Paper for the JPI Urban Europe Symposium 27.10.2016 in Brussels

Title:

Urban Pancakes for system change: a new instrument for disruptive innovation in Urban Europe

Authors:

S. Meyer, AIT Austrian Institute of Technology GmbH, Scientist

Y. De Weerdt, VITO, Research Coordinator Sustainability Transitions

J. Segers, CITYMINED

'Only the lessons of reality can teach us how to transform reality.' Bertold Brecht

Key Words: Living Lab, Systemic Change, urban transition lab, Pancake method, distruptive innovation, experiments, reflexive innovation, transdisciplinary, multi-stakeholder, radical protoyping

Why this paper?

Making the transition to a sustainable world requires systemic change, rather than incremental optimalization. Societal systems are mostly build around human needs. The need to move, the need to live, the need to eat, etc. Over time a dominant way of answering

to those needs arises. Take for example the mobility system, which certainly in most cities today, is build around a fossil fueled, personally owned automobile. On the field of energy, centralized production and distribution of energy is the incumbent solution, while for heating the model is strongly decentral, with individual heating devices for each home or even each family. These dominant systems are the basis of different kinds of societal institions. Sector organisations (e.g. the transport sector), policy domains linked to the division of political power within governments, knowledge institutions organizing themselves around these societal sectors, and so on. Over time al these instutions form stable, inert structurers, that, in transition literature, are called regimes (for a comprehensive discussion of the transition management framework: Grin, Rotmans & Schot, 2010). The city is the place where you can find many of these systems stacked (streets are being used to drive on as well as to play in) and intertwined (the way mobility is organized, has an impact on cohesion and inequality). This makes cities the most ideal laboratories to experiment with and accelerate systemic change towards sustainability in cities, also named urban transitions.

Aim of this paper is to introduce an approach to experiments that can support urban transition by paving the way to disruptive innovation. The speciality of this approach is the urban context which allows for shared risk, shared ownership and shared funding.

How about living labs?

The Urban Europe Strategic Research and Innovation Agenda (SRIA) puts forward Living Labs as one of the important 'instruments' in achieving the goal of systemic change, by embracing the complexity of sustainability challenges through and in real life urban settings.

But what should the Living Labs serve on a strategic level? And, If we agree that urban transitions are about systemic change, and that systemic change will require disruptive innovation, rather than incremental improvement of existing unsustainable systems, wouldn't (and even shouldn't) living labs then be loci where this disruptive innovation could be staged. The question then, is whether Living Labs as they are being staged in their rich variety, already incorporate an orientation to systemic change and/ or radical, even disruptive innovation. They undoubtedly are a step in the direction of a better societal embedding of technological research and development, and contribute to a stronger human centered perspective in that regard. However, in essence, they remain testbeds of solutions (products or services). The involvement of end-users is seldomly being transformed in fullworthy co-ownership of the end-product and/or the added value generated. Also, as said before, the orientation within Living Labs is towards product or service innovation, and not necessarily towards systemic change.

Systemic change asks for systemic research action

In this regard we want to explore how we could combine methods drawn from social cohesion action methods in neigborhoods, and knowledge on the process design of disruptive innovation. The method we would like to draw upon as in inspiration for an approach to implement disruptive innovation in order to achieve systemic change, is known as '**pancake method**' (Van Wonderen en Jonkman, 2015 [1]). What happens is that social workers will draw children in a neighbourhood to an event of baking pancakes. They will bring a pan and a gassfire, but they will deliberately forget to bring (some of the) ingredients. This brings about a dynamic of dialogue, creativity and shared ownership. One could say that the interaction this method brings about, is so complex and unpredictable,

that it can not be designed up front. The method acknowledges this 'by design' by putting in place one, incomplete building block (a gasspit and a pan, for example), of the outcome they envision. Other parties will have to add to it, in order to make it work. And this means not only baking pancakes, but developing a social interaction between people living in the neighbourhood, involving them and making them owners of what happens. Sharing or open 'incomplete' technologies, processes or services to the (user-) community and let them react to it, let them continue the development, let them adopt it to their needs and let give them feedback is a way to commonly develop a change process, which has the potential to disruptive innovation. The pancake approach is participatory, human-centred and respects the idea of co-creation. Rather than thinking out of the box, the approach asks for acting out of the box. The reason why we think this method can inspire urban transition dynamics, lies both in the systemic nature of urban systems, and in the strong context sensitivity it requires to bring about change processes in a city.

