Design Actions for Shifting Conditions

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TU Delft OPEN

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POLITECNICO MILANO 1863
DIPARTIMENTO DI ARCHITETTURA E STUDI URBANI

DIPARTIMENTO D'ECCELLENZA FRAGILITA' TERRITORIALI 2018–2022

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University *of Ljubljana*

Warsaw University of Technology

National Technical University of Athens

Viewpoints

III. Reflecting on Practices

Viewpoints

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DESIGN ACTIONS FOR SHIFTING CONDITIONS A PREMISE

Fabrizia Berlingieri, Roberto Cavallo
Emilia Corradi, Hans de Boer

A spatial lens on Climate Change dynamics in urban transitions

Considering the growing importance that the urban environments assume within contemporary territorial transformations yet little room is offered within market-driven societies to critically reflect the spatial impact that cities face *vis-à-vis* the urgencies for environmental rebalancing. It embraces a wide range of phenomena we all live and experience nowadays, not only incidentally but more in a structural way, forcing us to rethink our present state and explore futures. Transitions embody the fluctuating form of late capitalism with its raisings and disruptions. Regarding the environmental conditions, they are affecting the world regions' habitability, the phenomenon of progressive urbanization versus agricultural land abandonment (UN 2018). With these premises, transitions seem to be a proper reference for an interdisciplinary and conceptual frame addressing the transformation of urban and metropolitan contexts, which will be the leading players for the coming decades.

Design Actions for Shifting Conditions (DASC) is a collective and plural attempt to deepen the perspective around transitions from a spatial lens of observation and enforce the critical discourse around contemporary urban and architectural design topics. Moreover, it aims at broadly discussing the methodological approaches that architectural and urban design – between research, education, and practice – are currently testing for rewriting the urban dynamics and their ecological footprint. This process has a significant implication in reconsidering the city's image as we know it, with a particular reference to the European legacy of XX century urbanization. It, according to Iturbe, embodies "a complex network of interlocking carbon forms, each of which replicates the myth of a limitless supply of energy and resources characteristic of a carbon-fueled culture of abundance" (Iturbe 2019, 36).
The urgency to turn the XX century paradigm of unlimited resources must not be solved by technical responses. More profoundly, it must challenge the opportunity to investigate and deepen the consequences of a paradigm shift, in a broader sense, addressing topics like aesthetic perceptions, new physical structuring, and social fruition of contemporary public spaces (Bulkeley 2003). New natural spaces, technologically advanced mobility, ecological

corridors, and smart infrastructural grids, reuse and flexibility characterize the future transformations of the built environment, challenging traditional and sectoral approaches applied in the past and even nowadays. New conditions are flickering irregularly, weakly, or strongly as autonomous events or policy initiatives, getting ground to initiate (some) change. Requirements from the past had defined solutions from the past. Some were pretty successful, replicated at a larger scale, and even crystalizing in a paradigm. However, will paradigms from the past still be viable and feasible for the future? Will the derived methods and strategies still be valid? Can we detect patterns of emerging issues and solutions for reviewing and intervening in the built environment? Will the transitions be the new conditions, or are there other conditions forcing us to rethink familiar approaches and strategies?

Systemic changes and paradigm shifts are two sides of the same medal. A different paradigm expresses different values and gives clues for a different design experience. In the end, the original system, firstly defined as the dominant paradigm, gradually changes to another one, set as a hypothesis by early precursors and expressed by small-scale interventions, eventually leading to a new paradigm. Then the appearance of the new paradigm influences further developments for practice, which could spread under policymakers, professionals, academics, and students. Numerous examples refer to architecture and urbanism. The 'Garden city,' 'Edge city,' Linear city,' 'Smart city,' or 'Urban metabolism' are all examples of established paradigms with remarkable metaphorical quality and a specific perspective, evoking a more comprehensive image due to its analogy with already-known experiences.
The notions of *ville* and *cité*, as discussed by Sennett, are meaningful metaphors here: the ville being a representation of our built environment with its buildings, pavements, streets, squares, parks, waterways, and leftover space; the *cité* as a representation of our use, and physical and emotional experience (Sennet 2018). The top-down and 'form-follows-function' planning of the *ville* in the age of modernity brought efficiency and prosperity and created 'infrascapes,' with negative social and environmental impacts for the *cité*. The city makers of the *ville* (urban planners, architects, engineers, policymakers, advisors) should interact more with the city makers of the *cité* (residents, local businesses, visitors) to co-design and co-create public spaces with both environmental as well as social qualities.

