Bridging the Social-technical Gap: Creating Not Only Resilient and Sustainable Cities, but Resilient and Sustainable Societies

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SUMMARY

In the recent years, there have been many discussions on how to build resilient and sustainable cities. The need for this is obvious, ranging from raising climate change issues to wasting natural resources at a high rate. Cities play a big role in these global problems, such as pollution, but also problems like disparities of wealth and life quality. This social and technical side are often viewed apart, but spatial planning bridges the two by technically planning spaces in which societies will inhabit. This consequently means that cities, and spatial planning as well, have unintentionally locked society into structures and lifestyles that are neither sustainable nor resilient. However, cities are a vast source of sustainability solutions too.

So, in this new era of building and designing systems and resilient and sustainable societies, when and where does spatial planning and development come in? How do we turn planning from invisible to visible? This paper discusses current trends and future efforts in designing sustainable societies and social change, as well as offers some implications on how, according to many academics in the fields and their predictions, the social part affects it. It provides a new way of thinking for spatial planning, suited for strengthening our sociotechnical systems and make sure to build more resilient and sustainable societies while doing the same for the built environment.

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1. INTRODUCTION

By 2050, the world's urban population is expected to nearly double, making urbanization one of the twenty-first century's most transformative trends. Populations, economic activities, social and cultural interactions, as well as environmental and humanitarian impacts, are increasingly concentrated in cities, and this poses massive sustainability challenges in terms of housing, infrastructure, basic services, food security, health, education, decent jobs, safety and natural resources, among others (NUA 2016).

The research shows that securing and guaranteeing land rights is fundamental for socio-economic development and is increasingly associated with environmental resilience, self-determination and peacebuilding (GLTN 2018). Equitable access to land and tenure security are essential for development and poverty eradication (IFAD 2015). As populations grow and move, as the world faces the uncertainties of climate change, rapid urbanization and increased demand for food, as inequality and exclusion come to dominate economies, we must design and implement land systems that work for all people and for the planet (GLTN 2018).

On the other hand, up until now the discussion on resilience has mainly adopted technical, economic, functional points of views (Manzini & Rithaa 2016). What is often forgotten is that, for a place and a system to exist, there must be a group of people who talk about it and act in it. Traditionally, this group was the resident community: a stable group of people who lived near each other and shared the problems of everyday life (Manzini 2015).

Contrary to that, urbanism has for long responded to and been affected by the economic and technological developments. The 20th century was marked by promoting large production plants, hierarchical system architectures, process simplification and standardisations and doing so by destroying the old places (and consequently, communities), without creating new ones.

Resilience and sustainability require both social and systems change, and this paper will discuss how to achieve the social aspect, contributing to the achievement of the Sustainable Development Goals and targets, including Goal 11 of making cities and human settlements inclusive, safe, resilient and sustainable. Just like various digital and physical products are becoming 'human-centred', and public services 'citizen-centred', so should the new wave of sustainable and resilient urbanism be 'community-centred'. Tomitsch (2018) states that the argument made by scholars in the field is that, to successfully and sustainably address the challenges cities are facing, it is crucial to empower the inhabitants of cities by helping them to make smarter choices.

2. THE SOCIAL PART OF THE PUZZLE

2.1. **People and places**

People live at the same time in a social and a physical space; therefore their interactions also occur in both spaces. In the first they produce social forms, while in the second they produce places. All together they create society and the environment in which societies collocate and which, in turn, the societies themselves contribute to produce (Manzini 2015).

The physical space people occupy becomes a place when those sharing it decide to do something about it together. In the same time, their relationship transforms from occupants to community.

Indeed, social design decidedly locates place making and the re/creation of communities at the heart of the design mission. The practice of designing places with people in mind is known as *placemaking*, the idea which is attributed to Jane Jacobs and William W. Whyte (Project for Public Spaces, 2010). Two core principles of placemaking are its focus on **designing cities for people** and **including citizens in the decision-making process when designing public spaces**. Inventing and enhancing, in this way, a new socio-cultural and economic activities, these creative communities are also generating a new sense of place and a new idea of locality (Manzini and M'Rithaa, 2015).

Since resilience is defined as the system's capacity to cope with stress and local failures without collapsing (and to learn more from the experience), we can say that it is also a precondition for any conceivable sustainable society. To be sustainable, a society must be capable of overcoming the risks it will be exposed to and the stresses and breakdowns that will take place; and, most importantly, to learn from these events how to improve its performance. Today, the risks for our society are no longer only future projections. They are becoming evident all around the world: more and more frequently, our daily life experience involves coping with the fragility of our sociotechnical systems. As a consequence, resilience has become part of the vocabulary of an increasing number of people and organisations (Manzini 2015).

