida,* Aliberti Editore

Guglielminetti M. (2015), *Le comunità in movimento: dal Consumo alla partecipazione Culturale nelle reti digitali,* Carocci Editore, Roma

http:/.jasha.org

http:/enablingcity.com/home/

http:/thefool.it

http:/terremotocentroitalia.info

http:/hdr.undp.org

Human Development Report 2014

Sustaining Human Progress: Reducing Vulnerabilities and Building Resilience

Angeli del fango (literally mud angels). After the terrible floodings, in Genova, common people, most of them young students, helped in the recovery of the private houses and commercial activities.

Salvatore Iaconesi
AOS - ART [IS] OPEN SOURCE

TRANSGRESSION

Transgression is a transversal subject that closely touches other subjects like design, engineering, architecture, European projects, bio-politics of data, future design: in all of this subjects the concept of transgression is present.
Transgression is the best way to write our future.

About the meaning of transgression many authors have different opinions and I will use and depicted many of this opinions in his discussion.
The definition of the dictionary for transgression is: "an act that goes against a law, rule, or a code or conduct; an offence."
The understanding of this term – transgression – is based in the recording of small micro-histories that permit to understand the bigger ones: stories that are talking about the rules of our society and ourselves, in fact.
There are many rules in our society, many interdictions and many other situations – distortions – that are reacting in front of them.
A skater is transgressor? What is he doing? he is using something that is generally used for other objectives in an another way and this is great because, as a "transgressor" he is breaking really borders, he is recognizing this edges or borders, and recognizing conditions that can be new opportunities.
The handrail that is normally the opportunity to go safety down the steps, is used by skaters in a different way: the handrail is for the skaters also the opportunity to skate, to do something different. In the handrail they recognize a border, a limit, a boundary

NO
SKATEBOARD

NO
TRESPASSING

NO
HOMELESS

NO
HOMELESS

and they don't brake it, they move them and to move them they have to know that border.
In this example we can find the essence of the concept of transgression: the opportunity to read the reality in a new way, which is maybe better then the normal one.
"Transgression opens the door into what lies beyond the limits usually observed, but it maintains those limits just the same. Transgression is complementary to the profane world, exceeding its limits bit not destroying it." (Georges Bataille)
If we learn how to open our minds and recognize the opportunities that are given to us, avoiding any situation trying to trick us, we will be able to enjoy and promote innovation in many levels.
Transgression in fact.

Transgression
Transgression as a word and as a meaning, has two totally different sides, being always thought, on the same coin. One side is expressed by its definition; an act that goes against the law, rule, or code of conduct; an offence. The other one, is the side where transgression responds to a state of mind where someone recognizes the opportunities given to him in different way than others. He transforms the initial sense of each object.
While some people support the idea that innovation is created by Polyphonics or when some people talk about methodological indiscipline, we have to confront with a big problem. The bubbles that try to influence our choices, our thoughts and our needs. It is most likely that in the end, we probably choose what is offered to us. It becomes impossible to have the perception that there are other things to see, because of these bubbles and when the perception of possible decreases, becomes impossible to perform transgression.

Transgression implies going beyond a boundary,
a limit, but also its existence.

As described by Bataille in Eroticism, transgression opens the doors towards what is beyond the limits of what is usually observed, preserving them.

There is little space for transgression in this age of smart (smart cities, smart communities), of innovation and creativity. Thus, there is little space for conflict.
The creative class has already been absorbed by the industry. The larger part of production is of the derivative type, and in which only a limited few (the troublemakers) are able to really innovate.

How can preserve the possibility for conflict and transgression, to maintain all of their positive effects on the world?

