

Preface

Why do We Need a Smart and Sustainable Planning for Cities and Regions?

In an increasingly urbanized world, with over 50 % of the global population living in cities, smart and sustainable city planning represents an emerging topic both in the scientific and in the more general cultural debate.

The need for smart planning arises from our constant acceleration towards an information-mediated world experience and is driven by factors such as the current global financial crisis, global climate change, global population growth, and cultural globalization.

Smart and sustainable planning makes our cities and regions more liveable and competitive places, consistent with both our inspirations and our aspirations.

Transforming existing settlements into smart cities, *de facto*, means to couple their ICT potential with human factors—innovation in building and energy technology, people's engagement in participatory processes, environmental resources preservation, and the exploitation of new business models.

A uniquely coherent definition of the meaning of smart city has still to be established: academics, decision makers, and industries approach this topic from different perspectives, delivering multiple solutions often hard to replicate. Nonetheless, smart city projects are currently spreading worldwide, comprising a more diverse, and so far relatively unexplored, galaxy.

Therefore, a discussion on smart and sustainable cities and regional planning should, first of all, have the effect of providing guidance to all experts—researchers, politicians, public officials, and managers—entering into this innovative field. Spatial planning is traditionally a complex discipline, founded on multidisciplinary knowledge, requiring various skills, and pursuing multi-objective goals. Nowadays, it is clear that for tackling “smart and sustainable planning” challenges a holistic approach—going beyond solutions to single technicalities—is required.

The aim of this work is to provide a comprehensive outlook on the latest research paths taken by various branches of science in the field of smart and

sustainable planning, stimulating a proactive dialogue and engendering a broad knowledge exchange. Some relevant theoretical findings are gathered here, together with already implemented lighthouse projects, to show how research results may be translated into real-world applications.

Lessons from pioneering practical implementations offer a great opportunity for follower cities and regions to improve their forthcoming plans and to researchers to define new technical procedures and methods. In these works, the various research themes are explored by adopting a crosscutting approach, mixing the contributions of authors from various fields under a few selected umbrella topics, trying to establish a shared baseline onto which to graft innovative development ideas.

The opportunity to gather a wide number of scientists and practitioners in the field of urban planning was offered by the first occurrence of the international conference on Smart and Sustainable Planning for Cities and Regions. This conference, shortly SSPCR 2015, took place during November 19–20, 2015, in Bolzano (Italy), organized by the Institute for Renewable Energy of the European Academy of Bolzano/Bozen (EURAC), with the support of the International Society of City and Regional Planners (ISOCARP). The SSPCR 2015 (<http://sspcr2015.eurac.edu>) focused on innovative planning methodologies, tools, and experiences aimed at supporting the transition of our cities and regions towards smarter and more sustainable dimensions, by touching on diverse scales, environments, and perspectives. EURAC and ISOCARP decided to couple the two words “smart” and “sustainable” in the conference title specifically to highlight that, only through the combination of the two concepts, it would be possible to achieve a better quality of life and well-balanced low-carbon development. To offer a comprehensive overview of this topic, the SSPCR 2015 was designed around four thematic sessions, flanked by a fifth session on real and practical experiences, as well as some plenary sessions introducing and synthesizing the debate.

Among our keynote speakers, we hosted: Prof. Peter Droge (University of Lichtenstein) with his contribution on intelligent and regenerative city regions; Prof. Jürgen Breuste (Paris, Lodron, University of Salzburg) discussing urban green areas and climate change; Prof. Ezio Micelli (University IUAV of Venice) suggesting innovative ways to recycle the cities’ building stocks; Dr. Nora Mzavanadze (University of Manchester) presenting the EC Horizon 2020 project COMBI on operationalizing the multiple benefits of energy efficiency in Europe; Pietro Elisei (ISOCARP) presenting participatory governance approaches for urban decision-making; and, finally, former ISOCARP President Milica Bajic Brkovic asking delegates the question “will planning save the cities?”.

Both EURAC and ISOCARP representatives provided productive topics for the discussions: Dr. Wolfram Sparber, Head of the EURAC Institute for Renewable Energy, introduced participants to new heating and cooling systems for smart cities, and Dr. Richard Stephens, ISOCARP President, discussed megatrends, black swans, and game changers, employing examples also from U.S. planning approaches.

The volume replicates the structure of SSPCR 2015: Part I presents the papers discussed under the topic “Energy and Climate”, Part II those under “Governance”, Part III concerns “Costs and Benefits”, while Part IV treats “Technologies”. The last part, Part V, takes a closer look at “Demonstration and cooperation projects” in the field of smart and sustainable planning.

Part I concerns “energy planning for cities and regions” and investigates in four papers how to couple energy–climate goals with the development or renovation of energy infrastructures and how to tackle vulnerabilities due to climate change. An integrated approach beyond sectorial infrastructure management is suggested, as well as the integration of renewable sources in existing networks. The relevance of energy issues also emerges in developing a renovation scenario on the urban scale, as well as a collaboration scheme to undertake energy efficiency development at regional scale.

In Part II, three meaningful examples are given on how “smart and sustainable technologies” involve challenges and opportunities for urban and regional planning. Applications are broad: buildings and other architectural features may act as environmental displays; mobility management may become more on-demand; and geospatial tools may help predict and prevent sprawl phenomena.

Within Part III, “benefits, costs, and opportunities of urban transition”, toward a more smart and sustainable dimension, are explored and discussed. Four different contributions report case studies or methodological approaches to assess values and trade-offs within decision-making processes. The topic is investigated looking at co-benefits of large-scale smart-district projects, urban-regeneration experiences, urban-transport projects, and spatial-planning methods. This section also includes an invited paper by Prof. Ezio Micelli (University IUAV of Venice) on innovative financial schemes in the construction sector to facilitate the refurbishment of existing buildings.

Part IV explores new ways to deal with an effective “governance for smart and sustainable growth” with five contributions fostering place-based policy-making, active and effective stakeholders’ participation, collaboration in development-path design, and public-private partnerships. This section also includes an invited paper by Prof. Ekaterina Domorenok (University of Padua) focusing on new governance tools for innovation and sustainable development in EU cities.

Part V embraces “cooperation and demonstration projects” that play an essential role in enabling the adoption of new approaches and technologies towards the development of win-win solutions. Six different reports on cutting-edge smart energy initiatives, currently under development or already achieving outstanding results, are presented. The section provides examples at various scales, from small rural villages to large urban communities. It also analyzes various contexts, from industrial clusters and SMEs to a metropolitan aviation hub. Finally, this section offers some relevant figures on European funding allocation on the smart city topic.

We would like to thank all the SSPCR 2015 speakers for their brilliant research contributions, inspiring a multidisciplinary debate among delegates. During the two conference days, we had 42 oral presentations and a poster session from academics, researchers, and experts coming from various countries such as Austria, Egypt,

Finland, Germany, Greece, Italy, Kenya, Nederland, Poland, Saudi Arabia, Serbia, Sweden, and Switzerland. As a result, the SSPCR 2015 constructively merged theoretical insights and findings with empirical evidence from case studies to deliver the worldwide context. Only conference papers that successfully passed the peer-review process have been collected in this volume. Thus, we are grateful to all the reviewers and the members of the scientific committee for their efforts in helping us to achieve such a high level of scientific output. We also wish to thank the EURAC Meeting Management team for contributing to the successful organization of the SSPCR 2015 conference. We hope that this event was instrumental in sustaining peer-to-peer knowledge exchange and in strengthening mutual learning among cities and communities.

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