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Editorial

Sustainable Urban Innovation Strategies

Karel F. Mulder [1,2]

[1] Faculty of Technology, Innovation & Society, The Hague University of Applied Sciences, Rotterdamseweg 137, 2628 AL Delft, The Netherlands; k.f.mulder@hhs.nl

[2] Faculty of Technology, Policy & Management, Delft University of Technology (TU Delft), Jaffalaan 5, 2628bx Delft, The Netherlands

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In recent years, it has become a commonplace to argue that cities should be the focus point of sustainable development. Various authors have presented a variety of arguments why cities should be the preferred target to foster sustainable development-focused innovation;

- The average consumption of resources of urban dwellers is higher.
- The population of cities is growing continuously, while rural populations stabilize [1].
- Deteriorating living conditions and segregation in cities caused by processes of gentrification of traditional neighbourhoods that drive out lower income groups to the suburbs [2].
- Cities are 'concentrated' emitters of pollutants and therefore solutions and re-use might be easier to implement [3].

On the other hand, authors have argued that the nature of the city, as being a centre of gravity of production and consumption, creates options for leaps in the resource and land use efficiency: As distances of transport are relatively short, options for a circular economy that could reduce resource consumption, emissions, and land use are much more within the reach of cities than they are for rural communities.

Moreover, cities are centres of the young [4] and bright avant-garde, who generally are a driving force of change. The knowledge infrastructure, research institutions, universities, design and engineering agencies are virtually all located in cities [5,6]. So why have those circular urban economy options not yet been developed?

The first factor that has to be mentioned is that the type of innovation required does not lead to a relatively simple development of optimisation:

- It concerns co-optimisation of consumption of materials and scarce energy resources, waste/emission reduction, and the efficient use of space (for different purposes); a complex of interrelated issues, interests, and risks.
- Change in the existing urban fabric is complex and expensive. New 'greenfield' urban areas have become rare in most parts of the world. For change of existing urban systems, there are only rare, and quite narrowly defined, windows of opportunity to implement major change.
- The large-scale systems of the city have a monopolistic (or highly regulated market) character. In such systems, the incentives for innovation are weak, and might be suppressed by an organisational culture of autonomy [7].
- The future city requires not just new organisations and systems but also new behaviours of both citizens and organisations. That implies not just learning new behaviours, but also unlearning old behaviours.
- Together, this creates such complexity that traditional planning will not be very successful. Socio-technical experiments [8], living labs [9,10] and niche experiments [11] might be means to both stimulate and analyse processes of change in the city.

Changing the city in order to contribute to global sustainable development goals is a long-term process that cannot be planned in the traditional way. That process needs strategy and regular re-consideration.

In this Special Issue, a limited number of contributions covers a wide range of challenges and approaches. On the one hand, the issues that are covered range from energy, materials & resource recovery to efficient use of space, and transport as a crucial element of a city. On the other, some papers are more focused on the analysis of problems and solutions, while other papers focus more on the processes of change.

The papers in this Special Issue also have a common perspective: How to create change? A precondition for change is that actors have at least a minimum level of consensus regarding the desired changes. To clarify future options, scenarios and scenario workshops are a proven method. Mulder explores future scenarios for dealing with wastewater and precipitation.

In working towards sustainable solutions for the city, real life experiments are important to improve the technology as well as the organisation of innovative products/services. Amenta et al. analyse living labs that are aiming at finding ways to re-use wastescapes, that is, the ruined landscapes that are the leftovers of long-term industrial exploitation.

Scaling up from successful experiments, however, is not self-evident. Experiments are confined in space and time, and generate positive visibility for a city. Dijk et al. analyse upscaling of these experiments. Tensions with the dominant socio-technical context might become imminent, and some remedies are explored.

Lee and Park go into the traffic socio-technical context of cities, the neighbourhood configuration, in order to determine what keeps city dwellers from travelling by foot, and how to stimulate walking. Van Broekhoven and Vernay explore a different approach for change; the integration of urban functions, which is not just a technical integration challenge, but especially a process of socio-technical change by which various previously separate worlds are to be connected.

Innovations in the urban fabric are important but really hard, as some parts of cities are so full of structures, pipes and cables that change is hardly possible. On the other hand, the uninterrupted service of infrastructural systems is of crucial importance. The challenges for innovation are huge, which might imply that rural areas might perhaps react faster to the transitions that are foreseen after all.

List of Contributions

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