

Generating impact and producing a domino effect

*Original*

Generating impact and producing a domino effect / Vigliocco, Elena - In: The Future Urban Legacy Lab. A report 2017 - 2021 / Coricelli F., Martini L., Robiglio M.. - STAMPA. - Torino : The Future Urban Legacy Lab / Politecnico di Torino, 2021. - ISBN 978-88-85745-69-8. - pp. 308-312

*Availability:*

This version is available at: 11583/2945534 since: 2021-12-15T12:43:11Z

*Publisher:*

The Future Urban Legacy Lab / Politecnico di Torino

*Published*

DOI:

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(Article begins on next page)

# the Future *Urban Legacy* Lab

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a report  
2017-2021



# HOW TO: read this book

## TONE OF VOICE

Hello! This is the RED BOX, the voice that will guide you through all this publication. There will be different red boxes visible all around the book as a guide to the topics. They are the narrative voice accompanying the reading.

The voice can function as an introduction, or describe quantities and facts of a given subject.

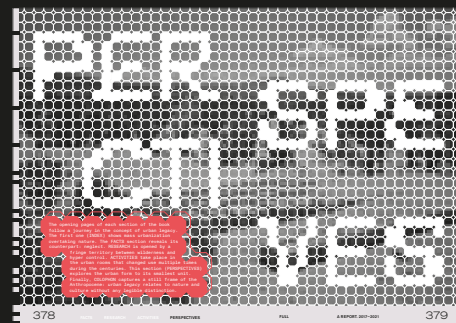
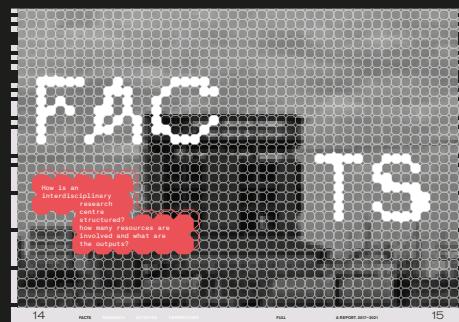
As the red box suggests, there will be a guidance in all the book based on hints, little stories and numeric informations. This first part in black background is an introduction to all the different elements you will find in the book.

# HOW TO: read this book

## BOOK STRUCTURE

The book is divided in 4 main chapters which are: **FACTS, RESEARCH, ACTIVITIES, PERSPECTIVES.**

Every chapter is guided through it's specific color and contains various formats of text, subchapters, deepening on the topics and explanations of specific projects.



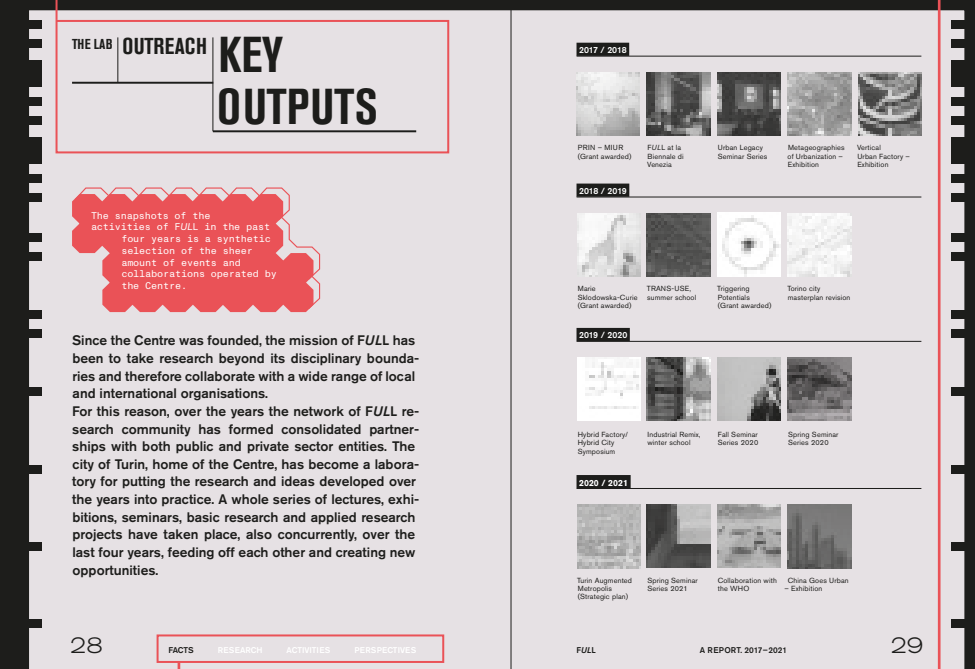
# HOW TO: read this book

## PAGES STRUCTURE

Every page has guidance tools to help the navigation of the book:

The chapters and sub chapters are guided also through little crumb threads.

