



The University of Manchester

# **What can Manchester learn from Berlin's cycling renaissance? A critical exploration of policy learning in transition management**

**MSc Geographical Science, 2014**

**Student ID: 7383345**

A dissertation submitted to the University of Manchester for the degree of  
MSc Geographical Science in the Faculty of Humanities.

School of Environment and Development.

**Word count: 9,788**

# What can Manchester learn from Berlin's cycling renaissance? A critical exploration of policy learning in transition management

**Abstract:** Despite cities being widely observed referring to the experiences of other cities when planning programmes of sustainable transition management (Bulkeley, 2006), researchers have yet to critically explore the contingencies of such policy-learning arrangements in any great depth. This paper addresses this gap in existing research. Here, methodological and analytical contributions from two previously estranged fields – transition and policy mobilities research – are integrated to support a critical exploration of a proposed cycling policy 'learning relationship' (Velocity, 2013) between Berlin, Germany and Manchester, UK. Drawing on primary qualitative data, Chapter 1 presents a critical causal analysis that casts significant doubt over an existing consensus attributing concerted governmental interventions to the recent growth in bicycle use in Berlin. A more nuanced, multi-actor causal explanation is offered here. Further contextual incompatibilities inherent in this proposed policy-learning arrangement are then identified in Chapter 2. The emergence and circulation of the Berlin policy model is then traced using insights gleaned from documents and primary interview data. Here, this best practice policy model is observed as having mutated – being simplified and left unchallenged as it is mobilised for the purpose of demonstrating ambition and proficiency in cycling policy development. The concluding chapter reviews the key methodological, empirical and analytical contributions and offers suggestions for sustainable urban governance and further research.

**Key words:** *Manchester, Berlin, cycling, sustainable urban transport, transition management, best practice, policy mobilities, policy learning, causal analysis*

# Introduction

Cycling is now firmly on the planning agenda in many UK cities. Increasing the proportion of journeys made by bicycle 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 can be observed seeking to learn from other cities' successful interventions. Conventionally, the experiences of Copenhagen and cities in the Netherlands have been circulated as best practice policy models for cycling promotion: whilst recently a number of other cities – such as Berlin - have also emerged in this vein (cf. Parker, 2001; Pucher and Buehler, 2008). However, researchers have yet to extensively consider the origins, developments or influences of policy knowledge in long-term sustainability planning and urban governance.

Through an exploration of proposals to establish a cycling policy-learning partnership between Berlin and Manchester, this paper presents the findings of critical research into the emergence and circulation of a best practice policy model.

## ***Case study: From Berlin to Manchester - a 'learning relationship'***

In August 2013, Transport for Greater Manchester (TfGM) 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 (CCAG). Branded under the moniker 'Velocity 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 bicycle transit rates.

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' by some (cf. Guardian, 2010; Daily Mail, 2013; Streetsblog, 2011) – a description adopted throughout this paper. However, in-depth or critical explanations of Berlin's experience are, as yet, absent from academic, public, or informal publications.

### ***Research outline***

This paper aims to rectify this by critically exploring the origins and development of Berlin's recent growth in bicycle transit rates. In Chapter 1, an innovative critical application of a 'transition' theoretical framework (see below) is used to analyse document evidence and primary interview data. Here, it is revealed that Berlin's cycling renaissance has been predominantly caused a number of factors other than governmental interventions and an alternative explanation is presented. Chapter 2 adopts a 'policy mobilities' approach (see below) to outline the doubts these findings place on the suitability of the proposed policy-learning partnership. CCAG documents and TfGM associate interview responses are then analysed to trace the motivations and processes behind this proposal and reveal their influence in mobilising and mutating the account of Berlin as a cycling best practice model. The concluding chapter discusses the main implications of the findings for cycling policy-making and urban governance. Suggestions for future research and the implications of contact between policy mobilities and transition studies are also discussed here.

To clarify the methodological and analytical approach of this paper, it is first necessary to outline the pertinent contributions from these research fields and briefly review previous explanations of Berlin's cycling renaissance.

# Literature review: Berlin's cycling renaissance, transitions, and policy mobilities

## *Explaining Berlin's cycling renaissance*

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 (cf. Pucher and Buehler, 2008; Guardian, 2010; Velocity, 2013; Department for Transport, 2013). Despite this 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 (cf. 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 (cf. *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 subsequently present Berlin as a best practice example 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 best practice policy measures. However, these publications offer little critical analysis of causal mechanisms or insights into how, or if, policy measures can be successfully transferred for implementation 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 bicycle transit in the past c20 years and thus offer useful lessons for cities looking to do the same.

Although functioning as valuable sources of quantitative data and facts regarding infrastructure and transport design, this paper recognises that existing studies lack a critical consideration of causation, nor any significant qualitative data analysis. Chapter 1 in this paper addresses this knowledge gap; where it is argued that the prevailing conclusions offered by existing explanations are in fact false assumptions - based erroneously on a weak correlation between policy efforts and bicycle use and ignorance towards the influence of a multitude of other causal factors.

Although this problematic consensus is ubiquitous in case studies focussing on Berlin, there has in fact been one useful, yet solitary, study published into 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. Although its national focus and misaligned time-frame (pre-2001) limits this article's guidance for this research, the prevailing arguments surrounding alternative causality resonate greatly with the findings of this paper and provide the only current academic challenge to the aforementioned explanations.

### ***Transitions and transition management***

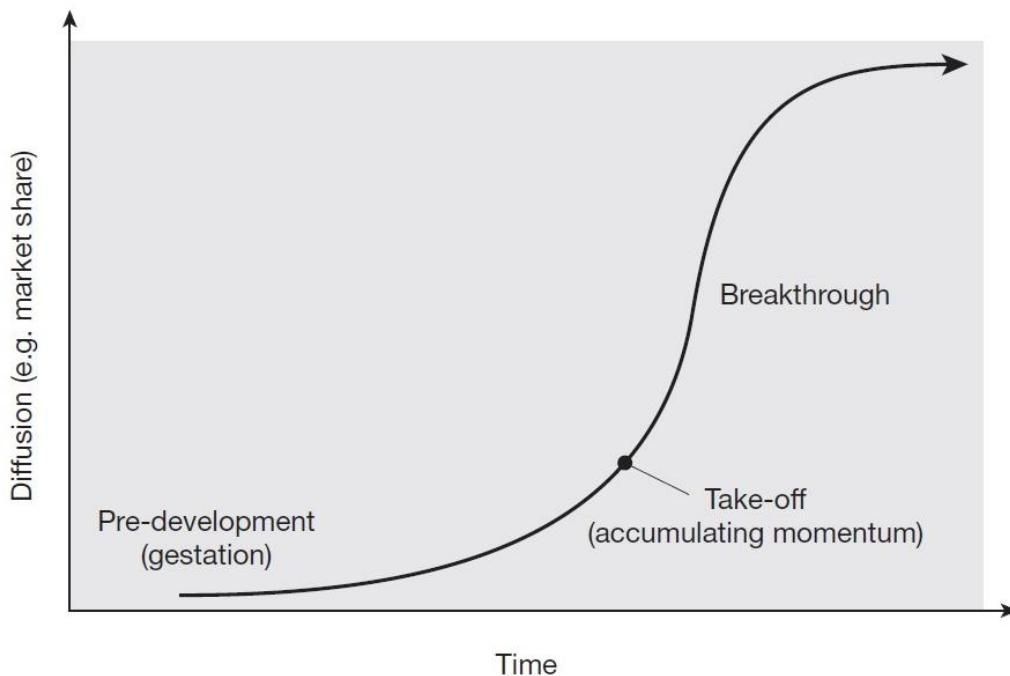
Transition research concerns major long-term (c25 years or more) changes in large socio-technical systems (Meadowcroft, 2005) – known here as transitions. Transitions (or attempted transitions) have been exemplified through cases ranging from historical phenomena such as the replacement of sail ships with steamboats in the 1800s (Geels, 2002) to the seemingly standard contemporary example of sustainable energy policy in the Netherlands since 2005 (cf. Meadowcroft, 2005; Kemp *et al.*, 2007; Evans, 2012). It is worth noting that the literature uses the term 'socio-technical' to emphasise the contention that transitions are necessarily co-evolutionary processes that rely on both technological developments and societal adoption. 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. It is important to note that transitions do not necessarily involve transition management – as in the aforementioned case of steam ships in the 1800s (see Geels, 2002).

