CURBING THE CONSUMPTION OF DISTANCE?

A practice-theoretical investigation of an employer-based mobility management initiative to promote more sustainable commuting

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When I see an adult on a bicycle, I do not despair for the future of the human race.

H.G. Wells

Abstract

A central feature of modern life is the desire and the need to be mobile. The increasing availability of cars during the twentieth century facilitated the rise in individualised, motorised travel in many countries, including Ireland. While car-based mobility bestows many benefits on society, its resource-intensity causes serious social and environmental problems that require urgent attention from researchers and policy-makers. The transport sector represents a prime target for sustainable development initiatives worldwide.

This thesis makes an original contribution to current debates on sustainable transport by re-conceptualising corporeal mobility as 'consumption of distance'. It thereby adopts a practice-theoretical perspective which recognises the social and material embeddedness of (un)sustainable travel practices. By doing so, it challenges individualistic explanations of human travel behaviour that have dominated transport research and policy in the past. At the same time, it expands upon contemporary practice theories by explicating the material and adding an empirically-grounded conceptualisation of change. In addition, the author offers a unique scheme for operationalising and researching the consumption of distance.

Reducing people's over-reliance on the car remains a major policy challenge in Ireland and globally. Based on an in-depth investigation of current travel patterns and their social, infrastructural and institutional contexts, this study offers baseline data for Ireland and a suite of policy-relevant propositions for the promotion of less resource-intensive alternatives to car-based commuting. Combining innovative conceptual work with multi-method empirical research, the study develops an original typology of commuting practices and assesses the effectiveness of mobility management initiatives designed specifically for a large employer in the West of Ireland. Here, the study reveals the potential of meso-level organisations to champion sustainable commuting practices locally. Overall, the practice-theoretical focus of this study elucidates the need for integrated, cross-sectoral policies that challenge the dominance of the car and account for the interconnectedness of social practices.

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ABC	Attitude-behaviour-constraint model
CIÉ	Córas Iompair Éireann
CFC	Chlorofluorocarbon
ConsEnSus	CONSumption, Evironment and SUStainability
CSL	ConsEnSus Lifestyle Survey
Dublin Bus	Bus Atha Cliath
EPA	Environmental Protection Agency
GHG	Greenhouse gas
Irish Rail	Iarnrod Éireann
MMP	Mobility management plan
NAT	Norm activation theory
NEP	New environmental paradigm
NRA	National Roads Authority
NTA	National Transport Authority
NUI	National University of Ireland
QUANGOS	Quasi-Autonomous Non-Governmental Organisations
SC	Sustainable consumption
SD	Sustainable development
SOV	Single occupied vehicle
SPC	Sustainable production and consumption
STRIVE	Science, Technology, Research and Innovation for the Environment
Three Is	Information provision, Incentivisation and Infrastructural improvements
TPB	Theory of planned behaviour
TRA	Theory of reasoned action
UN	United Nations
VBN	Value-belief-norm theory

Chapter 1

Automobility and the consumption of distance

A central feature of modern life is both the desire and the need to be mobile. The growing availability of mass-produced, affordable cars during the twentieth century facilitated the rise in individualised, motorised travel, a trend that was accompanied by a rapid rise in resource use in the automobile industry and the need to fuel the growing fleet of vehicles. Developments in information and communication technologies increased further the demand for private mobility and travel in the late twentieth and early twenty-first centuries, especially in many European countries. While this rise in car-based mobility has undoubtedly bestowed many benefits on society, there are serious drawbacks also that require urgent attention from policy-makers. Most European societies today face severe social and environmental problems resulting from high volumes of car use. According to the European Environmental Agency (2008), road transport is responsible for more than 20 per cent of CO_2 emissions in the European Union, with approximately 12 per cent being attributed to private car use. Despite technological improvements, road transport remains a major source of greenhouse gas (GHG) emissions. Increases in car ownership, car use and engine size have hitherto cancelled out any savings from increased fuel efficiency and substitutes for petrol and diesel.

Following a period of rapid economic and social development in the 1990s and 2000s that coincided with a massive increase in car ownership and use, the Republic of Ireland[1] is now one of the most car-dependent countries in Europe, which means that people experience "an excessive or disproportionate need for car use to meet routine mobility needs" (Flynn 2007: 61). While there has been a reduction in transport-related GHG emissions since 2008 due to the introduction of an emissions-based car taxation system as well as a sharp reduction in the movement of goods and people due to the recession, the transport sector remains one of the top three emitters of GHG alongside agriculture and energy production. Even in today's recessionary times and despite various policy initiatives aimed at reducing the environmental impact of the transport sector, transport-related CO_2 emissions remain stubbornly high at 21.1 per cent (Irish Environmental Protection Agency 2011).

[1] Henceforth Ireland

It is important to note that over-reliance on the motorcar not only damages the environment but also can cause significant social problems. Rising prices for petrol and diesel are likely to impact the most on low-income households that may find themselves partially or fully 'immobilised' as a result. Similarly, there is ample evidence that carless households in Ireland encounter many difficulties with regard to accessing jobs, public services and opportunities for education, training and social interaction (Rau & Hennessy 2009; McDonagh 2006; Wickham 2006a). Car-dependence and excessive car use are also responsible for the rise in serious health problems related to pollution, stress and lack of physical activity. According to the Irish Department of Health, almost 40 per cent of people in Ireland are overweight and about 20 per cent are obese (Harrington *et al.* 2008). Obesity levels among children are also on the rise, which relates to their growing car-dependence at an early age (Cahill 2010: for international evidence).

There is now an urgent need to mitigate the most problematic aspects of car-dependence and to reduce car use to socially and ecologically sustainable levels. To meet the Irish national GHG reduction target of 20 per cent relative to 2005 by 2020 (Irish Environmental Protection Agency 2011), it is essential to reform the transport sector and support efforts towards more sustainable transport. At present, there is a clear preference among many policy-makers, academics and businesses for technological solutions such as increased engine efficiency and alternative non-fossil fuels. However, even if some of the most negative environmental impacts of car use could be curbed by technological improvements, growing overall demand for car-based mobility in the future is likely to cancel out at least some of the projected efficiency gains. Moreover, an exclusive focus on engine efficiency and alternative fuel tends to ignore other car-related problems such as noise pollution or the effects of carbon-intensive transport infrastructure, among others. This suggests that an overall reduction in the volume of private car use is unavoidable if pressing ecological challenges such as climate change and declining fossil fuel deposits are to be addressed (cf. Moriarty & Honnery 2008).

The commute to work or school accounts for the largest share of people's journeys *per annum* and, therefore, needs to be the focus of future policy interventions. According to the Central Statistics Office (2007), the private car is the main mode of transport in Ireland, with 70.4 per cent of people using a car or van for their daily commute. The recently conducted ConsEnSus Lifestyle Survey (CLS), which provides baseline data on consumption trends in the Republic of Ireland and Northern Ireland, confirms this trend, with 71 per cent of all respondents stating that they drive their car to get to work (Lavelle

et al. 2012). This study offers a sociological inquiry into the social causes and consequences of everyday commuting and critically explores potential ways to increase the share of low-carbon transport modes such as walking, cycling, carpooling and public transport through behavioural change, that is, through the modification of people's daily commuting routines. Drawing on prominent consumption studies and relevant sociological theories of human action, this study combines a focus on the consumption of distance (demand) and related production processes (supply) with a practice-theoretical approach (see Section 1.3 for details). It is shown that the investigation of people's travel patterns as consumption practices can integrate a range of influences including material, socio-cultural and societal influences aspects as well as aspects related to individuals such as physical ability or personal interests. This novel approach to analysing everyday mobility addresses some of the limitations of dominant approaches to transport research in the social sciences. The theoretical implications of a practice approach and other relevant social-scientific theories of human actions are detailed further in Section 1.4.2.

Before delving into the theoretical and empirical details of the investigation to be presented in this thesis, it is essential to consider briefly the (infra)structural developments that accompanied the rise of the car as the dominant mode of transport and the related lifestyle changes. The following section captures how the car has become an integral part of everyday social and cultural life in Ireland (and many other countries) and how the economic and material foundations of car-based mobility have rendered it highly resistant to change.

1.1 The road to unimodality: The hegemony of automobility and its effects

Over the course of the twentieth century European societies moved from a multi-modal transportation system including public transport, cycling and walking to private car-based mobility (Dant 2004; Urry 2004). For many decades, cycling and commuting by bus constituted dominant ways of getting to and from work. The bicycle in particular played an important role due to its affordability and its independence from schedules and set routes. In the second half of the century, however, the car took over as the dominant mode of transport (Freund & Martin 1993).

The growing significance of automobility coincided with the rise of consumer culture (Freund & Martin 2007). The car became an important consumer good that enhanced the status of its owner by conveying symbolic meanings and values such as success, wealth, family, masculinity and safety, depending on the car and its features (Urry

1999: 2). Increased affordability and accessibility also fuelled the development of car-based transport infrastructure such as car parking in strategic locations, wider roads and petrol and service stations (Cahill 2010; Böhm *et al.* 2006). Cities were redesigned to accommodate cars, with conditions for cycling and walking frequently deteriorating as a result (Freund & Martin 2007). In other words, different transport modes began to compete for space, time and investment.[2] At the same time, the creation of a car-friendly infrastructure became inextricably linked to dominant ideas and discourses of progress and development, a connection that is still evident today.

The acceleration and flexibility afforded by the car also facilitated the transformation of many areas of social life (Urry 1999: 7). Suburbanisation, the sprawl of settlement and the decentralisation of urban areas would not have been possible without the motorisation of society. Rising car ownership meant that people did not have to rely on distances to be walkable or cyclable anymore, rendering obsolete many long-established land use and settlement patterns. The compact city built around a business district gave way to urban sprawl, a trend which first emerged in the USA, birthplace of the motorcar, but which quickly spread to Europe, including Ireland (see also Chapter Five). The increase in car ownership also fostered decentralisation, with shopping centres, work places, residential areas and public services springing up on the outskirts of cities. Similarly, people gained the freedom to drive to their destination without having to rely on public transport schedules, which in turn affected the synchronisation of social life.

Overall, the spatial and temporal makeup of everyday life changed dramatically when people started to cover larger distances for their daily activities due to the separation of work places, amenities and residential areas (Sheller & Urry 2000). The mobilisation of everyday life and its consequences for society are discussed next.

1.1.1 Modernity and the mobilisation of everyday life

The mobilisation of everyday life that accompanied the modernisation of many societies manifested itself in a variety of ways. Rapid increases in corporeal mobility of people, goods and military technology during the nineteenth and twentieth centuries played an integral part in the formation of many modern nation-states. While being mobile is generally seen as positive because of its empowering features, forced and excessive corporeal mobility can bring significant negative consequences for individuals, the

[2] It is important to note that many sustainable transport options that are currently being promoted also depend on road infrastructure, at least to some degree.

environment and society. In fact, many citizens in industrialised countries have increasingly limited choices with regard to their mobility, especially if they desire not to be mobile. John Adams refers to this phenomenon as "hypermobility" (1999) and suggests that "it is possible to have too much of a good thing" (Adams 2001: 2). In the last decades people have started to travel greater distances on a daily basis and also spend more time in cars.[3] In the Republic of Ireland the total private car mileage increased by more than 30 per cent between 2000 and 2006 (Howley *et al.* 2007).

The privatisation and individualisation of everyday mobility afforded by the car opened up opportunities for people to travel more and to travel differently. At the same time, it marginalised other modes of transport, especially public transport but also walking and cycling, which involve more direct interaction with other passengers and road users. High volumes of private transport and heavy traffic arguably limit social interaction because they reduce the walkability of a place and lower the chance of face-to-face encounters as a result (Leyden 2003; Putnam 2000; Appleyard *et al.* 1981). Due to the physical separation of car users from their environment and the resulting privatisation of everyday travel, unplanned social interactions not only become less likely but also occur under different circumstances (see also Engwicht 2005; 1996). Whitelegg (1997) emphasises the limited perception of others including pedestrians, cyclists, elderly and children while being in a car. He refers to it as the "invisibility of [...] anyone who steps outside the car" (Whitelegg 1997: 46).

Health problems associated with "hypermobility" (Adams 1999) such as stress-related illnesses, obesity, diabetes and coronary diseases due to a lack of physical activity are also on the rise. In many developed countries such as Ireland the car has replaced more active ways of moving such as walking and cycling, which in turn has encouraged more sedentary lifestyles. For example, similar to the situation in Ireland, children in the UK rely heavily on a parental chauffeur and thus do not establish habits around active commuting (Baslington 2008). Due to the damaging impact of this development on our societies, academics are increasingly interested in the relationship between spatial organisation such as urban form or public transportation systems and obesity or the levels of physical activity (Lopez-Zetina *et al.* 2006; Freund & Martin 2004).

Today, corporeal travel has been complemented with, and partly replaced by, the virtual transmission of information and ideas (Urry 2007, 1999). Online transactions such as

[3] While time spent travelling has not increased as much due to increases in the speed of travel, the consumption of distance has increased disproportionately.

email provide a fast and convenient way of interacting that is (almost) independent of geographical location. Social networking sites such as *Facebook* and *Skype* enable people to build and maintain social relationships across large geographical distances (Beck & Beck-Gernsheim 2011). On the downside, the recent financial crisis has highlighted the perils of a technology-aided, superfast money transfer system. The 'tyranny of instantaneity', that is, a growing intolerance towards any forms of delay and related expectations that people react almost immediately to electronic communication contributes to stress-related health and social problems. It is also worth noting that virtual mobility is responsible for significant CO_2 emissions mainly related to its energy requirements but also because it often induces corporeal mobility, for example, goods that are purchased online are then delivered from far-flung places.

1.1.2 'More than just a mode of transport': Car culture and its effects

Car use plays a central role in the lives of individuals, as well as shaping the social and material fabric of many societies. For example, it is frequently claimed in the mobilities literature that many modern societies harbour a dominant car culture that has an affective dimension and that links cars and driving to particular (positive) emotional repertoires. Mimi Sheller's use of the concept of "automotive emotions" (2004) emphasises the key role of the vehicle itself in the production of car-related emotions. For example, a driver inside a car interacts with the outside world through glass windows which foster feelings of safety and privacy. The carriage acts as a shell or cocoon that physically delineates public from private or semi-private spaces, seemingly shielding people from external influences such as weather, crashes and intruders. Women and the elderly in particular often consider driving a car as a safe mode of transport as opposed to public transport where waiting times are associated with inconvenience, danger and uncertainty (Urry 1999: 10).

Cultural interpretations of what owning and driving a car actually means to people can invoke powerful associations such as being comfortable and safe. Driving also represents the notion of freedom – freedom to go anywhere and to be independent of fixed schedules and established routes. Similarly, the association of speed with freedom and adventure has been nurtured by movies, particularly road movies such as 'On the Road', 'Rolling Stone', 'Bonnie and Clyde' or 'Thelma and Louise' (Cresswell 2006; Götz & Schubert 2004; Eyerman & Löfgren 1995). These powerful images are frequently used in car advertisements and stand in stark contrast to daily experiences of stop-and-go travel and severe gridlock. Commercials, print advertisements and movies also cultivate images

and emotions in relation to particular models and brands which connect characteristics such as (sexual) attractiveness and physical power to a particular car and its driver (Jain 2006). Citroën, for example, describes its model *Saxo* as being a sensual expression of yourself and your dreams (see Shove 1998: 2ff for details).

Another powerful narrative portrays the car as an extension of the family home. Comfortable seating, air-conditioning and entertainment equipment create a pleasant atmosphere and provide a feeling of home while on the road. Entertainment equipment such as sound systems and DVD players for the backseats create the impression of a mobile living room rather than a functional mode of transport. In the United States of America some models even have integrated dashboard diners where drinks and foods can be stored upright to avoid spilling (see Shove 1998: 3). Similarly, a hands-free system can turn the car into a mobile office if needs be.

To summarise, cars have become an integral part of many people's daily routines and function as places that people inhabit in their everyday lives.[4] While being stuck in morning rush hour, we might eat our breakfast and talk to family members who travel with us. Getting into the car may also be the start of the working day for those who talk on the phone to colleagues and clients while travelling to work. A car may also serve as a place to retreat to, for example, when teenagers begin a love-life out of their parents' sight. Barker's (2009) multi-method study on car use in the UK finds that primary school children perceive the car as a site for play, companionship, homework, technology use and consumption. These examples underline the fact that the car has become much more than just a mode of transport and that driving has become a central element of many people's everyday lives. Recognising the social and cultural significance of the car as well as its strong emotional appeal also goes some way towards explaining why it is so difficult to change people's unsustainable travel patterns. Evidence of the cultural significance and emotional appeal of cars contradicts dominant cognitive-rationalistic explanations of car use that regard it as a result of rational economic choices made by well-informed individuals. Nevertheless, cognitive-rationalistic views continue to underpin much of mainstream transport research, policy and planning today (see also Chapter Two). While such views can be useful for investigating certain transport-related phenomena, including the use and impact of monetary (dis)incentives in transport policy, their exclusive use has

[4] See Lyons and Urry (2005) on using travel time as activity time; Sheller (2004) for details on the family and the car; see Bull (2004) on listening to music in the car; see Laurier (2004) on doing office work in the car.

been shown to eclipse important social and cultural factors that influence individuals' transport and mobility decisions. This is explored in more detail in Chapter Two.

1.2 From sustainable development to sustainable transport

The negative consequences of excessive car use for society and the environment have been well documented since the 1970s. However, private transport has only recently become recognised as a global sustainability problem that needs to be placed on the international policy agenda. Today, calls for greater sustainability in transport abound; however, the meaning of 'sustainable transport' and how to achieve it remain subject to intense debate in academia and the wider policy community. These debates partly mirror wider discussions on sustainable development (SD). While a detailed analysis of the origins of SD thinking is beyond the scope of this thesis, it is nevertheless important to sketch briefly its emergence as an important policy paradigm while connecting it to debates in the field of transport.

The emergence in the late 1980s of the concept of sustainable development reflected an increasing awareness of global interdependence with respect to environmental depletion, poverty and inequality and a healthy future (Hopwood *et al.* 2005: 38). The publication of *Our Common Future*[5] in 1987 included one of the first official definitions of what it means to develop sustainably: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development 1987: 8). The Brundtland definition adopts a three-pillars-approach to sustainable development that aims to reconcile economic interests and social justice goals with environmental protection (Illge & Schwarze 2009). This understanding of sustainability also forms the basis of sustainability arguments to be advanced in this thesis, including the development of key concepts such as sustainable transport and sustainable consumption of distance.

The concept of sustainable consumption (SC) has evolved from broader debates on sustainable development. Over-consumption in many developed countries has been identified as a major driver of global resource depletion and environmental degradation that presents a serious obstacle to sustainable development (Hinton & Goodman 2010; Jackson 2009; Lahire 2008). While the international scientific community initially prioritised

[5] This report is also known as Brundtland report, named after Gro Harlem Brundtland, then Prime Minister of Norway and chair of the World Commission of Environment and Development.

the development of less resource-intensive production processes, the focus has recently moved to consumption. One reason for this shift is that more efficient technologies and production methods alone have been shown to be insufficient to achieve sustainable development because of growing overall demand. This so-called rebound effect is fuelled further by an increasing world population and economic growth in transition countries such as India, China and Brazil (Pape & Heisserer 2011). For example, increases in car ownership, engine size and the volume of car use have hitherto cancelled out any savings from increased fuel efficiency and substitutes for petrol and diesel (Moriarty & Honnery 2008). Thus, production and consumption need to be addressed in order to achieve the overall goal of sustainable development:

> The need to reduce the consumption of resources is central to sustainable development. This will require not only the development of less material- and energy-intensive production, but also a change in individuals' consumption behaviour (McClenaghan 2008: 809).

This holds true for many areas of consumption, including transportation. Everyday travel patterns share key features with consumption practices in other areas of everyday life. The concept of consumption of distance developed for this thesis highlights the importance of individuals' consumption patterns as well as their dependence on material- and energy-intensive aspects of production that underpin transport systems in many modern countries, including Ireland. It is argued that a focus on consumption and related processes of production opens up new perspectives and avenues of research. This line of argument is developed further in Section 1.3 below.

During the 1990s sustainable consumption was put on the sustainable development policy agenda by the main policy document, *Agenda 21*, resulting from the 1992 Rio Summit. Chapter Four of Agenda 21 is dedicated to sustainable consumption and presents measures that formed the basis of a number of SD indicators used by the United Nations (UN) throughout the 1990s.[6] The overall goal is to advance sustainable development through sustainable consumption patterns. While no chapter or section in Agenda 21 was dedicated solely to transport, its significance as an essential element of lifestyle and consumption patterns has been recognised (Held 2007: 857). By the 1990s sustainable mobility had not only made it on to the policy agenda but had also become an

[6] Since then, there has been a considerable amount of work on specifying further the nature of sustainable consumption and its practical implications, including the UN Marrakesh process which commenced in 2002 as well as various national initiatives.

expanding area of (social) research (Shergold & Parkhurst 2010; Boschmann & Kwan 2008; Gudmundsson 2003; Newman & Kenworthy 1999: to name just a few).

As stated previously, the concept of sustainable mobility calls for the mobility needs of present and future generations to be reconciled. While there is no universally accepted definition of sustainable mobility, it is important to recognise the significance of recent work by David Banister (2008), a prominent advocate of a new mobility paradigm for the transport sector. He suggests four key actions to achieve sustainable mobility: 1) to reduce the need to travel by substituting it with non-travel activities or virtual mobility; 2) policy measures that promote active commuting and public transport; 3) land use policies that reduce the distances people have to travel; 4) the creation of more efficient transport systems. Banister's suggestions recognise that technological development is not a 'silver bullet' but that its potential lies mainly in increasing the efficiency of transport systems. In addition, he highlights the need to change existing behaviour patterns through policy interventions.

Overall, Banister's (2008) sustainable mobility paradigm represents a well-developed and integrative conceptual framework for research and policy change that focuses on large-scale structural changes such as policy interventions and changes in the built environment. While these measures clearly make it easier to change travel patterns, they may not suffice in tackling excessive car-based mobility that is deeply rooted in contemporary social life. Instead, this study shows that efforts to reduce car use need to combine structural changes such as those proposed by Banister with measures addressing socio-cultural reasons for the over-consumption of distance. The following section expands on this point.

1.3 Researching the consumption of distance

What can a re-conceptualisation of corporeal mobility as 'consumption of distance' add to the debate on people's travel patterns and their implications for society and the environment? There are at least five key reasons why framing mobility as consumption offers a groundbreaking alternative to more conventional conceptual approaches to transport research in the social sciences. First, conceptualising everyday travel as consumption of distance clearly captures and puts into focus the idea that moving from A to B involves the use of different resources. Second, the concept of consuming distance offers an analytical framework for integrating (infra)structural and socio-cultural influences on people's behaviour, a step that has been largely absent from mainstream transport

behaviour research (see Chapter Two for details). Third, focusing on the consumption of distance (demand) also throws up interesting questions about the production of distance (supply), including the spatial distribution of people, places of work, leisure and services. Fourth, linking daily mobility and consumption offers opportunities to connect much of the existing literature on travel and mobility to the rapidly growing pool of practice theories that have been influential in advancing social-scientific consumption research. Lastly, this study demonstrates that framing mobility as consumption of distance opens up new pathways of researching everyday travel and that this can help shed light on opportunities for and barriers to a successful transition towards more sustainable travel practices. The remainder of this section examines these arguments in more detail.

Travelling inevitably involves the use of various resources, including space, time and diverse materials. The analysis of everyday travel patterns through the lens of consumption captures such resource use. Initiatives intended to bring about a transition towards ecologically, socially and economically sustainable transport systems need to focus on the resource implications of daily travel in their entirety, which depend on the chosen mode of transport and the distance covered, among other things. The most obvious form of transport-related consumption is the use of fuel. However, apart from fuel, being mobile always requires more or less resource-intensive infrastructure such as roads, railway tracks, airports, cycle lanes and footpaths. Resources also go into the building of vehicles such as bicycles, cars or trains. Finally, travelling takes time; thus the availability of temporal resources needs to be taken into account. It is important to note that these are just the most obvious acts of consumption connected to mobility.

The concept also offers a strong analytical tool for researching transport patterns because it recognises that consumption and production are intertwined and also socially constructed. In recent years consumption research has highlighted that the act of consuming, e.g. somebody buying something, is closely related to processes of production. In other words, individuals' consumption patterns are related to wider structures and the behavioural options they afford. The socio-scientific investigation of consumption acts needs to recognise the importance of production and distribution of goods (see also Jackson 2005). Remarkably, this important connection between production and consumption has been ignored largely in mainstream social-scientific transport research (see also Chapter Two for details). In addition, there has been a serious lack of social research into aspects of distribution, that is, linkages between places of production and places of consumption, even though this is directly relevant to the study of mobility. By

focusing on the consumption of distance, these connections between production, consumption and distribution can be revealed, at least to some degree.

Undoubtedly, both the provision of transport infrastructure and the emergence of socially mediated opportunities and pressures to be mobile influence the production (or supply side) as well as the consumption (or demand side). In order to gain a greater understanding of why, how and when people travel, it is crucial to investigate both sides. The consumption of distance (demand) in terms of physically moving from A to B is inevitably influenced by the production of distance (supply) through land use patterns, transport policies and infrastructure, to name but a few, the latter of which incorporates two major elements. On the one hand, it is important to note the production of infrastructure (e.g. public transport system) and transport modes (e.g. fuel-efficient cars, SUVs, etc.), which determine what people (can) do and which transport mode they use to get to their destination. On the other hand, the production of distance captures the materially and socially embedded nature of travel. While the quality and quantity of trips, that is, of the distance consumed are contingent upon existing infrastructure, transport policies and land use, they are also influenced by socially constructed needs to be mobile. For example, urban sprawl and decentralisation translated into longer distances for people to cover for everyday activities. This also had implications for people's understanding of the good life, which changed dramatically as a result. Having a good (social) life now involves going places such as visiting the cinema or driving to meet friends.

The concept of consumption of distance also explicates transport-related forms of (in)conspicuous consumption (Veblen (1899) 2005) that have hitherto remained hidden and that are the subject of various social influences. While people's individual views, emotions and circumstances significantly affect their behaviour, many of these individual factors are at least partly contingent upon wider social, cultural, material and structural conditions. For example, the influence of peers, prevailing social norms, cultural conventions, public opinion and advertising on individuals' purchasing decisions has been widely recognised in consumption studies.[7] Enriching the concept of consuming distance with a practice-theoretical approach to human behaviour opens up fruitful avenues for researching the socio-cultural dimensions of everyday travel patterns including social conventions that come to bear on how (far) people travel and for what purpose.

[7] Already in the nineteenth century Thorstein Veblen ((1899) 2005) recognises that individuals form their preferences and views in a social context. He finds that individuals emulate other individuals' consumption patterns and argues that conspicuous and inconspicuous consumption are a way of expressing one's social status (class).

Everyday consumption more generally, and daily travel patterns in particular, are always socially negotiated and culturally significant activities. As shown in the first part of this chapter, car use is often deeply rooted in people's daily routines as well as the wider socio-cultural context in which they locate themselves. People do not act in isolation. Instead their actions reflect their social context, their obligations towards others as well as opportunities afforded by their social environment. Parents, for instance, may use their car to give a lift to their children and to keep them safe. Drawing on prominent consumption studies and sociological theories to human action, the author combines the focus on consumption and related production processes of distance with a practice-theoretical approach (see also Chapter Three for a review of practice theories). Analysing people's travel patterns through the lens of consumption practices, therefore, means to move beyond a more narrow focus of dominant actor-centric approaches and to incorporate material and (infra)structural aspects as well as various social dimensions of mobility patterns (see also Chapter Two for a critique on actor-centric approaches). For example, it allows for the identification of social drivers of (in)conspicuous consumption related to private transport and their impacts on society and the environment, such as the impact of peer pressure on people's modal choice. This novel approach to the analysis of everyday travel addresses problems of dominant theoretical approaches to people's travel patterns. For example, adopting a consumption-focused practice approach to the study of travel behaviour ensures that affective aspects of everyday travel are taken into account and it takes seriously the implications of societal influences and social interaction for how and what people consume. The theoretical implications of a practice approach and other relevant social scientific theories of human actions are detailed further in Section 1.4.2.

Finally, it is argued that a practice approach to the sustainable consumption of distance can advance the understanding of change processes, including a shift towards more sustainable transport modes and forms of spatial mobility that is a central theme of this study (see also Section 1.4). Adopting the concept of consumption of distance serves to identify potential barriers to reducing car use that hamper the transition to more sustainable, low-carbon transport patterns in Ireland (and elsewhere). It thereby provides a point of departure for theoretically and empirically exploring the change of everyday practices (see Chapter Three for details). In contrast, most dominant actor-centric approaches in transport behaviour research neither explicitly propose how change occurs nor theorise change processes.

To summarise, connecting mobility and consumption with a practice-theoretical approach affords the integration of structural, socio-cultural and individual aspects into sociological analyses of travel patterns. This study sets out to demonstrate that this conceptual framing of everyday travel practices can offers fruitful avenues for the social-scientific investigation of everyday travel patterns and ways to make them more sustainable. The following section details the aims and objectives of this study.

1.4 Key features of the study

1.4.1 Aims and Objectives

This thesis presents a theoretically informed and methodologically rigorous social-scientific investigation of commuting practices in Ireland and explores potential avenues for future change. The first part of this chapter clearly demonstrated that (policy) efforts to curb unsustainable car-based mobility patterns heretofore based on a narrow understanding of human behaviour and automobility (see also Chapter Two). This study therefore shifts attention away from individuals and towards socially and materially embedded social practices to explore both existing patterns and potential avenues of change. Adopting an integrative practice-theoretical framework to guide the two-stage empirical part of the investigation, the study seeks to identify: 1) current commuting patterns in the Republic of Ireland and 2) measures and conditions that either help or hinder the transformation of resource-intensive commuting practices.

The main objective of the first part of the empirical investigation – the study of existing travel patterns – is to develop a typology of commuting practices that emphasises systematic differences between them and that captures both the material and socio-cultural circumstances people find themselves in (see Chapter Six). To achieve this aim, the study draws on existing large-scale quantitative data such as transport-related figures from the Irish Census and the ConsEnSus Lifestyle Survey (CLS). Given their aggregate nature, these data sets are useful for capturing wider trends in society. However, they are less suitable for investigating the social significance and cultural meanings of travel practices. For instance, people may view driving home from work as an opportunity to de-stress rather than a burden to be endured. In fact, the act of going to work may itself be connected with other activities that collectively make up an intricate network of daily routines that shape both individuals' daily lives and society at large. Parents may drop off their children at school before heading to work themselves, and they may discuss family matters while travelling together. This linking of different destinations (e.g. school, work,

shopping) as part of the daily commute is commonly referred to as trip-chaining. Importantly, it can act as a major barrier to changing commuting patterns because changing one link would inevitably affect the entire chain. This suggests that to investigate directly observable travel practices and their implicit social and cultural meanings requires a combination of rich qualitative evidence and large-scale quantitative data (see Chapter Four). Only then is it possible to grasp fully the nature of established, routinised travel practices, to systematically categorise them and to identify potential ways to change them.

Secondly, the study aims to answer the question how existing commuting patterns in Ireland that are deemed unsustainable could be changed to reduce their negative impact on society and the environment. Here, the study concentrates on soft measures introduced by employers and their impact on employees' commuting routines. In recent years the concept of a mobility management plan (MMP) has been promoted as a promising way to tackle excessive car use at the organisational level, focusing in particular on the commute to work. A MMP offers a package of soft measures which are translated into a targeted change initiative that suits the organisation in question. This focus on MMPs recognises the important relationship between the micro-level and the meso-level of social organisation, that is, between individuals and organisations. Importantly, it explores the potential role of employers as powerful change agents in society that act as intermediary between individuals and wider societal structures. The study asks whether and to what extent employers can influence their employees' commuting practices and the wider community at the same time, for example, by incentivising the adoption of new commuting habits.

There are two main arguments for researching employer-based programmes that aim to instigate a modal shift away from the car and towards more sustainable modes of transport. Firstly, commuting makes up a large part of many people's daily travel. Challenging the status of the car as the dominant mode of transport for the journey to and from work could thus have a spill-over effect into other areas of everyday life, including school and leisure trips. The role of employers as initiators and facilitators of change requires adequate attention in this context. Secondly, employers can approach their employees directly and can strategically improve facilities and infrastructure on site to encourage active commuting. This ability to make at least modest modifications to the existing infrastructure is crucial because the provision of infrastructural conditions that are favourable to alternatives to the car has been identified as a significant factor to reduce car use.

1.4.2 Theoretical framework

To develop a suitable theoretical framework for the study of commuting as a form of consumption of distance, this study examines critically a range of social-scientific theories of human behaviour that have been applied in transport behaviour research and consumption research respectively. Based on this critical review of existing theoretical approaches, this study adopts a practice-theoretical framework that synthesises and integrates key elements of Theodore R. Schatzki's practice theory but that also draws inspiration from recent work by Andreas Reckwitz, Elizabeth Shove and Alan Warde who introduced practice approaches to the study of consumption. Here, it is argued that practice approaches offer a real alternative to dominant actor-centric models that concentrate on individuals' attitudes, values, beliefs and emotions and that frequentlyfail to recognise the significance of (infra)structural factors and people's social context. Instead of focusing on individuals' behaviour in isolation, practice theorists concentrate on people being involved in shared social practices. Most of them agree that practices exist because individuals perform them. However, people do not act in isolation from others but are involved in a practice with other individuals. Accordingly, people's actions can only be analysed through the lens of practices, as they are embedded and constituted within their practices (Schatzki 2001: 3). This thesis advances arguments for the re-conceptualisation of daily travel patterns as consumption practices to enhance sociologists' understanding of individual's mobility-related actions and behaviour.

The practice approach of consuming distance to investigate everyday travel applied here can capture contextual factors of a structural nature such as transport policies and infrastructure as well as social and cultural dimensions of commuting patterns. In this study a practice is theorised using a two-fold concept of practice differentiating between the performance of a practice and the practice as entity. While this distinction is artificial, it facilitates a thorough investigation of existing practices and people's action patterns. The performance of a practice is defined as the actual performance of actions that belong to a practice. A practice as entity is conceptualised as consisting of three linkages that organise the actions making up practice. These three linkages are: 1) explicit rules such as policies; 2) shared understandings such as know-how to carry out actions; and 3) a so-called teleoaffective structure which lays down customary ways of doing things. The author extends upon Schatzki's practice concept by including a material aspect. This is particularly important to the consumption of distance since travel patterns are highly infrastructure-dependent (see Chapter Three for details). The materialised two-fold practice concept

offers an integrative perspective to the analysis of consuming distance. It captures the complexity of how and why people do what they do and provides a conceptual frame to disentangle key influences on people's actions. In addition, a practice-theoretical approach recognises that practices enable and constrain people's actions. Thereby, it sheds light on difficulties to a transition towards sustainable transport patterns and serves as a starting point for investigating change empirically and theoretically.

How do people change their everyday routines and for what reasons? This question proves particularly challenging because many existing theoretical models for understanding change processes remain rather limited. While a detailed discussion of different social theories of change is clearly beyond the scope of this study, a critique of mainstream sociological and social-psychological models of behavioural change shows new avenues for conceptualising change and identifying social and material circumstances that can act as catalysts for a change in travel practices. The theoretical part of this thesis – Chapters Two and Three – develop these arguments further.

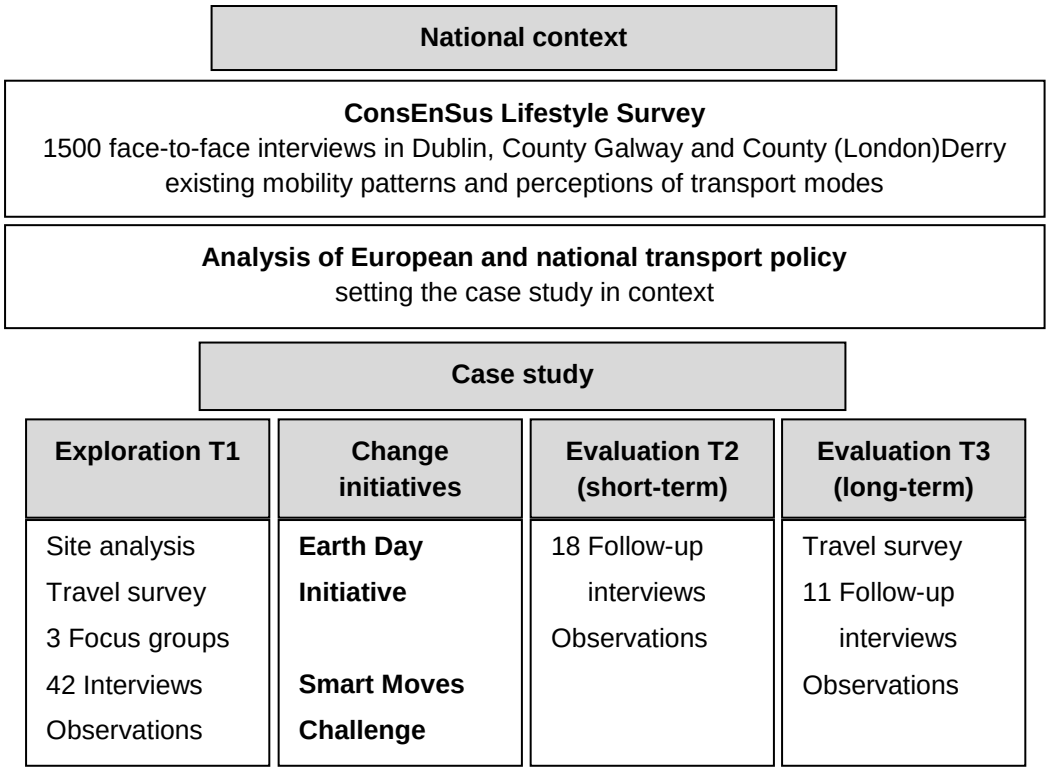
1.4.3 Methodology

This study adopts a multi-method approach to social research to investigate current commuting practices in Ireland and to qualitatively evaluate the (in)effectiveness of a two-pronged employer-based change initiative– a site-specific mobility management plan based on soft measures (Earth Day Iniative and Smart Moves Challenge) – intended to bring about a modal shift away from the car. The empirical part of this research revolves around an in-depth case study of a multi-national employer in Galway City in the West of Ireland. To provide a comparative context for the case study, the study draws on evidence from a large-scale survey, the ConsEnSus lifestyle survey (Lavelle & Fahy 2012), and briefly sketches relevant Irish transport policy initiatives. The in-depth case study draws on quantitative and qualitative data and has a longitudinal dimension.

