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Toward a spatial perspective on niche development: The case of Bus Rapid Transit

Frans Sengers [a,*], Rob Raven [b]

[a] School of Innovation Sciences, Eindhoven University of Technology, The Netherlands
[b] Eindhoven University of Technology, Utrecht University, The Netherlands

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ABSTRACT

This paper responds to recent criticism from geographers that the 'local–global' niche model in transition studies is spatially naïve. A number of relevant geography literatures (buzz-pipelines, global production networks, policy mobilities) are mobilized to develop a more geographically nuanced understanding of niche development. The result complements the original model by providing center stage to (1) the spatialities of the production and transfer of knowledge, (2) the geographies of the actor networks involved and (3) the dynamics of embeddedness by which these global networks and knowledge discourses become entangled with place-specific power relationships, institutions and infrastructures. To illustrate this empirically, we trace the tortuous innovation journey of Bus Rapid Transit – a promising new mode of urban transportation that is spreading rapidly across the globe.

1. Introduction

In recent years Bus Rapid Transit (BRT) – an innovative type of 'metronized' bus system – has burst onto the scene as a promising green mode of urban transport. The first large-scale BRT systems originated in Latin America and they have become widely lauded success stories as novel, comprehensive and cost-effective ways to 'do' mass transit in an alternative way. Especially within the last 10 years,

* Corresponding author. Tel.: +31 402475579.
E-mail addresses: f.sengers@tue.nl (F. Sengers), r.p.j.m.raven@tue.nl (R. Raven).

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this has sparked an unprecedented surge of imitators and an explosion in the size and spatial reach of the BRT niche. Many cities, especially in the developing world, have already implemented these systems. And, like mushrooms, more and more BRTs continue to pop up in every part of the globe (Wright and Hook, 2007; Hidago and Gutiérrez, 2013).

This spatial–temporal diffusion of an emerging sociotechnical configuration like BRT raises theoretical questions about the geography of sustainability transitions. Whereas previous contributions to this emerging research agenda inquired about 'the spatial' (Coenen et al., 2012), 'the national' (Raven et al., 2012), 'the transnational' (Shove et al., 2013) and 'the urban' (Hodson and Marvin, 2010) shaping transitions, our enquiry into the promises of a geography informed perspective takes the niche concept as its starting point. Attempts in the sustainability transitions literature to conceptualize how niches travel and how experimental initiatives become connected have used the notion of 'local–global' niche dimensions (Geels and Raven, 2006). The local dimension refers to projects in specific locales, whilst global refers to a socio-cognitive perspective that understands connectedness among experiments as actor-networks negotiating and translating locally specific lessons and expectations into generic, mobile concepts. This perspective has recently been criticized for lacking a more nuanced geographical understanding (Coenen et al., 2012; Hansen and Coenen, 2014). This paper aims to respond to this criticism by developing a more spatially nuanced model of niches, unpacking the geographies of the global BRT actor-networks and their discourses and the ways in which these become entangled in a specific local project in Bangkok.

To do so, we start by discussing the local–global niche model and enrich it by drawing in the complementary strengths of a number of geography literatures (Section 2). After a brief explication of methods (Section 3), we apply these insights to map the tortuous innovation journey of BRT (Section 4). This reveals how spatially distributed BRT systems are positioned discursively, who the involved actors are and their scalar connectedness. It also reveals how projects actually tap into world-wide networks of knowledge circulation and, vice versa, how these world-wide networks enable the diffusion of BRT systems in practice in specific places. By highlighting how places are 'mobilized' and reshaped as knowledge travels and 'lands', we reveal the multi-scalar niche dynamics at play. Finally, we discuss our findings and draw conclusions on how this explicitly spatial perspective on local–global niche development contributes to the geography of sustainability transitions research agenda (Section 5).

2. Spatializing the local–global niche model

Early pioneering work in the field of transition studies provided center stage to sustainable transport by focusing on the promising potential of new kinds of mobility systems. It recognized that there is underutilization of sustainable transport technologies and posed the question "why such technologies are not introduced into the market-place when their benefits to society are so evident" (Kemp et al., 1998: 175). The essential part of the answer proposes that technological change is locked into dominant socio-technical regimes. Incumbent actor-networks, material infrastructures, routines and institutional frameworks have historically evolved around the production, distribution and use of privately owned steel-and-petroleum cars, thereby providing disincentives for radical socio-technical alternatives (Hoogma et al., 2002; Geels et al., 2012; also see Dennis and Urry, 2009).

Alternatives in early stages of development, the argument goes, cannot compete on the basis of regime-derived selection criteria. Historical analysis shows that these alternatives develop initially in protective niches, where (some of those) selection criteria are less pressing. Niches nurture radical innovation through (I) stimulating social learning, (II) the shaping of new social networks and (III) articulating shared expectations (Schot and Geels, 2008), which eventually enables the innovation to compete in mainstream markets or empowers it to change regime selection environments in ways beneficial to the alternative (Smith and Raven, 2012). All this occurs in the broader context of wider 'landscape' pressures and opportunities (Geels, 2002).

Early niche-based approaches over-estimated the positive role of individual experiments in shaping protective niches (Hoogma et al., 2002). In response Geels and Raven (2006) developed a socio-cognitive local–global model of niches. Their work built upon actor-network theory and the sociology of knowledge to argue that place-specific actor-networks in experimentation generate place-specific, hands-on knowledge. Sharing this knowledge within a community aggregates it into more generic

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