Policy Learning and Sustainable Urban Transitions: Mobilising Berlin's Cycling Renaissance

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Abstract: Cities are increasingly seeking to learn from experiences elsewhere when planning programmes of sustainable transition management, yet the contingencies of policy-learning arrangements in this field have not been explored in great depth. This paper applies insights from the field of policy mobilities to the burgeoning field of transition management to critically explore a proposed 'learning relationship' between Berlin (Germany) and Manchester (UK) around cycling policy. Drawing on qualitative data, the paper casts doubt over the existing consensus attributing recent growth in bicycle use in Berlin to concerted governmental interventions. A multi-actor analysis suggests that contextual factors caused the growth in cycling and that policy has been largely reactive. The emergence and circulation of the Berlin cycling renaissance as a policy model is then traced through policy documents and interviews with actors in Manchester, UK, to understand why and how it has become a model for action elsewhere. It is concluded that Berlin's cycling renaissance has been simplified and mobilised to demonstrate the requisite ambition and proficiency to secure competitive funds for sustainable urban transport. The paper argues that attending to the dynamics of policy learning can enhance our understanding the successes and failures of urban transition management.

Key words: *sustainable urban transition, transition management, policy mobility, cycling.*

Introduction

Cities are increasingly seeking to learn from experiences elsewhere when planning programmes of sustainable transition management, yet relatively little research exists considering the origins, developments or influences of policy knowledge in long-term sustainability planning and urban governance. The following paper examines a proposed learning relationship between Berlin (Germany) and Manchester (UK) around cycling policy, developing an original study of the role policy knowledge and learning play in sustainable urban transition management. In doing so, the paper initiates a conversation between transition studies and the emergent multi-disciplinary research field known as 'policy mobilities' (McCann, 2011).

Cycling is now firmly on the planning agenda in many European and North American cities. Increasing the proportion of journeys made by bike is increasingly being recognised as one way in which cities can decrease the environmental impact of urban transit, improve citizens' health, and minimise socio-economic disruption in the pursuit of more resilient and sustainable futures (MacMillen *et al*, 2010; Parkin, 2012). As cycling policies are integrated into long term plans and visions of sustainable urban mobility, policy-makers are seeking to learn from successful interventions elsewhere. Conventionally, the experiences of Copenhagen and cities in the Netherlands have been circulated as best practice policy models for cycling promotion. Recently a number of other cities – such as Berlin - have emerged in this vein, notable for achieving relatively rapid increases in cycling despite more modest levels of investment (Parker, 2001; Pucher and Buehler, 2008).

Berlin has undoubtedly experienced an upsurge in the modal share (proportion of total journeys) of cycling in the last few decades, representing a significant reversal in the decline of bicycle use since cycling's heyday in the city in the 1960s (Berlin Senate, 2013; Pucher and Buehler 2007; 2008; 2012). This phenomenon has not escaped international media attention, where it has been dubbed a cycling 'renaissance' (Guardian, 2010; Daily Mail, 2013; Streetsblog, 2011) – a description adopted throughout this paper. Increasingly Berlin is being seen as an exemplar by cities hoping to achieve a rapid cycling renaissance with relatively modest investment. In August 2013, Transport for Greater Manchester secured

£20 million to spend on promoting cycling in the city through an inter-urban competition for the national government funded Cycle City Ambition Grant. Branded under the moniker 'Vélocity 2025', both the official grant application and accompanying promotional document emphasised establishing a 'learning' relationship with Berlin in order to help Manchester emulate their recent growth in cycling rates.

However, in-depth or critical explanations of Berlin's experience are, as yet, absent from academic, public, or grey literatures. This first half of this paper addresses this gap by critically exploring the origins and development of Berlin's recent growth in cycling rates. Subsequently the paper uses a policy mobilities approach to trace the motivations and processes underpinning Manchester's proposal to learn from the Berlin experience, and reveal their influence in mobilising and mutating the account of cycling in Berlin as a model for sustainable urban transitions. Through an exploration of proposals to establish a policy-learning partnership between Berlin and Manchester, the paper charts the emergence and mobilisation of the Berlin cycling renaissance as a policy model. The conclusion discusses the main implications for cycling policy-making and urban governance, and makes some tentative suggestions for future research at the interface between the study of policy mobilities and sustainable urban transition management.

Sustainable urban transitions, policy learning and cycling
Transition management is the name given to long-term governmental attempts at steering aspects of society (such as transport regimes) towards more sustainable future forms (Loorbach, 2007; Kemp et al. 2011). Transition research has conventionally orientated analyses towards informing current or future transition management practice. Habitually citing past case studies and generic models to demonstrate insights, transferability of transition knowledge is implicit. However, the literature has yet to critically consider the validity or suitability of policy knowledge or transfer and its influence. This section frames a critical analysis of causality in policy knowledge using the complex, multi-actor understandings of temporal change inherent in the transition framework.