The lateral color, which draws on the fore edge of the book a pattern representing **FULL's** logo, can help in the navigation through the chapters (colors refer to different chapters).



Here you can find the position of the chapters and in which chapter you are.

# HOW TO: read this book

## CHAPTERS CONTENTS | some advices referred to the Research chapter

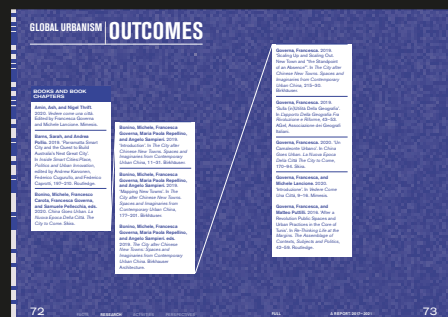


Please, pay attention to the higher complexity of structure of the **RESEARCH ISSUES**: you will find eight sub-parts referring to eight **ISSUES**.

Please also note that every issue will have a **specific code** to follow that you can check on page 40.



Every issue contains a certain number of researches explained. Each research has a shorter or longer description, depending on the author's preference.



Every issue has an ending **annex page** called **OUTCOMES**. The subchapter has diverse typologies of bibliographic content.

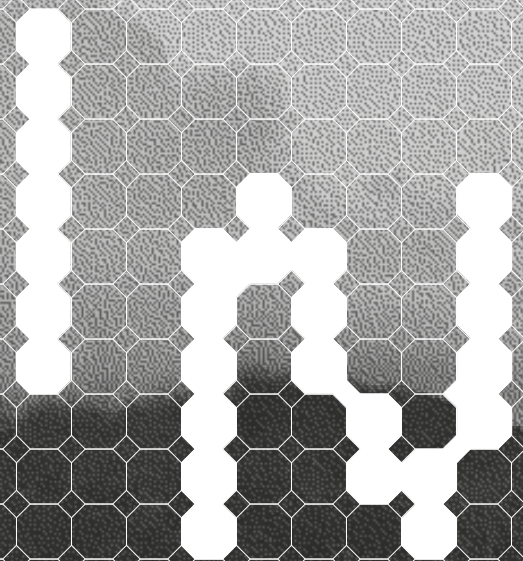


In addition to the chapters, positioned at the end of every **ISSUE** of the **RESEARCH** chapter there will be green background pages containing a **glossary**.

You will see **KEYWORDS** appearing as taken from quotes during lectures and seminars hosted by **FULL**. They are linked to the issues but they can be considered as an interlinked glossary.

The keywords are the following:  
**INTERDISCIPLINARITY, REPRESENTATION, SQUATTING, HERITAGE, EFFICACY, CULTURE, TRADITION, TOOLS, TECHNOLOGY, LEGACY, MORPHOLOGY, HYBRID, SPECIFICITY, PRODUCTIVITY, ARTIFICIAL INTELLIGENCE, PLATFORM ECONOMY, RENOVATION, RIGHTS, INNOVATION, REAL ESTATE, CULTURAL HERITAGE, PLANETARISM, CARTOGRAPHY, UNESCO, NOSTALGIA.**





FULL

One of the main challenges of FULL is to combine consistent research with a rich program of talks, lectures, and teaching. In this table of contents the activities of the Centre are separated by the research section for clarity, but in reality are mutually interconnected.



# FACTS

14

Here we present our organization. With an overview of all the relevant information about the research centre.

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# RESEARCH

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A detailed account of our research production, made of research projects, applied researches and PhD researches.

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POST – PANDEMIC CITY	292

# ACTIVITIES

316

During the past four years FULL hosted numerous events and talks. We invited guests from the most diverse disciplinary fields. These kind of activities unfolded in different media and can be found on our Vimeo channel and our Podcast channel.

TEACHING	320
SCHOOLS	334
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# PERSPECTIVES