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. It is argued here that transition theory possesses ontological insights that can aide such a consideration. Emphasising the contention that transitions are necessarily complex and multi-actor processes and its temporal focus, this paper applies a transition theoretical framework to a critical analysis of causality in a policy knowledge case study.

### ***Multi-actor agency and transitions through time: the multi-level perspective***

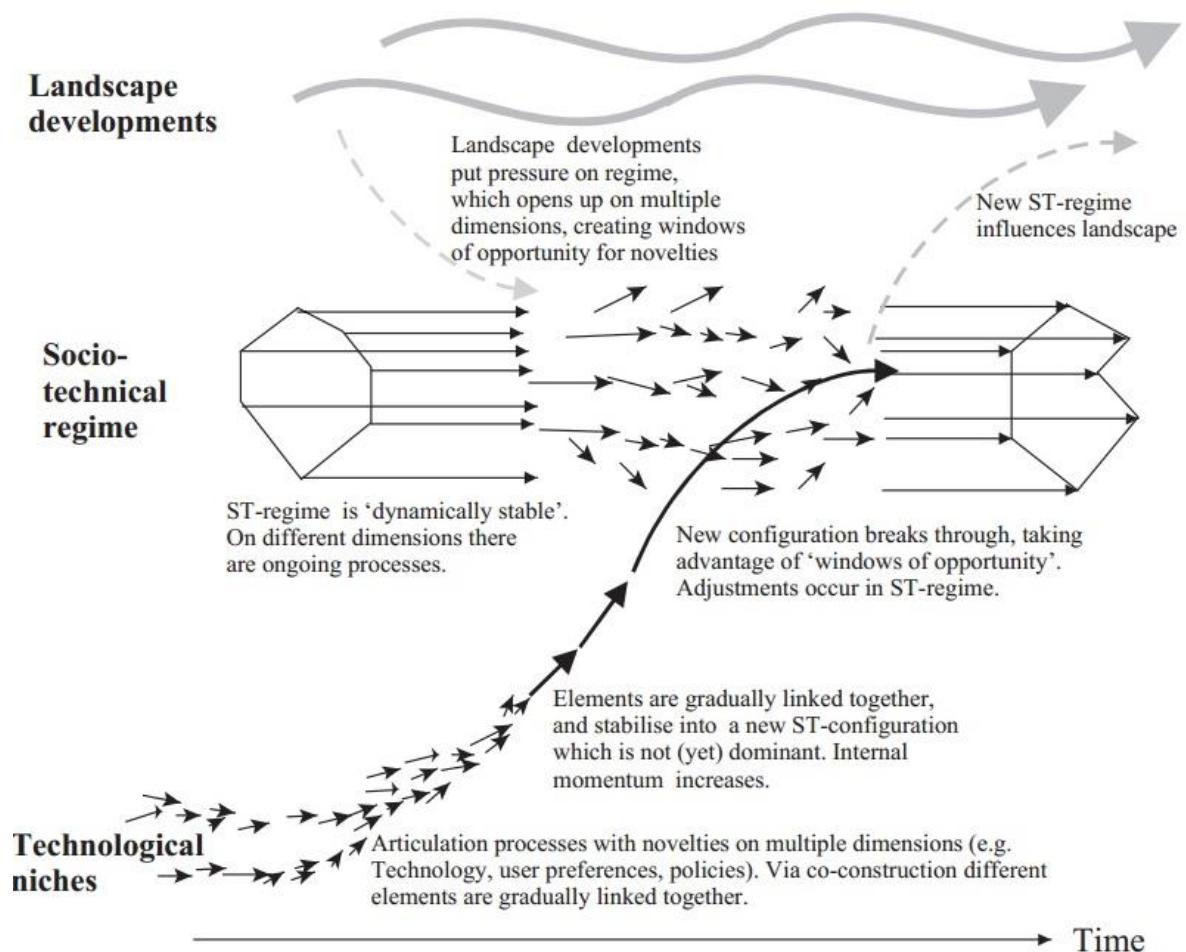
Sensitivity to time is a central component in transition theory, where transitions in large socio-technical systems over time are popularly - and perhaps best - understood visually. Figure 1 shows Rotmans *et al.*'s (2001) (adapted by Evans, 2012) conceptual illustration of the diffusion of socio-technical innovations in society over time – through the stages of 'pre-development', accelerating in uptake through the 'take-off' stage, and breaking through into widespread use.



**Figure 1. The diffusion of socio-technical innovations in society over time**  
Source: Evans, 2012 (adapted from Rotmans *et al.*, 2001)

Geels et. al.'s (2005) multi-level framework (Figure 2) expands on this theme, tracing the development of socio-technical transitions through different levels in society, highlighting the dynamic and effective interplay between the 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, 'living laboratories' (see Evans and Karvonen, 2010), 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. Here, a transition is conceptualised evolving and advancing through these three levels to fundamentally transform a socio-technical regime and ultimately alter the wider

landscape (Evans, 2012). Through an evolutionary market-based process, a niche-level innovation develops 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' (Figure 1) and fundamentally alter a socio-technical regime, in this case a city's personal transport system.

Here, transition management is the practice that aims to stimulate and guide this process through the three levels to achieve a targeted transition. Transition management can be conceptualised as top-down – in 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 – in approach (Meadowcroft, 2005). However, transition theorists also contend that - as complex societal phenomena (cf. Rotmans and Loorbach, 2009) - transitions *necessarily* involve multiple stakeholders and groups (Geels et.al., 2008). This ontology is especially crucial in informing the methodological approach of this research (see *Research Design*) and resonates not only with its findings but also Maddox's (2001) aforementioned suggestions of multi-actor causality.

### ***Sustainable urban transport, cycling, and transition management***

Despite sustainable transport being firmly on the research agenda (cf. Van Nunen *et al.*, 2011), studies (or even mentions) of cycling are almost completely omitted from transition research. Nonetheless, some of the theoretical insights available here are certainly pertinent to this paper.

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, this paper contends that a transition perspective remains relevant here 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). Although not framed in this way, Berlin's experience also bares all the hallmarks of effective top-down transition management in existing explanations; 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 Velocity programme (see above: Velocity, 2013).

This research offers an original exploration into the role of policy knowledge and learning in transition management. In doing so, this paper initiates conversation between transition studies and an emergent multi-disciplinary research field known as 'policy mobilities' (McCann, 2011).

### ***The policy mobilities approach: challenging best practice policy knowledge***

Policy mobilities research is rooted in three literatures: policy transfer in political science, work on mobility in sociology, and geographical theorisations of space and scale (ibid., 2013). Pertinently, it offers well-developed analytical and progressively nuanced methodological (see below) insights for work that explores the mechanisms and influence of policy learning in urban governance, such as this research.

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 (cf. McCann and Ward, 2010). It has been theorised that 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). According to McCann and ward (2011), it is this tension, and the influence this tension has on policy knowledge and understanding that this field seeks to research. This theorisation necessitates an awareness of the reciprocal and dynamic character of the policy learning process in co-constructing both policies and the actors, motivations, and subjectivities that propel their dissemination (Temenos and McCann, 2013; Ward, 2007).