The need for a broader engagement

DASC constitutes the first step to wrap up and reflect on the actions – workshops, seminars, and research experiences – that have matured along with the biennial cooperation between European universities,

research, and professional institutions. The consortium includes six partners from academic institutions: Delft University of Technology, Politecnico di Milano, University of Ljubljana, National Technical University of Athens, Warsaw University of Technology. The consortium has also involved several professional institutions such as the Royal Institution of Dutch Architects (BNA), the Professional Practice IFLA Europe and PHALA associations, the Society for the Environment & Cultural Heritage (Elliniki Etairia), together with the respective municipalities, i.e., the Città Metropolitana di Milano and the Municipality of Rotterdam. Initially, two research activities were the main opportunities to form a diversified group capable of developing a broader and more representative platform for discussion about the forces – and the actors – involved in the dynamics of contemporary urban transformations.

The two research activities were carried out under the umbrella of Horizon 2020, setting a collective calls' participation. In the first research proposal, 'City Making in Times of Transitions' (CiMaTra)[1], the main research question was formulated on transforming an 'infrascape' into a 'socioscape'. Infrascape, as a representation of a dominant occupation of large (infra)structures within a particular area, should free up space for developing an attractive public space as part of a future-proof living environment, including technical and ecological measures for reducing the effects of climate change. 'Turning Neglected spaces into active social and environmental resources through Nature-Based Solutions' (TuNeS)[2] is the second collaborative research proposal. It envisions a pivotal model for design guidelines about the regeneration of neglected open spaces, explicitly addressing them as leftover areas of 20th century urban development. These areas, embedded in the urban pattern, have been considered from spatial and social design perspectives as high potential areas for eco rehabilitation. The main objective was to demonstrate their potential for resilience and adaptation to climate change while considering sustainable planning principles and the urgent need to improve the quality of life in today's urban systems.

Alongside the research experiences, the comparison between the partners on the issues of urban transition and the spatial impact of Climate Change dynamics has also been fostered in teaching activities through the shared experience of the international workshop 'Stad van de Toekomst/City of the Future' in 2018[3]. The design research project, initiated by the BNA (The Royal Institute of Dutch Architects) and the TU Delft DIMI (Delft Deltas, Infrastructures & Mobility Initiatives), was based on a central question. How can we design and develop an urban transformation in an integral way into an attractive and futureproof urban environment?

[1] The CIMATRA consortium was composed by: Technische Universiteit Delft (Nl); Universiteit Antwerpen (Be); Politecnico di Milano (It); Univerza V Ljubljani (Sl); Politechnika Warszawska (Pl); Bond Van Nederlandse Architecten Bna (Nl); Vereniging Deltametropool (Nl); Gemeente Rotterdam (Nl); Stad Antwerpen (Be); Città Metropolitana di Milano (It); CCL Consorzio Cooperative Lavoratori (It); Fondazione dell'Ordine degli Architetti P.P.C. della Provincia di Milano (It); Field Factors Bv (Nl); National Technical University of Athens - Ntua (El); Elliniki Etairia Society For The Environment And Cultural Heritage (El); Municipality of Perama (El); Mestna Obcina Velenje (Sl); Metro (Sl); Zavod Za Prostor Savinjske Regije (Sl); Miasto Stoleczne Warszawa (Pl); Towarzystwo Urbanistow Polskich (Pl); Oddzial Warszawski Stowarzyszenia Architektow Polskich (Pl).