BELEZA

Ezio Manzini
DESIS NETWORK

COSMOPOLITAN LOCALISM.
Scenarios of resilient sustainable societies

The world resilience is becoming more and more popular today. The importance of the concept is due to the sense of urgency of this historical, dramatic moment. A few recent examples are Fukushima tsunami and nuclear disaster (March 11, 2011); Hurricane Sandy in NYC (October 30, 2012); Lehman Brothers crash in NYC (September 15, 2008); and war refugees and migrants emergency in Europe. Disaster events are stressing society weaknesses, a democracy fragility worldwide. That's why the term resilience is growing in the interest.

Resilience is the system's capacity to cope with stresses and failures without collapsing and learning from the experience from an unknown threat.
In contemporary age events are often unpredictable. This implies the capacity of learning and coping with unexpected events. That's why connections and relations in a complex context are crucial in resilience. In particular, processes of place making show that recreating a community or community building is fundamental to create a sense of place, even if it is a fact of complexity from a political point of view.

TE COMERÍA A VERSOS

Resilience implies is a radical approach: socio-technical systems, to be resilient, must be radically changed, incorporating distributed systems and considering cosmopolitan localism.
Resilient systems are systems that are capable to learn from environment in diversity, redundancy, and feedbacks and to resist and efficiency produce solutions.
Fragility of human systems usually comes from a hyper-specialisation of functions, increasing the possibility of collapse after a change in the context. So, we should create a multiplicity of sense to help the system capability to learn and react.
'Distributed systems' are crucial. They are flexible, highly context-related units in socio-technical systems organized as networks of small scale. Governance have to generate new possibilities trough distributing knowledge, distributing energy, distributing production, distributing services, and distributing economies.
Design for Resilience means thinking distributed, thinking collaborative, and considering social innovation.
There are some interesting examples of social innovation in resilient cities, for example about neighbourhood care (in Norway, Chile, Brazil, Poland, France, and South Africa), community-supported agriculture (in China and Netherlands), and elderly mutual help (in China).
These examples generate social values and inclusion, though sharing and participation of communities, triggering new kind of scenarios.
We valued people are able to set solutions to intractable problems and social value production, including: collaborative neighbourhoods, social streets, neighbourhood care, street festivals, community gardens, co-housing, collaborative housing, couch surfing, circles of care, elderly mutual-help, micro-nurseries, car pooling, car sharing, food coops, farmers markets, zero-miles food, community-supported agriculture, community-based tourism, co-working, fab-lab, social incubator, fair trade, time banks, local currencies, etc....
Special emerging scenarios relate to local food and agriculture, open and distributed production, collaborative living, and collaborative welfare. An emergent a scenario of open, interconnected communities-in-place, with distributed systems as its infrastructure.
Design for cosmopolitan localism means that communities and places have to be consciously built as open, connected entities. This includes a design practice for community building and place making. Diversity of communities and places must be protected and increased, designing for enriching the socio-technical ecosystems diversity. Finally, design for cosmopolitan localism means that people who, initially, are mutually strangers can learn to live better, together.
This would mean designing "for cosmopolitan social commons". It is not easy, but we can make it, and we have to try.

5

Final Considerations

Manuel Gausa
ADD-DAD Department Architecture and Design - UniGe, Genova

MED.NET 3. RESILI(G)ENCE GOA RESILI(G)ENT CITY
Intelligent Cities /Resilient Landscapes

Final considerations

Throughout the RESILI(G)ENCE MEd.NET 3 meeting varied issues have been discussed and different experiences have been shown related to the possibility of combining urban intelligence and urban resilience as factors implicated with a more advanced urbanism and an innovating planning.
As final conclusions various considerations could be highlighted.