Figure 1 details the structure of the empirical part of the study. The case study consists of three phases. The exploration phase was used to record current commuting practices and to develop two employer-based change initiatives (Earth Day Initiative and Smart Moves Challenge). The development of these initiatives was primarily based on national and employer-based surveys, focus groups and interviews carried out with employees. While the Travel Surveys gave an overview of employee's commuting patterns, the in-depth interviews provided valuable insights into commuting routines, including their socio-cultural dimensions and their connections with related everyday routines such as

school runs or voluntary work. The findings from the exploratory stage were complemented with descriptive statistics from the ConsEnSus Lifestyle Survey and national statistics to provide a comparative context for the case study.

Figure 1 Detailed outline of study



To empirically investigate changes in existing commuting practices, the second stage of the empirical part of this case study revolved around a qualitative assessment of an innovative MMP carried out in a large company in the West of Ireland in 2010-11. This change initiative adopted a two-pronged approach that combined a conventional approach to mobility management based on: 1) information provision; 2) incentives; 3) minor infrastructural changes[8] (Earth Day Initiative) with an innovative competition (Smart Moves Challenge) which was designed to encourage teams of employees to leave their car at home (see Chapter Four for details). The overall aim was to increase the use of more sustainable transport modes such as active commuting (walking, cycling), carpooling and public transport. The second stage of the empirical investigation to be presented in this thesis assesses the effectiveness (or otherwise) of the conventional 'three Is' initiative and the Smart Moves Challenge.

[8] Throughout the remainder of this thesis these three strands of measures will be referred to as the 'three Is'.

Phases two and three of the case study (T2 and T3) were concerned with the qualitative evaluation of this two-pronged employer-based change initiative, leading to the identification of conditions and circumstances that either hamper or promote change. This part of the research uses survey data, interviews, travel diaries and participant observations. Importantly, the study adopts a time-sensitive longitudinal approach that captures both short-term and long-term changes. This longitudinal approach responds to gaps in existing research on change initiatives that are attributable to cross-sectional or limited longitudinal designs and that thus cannot adequately capture long-term trends. The actual participatory Smart Moves Challenge was carried out over a period of five weeks. 27 participants agreed to attempt to commute actively, carpool, or take public transport to work at least once a week over the course of the Challenge. For the duration of the Smart Moves Challenge, participants reported their commute in a daily travel diary. They were also interviewed before and immediately after the participatory intervention and gain three months later. Drawing on rich qualitative data collected through interviews and participant observation at three different points in time, the qualitative evaluation is able to capture conditions and circumstances that either helped or hindered people's efforts to change their existing routines and to keep up their new practices. This innovative qualitative approach to evaluation not only focused on evidence of a modal shift but explored social and material aspects that made it easier or harder for people to change their commuting routine. Tracing change in this way opens up new ways of understanding opportunities for and barriers towards a transition to sustainable commuting patterns (see Chapter Seven for an in-depth discussion).

Overall, this study seeks to capture current commuting practices and identify potential avenues for instigating change. The innovative longitudinal research design recognises the time-related aspects of practices and the resulting need to assess the effectiveness of change initiatives over a longer period of time (see also Chapter Four for detailed description of the methodology of this study).

1.4.4 ConsEnSus project

This study is part of a large-scale social research project on individual and household consumption in the Republic of Ireland and Northern Ireland funded by the Irish Environmental Protection Agency (EPA). The ConsEnSus project (CONSumption, ENvironment and SUStainability) is an interdisciplinary, collaborative research project involving researchers from Trinity College Dublin and the National University of Ireland,

Galway. The aim of the project is to generate baseline data on Irish consumption practices in the four key areas of food, transport, energy and water and to develop policy-relevant transition frameworks and recommendations that could aid the transformation of unsustainable consumption practices in these areas by identifying the underlying reasons for and barriers to more sustainable consumption. It is envisaged that these recommendations serve as guidelines for policy-makers in Ireland who are tasked with introducing policies that enhance a transition to sustainable consumption patterns. This study makes the case that for such policies to be successful, people's cultural and socio-economic background needs to receive ample attention to establish what drives consumption patterns in Ireland North and South.

ConsEnSus work package three (WP3) is entitled 'Transport, mobility and the sustainable consumption of distance' and encompasses two separate subprojects that focus on behavioural change. While the present study is dedicated to the investigation of change in corporeal mobility patterns towards more sustainable transport modes, the second project investigates teleworking as a form of virtual mobility and explores its potential for suppressing journeys. It is important to note here that this project focuses on travel practices in the Republic of Ireland. The decision to concentrate on one country only was influenced by two considerations, namely: 1) to focus on the meso-level of social organisation (rather than the national/macro level) and 2) to adopt a case-study approach for the empirical part of the project.

ConsEnSus is funded under the Science, Technology, Research and Innovation for the Environment (STRIVE) Programme 2007–2013. The programme is financed by the Irish Government under the National Development Plan 2007–2013. It is administered on behalf of the Department of the Environment, Heritage and Local Government by the Environmental Protection Agency, which has the statutory function of coordinating and promoting environmental research in the Republic of Ireland. The ConsEnSus project was granted full approval by the NUI Galway Research Ethic Committee on 14 April 2009.[9]

1.4.5 Key strengths of the study

Overall, this study offers three major advantages over much existing social research on mobility patterns more generally, and commuting practices in particular. First, the application of a practice-theoretical perspective on the consumption of distance offers

[9] See www.consensus.ie for more detailed information on the ConsEnSus project, including interim reports, presentations and publications.

broad insights into material, (infra)structural and socio-cultural aspects of people's travel patterns. Despite the fact that everyday mobility is an integral part of people's social life, dominant theoretical approaches frequently lack sensitivity for the social and cultural dimensions of everyday travel. However, such aspects are essential to increase our understanding of the nature of people's travel patterns as well as the conditions that may help or hamper a transition towards more sustainable travel patterns. In response, the author carefully developed her research design to suit the investigation of socially and materially embedded practices (rather than attitudes or individuals' behaviour).

Secondly, this study concentrates on the meso-level of social organisation and the links between the micro- and the meso-level, that is, individuals and work organisations. It sheds light on the potential of employers to impact on people's commuting patterns and act as initiators and facilitators of sustainable everyday travel.

Third, the longitudinal element of this study allows for a time-sensitive exploration of the effectiveness of change initiatives at the meso-level. At the same time it facilitates the identification of circumstances that may foster or impede sustainable commuting patterns.

Finally, this study combines the strengths of an in-depth case-study design with a broad policy analysis and national statistics that provide a wider frame of reference and a comparative context.

1.5 Structure of thesis

The remainder of this thesis is divided into two major parts. Part I – Chapters Two, Three and Four – presents theoretical and methodological concepts and considerations. Chapter Two offers a critical examination of existing social-scientific approaches to physical mobility while Chapter Three develops an innovative conceptual framework that adopts a practice-theoretical approach to the study of consumption of distance. Part I finishes with a detailed discussion of the research methodology adopted in this study (Chapter Four). Part II revolves around the presentation and discussion of empirical findings of the study (Chapters Five to Eight). The final chapter in this thesis – Chapter Nine – offers significant conclusions and provides a set of policy recommendations.

While this introductory chapter has highlighted the social embeddedness of car use, the second chapter offers a critical review of the state of the art in transport behaviour research. **Chapter Two** critiques the dominance of actor-centric approaches to human behaviour that are widely used in economics and psychology. It also questions the

suitability of structuralist approaches that have taken up a prominent position in social-scientific mobility research. Finally, Chapter Two offers arguments that challenge current change strategies and policies that rely solely on actor-centric and structuralist theoretical approaches, even though this may not always be intended by those who write and implement policy.

Building on the critical assessment of actor-centric and structuralist approaches in Chapter Two, **Chapter Three** presents an alternative perspective in the form of practice-oriented sociological approaches to human action. It concentrates on contemporary practice theorists such as Anthony Giddens and Theodore R. Schatzki whose works has been applied in consumption studies. Drawing mainly on Schatzki's work, the author develops a theoretical framework for the empirical investigation of existing travel practices and their transformation in the context of an employer-based change initiative.

Chapter Four, the final chapter of the theoretical part of this thesis, reviews existing methodological approaches in consumption and mobility research, with a view to assessing their suitability for the longitudinal study of commuting patterns and their transformation over time. Subsequently, the practice-theoretical framework developed in Chapter Three is translated into a suitable template for data collection and analysis. Emphasising the study's focus on the meso-level, this chapter argues that the role of organisations such as companies and education institutions for a transition towards sustainable transport patterns requires much more attention from transport researchers than has hitherto been the case. Chapter Four finishes with a detailed description of the innovative multi-level, multi-methods case-study approach to the empirical investigation of commuting practices that has been adopted for this study.

Chapter Five describes the wider policy context of the case study and its impact on people's commuting patterns. The chapter also provides a critical summary of local and national transport policy in Ireland, focusing in particular on key policy actors and significant policy decisions over the past two decades. Chapter Five concludes with a thorough site analysis of the company selected for the case study.

Chapter Six offers a detailed examination of commuting practices in Ireland. While Chapter Five revolves around local and national policies and infrastructural and organisational conditions, Chapter Six focuses firmly on socio-cultural influences on people's commuting practices. It draws on focus groups and interview data from the exploration phase of the study to develop a typology of commuting practices that is socially and culturally sensitive and that pays adequate attention to the infrastructural and material

constraints faced by commuters in Ireland. This typology serves as the basis for the qualitative evaluation of the employer-based change initiatives in Chapter Seven.

Chapter Seven presents the qualitative evaluation of the employer-based two-tiered change programme. It explores the effectiveness of both the conventional measures, the three Is[10], and the participatory Smart Moves Challenge. Drawing on the longitudinal data, it also identifies circumstances and conditions that hamper or enhance a transformation of unsustainable commuting routines and an adoption of new travel practices. This innovative longitudinal research design recognised the importance of the social, time-related, material aspects of everyday routines as well as the need to assess the effectiveness of sustainability initiatives over longer periods of time. It thereby reveals the inherent resistance of most existing commuting routines to a transition to sustainable commuting but also opportunities that can be seized.

The subsequent chapter, **Chapter Eight**, offers an in-depth analysis and critical discussion of the findings presented in Chapters Five, Six and Seven. It also assesses the merits and drawbacks of adopting a practice approach to researching commuting patterns and employer-led change initiatives for the transition to sustainable transport. In addition, the author presents her theoretical contribution to the wider debate on changing practices which are grounded in the empirical findings of this thesis.

Chapter Nine concludes this thesis with further elaborations on the key findings of this study, its contribution to the field of practice-theoretically informed consumption research as well as an outlook on potential future research. This concluding chapter finishes with a set of policy recommendations based on the findings of this thesis.

[10] As stated previously, the three Is are: 1) information provision; 2) incentivisation; 3) infrastructural changes.

Chapter 2

Theories of human behaviour and behavioural change

To achieve the two main objectives of this study – to deepen our understanding of current commuting patterns and to sociologically investigate ways to change them through workplace-based interventions – requires a specific theoretical framework that is capable of capturing social and material phenomena at different levels of social organisation. Furthermore, it requires one that also lends itself to empirical testing.[11] Chapter One demonstrated the continuous importance of corporeal mobility in modern societies and presented arguments for the re-conceptualisation of commuting as a more or less resource-intensive and socially negotiated consumption practice. Following on from this chapter – Chapter Two – and the following chapter – Chapter Three – critically examine key theoretical approaches to human behaviour and behavioural change in order to explore their usefulness (or otherwise) for the study of travel practices and the consumption of distance. Prominent middle range theories[12] that have provided a theoretical-analytical framework for empirical research on (un)sustainable human behaviour more generally, and work on mobility and commuting specifically, receive particular attention. The three main segments of the theoretical landscape reviewed in this chapter and Chapter Three can be broadly categorised as actor-centric, structural and integrative. Initially, Chapter Two focuses on actor-centric approaches that offer predominantly cognitive explanations of individuals' travel behaviour. This is complemented with a brief, but critical, review of dominant lifestyle approaches. The latter parts of Chapter Two compare and contrast these actor-centric approaches with structuralist explanations of human behaviour. Here, it is shown that cognitive efforts and lifestyle decisions both shape and reflect wider structural conditions. Moreover, it demonstrates that these interactions between individual choices and social and material structures need to be given much greater prominence in explanations of human behaviour than has hitherto been the case in transport research.

Subsequently, Chapter Three primarily focuses on the sociological approaches that present themselves as alternatives to individualistic and structuralist theories of human

[11] It is important to note that the expression 'empirical testing' does not refer to hypothesis testing here, but it describes the iterative process of linking theory to quantitative and qualitative data.

[12] Robert K. Merton defined middle range theories as "theories that lie between the minor but necessary working hypotheses that evolve in abundance during day-to-day research and the all-inclusive systematic efforts to develop a unified theory that will explain all the observed uniformities of social behavior, social organization, and social change" (Merton 1968: 39). His work has considerably shaped this contemporary understanding of theoretically guided research and theory construction.

behaviour because of their efforts to integrate social structures and human agency into a coherent theoretical framework. The main focus is on practice theories which adopt such an integrative approach to the structure-agency problem and which take seriously the material (pre)conditions of human social life. The potential of practice theories for the investigation of commuting practices and their transformation over time receives particular attention in Chapter Three.

The study of everyday travel and its transformation has captured the interest of major social science disciplines, including geography, economics, psychology and sociology; though all tend to differ in their perspectives on the nature and social functions of physical mobility. Spatial-geographical and planning approaches, for example, prioritise structural influences such as the built environment, infrastructure and regulation. In contrast, many conventional psychological and economic theories of human travel behaviour favour rationalistic-cognitive explanations that put individuals at centre stage. In contrast, one of the main sociological approaches to human behaviour and action patterns – practice theory – treats human behaviour as a set of actions that are embedded in and contingent upon their social and cultural context (see Chapter Three for detailed review). Chapter One introduced a practice approach to transport, mobility and the consumption of distance as a potential alternative analytical approach to daily mobility. According to a practice-theoretical perspective, practices are much less dependent on individuals' conscious decisions and deliberate actions. Instead, people's performance of practices ensures the long-term survival of these practices. That said, practices may also decline in use and either temporarily or permanently disappear.

Due to the relative dominance of actor-centric, cognitive-rationalistic models and lifestyle approaches within transport behaviour research, large parts of this chapter concentrate on critically examining these perspectives. This is followed by an assessment of structural explanations. Initially, this chapter provides an overview of the key determinants of travel behaviour, as identified by mainstream economic and psychological actor-centric models (Section 2.1). The underlying idea that underpins many of these models is that by manipulating determinants, such as costs and journey time, there should be a resulting change in behaviour. Following on from this, Section 2.2 reviews three prominent actor-centric approaches, namely the theory of planned behaviour (TPB), norm activation theory (NAT) and the attitude-behaviour-constraint model (ABC). These three models have been frequently applied to identify key determinants of behaviour. Lifestyle approaches form another prominent strand of actor-centric research on consumption more generally, and

travel behaviour in particular, and these are dealt with in Section 2.2.6. The subsequent Section 2.3 then reviews approaches that emphasise structural or contextual factors. It is argued that in addition to dominant actor-centric models and lifestyle approaches, structural approaches have played a significant role in the field of transport and mobility research.

It is important to note that many of the theoretical approaches covered in this chapter have not only dominated the research agenda for many decades, but, have also frequently informed policy-making in the transport sector and beyond. Therefore, the final section of this chapter, Section 2.4, discusses change strategies and policy recommendations aimed at encouraging sustainable mobility behaviour that have emerged from these studies. These demonstrate the powerful influence of certain concepts of human nature and human behaviour that continue to influence Irish and international transport policies to date.

2.1 Key determinants of behaviour

In examining the social-scientific literature on transport and mobility, two principal approaches emerge that differ with regard to which determinants of human behaviour they deem to be most significant. Firstly, there are approaches that stress personal and individual determinants of human behaviour. Secondly, there are approaches that focus (more or less) exclusively on contextual and structural aspects.[13] Overall, it was possible for this author to identify five major groups of determinants of travel behaviour (see Table 1).

Table 1 Overview of determinants of car use

Categories of determinants	Examples
Instrumental and utilitarian factors	Costs, journey time, convenience
Attitudes and values	Environmental concern
Affective and symbolic motives	Emotional attachment and status symbol
Habits	Getting into the car to go somewhere without conscious decision-making
Structural factors	Existing infrastructure or incentive system

[13] It goes without saying there these are only rough categories and that the differentiation between approaches is not clear cut. Nevertheless, this distinction serves the purpose of categorising the literature in order to provide an overview.

The first four categories highlight factors that are related to the individual: instrumental or utilitarian motives, attitudes, affective motives and habits. The fifth category covers structural factors including: the built environment (e.g. infrastructure, layout of cities), governance (e.g. policy-making processes, regulatory institutions) as well as socio-cultural factors (e.g. socially negotiated expectations regarding the best way to get around). While these five categories are neither clear cut nor all-encompassing, they nevertheless serve the purpose of providing an excellent overview of the key determinants and their connections with particular theoretical approaches. It is important to note that many existing studies in the social-science literature on transport and mobility behaviour focus on a single determinant while overlooking others, depending on the theoretical approach adopted.

2.1.1 Instrumental or utilitarian motives

Studies that highlight instrumental determining factors often assume that people act rationally in order to maximise the expected utility of their choices, such as their preference for a particular transport mode (Steg 2005; Steg *et al.* 2001). Accordingly, it is assumed that people take decisions based on the available information rather than being "controlled by unconscious motives or overpowering desires" (Fishbein & Ajzen 1975: 15). Factors influencing these decisions include monetary costs, travel time, flexibility, convenience and physical effort (Gardner & Abraham 2007).

Cost is often quoted as a determining factor of human behaviour in public debate. This line of thinking is based on the concept of the *homo economicus*, which suggests that people will adjust their current behaviour whenever it becomes too costly for them and that they will be rewarded for performing more desirable behaviour. Models that follow this logic assume that cost plays a central role in people's modal choice. However, there is ample evidence to suggest that few people are fully aware of all the costs of motoring *vis-à-vis* other modes of transport when making their decisions (Rau 2011; Jakobsson *et al.* 2002; Meyer 1999).

Apart from cost, journey times and convenience are also regarded as influential factors by those who adopt such an instrumental approach. For example, some studies have found that the perception of convenience, in terms of the anticipated effort when taking a particular modal choice, plays a key role (Steg 2003; Tertoolen *et al.* 1998; van Vugt *et al.* 1995). People's perception of convenience depends on both physical and cognitive demands. For example, looking for public transport schedules and buying tickets

may be experienced by many as cumbersome and time-consuming. Soft measures, such as online journey planners and integrated ticketing for public transport, as in the recently introduced *Leap Card* in Ireland's capital, Dublin, recognise these perceptions of (in)convenience and attempt to reduce people's actual and perceived efforts (Gardner & Abraham 2007: 197).

With respect to journey time, Tertoolen *et al.* (1998) were able to show that participants rated the duration of the journey as highly important. Similarly, Gardner and Abraham (2007) identify real or perceived journey times as a crucial factor in deciding on a particular transport mode. However, motorists tend to overestimate their personal control when confronted with increased congestion (UK Department for Transport 2005, quoted in Gardner & Abraham 2007: 196). More importantly, car drivers' optimistic views of driving often contrast with perceptions of public transportation as being slow and unreliable. Wardman *et al.* (2001), for example, discovered that motorists frequently regarded public transportation as taking too long even in circumstances where bus journeys were shorter than equivalent car journeys (quoted in Gardner & Abraham 2007: 196). It is likely that some of these overly optimistic perceptions of the benefits of driving are the result of advertising strategies deployed by automobile industry throughout many decades. Public transportation, on the other hand, is hardly ever promoted (cf. Cahill 2010; Fujii & Gärling 2005).

Evidence from studies concentrating on the misconceptions of the merits and drawbacks of different transport modes suggest that it is not information *per se* but mainly first-hand experience of public transportation that improves how people perceive them (Van Vugt et al. 1996 quoted in Gardner & Abraham 2007: 188; Fujii & Gärling 2005; Brown *et al.* 2003; Fujii *et al.* 2001). For example, Brown *et al.* (2003) found that many motorists who temporarily had to switch to public transport began to use their travel time more efficiently, for instance by working. These drivers were subsequently found to have experienced greater satisfaction with public transport and they were less likely to return to using their car to commute (Fujii & Gärling 2005; Fujii *et al.* 2001). This said, experiences of poor-quality public transport can sometimes lead to a further deterioration in people's views and feelings about alternatives to the motorcar (see Wickham 2006a: for evidence from Dublin).

2.1.2 Attitudes and Values

Socio-psychological models that draw on attitude theory tend to stress the importance of attitudes in determining human behaviour, including modal choice (Domarchi *et al.* 2008). These studies conceptualise attitudes as either positive or negative evaluations, beliefs, or likes and dislikes held about something that in turn may affect one's behaviour (Gärling *et al.* 1998).[14] The underlying assumption of attitude models is that there is a linear relationship between attitudes, people's intention to act, and their actual behaviour (see Section 2.2.4 for detailed discussion on theoretical approach focusing on norms).

Overall, the body of evidence on attitudes as determinants of human behaviour is inconclusive. Vredin Johansson *et al.* (2006), for example, find that attitudes towards flexibility and comfort as well as the personal trait of being environmentally friendly can influence individual's modal choice. Interestingly, their study of the effects of individual-specific and mode-specific attributes in Swedish commuters' modal choices shows that a combination of pro-environmental concern and instrumental factors (travel time and travel cost) has a significant effect on modal choice.[15] Their work also challenges many existing studies that claim that there is no connection between environmental concern and modal choice. However, there is contradictory evidence from Sweden. Martinsson and Lundqvist's (2010) study of Swedish commuters demonstrates that even the most environmentally careless among them show pro-environmental behaviour. The authors argue that the existing infrastructure and state intervention have significantly reduced opportunities for unsustainable behaviour.

Moreover, a number of studies observe a weak relationship between environmental concern and pro-environmental behaviour (Daniels & Hensher 2000; Vredin Johansson 1999; Hines *et al.* 1986/87). Explanations for this weak link commonly state that a broad attitude such as general environmental concern is not suitable for predicting specific environmental behaviour; other influencing factors need to be included (Jackson 2005; Bamberg & Schmidt 2003). For example, the strong influence of habit is frequently

[14] Attitudes are typically broken down into cognitive, affective and behavioural components. The affective component can be described as an individual's degree of preference for something. The related verbal or behavioural expression by an individual counts as the behavioural component (translated into conduct). The cognitive component (linked to knowledge) encompasses individuals' cognitive evaluations that underpin their beliefs (Baron *et al.* 2009; Nairne 2003).

[15] Washbrook *et al.* (2006) support this data through their examination of attributes of transport mode and their influence on modal choice among commuters in Vancouver, Canada. Their results suggest that improving travel time for alternative travel modes above a certain base level had only a minor effect on modal choice and did little to decrease demand for single-occupied-vehicle (SOV) travel. On the other hand, increasing the cost of SOV travel had a significant effect on demand for driving alone. Responses to road and parking charges differed the most at mid-range pricing levels, with road pricing being more effective at reducing demand.

(and wrongly) omitted from many explanations of human behaviour (Gardner & Abraham 2008: see also section on habit below).[16] Dormarchi *et al.* (2008) address this omission in their explanation of modal choice by including habit and affective appraisal as intermediating variables into a model based on attitudinal theory. Their results imply that breaking the habit of driving through persuasive techniques is difficult because, for instance, an emotional attachment to a particular mode of transport may also influence modal choice.

Affective and Symbolic motives

Cars represent more than a means of transportation. Affective motives for driving may be sensations of security, superiority and power. The symbolic character of cars is reflected in the conception of cars as a marker of social status or as shaping a certain image of its owner. In numerous studies, car users have reported non-instrumental benefits of driving such as security, comfort, independence and control when compared to the use of other transport modes (e.g. Anable & Gatersleben 2005; Steg 2005; Steg *et al.* 2001). Neither instrumental motives nor attitudes are independent of emotions, symbolic meanings and perceptions. On the contrary, instrumental factors that inform modal choice such as convenience or journey time are often closely related to feelings such as control, autonomy, stress, or comfort and safety. Similarly, affective motives are frequently based on the experience of driving (Gardner & Abraham 2007: 188) and seem to correlate with modal choice (Mann & Abraham 2006; Anable & Gatersleben 2005; Ory & Mokhtarian 2005; Ellaway *et al.* 2003; Hagman 2003; Bamberg & Schmidt 2001; Stradling *et al.* 1999).

Studies that look into affects, emotions and symbolic motives related to car use frequently draw on either quantitative or qualitative data. The vast body of research examining affect is quantitative in nature and claims to investigate the 'big picture' of determinants and affective influences on transport patterns and modal choice. The majority of quantitative work employs revised attitude-behaviour models that recognise affect as important influence on travel behaviour and modal choice. Models that incorporate variables of affect are, however, rare compared to the mainstream of behaviour models.

The second strand of literature covering affect encompasses qualitative studies on perceptions and emotions that are attached to transport modes (Hagman 2010; Spinney

[16] (Gardner & Abraham 2008) examine the results of 23 datasets that measured car use and/or driving intentions applying the theory of planned behaviour.

2009; Laurier *et al.* 2008; Dant 2004; Sheller 2004; Hagman 2003; Ross 1998). These accounts drill down into people's emotions and ideas related to cars as well as the meanings attached to car use. Hagman (2003), for example, has researched affective associations people have with their cars. His study shows that his Swedish research participants talk about advantages and disadvantages of car use differently. They generally underline the benefits such as time-saving of driving with personal experiences, while their accounts of the downsides such as environmental concerns tend to be impersonal and linked to the public discourse.

The perceived benefits of and affective associations with driving deserve close consideration in any attempt to understand travel behaviour and modal choice. Hiscock *et al.* (2002) draw on Giddens's notion of ontological security. He defines this as a "sense of continuity and order" (Giddens 1991: 243), which creates positive and stable emotions. They build on Giddens' (1991) suggestion that the need to feel protected emerges early in life, and that its impact on people's behaviour sometimes extends beyond physical needs such as hunger and thirst (Hiscock *et al.* 2002).[17] Hiscock *et al.* argue that cars may provide enhanced ontological security to those who have access to them, which partly explains why many owners appear to be so attached to their cars.[18] Based on qualitative evidence of the benefits that people seem to derive from their cars, Hiscock *et al.* (2002) find supportive evidence from their research participants' statements. Cars were seen as providing protection from undesirable people and events and were regarded as a comfortable cocoon (though not as protection against accidents). In addition Hiscock *et al.* find confirmation for their findings in Kaiser and Fuhrer's (1996 quoted in Hiscock *et al.* 2002) work. They similarly argue that cars and houses can provide mental benefits such as ontological security and suggest that the emotional benefits people derive from owning a car are reflected in their use of the car. Kaiser and Fuhrer find that people who are emotionally attached to their house tend to leave more material traces there. However, if they do not feel home where they live, they have a tendency to leave more traces elsewhere; in this case their automobiles (1996 quoted in Hiscock *et al.* 2002). While building on a highly theoretical and complex concept such as ontological security in relation to car use seems disproportionate at first, it serves to elucidate the affect-laden nature of car ownership and car use.

[17] This is a well-established line of argument which has also a prominent proponent in Maslow (1943) and his hierarchy of needs.
[18] They conducted in-depth interviews with car owners and non-car owners in the West of Scotland.

2.1.3 Habit

Travel behaviour also has a habitual element; habitual behaviour requires less attention for an individual compared with consciously controlled behaviour or deliberate decision-making processes (cf. Eriksson 2008: 11).[19] The lion's share of studies that recognise habit as an intervening variable employ an attitude-behaviour-model of some sort. Many studies suggest that modal choice, in particular car use, is driven by habit rather than deliberate decision-making. In this context habit is generally regarded as automatically performed behaviour triggered by situational cues (Matthies *et al.* 2006; Thøgersen 2006; Bamberg *et al.* 2003; Garvill *et al.* 2003; Aarts & Dijksterhuis 2000; Aarts *et al.* 1997; Verplanken *et al.* 1997; Verplanken *et al.* 1994). People do not necessarily make a conscious decision to use a specific mode of transport when going on a routine trip (Eriksson 2008). Furthermore, Gardner and Abraham's (2008) meta-analysis of psychological correlations of car use challenges the assumption of a simple linear relationship between attitudes, intentions and behaviour. They point out that attitude is a weak predictor of travel behaviour because habit interferes with its performance. Moreover, "a strong habit is perceived to block the more deliberated processing prior to behaviour" (Eriksson 2008: 11).

This is one of the reasons why travel behaviour models that assume, more or less explicitly, that behaviour is a deliberate choice have sustained criticism in the social-scientific literature. Aarts and colleagues (1997), for example, find that a strong habit of taking a particular mode of transport coincides with less scrutiny of information than a weak habit. Moreover, a number of scholars find that habit influences people's intention to act. It thus reduces the influence of someone's behavioural intention on their actual behaviour (Eriksson 2008: 11; Staats *et al.* 2004; Verplanken *et al.* 1994; Triandis 1977). In addition, Klöckner and Matthies (2004) observe a similar interaction between habit and attitude and also between habit and personal as well as social norms.

2.1.4 Structural Factors

Existing work on determinants of behaviour discussed so far in this chapter has been located at the micro-level of individuals' actions. Yet, there is also a strand of research concerned with structural determinants at the macro-level. It recognises that travel

[19] For details see also Verplanken, Aarts and Van Kippenberg's (1997) study on the role of habit on information acquisition concerning travel choices. They find that a strong habit in choosing a particular travel mode impedes the acquisition of information and produces less elaborate choice strategies.

behaviour can be both enabled and constrained by factors such as the built environment, governance structures and social circumstances.

Studies dedicated to the effects of the built environment on travel behaviour are mainly rooted in disciplines revolving around planning, geography and environmental science. The built environment encompasses density, settlement size, the jobs-housing balance, infrastructure, accessibility and street layout. Newman and Kenworthy, early advocates of sustainable transport, have found evidence to suggest that travel behaviour and modal choice depend on the built environment (Lopez-Zetina *et al.* 2006; Kenworthy & Laube 1999; Newman & Kenworthy 1999, 1996). In particular, urban sprawl and suburbanisation are associated with car-dependence because they create long distances between strategic destinations such as the workplace, public services, shopping and other amenities (Ewing *et al.* 2008). Cameron *et al.* (2003) draw on a large sample of cities to show that despite time, social and cultural differences, the number of kilometres travelled by car depends on the layout of urban areas. Evidence from Northern California supports this claim that differences in travel behaviour between suburban and traditional neighbourhoods cannot be explained by varying attitudes but can be attributed to differences in the built environment (Handy *et al.* 2005). According to Banister (2008), the built environment, urban design and infrastructure are directly related to planning and land use policies that shape travel behaviour patterns.

Transport policies can influence transport behaviour in various ways, for example, through investment in infrastructure, financial measures such as taxes on car engine size or tax breaks for public transport use (see also Section 2.4 on change strategies and policies). The nature of studies on transport policies varies greatly, from policy evaluations, comparative studies between countries to studies on policy acceptance (see also Chapter Five). Buehler (2010), for example, compares the effect of petrol pricing strategies on the volume of car use. He finds that car use in the USA decreases faster there than in Germany as a result of increased costs. Buehler interprets this as meaning that Americans can reduce their car use more easily.

A central theme of research that concentrates on social and cultural conditions as behavioural determinants is in the field of socialisation. Socialisation serves as a useful example because it unites both the cultural and the social dimension. People learn about car use and travel modes in the same way as they learn about other aspects of their culture: through socialisation facilitated by their family, educational institutions, media and peers (Baslington 2008). Cahill *et al.* (1996) find that children who were brought up without

a family car preferred active commuting and public transport. Similarly, Sandquist and Kristroem's study (2001) revealed that children who were brought up with a family car were more in favour of cars than children from households without car. At the same time, research on children's associations with transport modes finds that children also reflect stereotypical social and cultural perceptions related to particular modes of transport (Kingham & Donohoe 2002). Haunstein *et al.* (2008) adopt an actor-centric perspective and integrate social structures as informing individuals' attitudes, personal norms and their behaviour. Their study supports the idea that socialisation impacts on the driving habit and personal norms of young adults.

2.2 Actor-centric theories

Most categories of determinants reviewed in Section 2.1. have been identified by studies that adopt an actor-centric approach. Specific theoretical approaches tend to highlight particular sets of determinants. This section critically examines the theoretical foundations of conventional actor-centric approaches which dominate the field of private transport research. As stated previously, actor-centric behaviour approaches focus (more or less) exclusively on individuals' decisions and their effects on behaviour. This section focuses on three broad strands of actor-centric approaches: economic and socio-psychological models as well as lifestyle approaches that frequently build on socio-psychological models. The economic approaches generally assume that people are rational actors. The socio-psychological approaches tend to highlight attitudes and norms to explain human behaviour. Since there is a vast range of socio-psychological approaches to human behaviour, only the three most prominent approaches to travel behaviour research are presented: 1) theory of planned behaviour; 2) norm activation theory; 3) attitude-behaviour-constraint model. Lifestyle approaches put the concept of lifestyle centre stage in order to understand behaviour patterns. All these approaches have frequently been applied to mobility and consumption research. Due to their relative dominance in the field, many of them have also informed transport policy-making.

2.2.1 Theories rooted in rational choice theory

Undoubtedly, many mainstream economic explanations of human behaviour continue to advocate a rational choice approach that views people's actions as resulting from highly complex cost-benefit calculations. Early models of pro-environmental behaviour, for example, suggest a simple linear relationship between information, intention and resulting

behaviour (Jackson 2005: vii). Such realist models, which achieved considerable prominence in the 1970s, assume that people base their behavioural intentions on the information they have regarding the present situation and perform their intended behaviour accordingly. Thus, such models propose that providing people with certain types of information, for example on environmental issues, will change their intentions and, consequently, their actual behaviour.[20] Indeed, policy measures for encouraging pro-environmental behaviour frequently assume that people merely lack information. Even today, this so-called information-deficit model informs policy initiatives in Ireland and internationally in areas such as transport, energy and health promotion. However, there is ample evidence that to focus solely on addressing people's 'information deficit' is insufficient for influencing people's behaviour and that costly information campaigns can have a very limited effect or indeed no effect at all (see Barr 2003; Owens 2000).[21]

Observable discrepancies between people's attitudes and their actual behaviour have led to a plethora of explanations, some of which emphasise the role of incentives (Lane & Potter 2007; Blake 1999). For example, Judge and Becker (1993) offer an explanation for this attitude-action gap which posits that people only perform pro-environmental behaviour such as cycling or recycling if this will reward them with the highest net benefit. Similarly, Diekman and Preisendoerfer (2003) introduced the low-cost-situation hypothesis which proposes that people behave according to the information available to them and attitudes (e.g. being environmentally friendly) if doing so is neither costly nor inconvenient for them. In other words, it is assumed that people act rationally. Diekman and Preisendoerfer argue that "the strength of effects of environmental concern on environmental behaviour diminishes with increasing behavioural costs" (Diekman & Preisendoerfer 2003: 441). If, however, the implied costs of being environmentally friendly are high, people's actions will not be consistent with their attitudes. According to rational choice theory, high costs prevent people from performing non-desired behaviour while economic incentives can nudge people towards performing desired behaviour.

[20] While the author is sceptical of mainstream economic approaches for their overly simplistic understanding of human behaviour, it is important to note that this does not imply that she rejects economic approaches in general.

[21] In Ireland the "Power of One" information campaign that commenced in 2007 and was geared towards saving energy in households. While there is no evidence to suggest that the campaign reduced national levels of energy consumption in the domestic sector, its 'Power of One Street' demonstration project in 2007/8 proved to be highly successful (www.seai.ie/Power_of_One/Power_of_One_Street, accessed 15 August 2012). This suggests that a combination of measures such as targeted information tailored to people's needs, hands-on experience and *in-situ* expert advice can be much more effective than a stand-alone information campaign via mainstream media channels, in particular if the former takes into account people' social context, as was the case with the 'Power of One Street' initiative.