Empirically, this paper emphasises how the policy mobilities approach rejects the notion of objective best practice knowledge, or its neutral transfer between contexts (Clarke, 2012). Temenos and McCann (2013: 344) note a post-structuralist concern for epistemological fragility and bias; contending that - as situated 'social products', policy knowledge and best practice models are mobilised for particular purposes and cannot be indefinitely considered as 'best'. 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). However -in a call that this paper hopes to begin to answer - Temenos and McCann (2013) also lament a lack of detailed empirical

contributions in the field; and the few directly relevant empirical contributions to this research actually emanate from policy transfer research.

### ***Transitions, urban transport and best practice policy learning***

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 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' (see also Wolman and Page, 2002), and individual limitations on the process of transport policy learning

Despite obvious topical overlaps between research on policy learning and transitions, and these fields' simultaneous emergence and now extensive contributions; explicit contact between the aforementioned research fields has been non-existent (this being a particularly surprising given numerous comments on the potential for learning featuring in the transition literature). This paper establishes such contact and in doing so reveals some potential pit-falls in transition management surrounding the imperfect generation and dissemination of best practice policy knowledge.

In principle, policy mobilities can provide both transition management (as a governmental practice) and transition research with critical analytical tools to challenge and appropriately select, interpret, and apply best practice policy models. Whilst, transition theory can offer policy mobilities research conceptual apparatus to better consider complexity and temporality in policy knowledge. The following section discusses how methodological contributions from both of these fields informs the design of this research.

# Research Design

## ***Aims and Objectives***

Based on the identified contribution existing literature; this paper defines the following aims and corresponding objectives for this research. Chapters 1 and 2 address aims and objectives 1 and 2 respectively. The third aim is addressed throughout as findings are presented and insights are synthesised in the concluding chapter.

### **1. To reconsider what factors caused Berlin's cycling renaissance.**

- 1.1. Critically analyse the causes of Berlin's cycling renaissance
- 1.2. Produce a critical causal explanation of Berlin's cycling renaissance.

### **2. To critically explore the emergence and mobilisation of Berlin's cycling renaissance as a best practice policy model.**

- 2.1. Critically evaluate the suitability of Berlin as a best practice example of cycling policy for Manchester.
- 2.2. Trace the processes leading to the inclusion of, and consider these processes' influence on, the account of Berlin's cycling renaissance in the Velocity bid.

### **3. To discuss the practical and research implications of the findings for policy mobilities and transition management.**

- 3.1. Relate empirical findings to existing transport policy, transition management, and policy mobilities research.
- 3.2. Critically translate empirical findings into insights and suggestions for policy-making and transition management practice.

## ***A distended single-case study approach***

This research focuses on the single case study of a proposed cycling policy learning relationship between Manchester and Berlin. The transition and policy mobilities approaches both compel fine-grained and qualitative empirical methodologies. Socio-technical transitions and policy learning dynamics are necessarily complex and multi-actor phenomena (see above); 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 (see also Cochrane and Ward, 2012; McCann and Ward 2012; 2013).

In 'following the policy', this research starts at Velocity's proposal for a policy-learning arrangement. The Manchester/Velocity case has been chosen in part due to its incomplete development. Here it is hoped that this paper can positively contribute to the programme with both its critique and suggestions. 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 Velocity documents (see Velocity, 2013) and the combination of being both unchallenged and under-researched as a cycling policy model (see above) yet offering suitably available statistics, policy information, and interview participants. Existing information similarly informed the choice of time-frame – c1990 – present; which was also deemed appropriate as it roughly aligns with the conceptualised length of a transition and Velocity's plans (*ibid.*, 2013).

Transition work has yet to explicitly address methodological approaches. However, in reviewing existing empirical research in this field (cf. Geels, 2002; Loorbach and Rotmans, 2010), this paper contends that an emphasis on complexity and multi-actor influence informs the need for an in-depth, qualitative and multi-stakeholder approach.

### ***Primary data collection methods***

Primary data collection was conducted during study visits to Berlin and Manchester in the summer of 2014. Primary data were collected through document examination and in-depth interviews with a variety of stakeholders and actors. *Table 1.* profiles the interviewees involved.

The choice and variety of participants was guided by the contention of the necessary role of multiple-actors identified in transition theory (see above) and previous cycling research (see Parkin, 2012). Informed by policy mobilities' methodological suggestions, the data collection process was designed as an exploratory and flexible process whereby choice of participants was not restricted to initial participants - here initial responses and discoveries provided suggestions for further lines of enquiry. For instance, four interviewees from Berlin, and two from Manchester, were identified and contacted during preliminary internet searches and

networking ('\*' in Table 1.), whilst a further five interviewees ('\*\*') were approached following their input. The interviews themselves were semi-structured, with only open-ended questions asked. This allowed participants to provide impartial responses and raise additional factors in order to best glean emphasis of perceived possible causes and key processes for analysis.

**Table 1.** Name, affiliation, and role of interview participants

Name	Affiliation	Role
<b>Berlin</b>		
*Christian Spath	Spath and Nagel, Urban Planning Consultancy	Transport Consultant to the Berlin Senate
*Graham	BikeSurf Berlin, non-profit bike sharing scheme	Founder and director
*Christian Kölling	VCD(Transport Club Germany), sustainable mobility NGO	Regional board member
*Julius Menge	Berlin Senate, Department for Urban Development	Transport planner
**Wolfgang Plantlholz	VCD(Transport Club Germany), sustainable mobility NGO	Berlin bicycle council member
**Ruedigger	Clever ums Rad, bike shop	Bike shop employee
**Sabine	Radmutter, bike shop	Bike shop owner
**Gary	Keirin Cycle Culture Café	Bike mechanic
<b>Manchester</b>		
*Andrew Howard	TfGM	CCAG Cycle Infrastructure Officer
*Andrew Fender	TfGM, Manchester City Council	City Councillor, Chair of TfGM, official Velocity programme author
**Steve Connor	Creative Concern Ltd.	Co-founder and CEO, developed Velocity bid

\* Interviewees identified through a preliminary internet search, \*\* Interviewees identified during field visits or contacted through other 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). There are however somewhat unavoidable limitations to this approach- most notably in the small number of participants involved; although, this is mitigated by the length and depth of interviews. Moreover this issue is recognised in the analysis which does not rely solely on interview data, where document evidence is utilised to critically analyse responses.

# Chapter 1: Re-examining Berlin's cycling renaissance – a transition approach

## 1.1. What caused Berlin's cycling renaissance?

This research identifies four prevailing causal factors for Berlin's cycling renaissance: (a) the perceived relative cost of cycling, (b) the perceived 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 included and analysed here due to their overall prominence and emphasis in interview responses and are discussed critically in reference to relevant statistics and literature. The factors' relative and collective influence - alongside an analysis of governmental interventions - are analysed below.

### (a) Perceived relative cost of cycling

Six interviewees stated cycling's lower monetary cost relative to other transport modes as a significant reason for increased bicycle use. Two of these 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.

*'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.'* Gary

Cost is recognised as important in transport choice (Frank et al., 2008) and economic shifts are cited by Maddox (2001) as influencing a growth in cycling in Germany since the 1970s. Importantly, Berlin's local economy has struggled following reunification in 1990 (Krätke, 1999; European Commission, 2014), its public finances are notoriously fraught (cf. Färber, 2014) and poverty and unemployment rates have been comparatively high - reaching a substantial 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 (see Berlin Senate, 2013b); although, these districts are potentially predisposed to higher cycle use due to their centrality and compact urban form (cf. Berlin Senate, 2013b; *Berlin's pre-existing urban form* below).