[2] The TuNeS consortium was composed by: Politecnico di Milano (It); Facultad de Arquitectura Diseno y Urbanismo Universidad de Buenos Aires (Ar); Universidad de Mendoza (Ar); Parco Nord Milano (It); Progetto Natura Onlus (It); CasciNet società agricola impresa sociale (It); Technische Universiteit Delft (Nl); Univerza V Ljubljani (Sl); Municipalidad de Vicente Lopez (Ar); Pososki Razvojni Center (Sl); Universidad San Francisco de Quito (Ec); Secretaria de Ambiente y Ordenamiento Territorial (Ar); Universidad de Cartagenaco (Co); Provincie Noord-Holland (Nl); Fundación Verde Milenio (Ec); Municipio de Quito (Ec); Gobierno Autónomo

The biggest cities of The Netherlands – Utrecht, Amsterdam, Rotterdam, The Hague, Eindhoven – were identified as testbeds. Each of these five cities appointed a 1 x 1 km transformation area to be analyzed, researched, and designed by two interdisciplinary teams of architects, urbanists, city planners, visionaries, engineers, and sociologists. For the five cities, ten multidisciplinary teams of practitioners have been fully involved in the project. In addition, the same tasks have been assigned to more than 50 students from different universities, working together in a workshop at the 16th International Architecture Exhibition in Venice, discussing and presenting the results to a broader audience.

In 2019 the last occasion of deepening positions and topics related to urban transition was the international seminar 'Design Actions for Shifting Conditions' hosted by Politecnico di Milano, the Department of Architecture and Urban Studies and the research cluster 'Territorial Fragilities'[4]. With the participation of the entire board of the consortium partners, the seminar has been articulated in three moments. The first one consisted of the open symposium, engaging the audience through the topics here presented in the book. A second moment was reserved for comparing students' works between the two universities of Politecnico di Milano and TU Delft with a field trip on the ongoing areas of urban transformation in Milan. Finally, the third moment was dedicated to an internal consortium discussion about future opportunities and projects to be carried on.

A triple helix approach

The book presents a collective reflection embracing several institutions – the consortium – to enhance knowledge and impulse the ongoing international debates by proposing shared methodologies and interdisciplinary perspectives. The urgency is to foster a shared action regarding the effects of climate change and how we are reshaping our collective urban imagery. An integrality of vision is required, whereas the complexity of reality corresponds to an equally strong specialization of knowledge. The integrality of vision poses the design disciplines as open and hybrid spheres of expertise at the centre. Moreover, it implies a close relationship between research, practice and education, which we define as a triple helix approach. The book's primary rationale is bounding three sections – namely about Research, Education and Practice – where different positions mix themselves, provoking unexpected matches and suggesting further developments.
The strong interrelation between these three components must make use of a degree of transdisciplinarity able to answer the different aspects that affect transformations, such as social, economic, environmental, cultural, legislative, and technological issues. Hence the perspective of intersecting, in the research path,

Descentralizado Municipal de Santa Cruz (Ec); Instituto de Patrimonio y Cultura de Cartagena de Indias (Co); Departamento General de Irrigación (Ar); Municipalidad de Guaymallén (Ar); Municipalidad de Maipú Municipality of Bovec (Sl); Universidad de los Andes (Co); Secretaria Distrital de Planeación (Co); Bermudez Arquitectos (Co).

[3] The International Research by design Workshop 'Stad van de Toekomst / City of the Future' was organized by TU Delft/DIMI (Delft Deltas, Infrastructure & Mobility Initiative) and BNA (The Royal Institute of Ducht Architetcure). The participant universities were TU Delft, IUAV Università di Venezia, Politecnico di Milano, Università della Calabria, Università Roma La Sapienza, and the Rabat University.