Spaces for the pancake method

What we are looking for in this paper is to attempt to define how a space for systemic innovation should look like, what it should respond to, in order to be able to enable for radical and/or disruptive, systemic innovation. Referring to authors who put sustainability science in 'a constructive tension between a descriptive–analytical and a transformational mode' (Wiek, et al., 2012), one could say that with the Urban Pancakes we are looking for a transformational research approach[1]. To develop our approach we draw upon different

[1] Which is not the same as transformative research which in political sciences refers to research which leads to a shift or even a break in scientific paradigms.

exisiting perspectives, that in our view still fall short somewhat in serving the objective of transformational urban research.

In the social sciences you find agent based modelling, sometimes referred to as the 'third way' of carrying out social sciences, besides argumentation and formalization (Gilbert & Terna, 2000). Agent based modelling acknowledge the need for solution prototyping, even in het social sciences, but remain in the realm of simulation. Just like the concept of 'real gaming', despite what their name would suggest. Strong thing about real gaming, is that enables stakeholders from different perspectives to build towards a common perspective. To some extent we share the same theoretical basis as 'transition experiments' (Van den Bosch, 2010). A transition experiment is a specific type of innovation project that is aimed at exploring radically new ways to meet societal needs, such as the need for energy, mobility and health care.

In a sense urban pancakes touches upon emerging process design approaches, like reflexive planning (Lissandrello & Grin, 2011). And in addition, it is a very rich basis for learning and developing a common language on urban transition dynamics.

Contributing to the JPI Urban Europe objectives

So in this paper we formulate a concrete methodological response to two basic principles for the Urban Europe SRIA implementation: (1) "i*nterdisciplinary approaches to enhance understanding of urban complexity and generate radical new knowledge and concepts to tackle urban society's multifaceted challenges*." Relevant expertise and knowledge from the range of urban-related disciplines needs to be better and more systematically brought to bear

(natural sciences, the social and economic sciences, engineering and technology, planning, architecture, the arts…) in our quest for cities that are more vibrant and resilient hubs of economic and social activity, whilst minimising unintended social and environmental consequences; and (2) "*Transdisciplinarity, in order to ensure impact and relevance*."
Urban research should develop understanding, knowledge, tools and evidence to underpin the formulation of effective urban transition policies and strategies. It should also support subsequent implementation and contribute sociotechnical innovation to this end. This requires collaboration between interdisciplinary research teams, businesses, cities and other urban stakeholders; to ensure that the entire research, technological development and innovation cycle is addressed, that a milieu for co-creation is established and that outcomes successfully inform policy and implementation and subsequent monitoring of effectiveness (Robinson, D., et al., 2015).

Following these principles JPI Urban Europe objective is to "*enhance capacities and knowledge on urban transition*". In order to be able to reach this objective following the guiding principles, JPI Urban Europe looks for better instruments and approaches than the existing once in the RTDI landscape. The 'Urban Pancake' approach could be one entry point to work towards a new instrument that support disruptive urban innovation and urban transition. At the same time is takes into account interdisciplinary, transdisciplinarity and stakeholder involvement.

First experiments with instruments similar to the 'Pancake Method' have already been performed. The example from an organisation called City Mine(d) operating in the Brussels- and London area will give an insight in its implementation.

'Radical Prototyping'

In a vein similar to that of the 'Pancake Method', Brussels- and London-based organisation City Mine(d) deliberately blurs the boundaries between social and technological innovation and artistic creation. In a method it refers to as 'Radical Prototyping', societal, technological and creative ambitions attract and bind governments, citizens, industry and researchers into a coalition of the type required for systemic change. With the prototype as a nucleus, the coalition becomes a platform and neutral territory on which different stakeholders can discuss topical transition issues.

The term prototyping in this context refers to the definition of a prototype as "working artefacts; artefacts whose significance is not given in advance, but is discovered through the unfolding activity of co-operative design-in-use" (Suchman et al., 2002, p. 172). For City Mine(d) the starting point of a prototyping process is an opportunity it discovered within one of the dominant systems of society; take for instance water, energy, the economy or mobility. Within those systems, City Mine(d) tries to identifies the cracks [Swyngedouw, 2000]; the objects or practices that escape the seemingly all-encompassing logics of market or government. The process is initiated in urban public space, preferably the derelict sites of whom the ownership is contested or unknown. This double escape from the regulating scales that shape traditional innovation, allow for the process to become truly radical.

Within these cracks, together with users of the urban space, and stakeholders of the relevant fields, a prototype is envisioned. The prototype can be an product or procedure, has to meet a clearly defined human need, and should respect certain design standards. Once this ambition is defined, the process of creating the prototype is kick-started. The trajectory takes between 18 months and 2 years, and is in itself a collective learning curve. Citizens,

researchers, government and industry are invited to share what they know as a contribution to making the prototype state of the art. The sharing process is beneficial for all parties, as the amateur receives knowledge from the expert, and the expert is forced to translate his knowledge to a more applied level. This is the case for scientific knowledge, governance, but also citizen engagement.

