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Daniele La Rosa
Riccardo Privitera *Editors*

Innovation in Urban and Regional Planning

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Editors

Innovation in Urban and Regional Planning

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Volume 1

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Editors

Daniele La Rosa
Department of Civil Engineering
and Architecture
University of Catania
Catania, Italy

Riccardo Privitera
Department of Civil Engineering
and Architecture
University of Catania
Catania, Italy

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Preface

The 11th Edition of the International Conference focuses on how to integrate nature-based solutions in urban and regional planning processes and science. Previously planned for September 2020, due to the COVID-19 pandemic the INPUT 2020 Conference will be hosted in 8–10 September 2021 by the University of Catania (Italy).

The overarching theme of INPUT 2021 edition is “Integrating Nature-Based Solutions in Planning Science and Practice”. There is growing evidence that nature-based solutions (NBS) are strategic instruments to restore or improve the functionality of urban ecosystems towards more livable, healthier and resilient cities. Despite their many advantages, NBS are not widely implemented because the evidence of their effectiveness is not yet sufficiently diffused among policy-makers, city-planners and residents and because NBS are often overlooked due to the complexity of their design and lack of normative instruments supporting planning choices. In order to permanently incorporate NBS into planning instruments, more research and international discussion are required to consolidate the fragmented evidence that NBS can significantly improve the overall degree of environmental sustainability of contemporary cities.

INPUT 2020 gathers international scholars in the fields of planning, civil engineering and architecture, ecology and social science, to build and consolidate the knowledge and evidence on NBS and to help an efficient implementation and replication of solutions.

The INPUT 2020 Conference hosts 14 thematic sessions, namely:

- Enhancing the use of nature-based solutions in urban planning
- Modelling to innovate planning solutions for socio-ecological systems
- Input visions: new technologies, data and hybrid models for spatial planning
- Urban metabolism and simulation for decision-making in spatial planning
- Performance-based planning
- Computational planning
- Geodesign for informed collaborative spatial decision-making

- Planning and design of ecosystems services: assessment frameworks, models, mapping and implications
- Green infrastructure for planning healthy urban environments
- The mitigation of peripheralization risk in urban and regional planning
- Strategies and actions for climate change adaptation and mitigation in mediterranean regions
- Analysis and planning of rural landscapes
- Accessibility in urban planning: moving towards innovative approaches
- Maintenance, upgrading and innovation in cultural heritage

This book presents the first collection of 69 contributions submitted to the INPUT 2020 Conference, following the first call for paper launched in Winter 2020. The accepted articles, after a blind-review process, are here organized in 5 topical parts, which group together the 14 thematic sessions of the conference:

- Nature and Ecosystems for Urban Systems
- Models and Technologies for Spatial Planning
- Climate Change and Spatial Planning
- Peripheries, Rural and Cultural Landscapes
- Accessibility in Urban Planning

INPUT 2020 proceedings explores empirical as well as theoretical frameworks for NBS, their attitude to provide ecosystem services, to deal with climate change effects and to support mitigation and adaptation planning strategies. Integration of NBS in planning science and practice is investigated across different contexts and scales, from urban cores to peripheries as well as from rural to cultural landscapes. Above all, this collection presents the state of the art of modelling approaches and innovations employed in urban and spatial planning, with a trans-disciplinary, boundary-less character to face the complexity of contemporary socio-ecological systems and following a practice-oriented approach aimed to problem solving.

INPUT is a group of Italian academic researchers and academics working in different fields related to the exploitation of innovation for urban and regional planning, with particular reference to geo-informatics and socio-ecological aspects of spatial planning. INPUT Conference is held every two years in Italy, with last editions been hosted in Viterbo (2018), Torino (2016), Cagliari (2014) and Potenza (2012).

INPUT 2020 Conference is organized by [LAPTA](#), a research laboratory of Department of Civil Engineering and Architecture of the University of Catania (Italy), working on sustainable urban and landscape planning.

Catania, Italy
December 2020

Daniele La Rosa
Riccardo Privitera

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Applying Geodesign in the City of Bologna (Italy): The Case Study of the Navile Region



**Alfio Conti, Ana Clara Mourão Moura,
Gustavo Adolfo Tinoco Martinez, Simona Tondelli,
and Susanna Patata**

Abstract The present paper deals with the participatory planning experience of Geodesign workshop of the Navile area in the city of Bologna, Italy, held at the end of May 2019. The work describes the steps to develop the workshop, in accordance with the Geodesign framework, the results obtained and those aspects to take into consideration to improve the application of the Geodesign methodology.