### **(b) Perceived relative speed, convenience and comfort of cycling**

Four interviewees 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 two other respondents - linking this perception to road behaviour and 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, the facts that traffic congestion and parking restrictions are certainly notable in Berlin (cf. Berlin Senate, 2014; Statista, 2014) and most journeys lie comfortably within the range conducive for cycling (see *Berlin's Pre-existing Urban Form* below) certainly adds credence to interviewee's claims. Regardless of statistical backing, the interviews reveal the significant influence of a widespread *perception* of cycling's relative speed, convenience and comfort.

### **(c) Berlin's cultural-cum-political demographics**

Six responses cited prevalent cultural and political values as reasons for increased bicycle use; with three responses emphasising cultural and political inclinations particular to Berlin as major factors. Three interviewees cited Berliners' awareness of cycling's environmental and health benefits; whilst a further three mentioned the emergence of cycling and bicycles as popular fashion and status symbols since c2006 as causal factors.

*“....in Berlin we are modern, we are not fat, you know?” Sabine*

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 (cf. Fick, 2013; The Bike In My Life, 2012; Daily Mail, 2013). Similarly, Berlin is indeed noted for a high concentration of green and environmental political advocacy; with the 'Friedrichshain-Kreuzberg - Prenzlauer Berg East' constituency nominating the first and only directly elected Green party MP to Germany's national parliament. Averaging at around 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 here that this has at least supported Berlin's cycling renaissance.

#### **(d) Berlin's pre-existing urban form**

Supporting recent studies of Berlin's markedly 'polycentric' form (Horn, 2013; see also Meng et al., 2014), three interviews 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). Berlin's inherent journey patterns certainly 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."* Julius Menge

Two further responses emphasised 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 long 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); a notion also supported by Wolfgang and Graham in interview. Given an inherited urban form conducive to high bicycle transit rates-wide spacious streets, extensive segregated cycle infrastructure, and prevalent cycling appropriate journey lengths – it can be said here that the interviewees' attributions of pre-existing urban form are well founded.

#### ***What about policy? Temporal and financial limits***

Given existing explanations' consensus (see *Explaining Berlin's cycling renaissance* above), the four sets of causal factors discussed here invoke a notable omission – the influence of the city's cycling policies. Two interviewees – Christian Spath and Julius Menge – did in fact cite the efforts of public cycling promotion as causing Berlin's cycling renaissance. However, the details of these comments point to two fundamental problems with this attribution – 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..." Christian Spath*

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.

Julius Menge even revealed the Senate's surprise at the rate of increasing bicycle use and personal doubts about the influence of local governance. Menge went on to mention the subsequent modification of the city's long-term transport strategy in order to cope with this growth. An insight into the impetus for designated cycling policy and investment that was echoed by Wolfgang from the VCD.

*"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 in cycling promotion due to the incongruent timing of such efforts with cycling uptake.

Christian Späth's comments (see above) also point to low levels investment throughout this period- both in comparison to other similar cities (cf. Brugman, 2012) and considering cycling's already significant modal share in Berlin. 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 lax policies were attributed to a chronic lack of public funds by four of the interviewees. Three of these responses also mentioned '... a lack of political willingness...' (Wolfgang) and persistently car-orientated political directives as a significant barrier to investment; a sentiment that cannot be ignored given the longstanding influence of car ownership and lobbying in German transport politics (cf. Spiegel, 2011; Schwedes, 2011).

Here it is contended that Berlin's governmental interventions in cycling since the 1990s can be characterised as *reactive* - managing an unexpected upsurge in bicycle transit- rather than *proactive* - in intentionally and methodically instigating increased use. Once more, funding limitations have hampered cycling-specific policies that were not even implemented until the upsurge was already well under way in the early-2000s - unsurprisingly, 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, this paper now proposes an alternative explanation of Berlin's cycling renaissance through a transition perspective.

## **1.2. Berlin's cycling renaissance: a transition explanation**

### ***Policy efforts, temporality and the diffusion of cycling***

In conceptualising Berlin's cycling renaissance as the diffusion of a socio-technical configuration over time (see above; Figure 1.), it is argued here that bicycle transit had already passed through the 'pre-development' and 'take-off' stages (Figure 1.) by the time concerted pro-cycling interventions could have influenced bicycle use. According to Christian Spath and Julius Menge, 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 (see above) 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 explanation thus condemns previous attributions of concerted governmental intervention in causing Berlin's cycling renaissance as a temporal impossibility.

Although it is not possible to distinguish any specific thresholds here, the diffusion of cycling by 2004 can be observed as - having 'accumulated momentum' (Figure 1.) through the 1990s - 'breaking through' to alter the form and constituent processes of the city's transport regime (Figure 2.). Cycling can even be observed altering the wider landscape around this time - manifesting in local politics – for instance in 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. It can be argued here that, as a political reaction to the demands of rapidly increasing bicycle use (see above), Berlin's pro-cycling governmental intervention is indicative not of sustainable transition

management but representative of a notable bottom-up alteration to the city's transport planning landscape.

Berlin's transport regime appears to be experiencing a transition towards a more sustainable configuration. 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. Here, what can be defined as *reactive* transition management may have encouraged the later diffusion of cycling and facilitated its wider impact to some degree. For instance, physical infrastructure has certainly been altered to better accommodate higher bicycle use; although – as evidenced- lack of investment has likely limited impact here.

### ***Opening up a 'window of opportunity' for cycling***

Socio-technical configurations 'break through' to alter a regime when pressures from landscape-level developments open a 'window of opportunity' (cf. Figure 2.). In Berlin, such landscape-level pressure emanated not from concerted governmental intervention, but from the developments categorised into the four causal factors discussed above.

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 (see Parkin et al., 2007; Horton and Parkin, 2012) and increased growth in bicycle use.

As mentioned, Berlin's declining economic base prompted a shift in demand away from expensive cars and public transport in favour lower-cost bikes for many increasingly impoverished Berliners. Concurrently, a perception of cycling as offering a faster and more convenient alternative to congested and burdensome motorised travel propagated. During this period, the health, environmental, and (later) style associated benefits of bicycle use became realised and utilised by Berlin's influentially progressive communities- culturally validating cycling in a city already spatially and economically inclined towards high bicycle transit rates. With the reduction of significant spatial, socio-economic, or cultural barriers (see *ibid.*, 2007; *ibid.*, 2012), the uptake in bicycle use appears to have broken through to alter Berlin's transport regime and wider landscape (cf. Figure 2.). 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.

### ***Discussion: transition theory and challenging policy knowledge***

Although utilised as a framework of critical causal analysis in this paper; as noted above, the transition perspective is predominantly held up as an implicitly transferable framework for explaining socio-technical transformations over time. The transition literature is peppered with cases presented as offering insights for transition management practice in other contexts. However, transitions research has, yet to critically consider the transferability or the epistemological validity of best practice models such as the Berlin case in any great depth. This paper contends that it is in researcher's and practitioner's interest to do just that if the benefits from policy-learning arrangements are to be received.

This paper does not see epistemologically frail assumptions of best practice or transferability as inherent in the transition approach. Moreover, this analysis has shown to the contrary that transition theory provides a conceptual framework well suited for a critical interrogation and refinement of best practice explanations. It is important to note however that this paper can only possibly offer a simplified and approximate explanation - of what is a necessarily complex, co-evolutionary, and multi-stakeholder phenomenon - based on the available evidence presented above. Nonetheless, this critical application of transition theory 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 proved instrumental in informing a methodological and analytical consideration of multiple- factors of causation. Crucially, it has also compelled an analytical focus on the temporal development of transitions through progressive stages of diffusion; emphasising 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 bare no consideration of at what point in this growth interventions were actually implemented. Here, existing assumptions of causation are condemned as credulous; based on a weak and temporally insensitive correlation between the existence of governmental efforts and growth in cycling.