Overall, rational choice approaches share the core idea that individual behaviour is best described through the model of the *homo economicus.* This concept holds individuals to be self-interested, rational actors who seek to maximise their own benefit. Classic rational choice theory regards these benefits as purely economic while more complex versions of rational choice theory understand actors' net benefits as dependent on their individual preferences (expectancy value theory). Other efforts to explain the often quoted attitude- (or value-) action-gap include socio-psychological models which also view pro-environmental behaviour as an outcome of conscious choice. The following section critically examines prominent examples of socio-psychological work on behaviour (change) to illustrate this point.

2.2.2 Socio-Psychological Theories

Many psychological theories of pro-environmental behaviour see human behaviour as the outcome of individuals' decisions based on their attitudes, values, norms and motivations (e.g. Ajzen 1991; and also Schwartz 1977). The following section introduces three of the most prominent theories in this category: the theory of planned behaviour (Ajzen 1991), the value-belief-norm theory (VBN) (Stern 2000; Stern *et al.* 1999) and the attitude-behaviour-constraint model (Stern 2000). While all three approaches agree that behaviour results from a deliberate decision, they differ with respect to their emphasis on behavioural determinants. The theory of planned behaviour conceptualises individuals as rational actors. The value-belief-norm theory is based on Schwatz's norm activation theory (1977) and focuses on norms and moral beliefs. The attitude-behaviour-constraint model (Stern 2000) represents more recent developments that integrate variables such as habits, attitudes and contextual factors as forces which influence behaviour and, furthermore, it is a response to mounting criticism of other socio-psychological models.

Theory of planned behaviour and the rational actor

The most prominent behaviour models in the rational choice tradition are the theory of reasoned action (TRA) (Ajzen & Fishbein 1975) and its successor, the theory of planned behaviour (TPB) (Ajzen 1991). Both theories follow the logic of subjective expected utility assuming that people act to achieve the expected outcome of their action and that they attempt to maximise their expected net benefits. The TPB assumes that people make conscious and reasoned choices and that behaviour is determined by intentions and

preferences.[22] The TPB differs from economic approaches to human behaviour by proposing an indirect, mediated relationship between attitude and behaviour. Ajzen and Fishbein (1980) suggest that attitudes, social norms and perceived behaviour control influence both people's intentions as well as their actions.

TPB includes different intermediary variables in the relationship between attitude and behaviour. Ajzen and Fishbein (1980) identify three factors which influence intentions: behavioural beliefs (personal attitude towards behaviour), normative beliefs (pressure from others) and perceived behaviour control (self-efficacy). TPB thus takes individuals' beliefs into account with regard to both the consequences of their behaviour and the normative prescriptions of others (Ajzen & Fishbein 1980: 239). Furthermore, TPB considers background variables such as demographic factors that may influence normative beliefs. The TPB also includes a feedback mechanism whereby the adopted behaviour influences the expectations of future behaviour (Ajzen 1991). Moreover, compared to other models that use broad attitudes such as environmental concern to predict specific behaviour, TPB focuses on attitudes and intentions that relate specifically to the behaviour under scrutiny to raise the models' explanatory power.

The TPB is suitable for quantitative inquiry and is one of the most popular theories in the areas of social and environmental psychology. This is partly due to the theory's capability to include additional predictors. Its enormous uptake has led to various extensions of the model that include additional variables such as norms and habitual routines for explaining different behaviours like recycling, commuting, energy use and also travel behaviour. TPB is frequently applied to investigate travel behaviour and in particular modal choice. For example, Bamberg and Schmidt (2003) use a TPB model to explain modal choice through attitude, subjective norm, perceived behaviour control and intention (see also Wall *et al.* 2007; Anable 2005; Fujii & Gärling 2005; Bamberg *et al.* 2003; Bamberg & Schmidt 2003; Taniguchi *et al.* 2003; Heath & Gifford 2002).

Despite its popularity TPB has attracted significant criticism. The three central aspects of this criticism are: a) the weak relationship between attitude and behaviour; b) the conceptualisation of individuals as rational actors; c) the conceptualisation of travel decisions as deliberate and conscious choices. These are discussed in the following subsection.

[22] Preferences are observed indirectly via self-reports as 'stated preference' or directly revealed through action 'revealed preference'.

Criticism of the theory of planned behaviour

Individuals' attitudes and intentions frequently do not match their actions (Kollmuss & Agyeman 2002). This implies that the relationship between attitudes and behaviour is not strong enough to explain behaviour. Even though people claim they want to protect the environment, they may still use their car excessively. These findings challenge models based on the assumption of a linear relationship between attitude and behaviour such as TPB. TPB models[23], however, succeed in increasing the predictive power of models by replacing broad attitude variables, such as environmental concern, with variables standing for a highly specified attitude variable. For example, instead of predicting recycling behaviour through environmental concern, it is predicted through attitudes towards recycling. Such highly specified variables can capture precisely attitudes directed towards the predicted behaviour and can clearly increase the predictive power of carried out a comparative evaluation of mass a model. Apart, however, from the obvious tension between parsimony and predictive power[24], this seems to be a mere cosmetic fix since discrepancies between attitudes, intentions and behaviour can still be observed.

Another reason why TPB is unable to explain complex behaviour is rooted in its assumption that individuals act rationally. Here, the theory draws on an expectancy-value model that assumes that people act out of self-interest and in accordance with their stated preferences. As mentioned previously, studies on environmental information campaigns cast doubt on the assumption that providing and promoting particular information leads to changes in people's behavioural intentions and the adoption of pro-environmental behaviour. Staats *et al*. (1996) media campaigns aimed at reducing the use of plastic bags and chlorofluorocarbons (CFCs). Their findings suggest that although knowledge levels grew, people's willingness to change their behaviour does not increase significantly. Only people who had green intentions before being exposed to the campaign responded positively. These results highlight that behavioural decisions are more complex than the simplistic mechanism a rational choice approach proposes.[25]

In addition, it is also questionable whether or not behaviour is based on deliberate and conscious choice. Verplanken et al. (1994) argue that habitual behaviour matters much

[23] I refer to TPB in plural because there are a number of further developed models that have TPB and its central assumptions as their basis. My critique applies to the original TPB model as well as the revised models built on the same key assumptions.
[24] Such an approach leads to the prospect of almost infinite regress.
[25] As Tommy Gärling (2004: 10) emphasised in his key note speech at the 3rd International Conference on Traffic & Transport Psychology (ICTTP) in Nottingham, people might make optimal trade-offs in a laboratory experiment but this does not mean that they will necessarily do so in real life when making complex travel decisions. He highlights habitual behaviour as particularly important.

more than is recognised within conventional TPB approaches. According to Aarts *et al.* (1998), the emphasis of the TPB on rational agency cannot capture habit as a driving force of repeated car use decisions because, unlike deliberate cognitions, habit refers to subconscious cue-response links.[26] A habit is considered as a short cut between situational cues and actions, which means that frequently performed behaviour is automated under recurring, stable circumstances. Routine actions such as the commute to work, which bypass cognitive and deliberate decision-making, are inherent to people's travel behaviour (e.g. Gärling & Axhausen 2003: on habitual car use). Unfortunately, much work that has been carried out in the TPB tradition fails to take these habitual aspects of behaviour into account. Moreover, the context of people's decisions to act is often ignored despite the fact that contextual factors, such as the presence or absence of viable and affordable alternatives to car-based commuting, play a key role in people's behavioural choice. Overall, it is argued here that TPB's focus on individuals' motives cannot adequately explain more complex behaviour patterns.

It is important to note that TPB's inability to reliably predict human behaviour has resulted in various modifications and further developments. Transport studies that investigate travel choice have improved the model by including attitudes towards behavioural alternatives (Verplanken *et al.* 1994) and morally guided personal norms of conduct (Harland *et al.* 1999). However, there are revised models that can respond to some of the fundamental criticism of this model but they are too numerous to present them here. Many of them adjust or add a small number of variables or assume bounded rationality.[27] While these modifications to the framework can address some of the limitations of conventional TPB thinking, the core criticisms also apply to them.[28]

[26] Ajzen (2002) recognises this weakness and tries to integrate habit as determining factor in his model.

[27] The concept of bounded rationality was coined by Herbert A. Simon. The concept refers to the situation where people cannot fulfil the assumptions of rationality and where decision-makers face restrictions such as incomplete information, finite temporal resources, complexity and cognitive limitations.

[28] Hines, Hungerford and Tomera (1986/87) improved the theory of planned behaviour. They undertook a meta-analysis of 128 studies on determining and influencing variables in motivating individuals to show environmental behaviour. Their version of TPB includes situational factors implying that travel decisions are not purely deliberate decisions but are also shaped by other influences beyond individual factors. Even though this is a step towards a more comprehensive approach, Hines, Hungerford and Tomera are hesitant to clearly specify situational factors that impact on human behaviour. They only vaguely describe the respective factors as economic constraints, social pressures and opportunities, and intentions that determine behaviour. Additionally, they name attitudes, locus of control and personal responsibility that feed into personal factors, which influence intentions in combination with the knowledge of issues, knowledge of action strategies and action skills.

The focus on norms and the norm activation theory

The second group of socio-psychological approaches encompasses models of altruism and pro-social behaviour that base their explanation of pro-environmental behaviour on normative factors. This line of research posits that certain values and personal norms are either absolutely necessary for, or at the very least enhance, the performance of pro-environmental behaviour. Although models focusing on norms have been less popular than TPB, they have been applied to travel research. In contrast to TPB, this second group of socio-psychological approaches emphasises the importance of norms and values in predicting behaviour (e.g. Abrahamse *et al.* 2009; De Groot & Steg 2009; Gärling & Schuitema 2007; Harland *et al.* 2007; Wall *et al.* 2007; Bamberg & Schmidt 2003; Gärling *et al.* 1998).

In an effort to better understand pro-social behaviour, Shalom Schwartz (1977) developed his highly influential norm activation theory, which was subsequently used by many researchers as a point of departure for their work on pro-environmental behaviour and mobility. Schwartz regards personal norms as determining factors of behaviour. Here, awareness of the consequences of behaviour and the anticipation of responsibility function as antecedents of personal norms. In contrast to the rather narrow concept of the subjective norms included in TPB, Schwarz's model stands out because he recognises the strength of the personal norm's antecedents in influencing behaviour. In other words, the more aware people are of the potential negative consequences of their actions and the stronger their feeling of responsibility and the stronger the relationship between norms and behaviour.

Stern et al. (1999) developed a promising extension of Schwartz's theory of altruistic behaviour which links it to ecological value theory and the new environmental paradigm[29] (NEP) (see also Stern 2000). The resulting value-belief-norm theory (VBN) places particular emphasis on individuals' basic values and normative beliefs in predicting pro-environmental behaviour.[30] The VBN model proposes that people's pro-environmental values and beliefs will determine their personal norms with regard to the performance of environmentally-friendly behaviour. This in turn has a direct impact on individuals'

[29] The NEP can be regarded as a measure of environmental concern. It was developed by (Dunlap & Van Liere 1978) and it is constructed from a set number of items and was employed in various studies.

[30] Three types of values are considered: social/altruistic (the environment is valued because of its value to society); egoistic (the environment is valued because of its benefits to oneself); and biospheric (nature is valued in and of itself, regardless of its value to self or other humans) (Stern *et al.* 1999). The two environmental beliefs examined are beliefs about the environmental threat and the extent to which individuals think they can make a difference (personal control).

behaviour (Stern 2000). The reading for mobility research posits that a sense of responsibility for protecting the environment may positively influence a person's norms, which may then translate into a willingness to reduce car use (Nordlund & Garvill 2003).

Compared to the line of research proposing a subjective expectancy utility logic, most norm-centric approaches recognise that individual behaviour can be based on altruistic values and norms. Furthermore, they propose the use of a more elaborate mechanism, namely the norm activation mechanism, rather than the often applied rational utility calculus (Stern 1999: 463). However, these obvious advantages need to be counterbalanced against some of the demerits of norm activation models that are discussed in the following subsection.

Criticism of the norm activation theory

Models that focus on norms such as the norm activation theory face two major criticisms: 1) the assumption that behaviour is solely the result of conscious choice cannot be sustained in the face of empirical evidence to the contrary and 2) the negligence of contextual factors severely limits their explanatory power and their applicability to real-world, complex situations. As regards the first point, norm-centric models face similar criticism to TPB for not recognising affective or habitual influences on human behaviour, such as emotional attachment to a particular transport mode; those that have been identified in publications on car culture (Dant 2004; Sheller 2004) or long-established daily routines with regard to commuting. For instance, a number of scholars have produced evidence of the deep influence of habit on travel behaviour (e.g. Lucas *et al.* 2011; Eriksson *et al.* 2008; Gärling & Axhausen 2003; Nordlund & Garvill 2003; Verplanken *et al.* 1994). Aarts and Dijksterhuis (2000) argue that driving is a habitual action and that the decision to take the car on a particular journey is made with minimal cognitive deliberation. Klöckner and Matthies (2004) draw similar conclusions from testing norm-centric approaches. Their study indicates that habit interferes with norm-directed behaviour.

In addition to ignoring the influence of habits, socio-psychological norm activation models also largely fail to appreciate situational or contextual factors that may exert a crucial influence on the (lack of) performance of specific behaviour. The lack of secure and integrated cycle paths, for example, may prevent people from cycling to work because they may not feel safe or because they have to take long detours to avoid busy roads. Even though affect and habit have been recognised as potential barriers to behavioural change, most attitude behaviour models have not explicitly conceptualised them as determining

factors. The following subsection deals with the attempts in social psychology to develop explanatory models of human behaviour that can better incorporate affective and habitual aspects.

The attitude-behaviour-constraint model

The development of the attitude-behaviour-constraint (ABC) model by Stern (2000; 1999) was a response to criticism directed at other socio-psychological theories, including Stern's own value-belief-norm theory which focused solely on individual motivations (see Stern *et al.* 1999). The ABC model recognises that individuals act in a social context and that influences such as habit, affect and behavioural constraints may or may not override cognitive factors.[31] Stern and his colleagues have proposed an integrated model of human behaviour that incorporates interactions between personal attributes and situational factors (Stern 1999: 461; Stern *et al.* 1999). The model recognises that personal factors such as attitudes, basic values and normative beliefs may lead people to feel obliged to act in a certain way. However, the likelihood of certain behaviour to occur also depends on contextual factors such as peer pressure or regulation that shape people's propensity to engage in a particular behaviour at a particular point in time.

Stern also proposes that the strength of the contextual factors determine the extent to which personal factors affect any particular behaviour, thereby creating a hierarchy of influences. He suggests that attitude-behaviour-relationships are strongest when the external context provides weak pressures for or against any particular behaviour (Stern 1999: 464). In sum, they believe that the weaker the contextual forces, the more personal variables are likely to matter. This central statement of the ABC model can be presented as an inverted U-shaped relationship between contextual pressures and the strength of attitude-behaviour (Guagnano *et al.* 1995).

[31] A second example is Harry Triandis' (1977) theory of interpersonal behaviour (TIB). In contrast to other socio-psychological theories, it stands for its capability to capture factors regarding the individual including habit and affect as well as contextual conditional factors shaping behaviour. Triandis understands behaviour as combination of deliberate action and habitual and automatic behavioural responses. Similar to the TPB, Triandis' theory has an expectancy-value component. It is assumed that attitudes are shaped by beliefs about outcomes and evaluations of expected outcomes. This implies that the approach has the same weaknesses as the socio-psychological models discussed above. Furthermore, even though Triandis includes contextual conditions as influential on behaviour, they are not thoroughly defined. Bamberg and Schmidt (2003) compare the predictive power of Triandis's theory, the TPB and Schwartz's norm activation model for car use. They conclude that Triandis' variables of role beliefs and habit play a key role in predicting self-reported car use. Even though this theory is superior in some ways to other socio-psychological models with regard to the predictive power, it has not been widely used because of the complex correlation among its components (cf. Domarchi et al. 2008: 587)

[31] See Kaiser et al. 2005 for a study comparing TPB and the value-belief-norm theory.

Overall, Stern's ABC model succeeds in addressing many of the limitations of more narrow attitude-behaviour-models and represented an important step towards a more coherent theory of pro-environmental behaviour in social psychology. However, their work stops short of directly challenging the narrow cognitive-rationalistic assumptions about how people make decisions; assumptions that underpin many actor-centric models of human behaviour within the social sciences. Instead, they merely include vaguely specified variables to capture the surrounding context. Moreover, ABC cannot adequately capture habitual elements of human behaviour, despite ample evidence from the field of behavioural research that shows that routines and habits strongly influence behaviour in general, and daily travel behaviour in particular. Stern himself recognises this omission in his later publications and proposes an integrated model of environmentally significant behaviour that includes attitude, personal capabilities, contextual factors and, most importantly, habits. Yet, despite these suggested improvements ABC remains weak on the social dimension of behaviour. Efforts by social scientists to address this weakness include proposals for the adoption of a lifestyle approach to human behaviour. This strand of research is covered in the following subsection.

Lifestyle approaches

Lifestyle approaches to human behaviour gained momentum in Germany during the 1980s, which some scholars attribute to the rise in popularity of Ulrich Beck's (1986: 121) individualisation thesis. It predicted the emergence of new horizontal inequalities that go beyond social class. The concept of lifestyle was expected to supersede social class as an explanation of existing inequalities in society (Götz *et al.* 2008; Rössel 2008; Scheiner & Kasper 2003). Socio-cultural context and membership of a particular social group served as explanation for observable group-specific differences in behaviour that moves beyond simple socio-demographic variables (Brand 1997). Drawing mostly on socio-psychological approaches, much lifestyle research focuses primarily on individuals' behaviour in certain everyday situations and the identification of key influences such as individuals' values, attitudes and preferences (Götz *et al.* 2008).

The lifestyle concept has been applied throughout the social sciences but variations exist with regard to its definition. The term is sometimes used to describe consumption patterns or processes of identity building. According to Lüdtke (1996: 140), whose definition has been quoted in a number of mobility studies, lifestyles are regular behaviour patterns that reflect habitual behaviour, social affinities and structural constellations. Yet

other definitions are much broader and include all facets of life. Bourdieu (1984) describes lifestyle broadly as the cultural practice of a class habitus[32] and his work has had a major influence on social-scientific lifestyle research across Europe. Two major strands of European lifestyle research are discernible, which differ greatly from one another in terms of theoretical outlook and methodological approach. In the UK context, studies adopting a Bourdieuian approach to lifestyle have revolved mainly around different types of capital, class structures and their cultural reproduction. Lifestyle research thus became tied into wider debates on inequality and distribution and their impact on people's chances to adopt a certain lifestyle (Otte & Rössel 2011). In contrast, German researchers have frequently argued that lifestyles are largely independent of class structures. Their contributions to the field of lifestyle research have also remained largely descriptive, concentrating on socio-demographic and cultural determinants of lifestyle behaviour rather than their underlying structural conditions (see also Götz 2003: for review).

In addition to these geographical variations, lifestyle approaches can also be grouped into 1) studies that use the concept as an analytical tool for the development of lifestyle typologies and 2) studies that aim to explain behaviour through particular lifestyles. Interestingly, the topic of changes in lifestyle has been largely neglected, which roots in a general lack of longitudinal research and an underlying assumption that lifestyles are largely stable phenomena.

With respect to mobility, some research has been carried out based on the idea that certain lifestyle groups embrace specific forms of mobility that can be captured by the term "mobility styles" (Götz *et al.* 2003). Götz and colleagues offer explanations of mobility behaviour by analysing lifestyle-specific orientations, background attitudes and motivations. Their work identifies specific target-group orientations and motivational factors as major influences on participants' behaviour (Götz & Schubert 2004; Götz *et al.* 2003).

For the last two decades, lifestyle research in German-speaking countries has mainly focused on developing typologies based on empirical data. More recently, UK work in this area has followed suit. However, due to the varying scope and specification of lifestyle studies, it is often difficult to compare their results (Otte 2005: 22). Some of these studies have also been subject to considerable critique. For example, it has been argued that much existing lifestyle research has concentrated solely on empirical data without developing adequate theoretical frameworks for data analysis (Otte 2005; Hermann 2004;

[32] Bourdieu introduced his concept of habitus in "An Outline of the Theory of Practice" published in 1972.

Götz 2003). Furthermore, lifestyle research has been criticised for its tendency to take snapshots of present situations without looking at long-term trends. This *atemporal* bias and lack of historic sensitivity makes lifestyle approach largely unsuitable for the investigation of changing of behaviour patterns (Götz *et al.* 2008). The assumption that underpins much research in this area that lifestyles are stable phenomena and that people always act in accordance with their lifestyle needs to be challenged. In fact, these claims are highly contested and there is ample evidence to the contrary (Götz *et al.* 2008), including some of the findings of this study (see Chapters Six and Seven).

Overall, there has been an over-emphasis in lifestyle research on empirical work to the detriment of further theoretical development. More importantly, most lifestyle approaches cannot account for observable changes in lifestyle across the life-course. And while lifestyle approaches recognise the symbolic significance of lifestyles as well as their impact on membership in social groups, they are reluctant to deal adequately with the social dimensions of people's everyday behaviour. Most lifestyle approaches reviewed for this thesis can be described as actor-centric and highly individualistic, which means that they frequently neglect the importance of social relationships in everyday life. Moreover, their exclusive focus on individuals tends to eclipse the importance of structural and contextual factors for human behaviour.

These and related factors render many lifestyle approaches entirely unsuitable for the purpose of this study, which is to investigate social and cultural influences on daily commuting patterns in Ireland and their transformation over time. There are, however, some exceptions worth noting here. Brand's (1997) work on lifestyles differs from the majority of lifestyle approaches because it proposes a theoretical template that incorporates contextual and social influences on people's lifestyles. Interestingly, Brand (2010, 2008) expands and refines his approach in later publications, so much so that he sees the need to replace his lifestyle concept with a social practice approach. The following section gives a brief account of research that emphasises structural or contextual influences on behaviour. It thereby also details on Brand's (2010, 2008) context model.

2.3 Structuralist or contextualist explanations of human behaviour

In contrast to actor-centric approaches that portray individuals as self-determining, conscious and rational actors, structuralist perspectives view individuals' actions as either enabled or constrained by contextual factors. Interestingly, a large amount of work in the area of transport research concentrates on aspects of the built environment, including the

planning, design and construction of transport infrastructure. While many of these studies put the built environment centre stage, structural factors to do with markets and social institutions such as prices and policies receive only limited attention (see also Section 2.1.4 on structural determinants). This section focuses on prominent social-scientific approaches that emphasise the relevance of material and social structures for human behaviour and whose focus directly relates to the present study on sustainable transport, commuting and behavioural change. Given the diversity and richness of recent transportation research in the social sciences, a comprehensive review would go well beyond the scope of this thesis. Instead, this section deals with a small selection of studies that are deemed to be highly relevant for investigating the consumption of distance. Some of the seminal works in transport geography and planning, such as David Banister's (2008) plea for a sustainable mobility paradigm and Newman and Kenworthy's (1999) efforts to explain the causes and consequences of car-dependence, have already been covered in Chapter One. In this chapter, particular emphasis is placed on a small selection of sociological consumption studies that adopt a structural perspective on people's consumption patterns.

A structuralist perspective views consumers as "locked-in[to]" (Sanne 2002: 273) unsustainable patterns. For instance, a number of studies treat incentive structures, such as the availability of infrastructure or goods, as a central driver of consumption and focus on the availability of consumption opportunities (Jetter & Cassady 2010, 2006; Block *et al.* 2004). Consumer research that focuses on macro-level phenomena also examines the opportunities for and effects of changing existing 'systems of provision', that is, large-scale structures that connect production and consumption and that remain relatively unaffected by the actions of individual consumers (Jetter & Cassady 2010; Seyfang 2008; Southerton *et al.* 2004). Although the systems of provision approach clearly lends itself to the study of infrastructure-intensive forms of consumption such as physical mobility and the consumption of distance, there has been little work in this area so far.

According to Brand (2010, 2008), consumers' actions are influenced by a diverse range of structures that include material conditions, institutional constraints and regulatory systems, economic incentives as well as commonly shared social and cultural norms. His context model identifies five structural influences located at the macro-level that shape people's consumption patterns: 1) macro trends such as globalisation and individualisation including technical developments, 2) public debate and discourse that define certain daily travel routines as mainstream while others are labelled as deviant practices, 3) aspects of

governance such as regulatory frameworks and stakeholder participation, 4) social practices and 5) systems of provision (Seyfang 2008; Fine 2002).

Brand's (2010) context model is clearly an extension of his earlier lifestyle model and treats social practices (rather than lifestyles) as important macro-level influences on consumption. He conceptualises consumption as interaction between consumption practices and systems of provisions. Different systems of provision, for instance, may be responsible for the industrialized and globalized food produced by multinational companies available in supermarkets or locally grown organic food available at farmers' markets. Acknowledging the impact of systems of provision on people's behaviour choices, therefore, highlights the inextricable connection between production and consumption.

Brand's approach is included in this section on structural explanations of human behaviour because it does not explicitly adopt a micro-perspective. However, it is important to note that it does so implicitly because it conceptualises individuals as participants in social practices. Thus, Brand's model of context can be described as leaning towards a more integrative perspective that recognises the significance of social influences on human behaviour, a feature that characterises many of the practice approaches covered in Chapter Three below.

2.4 Implications for change strategies and transport policies

While one purpose of transport policies is to influence travel patterns, they also reveal what policy-makers regard as good practice and, more importantly for this study, how they view and conceptualise human behaviour and its transformation. Previous sections of this chapter critically examined different approaches to human behaviour that dominate the social-scientific investigation of pro-environmental behaviour and sustainability transitions at various levels of social organisation. These encompassed actor-centric models including lifestyle approaches and structural perspectives. This section focuses on the understandings of and the potential strategies for behavioural change that (explicitly or implicitly) emanate from these three strands. It then asks how these may translate into specific policy recommendations.

The hegemony of the actor-centric approach in transport policy in Ireland and elsewhere in Europe is striking. Even though there is ample evidence that actor-centric models offer a rather narrow, decontextualised view of human behaviour, they continue to be highly popular among researchers and policy-makers. While there are many reasons for the enthusiastic endorsement of actor-centric models by large sections of the transport

policy community, at least two should be explicitly mentioned here. Firstly, most actor-centric approaches are seemingly straight-forward and can thus be easily conveyed to diverse audiences from different (educational) backgrounds. This reduction in complexity also has significant implications for the (in)effectiveness of policy measures based on actor-centric models that are introduced into highly complex transport environments. Secondly, they are frequently used to frame quantitative inquiries that produce 'hard' numeric data. This means that their appeal to policy actors with a background in science and/or engineering is much greater than that of the detailed qualitative accounts that are common within the humanities and social sciences.

What model of behavioural change underpins most (if not all) actor-centric approaches? And what policies or policy recommendations are commonly derived from these approaches? While all proponents of actor-centric models reviewed in this chapter concur that individuals' behaviour change is crucial to curbing excessive car use (Steg & Giffords 2005), they also believe that they need to identify key determinants of travel behaviour to design effective measures for change. Following the logic of individualistic, actor-centric approaches such as TPB or NAT adequate knowledge about determinants of car use is needed to identify barriers to sustainable travel behaviour. Changing these determinants may then trigger the (desired) behaviour.

As stated in previous sections of this chapter, mainstream economic approaches to human behaviour frequently assume that people act rationally. As regards transport, these models tend to focus particular attention on instrumental and utilitarian determinants of car use such as travel costs and convenience. As a result, they advocate the altering of the existing financial incentive system to favour alternatives to the car. Thus, there is a clear preference for 'carrot and stick' policy strategies that deploy incentives and disincentives. A common recommendation of these strategies is to internalise the external costs of unsustainable travel behaviour. One example is to replace vehicle taxes with journey-based taxes and/or road pricing, thereby increasing the cost of car use and incentivising less costly alternatives such as walking and cycling. The underlying concept of *homo economicus* assumes that people will adjust their behaviour whenever their undesired behaviour proves too costly, or if they are rewarded for performing more desirable behaviour.

However, recent research suggests that cost can only be assumed to play a central role in people's modal choice if they are fully aware of all the costs of motoring vis-a-vis other modes of transport; this, however, is often not the case (cf. Rau 2011; Jakobsson *et*

al. 2002; Meyer 1999). For example, Wardman *et al.* (2007) find that when calculating the monetary costs of driving people often merely account for fuel costs and omit the calculation of relevant taxes, maintenance costs and other running costs. As a result, many of these studies recommend that is necessary to convey the true cost of motoring to consumers in order to challenge their overly positive view of driving as a value-for-money option.

Despite rising costs of motoring and increases in journey times due to congestion, car use continues to increase. This casts doubt on the effectiveness of many policy measures that rest on research findings based on instrumental and rationalistic models. Given the mounting criticism of narrow instrumentalist and utilitarian views of human behaviour in the academic literature[33], partly in response to the most recent financial crisis that started in 2008 and that is seen by many commentators as unparalleled in modern history, it seems both necessary and timely to question the merits of policies that adopt such a stance. This criticism is further enhanced by studies which highlight the significance of habitual and affective factors in people's decision-making (see Section 2.1.3 on habit above).

Similarly, it seems necessary to caution against the widespread use of socio-psychological models that emphasise attitudes and values as central determinants of human behaviour and that assume that travel behaviour results from deliberate decision-making. It is argued here that policy initiatives that rest solely on the idea that people always behave in accordance with their attitudes and that changing people's attitudes inevitably results in them changing their actual behaviour can only have a very limited effect. For example, information campaigns that draw on this particular understanding of human behaviour and that assume an 'information deficit' have had only limited success with regard to changing people's behaviour. Interestingly, such information-based change strategies have been popular among policy-makers and other stakeholders since the 1970s, even though many of them proved to be unsuccessful (see Barr 2003; Owens 2000: for details). More importantly, their broad appeal remains largely unchanged, partly because they do not require big investment in infrastructure or time-consuming political action that may run into resistance from voters, such as a root-and-branch reform of the car taxation system to reduce car use.

Cars and car use are also often associated with affective aspects and symbolic meanings, both of which are important for understanding excessive car use (Steg 2005:

[33] (Shove 2010; Jackson 2005; Kollmuss & Agyeman 2002; Steg *et al.* 2001: to name just a few)

149). Again, this has significant implications for transport policy. Policy initiatives aimed at reducing car use have to address the affective and symbolic dimensions instead of focusing solely on economic measures to appeal to utilitarian motives (Steg 2005: 147). While this does not mean that measures such as transport pricing should be abandoned altogether, it nevertheless highlights that they need to be complemented with initiatives that focus on affective motives for driving. Interestingly, affective motives and positive attitudes towards car ownership and use are not based solely on personal experience but are also subject to socio-cultural influences such as peer pressure or advertising. For instance, many car commercials convey an image of driving as central to enhancing the driver's power, freedom, self-esteem, attractiveness and social status (Cahill 2010; Steg *et al.* 2001; Shove 1998).

Research on car enthusiasts who, for a variety of reasons, feel strongly emotionally attached to their car also shows that these car lovers respond poorly to policy initiatives aimed at curbing car use (Sandqvist & Kriström 2001; Stradling *et al.* 1999). This suggests the need to differentiate between people driving out of necessity or those who drive for pleasure, with the latter being much more resistant to change. Nilsson & Küller (2000) find that car lovers in Sweden tend to be less accepting of policy measures aimed at reducing car use than people who are less emotionally attached to their car. Again, this implies that policies geared toward reducing car use need to effectively address the affective and socio-cultural dimensions of car use rather than focusing exclusively on utilitarian motives, which could be achieved through various means. For example, a ban on car advertisements (similar to existing bans on alcohol, tobacco and fatty foods in different European countries) could help to minimise people's exposure to pro-car messages. Another example is to restrict car use in certain areas such as city centres. A number of large European cities, Freiburg (Germany) and Zurich (Switzerland) for example, have more or less prohibited cars from certain parts of the city leaving people no choice but to use alternative modes of transportation within designated areas.

Another way of addressing the symbolic and affective attachment to cars is through voluntary or soft measures. The use of the term 'soft' refers to the nature of these measures as reliant on self-regulation and voluntary uptake, rather than strict enforcement. In other words, they are intended to nudge people towards desired behaviour rather than punishing them for undesirable behaviour. One option is to offer compensation for the loss of symbolic and affective attributes associated with driving (Steg 2005: 160). For instance, soft measures for encouraging a modal shift from car to public

transportation could create a positive image of public transport by linking it to commonly shared values such as freedom or efficiency, for example by providing better services such as real-time or tailored information (e.g. Taniguchi *et al.* 2003). Research suggests that soft measures such as free tickets for public transport are particularly persuasive. The actual experience of a public transport journey can convince people of its benefits while perhaps also alerting them to their positive bias towards car use (see also section 2.1.1 on instrumental and utilitarian motives; Fujii & Gärling 2005). The reverse, however, can also be the case: if public transport is poor, this experience can reinforce positive associations with car use. Therefore, any measures intended to raise the profile and improve the image of alternatives to car use must be accompanied by improvements in services, frequency, reliability, accessibility and the adoption of new technology. This suggests that while improving reliability and minimising journey times is particularly relevant for encouraging public transport use, there is also considerable merit in improving the image of public transport in order to further increase its popularity.

Some scholars argue that car use has a very strong habitual element and that driving habits need to be interrupted so as to achieve real change (Eriksson 2008; Verplanken & Wood 2006; Bamberg & Rölle 2003). Verplanken and Wood (2006) propose two potential habit-changing interventions. The first type involves large-scale macro-level policy changes that address societal and environmental structures which promote and sustain habits. The second is located at the micro level and utilises the disruptive potential of naturally occurring life events and associated lifestyle changes. Such interventions may involve the provision of extensive information on public transportation and a monthly free bus ticket to every new employee in a particular company. Schäfer *et al.* (2010) argue that life events such as becoming a parent or relocation can be used as windows of opportunity to encourage a change towards sustainable consumption because these situations may interrupt existing routines (Schäfer *et al.* 2010; Schäfer & Bamberg 2008). Schäfer *et al.* (2012) find that consultation campaigns are generally effective if the timing is right. Their results indicate that people are particularly susceptive to change interventions in the phase preceding life events and a short period after the transition (see also Jaeger-Erben 2011: for details). This implies that change campaigns can be more effective if the timing is right, that is, if the target audience finds itself in a natural transition phase.

Transport behaviour is directly dependent on infrastructure and the built environment. Consequently, transport and land use policies that create structural conditions that favour alternatives to car use are crucial in any effort to achieve a more

sustainable modal split. This is supported by a recent study on Swedish commuters which finds that the people who care the least for the environment still perform sustainable travel behaviour because of the existing infrastructure which is favourable to sustainable travel patterns (Martinsson & Lundqvist 2010).

To summarise, this section has clearly demonstrated that travel behaviour is a complex human activity influenced by a wide range of different factors. Many policy initiatives aimed at encouraging more sustainable transport patterns have remained largely ineffective in curbing car use due to their reluctance to adequately engage with this complexity. Consequently, it is crucial to study private transport patterns in a more holistic way and to develop joined-up transport policies which create an environment that is favourable to sustainable transport behaviour.

2.5 Concluding remarks

This chapter offered an extensive review of actor-centric and structural approaches that aim to explain and possibly predict individuals' behaviour. It is shown throughout this chapter that the former approaches assume behaviour to result from a deliberate decision-making process, which clearly ignores the significance of socio-cultural and structural factors in human decision-making. In contrast, structural explanations tend to overlook that individuals react differently to their environment, a fact that has been dealt with in Section 2.3 above.

While both strands of research omit certain influences on people's actions, they nevertheless offer interesting insights into specific aspects of travel patterns such as situational influences or cognitive aspects related to people's actions. In addition, both strands lend themselves to addressing specific types of research questions using particular methodological designs and techniques. While this is not to suggest that actor-centric theoretical models are directly linked to particular research methodologies, there is nevertheless a noticeable trend towards work that utilises large-scale quantitative data to capture broad social trends. This is where the strength of this type research lies. At the same time it cannot give deep insights into specific cases.

More importantly, it is evident that these dominant theoretical strands in travel research are not very well suited to address the specific research questions of this study. This chapter offered three key criticisms related to the reviewed theoretical approaches. First, different transport modes carry important social and cultural meanings which include safety, status, flexibility, independence and coming of age. Cars in particular have become

an important element in the fabric of many developed and developing societies. Beyond the affective attachment of individuals to their cars, there are also shared cultural codes which fulfil a multitude of social purposes. While some of these cultural meanings are clearly dominant, this does not mean that all individuals are equally receptive to them or that everyone views them in the same way. For example, a mother may feel that driving her children to school is a safe way of getting there. A professional may see the car as a great time saver which also provides flexibility to meet clients wherever and whenever needed. A father may find himself in the situation where he trip-chains on his way home from work, picking up his children from the crèche, stopping by his elderly mother and doing last minute shopping. Being able to fulfil all these tasks may give him a sense of being a caring father and son. A greater understanding of the social functions and meanings of mobility in general, and car use in particular, is thus crucial to understanding current travel behaviour patterns.