378

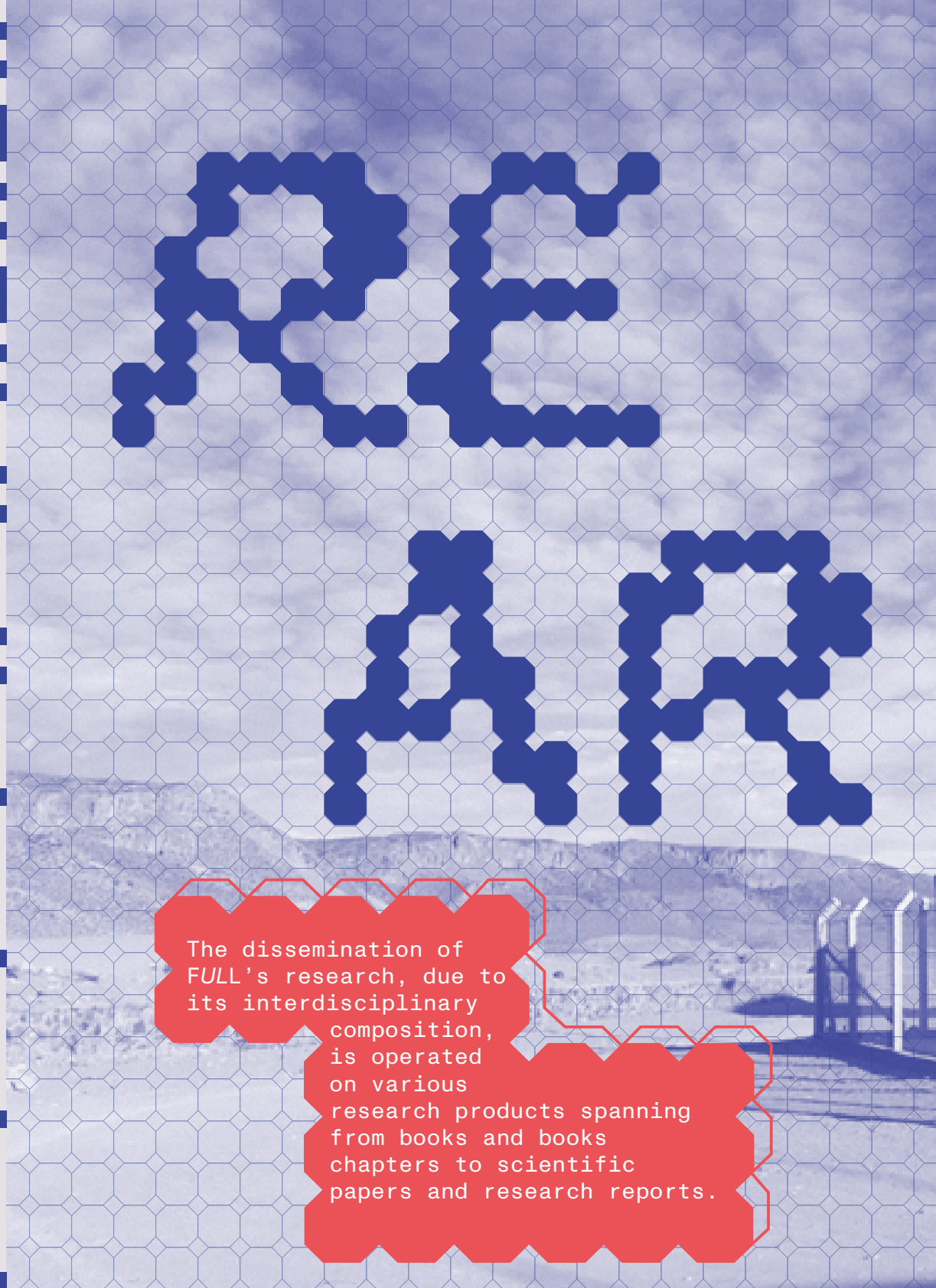
Here we discuss the trajectory described by FULL during the years and some possibilities for the future.