This paper predicts that this false attribution, if left unchallenged, will become problematic for policy-making elsewhere once this explanation is circulated and understood as a best practice model. These findings raise questions surrounding the generation and dissemination of best practice policy knowledge and the influence these mobilisation processes have on their content and implementation. The empirical and theoretical implications of these issues are explored in the following chapter.

## Chapter 2: Berlin, Manchester and the mobilisation of best practice policy knowledge

### 2.1 What can Manchester Learn from Berlin? Territorial and temporal incompatibilities

An almost ubiquitous contention in policy learning research has been the importance of territorial context in determining the extent and suitability of learning arrangements (see *Literature review*; Benson and Jordan, 2011). Research here consistently observes strong positive correlations between fruitful learning and similarities in territorial – or what a transition approach would term ‘landscape-level’ (see above) context (*ibid.*, 2011; Temenos and McCann, 2013). This brief evaluation integrates a consideration of policy knowledge suitability with this observation; arguing that the products of learning from Berlin’s cycling policy model for Manchester will likely be limited due to fundamentally incongruent territorial and temporal context.

#### ***Territorial incompatibilities – landscape-level 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 (see above). 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 (see above; Greater Manchester Chamber of Commerce, 2014). Even starker here is the difference in funding; with Velocity’s two-year £20 grant endowing TfGM 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 (according to Christian Spath and Julius Menge).

In transition terms, Manchester simply doesn’t exhibit the same spatial, cultural-cum-political, or economic landscape-level pressures that opened up a window of opportunity for cycling in Berlin (see above); whilst a policy mobilities perspective sees policy knowledge as simultaneously territorially restrained and relationally constructed and circulated (see *Literature review*; Bulkeley, 2006). 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.

### ***Temporal incompatibility –the timing of policy efforts***

The findings presented in Chapter 2 highlight a further incompatibility - not yet observed in previous policy-learning research – in the timing of policy intervention. As evidenced, 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 (Figure 1; 2.). However, 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 (cf. Schot and Geels, 2008). This contextual misalignment can be observed in the city's differing planning strategies. Manchester is targeting more participation from inexperienced cyclists and so plans to build more physically segregated cycle lanes (Velocity, 2013) with the aim of reducing 'fear of cycling' (Horton, 2007). Berlin, however, have 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 (see *ibid.*, 2007; Wardman *et al.*, 2007; Tilahun *et al.*, 2007). To put frankly, Berlin transport planners have little experience relating to Manchester's position and so it is reasoned that learning here will be limited.

Critically, this incongruent coupling is based on a best practice policy model that falsely assumes that Berlin's cycling renaissance was managed through targeted governmental intervention since its early stages (see above). The remainder of this chapter is dedicated to exploring the mobilisation, circulation, and mutation of this best practice policy model in this case study.

## **2.2 The mobilisation and mutation of best practice policy knowledge**

Having analysed the territorial constraints related to this suggested partnership, this analysis now traces what can be considered as its relational characteristics (see *policy mobilities approach* above). Analysing insights gleaned from interviews with Velocity bid developers and relevant policy documents, this paper now traces the motivations, rationales, and processes leading to the Berlin policy-learning proposal and considers the ways in which such factors have affected this best practice policy knowledge. The analysis identifies and discusses the three most influential factors leading the inclusion - or 'mobilisation' (cf. Peck and Theodore, 2010a) - of the Berlin case in the Velocity bid ('i' – 'iii'); after which their mutual origins in competitive and coercive governmental mechanisms are discussed.

### i. Professional networks and policy knowledge as marketing discourse

Professional networks and existing commercial relationships were emphasised in interview as having strongly influenced both the specific account of, and the decision to include, the Berlin example in the bid. Steve Connor noted that Creative Concern had secured the contract to produce the Velocity bid and programme from TfGM having worked with them on previously successful campaigns. Connor subsequently revealed that the pivotal research into the experiences of the featured German cities had been provided by one of their German 'partner companies' – Fairkehr - whom Creative Concern had developed a good relationship with through a European network of sustainability communications agencies called DNS (see Creative Concern, 2014). Critically, Fairkehr had previously worked on cycling campaigns for a number of local governments in Germany (see Fairkehr, 2014).

It is not of course possible, and probably unfair, to condemn the research provided by Fairkehr as intentionally biased or false. Given the aforementioned explanations attributing Berlin's experience to policy, it is understandable and certainly not surprising that this research corresponded with this consensus. However, privately contracted consultancies have been previously observed profiting from circulating 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. Recalling the competitive context of the bid, it can be critically suggested here that - causative aspects of the Berlin policy model has been, at best understandably unchallenged, and at worst advantageously attributed to certain actors in the pursuit of commercial gains.

Pertinently, this dissemination of the Berlin best practice example through this professional network can also be seen to have 'mutated' this policy knowledge; featuring select policy approaches in being presented as part of what is 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.' (Velocity, 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 that exclaims ambition for co-operation and

'growth', whilst being uncritically categorised with that of other exemplar German cities. In the context of an interurban competition for funds, Creative Concern have communicated the Berlin policy experience in a particularly (and successfully) marketable way and in doing so have discursively framed cycling policy best practice (see Bulkeley, 2006) as a matter of 'infrastructure and behavioural change'. Here, this best practice model can be seen to have mutated – differing from previous descriptions (cf. Pucher and Buehler, 2007; 2008; 2012) in presenting an appealingly simple two-part process.

## **ii. Berlin's trajectory as a quantitative target**

The above quote also alludes to another major factor influencing the mobilisation of the Berlin model here – the known quantitative trajectory of cycling growth in Berlin. The impressive rate at which cycling's modal share increased (cf. above; ibid., 2012) is emphasised as its primary quantitative target and repeatedly mentioned in the Velocity programme and bid (see Velocity, 2013). Moreover, both Andy Howard and Steve Connor explicitly noted the recognition of Berlin's trajectory *from a low base level* alone as prompting the proposal, also mentioning Manchester's similar start point here.

Again, emphasising the quantitative successes of Berlin's experience also offers a clear and easily translated statement of ambition and intention. However, whilst emphasising this quantitative target, the Velocity program negates qualitative facets of the Berlin model – omitting details of causal mechanisms and the development and evaluation of specific policy instruments that features in more sophisticated best practice policy models. Accompanied by the false attribution of policy in triggering and guiding this trajectory, this motivation for inclusion represents a problematically simple reasoning. This feature of the Velocity bid frames Berlin's experience simply as a quantitative success - far removed from the complex, co-evolutionary, multi-stakeholder, and multi-level process revealed by the alternative explanation of this paper, or even the previous explanations that it challenges (cf. ibid., 2007; 2008; 2012). In this sense, the Berlin case is presented not so much as a best *practice*, but a best target, example here.

## **iii. Coerced policy learning: the influence official CCAG bid guidance**

Steve Connor noted in interview that the Velocity writers were not alone in identifying German cities as appropriate examples to follow. Revealing here perhaps the most import motivation for the Berlin proposal – the suggestion to learn from other cities - including Berlin specifically - in the CCAG guidance document.

'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)

Connor went on to explain that '... somebody at the Department for Transport (DfT) had similarly clocked the German comparator...' - adding that this influence (alongside Creative Concern's aforementioned German partnership) made the decision to include the Berlin case a 'no-brainer'.

Unfortunately, the DfT did not participate in this research and so it is not possible to accurately trace the reasons or information sources underpinning the proposal any further. However, the marginal inclusion of the above quote in the document and its numerous grammatical errors implies that relatively little effort had been devoted to this aspect of the guidance. Nonetheless, this suggestion was taken on by Velocity as well as other bids (cf. West Yorkshire Metro, 2013). Once more, this simplified and quantitative framing featured in the guidance suggestions are faithfully reflected in the Velocity bid(see above quotes). The DfT guidance can thus be seen to have disseminated a particular version of cycling best practice knowledge; mobilising examples based on their simple quantitative relevance ('base level' and successful trajectory) and grouping these cities together under the causal assumption of policy-led change.