Sensitivity to time is a central component in transition theory, where transitions in large socio-technical systems over time are popularly - and perhaps best - understood visually as an S-shaped curve (Figure 1). The diffusion of socio-technical innovations occurs in society over time through the stages of predevelopment, take-off, acceleration and stabilization breakthrough into widespread use (Rotmans et al 2001).
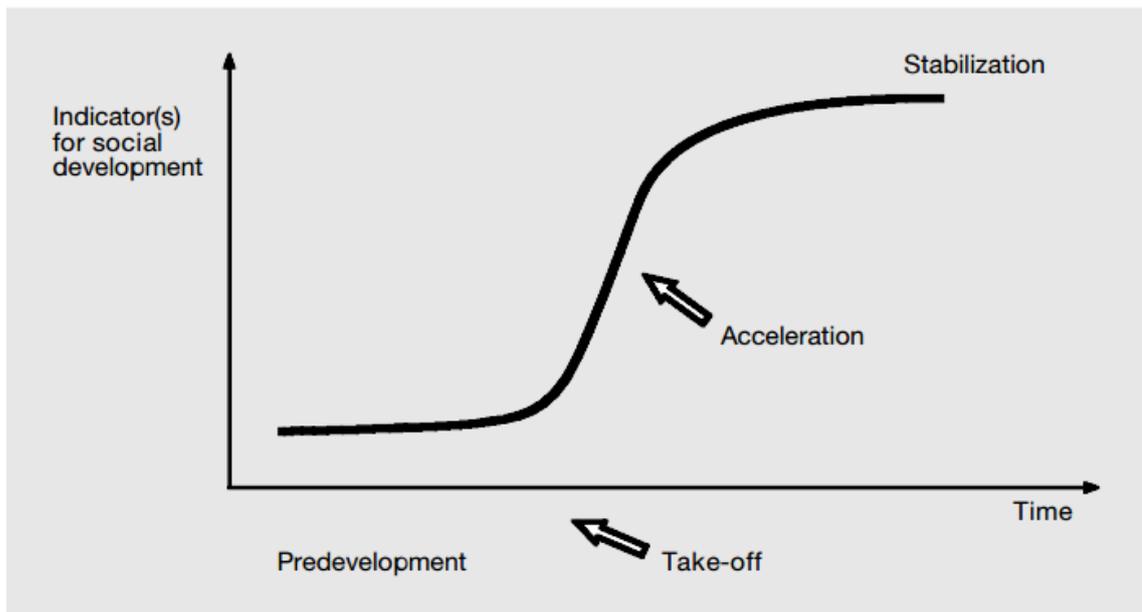

Figure 1 The four stages of transitions
Source: Rotmans et al., 2001.

Geels et al. (2005) expand on this theme through their multi-level perspective (Figure 2), which traces the development of socio-technical transitions through different levels in society, highlighting the dynamic and effective interplay between three levels in facilitating a transition. The niche-level represents where innovations are initially invented and/or developed into a 'socio-technical configuration' (e.g. steamboats, hydrogen-fuel-cell-powered cars, or the modern-day bicycle etc.). Niche-level institutions could include research and development initiatives, urban laboratories, or alternative informal communities. The socio-technical regime-level represents large complex systems in which different processes and activities combine in a 'dynamically stable' way – incremental changes do occur here but the prevailing dynamics maintain a steady system (see Holz et. al., 2008 for detail); examples include household energy supply, telecommunications, or personal transport (Kemp et. al., 2011). Finally, the landscape-level represents the

influential social and environmental context of niches and regimes; including: physical features such as urban infrastructure and street structure, political systems and governance, economic forces, and social and cultural values (Kemp et. al., 2011).
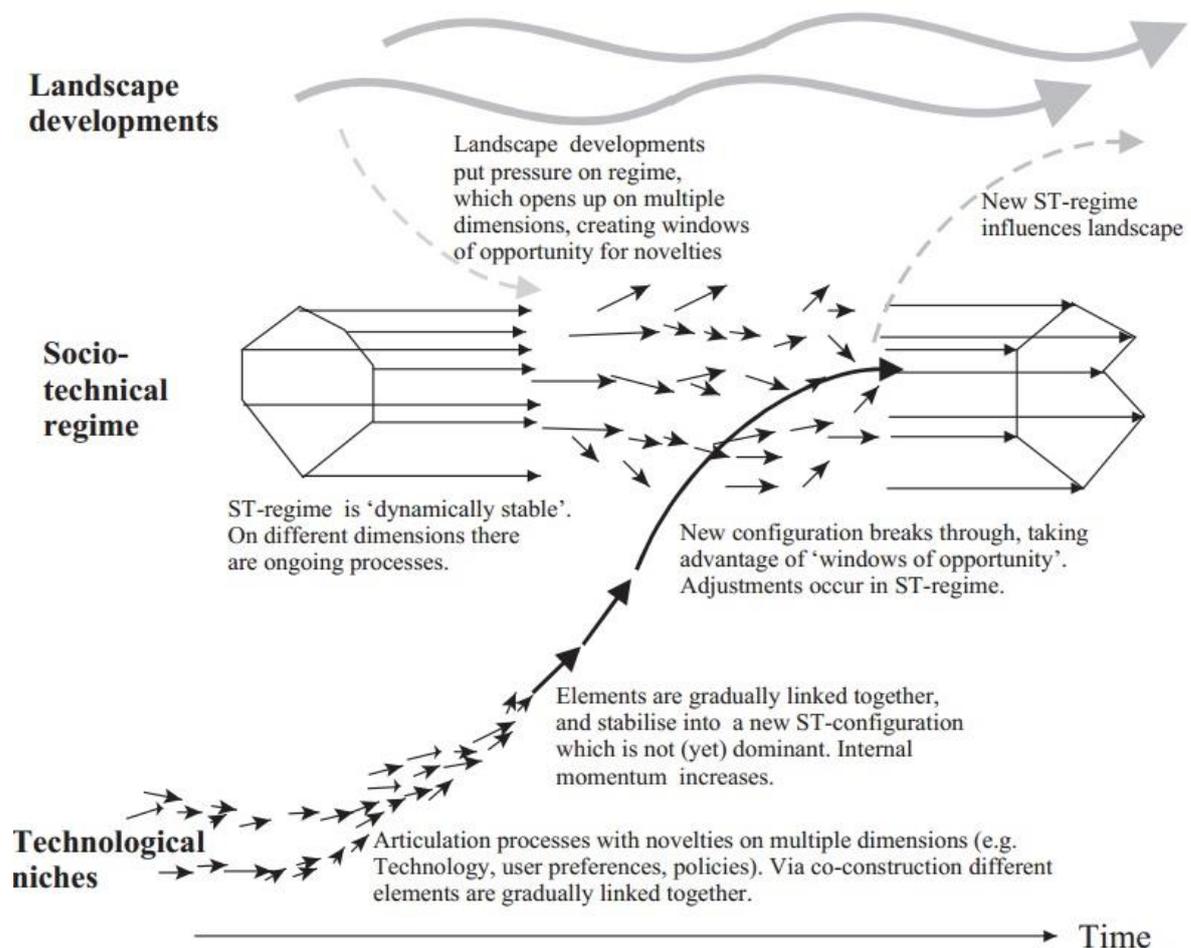
Figure 2 A dynamic multi-level perspective on system innovations
Source: Geels *et al.*, 2005.