[4] DAStU is one of the Italian departments selected and financed by the Ministry of Education, Universities and Research (MIUR) for the period 2018-2022 as part of the 'Departments of Excellence' initiative (L. 232/2016) with the project "Territorial fragilities". In the five years 2018-2022, the Department of Architecture and Urban Studies promoted an interdisciplinary set of researches on exploring the complex and multifaceted processes of the weakening of the relationship between space and society, looking at it in terms of exposure to multiple and diverse risk factors: environmental, social, economic, political and institutional.

different expertises is an attempt to contribute from time to time to raise the level of interaction on design transition towards a sustainable future. Each thematic cluster could trigger a further level of in depth analysis and, therefore, an increase in the degree of complexity. All this is essential along with the participation of the communities, capable of expressing themselves through the municipalities, the associations, with which research, practice, and education can build a path of exchange full of opportunities. This continuous exchange must be supported through research by design, in which simulations, thanks also to digital technology, can deliver a virtually real and measurable dimension of the impacts of actions concerning urban mitigation and regeneration processes.

Developing appropriate paradigms, carrying strong symbolic quality in capturing essence as well as complexity and referring to possible implementations and best practices could contribute to further dissemination and eventually to actual changes also at a large scale. The aforementioned interrelationship between systemic changes and paradigm shift strongly resembles the way scientific knowledge develops. Whereby some theory, model or pattern, underlying assumptions and beliefs, part of a particular paradigm adopted by a scientific community, doesn't explain or solve emerging issues and problems acceptably. The same happens in the case fragmented pieces of information challenge the present paradigm. With more parts of the puzzle, a coherent perspective and new paradigm could arise where more adherers investigate the recognized elements and start searching for more pieces and information, collecting new insights, developing methods, and producing new knowledge. Defined as a scientific revolution, a new paradigm should be characterized by two criteria: 1) attracting scientists away from competing modes of scientific activities and 2) being open-ended for a redefined group of scientists to resolve all sorts of problems (Kuhn 1962). When substituting science with design, which also has an academic tradition for explaining developments, developing theories and concepts, and testing them with experiments, then the analogy is clear. In other words, new conditions challenge present design actions for another perspective and inherent actions concerning the built environment in the context of the multiple issues and transitions related to climate change.

The seminar organized by Ilaria Valente, Fabrizia Berlingieri, Marco Bovati, Emilia Corradi, Cassandra Cozza is part of the activities and topics addressed within the project "Territorial Fragilities". The seminar 'Design Actions for Shifting Conditions', hosted the contributions of: Fabrizia Berlingieri, Marco Bovati, Roberto Cavallo, Emilia Corradi, Cassandra Cozza, Hans de Boer, Elena Fontanella, Agim Kërçuku, Fabio Lepratto, Michele Morganti, Thanos Pagonis, Giulia Setti, Krystyna Solarek, Ilaria Valente, Špela Verovšek.

So many questions must be answered to get some sight and grip on this complexity of multiple issues, disciplines, scales, contexts, dimensions, and stakeholders. However, there are already several clues to investigate to find patterns leading to new paradigms that can steer research and education. Approaches like 'Research by Design' and 'Integrated Design', adopting a multidisciplinary perspective, seem promising to figure out which solutions could evolve as a paradigm that, in the end, could inform professional

practitioners, students and academics for their designs. However, new paradigms and approaches need to be developed, defined, tested, validated, improved, and disseminated. Emerging issues and climate-change-induced transitions are challenging existing systems. Apart from technological development (in laboratories), their impact burdens the built environment, as a static representation of the city (real world), and the urban system as its dynamic translation. So, co-learning and co-creation by practice and academia are inevitable the keys for knowledge production needed for developing new paradigms and proper approaches.