### ***Competitive and coercive mechanisms***

The one underlying force that was omnipotent in impelling the circulation of the Berlin policy model through all three of factors analysed lies in the competitive context in which the development of the bid took place. Through the CCAG scheme, the DfT 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). It was this competitive pressure that led TfGM to hire Creative Concern to produce the bid in the first place. Similarly, Creative Concern 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 Velocity bid. Whilst, underpinning this process in its entirety was the explicit association of best practice policy learning with 'ambition' and desirable cycling policy-making propagated in the DfT guidance. Following Ward (2011), this analysis observes the continued relevance of national governance in mobilising,

altering, and circulating policy knowledge in interurban policy learning. As both the source of funding and information in the CCAG process, the DfT has played a monopolistic role in disseminating a particular version of best practice cycling policy knowledge.

In revealing an arrangement where evidencing policy learning is a de facto requirement of ‘political legitimisation’ (see Betsill and Bulkeley, 2004) and access to funding - this analysis has highlighted how policy knowledge has been mobilised and mutated in particular ways and through multiple scales of governance and networks of communication.

## Conclusion

### ***Methodological and Empirical Contributions***

This research has been founded on a novel integration of transition and policy mobilities approaches. Responding to Temenos and McCann’s (2013: 351) call for more detailed empirical research, these fields’ shared contention of multi-actor influence and complexity in societal phenomena informed the in-depth single-case study research design implemented here. In particular, suggestions from policy mobilities informed a ‘distended’ (Peck and Theodore, 2012) and flexible methodological approach that facilitated the collection of valuable data from unforeseen but integral sites and actors – resulting in a rich and insightful data set.

In addressing the first research aim, Chapter 1 applied transition concepts to a critical analysis of the causes of Berlin’s cycling renaissance. The transition perspective informed an analytical sensitivity to multi-actor causality and the temporal dimension of socio-technical change that revealed serious doubts as to the accuracy of previous explanations. Here this analysis produced a more nuanced explanation that this phenomenon has been predominantly caused by a number of factors other than concerted governmental intervention.

In light of this revelation, Chapter 2 began by critically evaluating the suitability of Berlin as a cycling policy model for Manchester; where it was argued that learning here will be limited due to fundamental territorial and temporal contextual differences. Expanding on these findings, this chapter traced the processes compelling the circulation of the Berlin cycling best practice policy model and revealed how such processes were motivated by competitive and coercive mechanisms originating in the national government’s CCAG initiative. In tracing the development of this policy knowledge through different networks and scales of information exchange, this analysis observed how causality was left unchallenged and details were omitted for the ultimate purpose of promoting cycling planning credentials.

### ***Research contributions***

This paper contends that both policy mobilities and transitions research can benefit significantly from a concerted conversation. It is suggested here that, if transition research is to succeed in furthering sustainable transition management, it must consider in greater depth how governments acquire policy knowledge and the influence the actors and networks of information exchange involved here have on this knowledge. This paper has shown how policy mobilities concepts can offer transitions research a critical perspective that can nurture such a consideration. Chapter 2 adopted policy mobilities' contention of policy models being situated social products to highlight the contingencies of best practice policy learning - emphasising the dialectic tension emanating from policy knowledge being both territorially restrained and relationally circulated and understood. In this critical manner, this paper suggests that policy mobilities has the potential to inform the choice of more suitable policy-learning arrangements.

Conversely, this paper's fruitful deployment of transition theory in a critical causal analysis shows this field's worth in exploring policy knowledge; perhaps most innovatively in its analytical sensitivity towards a temporal dimension causality in policy models. 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.

### ***Concluding suggestions***

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, best practice policy learning is increasingly seen as an integral part of policy development. This research has challenged the attribution of causality in cycling policy. In doing so identifying a false attribution of policy to Berlin's cycling renaissance that, if left unchallenged, has the potential to be problematic for policy-making elsewhere whilst this explanation is circulated and increasingly understood as best practice. It is therefore vital, for both research and efficient and successful policy learning, to critically consider aspects causality and complexity in accounts of best practice. Encouragingly, this paper has shown that an awareness of complexity and temporality in transitions endows researchers and practitioners alike with the abilities to do just this. However, governments also need to attune to contingencies in policy learning and consider their own roles in moving and making policy knowledge. Looking forward, a better understand of how best practice policy knowledge is made, mobilised and understood is needed in order to more effectively allocate policy-making resources and plan for sustainable futures.

## References

- Allen, J. S. (1987). Human Guinea Pigs: About the results of the sidepath study. [http://john-s-allen.com/research/berlin\\_1987/Berlin%20media%20reports.pdf](http://john-s-allen.com/research/berlin_1987/Berlin%20media%20reports.pdf) (Accessed 21<sup>st</sup> August 2014).
- Benson, D., and Jordan, A. (2011). What have we learned from policy transfer research? Dolowitz and Marsh revisited. *Political studies review*, 9(3), 366-378.
- Berlin Chamber of Commerce (2011). Berlin's economy in figures: 2011 Issue. [http://www.ihk-berlin.de/linkableblob/bihk24/standortpolitik/ZahlenundFakten/Statistiken\\_zur\\_Berliner\\_Wirtschaft/2033732/4./data/Berliner\\_Wirtschaft\\_in\\_Zahlen\\_2011-englisch-data.pdf](http://www.ihk-berlin.de/linkableblob/bihk24/standortpolitik/ZahlenundFakten/Statistiken_zur_Berliner_Wirtschaft/2033732/4./data/Berliner_Wirtschaft_in_Zahlen_2011-englisch-data.pdf) (Accessed 10<sup>th</sup> August 2014)
- Berlin Senate (2011). New cycling strategy for Berlin. [http://www.stadtentwicklung.berlin.de/verkehr/politik\\_planung/rad/strategie/download/radverkehrsstrategie\\_senatsbeschluss\\_en.pdf](http://www.stadtentwicklung.berlin.de/verkehr/politik_planung/rad/strategie/download/radverkehrsstrategie_senatsbeschluss_en.pdf) (Accessed 9<sup>th</sup> August 2014)
- Berlin Senate (2013) Berlin traffic in figures 2013 [http://www.stadtentwicklung.berlin.de/verkehr/politik\\_planung/zahlen\\_fakten/download/Mobility\\_en\\_komplett.pdf](http://www.stadtentwicklung.berlin.de/verkehr/politik_planung/zahlen_fakten/download/Mobility_en_komplett.pdf) (Accessed 10<sup>th</sup> August 2014)
- Berlin Senate (2014). Driving and parking controls. [http://www.stadtentwicklung.berlin.de/verkehr/politik\\_planung/strassen\\_kfz/index\\_en.shtml](http://www.stadtentwicklung.berlin.de/verkehr/politik_planung/strassen_kfz/index_en.shtml) (Accessed 20<sup>th</sup> August 2014)
- Betsill, M. M., and Bulkeley, H. (2004). Transnational networks and global environmental governance: The cities for climate protection program. *International Studies Quarterly*, 48(2), 471-493.
- Bracher, T. (1987). Bicycle Crashes in Berlin. [http://john-s-allen.com/research/berlin\\_1987/Berlinsuppeng.pdf](http://john-s-allen.com/research/berlin_1987/Berlinsuppeng.pdf) (Accessed 21<sup>st</sup> August 2014).
- Brugman, T. (2012). Cycling planning outside Australia. [https://www.bicyclenetwork.com.au/media/vanilla\\_content/files/Cases%20Utrecht-Berlin-Melbourne%20compared.pdf](https://www.bicyclenetwork.com.au/media/vanilla_content/files/Cases%20Utrecht-Berlin-Melbourne%20compared.pdf) (Accessed 22<sup>nd</sup> August 2014).
- Bulkeley, H. (2006). Urban sustainability: learning from best practice?. *Environment and planning A*, 38(6), 1029.
- Cavan, G., and Aylen, J. (2012). The challenge of retrofitting buildings to adapt to climate change: case studies from Manchester [http://www.sed.manchester.ac.uk/architecture/research/ecocities/library/documents/Retrofitting\\_buildings\\_to\\_adapt\\_to\\_climate\\_change\\_Cavan\\_and\\_Aylen.pdf](http://www.sed.manchester.ac.uk/architecture/research/ecocities/library/documents/Retrofitting_buildings_to_adapt_to_climate_change_Cavan_and_Aylen.pdf) (Accessed 22<sup>nd</sup> August 2014).
- Clarke, N. (2012). Urban policy mobility, anti-politics, and histories of the transnational municipal movement. *Progress in Human Geography*, 36(1), 25-43.
- Cochrane, A., and Ward, K. (2012). Guest editorial: Researching the geographies of policy mobility: Confronting the methodological challenges. *Environment and Planning A*, 44(1), 5-12.
- Colomb, C. (2012). Pushing the urban frontier: temporary uses of space, city marketing, and the creative city discourse in 2000s Berlin. *Journal of urban affairs*, 34(2), 131-152.
- Cook, I. R., & Ward, K. (2011). Trans-urban Networks of Learning, Mega Events and Policy Tourism The Case of Manchester's Commonwealth and Olympic Games Projects. *Urban Studies*, 48(12), 2519-2535.