Figure 2 illustrates how these three levels interact and feedback in the development of a transition over time. Through an evolutionary market-based process, technological niches coalesce into a socio-technical configuration that becomes increasingly adopted in society. This phenomenon gains momentum over time, eventually taking advantage of windows of opportunity that are opened by landscape-level pressures to break through and fundamentally alter a socio-technical regime - in this case a city's personal transport system.

Transition management is the practice that aims to stimulate and guide this process through the three levels to steer a transition. Transition management can be conceptualised as top-down through altering the landscape and socio-technical regimes to open up windows of opportunity, and/or bottom-up in encouraging innovation and development from the niche level (Meadowcroft, 2005). The multi-level perspective suggests that alignment between pressures and opportunities at all three levels facilitate regime shifts (Geels, 2002; Geels and Schot, 2007; Schot and Geels, 2008).

Despite sustainable transport being firmly on the research agenda (cf. Van Nunen *et al.*, 2011), studies (or even mentions) of cycling are relatively rare in transition research. Geels (2012) has set out a broad agenda for the study of transport transitions, while some work has started to conceptualise cycling transitions, noting that 'measures to foster cycling are often implemented on an ad hoc basis, lacking strategic focus and a more profound understanding of bicycle cultures' (Gossling, 2013). Kemp et. al. (2011) note that cycling cannot be conceptualised as a regime in itself as it is not a socio-technical system; alternatively quoting Truffer *at al*'s (2008: 1361) exemplification of personal mobility as an archetypal regime. The governmental activity of promoting cycling can thus be understood as a 'programme for system change' (Meadowcroft, 2005: 484), representing one facet of transition management. Although cycling cannot be considered a new innovation as such, a transition perspective is relevant because cycling currently functions as a niche socio-technical configuration in low-cycling contexts. Evans takes this idea on in briefly exemplifying cycling in the Netherlands since the 1970s as a successfully managed top-down transition - conceptualising changes in landscape developments in the form of a 'massive reversal in transport policy' as opening up '… a window of opportunity…' for cycling to impact upon a transformation at the regime and landscape levels (Evans, 2012: 161).

Berlin's experience bares all the hallmarks of effective transition management, having supposedly been initiated and guided through local transport policies as part of a long-term vision of sustainable mobility (Berlin Senate, 2011). As part of the City Council's long-term sustainability vision (see Manchester City Council, 2012; Cavan and Aylen, 2012) - Manchester can be seen attempting to emulate this through the Vélocity programme (see above: Vélocity, 2013).

As complex societal phenomena transitions necessarily involve multiple stakeholders and groups (Geels et.al., 2008; Rotmans and Loorbach, 2009). Innovations are thus situated in very specific geographic contexts of localised norms and values, politics, physical environments, economies, attitudes, and cultures, all of which influence transition pathways (Truffer and Coenen, 2012). The role of geographical context in framing sustainability transitions has been highlighted as an area requiring further research (Coenen *et al.,* 2012), including the importance of geographical and/or social proximity between agents at different levels of the multi-level framework, the role of urban and regional policies and their interaction with national policy, and the social and political dimensions of place-based transitions (Hansen and Coenen, 2013; Lawhon and Murphy, 2012; Raven et al 2012.

Policy mobilities and learning

Policy mobilities research is well placed to address these concerns. Rooted in work on policy transfer in political science, work on mobility in sociology, and geographical theorisations of space and scale (Temenos and McCann, 2013), it offers well-developed analytical and nuanced methodological approaches to explore the mechanisms and influence of policy learning in urban governance. Theoretically, this paper takes particular note of policy mobilities' geographical conceptualisation of cities being at once territorially fixed and, in a mobile and globalising world, relationally constructed (McCann and Ward, 2010). This dialectic tension between fixity and flow is inherent in the phenomenon of policy learning, where policy knowledge is conceived in one territorial context, circulated relationally in time and space to be adopted in a different context (McCann, 2011). Policy mobilities work focuses on this tension in how places learn from one another, and its influence on policy knowledge and understanding (McCann and Ward, 2011).

This theorisation necessitates an awareness of the reciprocal and dynamic character of the policy learning process in co-constructing the policies, actors, motivations, and subjectivities that propel their dissemination (Temenos and McCann, 2013; Ward, 2007). Comparative urbanism is most useful for the identification of regularities over and anomalies between cities, forcing the researcher to consider different cities and contexts in their comparisons (Robinson, 2002; Dear, 2005; McFarlane, 2010; Lees, 2012). However, Ward (2008) advises

that several aspects of comparative urbanism must be improved if it is to make a return in urban geography, including linking back to existing theories (rather than solely generating empirical knowledge) and perceiving cities as relational products of social networks and actions rather than discrete entities. The policy mobilities approach rejects the notion of objective best practice knowledge, or its neutral transfer between contexts (Clarke, 2012). As policy knowledge is 'mobilised' and circulated across time and space, by different actors, through networks, and for particular purposes, its content and understanding has been observed to 'mutate' (Peck and Theodore, 2010a; Peck, 2011).