Secondly, most actor-centric approaches frequently assume that people have volitional control over their behaviour and that people's individual attributes explain their behaviour. However, such individualistic assumptions ignore that people are not isolated but embedded in wider social, cultural and structural contexts. Adopting a sociological perspective thus means to challenge these individualistic views of human behaviour and to engage in debates that stress people's dependence and influence on other people's needs, expectations, opinions and skills. For instance, parents possibly take their children to school because they have been bullied on the school bus. Another example maybe that a young man swops his BMX bicycle for a motorbike, because peer pressure suggests that riding a bicycle is ridiculous. To recognise the social nature of people's (travel) behaviour means to move beyond more narrow individualistic explanations and to embrace novel ways of viewing human behaviour as embedded in social context.

Third, people's travel behaviour is shaped by structural aspect such as the existing transport infrastructure, regulations and incentive systems. Most actor-centric models neglect such structural influences on travel behaviour, which clearly limits their explanatory power. While it is obvious that a person cannot choose to travel by bus if there is no public transport system in place, other factors are much harder to detect. For example, a country's transport system, which includes transport policy frameworks, land use patterns and financial (dis)incentive structures for different modes, may be favourable to car use. Using alternative modes of transport may thus involve economic sacrifices beyond people's financial capacity. For example, in Ireland many people have lengthy distances to cover due

to urban sprawl which has social consequences including the fact that carless households encounter difficulties accessing jobs and public services (McDonagh 2006). In order to get a detailed picture of current transport patterns and what influences them it is crucial to examine the structural aspects in addition to the socio-cultural and social dimension.

Given the dominance of actor-centric approaches in the field of travel behaviour research, it seems little surprising that social, cultural and (infra)structural aspects have been largely neglected. A thorough analysis of existing work presented in this chapter has revealed that none of the reviewed theoretical approaches succeed in providing holistic explanations of travel behaviour that make the connection between social, cultural and material conditions and individual's attitudes, expectations and habits. However, in recent times sociological scholarly work on the topic of consumption has drawn on a much broader, more inclusive theoretical approach that views people's behaviour as embedded in socio-cultural and (infra)structural context and that recognises the significance of everyday practices. This thesis makes a valuable contribution to transport research in Ireland and internationally by offering a non-actor-centric approach to the research of commuting patterns. The following chapter – Chapter Three – attends to the work of advocates of practice theory such as Anthony Giddens, Theodore Schatzki, Andreas Reckwitz, Allan Warde and Elisabeth Shove, with a view to assessing the merits and demerits of adopting a practice-theoretical framework for this study.

Chapter 3

Practice theories

Theories of human behaviour that enjoy considerable currency in the social sciences today vary greatly in their ascription of agency to individual actors, that is, how much or how little freedom from constraints to self-determination people experience. In addition, it is possible to observe significant variations in how material and social constraints are conceptualised and evaluated. While some theoretical approaches view these constraints as barriers to self-determination, others emphasise their important regulating effect on human social life. Applying these different perspectives to the social-scientific study of commuting can produce widely diverging results.

Two dominant strands can be identified here: action theories that embrace a view of the individual as self-interested actor (or *homo economicus*) and those that explain human action as primarily shaped by collectively shared norms and values (*homo sociologicus*). While the former views society (or markets) as an aggregate of individuals' choices and actions, the latter stresses its role as a system of rules that leaves little or no room for individual agency. The previous chapter – Chapter Two – critically examined actor-centric approaches which fall largely into the first category and which pay limited attention to social influences on human behaviour. These include socio-psychological models of human behaviour that have dominated transport research as well as prominent lifestyle approaches that have influenced certain areas of consumption research and policy, at least until recently. This was complemented with a brief overview of structuralist approaches that focus on the impact of large-scale structures on production and consumption processes and that view these structures as largely unaffected by the actions of individual consumers.

This chapter – Chapter 3 – introduces the practice approach as an alternative, sociological perspective that views human behaviour as partly (but not exclusively) shaped by material and social conditions. It offers an overview of key examples of current practice-theoretical thinking, that is, of explanations of human behaviour that aim to "liberate agency – the human ability to act upon and change the world – from the constrictions of structuralist and systemic models while avoiding the trap of methodological individualism" (Postill 2010: 7).

In addition, this chapter assesses the suitability of a practice approach for conducting theoretically informed, empirical investigations into everyday travel behaviour.

As outlined in Chapter One, this study conceptualises corporeal travel behaviour as consumption of distance to stress the centrality of socio-cultural and structural influences on human consumption, in this case commuting patterns. This chapter reviews prominent practice approaches to test their potential for improving our understanding of people's consumption of distance.

This is not to suggest that practice theories are the only viable theoretical alternative in sociology. However, a more extensive review of structurationist sociological theories, that is, theories that seek to link structure and agency, is beyond the remit of this literature review. Instead, the practice approach was selected for detailed and critical treatment in this thesis because of its promising view of human behaviour as rooted in shared knowledge which both enables and constrains people to interpret and influence their environment in a certain way (Reckwitz 2002b: 245). Practice theories view people as practitioners who act according to their understanding of the world and who use their know-how to suit a particular practice (Reckwitz 2002b: 256). In other words, people are seen as actively involved in a social practice, that is, in collective efforts to act upon the world that rely on shared knowledge and material and social conditions. This clearly contrasts with images of human actors as either autonomous and self-interested or severely constrained by the system they inhabit that underpin many conventional accounts of human behaviour, including much mainstream work on consumption. In addition, practice theories are also very appealing to those who seek to understand better the mechanisms behind modern (over)consumption because they introduce a strong socio-cultural dimension.

Prominent advocates of a practice-theoretical perspective argue for an integrative approach to human behaviour that challenges traditional structure-agency dichotomy. Practice theories adopt a unique perspective that moves beyond the individual, focusing instead on social aspects of human behaviour through the lens of practices. Importantly, practice theories do not seek to predict the level or direction of behavioural change but instead try to analyse actions in a more comprehensive way that takes context seriously. This chapter starts off with a brief introduction to key sociological ideas that emerged from the 'first wave' of practice theory development, which was led by prominent twentieth-century social theorists like Bourdieu and Giddens (see also Postill 2010 for an excellent overview of the works of 'first wave' and 'second wave' practice theorists). The work of Anthony Giddens (1984) receives particular attention because of its significance for the development of practice theory in the English-speaking part of Europe (Section 3.2).

Following on from this, Chapter Three explores the 'second wave' of practice theory, focusing in particular on Theodore R. Schatzki's contribution to the field (2002, 1996) and work by Andreas Reckwitz (2002a, 2002b). After an in-depth examination of Schatzki's practice approach (Section 3.3), this chapter then turns its attention to practice approaches in consumption studies (Sections 3.4 and 3.5). The first part of this section covers consumption researchers that advocate the use of practice theories as promising alternatives to actor-centric approaches that have dominated consumption research until very recently. The second part reviews consumption research that is explicitly dedicated to the changing of consumption practices and to linking a practice approach to empirical data. Drawing on the main findings from the literature review on practice theory, the chapter concludes with the development of a theoretical framework for the empirical part of this study (Section 3.6).

3.1 An introduction to practice theory

There are numerous theories[34] of practice coined by influential sociologists including Bourdieu and Giddens[35] (Postill 2010; Røpke 2009). Practice theorists share an interest in the study of practices as constitutive elements of the social world. To them, understanding social life means to take seriously the role of practices and to engage in their theoretical and empirical investigation. Importantly, practice theorists address a variety of different issues such as agency, knowledge and power. For example, different theorists advocate different perspectives on the question of how to incorporate into social theory the materialities of social life, including man-made objects, the built environment and technology (Schatzki *et al.* 2001).

Prominent definitions of practices frequently describe them as arrays of human actions that are mediated by practitioners' bodies, artefacts and objects and that are organised around shared understandings. This contrasts with theoretical approaches that focus exclusively on individuals' agency. On the other hand, practice theorists are often careful not to exaggerate the constraining effects of practices on people's activities, in an effort to distinguish their work from theories that (over)emphasise the importance of structural macro-phenomena (Schatzki 2001: 5). This said, different practice theorists

[34] Here, the term theory is used in a broader sense and refers to a general, abstract and theoretical account.
[35] Other prominent 'first wave' practice theorists include Michel Foucault and Michel De Certeau; however, their work cannot be covered in detail here due to space constraints. The former's work focused mainly on the analysis of power and its connections with institutional and professional practices. The latter regards practices as strategies and tactics to resist domination.

disagree on how to theorise the nature and significance of these shared understandings as well as their role in the formation of practices (Schatzki 2001: 3).

Most practice theorists argue that individuals and their actions are embedded in practices and that they can only be adequately analysed through the lens of practice (Schatzki 2001: 3). Practice theorists do not attribute observable human behaviour to individuals' motives, reasons and choices but prioritise the power and influence of practices. This premise marks a fundamental departure from individualistic or actor-centric theories that focus (almost) exclusively on individuals and that set out to research decisions people make as if these were made independent of others around them.

Putting practices before free will and cognition in this way also requires a very different understanding of knowledge. Many practice theorists do not consider knowledge to be the attribute of individuals but instead view it as the result of people's interactions and their social and environmental circumstances. Consequently, knowledge is conceptualised as the shared product of social groups. "[P]ractices are the source and carrier of meaning, language and normativity" (Schatzki 2001: 12).

This is not to say that the individual has no place in practice theory. Most practice theorists including Anthony Giddens (1984) and Theodore R. Schatzki (2002, 1996) agree that practices exist because individuals perform them. By engaging in a practice people help to conserve and reproduce it and to pass it on to future generations of practitioners. At the same time, the production and reproduction of practices through people's engagement can drive societal transformation. This implies that practice theories could potentially make an important contribution to the advancement of social-scientific research on social stability and change. However, this potential has yet to be realised fully (see also Sections 3.3.6 and 8.3.3 on change). The remainder of this chapter explores further the key characteristics of practice theories, sketches their development over time and assesses their suitability for the study of current and future commuting practices in Ireland.

3.2 The first wave: Traditional practice approaches

One of the main aims of the 'first wave' of practice theories was to solve the structure-versus-agency dilemma in social theory and research and to overcome the extreme social-theoretical positions of holism and methodological individualism in the process (Postill

2010).[36] For example, Anthony Giddens and Pierre Bourdieu, alongside other key theorists like Michel Foucault, developed their own elaborate theories of practice which sought to address the structure-agency-divide. While this section can only cover a fraction of their work due to space constraints, it is argued that even such a rather cursory discussion of the 'first wave' can help to identify some of the central theoretical premises of practice theory. Giddens' work in particular has influenced a number of practice-theoretical approaches, including studies carried out in the field of practice-centred consumption research, and will thus receive special attention in this subsection.

Giddens (1984) developed his structuration theory in order to attempt to bridge the gap between structure and agency. He introduced the concept of the duality of structure, emphasising that structure can both enable and constrain because it is "the medium and outcome it recursively organizes" (1984: 374). Instead of concentrating on either structure or agency, Giddens' work focuses on social practices.

> The basic domain of study of the social sciences, according to the theory of structuration, is neither the experience of the individual actor, nor the existence of any form of societal totality, but social practices ordered across space and time. (Giddens 1984: 2)

Here, practices are conceptualised as mediating links between action and structure. According to Giddens (1984), practices constitute individuals as actors and, at the same time, produce social structure. Structure and agency become closely linked as a result.

Giddens points out that social practices are a range of activities that are reproduced across time and space. In fact, he sees time-space relations as essential to the production and reproduction of social life (1984: 36ff), which partly reflects Giddens' interest in and engagement with Torsten Hägerstrand's time-geography. For example, Giddens highlights the repetitive nature of everyday activities and the routinisation of social life (1986: xxiv), a theme that is also central to Hägerstrand's work.

Social practices enable agents to create social relations and thus social systems. Social systems can be described as relations between actors, organised as repeated social practices by individuals. As the term system implies, there are structural properties inherent to social systems such as power relations, communication and legitimacy. At the same time they offer meaning, procedures for actions, rules and resources which act both as enabling and constraining (Giddens 1976: 161). Social systems are reproduced and

[36] The term goes back to Max Weber. Social phenomena are regarded as resulting from individual's actions that are explained through underlying intentions motivating actions. (cf. Stanford Encyclopedia of Philosophy: http://plato.stanford.edu/entries/methodological-individualism; accessed: 18/03/2011)

transformed by actors. Giddens' idea of changing practices is that they have to undergo a process of disembedding of their context which can be structural changes (Kaspersen 2000: 87). Through the reintegration into a new context, altered actions and new behavioural patterns can emerge.

Giddens assumes that people are in principle capable of self-inquiry and critical reflection and that they can give verbal accounts of their own actions if required to do so, though such accounts can be imperfect. This is what he refers to as discursive consciousness (Giddens 1987: 63). However, he argues that this does not exhaust the knowledge people use to act. While some of the knowledge that is utilised to perform certain actions can be put into words, this may not always be the case. Implicit or tacit knowledge about how something works or how things are done tends to be taken for granted, thereby resisting immediate verbalisation, at least to some degree. Giddens calls this practical consciousness (Giddens 1987: 62ff), which distinguishes it from discursive consciousness. He also acknowledges that people can be very knowledgeable about their day-to-day activities but that the performance of many of these activities usually draws on practical consciousness. Many aspects of day-to-day consumption fall into this latter category.

Giddens' work continues to have a significant influence on practice theory development in consumption studies, as well as among many other areas of social research. Three main aspects of Giddens' theory are commonly identified to explain its continued and broad appeal across different social science (sub)disciplines. First, Giddens' approach clearly recognises the interdependence of structure and agency. Second, it emphasises the routinised nature of consumption. Third, it includes a social dimension to people's actions which is reflected in shared knowledge on what is being done. According to Giddens people hold such knowledge in forms of a practical and discursive consciousness.

Is Giddens' work suitable for studying the consumption of distance? And would it be plausible to adopt his structuration approach for this research on commuting practices in Ireland and their transformation? While the author accepts that it is important to integrate tacit knowledge (practical consciousness) into social research and analysis, Giddens' differentiation between practical and discursive consciousness is by no means clear cut. While practical consciousness cannot be easily translated into discursive consciousness, there is nevertheless a flow between them (Giddens 1987: 63). However, it is argued here that the nature of the transition from practical consciousness to discursive

consciousness remains largely under-explored in Giddens' work. This in turn limits its applicability to social research on the transformation of practices, including this study which seeks to identify factors that either help or hinder a shift in commuting practices.

Giddens also does not clearly differentiate between shared knowledge and knowledge held by individuals. This makes it difficult to apply his theory to the empirical part of this study which draws on individuals' statements to gain a better understanding of existing commuting practices.

Finally, Giddens, like most traditional practice theorists, does not concentrate exclusively on practices. Instead, for him practices are an integral part of a broader social-theoretical approach to the constitution of society and human social life. This makes it rather difficult to translate Giddens' theoretical propositions into empirically testable research questions that capture the nature of (commuting) practices and their transformation. This clearly contrasts with contributions by Theodore R. Schatzki and Andreas Reckwitz, two contemporary practice theorists whose works in the area concentrate on practices as major constitutive elements of social life. The following section details their elaborations of social practices and assesses their potential to serve as a theoretical frame for this study of commuting practices and the consumption of distance.

3.3 The second wave: Contemporary practice approaches

More recent practice approaches by Theodore R. Schatzki (2002, 1996) and Andreas Reckwitz (2002b, 2002a) expand on and further develop key ideas from the first wave of practice theory. Schatzki developed a theory of social practices rooted in Wittgensteinian philosophy. Compared to other practice theorists, Schatzki's work stands out due to its systematic character and its explicit focus on the practice concept (Reckwitz 2002b: 211, 244). While material objects and non-human entities play a minor role in Schatzki's work, especially in his early work, Reckwitz puts emphasis mainly on the materialisation of social practices going back to Latour (2004). Both Schatzki and Reckwitz have had considerable influence on the field of consumption research more generally, and sustainable consumption behaviour in particular. This section presents a review of their work; it also examines its potential as a theoretical framework for this study.

3.3.1 Social life and people's actions

Schatzki develops a general conception of social life that aims for a better understanding of the social constitution of the individual. He argues that all social life is marked by social

order, that is, the way things are laid out and how people and objects are related to each other in social life (Schatzki 1996: 14). People's lives relate to each other, human and non-human entities have meanings and identities[37] and they are positioned with respect to one another. In this context, Schatzki deploys the term 'entities' to capture artefacts, things, people and other living organisms. Social order thus includes arrangements that connect humans and other entities. People's lives are related to each other in different situations such as intimate relationships, club activities or economic systems (Schatzki 1996: 16). At the same time, people are the object of other people's actions and form their context at the same time, such as in the case of a classroom where teachers and pupils interact. These (inter)actions between living and non-living entities form an essential part of practices.

3.3.2 Defining the term practice

Schatzki defines practice as "a temporally unfolding and spatially dispersed nexus of doings and sayings" (Schatzki 1996: 89). Examples of practices include cooking, voting or doing business, all of which follow specific rules. Schatzki's definition highlights the spatial and temporal aspects of practices as well as their reliance on certain linkages to hold them together. Schatzki emphasises sayings because practices can be expressed through both words and actions. At the same time, Schatzki does not limit them to discourses (Reckwitz 2002a) but sees them as bundles of activities. In other words, they form an organised nexus of actions (Schatzki 2002: 71).

According to Reckwitz, a practice can be described as

> a routinized type of behaviour which consists of several elements, interconnected to one other: forms of bodily activities, forms of mental activities, 'things' and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge. [...] a routinized way in which bodies are moved, objects are handled, subjects are treated, things are described and the world is understood (Reckwitz 2002b: 249f).

While this definition of practice could be described as an elaborate extension of Schatzki's work, Reckwitz certainly places greater emphasis on the process of routinisation. He also takes a more linear approach to describing the constituent components of practices.

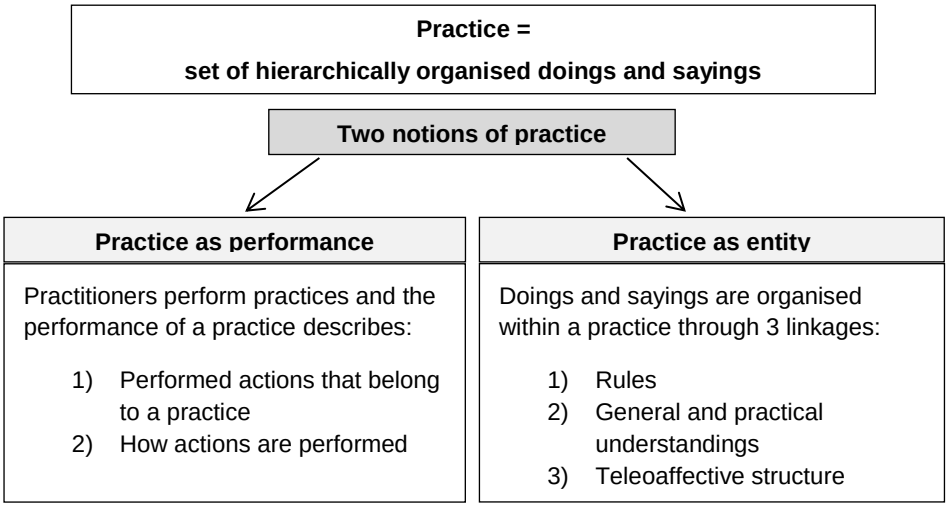
Interestingly, Schatzki proceeds to develop two central notions of practice to capture the two-dimensional nature of his concept which distinguishes between individual

[37] Meaning and identity differ from one another in that meaning refers to what something is while identity refers to who someone is. People have identity, they are aware of it, they can shape it and their perceptions of it may differ from how others see them.

activities that make up practices and their actual organisation into more or less coherent sets. The first notion focuses on the performance of a practice while the second addresses the role of practices as entities (see Figure 2 below). The first notion – practice as performance – classifies doings and sayings using a hierarchical system with three categories, namely: 1) simple actions; 2) tasks that are aggregates of various doings and sayings; 3) projects which consist of multiple different tasks. Practitioners are able to carry out all three types. This hierarchical order of projects and tasks of a practice (i.e. doings and sayings) is described as "*organized* nexuses of actions" (Schatzki 2002: 77, emphasis of original source).

The second notion – practice as entity – revolves around the organisation of a practice. To put it simply, the organisation of a practice determines whether certain actions are correct (in certain situations) or acceptable. It also signals what projects, ends and tasks are more or less important, how they follow one another, or what counts as appropriate action or reaction in certain situations.

Figure 2 Schatzki's two notions of practice



Schatzki also distinguishes between three nexuses or linkages that contribute to the organisation of a practice: 1) rules; 2) understandings; 3) a teleoaffective structure. Rules are explicit formulations, principles and instructions that direct and guide people to perform certain actions but not others (Schatzki 2002: 79). Unlike Giddens' idea of rules, they are not tacit or implicit formulations. Rather they are "interjected into social life for the purpose of orienting and determining the course of activity, typically by those with the authority to enforce them" (Schatzki 2002: 80). They also include a dimension of

normativity which shapes what makes sense to people to do and what is the right thing to do.

The second linkage refers to understandings. There are practical and general understandings. Practitioners acquire a practice's understandings. Put differently, practices outfit their practitioners with the respective understandings. Practical understanding allows practitioners to execute actions that make sense to people, while practical intelligibility singles out actions as making sense to them to do (Schatzki 2002: 79). At the same time, it is not understood as know-how that lies behind behaviour. This closely resembles Bourdieu's practical sense and Giddens' notion of practical consciousness by being a skill or capability underlying activity (Schatzki 2002: 79). To put it bluntly, practical understanding makes people do what makes sense to them. However, in contrast to practical intelligibility, it does not necessarily determine what makes sense to people. Strictly speaking, practical intelligibility is not property of the practice but it is individual for individuals because it is what makes sense to them to do.[38] For example, it may make sense to young parents to drive their children to the crèche because they consider it as a safe means of transport. This is referred to as practical intelligibility, while the ability to drive which is essential to carrying out this particular action is referred to as practical understanding. General understanding is also expressed in the manner in which people carry out projects and tasks. People involved in a practice have a general understanding of the hierarchically ordered actions, tasks and projects as well as their meanings (Schatzki 2002: 86).

The third linkage is a practice's teleoaffective structure. The term's literal meaning roots in two different words and their meanings; the word Greek *telos* meaning goal and goal directed as well as the word affectivity. Against this background a teleoaffective structure of a practice can be described as a "range of normativized and hierarchically ordered ends, projects, and tasks, to varying degrees allied with normativized emotions and even moods" (Schatzki 2002: 80). A practice consists of a range of ends, tasks, projects that practitioners should or may pursue and perform as well as engage in emotions and beliefs associated with them. This all adds up to the teleoaffective structure of a practice.

It is important to note, however, that teleoaffective structures "are not equivalent to collectively willed ends and projects" (Schatzki 2002: 81). At the same time, they are not

[38] A person's practical intelligibility is shaped by the range of practices the person is involved in and not just by one particular practice. That is why it belongs to the individual and not to a specific practice. The practical understanding, i.e. ability to drive, is crucial for specific actions of a particular practice. While the ability to drive may be relevant to a number of practices, the practical understanding can be accounted to all of them as their integral part (see also explanation of social site and practical intelligibility).

understood like Giddens' rule-resource structures because they are evolving effects of what actors do and what determines it. There is a normative dimension to teleoaffective structures because they outline what ought to be done and what is acceptable to do. Participating in a practice means that a person ought to conform to the normativity inherent in a practice. Furthermore, it needs to be stressed that a set of basic actions (doings and sayings) constitutes a practice and also if people share and express a range of understandings, rules and structure of this practice in their actions. Even though a practice is embracing a set of individuals' actions, a set of actions defined by reference to individuals alone do not constitute a practice (Schatzki 1996: 106).

Figure 3 Properties of individuals and properties of practices

Part of individual	Parts of practice
Practical Intelligibility = what makes sense to people to do and think	**Teleoaffective Structure** = organises doings and sayings of a practice hierarchically
	Practical understanding = skill-like component to carry out actions that belong to practice **General understanding** = understanding of basic means and ends of practice Practices outfit their practitioners with practical and general understanding.

A teleoaffective structure is not a set of properties of actors but it is property of a practice, although individuals carry out projects that compose the practice they are involved in (Schatzki 2002: 135). Figure 3 illustrates this distinction. Underlining this point Reckwitz uses the image of people acting as carriers of practices. Accordingly, practitioners are carriers of patterns of behaviour and also carriers of ways of understanding, knowing how and desiring. While all of these qualities are part of the practice, they are not properties of the carrier (Reckwitz 2002b: 250). For example, employees of a company perform actions that conform to the business practices of their employer. Their actions reflect and are shaped by the organisation of the company's business practices. Yet, the practice's organisation including the array of understandings, rules and teleoaffective structure that organise it, is attributed to the company, not its employees (Schatzki 1996: 105). In sum, practices are a bundle of organised doings and sayings and the performance

of practices actualises and sustains practices in the sense of a nexus of doings and sayings.[39]

3.3.3 Practice and social order

According to Schatzki, practices are the central constitutive social element that helps us understand actions, institutions and structures (Schatzki 1996: 12). People participating in practices contribute to the establishment and reproduction of practices and their related social order. Social order only exists and evolves in the context of practices, which Schatzki describes as nexuses of social practices (2002: 59). This implies that human lives relate to each other not only through social order but also through social practices. Practices lay down rules and influence the connections between human bodies and entities participating in a practice. In addition, practices also shape identities and meanings and they do so in two distinctive ways. First, they lay down how bodies and entities are related and positioned towards each other, thereby conveying particular understandings inherent to a practice. Put differently, a practice establishes how actions are carried out and what their purpose is. Secondly, practices determine arrangements and relations among practitioners, that is, those who actively carry out the practice. For example, a football team consists of eleven players, one of whom is a goalkeeper. These players all have different roles in relation to one another and they are expected to engage in different activities as part of their role. The players are not allowed to touch the ball with their hands, while the goalkeeper is expected to use his/her hands to keep the ball out of his/her goal. All team members want the team to score as many goals as possible. Moreover, everyone participating in the practice of football understands the meaning of the referee whistling in a certain situation.

People participating in a practice acquire practical intelligibility related to the practice. Practical intelligibility can be described as 'what makes sense to people to do'. People involved in the same practice can be expected to act intelligibly, that is, they understand each other's doings and sayings and they make sense to them. By carrying out doings and sayings that belong to a certain practice, people produce and reproduce that practice as well as contributing to the establishment of an underlying social order. Work-related practices, for example, involve workers and managers performing different actions.

[39] Schatzki differentiates between two types of practices: dispersed and integrated practices. The former primarily require understanding on how to carry them out such as waving, while the latter are described as more complex practices such as farming practices. The integrated practices are organised by three nexuses of doings and sayings: understanding, rules and teleoaffective structures. The present study concentrates on integrative practices.

At the same time, their positions within the workplace as well as their actions are rooted in the practice. The resulting social order thus cannot be separated from the practices that establish it. Finally, practices and associated social orders are expected to disappear if they are no longer practiced. This last point is discussed in more detail below.

3.3.4 Practices and the social constitution of the individual

The organisation of practices is mediated through people's minds (Schatzki 1996: 20). At the same time, people's mind sets, that is, what people think is constituted by practices. According to Reckwitz (2002b: 252), practices not only consist of patterns of behaviour but also incorporate certain mind sets such as particular ways of understanding the world, wanting something, or knowing how to carry out a particular task. Put simply, a social practice encompasses both bodily and mental activities that practitioners need to engage in to be able to successfully execute the practice in question. Importantly, the influence of practices on what people think and do is threefold. First, people acquire abilities to carry out the doings and sayings relevant to a certain practice. Second, practices make up part of the context determining which activities are performed to express a particular idea or achieve a certain goal. Third, practices carry understandings that are expressed through behaviour (Schatzki 1996: 131ff). This last point implies that behavioural patterns and social practices become inextricably linked (Schatzki 1996: 32).

While mental phenomena are partly of biological origin, a large part is socially constituted (Schatzki 1996: 23). Socialisation and learning from others shape what people think and how they act. By participating in practices, people acquire abilities to perform and understand different doings and sayings (Schatzki 1996: 32). The social context of people's actions thus exerts considerable influence. Schatzki stresses that through social moulding and learning, people enrich their natural, instinctive actions with more elaborate verbal and behavioural expressions. In other words, they adopt a more extensive repertoire of possible verbal and behavioural expressions and actions which are tied to social practices (Schatzki 1996: 52ff). However, even though the "expressive significance of bodily activity is socially constituted, each person exhibits a unique style: a unique subset of particular doings and sayings and unique ways of performing common ones" (Schatzki 1996: 53). This statement underlines the argument that the body is neither an instrument of free will nor a passive recipient of social forces. While people learn certain bodily expressions depending on their social context, everybody has their unique repertoire of expressions and their unique ways of performing them.

3.3.5 Social site: practices as context shaping people's actions

According to Schatzki, practices not only are the constitutive element of social life, but also shape the context of people's mental, emotional and behavioural repertoires. Both individuals' actions, doings and sayings and social practices are performed in a context. Schatzki develops the concept of 'social site' to capture these contextual influences. The social site is the contextual location where something happens; this can be understood in a more narrow spatial sense or in a broader social and cultural sense. At the same time, a particular practice is surrounded not only by its context, a social site, but also is integrated into the social site and an integral part of this interrelated network of practices. For example, the road is the spatial location where the practice of driving takes place. Road signs and markings demarcate key areas that relate to the rules of the road, such as one-way streets, cycle paths or parking spaces. In other words, the rules of motoring are translated into spatial arrangements that guide practitioners' actions. Moreover, there may be other practices that come to influence the practice of driving and that can be seen as part of the broader context. For example, the introduction of congestion charges or access restrictions for highly polluting vehicle types may reflect local traffic regulations and/or wider sustainability strategies, which can be described as two distinct yet interconnected practices.[40]

One of Schatzki's central arguments is that social practices also constitute the context within which social orders are established (Schatzki 2002: 70). Both social practices and social orders make up the social site. In this social site, people's lives are related to each other through a network of interlocked practices and social orders (Schatzki 2002: 70). Practices can also overlap and they do not necessarily relate exclusively to arrangements and orders they establish but may also become tied to entities and orders beyond their immediate boundaries. Furthermore, practices connect to other practices by sharing certain organising elements (e.g. rules), doings and sayings, or causal chains and intentional relations. As a result, practices and orders can constrain and enable each other as well as enabling and constraining individuals' actions. For example, a fisherman at the West coast of Ireland not only carries out his profession in accordance with local and international

[40] Here, Schatzki's concept of social site affects the context of people's actions in three ways. The first points out that the social site is the location where it happens either in a spatial sense or within broader phenomena in which something is set. The second one employs the same notion of being a location where it happens but in a wider sense. It can be a physical space where things occur or exist. The third sense is crucial for Schatzki and it is what he refers to as context. In his understanding a particular practice not only is surrounded by a context such as other interrelated practices but also is at the same time a part of this context and shaping it. In other words, the doings and sayings of a practice and thus the practice itself are set in a contextual environment where the same practice is part of. (Schatzki 2002: 65)

fishing practices but also in accordance with the business practices of the fishing cooperative he belongs to.

Practices shape people's actions in two distinct ways. First, people's involvement in a practice allows them to learn the rules and to acquire the skills and knowledge necessary to carry out the practice, including knowledge about the actions which are appropriate in a particular situation. In that sense practices form a contextual framework within which people learn and perform actions. At the same time, practices often shape people's physical-technological environment. Certain technologies or equipment may be developed to enable the performance of a particular practice.[41] For example, the widespread use of mobile phones required the construction of a grid of base stations. At the same time, it enabled new ways of communicating such as instant text messaging and facilitated around-the-clock contactability.

Schatzki also introduces the concept of a field of general possibilities to capture the fact that the full range of opportunities to perform a certain practice is often narrowed by limitations and constraints. Even though Schatzki acknowledges that fields of possibilities are difficult to delineate and study, he considers them to be crucial to understanding people's actions (1996: 163). Schatzki identifies four factors that can either broaden or restrict the field of general possibilities: 1) physical states; 2) knowledge and ability; 3) normativity; 4) the actions of others (for details see Schatzki 1996: 162). For example, normativity refers to different levels of social approval that make some actions more socially desirable than others. In sum, "practices establish a field of general possibility by constellations of physical phenomena, outfitting actors with knowledge and abilities, exhibiting teleoaffective structures, and laying down rules and customary ways of acting" (Schatzki 1996: 166). Here, Schatzki clearly views certain conditions (e.g. the built environment) as the result of practices rather than as a factor that facilitates, impedes or enhances certain behaviours. The author argues that this is a rather narrow view of the material context within which people's actions are set because it neglects both the natural environment and the material context that precedes a particular practice (see also Section 3.6 for a more detailed discussion of the last point).

[41] "Practices thus conspire with physical states of affairs to delimit what people are generally able to do – by outfitting people with the wherewithal to carry out particular activities, by helping to establish both what customarily makes sense to people to do and what is correct, prescribed, and acceptable in general, and by physically excluding some possibilities while admitting others" (Schatzki 1996: 161).

3.3.6 Agency and Change

How do practices change? On the one hand, practices are continually (re)produced by their practitioners while also being embedded in a contextual environment that could prove to be relatively stable. This ensures a certain degree of continuity and stability over time. At the same time, the idea of humans and non-humans participating in practices and reproducing them in the process suggests constant movement and change (Schatzki 2002: 234). Schatzki regards doings as agency, and the agent is whoever or whatever performs the doings. Agents can be non-human, yet human agency is unique due to people's capacity for reasoning (Schatzki 2002: 210). Agency is the engine through which the networks of practices and orders are continuously re-enacted.

Yet, persistent re-enactment of practices does not mean a permanent state of transformation and change; instead it maintains the existing network of practices and orders. Ongoing activity of humans and non-humans keeps practices alive while also modifying them, at least to some degree. Actual change, however, "comes about with activity that alters practices and orders more robustly" (Schatzki 2002: 234). For Schatzki there are two notions of change. The first is "mutations that some doings themselves are" while the second relates to "alterations that various doings instigate in individual or interlinked practices and orders" (Schatzki 2002: 234). It is important to keep in mind that "the constant flow of human and non-human doings, in addition to altering practices, maintains them" (Schatzki 2002: 240).

The understandings, rules, and teleoaffective structures of practices are not static but malleable. The organisation of practices as well as the doings and sayings that constitute them may change. After all, practices are routinised behaviours that are performed repeatedly. A change in practices occurs as a result of everyday crises of routines that either violently disrupt recurring patterns or allow for incremental adaptation to changing conditions, parameters, or interpretations of the world (Reckwitz 2002b: 255).

Schatzki (2002: 240) distinguishes between two processes of change: reorganisation and recomposition. The first represents the intentional transformation of rules as a result of experiences made while carrying out practices. The second change process – recomposition – refers to a continual, unintentional shift in practical understandings. Changes in doings and sayings that emanate from changing practical understandings (recomposition) respond to sudden changes in circumstances such as natural disasters like floods or the completion of a new piece of transport infrastructure (Schatzki 2002: 241ff). However, they can also stem from individual actors who engage in

new activities or who adopt new meanings. Reorganisation and recomposition can either modify, destroy or fragment old practices or create new ones. Reckwitz adds that social change, in the sense of a dramatic reconfiguration of practices, may also involve a transformation of artefacts required for performing these practices (2002a: 213). This raises interesting questions about the nature and transformation of consumption practices. Thus the following section will explore the application of practice theories in the area of consumption studies.

3.4 Practice approaches in consumption studies

Practice approaches deployed in consumption research draw heavily on the works by Giddens, Schatzki and Reckwitz. While a detailed discussion of the significance of practice theory for the sociology of consumption is beyond the scope of this, this section concentrates on two central strands in the investigation of consumption practices. The first part covers studies that adopt a practice approach to consumption. The second part examines research that concentrates on the transformation of existing practices and that links theoretical considerations with empirical data. Following on from this and previous sections, Section 3.6 presents a practice-theoretical framework for this study.

Prior to the 'practice turn' in the late 1990s, sociological research on the topic of consumption concentrated mainly on symbolic meanings and their role in the formation of self-identity (Warde 2005: 132). The introduction of social practice theory, however, shifted attention away from the role of individuals and structures towards questions regarding how consumption is organised and how it can be analysed in terms of practices. This was complemented by attempts to integrate both micro and macro perspectives into the study of consumption behaviour and to place people's behavioural patterns into their wider social and material context. At the same time, prominent exponents of consumption research in the social sciences argued for a more holistic approach to the study of human behaviour that covered people's personal experiences and ideas as well as contextual influences and constraints (cf. Jackson 2005). Spaargaren (2003; also Spaargaren & van Vliet 2000), for instance, deploys the concept of 'systems of provision' to identify structural factors (e.g. production and distribution chains, physical infrastructure, or laws and trade agreements) that both enable and constrain individual consumers' actions. Drawing on Giddens' work, Spargaaren argues that social practices are the mediating phenomenon between people's individual lifestyles and prevailing systems of provision. Karl Werner

Brand also adopted a similar line of thinking in recent versions of his context model (see Section 2.3 on structural approaches).