- Creative Concern (2014). Ethical approach. <http://www.creativeconcern.com/our-ethical-approach> (Accessed 24<sup>th</sup> August 2014).
- Daily Mail (2013). Berlin's Cool Factor: Hipster clubs, grimy graffiti and an honour payment metro. <http://www.dailymail.co.uk/travel/article-2483668/Berlins-Cool-Factor-Hipster-clubs-grimy-graffiti-honour-payment-metro.html> (Accessed 21<sup>st</sup> August 2014).
- Department for Transport (2013). City Deals - Guidance on Applications for Cycle City Ambition Grants. [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/83002/cycle-city-ambition-grant-guidance.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/83002/cycle-city-ambition-grant-guidance.pdf) (Accessed 24<sup>th</sup> August 2014).
- European Commission (2014). Labour market information. <https://ec.europa.eu/eures/main.jsp?countryId=DE&acro=Imi&showRegion=true&lang=en&mode=text&regionId=DE0&nuts2Code=%20&nuts3Code=null&catId=375> (Accessed 21<sup>st</sup> August 2014).
- Evans, J. P. (2012) *Environmental Governance*. London: Routledge.
- Evans, J., and Karvonen, A. (2010). Living laboratories for sustainability: exploring the politics and epistemology of urban transition, In: Bulkeley, H., Castan-Broto, V., Hodson, M., & Marvin, S. (Eds.) *Cities and Low Carbon Transitions*. London: Routledge. 126-141.
- Fairkehr (2014). Examples of our work. [http://www.fairkehr.de/fk\\_referenzen.html?&L=1](http://www.fairkehr.de/fk_referenzen.html?&L=1) (Accessed 25<sup>th</sup> August 2014).
- Färber, A. (2014). Low-budget Berlin: towards an understanding of low-budget urbanity as assemblage. *Cambridge Journal of Regions, Economy and Society*, 7(1), 119-136.
- Fick, C. (2013). HIPSTER BIKES: The Re-emergence of the Fixed-wheel. [http://www.fickinthemud.com/blog/wp-content/uploads/2013/06/Cfick\\_PDv2.pdf](http://www.fickinthemud.com/blog/wp-content/uploads/2013/06/Cfick_PDv2.pdf) (Accessed 22<sup>nd</sup> August 2014).
- Frank, L., Bradley, M., Kavage, S., Chapman, J., and Lawton, T. K. (2008). Urban form, travel time, and cost relationships with tour complexity and mode choice. *Transportation*, 35(1), 37-54.
- Geels, F. W. (2002). Technological transitions as evolutionary reconfiguration processes: a multi-level perspective and a case-study. *Research policy*, 31(8), 1257-1274.
- Geels, F. W. (2005). Processes and patterns in transitions and system innovations: refining the co-evolutionary multi-level perspective. *Technological forecasting and social change*, 72(6), 681-696.
- Geels, F., Eames, M., Steward, F., and Monaghan, A. (2008). *The feasibility of systems thinking in sustainable consumption and production policy: A report to the Department for Environment, Food and Rural Affairs*. London: DEFRA.
- Greater Manchester Chamber of Commerce (2014). Greater Manchester Quarterly Economic Survey: Q1 2014. <http://qmchamber-stage.s3.amazonaws.com/attachments/987/original.pdf> (Accessed 21<sup>st</sup> August 2014).
- Guardian (2010). Sehr gut: Why cycling in Berlin is a dream. <http://www.theguardian.com/environment/green-living-blog/2010/apr/22/bike-blog-cycling-berlin> (Accessed 18<sup>th</sup> August 2014).
- Holtz, G., Brugnach, M., and Pahl-Wostl, C. (2008). Specifying “regime”—A framework for defining and describing regimes in transition research. *Technological Forecasting and Social Change*, 75(5), 623-643.

- Horn, B. (2013). Dublin Cycling Campaign Lecture 2013.  
<http://www.youtube.com/watch?v=zBtK2lIDoMs> (Accessed 22<sup>nd</sup> August 2014).
- Horton, D. (2007). Fear of cycling, In: Horton, D., Cox, P., and Rosen, P. (Eds.) *Cycling and society*. Farnham: Ashgate Publishing Ltd. 133-152.
- Horton, D., and Parkin, J. (2012). Conclusion: towards a revolution in cycling, In: Parkin, J. (Ed.) *Cycling and sustainability*. Bingley: Emerald Group Publishing Ltd. 303-326.
- Kemp, R., Rotmans, J., and Loorbach, D. (2007). Assessing the Dutch energy transition policy: how does it deal with dilemmas of managing transitions?. *Journal of Environmental Policy & Planning*, 9(3-4), 315-331.
- Kemp, R., Avelino, F., and Bressers, N. (2011). Transition management as a model for sustainable mobility. *European Transport*, 47, 1-22.
- Krätke, S. (1999). Berlin's Regional Economy in the 1990S Structural Adjustment or 'Open-Ended' Structural Break?. *European Urban and Regional Studies*, 6(4), 323-338.
- Loorbach, D. A. (2007). *Transition management: new mode of governance for sustainable development*. Dutch Research Institute for Transitions (DRIFT). <http://repub.eur.nl/pub/10200/> (Accessed 18<sup>th</sup> August 2014)
- Loorbach, D., and Rotmans, J. (2010). The practice of transition management: Examples and lessons from four distinct cases. *Futures*, 42(3), 237-246.
- MacMillen, J., Givoni, M., and Banister, D. (2010). Evaluating active travel: decision-making for the sustainable city. *Built Environment*, 36(4), 519-536.
- Maddox, H. (2001). Another look at Germany's bicycle boom: implications for local transportation policy & planning strategy in the USA.  
<http://katana.hsrc.unc.edu/cms/downloads/Maddox.pdf#page=40> (Accessed 25<sup>th</sup> July 2014).
- Manchester City Council (2012). Manchester Future City Feasibility Report to Manchester City Council. <https://connect.innovateuk.org/documents/3130726/3794125/Feasibility+Study+-+Manchester+City+Council.pdf/f1a7d5eb-6651-471a-b9f8-7f9e0f3ec4fa> (Accessed 22<sup>nd</sup> August 2014).
- Marsden, G., and Stead, D. (2011). Policy transfer and learning in the field of transport: A review of concepts and evidence. *Transport policy*, 18(3), 492-500.
- Marsden, G. R., Frick, K. T., May, A. D., & Deakin, E. (2012). Bounded rationality in policy learning amongst cities: lessons from the transport sector. *Environment and Planning Part A*, 44(4), 905-920.
- McCann, E. (2011). Urban policy mobilities and global circuits of knowledge: toward a research agenda. *Annals of the Association of American Geographers*, 101(1), 107-130.
- McCann, E., and Ward, K. (2010). Relationality/territoriality: toward a conceptualization of cities in the world. *Geoforum*, 41(2), 175-184.
- McCann, E., and Ward, K. (2011). Introduction, In: McCann, E. and Ward, K. (Eds.) *Mobile urbanism: Cities and policy making in the global age*. Minneapolis: University of Minnesota Press.
- McCann, E., and Ward, K. (2012). Assembling urbanism: following policies and 'studying through' the sites and situations of policy making. *Environment and Planning A*, 41, 42-51.