A CONVERSATION WITH FULL RESEARCHERS	380
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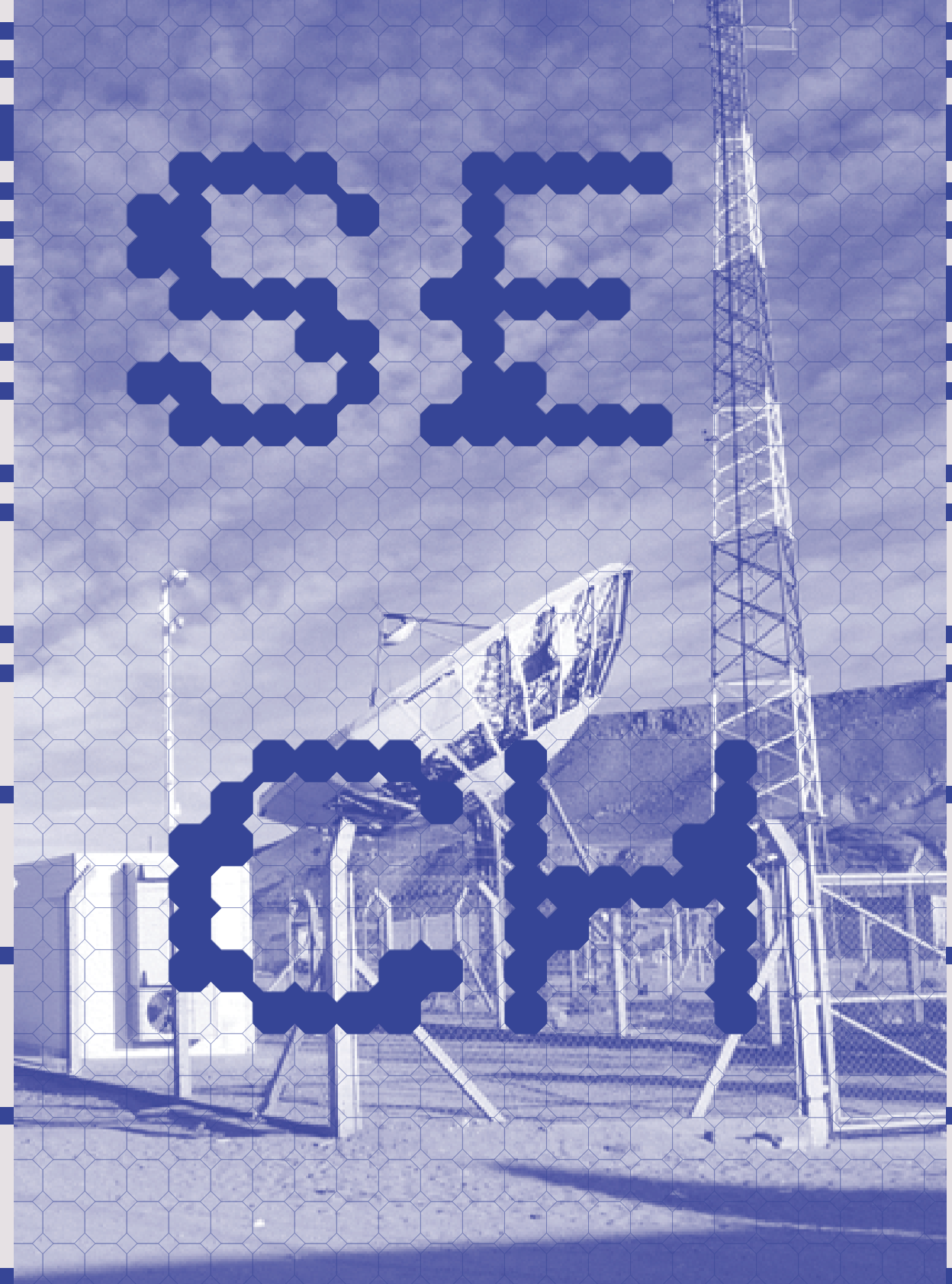
# COLOPHON

400

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The dissemination of  
FULL's research, due to  
its interdisciplinary  
composition,  
is operated  
on various  
research products spanning  
from books and books  
chapters to scientific  
papers and research reports.





# RESEARCH ISSUES

We grouped our vast research production in eight main issues. Each issue aims to provide answers to global research issues related to the environment, territories and the city.

GU

= acronym of the research issue

GU

## GLOBAL URBANISM

**SURGE.** Chinese Financialisation and Urban Change in East Africa (Marie Skłodowska-Curie Action)

Rescaling the Belt and Road Initiative: urbanisation processes, innovation patterns and global investments in urban China

Hinterlands of the green transition. Atacama, lithium and the extended geographies of the zero-emission city

Infrastructure scripts. History and futures of urbanisation along the Ethio-Djibouti Railway

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### KEYWORDS

LEGACY  
REAL ESTATE  
CARTOGRAPHY  
NOSTALGIA

NPL

## NON-PERFORMING LEGACIES

80

Adaptive reuse scenarios

The buildings inside the Cittadella of Alessandria

Geophysical surveys and preventive archaeology. Ground-penetrating radar survey of pre-existing structures in the Bergoglio district (AL) under the Piazza D'Armi (Parade Ground)

Reactivation of non-performing cultural heritage

Manufacturing Technology and Competence Center Turin

Adaptive Remediation

Loft Working

The Potential of form. Assessing the transformative potential of existing buildings in post-functional Europe

The Workspace [R]evolution. The comeback of Incubator and its role in the New Urban Economies

### KEYWORDS

CULTURAL  
HERITAGE  
HERITAGE  
UNESCO  
TRADITION

EOU

## ECONOMIC ORGANIZATION AND URBAN SPACE

136

Italy is the Air(bnb). The uneven diffusion of short-term rental markets between urban locations and selective tourism destinations

Seizing local entrepreneurial opportunities in the platform-based era. Airbnb, gig entrepreneurs and middlemen