Like transition management, the mobilities literature falls short in the way of research into cycling, urban transport, or sustainability policy. However, a small amount of work on urban transport has featured in the policy transfer literature. Marsden and Stead's (2011) literature review offers a handful of pertinent references part of the (important, but somewhat predictable) holistic contention that institutional, cultural, economic and geographical conditions all influence policy search, interpretation, and adoption processes. Following this, Marsden *et al*. (2012) provide a useful empirical research piece that additionally highlights the influence of organisational behaviour, 'trusted peer networks' (Wolman and Page, 2002), and individual limitations on the process of transport policy learning.

Dimensions and Dynamics of Transitions

Despite calls for a greater emphasis on understanding various geographical dimensions of political, social and organisational learning in both the transition and policy mobilities literatures (Coenen *et al.,* 2012; Temenos and McCann, 2013), and their simultaneous emergence and now extensive contributions, explicit contact between the two fields has been limited. This paper argues that policy mobilities can provide both transition management (as a governance practice) and transition research with critical analytical tools to challenge and appropriately select, interpret, and apply best practice policy models. Conversely, transition theory can offer policy mobilities research conceptual apparatus to better consider complexity and temporality in policy learning.

Socio-technical transitions and policy learning dynamics are necessarily complex and multi-actor phenomena; so in order to sufficiently analyse causality and effect, a single in-depth case study is deemed preferable for this research. This approach and the data collection methods outlined below have also been chosen in order to allow for greater detail and depth of qualitative empirical analysis – an approach cited as both methodologically desirable (Peck and Theodore, 2012; Cochrane and Ward, 2012; McCann and Ward, 2012; 2013) and identified as problematically absent (Temenos and McCann, 2013) in recent discussions of policy mobilities research. More specifically, this research follows Peck and Theodore's (2012) suggestion to use a 'distended case approach' – a flexible and exploratory mode of enquiry that allows research to 'follow' the movement and mutation of policy knowledge in its (often unpredictable) entirety; whilst remaining integrally focussed on an identified in-depth single-case study (Cochrane and Ward, 2012; McCann and Ward 2012; 2013).

In 'following the policy', this research starts with Manchester's Vélocity 2025's proposal for a policy-learning arrangement. Vélocity 2025 case was chosen in part because it is in an early stage of development and formed the focus for the ESRC funded Manchester Cycling Lab research project at the University of Manchester. Moreover, Manchester has been noted for its role in inter-urban policy learning networks (Cook and Ward, 2011), but its vision for a sustainable transport system have yet to be researched in this vein. Berlin is chosen as the other focus city due to its particular prominence in the Vélocity documents and the combination of being both unchallenged and under-researched as a cycling policy model yet offering available statistics, policy information, and interview participants. Existing information similarly informed the choice of time-frame from 1990 to 2013, which aligns with the length of Berlin's cycling transition and Vélocity's plans (*ibid*., 2013).

The complex and multi-actor nature of sustainable urban transitions informs the adoption of an in-depth, qualitative and multi-stakeholder approach. Primary data collection was conducted during study visits to Manchester and Berlin in the spring and summer of 2014. Primary data were collected through document examination and in-depth interviews with a variety of stakeholders and actors. Twenty-five semi-structured interviews were conducted, in addition to numerous short interviews and analysis of secondary data in the form of documentary and policy evidence to contextualise responses. The choice and variety of

participants was guided by the key groups that animate transition theory and previous cycling research (Parkin, 2012).

Informed by previous work in policy mobilities, the data collection process was designed as an exploratory and flexible process whereby contacts were snowballed from the initial participants. This reflexive and exploratory approach provides a rich qualitative data set and allowed the research to 'study through' unforeseen networks of influence and causality in both Berlin's cycling renaissance and the circulation and mutation of this policy knowledge (McCann and Ward, 2012). This paper now turns to examine the causes of Berlin's cycling renaissance, before tracing its mobilisation as a policy model for cycling transitions.

Re-examining Berlin's cycling transition

Having experienced a rapid increase in bicycle use in recent decades - Berlin is increasingly discussed as a model for cycling promotion in academic, media, and governmental discourse (Pucher and Buehler, 2008; Guardian, 2010; Vélocity, 2013; Department for Transport, 2013). Despite its international reputation, academic analyses of this phenomenon feature only marginally in transport research literature. Currently, only a handful of studies - mostly featuring Berlin as part of multi-city analyses - have been published (Pucher and Buehler, 2007; 2008; 2012; Brugman, 2012; Meng *et al*, 2014). Nonetheless, John Pucher and Ralph Buehler are generally cited as authorities here producing three notable publications (*ibid,* 2007; 2008; 2012) featuring analyses of Berlin's cycling renaissance. Although occasionally discussing causal factors unrelated to public policy (*ibid*, 2014) - these studies all attribute this phenomenon to concerted governmental intervention and there exists a strong consensus that this phenomenon has been intentionally instigated, encouraged, and guided by the city's transport policies.

These studies present Berlin as an exemplar for other cities to learn from when developing cycling policy; discussing expansion of cycle infrastructure, traffic calming measures, the integration of cycling with public transport, and educational schemes as exemplar policy measures. However, there is little critical analysis of causal mechanisms or insights into how or if policy measures can be successfully transferred and implemented in other cities. The prevailing sentiment of this small body of work is succinctly communicated in the concluding remarks of Pucher and Buehler's (2007: 51) case study of Berlin:

'(Berlin) has roughly doubled cycling levels in the past two decades by a concerted effort to improve cycling conditions in the city (…) it offers some valuable lessons for cities of comparable size on how best to promote cycling in such a large city.'

The message here is that the Berlin authorities have intentionally and successfully managed a significant increase in cycling as means of transport over the last two decades and thus offer useful lessons for cities looking to do the same.

Existing studies focus on quantitative data and facts regarding infrastructure and transport design, but lack the kinds of qualitative data analysis that might enable a critical consideration of causation. The prevailing consensus is based on a weak correlation between policy efforts and levels of bicycle use, without any consideration of other possible causal factors. One solitary study has been published on Germany's national 'bicycle boom' that challenges such assumptions surrounding the agency of public intervention. Maddox (2001) collates insights from a handful of German writers that identify factors other than policy – namely: urban congestion, oil related economic shocks of the 1970s, increased public environmental awareness, and changes in urban form – as causing the 'German bicycle boom' of the 1970s – 1990s.