Introducing appropriate paradigms and a clear perspective and practising with systematic approaches for students can be helpful. Understanding issues, challenges and their environment, the related theoretic notions, stimulating an analytic attitude for developing positions and inherent arguments, contribute to developing design competencies of how to phase implementation for both the spatial and the temporal context. Education also provides relevant clues to research, which should address and take care of paradigms, system perspectives, and methods. In the manifest about 'Research by Design' formulated by the European Association Architectural Education, it is clear that the relationship and interaction between academia and practice are essential, as also addressed by Agyris and Schön (EAAE 2012). An ongoing exchange of insights, thoughts, and experiences could stimulate and develop both academics and practitioners in their quest for explanations and solutions for actual issues and challenges rooted in society. This relationship could deliver the first pieces of patterns evolving into paradigms, generating starting points to develop methods that could be tested and applied firstly within education, both for training student competencies and as tools for practice. Additionally, the practice itself is also developing methods or design strategies in the context of emerging issues and climate change-related transitions which will take place in coming decades. Why not explain and codify them by academia and present them to students to provide insights into their forthcoming practice?

With climate change and its induced transitions, the present system state is challenged, requiring measures for mitigation and adaptation related to particular system components. Both an integrated and multidisciplinary approach and a systems perspective are needed for addressing emergent issues and urgent transitions.
Ahead of these activities, new paradigms are needed to provide direction and prospects for action that should be valid and effective for decades, including its flexibility to adapt to different scenarios. There is no overarching paradigm but a set of interrelated paradigms so that a more holistic approach should be considered. It requires a mind shift from the present dominant paradigms and the level of consideration and reflection. Within its broader

paradigmatic context, a new paradigm could guide smaller steps of archi- or infra-punctual interventions creating new conditions and leading to a stepping stone or upscaling for further interventions, giving expression to the new paradigm. Best practices could stimulate further development, dissemination, and adaptation of new paradigms, which could evolve into dominant and widespread paradigms for the public and private sector. Knowledge institutes like universities should be at the forefront of identifying, interpreting, developing, validating, and educating new paradigms and related principles, strategies, and methods from an integrated approach.

How to develop both an integrated and multidisciplinary approach and a systems perspective, bringing forward and testing the socioscape paradigm for transforming existing public space or creating new public space? How could this lead to adaptive design and implementation strategies anticipating trends and valid for different scenarios? How to involve education and practice to exchange, co-create, co-produce and disseminate new knowledge for design, engineering, governance, and policy? Physical structures, objects, and networks are seen as the domain of civil engineers or architects. Their planning and integration are the field of spatial planners, urban designers or landscape architects, depending on the scale and spatial context. Transport planners and traffic engineers take care of flows and capacity. Policy advisors and makers address societal issues related to those systems and their actual performance. During education, students should experience collaboration in projects with other disciplines addressing actual assignments containing many problems associated with the factual situation in the context of the different transitions. Actual tasks and interactions create awareness and enhance mutual understanding between students of different disciplines. The agenda is set by societal and sectorial actors where professional practitioners in public services or private firms act as the experts for addressing issues and solving problems. These professionals are educated by knowledge institutes and are applying the formal knowledge out of their instances. They learn by experience, producing knowledge and shaping practice when they are confronted with all kinds of issues (Gibbons 1994, Argyris and Schön 1974). To be successful, an open mind attitude is crucial to collaborate with other disciplines, learn, and reflect on the way of learning. Next to the multidisciplinary collaboration within the institution, a knowledge institute needs to interact with professional practice. Not only for understanding which graduates practice needs but also for knowledge production in a collaborative way. Although multidisciplinary collaboration outside architecture and its flanking fields is not explicitly mentioned, the Charter addresses most of the argumentations discussed above on Architectural Research by the European Association for Architectural Education (EAAE 2012).