Keywords Geodesign · Participatory planning · Urban planning

1 The Geodesign Methodology in Bologna

The workshop of Navile area, held at the end of May 2019, came from the idea to test the Geodesign framework for participatory planning in the city of Bologna, Italy, for the first time. The Geodesign methodology was chosen due to its collaborative approach that allows including all aspects of participation by combining the traditional form, also used by other methodologies, with the use of modern collaborative digital platforms. This method allows not only to manage conflicts and disagreement, arising from the fragmentation of the decision-making power, but also above all to re-establish the participative relationship among stakeholders

A. Conti (✉) · A. C. M. Moura · G. A. T. Martinez
Federal University of Minas Gerais, Belo Horizonte, Brazil
e-mail: contialfo@gmail.com

A. C. M. Moura
e-mail: anaclaramoura@yahoo.com

G. A. T. Martinez
e-mail: gustavo.arq.2016@hotmail.com

S. Tondelli · S. Patata
University of Bologna, Bologna, Italy
e-mail: simona.tondelli@unibo.it

S. Patata
e-mail: patata.susanna@gmail.com

with strong social mark, to better express demands and concrete solutions. The quality of life in cities and urban settlement can thus be improved, planning the urban space in a democratic and collaborative way. The Geodesign makes it possible thanks to the composition of a multidisciplinary group involving all the stakeholders. Through the set of techniques, steps and models, which composed the methodology (Fig. 1), the Geodesign allows to face the high level of complexity present in the urban and regional systems, and to achieve coherent solutions that can be integrated into public policies. The framework, developed by Steinitz (2012), is based on six models (representation, process, evaluation, change, impact and decision) that answer six questions (how should the study areas be described? How does the study area operate? Is the current study area working well? How might the study area be altered? What differences might the changes cause? How should the study area be changed?). It is not a rigid and linear framework, since it allows different paths with turns and restarts, because the models and the relative questions are checkpoints, which it is necessary to pass. By applying each model and answering each question, it will be possible to achieve a final result as a final outcome of the interaction and decisions consensually made, about a specific context, by all the participants engaged (Moura and Campagna 2018). This is an agile and efficient process, conducted with small groups of people with different interests, whose disagreements are solved through negotiation rounds that facilitate dialogue and consensus-based solutions.

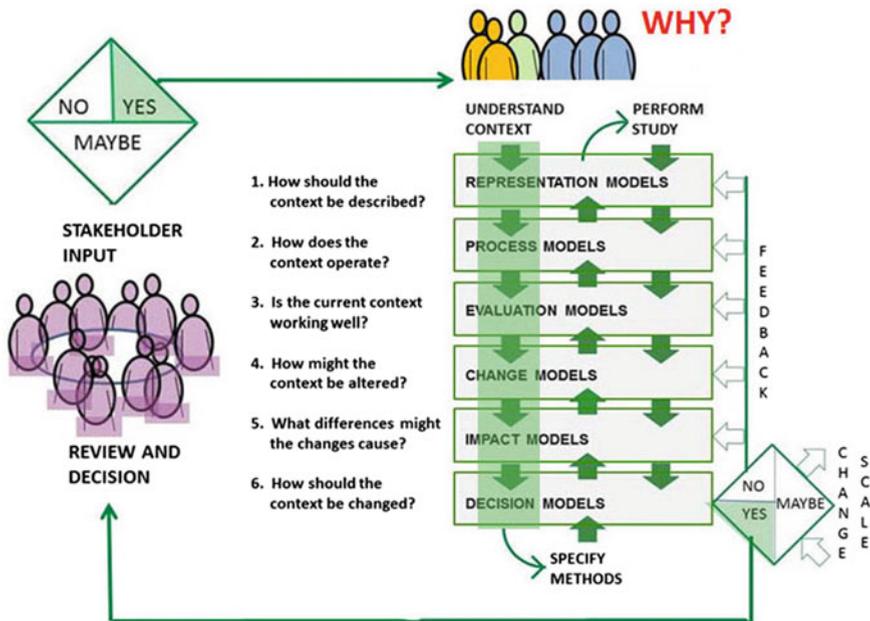


Fig. 1 Carl Steinitz's Geodesign framework

2 The Future of Navile District

The Navile area is located in the northern part of Bologna between the historical center and the first suburb of the city. Significant infrastructure nodes (Bologna ring road, railroad track) which connect the North with the Centre-South of Italy physically cross the area. The name 'Navile' comes from the river that flows south northerly through this area, which was the mark throughout the 19th century of the proto-industrial system and roads connections with the eastern Padana plain and especially with the Po de Primaro River. The Navile area included the neighborhoods of Bolognina, Lame and Corticella. Bolognina is the oldest district, born at the end of the 19th century, beyond the railway line and the central train station, as a working class neighborhood with a high concentration of factories and low-income housing. Today, although keeping the original trait with the still strong presence of the workers' community, the number of foreigners and youngsters is growing and the area is at the center of important transformations, which the public power is carrying out. The Lame district is bordered to the northwest by the Reno River and is crossed by the Navile River. It is not a well-integrated area with the rest of the city and it has little population although it is the location of some interesting projects such as a new university campus of the University of Bologna. The Corticella district is the gateway to Bologna from northern Italy. The name comes from the time when this area was predominantly rural. Only in the 1990s, it became an import industrial center, connected to the national road network. Today it is a mostly residential neighborhood, between the Navile rural area to the west and the highway to the east, interested by a verticalization process in its central area. The choice of the Navile area is due to the fact that it is the part of Bologna where the greatest transformations are currently taking place, both from a social and urban point, and also because it is a relevant area for public policies. In fact, there are many urban requalification projects in progress: both little and large urban requalification interventions, some of which are still under construction. The first participatory planning applications were held for this region in the early 2000s, such as the Laboratorio Mercato, which introduced innovations in the collaborative process but was unable to solve some important issues. The laboratory's activities favored the most influential individuals, weakening the collective subjects, losing the initial boost and alternating interest and distrust phases. Furthermore, it used obsolete communication and collaborative tools.