Four causal Factors for Berlin's Cycling Renaissance
Although its national focus and time-frame (pre-2001) limits this article's relevance to Berlin's recent cycling upsurge, the prevailing arguments surrounding alternative causality suggest other possible explanations may exist for Berlin's cycling renaissance. Analysis of documentary evidence and interviews identified four prevailing causal factors for Berlin's cycling renaissance: (a) the relative cost of cycling, (b) the relative convenience and speed of cycling, (c) Berlin's cultural-cum-political demographics, and (d) the city's pre-existing urban form. These four prevailing causal factors are discussed critically in reference to statistics and secondary sources, and their collective influence in relation to governmental interventions.

Interviewees stated the lower monetary cost of cycling relative to other transport modes as a significant reason for increased bicycle use. Responses emphasised this as the single most influential motivation for bicycle use whilst perceiving this as originating in high levels of

economic deprivation in the city. This explanation given by a mechanic at Keirin Cycle Culture Café was typical:

> 'Because a lot of people around here don't have much money (…) cycling is just like really cheap, it's definitely the cheapest way of getting around (…) you can often find a bike pretty cheap, then you don't have to pay for public transport.'

Cost is recognised as important in transport choice (Frank et al., 2008) and Maddox (2001) cites economic shifts as influencing the growth in cycling in Germany since the 1970s. Berlin's local economy has struggled following reunification in 1990 (Krätke, 1999; European Commission, 2014), its public finances are notoriously fraught (Färber, 2014) and poverty and unemployment rates have been comparatively high - reaching a peak of 19% in 2005 (Berlin Chamber of Commerce, 2011). This attribution of poverty is also supported by a strong positive correlation between Berlin's most deprived districts and bicycle use, although, these districts may potentially be predisposed to higher cycle use due to their centrality and compact urban form (Berlin Senate, 2013b).

Half of the respondents specified cycling's speed compared to motorised modes for many journeys as a reason for high bicycle use in Berlin, emphasising traffic congestion as the driver of this perception. Perceived levels of comfort and convenience of bicycle use was also emphasised by respondents, contrasted against the relative hassle and cost of car parking. Although data on road behaviour or journey times by transport mode in Berlin are not readily available, traffic congestion and parking restrictions are certainly notable problems in Berlin (Berlin Senate, 2014; Statista, 2014) and most journeys lie comfortably within the range conducive for cycling, lending credence to these claims. Regardless of statistical backing, the interviews reveal the significant influence of a widespread perception of cycling's effective speed, convenience and comfort (Tranter, 2012).

Responses also cited prevalent cultural and political values as reasons for increased bicycle use, emphasising cultural and political inclinations particular to Berlin as major factors. Berliners' awareness of the environmental and health benefits of cycling are linked to the emergence of cycling and bicycles as popular fashion and status symbols since around 2006 as causal factors. As the female owner of Radmutter bike shop put it:

"….in Berlin we are modern, we are not fat, you know?"

Berlin has developed a global reputation as a creative hub and fashion and cultural capital since reunification (Colomb, 2012; Shaw, 2005). Significantly, Berlin's particularly alternative and hipster image has become increasingly entwined with a form of fashionable bicycle culture (Fick, 2013; The Bike In My Life, 2012; Daily Mail, 2013). Berlin also has a strong green and environmental political movement, with the Friedrichshain-Kreuzberg - Prenzlauer Berg East constituency nominating the first and only directly elected Green party MP to Germany's national parliament. Averaging a 20% modal share, these districts boast the highest cycling rates in Berlin (Berlin Senate, 2013).

Although attribution is difficult here (far from every Berliner is a hipster or environmental activist), identity is a key factor in determining propensity to cycle (Skinner and Rosen, 2007). The influence of Berlin's particular cultural-cum-political milieu on bicycle use can certainly not be ignored, and it is argued that this has at least supported Berlin's cycling renaissance.

Supporting recent studies of Berlin's markedly 'polycentric' form (Horn, 2013; Meng et al., 2014), respondents also cited spatial structure as an important reason for high bicycle use. The average length of journey in the city is around 6km (Berlin Senate, 2013b) with 45% of journeys being particularly cycling-friendly at less than 3km (Pucher and Buehler, 2007; Parkin et. al., 2007). A senior transport planner at the Berlin Senate Department for Urban Development highlighted how Berlin's inherent journey patterns favour cycling as an optimal transport mode for a large proportion of journeys:

> "If you consider the mean trip length of people living in Berlin it's (hardly) above 3km (…) you end up with actually (…) quite a small number of longer trips, this is because you have the right structure in Berlin."

Responses noted Berlin's particularly wide and spacious streets as enabling both ease of bicycle use and the development of cycle infrastructure. Pertinently, the city had actually built an extensive network of designated cycling road infrastructure long before the 1990s. Grandiose and expansive boulevards have historically been a significant spatial feature of Berlin. Nonetheless through successive car-orientated planning agendas the building of

segregated bike lanes to allow more space for motor-vehicles had been standard practice from the mid-1930s until around near end of the century (Maddox, 2001; Bracher, 1987; Allen, 1987). Ironically, Berlin owes its bicycle friendly urban form to planning agendas either contrary to, or detached from, motivations of cycling promotion. Studies suggest that in the context of low bicycle use (as Berlin had until the 1990s), segregated cycle lanes can nurture increased levels of cycling participation to a significant extent (Wardman *et al.*, 2007; Tilahun *et al.*, 2007). Given an inherited urban form conducive to high cycling rates– wide spacious streets, extensive segregated cycle infrastructure, and prevalent cycling appropriate journey lengths – pre-existing urban form seems to have played a key role.