Over the past 20 years City Mine(d) was able to realize over 100 shorter and longer process around Radical Prototypes. Most recently it finished a process on water in an urban context. In each case the prototype serves both as a target and as a propellant for the process. The biggest contribution to systemic change probably lies in the creation of coalitions. The diverse group of stakeholders and actors that work together in developing the prototype, in doing so develop a shared language, and in that language can explore and address true human needs.

Multi-stakeholder involvement, spontaneaous initiative

Targeting systemic change implies the involvement of many urban stakeholders: government, citizens, industry, civil society, start-ups, experts, researchers, … The initiative can lie with any of these parties.

Urban Europe has always had a clear focus on the human centred dimension of urban sustainable development. It is undeniable that the rise of innovative collective citizen action in cities has been a strong driver of (social) innovation, and an important source of learning on experimenting with systemic alternatives for organizing and governing the city.

System innovation, according to transition literature, comprises a typology of sociotechnical transition pathways (see e.g.: Geels and Schot, 2004). They differ in the level of coordination and where they get their resources. But as Geels en Schot argue, for innovation to be systemic, it requires not only a firm or industry to change, but also affecting user practices, cultural meaning, policy, and so on. Transition theory states that the (landscape) pressure on a system has to be strong enough in order for systemic change to have a chance to succeed. We find this pressure on European cities on many dimensions: climate change, growth and decline, healthcare, mobility, land use, biodiversity, and so on. At the same time, new technologies are struggling to find their way to the city, because of lack of co-creation, ownership and funding. Changes in practices and cultures are more often found in bottom-up innovations, where citizens develop alternative solutions and even new urban lifestyles in their neighbourhoods. At their end, these initiatives are not embedded in processes of up- or rescaling, and only seldom involve companies or industry.

Our observation is that the old innovation instruments and practices are no longer suited to bring about the systemic change which is needed to address the challenges cities face today. We believe that Urban Pancakes is an approach to innovation which could bring together innovation from top and bottom, giving room for shared ownership of new innovative solutions. Because Urban Pancakes is about real (urban) life experimenting, it allows for all stakeholders to discover and address the risks involved in radical (systemic) change. It connects the insights from transition theory to innovation process design, in a way that allows for application of innovation. It is also a step towards the development of an instrument specifically serving the Urban Europe SRIA, more than a generic term, serving lots of different purposes in practice.

Multi-actor reflexivity and prototyping systemic alternatives

What distinguishes urban pancakes from existing methods is the combination of a collective reflexivity in the process of elaborating the prototyping experiment, with the objective of building a systemic alternative to the incumbent regime solution.

We believe that this approach of systemic prototyping, could become an social and technological innovation instrument, that could serve citizens as well as governments or industry. For JPI Urban Europe it is a chance to further explore this approach and adopt it to its needs and start experimenting.

References:

(1) Geels, F. and Schot, J. (2007), Typology of sociotechnical transition pathways, Research Policy, 36, 399-417

(2) Gilbert, N. and Terna, P. Mind & Society (2000): How to build and use agent-based models in social science. Mind & Society, Volume 1, Issue 1, pp 57–72

(3) Grin, J., Rotmans, J. and Schot, J. (2010): Transitions to Sustainable Development - New directions in the Study of Long Term Transformative Change, Routledge, 398 p.

(4) Lissandrello; E. and Grin, J. (2011). 'Reflexive planning as design and work: lessons from the Port of Amsterdam,' Planning Theory and Practice, vol. 12 (no. 2), p. 223-248.

(5) Robinson, D., et al (2015), Transition towards sustainable and liveable urban futures. The Strategic Research and Innovation Agenda of the JPI Urban Europe.

(6) Suchman, L., Trigg, R., Blomberg, J. (2002): Working artefacts: ethnomethods of the prototype. Br. J. Sociol. 53 (June (2)), 163–179.

(7) Swyngedouw, E. (2000): "uthoritarian governance, power, and the politics of rescaling. Environment and Planning D-Society & Space 18(1): 63-76.

(8) Van den Bosch, S. (2010): Transition Experiments. Exploring societal changes towards sustainability. repub.eur.nl/pub/20714/Proefschrift_Suzanne%20van%20den%20Bosch.pdf

(9) van Wonderen, R. and Jonkman, H. (2015): De effecten van Thuis Op Straat Resultaten van een vierjarige studie. http://www.verwey-jonker.nl/doc/2015/De-effecten-van-thuis-op-straat_2641_web.pdf

(10) Wiek, A., Farioli, F., Fukushi, K. (2012): Sustainability science: bridging the gap between science and society. Volume 7, Supplement 1, pp 1–4