Editorial

Three Tales about Limits to Smart Cities Solutions

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Abstract
This editorial is the introduction to a special issue on smart cities. The concept of a smart city is not well-defined, yet expectations among urban planners and decision-makers are high. This special issue contains three papers that discuss three different manifestations of smart cities and the success—or lack of it—of the solutions discussed. The papers highlight some limitations of the concept of smart cities, but at the same time also pinpoint some potentially beneficial solutions.

Keywords
Mobility as a Service; smart cities; smart mobility; urban interventions

Not a week passes, but we receive an invitation for some conference on "smart cities". Remarkably, conference locations are scattered across the world: from Korea, via the Gulf States to Brazil and many countries in between, witnessing the worldwide popularity of the smart cities concept. Cities want to be smart (who doesn't?). It seems local governments believe it is not smart to miss out on this trend of epidemic proportions. Smart city has become a buzz-word, which has started to lose much of its specific meaning. Interviews with decision makers and politicians reveal the term has become an umbrella concept with a plethora of annotations, which is interchangeably used for sustainable cities, resilient cities, low-carbon cities, eco-cities, digital cities, ubiquitous cities and several other terms.

The European Initiative on Smart Cities seems founded on a narrower definition. It is derived from the strategic objective "to demonstrate the feasibility of rapidly progressing towards its energy and climate objectives at a local level while proving to citizens that their quality of life and local economies can be improved through investments in energy efficiency and reduction of carbon emissions… . This will require systemic approaches and organizational innovation, encompassing energy efficiency, low carbon technologies and the smart management of supply and demand. In particular, measures on buildings, local energy networks and transport would be the main components of the Initiative".

Essential for smart cities is the application of advanced information and communication technology to supplement conventional planning and marketing tools. Traditionally, urban planning and design concern the development of physical environments that cater the needs and well-being of their citizens, support the economic activities of the city, while minimizing environmental impact. Over the years and across countries that differ in their urban planning tradition, the role of urban planning has varied considerably. In some cases, urban planning can take on a central orchestrating role; in other cases, it stimulates, supports or defines the boundaries of a multi-actor public-private partnership development process. While generally urban plans aim at improving the quality of life of citizens (and achieve additional economic and environmental objectives), there are limits to physical interventions in realizing these goals and objectives. Even in the ideal case that urban planners and designers perfectly know the needs and preferences of the citizens and physical environments can be created to perfectly meet these needs and preferences, the optimality can only be instantaneous as over time there will

be a growing discrepancy between people's preferences and the properties and performance of the built environment. The fundamental problem here is that needs and preferences, both quantitatively and qualitatively, tend to change faster than what an inert physical environment can accommodate. The temporal scales of change differ too much, creating inefficiencies in the urban system.

New strategies for urban interventions that are enabled by emerging information and communication technologies thus allow bridging or narrowing this gap and guarantee a more effective and efficient use of urban spaces and urban networks, which will not only enhance people's quality of life but also better meet the environmental objective of reduced energy consumption. Advances in big data analysis, sensor, GPS and other technologies, and the creation of an Internet of Things provide the building blocks of a data-driven approach to urban planning and design. The omnipresence of ICT stimulates the development of solutions that people and business can use to improve the functioning of cities. Recommendation systems allow people to better find their places of interest and organize their daily activities. Parking systems guide drivers to find a vacant parking lot in congested urban areas, making more efficient use of limited space. Location based services signal when people are in a particular area, allowing businesses to offer personalized services. Digital technology can improve the use of the grid and reduce energy consumption. These are just a few examples of solutions and interventions that smart cities may embrace.

The hype about smart cities has the danger that expectations may be too high and that investments may be ill-founded. One of the roles of academic research in this context may be to monitor developments and progress, document failures, reflect on emerging trends and discuss findings both with academics and practitioners. The present special issue represents a small contribution to that endeavor.

In a fascinating paper on Songdo, Korea, Mullins (2017) convincingly discusses how city government has been struggling with the labeling of the strategic objectives underlying the plans for the city. The paper also supports our view that demand may change fast. Particularly, they discuss the impact of a cooling down of the world economy and how the city has been struggling to compete internationally for businesses and people, while maintaining its planning goals. The author argues that Songdo had difficulty to adjust to the changing world economy because planning followed a closed-system approach.

Smart cities are closely linked to smart mobility solutions. In part, this can be explained by the fact that transportation is responsible for a large share of energy consumption. In addition, transportation is amenable to smart solutions in the sense the big data that increasingly become available can be used to develop and offer dedicated, personalized solutions. The new ICT support the development of a platform economy. Platform businesses can be found in a growing number of indus-

tries. Mobility as a Service is the latest development in providing smart mobility solutions. In avoiding that people need to buy their own car, MaaS is expected to reduce traffic and its negative externalities. Jittrapirom, Caiati, Feneri, Ebrahimigharehbaghi, Alonso-González and Narayan (2017) provide an interesting overview of recent MaaS initiatives and pilot projects. Their paper shows that some initiatives were short-lived. On the other hand, the increasing number of projects and the spatial diffusion of Maas suggest that planners and decision makers still have high expectations. As academic research on the topic is scarce, there is a clear need for research that assesses the potential of MaaS and related developments.

Jalali, Koohi-Fayegh, El-Khatib, Hoornweg and Li (2017) present a perfect example of such studies, focusing on ridesharing in Changsha, China. The authors explore the potential of ridesharing among passenger vehicles to reduce vehicle pollutants and GHG emissions. Using big data (historical GPS data of approximately 8,900 privately-owned vehicles), a newly developed algorithm is used to calculate reductions in pollutants and GHG emissions for different scenarios of ridesharing. Results support the potential of ridesharing in improving air quality, although the impact depends on people's propensity to adapt and change their daily mobility routines.

Although we should be modest about a special issue pushing forward the research frontier, we view these articles as exemplars of the kind of research that urban planning can produce in realistically portraying the potential of smart cities in shaping future cities that improve people's quality of life and well-being in their multi-faceted meaning. Urban planning practice can only improve by learning about successes and failures and understanding how people, firms and institutions react and adapt to urban interventions as ultimately the performance of urban systems is nothing but the accumulated outcome of their decisions.

Conflict of Interests

The authors declare no conflict of interests.

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