Contributions and emerging topics

The book's articulation follows a methodological tripartition according to the triple helix approach of Research, Education, Practice. However, several central topics transversally emerge.
The first one refers to the challenge of a profound paradigm change on the city project. Although several contributions within the three sections constantly underline it, it is deepened according to various inflexions. For example, the contribution 'The need for a paradigm shift and integrated approaches for a future (proof) built environment' (de Boer, 37-51) considers the topic a central conceptual node in design practice and the scientific field. Urban densification, set by the need for housing within city borders and the necessity of reducing the effects of climate change, produces a new mobility paradigm that could trigger a cascade of spatial opportunities like the transformation of public spaces in inner cities districts around transport nodes. Also, transport infrastructure interventions like a cover-up or going underground for connections gives spatial opportunities.
The paradigm change is also addressed in the contribution 'Design Strategies for Urban Renaturation' (Berlingieri, 123-129) with a specific reflection on the theme of open and public space through a review of contemporary practices almost on the border between architecture, art, and technology. Infrastructures, abandoned areas, industrial fragments, interstices, and residual spaces can offer opportunities for regeneration in the direction of sustainability.
It is necessary to ask whether it is possible to start a revision process regarding tools, methodologies, and approaches. Moreover, many renewal actions concerning degraded public spaces are often hindered by the lack of funding, affecting, even more, the possible results often relaunched downwards to the possibility of experimenting with genuinely innovative solutions aimed at an actual transition towards a sustainable city. A third conceptual reflection is present in the contribution 'We should not stop looking for beauty' (Bovati, 226-229), closing the didactic experimentation section. The examination outlines a more critical approach and the need for greater cultural awareness and complexity in the design approach. Rethinking the role of designers becomes a priority to address the weight that policy choices can have for design, thus becoming an opportunity for reducing conflicts and (social) inequalities. It also addresses the emergent economic processes of recycling as an applicable current practice, not only to individual buildings but to entire systems or parts of cities so that the transition from one scale to another of decisions, choices, and design processes, can find an effective circularity. For example, it is essential to understand the relationship between urban form and its transformation through different scales to understand possible permanency and the potential for change or recycling. It implies a new perspective on evaluating the traditional city.

A second transversal topic that emerges from several contributions regards the design methodologies within the scientific and innovative research framework. In specific, the reflection 'Architectural Design in an unprecedent time' (Corradi, 31-35) develops around the concept of measurability of impact within the design process as an innovative and challenging approach. It addresses the necessity to start a research path that somehow holds together the different aspects, from participatory to digital. The idea of transition then applies also to design processes by innovative use of mapping tools and technologies, of virtual projection over time and physical planning, of access to EU funding programs, but above all of sharing of experiences to broaden the demand for sustainability and give adequate responses to the adaptation of cities and communities to climate change. Two other contributions underline the critical role of data analytics: 'Transition in urban analytics, insight into research' (Verovšek, 53-59) and 'Demographic fragility' viewpoint (Kërçuku, 68-73). They both deepen the growing role of data in urban design decision processes and research, predicting or addressing specific challenges in spatial design and impacting societies' projections. Within this topic, on innovating design methodologies in practice and research, a particular focus is given to conceptualising of design tools and approaches by the contributions' Specific/Generic, Disciplinary/Interdisciplinary. Two remarks on architectural and urban design's perspectives for shifting conditions' (Fontanella, 62-67) and 'Adaptation and Resilience. Architectural Design Tools between Uncertainty and Transitory' (Setti, 74-79). Interdisciplinarity and knowledge intersections are key points of innovating common frameworks in design discipline by developing and analyzing emergent concepts such as adaptation and resilience.