Alan Warde (2005) uses the practice of motoring to demonstrate the benefits of a practice approach to consumption research. For him, many acts of consumption are linked closely to people's participation in a particular practice. Interestingly, Warde argues that Schatzki's complex and highly abstract work on practices is difficult to translate into a framework for empirical research. However, he draws on Schatzki's notion of practices as entities and translates the three linkages that are responsible for the organisation of practices – rules, understandings and teleoaffective structure – into his own concepts of understandings, procedures and engagement (Warde 2005: 136). Drawing on the practice of motoring as an example, he demonstrates how the equipment and skills required to perform the practices are interconnected with shared understandings, procedures and engagement (Warde 2005: 137f). Warde suggests that the concept of engagement in particular is more suitable for integrating people's experiences, an important step which he argues is largely missing from Schatzki's approach (Gram-Hanssen 2008: 4).

Shove and Pantzar (2005) also develop a simplified version of Schatzki's (1996, 2002) notion of practice as entity. Their aim is to develop a practice concept that is easily applicable to empirical data. Shove and Pantzar identify three different components of a practice: competence, meaning and a material component. Competence covers the skills and knowledge needed to carry out the practices, which are often learned by experience and training and which become embodied in the practitioner. While some aspects of practitioners' knowledge may be codified in formal rules, principles, precepts and instructions, others remain tacit in the form of know how. The second component, meaning, refers to people making sense of their activities, that is, their perceptions of the use and benefits of activities. These include ideas about the purpose of activities, emotions, beliefs and understandings. In this context, Shove and Pantzar argue that practitioners turn into 'carriers' of practice-related beliefs, emotions and purposes; this resembles Reckwitz (Reckwitz 2002b) understanding of practitioners.

Compared to Warde's (2005) approach, Shove and Pantzar's work pays more attention to the material aspect of practices. Even though Warde considers equipment (e.g. cars) to be highly relevant to the composition and performance of a practice, Shove and Pantzar take this argument a step further by explicitly including a material component in their practice-theoretical approach. The material component includes the objects, equipment and bodies involved in the performance of a practice. While some practices can

be carried out by a single person, such as reading a book, many others like playing football require the involvement of multiple practioners. It is worth noting here that Shove and Pantzar are less clear about whether or not these components belong to individual practitioners or practices, a distinction that is central to Schatzki's theory and that is captured in his concepts of shared knowledge (practice) and practical intelligibility (practitioner) (see also Figure 3 above).

Individuals are regarded as carriers of practices that bring these three components together and that reproduce practices in the process. However, practices are not performed uniformly because of differences in competence, meaning and the presence or absence of material conditions required for the performance of a practice. Following this line of thinking, empirical evidence of significant variations in behaviour shown by different social groups cannot be attributed simply to socio-demographic or attitudinal differences. Instead, Shove and Pantzar's practice approach highlights the significance of different understandings and competence levels. Furthermore, people follow personal trajectories within practices whereby previous activities and experiences influence the adoption and performance of newly encountered practices.

Overall, component-centred variants of social practice theory such as those developed by Warde (2005) and Shove and Pantzar (2005) offer a heuristic framework that is more suitable for empirical analysis than Schatzki's linkage approach. On the other hand, Schatzki's emphasis on linkages as organising principle better captures the interconnectedness of various elements of a practice. Overall, this study draws strongly on Schatzki's theoretical ideas but extends and complements them with some of the main points presented by Warde, Shove and Pantzar. In contrast to Warde's (2005) and Shove and Pantzar's (2005) focus on practices as entities, this study concentrates mainly on Schatzki's first notion of practice – practice as performance – and how people change their routinised actions which are part of their mobility practice. This said, Schatzki's second notion of practice – practice as entity – occupies a more central role in those parts of this study that focus on, existing commuting practices in Ireland.

3.5 Research on the transformation of consumption practices

Since Warde argued in 2005 that Schatzki's and Reckwitz's theories of practice are highly sophisticated but difficult to test empirically, a small number of authors have attempted to develop approaches that lend themselves to application in empirical social research. Works by Shove and Pantzar (2005), Shove *et al.* (2007), Jaeger-Erben (2011), Hargreaves (2011),

Gram-Hanssen (2010, 2008) and Shove, Pantzar and Watson (Shove *et al.* 2012) have produced important insights into human social life that combine practice-theoretical considerations with rigorous empirical research. This study draws inspiration from their work, in particular with regard to the investigation of changing practices.

The dynamics of changing practices have attracted increasing interest also. Recent practice-theoretical studies capture the (re)production of diverse practices such as Nordic walking, DIY, digital photography, food preparation, mobility, showering and space heating (e.g. Schäfer *et al.* 2010; Shove *et al.* 2007; Shove & Pantzar 2005). Interestingly, many of these studies reveal that new practices tend to emerge whenever people connect old behaviour to new meanings. Factors that aid the formation of new practices include life events, the acquisition of new competences and the introduction of new technology or equipment. In other words, a practice is transformed whenever existing components of a practice are connected in novel ways or new components are adopted.

Gram-Hanssen (2008: 18) loosely builds on theoretical accounts by Schatzki, Warde, Shove and Pantzar and Reckwitz to develop an approach suitable for analysing qualitative data on household energy consumption. For this purpose, she identifies four elements constituting a practice: 1) bodily know how and routines; 2) technologies essential to practice; 3) practice-oriented knowledge; 4) engagement. In her later work Gram-Hanssen (2011) concentrates on conceptualisations of continuity and change in practice theories. She bases her account on Warde's idea that individuals are a crossing point of various practices which allows for change to spread from one to another practice. Gram-Hanssen uses the example of household energy consumption to describe change and continuity in practices, partly because it links a number of different practices such as heating and lighting. She finds that in her case study both stability and change are closely linked to the use and features of particular technologies. She is interested in two aspects: the relationship between routine and reflexivity in everyday life and how changes in one practice may influence other practices (Gram-Hanssen 2008: 73). She finds that some participants, after having received training, entered a process of cultivation that opened up routines to conscious reflection, and a subsequent process of naturalisation whereby new behaviours turned into habits. However, that was not the case for all participants. She argues that a specific combination of the technical setup, the social organisation of the participating family as well as knowledge and engagement can explain these variations in the level of cultivation. As regards the potential spill-over effect, she notes that some practices share elements and that a change in one practice can affect other practices. For

example, people who adopted more sustainable heating practices were also more likely to change their practices in relation to lighting.

Tom Hargreaves (2011) continued interest in pro-environmental behavioural change includes an investigation of a workplace-based Environmental Champions initiative carried out in the UK. He adopts the change heuristic developed by Shove and Pantzar (2005) to examine practices in terms of assemblages of images, material objects and technology as well as skills that are integrated by practitioners through repeated performance. Hargreaves also takes up Warde's theoretical ideas on change and states that behavioural change requires the emergence of new practices calling for breaking links of existing practices before replacing and re-making them in a more sustainable way (Hargreaves 2011: 83). Warde (2005) also states that impulses for a change in practice can emerge from the inside as well as from the outside. The first scenario occurs when people resist routines, rules and conventions and react to new situations with improvised doings and sayings. The latter happens when different practices collide.

Schäfer, Jaeger-Erben and Bamberg (Schäfer *et al.* 2012) and Jaeger-Erben (2011) draw inspiration from various practice theorists to research changes in people's consumption routines as a result of important life events (e.g. relocation, arrival of first child) and to test the impact of targeted change initiatives that are delivered before and during the life event. Their results suggest that some people may be more susceptible to change interventions than others and that the timing of the intervention matters. Jaeger-Erben (2011) finds that people are more susceptible to a change intervention prior to and shortly after the life event, that is, during the preparation and adaptation phases. She argues that routines that emerge after people's transition to a new life stage are frequently established during the life event.

A change in circumstances may lead to the modification of an existing practice or trigger the emergence of a new one. As stated above, Schäfer and colleagues attribute such changes to life events that require an engagement in a different practice or a change of routines as a reaction to a new context. Hargreaves (2011) observes that change may also come from within an existing practice. For example, a new practice may emerge as a result of practitioners refusing or ignoring certain rules. Gram-Hanssen's (2011) findings are very valuable here because they show that a particular activity such as heating a home is related to a range of interrelated practices. If a routine belonging to one practice is changed, it is likely that the performance of other related practices will change too. In the context of this research on the consumption of distance, a person's day-to-day travel patterns are likely to

be linked to various other practices such as housing, work and care for family members. These and related findings provide important impulses for the empirical part of this study (see Chapter Four for details of the research methodology adopted in this study) and its theoretical framework.

3.6 Theoretical framework of this study

This section presents the author's theoretical framework that is specifically developed for the investigation of the consumption of distance and its transformation. Hitherto no practice-theoretical approach has been systematically applied to the empirical research of everyday travel. Drawing mainly on Theodor R. Schatzki's work, the author develops a heuristic for the empirical research into commuting practices in Ireland.

As stated previously, Schatzki's practice approach provides a rich theoretical basis. However, there are two issues – the material context of practices and the issue of change – that require further development. The author conceptualises the material and physical dimensions of practices based on Reckwitz's ideas. As regards change, the author offers theoretical considerations inspired by a range of contemporary practice theorists. However, theoretical insights into change processes are still limited. This study seeks to address this gap through a combination of theoretical inquiry and empirical research on the nature and trajectory of changing practices. Based on the analysis of empirical data, the author seeks to modify and further develop the study's initial theoretical framework (see Chapter Eight for details).

Deepening our understanding of people's everyday travel routines requires a broad analytical perspective. It is a major challenge for travel behaviour research to capture both (infra)structural features and social aspects of everyday travel routines. The practice approach developed for this study emphasises the material aspect of transport practices and recognises the importance of shared knowledge. At the same time, it acknowledges that people's lives are connected to each other and that practitioners do not act independently but in a social context. The practice approach views individuals as practitioners who perform the practices they are engaged in. This is particularly important for the empirical part of this study of commuting practices that draws on practitioners as source of information. The underlying idea is that practitioners play a vital role in the transformation of practices and that their accounts can shed light on the nature of these changes (see also Chapter Four).

As stated previously, this study aims to shed new light on practices related to private transport. For this purpose it includes aspects that are commonly neglected in travel behaviour research such as the material conditions that shape people's commuting practices. Linking more general theoretical considerations and empirical work, this study concentrates on how people change their routines and practices. Drawing on Schatzki's two-fold concept of practice – practice as performance and practice as entity – as well as his concepts of practical intelligibility, social site and field of possibilities, the author then develops an initial conceptual framework that covers both the emergence of practices and their transformation which is intended to guide the empirical part of this study.

The following paragraphs provide more detailed elaborations on these individual concepts and their relevance to this study. These are complemented by Table 2 which provides an overview of the central theoretical concepts that are used throughout the remainder of this study. Chapter Eight revisits these initial theoretical considerations and links them to the empirical data gathered in this study. This is done with a view to developing further Schatzki's approach and offering a novel change concept of people's action patterns.

Table 2 Key theoretical concepts

Concept	Description
Two-fold practice concept	**The performance of a practice describes...** – Set of actions belonging to practices that are carried out – Ways in which these actions are carried out **Practice as entity:** Doings and sayings that belong to a practice are organised by… – Rules – General and practical understandings – Teleoaffective structure – Material dimension: material context, bodies and objects involved in practice
Practical intelligibility	**Practical intelligibility** is what makes sense to people to do and think.
Social site	**Social site** captures the network of practices and their social orders.
Field of possibilities	**Practices draw up a field of possibilities by...** – Outfitting actors with skills and knowledge – Laying down rules of appropriate ways of acting in certain situations – Creating environment that is conducive to performing a practice Additionally, the material world influences the field of possibilities through the built & natural environment which are favourable to specific practices but not to others.
Change of practice	**Two-fold concept of change** – Change of practice as entity – Change of practitioners' routinised actions

Schatzki's two-fold concept of practice deserves particular attention here because of its relevance to the study of commuting practices. The performance of a practice captures the actions which belong to a particular practice and how these actions are performed. Thus, its empirical investigation needs to concentrate on what practitioners actually do. For example, Irish citizens who drive to work in their own car can be described as being engaged in the performance of a commuting practice. The notion of practice as entity is more abstract and refers to the underlying organisation of actions that belong to a specific practice. Travel practices can be described as entities because the doings and sayings that underpin them are linked through rules, teleoaffective structure and understandings. For example, the interpretations attached to commuting by car may be that the driver has the flexibility to use the car to meet additional mobility needs such as running errands, they are part of a teleoaffective structure of a practice in terms of an entity. Travel practices also incorporate material objects that are essential to their performance.

To gain a better understanding of people's commuting patterns, it is crucial to focus on both notions of practice. On the one hand, routines need to be described in terms of what people actually do (practice as performance). On the other hand, it is important to gain a deeper insight into the perceived purposes, beliefs, emotions and interpretations associated with a practice. People engage in practices and practices shape their actions in various ways. To identify potential avenues for change, it is important to increase our understanding of how people's actions are embedded in practices. This calls for the deployment of Schatzki's notion of practice as entity.

In accordance with Schatzki's second notion of practice, the author regards practices as being held together by explicit rules and shared understandings. Daily commuting and travel practices, for instance, are shaped by traffic regulations and transport policies. Thus, this study includes a review of local and national transport policy. At the same time, it is important to recognise the centrality of shared understandings to the organisation of practices. Practices equip their practitioners with different kinds of knowledge and skills that allow practitioners to carry out actions that make sense to them. If people do not know how to cycle, they are not practitioners of a cycling practice. Practitioners not only have a practical understanding but also draw on a general understanding of the hierarchically ordered actions, tasks and projects and associated meanings that underpin the practice in question (Gram-Hanssen 2008: 86).

It is important to note that Schatzki has been criticised for neglecting tacit and unconscious components that shape people's actions (Warde 2005). The author argues, however, that Schatzki's interest in the general understanding of practices incorporates different forms of tacit knowledge that serve as a normative frame for how things are done. While practical understanding is somewhat observable, general understanding is difficult to detect unless through people participating and reproducing a practice which indicates their engagement.[42]

One major criticism of Schatzki's concept of practice as entity that features throughout this thesis is its relatively under-developed material dimension. Schatzki's concept of practices does not explicitly include objects involved in the performance of a practice. Similarly, he ascribes only a very minor role to non-human entities, especially in his early work. In his later work, Schatzki makes explicit reference to non-human actors and grants them some form of agency. At the same time, he explicitly emphasises the uniqueness of human agency.

In contrast, Reckwitz advocates the materialisation of social practices through the inclusion of the material world – bodies, things and artefacts – as an essential element of practices. Practices may require human as well as non-human entities for their performance. In accordance with Reckwitz's line of argument, this study seeks to integrate a material aspect into Schatzki's practice-as-entity concept. The author also agrees with Reckwitz's viewpoint that practices require bodies and artefacts in at least two distinct ways. First, the performance of a practice depends on someone who is involved in it and knows how to carry it out. Second, practices may require certain artefacts or other people for their successful performance (Reckwitz 2004: 45). Drawing on Bruno Latour's critique of a dematerialised understanding of the social world, Reckwitz emphasises the importance of particular material objects for the execution of specific social practices. For example, social networking sites require users to have access to modern communications devices and the internet. In addition to specific material objects, social networking sites require users to collectively engage in certain actions.

According to Schatzki, a teleoaffective structure provides another vital link between doings and sayings and their associated cognitive and affective elements. What needs to be stressed here is that a teleoaffective structure is not the property of an individual but belongs to a practice. To investigate a practice's teleoaffective structure is

[42] Warde (2005)criticises Schatzki for not making more explicit the involvement of practitioners in a practice. Thus, he replaces the term 'understandings' (as nexus of a practice) with the term 'engagement'.

fraught with difficulties because the subject under investigation cannot be observed directly. This is where the concept of practical intelligibility comes in.

Practitioners carry out actions that make sense to them. As stated above, this is captured in Schatzki's concept of practical intelligibility which stresses the uniqueness of practitioners. Practical intelligibility stands for what makes sense to people to do. However, it must not be confused with Schatzki's concept of practical understanding. While practical understanding enables practitioners to execute the identified action, practical intelligibility singles out which action to perform in a certain situation (see also Figure 3 in this chapter).

People acquire practical intelligibility through their engagement in practices, especially their experiences of different linkages. For example, the teleoaffective structure of a practice that lays down customary ways of action clearly influences what makes sense to people to do. Practical intelligibility also captures the actions which are deemed to be appropriate in certain situations. However, while a teleoaffective structure belongs to a practice, practical intelligibility belongs to an individual. More importantly, a person's practical intelligibility can be observed directly by tracing what makes sense to a person to do.

The concept of practical intelligibility is central to this research project in two respects. First, it explains variations of a practice that is carried out by a number of practitioners. Second, it facilitates research that involves individual practitioners who are asked to reflect on and reconstruct their understanding of a particular practice, and by proxy its teleoaffective structure, and to report on their ideas of what is the right thing to do. In this study individuals are asked to tell their own story of how they do things and why they do them. These stories serve to identify daily commuting practices and other related practices. This type of qualitative research is underpinned by the idea that asking individuals about what makes sense to them means recognition that they are directed not only by one practice but also that they are skilled agents who negotiate and perform a range of practices in their daily activities (see Chapter Four for further discussion on the issue of methodology).

People's understanding of what makes sense to do varies with the range of practices they participate in. This network of practices and related social orders is called the social site. It is important to note that Schatzki has repeatedly been criticised for not explicitly including power relations in his practice theory (Hargreaves 2010). [43] The author

[43] Giddens, Foucault and Bourdieu are prominent proponents of practice-theoretical approaches that explicitly recognise the significance of power and power relations in society.

argues that Schatzki's notion of the social site encompasses not only practices but also social orders with their inherent power relations, though the latter are not always made explicit in Schatzki's work.

Practices shape people's actions by establishing a field of possibilities. In other words, fields of possibilities can be described as the conditions that frame practitioners' doings and sayings. Schatzki coined the term 'prefiguration' to describe how potential future actions are initially categorised according to certain criteria, for example whether they are easier or harder to accomplish, or more or less socially desirable (Schatzki 2002: 225). As a result, there is a range of actions that are more feasible for practitioners than others. Importantly, the resulting field of possibilities is also influenced by the linkages that organise practices, namely rules, understandings and teleoaffective structures, as well as material conditions.

It is important to note here that while Schatzki does not explicitly include a material aspect in his concept of practices as entities, his concept of field of possibilities touches on some of the material conditions that enable the performance of practices. For example, he explicitly recognises the role of specialised equipment in the development of Shaker herb practice. According to Schatzki:

> practices establish a field of general possibilities by constellations of physical phenomena, outfitting actors with knowledge and abilities, exhibiting teleoaffective structures and laying down rules and customary ways of acting (1996: 166).

He also suggests that artefacts such as equipment and technology conducive to performing particular practices play a crucial role in the establishment of social order (Schatzki 2002).

The author agrees that aspects of the material world such as the built environment and objects are crucial to understanding social life more generally, and transport practices in particular. For example, commuting as a practice is contingent upon an array of material objects such as vehicles, roads and railways. Importantly, the performance of a practice (e.g. commuting by car) depends on interactions between practitioners (e.g. drivers) and objects (e.g. their cars).

This said, there is an element of the materialisation of practice that has been largely ignored, namely practitioners' relation with their natural environment. While built infrastructure and land use patterns are undoubtedly important for travel practices, this implies a rather narrow understanding of 'environment' that ignores the wider biophysical context. For example, in recent years Ireland experienced very cold winters with significant

amounts of snow and ice. However, many drivers in Ireland were not used to such harsh conditions and started investing in equipment that allowed them to drive on icy roads. This demonstrates that the natural environment as material context shapes the fields of possibilities.

Fields of possibilities are complex arrangements that are neither stable nor clear-cut. While it is difficult to empirically study a field of possibilities, there is great merit in describing such a field as a way of making sense of people's action patterns. A field of possibilities is unique to individuals to some extent because it is related to the practices people are involved in as well as individual circumstances such as their physical and mental abilities. At the same time, there are dominant practices that produce fields of possibilities for large groups of people whose members are all involved in a similar range of practices. In order to sketch the field of possibilities in relation to commuting, this study explores customary ways of getting to and from work, the built environment, available infrastructure and people's access to transport modes. This is complemented with an examination of individual practitioners' skills and circumstances, including their physical ability and their family circumstances.

Fields of possibilities are created by practices. A changing of practices or the emergence of new practices thus goes hand in hand with a changing of respective fields of possibilities. Drawing on Schatzki's two-fold concept of practice, the author argues for a corresponding concept of change that incorporates two major strands: the change of a practice as entity and the change of the performance of a practice. The former describes the transformation of a practice in terms of a change of its elements that may result in the modification or perhaps even the destruction of a practice. The latter captures the ways in which practitioners change their performance of a practice. This differentiation highlights the need for different research methods for the investigation of the change. Studying the change of a practice as entity involves scrutinising the changing of rules, understandings and customary ways of doing things as well as the material context of a practice. Many of these are located at the macro- and meso-levels of social organisation. Researching changes in the performance of a practice shifts the focus to the micro-level, that is, individual practitioners and their performance of a practice.

It is important to note at this point that this two-pronged notion of change is an artificial distinction that serves an analytical purpose. Changes in the performance of a practice are always related to changes in its linkages and vice versa. However, the distinction between change in performance and change in entity clearly helps to reduce

complexity and allows for the investigation of different facets of change. It also makes explicit the endogenous dynamics of a recursive and reproductive relationship between entity and performance.

As stated earlier in this chapter, Schatzki (2002) also distinguishes between two types of change, namely intentional reorganisation and incremental recomposition. The first is the reorganisation which occurs occasionally and where changes are made intentionally. In the case of transport, this can involve a change in transport policy (e.g. taxation of fuel) or investment into transport infrastructure. The author agrees with Schatzki that some of these changes are intentional and even based on strategic decisions. At the same time, she criticises his implicit assumption that change only results from intentional human agency and argues that drastic change could also be the result of unwanted side-effects (e.g. unintended consequences of new legislation), non-human agency (e.g. animals) or something that people have no power over such as natural disasters. According to Schatzki, the second type of change is an incremental shift of understandings that belong to a practice, which he refers to as composition. Both types of change may come about through a change in explicit rules such as transport policies, the introduction of new technology, or as a reaction to changing circumstances more generally. Shove and colleagues (2007), for example, suggest that new technology such as digital photography may be introduced that triggers a change or innovation process which produces a modified practice of photography.

How do practitioners change their routines and the performance of practices? Arguably, many practice approaches leave this question largely unanswered. For example, Schatzki's two types of change describe reasons for a change in the elements composing a practice (entity) which also result in a changed performance of a practice. However, the pivotal role of practitioners in (re)producing and changing a practice remains under-explored in his work. Even though the concept of the recomposition can be interpreted as covering practitioners who adopt changed understandings of a practice, it does not serve to theoretically explore how or why practitioners change their performance. This is regrettable given that change is of vital importance for the transition towards more sustainable action patterns. The two-fold concept of change developed in this thesis aims to draw attention to this omission and seeks to serve as an analytical springboard for the development of new conceptual tools for analysing the transformation of practices (see Chapter Eight for detailed discussion and theoretical contributions on change).

As stated previously, practitioners establish practises through their actions. This implies that a change in the performance of a practice requires practitioners to act differently, for example in response to a change in their social or built environment. Moreover, practices can become obsolete if people stop performing them. So far few studies on consumption practices have reliably identified conditions that either help or prevent the transformation of practices. Some conditions of change presented in the literature have been life events, new technologies and objects and spill-over effects between related practices (e.g. Gram-Hanssen 2011; Jaeger-Erben 2011; Shove & Pantzar 2005). To enhance our understanding of how and why people change their everyday commuting routine, this study sets out to explore conditions that foster the changing of everyday routines and to collect empirical data that capture such conditions (see Chapter Four for a detailed account of the methodological approach adopted in this study, including the development and implementation of a change initiative).

3.7 Concluding remarks

This chapter critically reviewed traditional and contemporary practice theories with regard to their suitability as a theoretical framework for this study. Practice approaches are appealing because they seek to integrate socio-cultural and material dimensions into the analysis of consumption. They focus on people as practitioners who are involved in a social practice rather than concentrating on individuals' behaviour in isolation.

Due to its many beneficial features, the work of prominent practice theorist Theodore R. Schatzki received particular attention in this chapter. In contrast to more traditional practice approaches that integrated practices into broader social theories, Schatzki's work stands out because of its strong commitment to theorising practices. Drawing on Schatzki's ideas, the author identified five central theoretical concepts and synthesised them into a framework for this study of commuting practices in Ireland. These five concepts include a two-fold practice concept, practical intelligibility, social site, the field of possibilities and initial theoretical considerations on the change of practices (see also Table 2). The author also extended Schatzki's two-fold practice concept by integrating a material dimension which captures objects, bodies as well as the built and the natural environment. It is a major challenge of travel behaviour research to take into account both the material and social dimensions of everyday travel routines, including people's shared understandings of practices. The practice approach developed here emphasises the material aspect of transport practices and, at the same time, recognises the importance of

practitioners' shared knowledge of how to act in certain situations. By materialising the practice concept, it is rendered more suitable for the analysis of commuting patterns that are highly dependent on material realities such as existing transport infrastructure.

While Schatzki's work on practices provides a rich theoretical basis, its remains weak with regard to its conceptualisation of change. This chapter has shown that existing accounts of practice-related change such as that provided by Schatzki require further development. The study, therefore, offers some theoretical considerations that draw on work by Schatzki and other contemporary practice theorists but that also go beyond current approaches to incorporate different aspects of practices. Here, the author developed a two-fold concept of change to guide the empirical exploration of practitioners changing their practices and to advance the theoretical treatment of sustainability transitions. Following on from the theoretical considerations discussed in this chapter, the next chapter – Chapter Four – presents the research design of this study and introduces the analytical framework for analysing empirical data on commuting patterns in Ireland and their transformation.

Chapter 4

Capturing change? Methodological reflections on the investigation of the consumption of distance and its transformation

An empirical investigation of the performance of commuting practices requires rich data on what people do and how they do it as well as information on the various influences that shape commuting routines. This chapter is dedicated to the development of a methodological framework and research design to address the two main research questions of this study: What are current commuting practices in Ireland? And how can people be encouraged to change their daily commuting routines? The second question relates to a suite of employer-based measures to promote and incentivise a modal shift away from the car that was tested in a large firm in Ireland in 2010-11 as part of this study. Conventional tools such as information provision, incentivisation and small-scale infrastructural changes were complemented with an innovative change initiative that was designed specifically for this study and that revolved around a team competition to encourage more sustainable modal choices.

The first part of this chapter – Chapter Four – provides a brief overview of existing empirical research on consumption practices as well as mobile methods and discusses the methodological implications of a practice approach to researching the consumption of distance (Section 4.1 and 4.2). The second part of this chapter explores how the theoretical concepts introduced in Chapter Three can be operationalised to facilitate the empirical study of commuting patterns in Ireland and their potential transformation. Section 4.3 starts with a brief summary of the central theoretical concepts utilised in this study before considering how these could be tested empirically. Additionally, it outlines the empirical part of the study and introduces its research design. It covers key steps in the empirical research process, including case selection, the gathering of data and their subsequent analysis.

4.1 Researching consumption practices

According to Warde (2004: 8) there is a need for a broad variety of methodological approaches and analytical tools to serve the various facets of practice research (see also Fahy & Rau 2013). This is clearly reflected in the methodological diversity of existing empirical research on consumption practices, which is partly attributable to the fact that

there is no single unified practice theory but rather a plethora of different theories that demand different methodological approaches (see also Chapter Three). For example, the 2011 special issue of the *Journal of Consumer Policy* which was dedicated to the application of practice theory to consumption studies demonstrates clearly the rich diversity of data collection methods that characterise this particular area of social research (see Halkier *et al.* 2011: 8). Depending on the researchers' interest and theoretical orientation, their methodological choices can cover the entire spectrum of qualitative and quantitative research tools, including case studies, participant observation and ethnography, interviews and focus groups as well as multi-method, trans- and interdisciplinary approaches that combine methods from the social and the natural sciences. Rau and Fahy (2013) point to the methodological challenges that arise from the need

> to balance commonly held notions of consumption as an economically necessary, but environmentally problematic, activity carried out by individual householders, with concepts that emphasised its wider social and cultural significance, its multi-scalar effects and its structural root causes. (Rau & Fahy 2013: forthcoming)

The author argues that studies on consumption practices can be organised into two main categories that correspond to Schatzki's two notions of practice: those that concentrate on practices as entities and their transformation and those that concentrate on the performance of practices. While work in the latter category explores what practitioners actually do and how they carry out practices, studies assigned to the former tend to examine the components of existing practices and how practices are transformed over time.

Prominent forerunners in the area of empirical consumption research that draws on a practice-theoretical approach such as Elizabeth Shove, Mika Pantzar, Alan Warde and others have developed and empirically tested heuristics for the analysis of practices as entities. In addition, many of these researchers have deployed historical and comparative designs that capture the transformation of practices and their individual components. For example, Shove (2003) researched changes in washing and heating practices and their connections with changing conventions in relation to cleanliness and comfort. Her analysis highlights policy changes and technological development. Shove and Pantzar (2005) used information from academic sources, sports institutes, newspapers and sports journals to compare the emergence and spread of Nordic Walking as a popular exercising practice in different European countries. Warde (2004: 8) and Barr (2013) present a number of arguments for using questionnaire surveys in practice-focused consumption research.

Cheng *et al.* (2007) compared time diary data from 1975 and 2000 to trace the transformation of a food consumption practice in the UK.

More recently, empirical studies building on the work of these prominent advocates of practice theory and research have concentrated frequently on the performance of practice instead of researching practices as entities. These studies have specifically looked into what individual practitioners do and how they change their routines. In contrast to researching the various elements that hold a practice together, this focus on performance requires methodological techniques that facilitate a thorough examination of practitioners' doings, such as long-term observation and interviews conducted at different points in time.[44] Gram-Hanssen (2011) carried out three case studies on household energy consumption to shed light on continuity and change of the performance of an energy practice. Using interviews and participant observation she found that changes in energy consumption practices derive from engagement, conscious reflection and the routinisation of new actions. Hargreaves (2011) also looked into the practical accomplishment of everyday practices and their transformation as part of a work-based change programme called Environmental Champions. He employed an ethnographic approach to study behaviour change through participant observation and semi-structured interviews. Schäfer, Jaeger-Erben and Bamberg (2012) deploy a mixed methods approach to compare the effects of two intervention techniques and to explore the potential impact of life events on the performance of daily routines. Jaeger-Erben's (2011) work focuses on changes in everyday life and consumption patterns as a part of life-course transitions. She draws on qualitative data including interviews, mapping and observation.

Finally, Watson and Shove's (2008) study aimed at linking practice as entity and practice as performance. They adopted a multi-method approach to investigate do-it-yourself practices. Their study focused in particular on the recursive relationship between products and practice as well as the creative integration of products into practices. For this purpose Watson and Shove drew on expert interviews, participant observation *in situ*, (policy) document analysis and in-depth interviews with practitioners.

4.2 Mobile methods

Transport behaviour research has been dominated by quantitative methodological techniques such as modelling and forecasting drawing on statistics and survey data. At the

[44] See also Rau and Edmondson's (2013) critical reflections on the importance of time in sustainability research, which covers the ConsEnSus project and other consumption-related work.

same time qualitative research, multi-method approaches and longitudinal approaches have often remained marginalised, at least until recently. However, advocates of a 'mobility turn' in the social sciences (Urry 2007; Hannam *et al.* 2006; Urry 2000) raised a number of interesting questions about the properties of methods for researching everyday mobilities. Their critique of dominant strands of transport research resulted in calls for the deployment of "mobile methods" (Büscher & Urry 2009), that is, for innovative methods that may or may not involve high levels of physical mobility on the part of the researcher and that are deemed particularly suitable for investigating the (im)mobility of people, ideas or objects.

In the area of corporeal travel more generally and car travel in particular, the participation in movement while conducting research is frequently put centre stage as mobile methods technique. It is argued that methods such as walking with research participants, or driving along, open up novel perspectives on happenings on the move (e.g. road rage, social interactions in the car). Observation and interviewing *in situ* also allows the researcher to engage with the research participants' worldview (Büscher & Urry 2009; Cass & Shove 2003). For example, Laurier and colleagues (Laurier *et al.* 2008; Laurier 2004) employed such mobile methods to research the social organisation of car travel.

Mobile methods have also been applied in health research. Ross *et al.* (2009), for example, utilised guided walks and researcher-participant interactions during car journeys to study everyday relationship cultures of young people in public care. On the guided walks research participants were asked to take researchers to locales of significance to them. For researching interactions while travelling in a car, researchers and participants travelled together to destinations that were part of the participants' daily routine. Both mobile methods incorporated observation and interviews. The researchers used various ways of recording information (e.g. audio or video) that suited the mobile nature of the research. Overall, Ross *et al.* (2009) found that moving with the research participant allowed them to immerse themselves in day-to-day situations and gain insight into daily action patterns and emotional reactions which participants may have found difficult to express verbally.

Undoubtedly, mobile methods can be very valuable when researching practices that are laden with emotions, involve sensitive information, or entail actions that participants find difficult to articulate. At the same time, however, they require a high level of commitment from participants because they allow researchers a deep insight into their private lives. This may prevent some people from participating. Therefore, it is important to weigh the possibilities of gaining greater insight into people's mobile lives against the risk

of having a smaller pool of self-selected people willing to participate in the research. While the daily commute and practices related to it may be considered as partly private information it generally is not regarded as sensitive information or something participants find hard to report. It is argued that in order to gain a profound insight into commuting practices it is valuable to reach a broad range of participants rather than a more select range from participation in movement. The author carefully developed her research design to suit the investigation of practices (rather than attitudes or individuals' behaviour). Using a combination of observational techniques and interviews made it possible for her to capture key aspects of people's commuting practices. As expected, the research participants' reactions did not regard their commuting practices as private information worth guarding. In addition, most participants found it easy to verbalise what they do with regard to their daily commute, how they do it and what social and environmental factors affect their commuting practices. Details of the research design for this study are discussed in the next section.

4.3 Researching commuting practices in the West of Ireland

From the very beginning the design of this study was intended to facilitate the investigation of commuting practices as they occur. The remainder of this section has three distinct parts. First, it elaborates on the links between theoretical concepts and empirical data. Subsequently, it outlines the broader framework of the study before providing a detailed description of the overall research design, data collection and data analysis.

4.3.1 Translating theory into empirical research

Practice theories are often too abstract and far-reaching to be used directly to collect, analyse and interpret empirical data (Warde 2005). In an effort to build a theoretical framework for her empirical analysis, the author developed a heuristic that incorporated Schatzki's four key concepts, namely a variant of his two-fold practice concept (practice as entity and practice as performance), practical intelligibility, social site and an extended notion of fields of possibilities, all of which received ample attention in the previous chapter. In addition, the study applies some of the theoretical considerations on how and why practitioners change their routinised action patterns discussed in Chapter Three above to the empirical research of commuting in Ireland. Table 3 below details the operationalisation of the key practice-theoretical concepts used in this study, that is, their translation into more concrete propositions that lend themselves to empirical testing. This

is complemented with examples of the kind of evidence that are relevant in relation to specific concepts.

Table 3 The operationalisation of central theoretical concepts

Concept	Theoretically informed propositions suitable for empirical testing	Example of relevant data material
Performance of practice	*What:* Account of what people actually do *How:* Overview of how people commute based on survey data and personal accounts of how people perform commuting practice	Interview data about some commuters trip-chain while others go to work directly
Practice as entity	**Rules** *What:* Explicit rules and instructions that influence actions. *How:* Empirical work revolves around a review of policies that affect commuting and private transport in general.	Policy document detailing employer-based tax saving scheme to encourage cycling
	Practical understandings... *What:* Overview of knowledge required to carry out actions. *How:* Interviews and observations that capture peoples' skills and knowledge.	Data showing that participant knows how to cycle safely
	Teleoaffective structure *What:* Doings and sayings that practitioners should perform as well as emotions and beliefs associated with actions. *How:* Here the investigation needs to focus on what makes sense to people to do and what practices they engage in.	Interview data about participant's perception that a car is a safe way of transporting children.
	M**aterial aspect** *What:* 1) Bodies and material objects (e.g. transport modes or person giving a lift) 2) Material context of a practice, including built environment (e.g. land use, transport infrastructure) and natural environment (e.g. landscape, climate) *How:* Collection of observational and documentary evidence, including site analysis in company, maps.	Information about availability of public transport service and transport-related infrastructure
Practical intelligibility	*What:* Information about what makes sense to people *How:* Interviewing and observing people to establish what makes sense to them to do. This also allows for the empirical tracing of general understandings, teleoaffective structures and for the mapping of fields of possibilities.	Interviewees may feel that it is better to drive their children to school than to have them wait for a school bus
Social site	*What:* The social site is constituted through a web of practices that influence people's commute to work. *How:* Collection of observational evidence and interview data that captures practices related to commuting practices.	Evidence of specific working practices e.g. night shifts prevent use of public transport
Field of possibilities	*What:* Actual and perceived options for action *How:* Gathering of information about which actions are easier or harder (acceptable or recommended) to perform.	Data that reveals that a lack of cycle paths prevents cycling
Change of routines	*What:* Conditions that either help or hinder the change of everyday commuting patterns. *How:* People are accompanied while changing their routine (observations, interviews and travel diaries).	Data that shows that the transition to parenthood changes mobility patterns

Arguably, it is often difficult to observe directly practices and their linkages (i.e. rules, teleoaffective structure, understandings). While it may be relatively straightforward to identify the rules that organise the doings and sayings of a practice, it is less straightforward to observe a teleoaffective structure. A historical approach may lend itself to researching practices as entities and their development and transformation over time. The performance of practices, however, could be captured more accurately perhaps by observing these performances in a natural setting. The concept of practical intelligibility plays an essential role here because people generally do what makes sense to them but they may not always be able to verbalise this. The study combines observation and various types of interviews to capture people's practical intelligibility with respect to commuting. Finally, practical intelligibility is contingent upon people's engagement in practices, which in turn is shaped by the teleoaffective structure (see Section 3.3 above). Consequently, investigating people's practical intelligibility also allows the researcher to draw conclusions about the teleoaffective structure of a practice.