Impact of Covid-19 on the strategic choices and performance of hosts. An empirical investigation on peer-to-peer accommodation platforms

Urban retail

Agglomeration and the Italian North-South divide

Shifting the triangle

University research funding, patenting and technological impact, European Patent Office (Academic Research Programme)

Airbnb in the real estate financial chain. Housing and policies in Southern Europe post-crisis territories

Retail, Agglomeration and urban Morphology

### KEYWORDS

PLATFORM  
ECONOMY  
HYBRID

TUL

## TRANSFORMATIVE URBAN DESIGN AND LANDSCAPE

166

Re-coding. Rethinking the rules of cities

Turin Augmented Metropolis

A new regional regeneration model in Lombardy

Reconstructions. Design tools after emergencies. Seismic transitions, from temporariness to permanence

Servitude of form. Comparative urban property and building rules

### KEYWORDS

MORPHOLOGY  
SPECIFICITY  
PRODUCTIVITY  
RIGHTS

NHI

## NEW HOUSING ISSUES

200

Contemporary rentscales

New Domestic Rentscape. A Critical Insight into Middle-class Housing

Community-led housing development. A key ingredient for a new housing architecture and policy

Tailor-made housing. How to improve housing affordability and adequacy through innovation of the cohousing model

### KEYWORDS

CULTURE  
SQUATTING

DT

## DIGITAL TECHNOLOGIES AND DATA SCIENCE FOR CITIES

222

Urban mobility

Digital Open Urban Twin /  
3D city model

Augmented reality heritage

Triggering Potentials. The enhancement  
of urban cultural heritage as a strategy  
to reactivate city regeneration  
processes.5G USE CASE. Smart Tourism.  
The potential of the 5G infrastructure to  
enable micro-localized content for  
tourism

5GAA demo

City Twin. Digital urban models  
between description and abstractionMobility applications for a smart city  
environment

## KEYWORDS

TECHNOLOGY  
TOOLS  
ARTIFICIAL  
INTELLIGENCE  
INNOVATION

UC

## URBAN CLIMATE ACTIONS

266

Design Management Dynamic  
Tool (DMDT)

Urban Agriculture

Holistic approach for large PV plants  
design and operation

Architecture for urban agriculture

Smart Energy Solutions  
for Sustainable Cities and Policies

## KEYWORDS

INTERDISCIPLINARITY  
RENOVATION

PPC

## POST-PANDEMIC CITY

292

Severe Acute Respiratory Infections  
Treatment CentreRe-school. Rethinking the school,  
starting with spaces

Real Estate Innovation Manifesto

Next Generation Urban River Park

## KEYWORDS

REPRESENTATION  
PLANETARISM



# INTER-DISCIPLINARY MAP

## GLOBAL URBANISM

SM AD UDP BME EPG

## NON-PERFORMING LEGACIES

CRA HA RA AD  
UDP BME EPG AG

## ECONOMIC ORGANIZATION AND URBAN SPACE

SM AD UDP BME EPG

## TRANSFORMATIVE URBANISM AND LANDSCAPE

SM AD AT UDP  
EPG BPS SEE

## NEW HOUSING ISSUES

CRA AD BME

## DIGITAL TECHNOLOGY AND DATA SCIENCE FOR CITIES

SM AD AT UDP  
BME EPG NA IPS TC

## URBAN CLIMATE ACTIONS

SM AD AT UDP  
BME BPS

## POST-PANDEMIC CITY

SM AD AT EPG

## DEPARTMENT OF ARCHITECTURE AND DESIGN

**CRA** Conservation and restoration of architecture

**HA** History of architecture

**RA** Representation of architecture

**SM** Surveying and mapping

**AD** Architectural design

**AT** Architectural technology

**UDP** Urban design planning

## DEPARTMENT OF CONTROL AND COMPUTER ENGINEERING

**NA** Numerical analysis

**IPS** Information processing systems

**TC** Telecommunications

## INTERUNIVERSITY DEPARTMENT OF REGIONAL AND URBAN STUDIES AND PLANNING

**UDP** Urban design planning

**BME** Business and management engineering

**EPG** Economic and political geography

## DEPARTMENT OF ENVIRONMENT, LAND AND INFRASTRUCTURE ENGINEERING

**AG** Applied geophysics

**SEE** Sanitary and environmental engineering

## DEPARTMENT OF ENERGY "GALILEO FERRARIS"

**TIS** Thermal engineering and industrial energy systems

**BPS** Building physics and building energy systems

Every research issue requires a variety of disciplinary expertises borrowed from each of the seven departments.