Given the existing consensus around Berlin's cycling renaissance, the four sets of causal factors discussed here highlight a notable omission – the influence of the city's cycling policies. The transport consultant to the Berlin Senate highlighted the timing of policy interventions and levels of investment:

> "There was no money given to this programme until (…) about 2001, 2002, so the first seven years were kind of lost, was only on paper. So from 2002 onwards there was some money in this, I think (…) began with about a million euros per year and it's about now up to two-and-a-half."

By 2001 cycling's modal share in Berlin was already above 10%, up from around 5% for the city as a whole in 1990 and only 3% behind the 2008 level (Pucher and Buehler, 2007). Crucially, the Senate's first cycling strategy wasn't adopted until November 2004 (Berlin Senate, 2011). By this time Berlin's cycling renaissance was well underway.

Interviewees from the local government revealed the Senate's surprise at the rate of increasing bicycle use and personal doubts about the influence of local governance. Far from initiating growth, the city's long-term transport strategy had to be modified in order to cope with it. A representative from VCD (Transport Club Germany) and leading member of the Berlin Bicycle Council summed it up as follows:

> "The politics only follow the tendencies (…) the politics are only following (…) trying to cope with the trend."

This insight could perhaps be attributed to modesty (on the part of city officials) and partiality (on the part of VCD campaigners) if it weren't for strong supporting evidence in the timing of investments and the inclusion of cycling policies in the city's wider transport strategy plans. In short, Berlin's initial and most rapid period of expansion in bicycle use cannot possibly be attributed to the city's efforts to promote cycling due to the incongruent timing of such efforts with cycling uptake.

The comments of planners and consultants also point to low levels of investment throughout this period, both in comparison to similar cities (Brugman, 2012) and considering cycling's already significant modal share in Berlin. The Head of the Senate's transport division, Burkhard Horn, has spoken openly about the city's enduring lack of investment in cycling since the 1990s (Horn, 2013; The Bike In My Life, 2012) and it has been reported that the city spends eighteen times more on its three opera houses than it does on cycling (Spiegel, 2011). In the aforementioned context of Berlin's economic malaise, the city's policies were attributed to a chronic lack of public funds by four of the interviewees. Interviewees also mentioned a lack of political willingness and persistently car-orientated political directives as a significant barrier to investment; a sentiment that resonates with the longstanding influence of the car lobby in German transport politics (Spiegel, 2011; Schwedes, 2011).

Cycling Policy and Sustainable Transitions

Berlin's policy interventions in cycling since the 1990s can be characterised as a reactive management of an unexpected upsurge in cycling, rather than a proactive strategy to intentionally and methodically instigate increased use. Funding limitations hampered cycling-specific policies that were not even implemented until the upsurge was already well under way in the early-2000s, with the result that their impacts have been (admittedly) limited. Maddox's (2001) doubts as to the purported influence of policy on increased bicycle use in Germany appear to align with Berlin's experience, whilst the predominant notion of a policy-led programme of transition appears largely inaccurate.

Based on the evidence analysed above, it can be argued here that cycling as mode of transport had already passed through the pre-development and take-off stages by the time

concerted pro-cycling interventions could have influenced bicycle use. According to Berlin's transport department, Berlin has a natural limit of around 18-20% modal share for cycling. Arriving at this level could therefore be seen as something of an absolute end point in the diffusion of cycling as socio-technical innovation, or a completed transition programme. An estimation based on the trajectory of cycling's diffusion in Berlin suggests that the modal share of cycling when the Senate's first cycling strategy was implemented in 2004 was accelerating towards completing its diffusion in society. This temporal mismatch undermines previous attributions of concerted governmental intervention in causing Berlin's cycling renaissance.

Berlin's transport regime appears to be experiencing a transition towards a more sustainable configuration. Having accumulated momentum through the 1990s, the diffusion of cycling by 2004 can be observed as breaking through to alter the form and constituent processes of the city's transport regime. Cycling can even be observed altering the wider landscape around this time, manifesting in local politics through the emergence of numerous local bicycle advisory councils since 2003, whilst also exerting its health and environmental credentials, and expanding cultural value through its emergence as a fashion and status symbol. Contrary to existing consensus, a significant facet of this transition – cycling – has not been initiated or significantly guided through transition management. It is impossible, however, to rule out the agency of local governmental efforts in encouraging further growth in bicycle use since 2004. What can be defined as reactive transition management may have encouraged the later acceleration and stabilization of cycling as mode of transport and facilitated its wider sustainability impact. For instance, physical infrastructure has certainly been altered to better accommodate higher bicycle use, although lack of investment has likely limited impact here.

Mobilising Berlin's Cycling Renaissance
An almost ubiquitous contention in policy mobilities research has been the importance of territorial context in determining the extent and suitability of learning arrangements (Benson and Jordan, 2011). Research here consistently observes strong positive correlations between fruitful learning and similarities in territorial context (*ibid*, 2011; Temenos and

McCann, 2013). This section considers how the potential for Manchester to learn from Berlin's cycling policy model is limited by their fundamentally incongruent territorial and temporal contexts.

Manchester and Berlin have significantly differing urban forms. Critically, Manchester cannot be said to enjoy the abundance of wide streets and pre-existing network of cycle infrastructure, nor the dense inner-city residential districts inhabited by a particularly young, impoverished and environmentally aware population that underpinned Berlin's cycling renaissance. Similarly, the Berlin phenomenon is causally linked to high and rising levels of deprivation and unemployment in the city, the likes of which are not even nearly evident in Manchester (Greater Manchester Chamber of Commerce, 2014). The difference in funding is even starker with Vélocity's two-year £20 million grant endowing Transport for Greater Manchester with around four times the amount the Berlin Senate currently has available to invest in cycling, and more than ten times that which was invested initially in the early-2000s. In transition terms, Manchester does not exhibit the same spatial, cultural-cum-political, or economic landscape-level pressures that opened up a window of opportunity for cycling in Berlin. The incompatibility observed here can then be understood as indicative of the dialectic tension between cities being territorially fixed – idiosyncratic in context and experience – on the one hand, and policy knowledge being constructed, circulated, and understood relationally across space and time on the other (Bulkeley, 2006).