Within the section 'On (design) Education', the first three contributions state the urgency to reposition the academic teaching paths at the centre of "enlarged" decision-making processes within the section' On (design) Education'. The contributions promote an increasingly clear trend to train new practitioners as a critically aware future generation of architects by strengthening a more robust continuity between education and research. Specifically, 'City Making in Times of Transitions. The central role of learning' (Cavallo, 85-89) contributes to the reflection on the mutual exchange between education and policies sectors within the current frameworks on sustainable development promoted by the European Green Deal and the New Bauhaus initiative tracing alternative trajectories for future changes in urban systems. In the text 'Urban Design between culture, nature and society' (Solarek, 91-95); instead, the accent is placed on the need for enlarging the contemporary decision-making platforms, where education promotes project sharing processes, especially with the enhancement of the social sphere. This perspective frames future generations as mediators of common urgencies, a

problematic position that needs more codification within increasingly complex urban metabolisms. Finally, the third opening contribution of the section 'Paths for research and didactic experimentation' (Valente, 97-99), in continuity with the previous ones, exposes the interplay between education, research and practice as a pedagogical and innovative method to draw continuous nourishment for the development of design topics and professional figures. As further explications, the contributions '(Re)designing urban Network Space for cite Versailles Brussels' (Ilsbroekx and van Acker, 102-107), 'Turf wars and Beyond: Plac Defilad in the hands of local stewards' (Filip, 108-111) and 'Recuperating the coastline of Athens as public space' (Pagonis, 112-117) offer interesting viewpoints starting from concrete and innovative teaching experiences on urban areas. The port area of Athens as a public space, the infrastructural framework for new soft mobility in the Cité Versailles in Brussels, and finally the space of the square as a theatre for the social engagement in the case of Warsaw, are three examples in which the training activity mediates different actors and socioeconomic issues.

The third section, 'Reflecting on practices', exposes the ongoing change of perspective on the role of architects. For example, the contribution 'Notions from practice: Research by Design as a stepping stone for implementing integral forms of spatial design' (Hinterleitner 131-137) explores several design studies based on Research by Design. It is represented as a key method within a transdisciplinary context regarding societal issues, and climate changed-induced transitions within the built environment's spatial context. Especially practitioners are developing new insights and design strategies where students in parallel are training their design competencies on the same cases. These studies and results can be a rich source for academics to review and study to discover and enlighten evolving models or patterns, leading to a new paradigm for the built environment. Learning by doing practice also offers a new experimental field for academic research in its interrelation with policies and urban transformation management processes. The same topic is explicit in the contribution 'Academic research in the Arenas of practice' (Pogliani, 139-143), reversing the point of view on the interplay between academic research and the contemporary trajectories of urban transformations induced by the public sector. Again the viewpoint section presents three contextual readings regarding the case of the Segantini Park in Milan (Cozza, 146-151), or the national Life IP program (Lazoglou, 152-155) and the landscape design policies promoted by Phala association (Gkoltsiou, 156-159) in the Greek context. Finally, the last book section, 'Didactic Experimentation', presents a plurality of Master students' projects to compare design for transitions approaches directly from the perspectives and positions that four different architectural education programs have developed.

Design is a powerful competence for both the exploration of future opportunities for spatial transformations and its possible impact under uncertain conditions for the synthesis of objectives and functions, considering a multitude of contexts related to actual assignments. The need for innovative integrated approaches emerges as a *fil rouge* through the contributions enlightened by diverse perspectives. Moreover, this rich variety of positions aims to understand and address the complexity of the present state and the plural framework of transition in the built environment through a more dynamic representation of current urban conditions. Setting an education and research agenda for applying and developing methodological approaches and system perspectives, like 'Research by Design' and 'Integrated Design', could contribute to awareness and the dissemination of design actions for shifting conditions. What role could universities take when overseeing the developments concerning the urban system and the built environment in the broader context of climate change and induced transitions? The current and future challenges seem to be a wide window of opportunity for the design, engineering, and policy disciplines. Not in a traditional way to react and act but at least from a multidisciplinary perspective heading to the same thematic crossroad. Due to the transdisciplinary nature of developments and challenges, collaboration with practice is critical for learning and developing innovative research paths. Moreover, it represents a key for developing a shared framework for mutual understanding, knowledge development, and open dissemination.

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