## DEPARTMENT OF MANAGEMENT AND PRODUCTION ENGINEERING

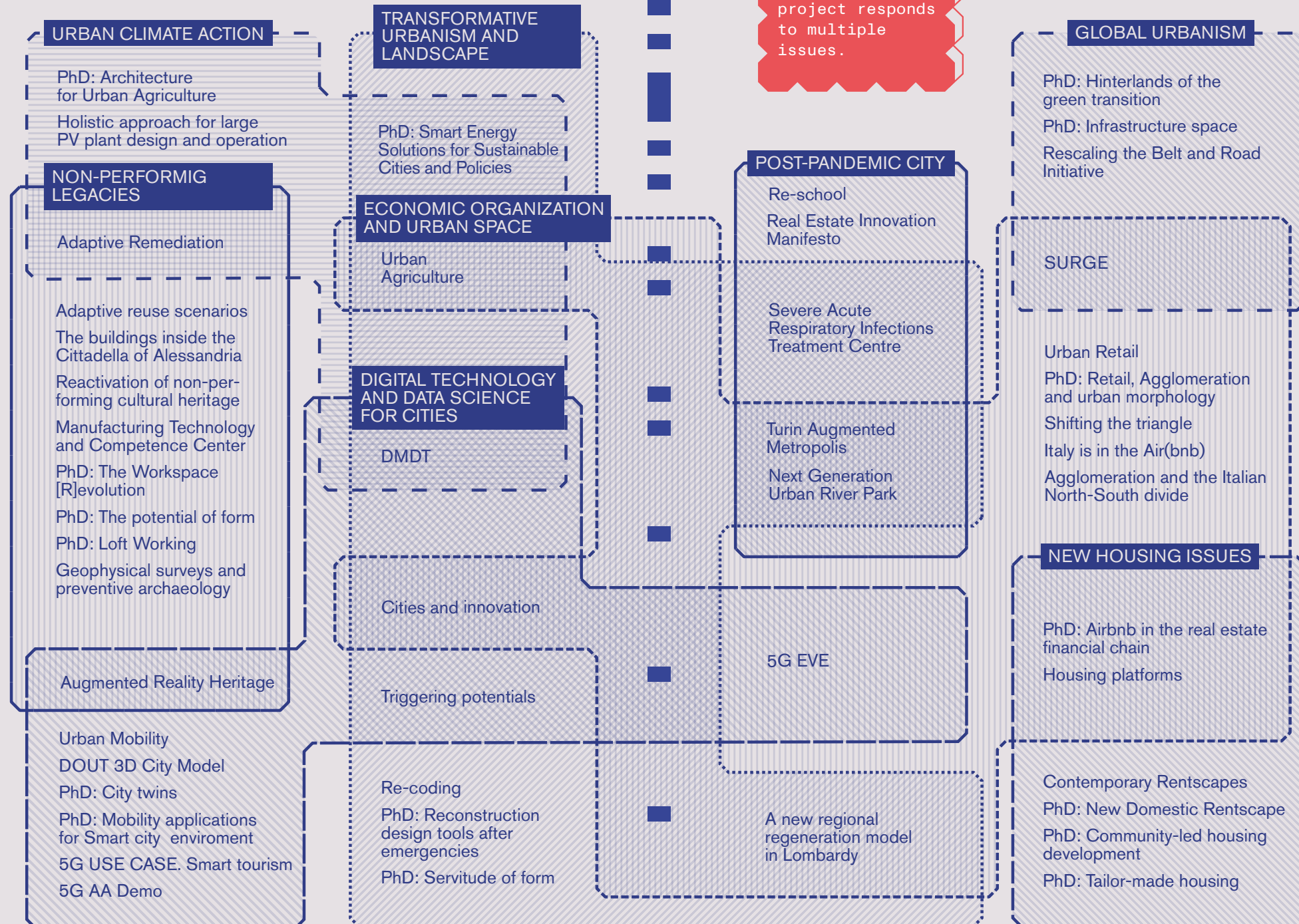
**BME** Business and management engineering

## DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATIONS

**IPS** Information processing systems

**TC** Telecommunications

The following map shows the connections and intersections of FULL's research. In most of the cases a single project responds to multiple issues.



# POST - PANDEMIC CITY

UCA

Which architectural and urban strategies should be applied to face COVID19 emergency?

During the initial outbreak of the pandemic, *FULL* researchers gathered to understand how they could proactively contribute to the ongoing emergency through their research. The role of schools was and is central to the debate on the reaction to the pandemic. Collaborating with Fondazione Agnelli, a team of *FULL* researchers provided

evidence that Italian schools have many unused spaces that could be open to the city surroundings. *Re-school* produced a set of strategies to implement the urban role of Italian schools that envisions futures well beyond the post-pandemic period.