As stated previously in this thesis, practices draw up the field of possibilities by equipping actors with knowledge and abilities, by exhibiting teleoaffective structures and by creating a rule-governed environment that is conducive to the successful performance of certain actions. Schatzki (2002: 174ff) states that practices can also create a field of possibilities through various constellations of physical phenomena. This implies that practices influence the physical environment. While the author agrees with Schatzki that the field of possibilities is shaped by practices, she adds that physical phenomena beyond the influence of a particular practice shape its field of possibilities too. The natural environment and other practices are relevant examples. Even though it is hard to delineate a field of possibilities, it is rewarding to make an attempt to sketch a field of possibilities based on empirical findings.

The changing of everyday routines represents another key focus of this study's theoretical and empirical parts. Chapter Three revealed that the change element of practice theories remains largely under-developed. As a result, the author proposed a two-fold concept of change that corresponded with Schatzki's two-fold practice concept (see Section 3.3). The concept of changed developed for this study comprises: 1) the change of a practice as entity and 2) changes in the performance of a practice. Just to remind the reader, the former describes the transformation of a practice in terms of its elements while the latter captures practitioners changing how they perform a practice. The change in the performance is related to a change in the linkages holding a practice together and vice

versa. This differentiation makes explicit the endogenous dynamics of a recursive and reproductive relationship between entity and performance and, at the same time, allows for detailed research on these two aspects.

The dynamics of practitioners (re)producing practices constitutes a crucial source of change. Certain conditions foster the changing of routines. Identifying these conditions through rigorous empirical research can provide a point of departure for further theoretical work on the causes and consequences of practice-related change and vice versa. This study concentrates on circumstances that either help or hinder practitioners to change their routines. Participants in this study were asked to change their commuting practices by participating in a workplace-based change initiative. Their efforts over the course of six months were then subjected to intense empirical scrutiny (see also Section 4.3). Collecting detailed information about a group of practitioners who are in the process of changing their daily routine provided valuable insights into the transition towards more sustainable commuting patterns. The following section outlines the empirical investigation in much more detail.

4.3.2 Outlining the empirical investigation of commuting practices

This section outlines the methodology used in this study to empirically investigate everyday commuting practices and ways to change them. Evidently, consumption and transport researchers employ a variety of methodological approaches to study everyday activities. Even though there has been a bias towards quantitative methods in the past (see also arguments in Chapter Two), there is a growing body of studies that draw on qualitative evidence. Nevertheless, the divide between qualitative and quantitative research remains rather pronounced both across and within disciplines. This seems to imply that arguments for a technical approach that decouples researchers' epistemological beliefs from their choice of methods and that focuses on the nature of the research problem as the main criterion for the selection of methodology need to be taken seriously (see Rau 2010; Bryman 2008; Rau 2004; Platt 1999; Ackroyd & Hughes 1992). The idea is to recognise the strengths and weaknesses of different techniques for data collection and analysis and to consider their suitability for addressing a particular research question rather than treating them as expressions of a particular research tradition that needs to be followed. This is not to suggest that divergent epistemological views of the social world and human behaviour simply can be ignored. Instead, it emphasises the need to identify a combination of methods that serve to address the research question while, at the same, remaining aware

of the different and potentially incompatible ontological and epistemological perspectives that may underpin these methods.

This study takes an innovative approach to researching everyday practices that combines two key features. First, it takes a multi-level approach that incorporates macro-, meso- and micro-level influences on peoples' actions. The three levels capture the socio-cultural, political and (infra)structural context of people's routines (macro-level), the organisational culture and context of people's workplace (meso-level) and people's everyday practices in relation to their commute (micro-level).

Secondly, this study adopts a multi-method approach to social research that combines a range of qualitative and quantitative methods. This is intended to capture the many nuances of commuting practices in Ireland and their transformation. Here, rich qualitative information about individuals' perceptions, actions and feelings and how these reflect their social and material environment are complemented with national-level data that captures large-scale behavioural trends. In order to consider influences that are set on the macro-, meso- and micro-level, on commuting patterns in Ireland requires a combination of methodological techniques to collect and analyse data.

For this purpose, the study draws on three strands of empirical research:

1) A large-scale national quantitative survey data on mobility patterns
2) A sociological analysis of transport policy at the national level
3) A multi-method case study at the employer's level

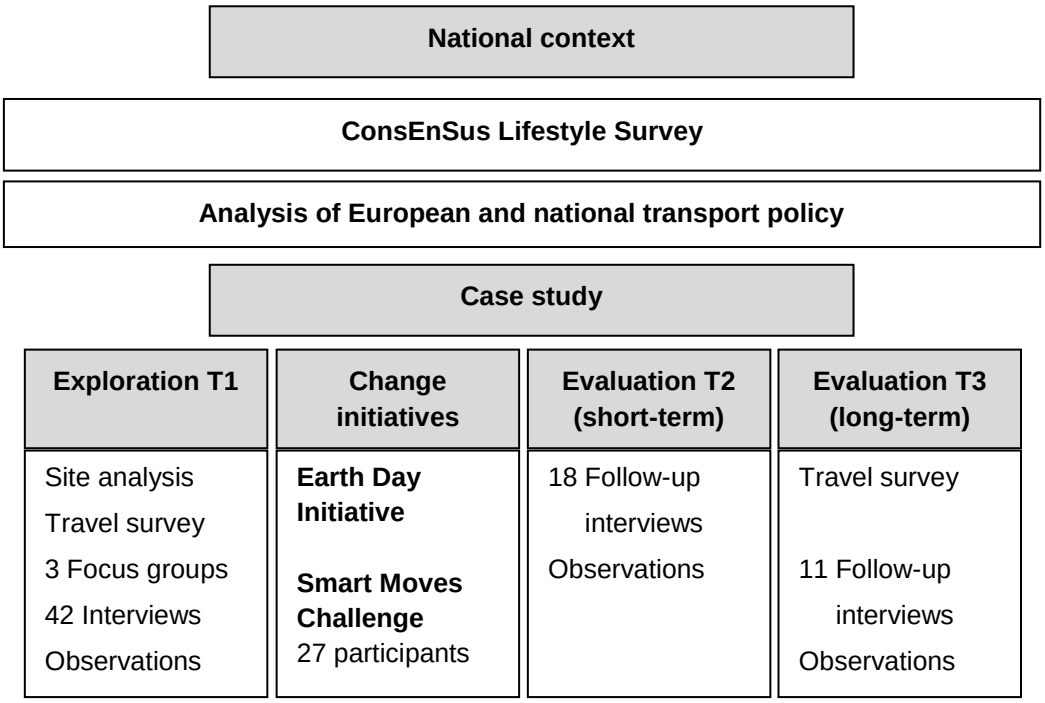
The following Table 4 shows details on three levels and the purpose of the respective data collection.

Table 4 Macro-, Meso- and Micro-level

Level	Research focus	Data
Macro	Policy-related, (infra)structural and socio-cultural context of commuting patterns	Large-scale national quantitative survey data on mobility patterns Sociological institutionalist analysis of Irish transport policy
Meso	Employer's infrastructural conditions and organisational culture providing the context of employees' commuting patterns	Analysis based on observations, focus groups and interviews with employees
Micro	Insights into employees' commuting routines and reasons why they are commuting in a certain way Insights into short- and long-term effectiveness of change initiatives and conditions that either help or hinder a transition towards sustainable commuting patterns	Analysis based on a two-waved survey, focus groups, interviews and participant observations Analysis of short- and long-term developments through longitudinal design based on travel diaries and three waves of interviews

The integration of the macro-level (society, policy and infrastructure), the micro-level (individual practitioners) and the meso-level (work organisation) is a central feature of the research design for this study. The decision to conduct a case study in a large firm in the West of Ireland and to link its findings to large-scale national data and individual-level data reflects a particular emphasis on the meso-level as a connecting level between macro and micro. One reason for highlighting the meso-level is that the commute to and from work makes up a very large part of many people's daily travel patterns. Curbing car-based commuting also could have a significant spill-over effect into other areas of daily mobility, including leisure trips and school runs. Moreover, employers can reach their employees directly and, at least to some extent, they can create an environment which supports alternative modes to car use. At the same time, focusing on the meso-level also means that the role of employers as potential change agents can be explored in much more detail. Figure 4 provides an outline of the study.

Figure 4 Overview of Case Study Design



While the large-scale all-island survey provides an overview of national mobility patterns, the case study revolves around a qualitative evaluation of two employer-based change initiatives. These initiatives were carried *in situ* in spring 2011 to encourage employees to change their commuting routines. The first initiative (Earth Day Initiative) is a workplace travel plan which encompasses three conventional 'soft' measures, namely: 1) information provision; 2) incentivisation; 3) small-scale infrastructural changes. The second initiative is an innovative five-weeks programme for change based on a competition between teams of participants (Smart Moves Challenge). The design of the two change initiatives were informed by survey data and focus groups with employees and was developed exclusively for this study.

The case study featured three distinct phases. The first phase was an exploration phase which formed the basis for the development of the two employer-specific change initiatives. These were then implemented in the second phase. The third phase was dedicated to the evaluation of these change initiatives and was divided into an evaluation of both short-term and long-term effects of these initiatives. Overall, the planning, roll-out and qualitative evaluation of these change initiatives took place between September 2010 and October 2011.

This longitudinal element of the case study – the third key feature of the empirical part of this research – is intended to capture developments over time based on a qualitative evaluation of the success (or otherwise) of the two employer-based measures. It adopts a time-sensitive approach to the study of changing practices that takes seriously the inherent temporality of change, including its trajectory over time (Rau & Edmondson 2013). This contrasts with many evaluation studies that only provide a snapshot. In addition, longitudinal data also gives an insight into the conditions under which a change in daily routines may become more likely and whether or not change actually 'sticks' (cf. Behrens & Del Mistro 2010: 258). The qualitative approach to evaluation adopted in this study thus opens up new and fruitful avenues for investigating the effectiveness of work-based change initiatives that go well beyond the quantification of success or failure.

4.3.3 Research design, data collection methods and outline of study

Comparative overview

As stated previously, the ConsEnSus Lifestyle Survey (CLSL) produced baseline information about consumption patterns on the island of Ireland more generally, and existing mobility patterns and perceptions of transport modes in the Republic of Ireland and Northern Ireland in particular. It also provided important contextual information for the transport-related case study for this project. The CLS questionnaire was designed specifically for the ConsEnSus study and includes a specific section on transport (Lavelle & Fahy 2012).[45] The population for this survey was defined as all adults aged 18 years and over residing on the island of Ireland. Lists of domestic dwellings were obtained through the Geo-directory database in the Republic of Ireland and the Pointer database in Northern Ireland. A multi-stage cluster sampling technique was utilised across three counties: Derry/Londonderry, Dublin and Galway. These counties were strategically selected because of their relative similarity in terms of a significant urban centre with a large rural hinterland. Using a stratified random sample, a total of 1,500 households were surveyed, with 250 urban and 250 rural households drawn from in each county. All participants were asked to answer the questions for their entire household.

The transport-related part of the CLS covers respondents' daily commute to work and their perceptions of the biggest advantages and drawbacks of the five key modes of

[45] While general questions about commuting patterns were asked to the entire sample, more specific questions on the perception of transport mode was presented to a subsample of 600 participants. The respondents to the transport section were also chosen based on the overall sampling criteria.

transport: car, public transport, carpooling, cycling and walking (see Appendix 1 for transport section of CLS questionnaire).[46] Thus, it shows how different transport modes are largely perceived. Furthermore, based on descriptive statistics the data can point out noteworthy differences between groups of participants, for instance, between the rural and urban population or between counties.

Survey data can be very useful to shed light on broader trends in society to do with transport practices, including how people travel and how they view different modes. However, there are also some significant limitations that require some reflection. First of all, the number and complexity of questions in a survey need to be kept at a minimum to ensure the engagement of respondents that lead to high-quality data. Respondents are likely to lose interest, make mistakes due to declining concentration or even refuse to give answers because they are annoyed or alienated if the questionnaire used is too long and includes inappropriately phrased items. Second, survey questions generally have to be standardised to ensure maximum comparability of results. However, standardisation also means that there is little or no room for follow-up questions or clarifications. Furthermore, the majority of survey questions in the CLS (and many other surveys) are closed, that is, they provide a list of pre-established answers developed by the researcher. This is supposed to ensure speedy data entry in preparation for statistical analyses of the data. As a result, most (if not all) surveys only cover questions that are easily quantifiable. This implies that survey questionnaires tend to omit issues that are complex, sensitive and/or difficult to quantify. Finally, respondents can only choose from a list of answers that prescribe a certain perspective deemed relevant by the designer(s) of the questionnaire and that adopt their ways of thinking and talking about the issues at hand. This means that there is almost no opportunity for unexpected results to emerge.[47] Given these limitations, this study combines survey data with qualitative evidence of commuting patterns and socio-cultural aspects of commuting.

[46] Here, a local transport survey developed and tested in 2004 by Henrike Rau (School of Political Science and Sociology, NUI, Galway) and John McDonagh (School of Archaeology and Geography, NUI, Galway) provided some useful starting points. Modified versions of some of the questions from the NUIG survey were selected for inclusion in the CLS.

[47] Questionnaires are most effective in well-developed research fields such as the area of transport behaviour where researchers can draw on previous work. There are many international studies that provide quantitative information about how transport modes are perceived across European countries (Hagman 2010; Páez & Whalen 2010; Ory & Mokhtarian 2009; Gatersleben & Uzzell 2007). However, it is necessary to recognise that cultural differences may result in strikingly different views of transport and mobility issues which can only be identified through the application of qualitative research techniques.

Review of the policy landscape

The regulatory framework of the transport sector is an integral part of the wider context of the case study carried out for this project. European, national and local transport policies influence people's mobility patterns. From a practice-theoretical perspective they can be described as rules linking doings belonging to a practice and also play a role in drawing up a field of possibilities (see also Chapter Three and Table 3 in this chapter). Their influence manifests itself in three ways: existing infrastructure, regulations (e.g. taxes and subsidies) and discursive conventions deployed by transport policy makers, that is, dominant ways of talking about transport. The latter seems particularly important because these 'official' discourses are likely to shape, at least to some degree, how members of the public talk about transport. This in turn influences the overall socio-cultural climate that surrounds people's commuting routines. Policy makers and other influential groups in society may share a pro-car mindset that considers car use to be a highly efficient transport mode. This in turn translates into transport infrastructure and taxation systems that privilege car use over other forms of private transport (Vigar 2002: 26). For example, in Ireland during the late 1990s and early-to-mid-2000s heavy investment in road construction combined with underinvestment in public transportation. This favoured car-based mobility while also contributing to the growing 'immobilisation' of those without access to a car.

To empirically examine the case of Ireland, this study reviews national and local transport policy documents as well as information about the institutional setting of policy-making (see Chapter Five). It seeks to identify key stakeholders who influence transport policy and examines how their actions shaped the official discourse that underpins current transport policies. Issues that are currently marginalised or even excluded from the realm of transport policy receive particular attention. Overall, this review sets the scene for the case study.

Case study

A longitudinal case study conducted at a large employer in Galway City in the West of Ireland formed the central piece of the empirical part of this study and reflected its emphasis on the meso-level of social organisation as a potential source of practice-related change.

The company selected for the case study has been well-established in Galway for decades. It belongs to a large American holding and has 459 employees (September 2010). The Galway plant houses the company's European headquarters as well as a manufacturing

facility. Employees have a diverse profile with regard to their socio-economic and educational background. It is worth mentioning that very few women work in the manufacturing part of the company, which contrasts with the predominantly female workforce in the administrative section of the company. Overall, there are more male employees than females, which is reflected in the gender ratio of participants. Gaining access to the company was difficult at first and required several attempts. A personal contact acted as gate keeper and played an important role in securing the company's cooperation, especially after the official contact left the company and was replaced by a new HR manager. The plant manager had also taken a personal interest in the project which ensured the company's buy-in. Throughout the research process, the researcher was regarded as an outsider whose presence was legitimised by the management's approval of the research project. She had the same privileges in using the office space and facilities as regular employees. At the same time, she was not closely associated with the company's management or a management-related agenda. A number of employees did not hesitate to share criticism of the company's management, superiors and colleagues.

The company is located on the Eastern outskirts of the city, which is the main location for businesses in Galway. Many centres of employment are situated on the east side while a large proportion of people live on the west side. As a result, Galway has a commuter stream running from the west to the east of the city, with the medieval city centre functioning as a major bottleneck during morning and evening rush hour. In addition, East and West are separated by the river Corrib, with four bridges spanning it. These bridges also act as significant traffic bottlenecks (see also Chapter Five for a map and details). In addition to this west-to-east commuting pattern, a large number of employees travel into the city from the rural areas. Their commuting patterns closely resemble national commuting patterns (cf. Rau & Vega 2012).

More generally, Galway City and Galway County display certain characteristics that are typical for Ireland, especially with respect to the urban-rural split. Galway City, Ireland's third-largest city with 75,529 inhabitants, is surrounded by a large peri-urban and rural hinterland, with 175,124 people living in Galway County (Central Statistics Office 2011). Galway City has a number of large employers that attract employees not only from the city but also from its rural hinterland. Similar to other urban areas in Ireland such as Dublin, Cork and Limerick, Galway is characterised by low population density, significant urban sprawl and low levels of walkability and cyclability in some parts of the city. This results in people covering relatively long distances to reach their workplaces, shopping facilities or

amenities. While Galway features a cross-city bus system, with most of the services commencing in the city centre, it lacks an integrated public transport system (Galway Healthy Cities Project 2007).

Exploratory fieldwork on site

The first phase of the fieldwork at the firm focused on an initial site analysis, including an examination of existing infrastructure based on observations and interactions with staff and management. In addition, all employees were asked to participate in a Travel Survey that used the transport and socio-demographic questions from the ConsEnSus Lifestyle Survey (see Appendix 2 for employer-based Travel Survey questionnaire). This meant that the company data on employee's mobility patterns and perceptions of transport modes could be compared to the CLS data. The survey was rolled out as an online survey for all employees with an internal email address. Because assembly line workers generally did not have an internal email address, they were provided with hard copies of the questionnaire. The survey was carried out in September/October 2010 and the response rate was 41 per cent.[48] The travel survey was repeated in October 2011 to detect any changes in employees' reported mobility patterns following the two change initiatives that were carried out within the firm (see Chapter Seven for details). Overall, the initial site analysis was intended to capture the material and social context within which employee's commuting practices and associated actions are embedded.

Following on from the site analysis, the researcher used qualitative data from three focus groups to construct an initial picture of the socio-cultural and (infra)structural aspects of employees' commuting practices. Using focus groups to tap into shared knowledge and understandings proved to be useful for the investigation of commuting practices. Importantly, data from the focus groups served as the basis for the development of the two employer-specific change initiatives (Earth Day Initiative and Smart Moves Challenge). At the same time the findings from the focus groups indicated a number of aspects for further exploration in in-depth interviews.

At first, the recruitment of participants for the focus groups proved to be difficult. It was only after the plant manager got the receptionist involved that employees agreed to participate. Overall, the focus group participants were a mix of employees ranging from manufacturing staff working on the assembly line to middle management. The ratio

[48] The survey questionnaire was piloted with 35 employees of the company in April 2010. In the first wave 186 out of 459 employees responded (41 per cent response rate); in the second wave 121 out of 448 employees responded (27 per cent response rate).

between men and women was skewed towards male participants (15 men and 2 women). This reflects the fact that the manufacturing employees (more than one third of staff) are predominantly male. Four out of the 17 participants reported to be regular or occasional cyclists, a figure that represents the overall modal split among staff (see also Section 5.4.3).[49] All in all, a good spread of respondents from different demographic groups took part in the focus groups and provided valuable information that informed later stages of the empirical research.

The focus groups were held during lunch time to facilitate participation by a broad range of employees, including assembly line workers who could only take breaks at scheduled times and those employees who either could not or would not commit to a timeslot outside working hours. Food was provided for all focus group participants. This not only served as an incentive but also allowed participants to ease into a conversation with other focus group members, leading to a more relaxed atmosphere despite different hierarchical positions of participants.

While the focus groups provided a broad overview of people's commuting practices, these were complemented with 42 face-to-face interviews to gain a better understanding of people's commuting practices. These interviews represented the first wave of three separate waves of interviews (T1, T2 and T3). The interview guide identified central issues of interest based on the findings from the surveys and focus groups as well as the relevant body of literature (see Appendix 3). The interview questions revolved around participants' commuting routines, other practices affecting their mobility practices as well as people's social context including their family, friends and colleagues. The interviewees had the choice of a meeting the researcher on site or off site.

The recruitment of interviewees combined strategic sampling and self-selection. 18 interviewees were strategically selected along the following five selection criteria: gender, residential location (rural or urban), main mode of transportation to and from work, position within company and socio-economic background. The other 24 interviewees participated in the Smart Moves Challenge which entailed an initial interview based on the same interview guidelines employed for the first set of interviews. The participants volunteered to partake in the challenge.

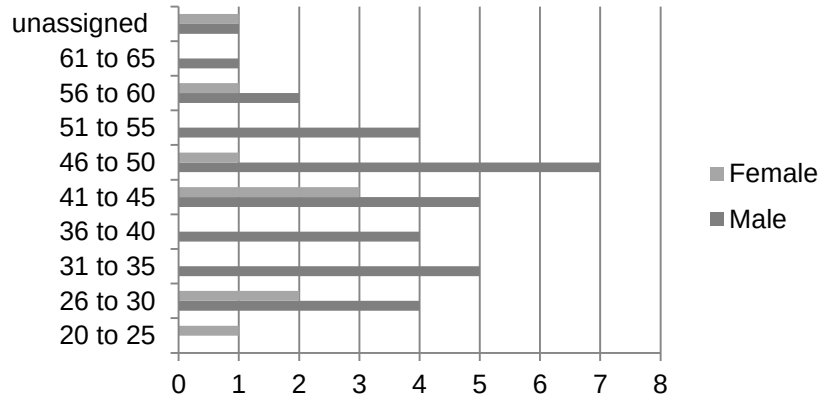
In comparison to the recruitment of focus group participants, the recruitment of interviewees was much easier overall, especially with respect to staff working in the administrative part of the company. This said, recruitment of assembly line workers proved

[49] 82 per cent of respondents in both waves reported that they drive to work.

to be more challenging. The researcher used three recruitment strategies. First, four focus group participants were approached for a follow-up interview because they fitted the selection criteria and raised interesting issues in the focus group discussion. Second, employees with company-internal email addresses received an email that invited them to participate in the research. Participants were selected then in accordance with the sampling strategy. Interviewees were encouraged also to name colleagues who fitted the selection criteria. All interviewees put forward names and the researcher contacted potential interviewees in line with the sampling strategy. Third, for reaching employees without company-internal email addresses (mainly employees working on the assembly line), the researcher approached them in person. Only one employee agreed to do an interview. However, the first interviewee acted as a gate keeper and established contacts with colleagues who suited the sampling criteria. Even as an insider he found it difficult to get people to agree to an interview. He mentioned on many occasions that he could see how difficult it was for an outsider to recruit interviewees.[50]

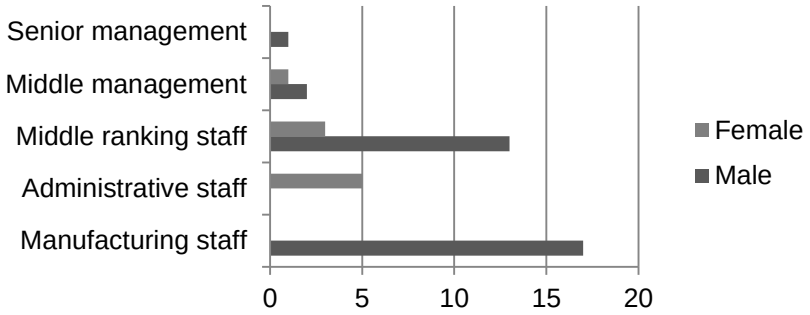
While the final sample included participants from all the key target groups, there was a bias towards male participants: 33 men and 9 women. The split between people coming from Galway City and Galway County was 24 to 18. Figures 5 and 6 show key characteristics of research participants, namely residential location, age and professional group.

Figure 5 Age of research participants by gender



[50] There are a number of possible explanations for the apparent reluctance of the employees to get involved in the research project. First, it may be a general reservation towards outsiders. Moreover, manufacturing staff in particular belong to an under-researched population. For the majority of them it was the first contact with a social researcher, and a large number of them were not used to expressing their views on issues in an interview situation. Another potential explanation is a gender effect due to the female interviewer operating in a male dominated work environment.

Figure 6 Profession of interviewees by gender



The residential location of the respondents reflects the overall spilt within the company between one third living in County Galway and two thirds living in Galway City. Respondents also fell into a broad range of age groups. Finally, participants were assigned to professional groups based on their self-reported socio-economic and professional status as well as information provided by the company's Human Resources department. The administrative staff (mainly female) and manufacturing staff (predominantly male) make up the lowest-ranking groups in the company's hierarchy and their salaries are similar. Despite a bias towards male respondents, the sample of participants reflects the major characteristics of the company's staff.

Change initiatives – Earth Day Initiative and Smart Moves Challenge

Following on from the exploratory field work, the researcher designed two company-specific change initiatives, to be rolled out in the firm under study. The first change programme was a conventional mobility management plan (MMP). MMPs are widely considered to be an example of good practice with regard to changing commuting patterns in the UK and Ireland.[51] The design of the MMP for this study drew on past research carried out in the UK. Recommendations in the literature on how to devise an effective MMP focused on a combination of three measures that encourage the use of alternatives to the car: the provision of information, financial incentives and small changes in infrastructure (see Cairns *et al.* 2010; Cairns *et al.* 2004; Potter *et al.* 2004; Cairns *et al.* 2002). This is reflected in the 'Three Is' approach used in this study.

The main part of the conventional MMP revolved around a one-day promotion event, Earth Day. The organisation of the event was shared between the researchers of the ConsEnSus team and various company representatives from human resources

[51] See Dublin Transport Office (2001) for work on Ireland.

management, health and safety management, facility and maintenance management and the trade unions. Earth Day was a company-internal event dedicated to information provision, incentives and infrastructural changes (the 'Three Is' approach). This said, a number of local businesses and advocacy groups such as the Galway Cycling Campaign agreed to contribute to the running of the event by setting up stalls with their products and/or information. A specifically designed website was launched on Earth Day which offered information on alternatives to the car for the daily commute, including bus routes and timetables. Based on findings from the focus groups, the websites also highlighted information on health, fitness and exercise which were identified as major motivational drivers for active commuting. For instance, it provided a calorie calculator for walking and suggested walking routes around the site (see screenshots in Appendix 4, 5 and 6).

Secondly, as part of their participation in this research project, management in the company under study agreed to improve the on-site infrastructure for walkers and cyclists and to renovate the shower and locker facilities. New sheltered bicycle stands were installed also. The bicycle stands were placed in a prominent spot next to the main gates and were opened on Earth Day in a ribbon-cutting ceremony. Third, the company and local bicycle retailers used the Earth Day Initiative to promote the cycle-to-work scheme as a financial incentive. The scheme was introduced by the Irish government in 2008 and provides a tax rebate system for buying a bicycle. Under the cycle-to-work scheme employees can avail of a bicycle worth up to 1,000 Euros that is on offer at a bicycle retailer participating in the scheme. The employer then pays for the bicycle and takes a monthly payment out of the employees' wages before tax; this reduces the earnings that are taxed.[52] In addition, the company used the Earth Day Initiative to promote the national employer-travel-pass scheme, which offers tax breaks to public transport users that follow the same logic as the cycle-to-work scheme. In order to attract employees' attention, Earth Day was not confined to the promotion of the MMP and the three Is. Instead, it offered a range of information stalls and fun activities such as making your own smoothie by pedalling on a bicycle or a safe cycle skills quiz (see Figure 8 below for some pictures taken during Earth Day). Staff were given extra time off during the day to encourage them to participate in the event. Management demonstrated their support by attending the event and by inviting high profile guests such as members of the Galway business community,

[52] Since this scheme involves a lot of administrative work for the companies not every employer encourages his employees to participate.

local politicians and senior company representatives, including the holding's European CEO who is based in Brussels.

The second change initiative – the Smart Moves Challenge – revolved around an innovative participatory change programme which the author designed specifically for the ConsEnSus project. While the conventional MMP programme mainly concentrated on one particular day, the Smart Moves Challenge aimed at changing employees' commuting routines over a longer period of time. The Smart Moves Challenge was set up as a five-weeks competition that offered prizes as well as support to participants to help them establish new commuting routines. The Earth Day Initiative was used for the initial promotion and recruitment of participants for the Smart Moves Challenge. At this stage, the researcher knew a large number of staff which aided the recruitment process. Employees participating in the Smart Moves Challenge were asked to sign up in teams of three. Participants were then asked to commit to walking, cycling, carpooling or using public transport at least once a week during the five weeks of the competition which lasted from 27th April 2011 until 2nd June 2011. The teams received a point for every journey to and from work that involved active commuting (walking, cycling), public transport or carpooling. To allow employees from remote rural areas to participate, park and ride or park and walk or cycle were also recognised as legitimate alternatives to car travel. Carpooling was defined as three people using one car.

Participants in the Smart Moves Challenge filled in a daily travel diary to record their journeys and transport mode and to provide any comments they might have on issues related to their journey to work. The resulting combination of regular reports and comments allowed the researcher to trace the change process for each team. The travel diary was designed to be user-friendly to ensure participants' commitment for the entire duration of the challenge. They could simply long on by entering their name and the name of their team and could then tick the mode of transport they had used for their commute (see screenshots in Appendix 7). Participants who did not have access to a computer could simply send a text message to the researcher to record their journey and mode. All participants received a personal reminder if they forgot to report their journeys.

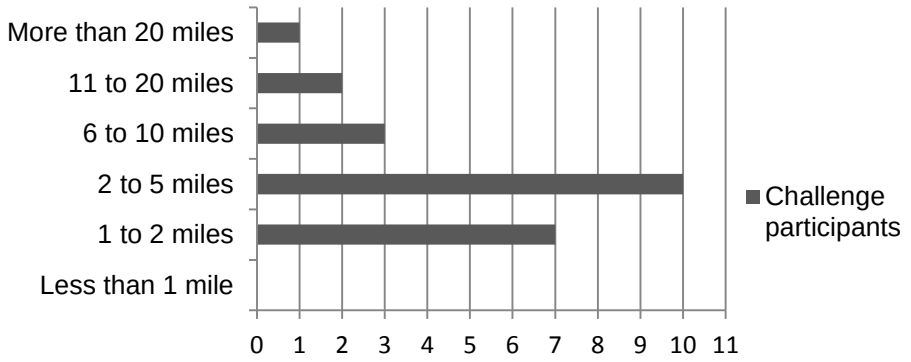
The travel diaries formed the basis for the calculation of the overall result of the Smart Moves Challenge. Every week the score for the teams was published on the website to inform the teams about how they compared to others. It also introduced a level of social control because even though the score was based on self-reporting, teams were encouraged to report any inaccuracies. The winner was the team that had collected the

most points over the course of five weeks. The prize was a day trip to one of the islands off the west coast of Ireland which also included a voucher for hiring bicycles.

The Smart Moves Challenge was designed as a team-based competition. The participatory and interactive element reflects the practice-theoretical underpinning of this study. Also, a well-promoted competition can attract wide attention among employees for a longer period of time and participants in the competition can act as change agents and role models among the workforce (cf. Hargreaves 2011). A competition is a promising method to encourage sustainable commuting because it combines an incentive element with the opportunity for social interaction between participants. Hitherto competitions have not received adequate attention as intervention techniques. The fact that the Smart Moves Challenge was a team-based exercise had three main advantages. First, people were more inclined to sign up as team because then they did not expose themselves as individuals to any pressure. Second, team members provided ongoing moral support and motivation. Third, team members could make up points for others who went on vacation or fell sick for some time during the competition. This prevented flagging enthusiasm due to the prospect of losing first place because a team member was away for a few days.

Nine teams signed up for the competition and only one team dropped out after the first two weeks. Overall, participants in the Smart Moves Challenge made up a diverse group of staff from different areas of the company ranging from manufacturing to middle management. Unfortunately, only one woman took part in the Smart Moves Challenge, compared to 26 male participants. Participants' age ranged from 26 to 64. Overall, 23 out of 27 participants agreed to an in-depth interview.

Figure 7 Distance between home and work of Challenge participants



The distance from work is particularly relevant with respect to active commuting. As Figure 7 shows, the majority of Smart Moves Challenge participants lived within walking

and cycling distance (less than 2 miles and less than 5 miles respectively). It is important to note that even though Ireland officially adopted the metric system, commonly people still use yards and miles instead of meters and km to express distances. In order to avoid that research participants over- or underestimate their distance from home to work, the researcher also opted for miles.[53]

Figure 8 Pictures from Earth Day

Ribbon-cutting of new bicycle stands

Information on low-carbon alternatives to car

Smoothy-maker

Signing up for Smart Moves Challenge

Short-term and long-term evaluation

The third phase of the case study provides a qualitative evaluation which is made up of two stages, the short-term and the long-term evaluation. Both stages involved follow-up interviews with participants in the Smart Moves Challenge. The first wave of follow-up interviews (T2) took place shortly after the competition had ended and was used to capture any immediate changes in people's commuting practices. 18 of the 23 interviewees who

[53] 1 mile = 1.6 km

participated in T1 agreed to a follow-up interview. All of them had filled in their travel diary on a regular basis (17 men and 1 woman). The follow-up interviews provide information in addition to the travel diaries during the Smart Moves Challenge and mainly revolved around participants' experiences of changing of their commuting practice, difficulties they encountered and circumstances or factors that helped them throughout the change process. The second wave of interviews facilitated the collection of data on three main aspects. First, it showed whether or not participants were successful in changing their routines and, if so, to what extent. This also allowed for an evaluation of the success of the Smart Moves Challenge as a change initiative. This information was complemented with participants' accounts of the change process which focused on any factors that either helped or hindered the transformation of their everyday routines. Finally, participants were asked about the three Is to gauge their influence on changing commuting routines.

While the second wave of interviews was very useful in capturing short-term changes, it could not address the question whether or not the people who changed their routines during the Smart Moves Challenge actually kept up their new habits in the longer term. Because this long-term aspect was seen as crucial for the evaluation of change initiatives, participants were contacted for a third time three months after the Challenge. Even though not all participants took part in the second and third wave of interviews, the researcher obtained rich information. Figure 9 provides an overview of the data collection process.

Figure 9 Data collection methods and time-line

Exploration T1	Change initiatives	Evaluation T2 (short-term)	Evaluation T3 (long-term)
Site analysis Travel survey (Sept./Oct. 2010) 3 Focus groups (December 2010) 42 Interviews (April 2011) Observations	**Earth Day Initiative** (20th April 2011) **Smart Moves Challenge** 27 participants 23 interviews & travel diaries (27th April to 2nd June 2011) Observations	Travel survey (September 2011) 18 Follow-up interviews (June 2011) Observations	11 Follow-up interviews (October 2011) Observations

Data analysis

As stated previously, the present study draws on quantitative and qualitative data. This posed a number of interesting challenges with regard to the analysis of such diverse sets. The analysis of quantitative data focused on descriptive statistics using the software package SPSS/PASW 18. It included survey data from the ConsEnSus Lifestyle Survey as well as from two waves of the Travel Survey. The qualitative data encompassed data from focus groups, three waves of qualitative interviews and observations documented in field notes. The analysis was supported by the software package NVivo 9.

The quantitative analysis revolved around the production of descriptive statistics for both the entire data set and various subgroups (see Chapter Six for details and results). The qualitative part of the analysis was shaped significantly by the research objectives and available data. The researcher also drew inspiration from a number of existing qualitative studies (Corbin & Strauss 2008; Barzeley 2007; Patton 2002; Miles & Huberman 1994; Ritchie & Spencer 1994). While there is no uniform or commonly accepted way of doing qualitative data analysis (see also Patton 2002: 432), the researcher utilised the theoretically derived concepts presented in Section 4.3.1 and Table 3 above to guide her efforts to make sense of the plethora of qualitative data collected in this study. As a result, the researcher was able to explore how theoretical concepts are "manifest and given meaning in a particular setting or among a particular group of people" (Patton 2002: 456). At the same time, she kept an open mind for concepts and themes emerging from the data.

To gain insight into the empirical manifestation of theoretical concepts, the researcher utilised the operationalisation scheme detailed in Table 3 above. The identification of central theoretical concepts such as the performance of a practice or the linkages organising a practice allowed for a focused and systematic approach to empirical work. Here, key concepts provided orientation for analysing the vast amount of qualitative data (e.g. verbatim records of interviews and focus groups; detailed observational material) gathered throughout the different phases of the project (T1-T3). While the conceptual frame was loosely applied to direct the author's attention, it also left room for new themes to emerge from the data. Overall, the practice-theoretical frame developed specifically for this study served as a basis for categorising, organising and labelling data. It provided some guidance for data analysis while also maintaining a very high level of flexibility. For example, the concept of the teleoaffective structure helped to identify social meanings and associations attached to the act of driving. Furthermore, the concept of the field of

opportunities drew attention to a range of perceived and actual barriers to a shift towards sustainable commuting routines.