ABOUT KEY-TERMS
The 6 accepted main key-words of the Resilience notion can be understood through other synonymous-terms with similar but variable potentials, linked with some Intelligence parameters.
1- Anticipation calls to Pre-vision and Pre-diction (that is to a new type of informational and processing record-mapping).
2– Adaptation calls to Adaptability (more strategic and evolutionary, less categorical)
3– Resistance calls to Endurance (more flexible and structural)
4– Absorption calls to Integration (more relational and transversal)
5– Recuperation calls to Reactivation (more dynamic and operational)
6– Regeneration calls to re-information (more informational)

Perhaps the best narrative example of resilience is the fable of La Fontaine *Le Chêne et le Roseau*, where a large oak brags to a fragile

and slight rush of its power and showmanship to deal with nature, until an unexpected gust of wind from the north even his strength and initial resistance just thrown him, while the reed rocking, swaying and fluctuates -adapting to force the air-just keeping up.
But if for some point of view Resilience (engineering) can be understood as the capacity of a system to resist and absorb shocks, stresses and adversities coming back to an anterior or similar state, other vision (ecological) can understand *Resili(g)ence* as the capacity to react with shocks and stress and rebound and re-inform the system itself through the capacity of self-learning and (re)adaptation.
In this semantic framework, other terms can help to define the different approaches of the different panels and lectures presented in the Symposium.

1- PRECISION
(Panel 1: Managing–Mapping)
Or informational precision: as the capacity, today, of processing multiple and complex information, with objectivity, in real time conditions and with open source processes and technologies.
Data-maps, Data-scapes, Data-sensors, Data-records, talk about a more ubiquitous intelligence and objective approach that permit a better management and recording of the information for more efficient informational contexts and environments able to work with more anticipatory and comparative data-recognition and data analytics and synthesis.

2– VECTORISATION / INTENTION (ALISATION)
(Panel 1: Mapping–Planning)
The role of these data-records done with precision, optimization and efficiency must be combined with the capacity to orientate and conjugate synthetic projections (this is with the capacity to "manipulate", in the more procedural less than formal interpretation of the term, data-records and data-analysis) or better, to "intentionalize" (to vector) them in more qualitative and efficient scenarios.
This intentionality of data processes implicate a new strategic gaze, where conjugate information, conceptualization end projection, able to orientate dynamic and unpredictable situations in a combined and innovative multi-string (o multi-path) city evolutions.

3–ADAPTATION (CUSTOMISATION):
(Panel 2: Planning–Landing)
Today, systemic and global are landing in particular and specific (local and/or individual) declinations.
In terms of landscapes, lands and territories;
In terms of users;
In terms of relations, representation an communication.
The capacity to convert informational strategies in local operations, adapting themselves to multiple formats of recognition, adaptation and concretion, is in the base of new strategic gazes and methodologies.

In front of the old "homologation" codes the action with new diversified and multivalent protocols permit this combination between "(in)causes" and "cases" or "cases" and "(in)causes".

4- RESPONSIVITY/RESPONSIBILITY
(Panel 2: Landing–Designing)
In terms of theoretical efficiency, today these duet results absolutely pertinent in all languages; the substitution of the abused "smart" adjective for cities and environments (as spaces linked overall with the management of information) and the goal of new more reactive and empathic approaches where technologies and sensibilities, sensorisation and sensuality can work together in more responsive info-contexts, results fundamental in the contemporary urban research.

5– MULTI-COMUNITIES
(Panel 3: Designing–Socializing)
We can evidence the importance of a new idea of the communities, more diversified and anti-typological; more polyhedral and multi-faceted; non-homologate.

6– PUBLIC (ACTIVE) SPACES
(Panel 3: Socializing–Mapping)
And we can evidence also the importance of a new kind of public spaces as an active environment (as an ambient and process system) not only as a representative, evocative or functional but as a more ludic, productive and mixed infrastructure eco, intra end infrastructural.
The relation of these active public spaces with a new idea of operational landscape, an operational *topos* (topographic and topologic) linked with a new bolt ecology.

7– DECODIFICATION
(Panel 1: Mapping–Managing)
De-codification (as an interpretation of data-records) and de(s) codification (as a re-interpretation, a transgression or a translocation/provocation) of the old established/disciplined inertias.