2.2. **Bridging the gap**

To enable large-scale transitions to resilient and sustainable lifestyles current promising practices point to two important areas for further work:

– Understanding and supporting individual behaviour change; and
– Creating enabling environments and infrastructure that stimulate and support more sustainable ways of living

Current sustainable action strategies rarely acknowledge the diverse needs, desires and motivations of individual people. Strategies tend to be "single-issue – single solution"

approaches and often focus on technological innovation or policy solutions in isolation (SPREAD 2012). This does not come as a surprise as the focus of the worlds' development up until recently was on economy and technology, and not society (or the environment). But, successfully changing behaviour depends on understanding people and the diversity of lifestyles and access to sustainable lifestyle options.

In this sense, design can, and must, be a tool of change, reorienting physical solutions toward more humane goals and challenging programmatic assumptions that would be at odds with urbanity and better communities (Lozano 1990).

For expert design, participating in planning processes is still something new. In the past, design experts tended to work without reference to place (Manzini 2015), but also planners tended to work without reference to community. In several recent cases (see Manzini 2015, p. 201) planners and designers have converged toward similar projects and approaches. Planners, who have traditionally operated on a large scale, have recognized the importance of the small scale and redefined their work starting with places and the communities that inhabit them.

Conversely, design experts, who have traditionally dealt with the small scale and with projects that appeared to be independent of place, are increasingly involved in place-making processes and consequently in the transformation of wider territorial areas. This is happening due to the effect of sociotechnical innovation on design and the deep transformation it has generated (Manzini 2015).

Social and urban design should be observed simultaneously. When thinking: "How can we achieve the life we want to live?", neither social nor urban design should be developed individually. That question, posed in that manner, goes hand in hand with the new shift around resilience: creating expected development trajectories (looking at *where* we [as a society] would like to go) (Grubisic 2019).

Indeed, the most distinctive contribution design can bring to this new mode of urban and regional designing is the point of view it adopts: through the eyes of the people and communities who live there, with particular attention to those who are acting, or have the potential to act, as social innovators, connecting their own interests (and those of people close to them) with those of society at large, and of the entire planet. So, it focuses on people who are starting (or have the possibility to start) to put into practice a new idea of well-being: sustainable well-being that is linked to the quality of the context, thus of place and territory as a whole (Manzini 2015).

3. **DISCUSSION**

The built environment today plays a central role in life quality, but with to-date design practice has locked society into structures and lifestyles that are neither sustainable nor resilient. For a long period of time, urban environment was affected by the changes in technology and the economic world. Because of that trend and recent developments, contemporary society demonstrates a contradictory dynamism - living in technological structures, but being aware that a big change in lifestyles is necessary.

Design offers a hybrid strategy to break the tension caused by these bipolar positions. It can transcend dualisms by finding syntheses, symbioses and synergies that make everyone better off (Birkenland 2002).

In a bipolar value system, open systems that include nature, culture, psychology or design are deemed ‘soft’ because they are not easily reduced to numbers. But hard analyses are measurable only because they leave out the ecology, humans, and other dimensions of complex systems (Tansey 2006).

However, the need for bridging the social-technical gap is getting more obvious every day. The economy is shifting from product economy to a sharing economy, which symbolises a shift from a plethora of individually-owned products to shared experiences and lifestyles. This contributes not only to general sustainability in the sense that people will own less stuff and therefore produce less waste, but it also contributes to the idea of community-based sustainability. There are multiple examples showcased in Anna Meroni’s ‘Creative Communities. People inventing sustainable ways of living’ (2007).

Indeed, social innovation and collaborative organizations have much to tell us - their various locality-oriented initiatives are generating an idea of “local” that is a balance between being rooted in a given place and community and being open to global flows of ideas, information and people. When this balance is successfully achieved, the resulting localities and communities are exactly what is needed to promote not only new territorial ecology and a resilient ecosystem, but also sustainable well-being (Manzini 2015).

This paper provided a brief overview of the current developments related to the terms ‘sustainable’ and ‘resilient’ within the spatial profession. The author believes that, following not only industry but also the market and world developments, a shift towards a more social perspective is needed, and that it can be achieved by (strategic) design. This paper will be first of the many contributions made by the author on the topic.

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BIOGRAPHICAL NOTES

Franka is a Computer Engineering graduate with previous academic education and professional work in geodesy and geoinformation science. Franka's diverse background currently has her working as a consultant with the most prospective international companies all around the world.

Her project 'New Sightings of Geodesy' has won the 2014 CLGE Student Contest and her paper 'Reverse Engineering Official Croatian Geoid Model Using Computer Program for

Datum Transformation and Python' in 2016. She also received a Special Rector's Recognition for Achieved International Success and a Rector's Award.

She's been a Croatian Alliance for Energetics Scholar, STEM Scholar awarded by the Croatian Ministry of Science and Education and a Remarkable Geospatial Professional xyHt's magazine honouree.

Franka serves as Co-Chair of FIG Comm. 2 Working Group 2.3 - Learning styles in surveying education, is a FIG YSN Representative at the United Nations Sustainable Development Solutions Network Youth and is a FIG Task Force on SDGs member. She is also a Member of the CCS, IGSO and ISPRS Student Consortium.

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