As argued above, Berlin's pro-cycling policies have been reactionary, intervening at a stage when cycling was already breaking through to alter the city's transport system and wider political and cultural landscape. By contrast, Manchester is seeking to initiate growth from a significantly lower modal share, and intervening at this earlier stage of diffusion will likely require different strategies (Schot and Geels, 2008). This contextual misalignment can be observed in the differing planning strategies. Manchester is targeting more participation from inexperienced cyclists and so plans to build more physically segregated cycle lanes (Vélocity, 2013) with the aim of reducing 'fear of cycling' (Horton, 2007). By contrast Berlin has been removing segregated infrastructure in favour of on-road cycle lanes for a number of years now, perhaps indicative of the increased collective visibility and confidence in safety associated with higher bicycle use (*ibid*, 2007; Wardman *et al.,* 2007; Tilahun *et al.,*

2007). Berlin transport planners have little experience relating to Manchester's position and so it is reasoned that learning here will be limited.

This incongruent coupling is based on a policy learning model that assumes that Berlin's cycling renaissance was managed through targeted governmental intervention since its early stages. The next section outlines the factors that drove the mobilisation, circulation, and mutation of this policy model in Manchester and the UK more widely.

City branding, competitive funding and effective policy learning

Analysing interviews with Manchester Vélocity bid developers and relevant policy documents reveals the motivations, rationales, and processes leading to the Berlin policy-learning proposal. Three influential factors led to the inclusion or 'mobilisation' (Peck and Theodore, 2010a) of the Berlin case in the Vélocity bid: professional networks and the marketing value of high profile exemplar cities, the translation of Berlin's trajectory into a quantitative target, and coerced policy learning through the influence of funding bid guidance.

Professional networks and existing commercial relationships were emphasised as having strongly influenced both the specific account of, and the decision to include, the Berlin example in the bid. The lead bid writer noted that his ethical communications agency had secured the contract to produce the Vélocity bid and programme from Transport for Greater Manchester having worked with them on previously successful campaigns. Pivotal research into the experiences of the featured German cities had been provided by one of their German partner companies – Fairkehr - whom the Manchester company had developed a good relationship with through a European network of sustainability communications agencies (Creative Concern, 2014). Critically, Fairkehr had previously worked on cycling campaigns for a number of local governments in Germany (Fairkehr, 2014).

Given the aforementioned explanations attributing Berlin's experience to policy, it is understandable that the research provided by Fairkehr corresponded with this consensus. However, the consultancy industry depends upon selling policy knowledge (Peck, 2003; cited in Clarke, 2012: 34), and it was also certainly not in their commercial interest to

disseminate any doubts as to their own, nor their current or potential future clients', purported successes. Within this context little motivation exists for any of the actors involved in the policy learning process to challenge received wisdom surrounding Berlin's cycling success.

The dissemination of the Berlin exemplar through this professional network can also be seen to have mutated this policy knowledge through its inclusion in a competitive bid document:

> 'Manchester plans to establish a longer-term partnership with a number of German cities including Berlin (…) to learn from their extensive experience of infrastructure and behavioural change programmes that have taken cycling levels in key German cities on precisely the same growth curve that we'd like to create across our city region.' (Vélocity, 2013)

It has been previously observed that policies have been translated into both English and scientific language in the policy learning process (Peck and Theodore, 2010b [cited in Temenos and McCann, 2013: 348]). Berlin's experience has been similarly translated and simplified here into a marketable language of co-operation and growth, whilst being uncritically categorised as representative of other German cities. In the context of an inter-urban competition for funds, the Manchester bid framed the Berlin policy experience in a particularly (and successfully) marketable way and in doing so discursively framed cycling policy as a matter of infrastructure and behavioural change. The Berlin model mutated from previous descriptions (Pucher and Buehler, 2007; 2008; 2012) into an appealingly simple two-stage process.

The above quote alludes to the second factor influencing the mobilisation of the Berlin model – the known quantitative trajectory of cycling growth in Berlin. The impressive rate at which cycling's modal share increased (*ibid*, 2012) is enshrined and repeatedly mentioned as a primary quantitative target in the Vélocity programme and bid (Vélocity, 2013). Interviewees from Transport for Greater Manchester, Manchester City Council and the bid writers explicitly recognised that the similarity between Berlin's initially low base level of cycling and Manchester's start point underpinned the rationale for the proposed learning partnership.

This supposed similarity is critical and distinguishes the relationship between Manchester and Berlin as one of learning rather than simply following best practice. Rather than positing the Berlin approach as a universally applicable model, the bid document attempts to construct similarities between the two cities in terms of the initial levels of cycling and the need to achieve big gains with minimal investment. Emphasising the quantitative aspects of Berlin's experience offers a clear rationale for commensurability and thus the possibility of learning between the two cities. The statement of ambition and intention is effective but overlooks the qualitative facets of the Berlin model relating to the causal mechanisms and the development and evaluation of specific policy instruments. This feature of the Vélocity bid frames Berlin's experience simply as a quantitative success, far removed from the complex, co-evolutionary, multi-stakeholder, and multi-level process described in this paper, or even the previous explanations that it challenges (*ibid*, 2007; 2008; 2012). In this sense, the Berlin case is presented not so much as a best practice, but as a best target.