In Italy, one of the main political challenges for the future is how to renovate efficiently the decaying public stock of school buildings. These buildings are often rich of unused or underused spaces, that could serve for the involvement of local communities especially in hardly accessible areas.



With the same ethos, a team of researchers embraced the challenge to design and measure the feasibility of healthcare structures for the treatment of acute respiratory illnesses (like COVID-19) in the Global South. The World Health Organization directly commissioned the ongoing research.

The *Next Generation Urban River Park* focuses on the revitalization of the major urban park in Torino. The *Real Estate Innovation Manifesto* seeks for alternative ways to develop the city also taking into account wellbeing and healthcare issues.

Severe Acute Respiratory Infections Treatment Centre

296

Re-school. How to rethink the school starting with spaces

299

Real Estate Innovation Manifesto

306

Next Generation Urban River Park

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# Next Generation Urban River Park

TYPE  
Research project

YEAR  
2021- ongoing

TEAM  
Scientific Coordinators:  
Matteo Robiglio,  
Elena Vigliocco

Team:  
Roberta Ingaramo,  
Roberto Revelli,  
Matteo Robiglio,  
Tiziana Tosco,  
Elena Vigliocco,  
Angioletta Voghera

Executive coordinator:  
Laura Martini



Parco del Valentino is one of the city's best-loved parks and a place where the city's collective memory is condensed. This is the place where Christine of France chose to build her royal residence in the 17th century, enlarging and transforming a river villa overlooking the Po. It is also where the International Exhibitions of the late 19th and early 20th centuries were held, as well as the Valentino Grand Prix motor races. Today, the park, which is the

The Parco del Valentino is the major urban park of Torino. The EU Recovery Fund aims to regenerate it as a strategic site for the post-pandemic city.

centre of gravity of the Po river system, is an important place for the people of Turin, both because it is enjoyed by many on a daily basis and because

it contains tangible evidence of its history that is still visible to this day. Some examples include the Castello del Valentino and the Borgo Medievale, but also architectural structures with a more recent history, such as Torino Esposizioni. As part of the Next Generation EU funding, the Italian Ministry of Culture has identified the enhancement of Parco del Valentino as one of the 14 cultural attractions located in Italy to be rehabilitated through ad hoc funding and planning. Of the €1,460 billion programmed for the 14 strategic sites, the funding set aside for enhancing Parco del Valentino is €103 million.

The aim of the master plan is to enable the City of Turin to identify the most effective spending strategy aimed at maximising the effect of investments related to the expected structural funds in order to produce positive socio-economic impacts and lasting domino effects.

## Generating impact and producing a domino effect Elena Vigliocco

From the point of view of assessing the impact of cultural heritage investments on local and non-local economies, research and studies conducted at European level clearly show how cultural heritage generates positive economic, social, cultural and environmental impacts. The mapping developed by the European

project Cultural Heritage Counts for Europe (2015) highlights the potential of cultural heritage as a key factor for sustainable and inclusive development. The data collected and presented shows that preserving cultural heritage functions as a ‘multiplier’ through which investments can have positive impacts beyond those initially foreseen, thus increasing the level of benefits and sustainability of the initial investment.

From the perspective of having to use collective resources to conserve heritage of cultural interest, the allocation of resources becomes a central issue in relation to the exceptional number of properties identified as such. The ICOMOS document entitled European Quality Principles for EU-Funded Interventions with Potential Impact upon Cultural Heritage (2019) introduces seven assessment criteria through which to measure ex ante the resulting potential economic value of cultural heritage. The seven criteria are: (1) knowledge-based: research and knowledge of the asset; (2) public benefit: remembering the responsibility towards future generations; (3) compatibility: maintaining the ‘spirit of the place’; (4) proportionality: doing what is necessary but as little as possible; (5) discernment: calling on previous knowledge and experience; (6) sustainability: making sure the intervention lasts; (7) good governance: controlling the process as part of the intervention. These criteria represent the interpretative grid through which the master plan for enhancing Parco del Valentino is planned and constructed.

Dimensional data:

Overall area	421.000 m <sup>2</sup>
Areas of the buildings on which intervention is taking place	54.094 m <sup>2</sup>
Surfaces made more permeable	20.000 m <sup>2</sup>

The aim of enhancing Parco del Valentino is to increase the appeal of the park and the axis of the Po through a blend of actions woven into the site to generate positive socio-economic impact and trigger a domino effect. The ultimate aim is both to renew the attention of residents and to encourage the new interest of users interested in cultural and sustainable forms of tourism.