The author strategically deployed the technique of memo writing to enhance the reflective process. As advocated by prominent qualitative researchers (e.g. Corbin & Strauss: 68), memos were used to capture prominent patterns in the data and to answer analytical questions. In order to identify both particularities and commonalities and to strengthen the analytical rigour of the study, the author applied two main strategies: the within-case analysis and the cross-case analysis. The within-case analysis concentrated on analysing a single case (i.e. a single participant) to develop a deeper understanding of that case (Barzeley 2007: 185). The cross-case analysis allowed for comparison between cases to identify similarities and differences (see also Section 7.2 for details). This approach to qualitative data analysis draws on existing contributions to the literature that argue against treating individual cases as entirely idiosyncratic and that highlight the potential of (critical) case studies more generally (see Flyvbjerg 2004; Miles & Huberman 1994: 172). Throughout the analytical process the researcher wrote memos documenting preliminary ideas about recurring themes, relationships, patterns and exceptions. These memos played a pivotal role in the analytical process because they provided an overview of the data and served as a basis for further analysis and the drawing up of conclusions.

4.4 Concluding remarks

This chapter reviewed prominent consumption studies that deploy a practice approach to show that there are two broad strands of research in this area. While one concentrates more on practices as entities, the other focuses more on the performance of practices. Following on from this review, this chapter introduced the methodology of this study. A detailed description of the research design, data collection analysis made up the largest part of this chapter. This study adopts a multi-method approach that includes participatory and longitudinal elements and that links all three levels of social organisation (macro, meso and micro). The participatory element of the Smart Moves Challenge discussed in this chapter clearly reflects the overarching practice approach that informs this study. This is complemented with a longitudinal element which captures both short-term and long-term changes in people's practices.

Overall, this chapter represents the final chapter of the first part of this thesis. It analysed the state of the art in empirical consumption research more generally, and transport research in particular. In addition, it offered a practice-theoretical framework for

the empirical part of the thesis that relied on the operationalisation of key concepts which the author identified through her critical engagement with different practice approaches, including Theodore Schatzki's seminal work on the topic. The next three chapters – Chapters Five, Six and Seven – present the findings of the empirical part of this study, followed by in-depth discussions and analysis, conclusions and policy recommendations in Chapters Eight and Nine.

Chapter 5

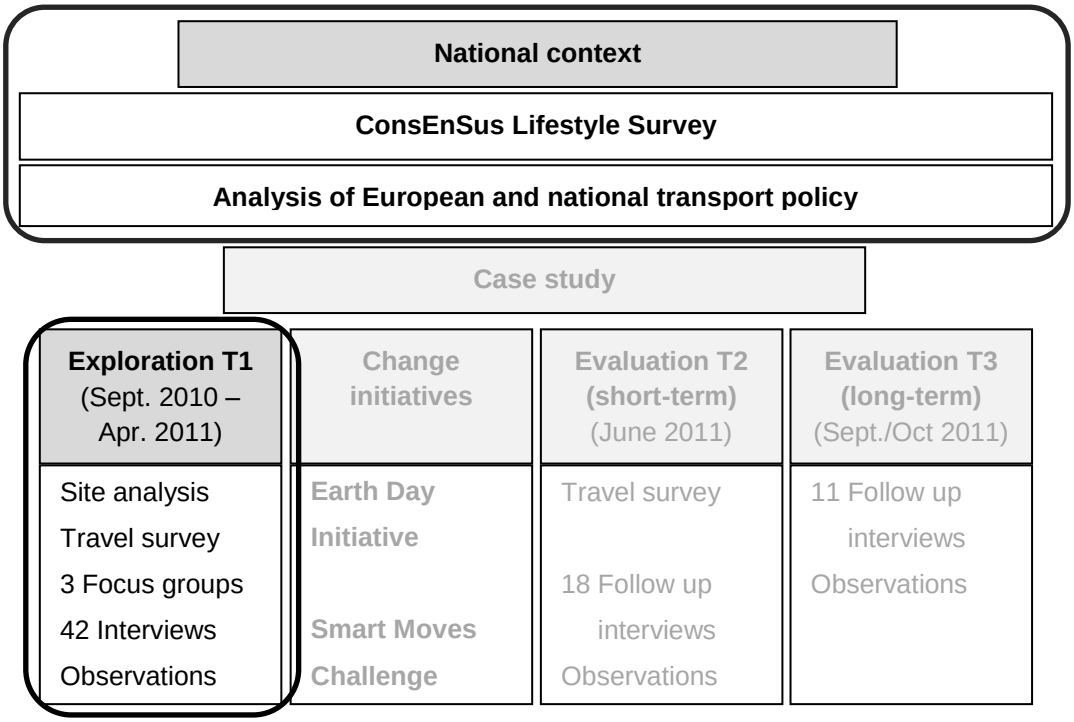
Channelling cars into the fast lane: Transport policy and site analysis

The following three Chapters Five, Six and Seven present the empirical findings of this study. This chapter – Chapter Five – draws on a broad range of quantitative and qualitative data which situates the case study within a wider national context and which also provides a detailed context for interpreting the findings of the case study. The first part of this chapter (Sections 5.1 and 5.2) critically examines transport policy in Ireland and investigates the structural and material aspects of existing commuting practices. Drawing on Geoff Vigar's (2002) sociological institutionalist approach to policy analysis, it combines an investigation of the institutional background with an in-depth analysis of key policy documents and selected case studies. This approach serves to reveal the particularities of transport policy-making to explain its (over)emphasis on infrastructure development and profitability in transport policy while largely neglecting environmental and social aspects of transport such as social exclusion. Here, the policy analysis investigates the (infra)structural dimension of mobility practices in general and commuting patterns in particular. The practice-theoretical perspective understands policies as explicit rules that influence the (infra)structural conditions and organise the actions belonging to a practice (see Chapter Three for details).

The second part of this chapter (Section 5.3 and 5.4) provides a description of transport-related infrastructure in Galway City and a site analysis of the company under investigation. It draws attention to the case study-specific structural, material and policy-related context of employees' commuting patterns. This reflects the materialised practice concept developed for this study which seeks to highlight structural and material realities as essential elements of practices that shape people's actions. In addition, analysing the status quo forms the basis for future improvements. Here, the analysis concentrates on the specifics of the company and draws on the employer-based Travel Survey, focus groups and interviews with employees as well as observations on site. As Figure 10 shows, the site analysis of Galway City and of the company under investigation is primarily based on rich data collected from the exploration phase of the case study. Additionally, throughout this chapter the all-island ConsEnSus Lifestyle Survey serves as point of reference and provides a comparative perspective. A comparison between employer-specific data and national data of the case study and confirms it to be typical of the Irish experience. This chapter presents quotes from employees to support more general claims. For the purpose of

anonymity the names of research participants were replaced with C (for 'commuter') and an assigned number. Each quote is complemented with a short description of the interviewee that includes socio-demographic information, namely gender and year of birth, as well as the date of the interview.

Figure 10 Study outline highlighting context of case study



5.1 The road to car-dependency – Irish transport policy

In recent decades the car has become an indispensable mobility tool in Irish society that facilitates both traditional and novel forms of social and economic activity. People's everyday spatial mobility patterns, such as their commute to work or their leisure trips, often depend on access to a private car (Rau & Vega 2012; Rau & Hennessy 2009). At the same time, Ireland has been classified within the transport literature as one of the most car-dependent European countries (Campaign for Better Transport 2011; Commins & Nolan 2010). The disadvantages of a car-dependent transportation system for society and the environment have been well documented both within the Irish context and internationally (see also Cahill 2010; Wickham 2006a; McDonald & Nix 2005; Vigar 2002; Whitelegg 1997). For example, transport-related exclusion experienced by carless households remains a significant problem in both rural and urban parts of Ireland (Commins & Nolan 2010; Rau &

Hennessy 2009; McDonagh 2006; Wickham 2006a). As regards environmental impacts, GHG emissions from the transport sector account for more than one-fifth of Ireland's total emissions. While there has been a reduction in transport-related GHG emissions since 2008, the transport sector still remains one of the top three emitters alongside agriculture and energy production. Reasons for this decrease include the introduction in 2009 of emissions-based car taxation and a sharp reduction in the movement of goods and people due to the recession (Irish Environmental Protection Agency 2011).

The dependence on car-based transport has its roots in the development of the Irish transport sector and respective policies. During the second half of the twentieth century, car-based transport began to grow in importance, gradually weakening the role of railways in Ireland. An (over)emphasis on the expansion of the road network and a parallel shrinking of the rail network dominated transport policy until the 1990s. A steep increase in car ownership and use during the 'Celtic Tiger' era (1995-2007) coincided with a rapid expansion of the road network.[54] As demand rose considerably throughout the latter part of the last century, the dominant policy response was to 'predict and provide', that is, to calculate future transport demand on the basis of current figures and to provide infrastructure and services to match the predicted demand (Vigar 2002: 43). This was justified on the grounds of ambitious growth predictions with regard to population, traffic and economic development.

With demand for car-based transport rising, one important measure to reduce the losses of state-owned public transport providers was the closing down of railways lines and bus routes that were deemed uneconomic. This contrasts with other European nations such as Switzerland, the Netherlands or Sweden, where public transportation services are perceived as a common good that requires subsidisation, rather than a public service that needs to work according to private sector principles. Until today, and particularly within the context of the ongoing recession, this rationale of the public transport system having to be profitable still remains (Heisserer *et al.* forthcoming).

Increases in car ownership and use in the late twentieth and early twenty-first centuries went hand in hand with large-scale road construction. At the same time, low(er)-cost improvements, maintenance and greater inter-modal integration became increasingly marginalised (cf. Rau 2011; McDonald & Nix 2005). For example, proposals in the mid-2000s to widen existing national roads and to adopt a 2+1 model, whereby an alternating

[54] Since 2008 the recession and the introduction of a new emissions-based motor vehicle tax system have initiated a noticeable shift towards greater efficiency, especially in the new cars market. At the same time, the steep rise in car ownership during the 'Celtic Tiger' era came to an end.

third lane is added to allow for safe overtaking, were quickly abandoned in favour of a fully-fledged motorway construction programme (Deas & Nix 2011: pp7).

Land use and planning policies also contributed to rising levels of car-dependence. In 2010 the *National Spatial Strategy* (NSS), the national planning framework for Ireland, the spatial trends witnessed since 2002:

> Excessive and inappropriately located zonings and development have worked against consistent implementation of National Spatial Strategy principles and priorities and undermined efficient Exchequer investment in infrastructure and services (Department for the Environment 2010: 5).

Developments had become more dispersed and fragmented geographically across the country with greater distances between where people lived and worked. As a result, GHG emissions from the transport sector increased more rapidly than in any other sector of the Irish economy (Sustainable Energy Agency Ireland 2009).

The Irish government's *Transport 21* infrastructure development programme is the most significant illustration of this strategy. Transport 21 provided €34 billion capital investment for the period of 2006 to 2015 (Department of Transport 2005). The focus of Transport 21 on infrastructure development also exacerbated the country's over-reliance on car-based transport. It placed strong emphasis on both infrastructural provision and increased private investment and control over the major road arteries in the country. The massive expansion of infrastructure has both directly and indirectly caused an increase in car travel, a greater demand for suburban housing and additional road infrastructure. At the same time, Transport 21 has been criticised for its lack of inter-modal integration or appropriate project specifications, especially with regard to size, route selection and location (Barrett 2006). For example, the construction of high-specification motorways alongside key inter-urban train routes has put railway services under severe pressure to compete directly with private bus companies and the private car.

However, after years of large-scale transport infrastructure development, Transport 21 was discontinued in 2010 due to budgetary constraints. The onset of the recession in the late 2000s also initiated a shift in Irish transport policy discourse towards greater sustainability, including the promotion of low-carbon modes of transport such as walking and cycling, greater efficiencies in motorised transport and an overall reduction in mobility of people and goods. The Irish Government's *Smarter Travel - Towards a Sustainable Transport Future: A New Transport Policy for Ireland 2009-2020* (Department of Transport 2009) signalled a move away from costly infrastructure towards low-cost or no-

cost initiatives to encourage alternatives to car use and more sustainable travel patterns. A shift in the direction of European transport policy towards sustainable mobility strongly influenced the Irish Smarter Travel initiative. The *European Transport Policy White Paper* outlines the need for the transport system to be optimised across the EU to meet the demands of enlargement and sustainable development, as set out in the conclusions of the Gothenburg European Council: "A modern transport system must be sustainable from an economic and social as well as an environmental viewpoint" (European Commision 2010: 6). Although there is a heavy emphasis on quicker and more efficient mobility across a more integrated transport network there is also the stark realisation that existing transport trends are unsustainable. Also, good practice emphasises the need to make the alternatives to car travel more attractive in terms of better public transport, cycling and walking infrastructure.

The Smarter Travel policy initiative (Department of Transport 2009) was intended to create a sustainable transport future for Ireland. It provides a transport policy framework until 2020 that promotes low-carbon transport choices such as walking and cycling. Smarter Travel advocates changes in land use patterns to address growing rural-urban imbalances in transport infrastructure provision and access to employment and services. While the document recognises the vital importance of continued investment in transport for economic and social development, it also outlines the necessary steps to ensure that people choose more sustainable transport modes such as walking, cycling and public transport, including the use of fiscal incentives (Department of Transport 2009).

The Smarter Travel policy document also explicitly outlines a number of low-cost initiatives to achieve greater sustainability in private transport. These aim to support people to switch to low-carbon transport options. They include site-specific programmes such as workplace, school and community-based mobility management plans. Employer-based mobility management plans (also called workplace travel plans) have gained importance in Europe since the 1980s, spreading from the Netherlands to the UK in the mid-1990s (Rye 1999). In Ireland, mobility management plans did not receive similar attention until early 2000s; they got off to a slow start gained momentum in recent years. In March 2001 the Dublin Transportation Office (DTO) published *The Route to Sustainable Commuting - Employer's Guide to Mobility Management Plans* (Dublin Transportation Office 2001). The document provided basic information on travel planning for employers and built on publications on employer-based mobility management plans of the UK Department for Transport, which are deemed as examples good practice. The DTO revived

these efforts in 2004 when it piloted the One Small Step project.[55] As part of this project the, DTO worked with a number of firms in the Greater Dublin Area to assist them in the drawing up of MMPs. Smarter Travel policy document lists as a key measure.

The Smarter Travel initiative (Department of Transport 2009) emphasises the need to align employment policy with transport planning and mobility management, among other actions. The *Smarter Travel Workplaces programme* is operated by the National Transport Authority[56] (NTA) on behalf of the Department of Transport, Tourism and Sport. The programme runs a website (www.smartertravelworkplaces.ie) which disseminates material such as a step-by-step guide for employers who wish to implement an on-site mobility management plan. Companies take part on a voluntary basis. The programme outline and material for dissemination draw on commissioned research and reports from the UK (see Cairns *et al.* 2010; Cairns *et al.* 2004; Potter *et al.* 2004; Cairns *et al.* 2002). These reports and studies provide recommendations on measures that may be taken to implement mobility management plans. They also include evidence for the effectiveness of employer-based travel plans. It is important to note, however, that (most of) these reports only evaluate short-term developments and do not investigate whether or not mobility management plans produce lasting change. The recommendations for employers concentrate on the three Is. The Earth Day initiative deployed in this study (see also Götz *et al.* 2003: for review). Based on information from the NTA, the scheme continues to gain momentum; by the end of 2011, 102 workplaces in the public and private sectors were participating in the scheme.[57]

5.2 Paving the way for cars – transport policy-making in Ireland

This section identifies key actors and institutions involved in transport policy-making in Ireland These include European and national agencies, politicians, state bodies as well as lobby groups.

In general, responsibility for transport policy in Europe is dispersed across different levels of decision-making, ranging from the local to the supranational. Historically, transport in Europe has been dealt with by individual states, with little collaboration between neighbouring states or among EU members. The Treaty of Rome, however, included a commitment to the development of cross-border European transport networks

[55] At the basis this project was an information campaign geared towards reducing unnecessary car journeys.
[56] In 2010 the DTO was merged into the National Transport Authority.
[57] http://www.nationaltransport.ie/projects-schemes/smarter-travel/smarter-travel-workplaces, accessed 7 June 2012.

(Ross 1998; Whitelegg 1997). While this has increased European integration in areas such as road safety or enforcement of traffic laws, tensions continue to exist between local, national and supra-national interests in areas such as motor taxation and infrastructure development.

Key features of the institutional landscape in Ireland past and present include a strong tendency towards centralisation with regard to policy decisions and government spending, limited opportunities for civil society actors to influence policy, weak local government and related trends towards localism in national politics. Transport policy-making in Ireland remains government-driven and top-down. Central government retains the exclusive right to initiate legislation and thus holds a dominant position in the policy-making process. Policy-making is concentrated in Dublin and consequently there is a bias towards infrastructural development in the Greater Dublin Area, especially in terms of public transportation. This is, the Smarter Travel policy document, for the first time, gave recognition to the need for extensive public consultation to achieve a more sustainable transport system in Ireland. In fact, the policy process for Smarter Travel itself was characterised by a hitherto unseen level of public engagement in the drawing up of a draft document transport policy, with participation from over 500 individuals and organisations. It could be argued that these numerous contributions, most of which showed a high level of awareness of transport problems, are not necessarily representative of the people of Ireland. This consultation process nevertheless signalled a clear departure from the tradition of top-down policy-making in the transport sector.

Despite recent steps towards greater participation, Irish policy-making remains highly centralised, a trend that is further reinforced by weak local government. Indeed, in comparison to the majority of other European countries, local authorities in Ireland have only few functions and restricted resources (Quinlivan & Schoen-Quinlivan 2009: 11; OECD 2008). They lack legal and fiscal autonomy and depend on Dublin to disburse almost half of their funding (Flynn 2007: 127). Transport policy and planning is no exception in this regard; it is determined at central governmental level in Dublin with little input from local government (McDonald & Nix 2005). One of the consequences of weak local government is the unusually close relationship between national parliamentarians and their local constituents. As a result, the Irish political culture has frequently been described as clientelist, incorporating pressure groups in corporatist structures and privileging particular interests, including individuals and campaign groups from the local constituency (Murphy 2010; Coakley & Gallagher 1999: 225).

In addition to elected officials a number of other actors exert considerable influence on policy in Ireland, including the civil service, agencies and semi-state bodies and those involved in social partnership. Other key actors in the field of transport policy include powerful interest groups with well-established connections to the civil service. Furthermore, the strong influence of semi-state bodies has introduced an ethos that is rooted in the private sector environment. The presence of these influences raises issues around transparency and accountability (Clancy & Murphy 2006). Their influence also helps explain the inherent bias in infrastructural development towards road construction and the prioritization of economic issues related to transport. Meanwhile, social and environmental dimensions of transport continue to play a subordinate role.

In contrast to ministers who are "birds of passage" (O'Halpin 1993: 168) because they occupy their ministerial position for relatively short periods of time, civil servants hold permanent positions and their influence extends not only to the handling and implementation of policy but also its formation process. Therefore, they present an authoritative point of access to decision-making. Civil servants often have well established networks of contacts from various interest groups and individuals (Collins & Quinlivan 2010). These channels of communication are difficult to determine and quantify, however, the nature of such informal processes can skew participation in policy formulation towards a handful of particular interests, while other interests are systematically ignored.

Semi-state bodies exert considerable influence on transport policy. The implementation of transportation policy and strategy in Ireland is characterised by the presence of a number of commercial and non-commercial Quasi-Autonomous Non-Governmental Organisations (QUANGOs) such as the National Roads Authority (NRA), the National Transport Authority (NTA) and Córas Iompair Éireann (CIÉ), which includes Dublin Bus (Bus Atha Cliath), Bus Éireann and Irish Rail (Iarnrod Éireann). In a European context, devolving power to semi-state bodies to this extent is unique to the governments of the Republic of Ireland and the United Kingdom (Clancy & Murphy 2006). The NRA is particularly powerful and important in the development and implementation of road policy. While the Minister for Transport has responsibility for overall policy and funding in relation to the national roads programme, the implementation of individual projects is a matter for the NRA in conjunction with the relevant local authority.

The involvement of these bodies in policy formulation processes raises issues around transparency and accountability (Clancy & Murphy 2006). QUANGOs are largely controlled by non-elected individuals who are appointed by government and are selected

on the basis of the candidate's expertise or designated interests; although it is often speculated that the selection of candidates is based on little more than payback for political patronage for these individuals (Collins & Quinlivan 2010). The appointed board of directors of QUANGOs are involved in the development of long-term strategy and policy.

QUANGOs are state-sponsored bodies yet they are largely expected to operate as private companies. This means that they are frequently under pressure to be profitable and to invest in their infrastructure. In sum, QUANGOs, and their board of directors, enjoy close ties with Ministers and senior civil servants in their respective departments. They can thus exert considerable influence in relation to transport policy and infrastructure development (Collins & Quinlivan 2010).

The trend towards public-private partnerships in the transportation sector further exacerbates this selective influence on national transport policy. The Irish state, traditionally the provider of transport infrastructure, has begun to accept private investment for large infrastructural developments, such as the construction of motorways. The nature of public-private partnerships implies that these project and their objectives are shaped by the ideas and interests of the private sector. Also, large and prestigious infrastructural projects have a strong impact on the country's transportation sector. This in turn strengthens the private sector's position and gives weight to its policy input. There has been a tendency to customise policies in order to facilitate public-private partnerships, which reflects a wider European trend. Overall, this emphasis on public-private partnerships means that transport policy-making can be heavily influenced by ideas that prevail in the private sector.

To summarise, transport policy-making in Ireland is, on the one hand, highly centralised, with local authorities providing very limited input into transport issues and decisions (OECD 2008, Deas and Nix 2011). One obvious consequence is that transport policies, and the provision of public transport in particular, tend to be concentrated in the capital Dublin. On the other hand, the devolution of power to semi-state bodies and their non-elected decision-makers and a trend towards public-private partnerships has introduced an economic rationale into the debate on transport issues. The overriding discourse has been that economic development and progress require large-scale development of road infrastructure. This enhanced the development of a car-centric infrastructure and resulted in the increasing marginalisation of alternative transport modes. All transport policies and related developments form the (infra)structural environment for people's commuting patterns.

5.3 Galway – setting the scene

The previous section critically examined transport policy and policy-making in Ireland to illustrate the national (infra)structural context of this case study. This section concentrates on the infrastructural and geographical conditions at the local level in order to set the scene for the employer-based investigation of commuting patterns and their transformation. It sketches the conditions employees face both on a daily basis and when trying to change their commuting routine. For this purpose, the section briefly describes the geographical outline and transport-related infrastructure of Galway City.

Galway is located on the west coast of Ireland and sits on the river Corrib between Lough Corrib and the Atlantic Ocean. The city of Galway is regarded as the capital of the province of Connaught and is located at the north eastern edge of Galway Bay. Ireland's climate is classified as a moderate oceanic climate based on the Köppen-Geiger climate classification (Peel *et al.* 2007); this means that the winters are mild and the summers generally warm. Due to the Gulf Stream Irish winters are mostly ice-free and considerably warmer than in other northwest European countries within the same climate category and along the same latitude. Table 5 lists mean temperatures and average rainfall between 1961 and 1990. The monthly average temperature ranged from 4 and 14 degrees Celsius. The temperature in Ireland rarely reaches extreme values below 0 or above 30 degrees Celsius. The table also shows that days with rainfall of more than 1.0 mm over a 24 hour period occur on average on 178 days of the year, while medium to heavy rainfall (≥ 5.0 mm) occurs on average only 78 days a year.

Table 5 Monthly and annual mean values of temperatures and rainfall for Galway

Monthly and annual mean values of temperatures and rainfall for Galway (weather station Claremorris) 1961-1990												
jan	**feb**	**mar**	**apr**	**may**	**jun**	**jul**	**aug**	**sep**	**oct**	**nov**	**dec**	**year**
MEAN TEMPERATURE *(degrees Celsius)*												
4.3	4.5	5.9	7.6	10.0	12.6	14.3	14.0	12.1	9.8	6.2	5.1	**8.9**
MEAN RAINFALL *no. of days with ≥1.0mm*												
18	14	17	12	14	12	11	14	15	17	17	17	**178**
MEAN RAINFALL *no. of days with ≥ 5.0mm*												
9	6	7	4	6	4	4	6	7	8	8	8	**78**

Source: http://www.met.ie/climate/claremorris.asp

Galway City is the third largest city in the Republic of Ireland, after Dublin and Cork. Galway City and Galway County have certain characteristics that are typical for Ireland, especially with respect to the split between urban and rural areas. The urban area of Galway City, with its 75,529 inhabitants, is surrounded by a large peri-urban and rural hinterland with a population of 175,124 people (Central Statistics Office 2011). From the 1990s until the onset of the recession in 2008, the city was one of the fastest growing urban areas in Ireland, mainly due to its thriving economy. In addition to being a popular tourist destination, Galway has a strong local economy and is the industrial centre of West Ireland. It features a large cluster of medical device industries and IT companies that attracts commuting employees from urban as well as rural areas.

Galway City is divided into an eastern and western side by the river Corrib. The two sides are connected by four bridges (see Figure 11). Three of these are old bridges leading directly into the city centre (early 19th century and before). The fourth bridge, a four lane road system, was built in the 1980s to connect the east and the west side north of the city centre. As the map of Galway City in Figure 11 shows, the main manufacturing and industrial sectors in Galway are based on the east side of city. However, some of the main residential areas are situated across the river on the west side of the city. As a result, the main commuting pattern is across the city via the bridges over the Corrib. These bridges form natural bottlenecks that commuters face coming from the large residential area in the west to their workplaces on the other side of the river.

> [Heavy traffic] is a problem and the way traffic is routed in Galway, that doesn't help it. You have a huge amount of traffic going towards Knocknacarra [west side of the City] which has very much been built up as a housing area and the routes over to this end where the factories are [limited]. There is only really two routes; you can either come over the bridge or you can come by Lough Atalia Road, realistically I mean. There are a couple of other ways you can go but they all lead to those points. So you basically have these two crossing points to come from the big housing estates to where we are, where all the big factories are. (C24: male, 1974, 20 April 2011)

> The majority of the people live on the west side of the city and work on the east side, and there is no public commuter service, there is no train service, that's it. (C26: male, 1981, 27 April 2011)

With regards to the public transport service in the Galway region, there is a noticeable rural-urban divide (see also Section 6.2.1 on commuting from rural areas). Galway City has a train station that is connected to the interregional railways network. It has a limited commuter service but no inner-city commuter service; this is covered by a bus system. The inner-city bus services are run by the public service provider Bus Éireann and

private operators.[58] The private operators servicing some of the peri-urban areas have limited service on selective routes.[59] The inner-city providers start their services at 7 a.m., which is too late for many research participants[60], and stop before midnight with reduced frequency from 7 p.m. The frequency of the service varies with the route. Bus Éireann's bus service covers the most routes, while private operators run a few specific routes.

Bus Éireann has a centralised bus system; this means that all the routes go through the city centre. Such a centralised system has advantages but also serious downsides. While it can ensure that many different areas of the city are connected with a small number of routes, it does not necessarily provide an efficient or frequent service to its users. Buses and their passengers often get caught up in traffic because they pass through a highly congested area in the city. Bus users going from one part of the city to another frequently have to go through the city centre even though that may involve switching to another route and going some of the way back in the direction where they came from. For passengers without a day pass, switching from one bus to another in the city centre also means having to buy a second bus ticket. In addition to the lack of an integrated public transport service with blanket coverage for commuting (Galway Healthy Cities Project 2007), basic facilities related to the public bus service are not in place. For example, many bus stops are not sheltered and have no seating, timetable or bus information. These issues have been highlighted in the Galway Strategic Bus Study (Booz Allen Hamilton 2007). These infrastructure deficits make taking the bus more difficult and increase negative perceptions of public transport.

Cycling and walking are sustainable modes of transportation but they make up less than a quarter of all trips. As the map of Galway City, Figure 11, blow shows, Galway City has only few cycle lanes available that were joined up in 2012 (after the interviews had been conducted).

> There are some cycle lanes and then they stop. People just disappear at this point or what? (C22: male, 27 April 2011)

> One [example] is the Distributor Road which has a cycle lane but that cycle lane then feeds into regular traffic. (C33: male, 1960, 26 April 2011)

[58] Currently, there are 13 routes serving the different areas in the City; 8 are operated by Bus Eireann and 4 by the private operator City Direct.
[59] See also http://smartermovement.org/privatetransport.html
[60] Many employees of the company under investigation start before or around 8 a.m., which means that the public transport services often do not suit because they do not reach the workplace on time.

Apart from the lack of cycle lanes, pedestrians and cyclists frequently face difficulties crossing roads and roundabouts due to a lack of traffic lights and zebra crossings. Galway City Council officially acknowledges the difficulties roundabouts pose for cyclists and pedestrians and some measures have been put in place since 2010 to alleviate these problems. Still conditions for pedestrians and cyclists remain less than favourable.[61]

> Where I walk there is pavements [but] there is not many zebra crossings or pedestrian crossings. There is very few, when I think of coming here [to work] and if I then go a little further from here, there are no pedestrian crossing. There are none to get across […] to the other roundabout, there is none. You're taking your life in your hands crossing that roundabout, and I think that could be easily dealt with, even with zebra crossings. I am not necessarily talking about lights. (C23: 20 April 2011)

Outside the City, some of the roads have a hard shoulder which is used by cyclists as an on-road path that they share with pedestrians and other vehicles in the case of an emergency. This regulation of the usage of hard shoulders is unique to the Republic of Ireland where cyclists and pedestrians often have no alternative routes available. Cycling as transport mode for daily commuting is, however, nearly impossible due to the lengthy commute as a result of urban sprawl and the numbers of people living in the rural hinterland.

> But many [colleagues] couldn't cycle, they moved out into the country when the big times came. (C39: 1962, 12 April 2011)

> My children both have bicycles, but they're for fun rather than going places. We'd be about 12km from Galway City. We wouldn't be out on the road as cyclist. (C12: female, 1965, 5 April 2011)

Many research participants agreed that cycling was dangerous. This is in line with figures from the ConsEnSus Lifestyle Survey, where 41 per cent of participants stated that the biggest obstacle to cycling was that it was too dangerous and that there was no cycle-friendly infrastructure.[62] Limited infrastructure for walking and cycling in Galway, as well as a lack of an integrated public transport system form the wider context for the case study.

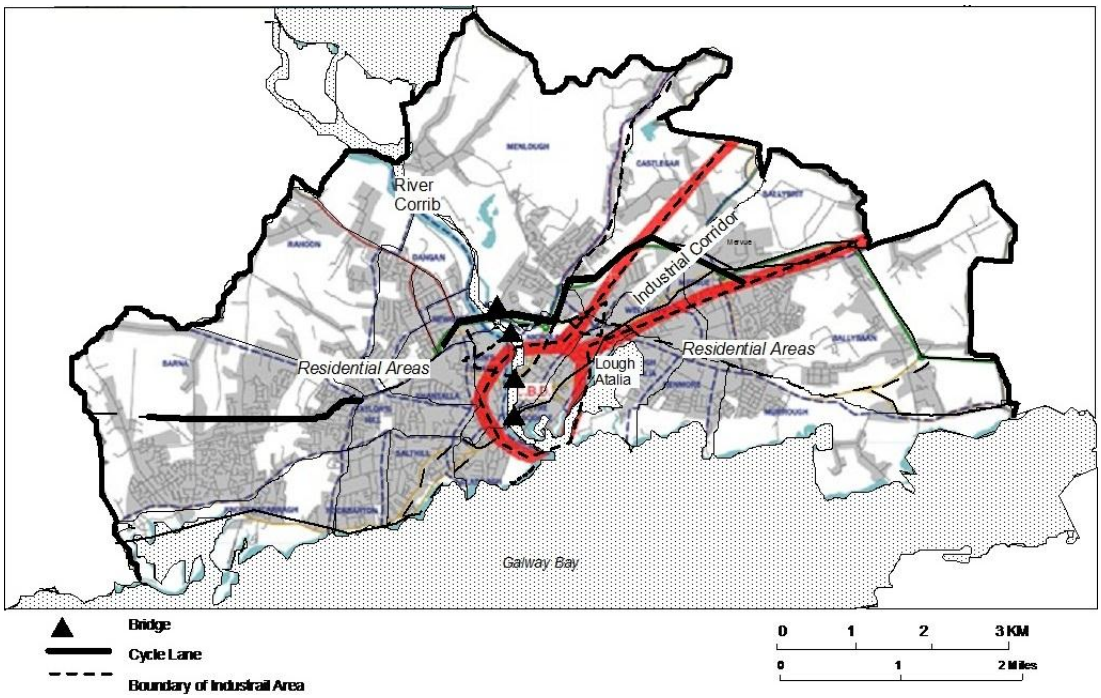
To summarise, this section illustrated the overall infrastructural, physical and geographical conditions that frame commuting patterns of people working in Galway City. The case of Galway similarly reflects the overall situation in Ireland. These conditions considerably shape people's engagement in particular practices. They both enable and

[61] http://www.galwaycity.ie/AllServices/RoadsandTraffic/Traffic/Cyclists/

[62] 25.2 per cent of the respondents said cycling was too dangerous. 15.7 per cent saw the biggest obstacle to cycling in the lack of cycle paths.

constrain what people can do and play an important role in the composition of local commuting patterns. The following section focuses on the employer-specific (infra)structural and socio-cultural context of research participants' commuting patterns.

Figure 11 Map of Galway City



5.4 Employer under investigation

This section sets the scene for the in-depth case study by exploring commuting patterns among staff in a large company in Galway City. Drawing on the Travel Surveys, focus groups, interview data and observations, this section provides a detailed picture of the material, (infra)structural and socio-cultural conditions for employees' commuting routines. Such a context-sensitive approach is indispensable for understanding existing everyday travel patterns as well as researching employer-based change initiatives and their impact (see also Chapter Seven). The section initially describes the transport-related infrastructure on site. Subsequently, it elaborates on the organisational culture of the company under investigation. Every work organisation has its own working practices that deserve adequate attention because employees adopt and perform them. Moreover, such employer-specific practices interrelate with employees' other everyday practices. The practice-theoretical investigation of commuting patterns, therefore, also requires an examination of other practices related to commuting, such as working hours. Finally, this

section concentrates on the existing commuting patterns among employees, their modal split, their views on transport issues and their demographic characteristics. This detailed overview helps to capture established mobility practices and to sketch the socio-cultural context that shapes their set up and performance. Focusing on employees' commuting practices, this section concentrates on their perceptions of existing transport problems, their proposals for measures to improve them as well as their economic circumstances since the onset of the economic downturn. This detailed contextual account enhances the investigation of established practices and the interpretation of the findings of the case study (see Chapters Six, Seven and Eight).

5.4.1 Transport-related infrastructure on site

The company under study was founded in 1976 and is one of the largest employers in area, with 459 employees (September 2010). Since 1991 it has been a subsidiary of a US-based multinational firm. The company includes a manufacturing plant as well as the European headquarters, thus ensuring a diverse profile of employees with respect to their professional and socio-economic background. The company is located on the East side of the city within a small cluster of industrial and manufacturing companies and adjacent to a large shopping area. The company site has a large parking lot for employees and visitors with space for 340 cars. The car park was extended in 1996 in order to cater for an increase in demand. In recent years, the starting times for employees working on the assembly line have become more flexible (between 6 a.m. and 8 a.m.) for production purposes and to relieve the traffic in and around the site. The site is serviced by three inner-city bus routes which stop at two different stops within ten minutes walking distance of the site. The site has a front and back entrance. Prior to the implementation of the Earth Day Initiative and Smart Moves Challenge there was only one sheltered parking facility for bicycles: a small, poorly maintained shed with room for 18 bicycles at the main entrance. The shed is adjacent to the back of the security hut and thus not visible from any of the surrounding buildings or security. The bicycle parking close to the manufacturing plant at the back of the site consisted of simple racks with small wheelgrippers that provided neither shelter nor adequate facilities to lock bicycles safely to the rack. For the Earth Day Initiative these racks were replaced with sheltered state-of-the-art bicycle stands. Also, shortly before the Earth Day Initiative was implemented, the company renovated the changing and shower facilities located in the security hut at the main entrance to facilitate employees who

commute actively or do sports during their lunch break. There are lockers available in the manufacturing plant for employees to change into their work clothes.

5.4.2 Hierarchical structure and organisational culture

The company has a clear hierarchical structure as well as a clear division between the three main areas of the company: the European Headquarters (including sales and administration for the Galway plant), Research and Development and the manufacturing plant. These areas are largely situated in three different geographical locations on the company's site. Due to the clear hierarchical structure, the buy-in of senior management was important for the researcher so that her work on site was recognised as legitimate. Initial help by the company's manager ensured full access to all three areas of the company in an unbureaucratic manner throughout the entire research project.