8– PLACE
(Panel 2: Planning–Landing)
And, in this sense, the idea of place not only as a "site" or as a "context" but as a "field" of forces and as an "interface" of activate (inter and co) relations, at time.

9– "TAKE ADVANTAGE" DESIGN
(Panel 3: Designing–Socializing)
Design not only as a forma calligraphic action but as a strategic open process defined by flexible and synergetic operations of induction/(re)conduction able to work with threats and potentials at the same time: this provocative effect (narrative and descriptive and operational) able to work with prevision and unpredictability

(in all the senses) at the same time. With rigor and imagination, with technology and creativity.

10– CREATIVITY/INNOVATION
(Panels 1, 2, 3: Mapping–Managing, Planning–Landing, Designing–Socializing)
When we are confronted with the usual measurable indicators of the sustainability, associated to the record of our environmental resource approaches (water, energy, matter, Co2 effects, economy, mobility, social parameters or land-use dynamics) we manage apparently objective and comparative data. It seems that the term "Creativity" (subjective and cultural) can not be consider as a scientific sustainable indicator, specially in some contexts where ecology is synonym of "conservatism". But the progress of knowledge implicates the creative factor, not as a "singular extravaganza" but as an operational innovative implication. Where the innovation is the risk is also.
The resilience is also the capacity to accept the unexpected, and the sustainable intelligence is the capacity to evolve in interaction with the environment, accepting the risk of the new as a part of this evolving feed-back process.
Accepting and enjoying the innovation as a part of our human capacity, able to process the risk and to re-inform the system it self.
And for more efficient and sustainable urban systems, creativity, imagination, operational new expressions, could be part of our best habitat-environments.

10 + 1– LOCKDOWN
Lockdown - *confinamento* in Italian, *confinamiento* in Spanish, *confinement* in French - is a clearly real and actual topic which, proposed by Carmen Andriani, closes this decalogue (and these pages, with her final contribution). A term that understood both as a "block" and as a "closure", in and in-between borders, translates a situation applied to the old idea of city, territory or habitat, put in crisis in recent years; but the term reveals, today, a new interpretation that - like the key term *Resili(g)ence* that has guided this publication - must combine the cosmopolitan, global, networked opening of the new digital technologies and the new holistic logics of integration and interaction between dynamic systems - *hiper-connected* - and a new condition of domestic – local– "reinforcement", almost obligatory, favored not only for the pandemic but for the new communication relationships where the accelerated capacities of online flows are combined with a desire to "guarantee" and "efficient" safety in our own habitats (tending almost to near-distant prophylaxis) which definitively changes our exchanges and our behaviors.
Concentrations and dilations, **systoles and diastoles**, sequential or simultaneous, are combined today not only in the new urban models proclaimed at the beginning of the century but in our current social habits where *Net-City* **(Network-City)** *Nat-City* **(Natur(&)City),**

Co-City (**Common-City**) and *Self-sufficient-City* go more and more of the hand.
As Carmen Andriani writes:
"Lockdown is an international term: obsessively repeated by the media around the world, this compound and short word has earned its place on the long list of terms in global Esperanto.
The pandemic is in fact a planetary phenomenon, as are climate change and environmental urgency, as was the collapse of the twin towers at the dawn of the current century. It was then that we felt, perhaps for the first time, our all simultaneously vulnerability (...)
The current pandemic we are experiencing can be assimilated to these phenomena. It is global because it affects the whole planet; belongs to the family of 'sudden shocks' (such as an earthquake, a tsunami, a flood or a flood), it catches us unprepared and causes a catastrophe (...) involves structural damage to a system, capable of compromising it to the point of its irreversibility. It is therefore necessary to adapt quickly, testing the resilience capacity of both contexts and behaviors, it is necessary to quickly discuss new models of living, of organization of the territory and of the human activities that take place on it (...).
Home and City are once again two polarities intertwined again and differently and Nature, as a process, behavior and ability to survive, is another important compass for determining the route to follow ".