3 The Geodesign Workshop: Rethinking the Navile Area

The current nature of the Navile area and the ongoing dynamics lead us to think of a future characterized by a young population composition and a dynamic urban life thanks to the implementation of those important transformations that aim to link the historical city with the modern one. The Geodesign workshop comes from these

challenges and the double interactions between the historical and the modern and the social transformations with its rejuvenations. The workshop tries to propose a scenario that can direct choices to balance these evolutions, attending the demand of the stakeholders and actors involved in this reality.

4 The Workshop Preparatory Process

The preparation of the workshop occurred in different stages. In the first stage, the teams were created and the systems were defined in order to properly describe the area: historical and cultural heritage (PSC); green infrastructure (INV); blue infrastructure (INB); housing (ALL); transport and mobility (TRM); economic and productive activities (AEP); tourism (TUR); public and institutional services (SPI) and large planned projects (ALT). An evaluation map was drawn up for each system, constituting the reference for the proposals (projects and policies) throughout the workshop. A web-gis (Moura et al. 2018) of the Navile area was prepared before the beginning of the workshop to ensure maximum transparency and to enable participants to better know the area. This contains the set of thematic maps used to create the evaluation maps that could be consulted by the participants. At the same time, the dates of the workshop were set and registrations were opened. After all, a total of just over 20 people registered from all over Italy, including students and professionals in the fields of architecture, urban planning and civil engineering.

5 The Realisation of the Workshop

On the first day of the workshop, the facilitators presented the daily schedule, explained the methodology and the Geodesignhub platform (Ballal 2015), made available by the creators. Thanks to this platform, it is possible to accelerate the decision-making process promoting collaboration between different groups. The user-friendly interface allows to quickly creating conceptual projects, which are evaluated in real time by everyone to solve complex Geodesign problems. The participants elaborated, from the evaluation maps, a set of proposals for each one of the presented systems, creating a collection of design ideas ready to be used for the next planned stages of the workshop. In addition, the participants collaborated to create the impacts matrix and then it was imported into the platform. In order to begin the group activities, the participants were divided into four groups, each representing a stakeholder group: administrators, environmentalists, entrepreneurs and locals. The programme provided four iterations, the first two with homogeneous groups, the third and fourth with mixed ones. The sociogram, drawn up with each group, allows to combine the group of administrators with the environmentalists and the entrepreneurs with the locals, according to their affinities. The join

operation makes the third iteration possible, which revealed the differences between the two proposals that were negotiated in the fourth and last stage. The outcome of this fourth iteration, conducted with all participants together, achieved the expected objectives to develop a balanced future scenario for the Navile area, but it was not able to overcome the negative impact on housing and transport and mobility systems. This result, however, should not be considered as a process failure since in the last negotiation phase all the participants agreed that the large and medium projects planned by the public administration, shown in the large planned projects system (ALT), responded to the current and the future demand for the housing (ALL) and transport and mobility (TRM) systems.

6 Final Considerations

The workshop experience, as an academic activity, can be considered positive overall. However, some aspects have drawn the attention and should be highlighted. The final results revealed similar proposals, because of the homogeneous background of the participants, the majority from the fields of architecture, civil engineering and urban planning. Some sectors have been taken less into account, as in the economic and productive activities system (AEP) with the lowest number of project and policy proposals. The first division of the participants into homogeneous groups was not significantly helpful to diversify the proposals. Moreover, the web-gis tool was not really effective to develop the participants' independent overview of the area. The participants themselves pointed out, in the final evaluation, the need to inspect the study area as another activity planned for the workshop. Another interesting aspect, also related to the one above, was the unconditional acceptance of the evaluation maps, unlike what usually happens. Maybe this is the result of the participants' background and the lack of the field-work. Probably, if this activity had taken place, the evaluation maps would have been discussed. It also emerged that the limited duration of the workshop, which took less than two days, was a complicating factor, especially for the fast pace of the negotiation stage. Several participants mentioned the need to dedicate more time to the negotiation phase because it qualifies and enriches the proposals by giving meaning to important strategic choices, although it is not usually included in urban planning activities, especially in Italy. All these considerations help to demonstrate how the Geodesign methodology proposed by Steinitz is a powerful tool to drive participatory process and to obtain shared solutions quickly. At the same time, it is important to underline that these processes must be adapted to the participants, according to their background, and to the kind of the workshop offered. This implies that in an academic workshop, whose purpose is to divulge the methodology, as in this case, it is essential to provide a solid pre-workshop "in loco" activity to increase the knowledge of the study area and, at the same time, to program more time for negotiation activities.

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