The Vélocity bid writers were not alone in identifying German cities as appropriate examples to follow. The final key motivation for adopting Berlin as a role model was driven by the suggestion to learn from other cities in the Cycle City Ambition Grant guidance document, which specifically name-checked Berlin:

> 'In addition to London many overseas cities starting from a low base in the amount of cycling and seeking transformational change examples include Edinburgh, Berlin, New York, Paris and across cities across Germany (over the past decade the percentage of trips by bike in Germany has increase from 9.5% in 2002 to 14.7% in 2011). The best international examples show how a successful approach can be taken to increase cycling numbers…' (Department for Transport, 2013: 11)

The desirability of a German comparator highlighted in the Department for Transport bid guidance, alongside the existing links between the Manchester bid writers and Fairkehr, underpinned the decision to include Berlin.

While the Department for Transport did not participate in this research an important further avenue of research would be to trace the reasons and information networks which underpinned the inclusion of these cities in the funding guidance. Nonetheless, the

suggestion was taken on by Vélocity as well as other bids (e.g. West Yorkshire Metro, 2013). The Department for Transport guidance can thus be seen to have disseminated a particular version of cycling best practice, mobilising exemplars based on their simple quantitative relevance (base level and successful trajectory) and grouping these cities under the causal assumption of policy-led change.

The competitive context in which the development of the bid took place represents an omnipresent force impelling the circulation of the Berlin policy model in the case of all three factors analysed. Through the Cycle City Ambition Grant scheme, the Department for Transport explicitly utilised funding incentives to encourage competing cities to produce 'ambitious' policy programmes to be judged according to their 'strategic, financial, economic, commercial and management cases' (Department for Transport, 2013). Evidencing policy learning is a de facto requirement of political legitimisation and access to funding (Betsill and Bulkeley, 2004), and this competitive pressure led Transport for Greater Manchester to hire a professional agency to produce the bid in the first place, who subsequently utilised a peer network to obtain research into the Berlin case study with the aim of demonstrating the necessary 'ambition'. This competitive incentive can then be observed as motivating the inclusion of the proposal to learn from Berlin in the Vélocity bid.

Underpinning this process in its entirety was the explicit association of learning from elsewhere with 'ambition'. As both the source of funding and information in the Cycle City Ambition Grant process, the Department for Transport has played a powerful role in establishing a particular version of cycling policy knowledge learning that has subsequently mutated through multiple scales of governance and networks of communication.

Conclusion

The transition literature is peppered with cases presented as offering insights for transition management practice in other contexts. However, there is a need for greater understanding of the contexts within which policy learning occurs, which underpin the transferability and epistemological validity of such insights. This paper contends that it is in the best interests of researchers and practitioners to do just that if the benefits from policy-learning arrangements are to be achieved. Transition theory provides a conceptual framework that is

well suited to the critical interrogation and evaluation of the specific role played by policy in driving complex, co-evolutionary, and multi-stakeholder change. This paper has produced a nuanced explanation of Berlin's cycling renaissance that challenges the solitary attribution of policy in what is an emerging best practice policy model. In conceiving Berlin's cycling renaissance as a complex socio-technical phenomenon, the transition approach has framed a methodological and analytical consideration that highlights multiple factors of causation.

In Berlin, levels of cycling increased not from concerted governmental intervention, but from a range of other causal factors. Endowed with a 'polycentric' structure, abundant cycling-friendly journey lengths, spacious streets, and an established network of dedicated cycle ways, 1990s Berlin inherited a longstanding urban form favourable for cycling. Figuratively speaking, this 'window of opportunity' was open long before Berlin's renaissance. It can therefore be reasoned that other, shorter-term, landscape-level developments prompted a reduction in barriers to cycling (Parkin *et al*., 2007; Horton and Parkin, 2012) and increased growth in bicycle use. The combination of economic, infrastructural, and cultural landscape-level pressures opened up a window of opportunity for cycling to make its mark on the city. It also emphasised the significance of the timing of interventions in a transition in determining causality. Although pro-cycling policy can be recognised alongside growth in cycling, previous explanations bear no consideration of at what point in this growth interventions were actually implemented. Just as Robinson (2011: 13) contends that 'a spatial understanding of the processes at work in cities can draw us to alternative maps of causality', this paper argues that a temporal understanding can do the same and that a transition approach can enable this.

The paper then traced the processes compelling the circulation of the Berlin cycling policy model in the UK, drawing on insights from the policy mobilities literature, and revealed how such processes were motivated by competitive and coercive mechanisms originating in a national government initiative. The development of this policy knowledge through different networks and scales of information exchange left questions of causality unchallenged for the ultimate purpose of promoting cycling planning credentials. Such unexamined assumptions become problematic for policy-making elsewhere as they result in the adoption of sub-optimal policy measures.

This study suggests that both policy mobilities and transitions research can benefit significantly from a concerted conversation. Effective sustainable transition management must consider in greater depth how governments acquire policy knowledge and the influence that actors and networks of information exchange have on this process. Policy mobilities' contention of policy models being situated social products emphasises the tension between policy knowledge being both territorially restrained and relationally circulated and understood. Deploying insights and approaches from policy mobilities has the potential to inform more suitable policy-learning arrangements and thus effective urban transition management.

As cities attempt to drastically re-orientate development towards more sustainable and resilient future forms, it is vital that planners and policy-makers have sufficient and appropriate knowledge at their disposal. In this vein, policy learning is increasingly seen as an integral part of policy development. This paper has examined Berlin's cycling renaissance to challenge the attribution of causality in cycling policy, while simultaneously demonstrating the set of contextual factors that have led to this exemplar being mobilised rather uncritically as a basis for policy-making elsewhere. It is vital for both research and practice to critically consider aspects of causality and complexity in accounts of policy success. Encouragingly this paper has shown that an awareness of complexity and temporality in transitions can do just this, but governments also need to attune to contingencies in policy learning and consider their own roles in making and moving policy knowledge. Looking forward, a better understanding of how policy knowledge is made, mobilised and understood is needed in order to more effectively allocate resources and bring sustainable urban futures to fruition.

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