LAST BUT NOT LEAST

Climate Change and Entropic (and Anthropic) urban effects have produced unquestionable effects in our habitats that are at the base of this work. Although the word Resilience seems to have been used extensively in recent years, its apparent wear and tear should not distract us from the need and ability to generate a new type of development in our most responsible and creative environment.
If in the seventies the idea of urban reconstruction seemed the priority, if in the eighties the *urban arredo* (arrear) took a clear role; or in the nineties the idea of complexity associated with the multiple and multi-layer condition of the city played a prominent protagonist role, the beginning of the 20th century and the development of the digital time and the new technologies have combined the "2S" (smartness and sustainability) to give way to a new, more responsive concept of strategic, generative and co-participative, urban approach based in <4 IN> (information, interaction, integration and intelligence) still under development.
The words, at every moment, seem to broaden their echo and blur more and more rapidly. However, its content deserves a constant critical re-information and (also) a new type of crosses and combinations that, in the case of the voices Resilience and Intelligence *–Resili(g)ence* – try to take care of our habitats in a qualitative way: these progressive and proactive vision is what we have tried to present in this document.

Carmen Andriani
ADD-DAD Department Architecture and Design - UniGe, Genova

LOCKDOWN
Living the distance in the post-emergency city

Lockdown is an international term: obsessively repeated by the media around the world. This short and compound word has earned a relevant position in the long list of terms in global *Esperanto*. The pandemic is in fact a planetary challenge, as are the climate change and the environmental urgencies, and as they were the collapse of the Twin Towers at the beginning of the 21th century.

It was the moment in which we felt, perhaps for the first time, all simultaneously vulnerable, even though for most of us, New York was far away and we could consider ourselves largely out of danger. It was also the first time that the digital platform spectacularly demonstrated its perverse potential. Witnessing the event in real time, sharing the strong emotion of a live catastrophe, being inert witnesses on a global and media market, which suddenly became our planetary public space, turned out to be a traumatic experience difficult to remove from the all.

The **pandemic** we are now experiencing can be assimilated to these phenomena. It is global because it affects the whole planet; belongs to the family of **'sudden shocks'** (such as an earthquake, a tsunami, or a flood), catching us unprepared and causing a catastrophe, which is an event that in addition to 'bring ruins and pain' (*Aristotle*), it involves structural damage to a system, capable of compromising it up to its irreversibility.

Therefore, it implies a necessary and quick adaptability, testing the **resilience capacity** of both contexts and social behaviours; it is necessary to rediscuss new models of inhabiting the territory, of reorganizing it according to the human activities which take place on it. **Housing** and **City**, interrelated and reciprocal, once again take on different meanings. During the months of confinement and social distancing, the house was our private and public space at the same time. The cities, incredibly empty, have remained 'elsewhere', in our memory and in our imagination. The city was what we saw from the window, with a range of action limited to our gaze according to the view from our apartments. From a physical point of view, personal freedom has been penalized, while the opportunities for virtual sociality multiplied. If something positive remains of these new habits (i.e. the reduction of work travels, the time optimization, the better organization of activities, the more conscious use of digital devices, the new idea of domesticity, etc.), on the other hand what we missed more is the city in its socio-spatial characters, given that we are the city and the city needs us, the citizens to exist. Nothing better than **Juhani Pallasmaa**'s words to express this feeling: "I experience my presence in the city and the city exists through my embodied experience: the city and my body complete and determine each other. **I live in the city and the city lives in me**" (2005).
Never before have we noticed the physical evidence of this relationship: the importance of the body in the configuration and design of spaces and how much the condition of confinement has severely tested our **anthropic nature in favour of the virtual one**. This condition has placed anew at the centre man, as a living being and his destiny. In other terms, the same notion of housing had expanded to absorb different functions previously located elsewhere and the city has returned to an idea of wilderness never seen before. Tangible effects are the clear blue skies and improved air qualities, the silences crossed only by the gush of the fountains or the chirping of the birds, the clean water of the canals.