- McCann, E., and Ward, K. (2013). A multi-disciplinary approach to policy transfer research: geographies, assemblages, mobilities and mutations. *Policy Studies*, 34(1), 2-18.
- Meadowcroft, J. (2005). Environmental political economy, technological transitions and the state. *New Political Economy*, 10(4), 479-498.
- Meng, M., Koh, P. P., Wong, Y. D., and Zhong, Y. H. (2014). Influences of urban characteristics on cycling: Experiences of four cities. *Sustainable Cities and Society*, 13, 78-88.
- Parker, A. (2001). A non-motorised user's perspective on safety issues and world best non-motorised safety practice in the Netherlands. *Australia: walking the 21st Century*, 3-14.
- Parkin, J., Ryley, T., and Jones, T. (2007). Barriers to cycling: an exploration of quantitative analyses, In: Horton, D., Cox, P., and Rosen, P. (Eds.) *Cycling and society*. Farnham: Ashgate Publishing Ltd.67-82.
- Parkin, J (2012) Introduction. In: Parkin, J. (Ed.) *Cycling and sustainability*. Bingley: Emerald Group Publishing Ltd.1-22.
- Peck, J. (2003). Geography and public policy: mapping the penal state. *Progress in Human Geography*, 27(2), 222-232.
- Peck, J. (2011). Geographies of policy From transfer-diffusion to mobility-mutation. *Progress in Human Geography*, 35(6), 773-797.
- Peck, J., and Theodore, N. (2010a). Mobilizing policy: Models, methods, and mutations. *Geoforum*, 41(2), 169-174.
- Peck, J., and Theodore, N. (2010b). Recombinant workfare, across the Americas: Transnationalizing "fast" social policy. *Geoforum*, 41(2), 195-208.
- Peck, J., and Theodore, N. (2012). Follow the policy: a distended case approach. *Environment and Planning-Part A*, 44(1), 21.
- Pucher, J., and Buehler, R. (2007). At the frontiers of cycling: policy innovations in the Netherlands, Denmark, and Germany. *World Transport Policy and Practice*, 13(3), 8-57.
- Pucher, J., and Buehler, R. (2008). Making cycling irresistible: lessons from the Netherlands, Denmark and Germany. *Transport Reviews*, 28(4), 495-528.
- Pucher, J. and Buehler, R. (2012). Big City Cycling in Europe, North America, and Australia, In: Pucher, J., and Buehler, R. (Eds.) *City Cycling*. Massachusetts: MIT Press. 287-318.
- Robinson, J. (2011). The spaces of circulating knowledge: city strategies and global urban governmentality, In: McCann, E. and Ward, K. (Eds.) *Mobile urbanism: Cities and policy making in the global age*. Minneapolis: University of Minnesota Press.15-40.
- Rotmans, J., Kemp, R., and Van Asselt, M. (2001). More evolution than revolution: transition management in public policy. *Foresight*, 3(1), 15-31.
- Rotmans, J., and Loorbach, D. (2009). Complexity and transition management. *Journal of Industrial Ecology*, 13(2), 184-196.
- Schot, J., and Geels, F. W. (2008). Strategic niche management and sustainable innovation journeys: theory, findings, research agenda, and policy. *Technology Analysis & Strategic Management*, 20(5), 537-554.

- Schwedes, O. (2011). The field of transport policy: an initial approach. *German Policy Studies*, 1.
- Shaw, K. (2005). The place of alternative culture and the politics of its protection in Berlin, Amsterdam and Melbourne. *Planning Theory & Practice*, 6(2), 149-169.
- Skinner, D., and Rosen, P. (2007). Hell is other cyclists: rethinking transport and identity, In: Horton, D., Cox, P., and Rosen, P. (Eds.) *Cycling and society*. Farnham: Ashgate Publishing Ltd. 83-96.
- Spiegel (2011). The Battle for Germany's Roads. <http://www.spiegel.de/international/germany/the-battle-for-germany-s-roads-tempers-fray-as-bikes-and-cars-vie-for-supremacy-a-786254-3.html> (Accessed 24<sup>th</sup> August 2014).
- Streetsblog (2011). Berlin's Striking Cycling Renaissance.<http://sf.streetsblog.org/2011/10/13/berlins-striking-cycling-renaissance/>. (Accessed 30<sup>th</sup> July 2014).
- Temenos, C., and McCann, E. (2013). Geographies of policy mobilities. *Geography Compass*, 7(5), 344-357.
- The Bike In My Life (2012). Uber kool cycling in berlin. <http://www.thebikeinmylife.com/uber-kool-in-berlin/>. (Accessed 30<sup>th</sup> July 2014).
- Tilahun, N. Y., Levinson, D. M., and Krizek, K. J. (2007). Trails, lanes, or traffic: Valuing bicycle facilities with an adaptive stated preference survey. *Transportation Research Part A: Policy and Practice*, 41(4), 287-301.
- Truffer, B. (2008). Society, technology, and region: contributions from the social study of technology to economic geography. *Environment and planning. A*, 40(4), 966.
- Van Nunen, J., Huijbregts, P., and Rietveld, P. (2011). Transitions Towards Sustainable Mobility. *New Solutions and Approaches for Sustainable Transport Systems*. Springer :London.
- Velocity (2013). Velocity 2025: A cycling plan for 2025 and beyond. [http://cycling.tfgm.com/Pages/velocity/Velocity2025\\_vision.pdf](http://cycling.tfgm.com/Pages/velocity/Velocity2025_vision.pdf). (Accessed 23<sup>rd</sup> July 2014).
- Ward, K. (2007). Business improvement districts: policy origins, mobile policies and urban liveability. *Geography Compass*, 1(3), 657-672.
- Ward, K. (2011). Policies in motion and in place: The case of Business Improvement Districts, In: McCann, E. and Ward, K. (Eds.) *Mobile urbanism: Cities and policy making in the global age*. Minneapolis: University of Minnesota Press. 71-96.
- Wardman, M., Tight, M., and Page, M. (2007). Factors influencing the propensity to cycle to work. *Transportation Research Part A: Policy and Practice*, 41(4), 339-350.
- West Yorkshire Metro (2013). Cycle City Ambition Bid: 'Highway to Health' West Yorkshire Integrated Transport Authority Major Scheme Business Case. <https://www.wymetro.com/uploadedFiles/WYMetro/Content/news/releases/MSBC%20Document%2029%2004%2013%20FINAL.pdf>. (Accessed 24<sup>th</sup> August 2014).
- Wolman, H., & Page, E. (2002). Policy transfer among local governments: An information-theory approach. *Governance*, 15(4), 577-501.