In order to pursue these aims, the City of Turin intends to act along two lines of action:

1. Environmental redevelopment of the park as a tourist attraction and centre for higher education.
2. Redevelopment of municipally-owned buildings, including those currently used for entertainment activities, which are a key element in the perception and use of the park as a place of leisure.
3. The aim of the master plan is to enable the city to identify the most effective strategy to maximise the effect of investments related to structural funds in order to produce socio-economic impacts and a lasting domino effect.

The aims of the master plan are:

1. Define the destination hypothesis/hypotheses of the different structures present with the aim of providing the city with a mix of compatible and sustainable uses (alternative hypotheses).
2. Define one or more hypotheses for the distribution of funding (rules and stakeholders).
3. Compare different ways of managing projects and related contracts (variety of contract types).
4. In relation to the different design and procurement methods, establish the timeframe for completion and testing of the works.
5. Identify a project management and governance model (direction).
6. Identify any synergies of the project with other funds related to digitalisation and communication. In order to maximise the effectiveness of the master plan, a multidisciplinary and systemic approach is proposed to reconnect the preliminary and indispensable interpretative aspects with the project scenarios that will be identified.

The master plan is divided into two closely interconnected macro sections. The aim of the first section is to assess the residual and unexpressed potential of the area under investigation.





The drafting of the study subdivides the observation into two levels of detail: the micro-scale, in which the intrinsic potential of the Valentino park system is assessed (open and closed spaces, types of users, stakeholders involved, etc.); the macro-scale, in which the park is interpreted as a piece of two urban interpretative systems: the ecological system connected to the river stretches that interconnect the large urban parks; and the cultural and leisure system that expands above all in relation to the city's cultural centre, but then has clear ramifications throughout the city. The aim of the second section is to construct alternative intervention scenarios enabling the City of Turin to orientate (or reorientate) the renewal and enhancement process in order to maximise the socio-economic impact of the planned investments. In this second section, we intend to develop alternative, perhaps more 'adventurous' scenarios to suggest options that could intercept the progressive identification of the spending 'rules' that at the moment are not completely defined. Each scenario will be developed from the point of view of identifying the layout of uses, the necessary investments, the timeframe of expenditure and, finally, the related opportunities and critical issues. The idea is that the master plan may be an open, but not undefined instrument, capable of suggesting options that might be activated depending on the conditions that may arise.

## SCIENTIFIC PAPERS

**Nigra, Marianna, Simonetti, Marco, Galleano, Luca, Robiglio, Matteo.** 2021. Natural ventilation in support of health structure in context of scarcity during pandemic. Architectural Engineering and Design Management (submitted).

**Nigra, Marianna, Simonetti, Marco, Galleano, Luca, Robiglio, Matteo.** 2021. Sustainable Innovation for Emergency. Sustainability (submitted).

**Nigra, Marianna, Simonetti, Marco, Galleano, Luca, Robiglio, Matteo.** 2021. Designing Innovation with Nature – The Burkina Faso Experience. Architectural Engineering and Design Management (submitted).

**Nigra, Marianna, Simonetti, Marco, Galleano, Luca, Robiglio, Matteo.** 2021. Climate and Pandemic: Two Key-Factors for Sustainable Innovation Design. Architectural Engineering and Design Management (submitted).

**Barioglio, Caterina and Daniele Campobenedetto (edited by).** 2021. Re-school. Ripensare la scuola, a partire dagli spazi, DAD – Politecnico di Torino.

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**Gavosto, Andrea, Marco Gioannini, Stefano Molina, Raffaella Valente, Matteo Robiglio, Caterina Barioglio, Chiara Iacovone, et al.** 2020. 'Fare Spazio. Idee Progettuali per Riaprire Le Scuole in Sicurezza'. Future Urban Legacy Lab - Politecnico di Torino.

**Robiglio, Matteo, Caterina Barioglio, Daniele Campobenedetto, Marco Cappellazzo, Giulia Sammartano, Andrea Gavosto, Raffaella Valente, Martino Bernardi.** 2021. Analisi sui dati dell'Anagrafe Regionale dell'Edilizia Scolastica in Lombardia.

CONFERENCE  
PROCEEDINGS

**Nigra, Marianna, Simonetti, Marco, Galleano, Luca, and Serale, Gianluca.** 2021. 'The Role of Natural Ventilation in Designing an Airborne Disease Treatment Centre in Burkina Faso', Plea Conference: "Will cities survive? The future of sustainable buildings and urbanism in the age of emergency."

**Nigra, Marianna, Simonetti, Marco, Galleano, Luca, and Serale, Gianluca.** 2021. Sustainable Innovation for Emergency: The Design of the UNICEF High Performance Tents. ICED 23: 'Design in a Complex World'