But how should we readapt the post-emergency city in order to carry out every activity in safety?
The first term to think about is *distance* (as a measurable space of relationship); the second is *density*, inevitably linked to the first. If the last fifteen years have been characterized by the shrinking of cities, by the implosion towards the centralities, by 'working around what already exists', reversing the process of urban expansion that had characterized the metropolises of the last century, now a new concept of distance linked to that of safety, corrects again the density indicators by asking new quality performances to the city. We need a responsive city capable of expanding in its functions and breathing in its innermost tissues, capable of weaving a new relationship with the ground and enhancing the emptiness value of open spaces. The topic of **open space** as a great equipped natural connective asset, together with a widespread and efficient **public mobility** are the two great challenges of the post-emergency city. A guaranteed accessibility in every point of the territory is the

first indicator to evaluate its democratic use. Ensuring public, safe mobility, able to organize and enhance both fast and slow mobility networks, is therefore the first step to support the new lifestyle and the new urban behaviours in the post crisis period.
Open spaces, understood as **relational, dynamic, collective and productive** surfaces but above all as *landscape infrastructures* for territorial connectivity, represent a key-topic. Given this unprecedented solicitation to social distancing and the expansion of the flows related to things and people, open spaces must be reinvented as new widespread, multifunctional and reversible catalysts for recreational, touristic, but also productive, cultural, and educational activities for the city.
Just thinking about the network of primary / secondary schools: these are services included within urban planning standards and community hubs. They can embody new design potentials if planned in on a multileveled network of urban services; educational and civic centres for socialization; integral component of the urban environmental infrastructure just described. At least the social inequality that this pandemic has accentuated would be mitigated.

Rome would be an excellent case study from which to start: polycentric metropolis since ancient times, still today the largest agricultural municipality in Europe, has in the *Roman countryside* to its advantage, an extraordinary historical and archaeological environmental asset that brings along quality wherever it arrives. Often it is only an **urban hinterland** that separates portion of cities rather than unifying fragments. It could become a continuous system of horizontal connections between urban-rural contexts. Infrastructures can no longer absolve to a monofunctional purpose, but must fulfil multiple environmental place factors, such as **mobility, energy supply, public health, leisure, food and ecosystem services**. In this way the city expands and usefully breathes without further consumption of land. Two other terms gain strength in this new design perspective: *maintenance* and *care*, as constant attention to what we have and what we must preserve as a common good.

The pandemic is still a powerful indicator of fragility on a global level, it has forced about four billion human beings to self-segregate for fear of a virus outbreak with tragic consequences. Even if it is a contingent fact that will be overcome, the certainty of an increased fragility remains. **Housing** and **City**, are once again two polarities intertwined and differently interrelated, while **Nature** is understood as a cycle of process, behavioural responses and survival skills for determining the route to follow.
Architecture can also contribute to this debate, in grasping the implicit questions and dealing with scenario building to anticipate the answers, especially in the ability to prefigure strategic visions. In the civic sense, Architecture can inspire multiple design proposals, understanding the city as a common and a public asset, strengthened by ethical sense and responsibility to *'substance hoped propositions'.*

ROAD
MAY
FLOOD

Contemporary complexity requires new tools: the old approaches based on a "defensive control" and a corrective contingency responses, are replaced by new "synergy policies" addressed through preventive proactive, adaptable and reversible actions, which combine ancient "scenarios of emergency" (risk areas) with new "emergency scenarios" (areas of opportunity).
The new resili(g)ent responses must work in a hybrid field: on one hand, prevention and mitigation of conflicts and risks through the interconnection and registry of systematized data (simulated or real-time), on other hand programming new kind of eco-planning and strategic interventions, referred to urban patterns and global territorial systems.

Adddoc Logos
Urban and territorial policies

9 788836 180653