The company has a strong health and safety culture. The safety policies on site are elaborate and strict, especially for the manufacturing plant. The company takes pride in its health and safety record having enjoyed a sustained period without accidents in its manufacturing unit. There is a digital clock in a prominent location that counts the number of hours without accidents. These figures are also publicised around the site. Employees receive extensive safety training and visitors are also instructed about the code of conduct and the procedure in case of emergency upon arrival. Everyone on site is provided with safety glasses, safety shoes (if needed) and a high-visibility jacket that must be worn in the manufacturing plant at all times. Within the plant, employees and visitors are only allowed to walk in designated, clearly marked areas in order to avoid accidents. Around the site sign posts and banners remind everyone of the safety rules and also highlight that every individual on site is responsible for their own safety as well as the safety of their colleagues. For example, some of the mirrors in the bathrooms and around the site have a message on the bottom saying "You are looking at the person who is responsible for safety".

Recently, the company has widened their safety focus to include their employees' health. For example, in and around the canteen there is great emphasis on healthy eating. There is information on symptoms of food allergies and gluten intolerance as well as on healthy diets. Furthermore, the company aims to encourage their employees to be physically active. Apart from regular football tournaments, the company offers a fitness programme during lunch time where employees can sign up for pilates classes or circuit training. The emphasis of the Earth Day and Smart Moves Challenge to support active

commuting were well-received by management and union representatives as they fitted well into the company's existing health and safety culture.

5.4.3 Workforce

The company's workforce forms the overall population for the case study. This section gives an overview of their composition in terms of gender, profession and modal spilt. The information presented here is based on the two waves of the company-specific Travel Survey conducted in T1 (September/October 2010) and T3 (October 2011). The response rate of the first wave was 41 per cent (186 out of 459 employees); the response rate of the second wave was 27 per cent (121 out of 448 employees). Importantly, this section relies solely on descriptive statistics (as opposed to inferential statistics) because participation in the survey was voluntary and the resulting sample was thus not representative of the population (i.e. the company's entire workforce).

There is an evident gender imbalance among employees which is reflected in the Travel Survey samples. This observation was confirmed by staff of the Human Resource department. Manufacturing staff who work on the assembly line as well as the technicians and engineers who are involved in production are primarily male. The staff working for the European headquarters and in the administration of the company, on the other hand, is more balanced with respect to gender. This overall gender bias is also reflected in the research participants of the Smart Moves Challenge.

Table 6 Gender of Travel Survey respondents

	Female	Male
First wave	17%	83%
Second wave	22.5%	77.5%

Both samples of the Travel Survey are well distributed between the ages of 19 (21 for the second wave) and 60 which indicates that the same holds true for the overall workforce (see Table in Appendix 8 for details).

Table 7 Overview of respondents' age in both waves of Travel Survey

Age	≤ 25	26 - 30	31 - 35	36 - 40	41 - 45	46 - 50	51 - 55	56 - 60
1st wave	3.3%	10.5%	19.7%	12.5%	13.8%	19.1%	15.8%	5.3%
2nd wave	4.2%	12.7%	13.6%	11.9%	18.5%	17%	14.4%	7.6%

As Table 7 shows, the first wave's sample has slightly more respondents between 31 and 35 and the second wave has slightly more respondents between 41 and 45. Overall, both samples reflect the different age groups within the company rather well and capture people in various phases of the life course.

5.4.4 Driving to work but walking to the shop: Modal choice across different daily activities

The share of employees driving to work among the respondents of the Travel Survey is 82 per cent. To be precise, in both case study samples the amount of people driving to work is exactly the same: 81.8 per cent. These figures are higher than the results of the ConSenSus Lifestyle Survey (Lavelle *et al.* 2012) and the Irish Census from 2006 (Central Statistics Office 2007), both of which report a 70 per cent share of people driving to work. All three data sets, however, demonstrate clearly that the car is the dominant mode of transport for commuting.

While the two waves from the Travel Survey are consistent with respect to the percentage of people driving to work, they vary with respect to the amount of people walking and cycling. As the Table 8 below shows the samples only differ with respect to non-drivers. In the first sample eight per cent of respondents walk and only one per cent cycle. In the second wave this order is reversed with more cyclists than people walking: four per cent walk and eight per cent cycle. It is likely that this is a sample effect which is normal for small samples.

Table 8 reveals interesting differences between the main mode of transport used to commute and the main mode of transport used for other mobility needs. People's non-work-related mobility patterns are clearly more sustainable compared to their daily commuting patterns. Table 8 illustrates that in both samples the percentage of participants reporting that the car is their primary mode of transportation is about 20 per cent lower for leisure activities than it is for commuting to work. At the same time, the percentage of people walking to leisure activities is about 20 per cent in both samples; this is clearly higher than for people's commute. In other words, about 20 per cent of people use predominantly alternative transport modes for journeys other than their commute; many walk instead of driving.

Table 8 Main transport mode of Smart Moves respondents for work and leisure

	Commute		Leisure time	
	First wave	Second wave	First wave	Second wave
Car (driver)	**82%**	**82%**	**58%**	**60%**
Car (passenger)	4%	3%	7%	7%
Cycle	8%	4%	6%	10%
Walk	**1%**	**8%**	**21%**	**19%**
Bus	4%	2%	3%	3%
Rest*	1%	1%	3%	1%

*motorcycle, taxi, not applicable

This suggests that people's commuting patterns are on average less sustainable than their leisure time travel patterns. While this study cannot explore this finding further, it certainly deserves further investigation on a national scale as well as through rich qualitative data.

5.4.5 Respondents' perceptions of different transport modes and existing transport problems

This section is based on data from 42 interviews with employees conducted during the exploratory phase of the case study in April 2011. It presents research participants' views on existing transport problems and the need to reduce car use. The majority of research participants referred to the transport problem as one of heavy traffic and congestion. Other problematic features of Irish car-dependency, such as the systematic exclusion of carless households, were largely overlooked. Respondents' opinions focused on car-based transportation and reflected a rather car-centric view on transport issues. Many did not see the volume of cars as the primary problem causing congestion but viewed inadequate infrastructure as the main reason for congested roads.

> There's a huge transport problem. The roads are not capable of handling the traffic that at times, at different times, just having one lane of traffic on your main artery which is the Dublin road and most roads leading in and out of town are not able to handle the amount of traffic. (C25: male, 1959, 28 April 2011)

> I am not sure if there are too many cars on the roads in Galway or if the infrastructure isn't able to hand the amount of cars that Galway currently has. Because obviously Galway is expanding, it is getting bigger, you know. People move and it's getting bigger and the infrastructure is not growing at the same rate. (C23: female, 20 April 2011)

> What is too many cars? If the infrastructure was placed properly, maybe if we had a better infrastructure, too many cars wouldn't be an issue, with the structure we have, I'd say there are too many for the infrastructure. (C37: male, 1962, 28 April 2011)

Most participants stated that the solution to the problem of gridlock lied in improving the existing infrastructure and adapting it to the increased volume of traffic. Their statements reflect the national discourse which emphasises centrality of a well-developed road system that caters for cars. Participants proposed a re-designing of roads to improve the flow of traffic.

> I think we definitely will need to look at a better way of getting the flow [...] maybe think over our road design; designing roads that not necessarily go into town but go a little bit outside town. (C1: female, 1969, 5 April 2011)

> [There are] too many cars on the road with one driver in it, but the problem is bottlenecks and there is no focus on bottlenecks [...] I think we need to reduce the time that cars are standing still, that's what I think would be beneficial to everybody. (C21: male, 1971, 20 April 2011)

> There is [a transport problem] alright, big time. You see, there is something wrong with the system. There are a lot of people going west and they all go through the city; there is no way of getting around. The ring road should be built. (C37: male, 1962, 28 April 2011)

Some participants recognised the large volume of traffic but made it clear that they do not favour a reduction in car use. Instead, they suggested that new and larger road infrastructure is needed because people had no choice but to drive. They believed that urban sprawl and a lack of alternatives forced people into their car. They also argued that if car use was to be reduced it would require improvements in public transport services and infrastructure suitable for cycling. In other words, people stressed that infrastructural changes were essential to achieve a reduction in car use. Most research participants did not see any opportunities for themselves to change their commuting routine given the current infrastructural conditions.

> Yes, there is a need to reduce the cars on the road but that's a Catch 22. Because to reduce to the cars on the road, you have to tell people don't take your car but please use this and use that. There has to be incentives for people [...] we don't have that. (C1: female, 1969, 5 April 2011)

> I've been to other countries and you can see they have a sense of what they're doing, a sense about their transport. We don't seem to have that in Galway or in Ireland. You know, everything is clogged, you have no choice. No cycle ways. The public transport is not suitable, where we live on the periphery of the city. [...] I cannot get to this side of

> the town for my work on any, bus on any type of public transport other than a taxi. (C16: male, 1960, 1 April 2011)

> There can only be a practical reduction [of car use], people have no choice. [...] a reduction that doesn't affect people's businesses or livelihoods. (C33: male, 1960, 26 April 2011)

While people generally agreed that the roads were congested during peak hours, some participants observed that since the onset of the recession in 2008 there were less people on the roads. Possible explanations included the increased number of people who are out of work and a switch to cheaper transport modes such as carpooling or cycling due to financial hardship.

> I noticed alright that two years ago the traffic was a lot heavier than it is now. You know what I mean. I used to leave at a quarter to 8; I now leave at 10 or quarter past 8 [a.m.]. And definitely because of the recession there isn't that huge bumper to bumper traffic coming in the morning time and a lot of people have noticed that but still there is a lot of traffic like. (C10: female, 1965, 5 April 2011)

5.4.6 Watching the pennies: The impact of the recession on modal choice

Even though all participants were all in full-time employment at the time of the interviews, many reported that their financial situation was considerably affected by the recession. This was particularly so for those working in the manufacturing plant because they had previously been on a three-day week a few months before the interviews took place. Some said that they had trouble paying their mortgage. Others said that there was less money available for leisure activities, such as a weekend trips with their children, as the money was used for covering essentials.

> We were on a three-day-week here for a year like, you know, so we were down a good bit of money and with paying the mortgage, everyone was affected by it. (C18: male, 1980, 13 April 2011)

> We all had to take pay cuts here over the last few years. Money was tighter. So my wife and myself were on a three-day-week and the money that was around prior to that wasn't anymore. We didn't go on holidays like before or weekend breaks. That all stopped, so we have to mind our money we have. (C30: male, 1966, 21 April 2011)

The general tone was that the recession encouraged people to re-think their car use in order to cut back on everyday expenses because they experienced financial hardship.

> It seems that traffic has got quieter in recent years but not many people are going working, but you see more cyclists out in the last 3 to 6 months than before. [...] People are watching the penny. It is cheaper to go to work by bike than going to the gym. (C29: male, 1966, 20 April 2011)

However, there was a difference between participants who reported that they were affected by the economic downturn and others who said they were less affected. The interviewees who had been on the three-day-week were working on the assembly line in the manufacturing plant. Employees working in positions associated with the administration or management of the company, as well as those within the European Headquarters, reported that the recession did not affect their finances significantly.

> I think everybody has [been affected] mentally, everybody has, monetary wise not so much. (C21: male, 1971, 20 April 2011)

> Personally, not as much as [affected as] I thought I would be. As a household we have noticed a difference in terms of our take home pay [...] we haven't been affected so badly that our lifestyle has changed an awful lot. (C6: female, 1982, 14 April 2011)

It could be argued that people who cannot afford to own and drive a car, or indeed own a second car for their household, may be more motivated to change their commuting routine. This is discussed at a later stage (see also Section 8.1).

5.5 Concluding remarks

People's commuting routines are inevitably shaped by the existing transport policy and infrastructural and conditions at the national, local and organisational level. They make up the environment within which people's everyday commuting routines are set. Ireland's car-dependency is largely rooted in the development of the Irish transport sector and associated transport and land use policies. Since the 1950s there has been a growing emphasis on the expansion of the road network which coincided with a shrinking of the rail network. The 'Celtic Tiger' era (1995-2007), in particular, stands out for the steep increase in car use and the rise in large-scale road construction. This car-centric infrastructural development systematically disregarded the integration of other modes of transport. In addition, the lack of strategic land use and planning policies aggravated the country's car-dependency throughout the boom times. As developments became more dispersed and fragmented there was a consequent growth in geographical separation of residential areas, work places and services.

Irish transport policy has also been dominated by a rather narrow economistic perspective; consideration for social and environmental aspects has been largely absent from transport-related public debate. The combination of both centralised policy-making and a diversification of policy actors fostered a focus on economic issues. A range of non-elected actors applied a business logic to transport policy and planning. This not only diluted accountability but also introduced economic principles, such as value-for-money and profitability, into transport policy. Other societal functions of the transport system such as the provision of public service were side-lined. The Smarter Travel initiative launched in 2009 marked a policy change towards increased public consultation. At the same time, it moved away from costly road development and introduced a catalogue of low cost measures for creating a more sustainable transport sector. These included site-specific measures such as workplace and school travel plans to encourage low carbon travel patterns. However, Irish society still has to deal with the legacy of car-centric transport policy. The concrete effects of the recent changes in policy and its impact on creating a more sustainable transport system for Ireland remain to be ascertained.

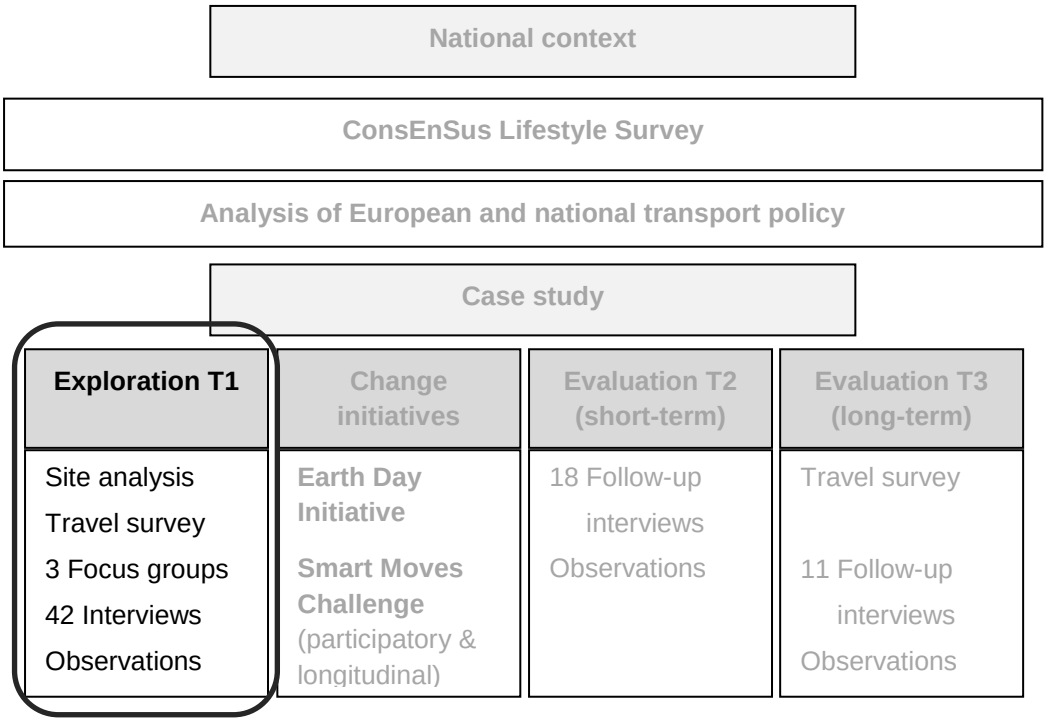
The situation in the study region of Galway City and County reflects wider national trends. The transport infrastructure is overwhelmingly geared towards car use. Furthermore, Galway suffers from a lack of an integrated public transport system, partly because economic principles continue to define the provision of public transport infrastructure rather than understanding public transport as common good that is needed to overcome the rural-urban divide with respect to accessibility. The recession and budgetary constraints have reinforced this trend. As a consequence, the current situation is favourable to car use and unfavourable to the use of sustainable alternatives such as walking, cycling and public transport. The employees of the company under investigation confirm this. The modal split within the sample as well as ample evidence of a car-centric view of transport issues and their perception of the shortcomings of the existing infrastructure clearly reflect the overall car-centric culture and the wider discourse on the car-centric infrastructure development. These findings set the scene for the qualitative evaluation of the employer-based change initiatives, Earth Day Initiative and Smart Moves Challenge, which are presented in the following two chapters.

Chapter 6

Mapping differences: A typology of commuting practices and their performance

This chapter addresses the first research question about current commuting patterns and their main influences and offers a classification of commuting practices in Ireland based on practice-theoretical considerations. ConsEnSus Lifestyle and employer-based Travel Survey data show the dominance of the car-based commuting practice, with more than 70 per cent of respondents reporting to drive to work (see Section 5.4.3). However, these figures only give a rough idea of wider trends and existing commuting patterns. This chapter, therefore, draws on focus groups and interview data from the exploratory phase of this case study to give a deeper insight into commuting routines and their material, social and cultural influences (see Figure 12 below). While the previous chapter mainly focused on policies as well as infrastructural and organisational conditions that impact on employees' commuting practices, this chapter additionally puts social and cultural aspects centre stage.

Figure 12 Case study outline highlighting exploratory phase



Participants' detailed accounts of their everyday travel practices reveal that people who drive to work do not form a homogenous group but their commuting routines differ systematically. These differences are mainly contingent upon social circumstances such as housing or the organisation of family life. This observation also underlines the second key finding, that is, that car use is a socially embedded activity. This observation is elaborated upon throughout this chapter. To begin, the author differentiates between a dominant car-based commuting practice and a marginalised alternative commuting practice. The chapter starts off with an in-depth analysis of the overall dominant car-based commuting practice, which seeks to identify its diverse social meanings and how they both merge from and nurture Ireland's car culture. In addition, it demonstrates how commuting is interwoven with other areas of social life and the practices that are embedded within them. For this purpose, the author draws on the theoretical concept of the social site (see Chapter Three for details).

The categorisation into two competing commuting practices only serves as an initial, rather rough distinction. In the second part of the chapter, the author draws on the interviewees' accounts of their commuting routine to further distinguish four different performance versions of the dominant car-based commuting practice. Here, the heterogeneous nature of a car-based commuting routine becomes obvious. Even though the majority of people engage in car-based commuting, this does not imply that they all perform it the same way. Instead, people perform different versions of it that reflect different sets of social and material circumstances. One prominent reason for these differences in performance is the fact that people engage in a range of different everyday practices that are interrelated with their commuting practice, which then influence each other's performance. Following this illustration of the social dimension of car use and commuting, the chapter ends with elaborations on the alternative commuting practice that mainly revolves around active commuting.

Following the practice-theoretical orientation of this investigation, this chapter describes commuting patterns in Ireland through the lens of the twofold practice concept outlined in Chapter Three: practice as entity and practice in terms of its performance. First, the author draws on the conceptualisation of a practice as entity to give a general account of the car-based commuting practice and the alternative commuting practice that highlights their central characteristics, including customary ways of acting, that is, what people consider to be a good way of commuting. For this purpose, interviews with commuters provide insights into the purpose, means and ends of actions as well as

emotions, beliefs and perceptions attached to transport modes as cultivated in a particular practice. This offers a rare insight into the cultural and affective dimensions of everyday travel. Based on this rich qualitative data, the accounts of the two commuting practices can also capture practitioners' practical and general understandings as well as the teleoaffective structures of these practices.[63] In addition, the descriptions of the car-based and alternative commuting practices aim to capture the practices' material dimension in terms of the natural and built environment. The built environment includes land use, transport-related infrastructure and public transport services; the natural environment is limited to weather conditions. This joint-up treatment of the material and socio-cultural aspects of commuting practices moves beyond the dominant individualistic analysis of mobility behaviour that focus solely on the actions and motives of individual practitioners. Second, the typology and the identified commuting types reflect the underlying notion of the practice as performance by capturing different ways how the dominant car-based commuting practice is performed. In addition, they elaborate on the related social site capturing the material, social and cultural influences on practitioners' commute, as well as the field of possibilities related to a performance version.

The differentiation between two practices and their performance versions presented in this chapter seeks to advance our sociological understanding of everyday commuting patterns. The distinction of performance versions of a commuting practice is a systematic approach that makes apparent differences between commuting patterns that appear to be similar if not identical at first sight. The author applied a between- and within-case analysis to develop a typology of commuting performances which could serve as a basis to devise and target policy. It also sheds new light onto commuting patterns by exploring the socio-cultural aspects of commuting routines which can act as opportunities or barriers to a transition to more sustainable patterns and which have hitherto been largely neglected in transport behaviour research and policy development (see also Chapter Two and Chapter Five). In addition, the practice approach applied in this study broadens Schatzki's theoretical approach by including a wide range of material aspects of everyday practices, including their dependence on infrastructure. This thorough investigation of the existing commuting practices serves as foundation for analysing the changing of practices in Chapter Seven.

[63] The explicit rules in terms of transport policies that are also an integral part of practices are not included here because chapter five covered them in detail setting the scene for the present chapter.

As part of the exploratory phase of the fieldwork, the researcher interviewed 42 employees about their commuting and related everyday practices. The interviewees were recruited using a strategic sampling technique (see Chapter Four for details). Table 9 gives a breakdown of their characteristics. 23 of these 42 interviewees subsequently participated in the Smart Moves Challenge (see chapter seven for details). The first section of this chapter, Section 6.1, presents a general account of the dominant car-based commuting practice as entity. The subsequent section, Section 6.2, discusses four performance versions: a) Commuting from the (semi)rural hinterland, b) Commuting in the city, c) Hybrid and d) Trip-chaining. Here, it provides a detailed account of these performance versions, including a description of the social site of their practitioners and a sketch of the field of possibilities. The third and final section of this chapter, Section 6.3, elaborates on the alternative commuting practice both as entity and as performance.[64]

Table 9 Overview of data underpinning commuting typology

	Car-based commuting practice				**Alternative commuting practice**
Performance type of commuting practice	**Commuting from the hinterland**	**Commuting in the city**	**Hybrid**	**Trip chaining**	**Active commuting**
Number of research participants	**7**	**14**	**4**	**9**	**8**
Gender	2 (female) 5 (male)	1 (female) 13 (male)	4 (male)	2 (female) 7 (male)	2 (female) 6 (male)
Residential location	7 (rural)	14 (urban)	4 (rural)	7 (rural) 2 (urban)	8 (urban)
Professional background*	1 Cat A 2 Cat B 2 Cat C 2 Cat D	4 Cat A 8 Cat C 2 Cat D	3 Cat C 1 Cat D	2 Cat A 6 Cat B 1 Cat C	2 Cat A 5 Cat B 1 Cat C

***** Cat A: administrative staff; Cat B: manufacturing staff; Cat C: middle-ranking staff; Cat D: middle management

6.1 Driving as the norm: practice-related manifestations of a car-based culture

The dominant commuting practice in Ireland establishes the car as the only viable mode of transportation for the commute to work. Practitioners of the car-based commuting practice

[64] There are two reasons for presenting the alternative practice as entity and performance at once. First, the study seeks to better understand the dominant car-based practice. Therefore, the alternative practice is not of crucial importance to this study. Second, this case study only encompassed a small number of practitioners who perform the alternative practice because the data collection was focused on participants engaged in car-based commuting. The practitioners of the alternative commuting practice investigated here all performed the practice similarly. They cycled or work for health reasons and convenience. However, it is plausible that different performance versions could be identified based on a larger sample of practitioners.

frequently stated that “Driving to work is the best option”. (C26: male, 1981, 27 April 2011) At the same time, there seems to be an underlying assumption that people who do not drive do not have access to a car.

> He [his colleague who walks to work] has no other way of coming down. He has no car. (C7: male, 1979, 13 April 2011)

Throughout the 1970s and 1980s car ownership was low in Ireland compared to other European countries, which made it normal for people not to have a car at all, or to share a car. Rapid economic development in Ireland during the ‘Celtic Tiger’ era, however, was accompanied by a steep increase in car ownership (Heisserer *et al.* forthcoming; Irish Environmental Protection Agency 2011). At the same time, car-based commuting increased significantly, with the result that people today expect to have the flexibility of individualised transport.

> When I was young there was no car on the road and we could play football on the street, now you can’t step outside your house because there are so many cars. (C38: male, 1965, 28 April 2011)

> [...] that’s the biggest change, everybody has a car. Like at our house, we have three cars. When I go back to when we got married, we were lucky to have one. Now we have three; the kids have cars and if my other daughter was home, there’d be four cars in one house. Everyone wants their own car. All kids want their own flexibility to go wherever, whenever they want. (C25: male, 1959, 28 April 2011)

Before people started to engage in a car-based practice, they frequently used to either commute actively or take public transport. A common explanation for switching from other transport modes to the car is the increased convenience. One focus group participant made a point in exaggerating his habit of driving everywhere by saying that he would take his car to the toilet if he could. The same participant also referred to his laziness being the reason why he drives everywhere. While this is clearly an exaggeration, it demonstrates that taking the car to move from A to B is seen as a normal thing to do and that people expect to move from one place to another without any physical effort. This is also reflected in participants’ observations that frequently people drive short distances that could be easily walked.

6.1.1 The necessity and flexibility of car use

Two overarching themes that emerged from the interviews with respect to car use are necessity and flexibility. With regard to the first theme, interviewees generally portrayed

their car as being the only means of transport to reach their destination. At the same time driving was considered to be a necessity rather than enjoyment.

> I don't look upon driving as being something nice at all. It's a way of getting from point A to point B, and the time spent getting from point A to point B is a waste of time. That's my general view of driving. But I don't mind driving. I have to drive, you know, I have to get from home to work. (C20: male, 1954, 20 April 2011)

Furthermore, cars enhance their drivers' capacities for speed and strength. Thus, the car is often seen as indispensable to fulfil their everyday mobility needs, provide transport to others or to carry things. Other modes of transport are considered inadequate to meet these needs.

> [...] the only thing is, if you take the bus coming from town and you carry your shopping or something like this, you know, you have no place to store it, to just put away your groceries for a minute and go off and do a bit of clothes shopping, people have become so accustomed to the convenience of bringing the cars everywhere. (C13: male, 1968, 7 April 2011)

Moreover, a number of research participants highlighted that their car is not only their own mode of transportation but that they were responsible for providing a lift to others. These interviewees maintained that they took the car because another carless person relied on them for transport. This captures the inherently social nature of automobility; what people do and what their actions and daily routines they engage in is not independent of their social context.

> My wife is dependent on me driving my car, so is my mother. So I don't have my car all the time but I have a need even though I live quite near [to my workplace]. [...] [I need the car] depending on whether my wife has a need for me to be there or not. My wife is diabetic [she does not drive]. Maybe she wants to visit her mother and she is 3 miles out the road and there is no bus, that's it. (C27: male, 1957, 26 April 2011)

In other words, providing transport to relatives who cannot drive or do not have access to a car is a central feature of car-based commuting (see also Section 6.2.4 on trip-chaining and Chapter Eight for further discussion). Even if there are other transport options available, such as public transport, car drivers frequently give lifts to carless individuals.

> At the moment my sister is staying with me, so I will collect her from her work which is in Ballybane. So I would do that journey perhaps twice a day, to drop her and to collect her. [...] She doesn't drive. Well, she's learning but she doesn't have a car. I would collect her almost every night that she works, that could be three nights a week at around 10 p.m. Sometimes it's 6 p.m. and then she'll get the bus the other times. (C6: female, 1982, 14 April 2011)

> The only public transport we'd use is, the two lads [sons] would get a bus home from the Bish [school in city centre] to the end of our road. It's a quarter of a mile of a walk from our house and the one [parent] who's around will pick them up. At the weekend it's like: At what time is the next bus into town? [It runs every hour.] Oh, will you drop me? Oh, I am as easy to drop you in. And at this stage my daughter knows how to drive now and she's taking her test and there could be a third car in the house within a year. (C16: male, 1960, 1 April 2011)

This implies that public transport is not viewed as an acceptable substitute but as an inferior alternative to the car that is only used if necessary. Generally, the carless person is not expected to take public transport and children are not expected to walk home from the bus stop, even if it is in walking distance. Also, it is regarded as normal that children have access to a car to drive once they have a driver's license.

Parents in particular are concerned with the transportation of their children, which clearly reflects this central feature of a car-based mobility practice (see also Section 6.2.4). The car is viewed as the main means of transportation for families. In fact, life events, such as becoming a parent, can transform people's routines in many ways (see also Schäfer *et al.* 2012; Jaeger-Erben 2011: on life events). Research participants described parenthood as changing their mobility patterns and that the main focus was now on transporting their children safely. Again, the car was viewed as the only viable mode of transportation and alternatives were beyond people's comprehension.

> [When did I stop cycling?] Probably with the kids, because they change your life and you change your focus from you to your kids [...] Your life is different, you buy things like car seats for the kids, all this kind of stuff you never consider until you do it, you need to buy the right one and all that kind of things, and what happens then is your focus changes, you need to get them [the children] from A to B. You can't imagine, now when you look back, how you'd get a kid from A to B with a bike or public transport, because it's so new to you and you're learning all the time, and then all of a sudden you have two and three kids. One is starting running around and a car is a way of gathering them and bringing them from A to B. (C30: male, 1966, 21 April 2011)

Other interviewees pointed out that they used to cycle or share one car with their husband/wife but when they had children they had to get a second car. Becoming a parent was perceived as a pivotal moment where previously performed practices were disrupted and adapted to meet the new requirements of family life.

> I used to cycle and then I started driving, I am 45 now and I only started driving 3 or 4 years ago when the kids came along. (C35: male, 1965, 26 April 2011)

> Because I lived locally, my father drove me around and then I met my husband in here [workplace]. We got married, lived on one car from 1987 to 96, for 9 years until we got

> married and the children were born [...] we only got a second car to drop the kids to school, for the kids. (C12: female, 1965, 5 April 2011)

Parents engaging in the dominant car-based mobility practice drive their children most places because they do not see any viable alternatives for their children's transportation where they are protected from the weather, they do not have to wait in the street unaccompanied and they are less exposed to traffic. The car culture is at the core of children's travel socialisation.

> [We use the car mainly for] collecting kids and dropping the kids to school, mainly for dropping and collecting kids, we might go shopping on the weekend or call up to parents but the main use of our car is to drop kids here and there. (C28: male, 1975, 27 April 2011)

The phenomenon of parents driving for miles to provide their children with transport inspired a number of interviewees to use the taxi as an analogy. Some parents even considered transporting their children as one of the main purposes of their car. They drive them most places in order to keep them safe and allow them to participate in a range of after-school activities. Other transport modes, such as public transport or cycling, were not perceived as viable. In other words, the car was used to fulfil the children's perceived and actual mobility needs.

> Our cars are constantly on the go, you know, it's Mom and Dad's taxis, that's what we call the two cars, and it's anywhere and everywhere, because the public transport is just so poor. (C16: male, 1960, 1 April 2011)

All interviewees with children agreed that cycling was too dangerous up to the age of 12 or older and the majority of parents did not want their children to cycle at all.

> In the past, I have encouraged kids to come to matches by bike, or to the club house to train, some of the parents say, no that's too dangerous. (C30: male, 1966, 21 April 2011)

Other parents only allowed their children to use their bicycle for leisure activities in a secure area such as their housing estate but not as a regular mode of transport. Overall, the general tone that cycling was extremely dangerous for children was evident throughout.

The car was not only considered as a mode of transport but also as protection from bad weather. The weather featured in most interviews, irrespective of the interviewees' commuting routine. It is striking that the reasoning that Irish weather was not conducive to

cycling and walking and that the car protected from bad weather was dominant. The vast majority of interviewees put such views forward. The same holds true for the Travel Surveys that were conducted as part of the case study. Apart from distance, people saw the weather as largest obstacle to active commuting. At the same time, a large number of respondents considered the main benefit of the car to be protected from bad weather.[65]

Overall, the notion of driving a car out of necessity was central to the car-based commuting practice. This is partly due to limited alternatives and also to the socio-cultural associations attached to car use. One prominent social meaning was that the car was regarded as being a safe mode for transporting children. This implies that the car is indispensable for caring parents wanting to keep their children safe (see also Section 6.2.4 and Section 8.1.3 on social meaning of car use).

The second prominent theme revolves around notions of flexibility, independence and freedom to go wherever and whenever the driver wants. In focus groups and interviews participants repeatedly talked about the car and its central role in daily life in Ireland.

> Irish people love their car as well, they love the independence of their car as well, they don't like sharing lifts and stuff like that, they like to come and go as they wish, I think that's a particular Irish thing. (C16: male, 1960, 1 April 2011)

Most participants stated that they value their car because of the independence and flexibility that it affords.

> The best thing about car is the flexibility, if I want to go someplace, I can hop into a car any minute. (C25: male, 1959, 28 April 2011)

This goes hand in hand with practitioners' aversion to waiting for public transport or being restricted by a bus schedule, as well as being a passenger in a car and therefore constrained by the driver's schedule. Research participants expected to be able to start their journey whenever it suits them. Therefore, they placed great importance on driving their own car. This is also reflected in the fact that many interviewees stated that they take their car to work because they might require the car to do something on their way to work or on the way home.

[65] In both survey waves 26 per cent of the respondents stated that the largest obstacle to cycling is exposure to bad weather; the figures for walking are 27 per cent in the first wave and 29 per cent in the second wave. While the overwhelming majority (more than 70 per cent) in both waves seeing flexibility as largest benefit of the car, 10 and 16 per cent saw the largest benefit of driving in being protected from the weather.

> Well, I might have other things to do, I generally come straight in but I might not go straight home [...] I could stop to go to the shops, I could stop to take care of some business maybe. (C20: male, 1954, 20 April 2011)

In addition to spelling out the restrictions of not having a car available, this quote also indicates that not having access to a car may affect other areas of a person's life, and vice versa. At the same time, most interviewees dismissed carpooling as being too restrictive. Interestingly, interviewees who engaged in trip-chaining did not complain about adhering to their children's or other dependents' schedule. It is also interesting to note that interviewees did not immediately quote the negative aspects of using their car including congestion and looking for parking, which can be time-consuming and clearly restrict the flexibility of car-based individualised transport (see also discussion in Chapter Eight).

6.1.2 The social site or everyday practices matter

There are three major areas of every day practices that influence practitioners' commute and, at the same time, make up the social site that captures the material and social context of people's actions: housing and residential location, the organisation of family life and working practice. Based on data from the focus groups and interviews, these were identified as affecting practitioners' commute. While this section only serves as a broad overview, the following elaborates on different versions of how the car-based practice is performed and also describes the particularities of the related social sites.

Housing is central because people's geographical location as well as whom they live with are closely related to transport infrastructure, including the availability of public transport services. Furthermore, practitioners' family and social life makes up a big part of their social context. It describes the social situation of practitioners including if practitioners are parents and also if their children live at home and are dependent on them. In addition, it refers to the organisation of family life which may influence people's commute. The following quote highlights the link between the residential location and family members' commuting patterns.

> [Where we live] we're off the beaten track, there is no public transport near us, we'd have to travel about 6 km to get to the main Galway to Tuam Road, that's why there is a car for everyone. (C4: male, 1961, 11 April 2011)

Another respondent explained that her husband took a detour on his way to work to give their children a lift to school. The following quote exemplifies the logistics involved to

ensure the children's smooth transport to school, which in turn often affects parents' commute to work.

> He [her husband] takes them [two of their children] to secondary school. He takes them 1.5 miles from our house and there is a man who takes his kids to secondary school, so he takes ours as well. Then my husband goes back and brings the other two to national school and he also brings the neighbour's child to national school and the neighbour brings them home at 3 o'clock, they share that. (C2: female, 1966, 6 April 2011)

In addition to the children's activities, interviewees' personal social activities such as their involvement in sports clubs or voluntary work, created additional mobility needs that had to be satisfied.

Participants' working practices, such as working hours and work-related demand for travel, also dictated the cornerstones of people's commute.

> I leave at all sorts of different times because I don't have usual working patterns. But I normally would leave very early in the morning and I wouldn't go back home until latish at night. (C20: male, 1954, 20 April 2011)

All these aspects of people's lives shape the performance of a commuting practice, which in turn can also influence other social practices such as the practitioners' work and leisure activities. A number of interviewees identified congestion and traffic jams as a major source of frustration for them which affects their quality of life.

> I do mind being in traffic. It's frustrating being in traffic because you're just sitting there. [...] If the journey takes too long, obviously that annoys me more than if it didn't take long. (C20: male, 1954, 20 April 2011)

Due to such frustration some interviewees said that they adapted their working hours to avoid commuting during peak times. For example, some reported that they started their working day from home. Others explained that they chose their commuting times carefully to avoid being stuck in traffic.

> I would usually work from home in the morning to avoid traffic. I found that there are certain times in the morning that are better than some other. So I usually work from home in the morning using my broadband connection and then around maybe 10:30 or 11 o'clock I'll go to work because I know at that point there is less traffic. More people will be at work at that point and the kids are at school so there isn't any school traffic. (C1: female, 1969, 5 April 2011)

> Sometimes I tend to work late knowing that I might as well work than sitting in traffic. (C24: male, 1974, 20 April 2011)

Despite the burden of congestion, the car was nevertheless perceived as superior to other modes of transport.

6.1.3 Perceptions of alternatives to car use

One of the core features of a commuting practice relates to practitioners' perceptions of what is a good way of getting to work. The car is considered as the most flexible and convenient option. Other transport modes are frequently regarded as having disadvantages that practitioners of the car-based practice generally do not want to tolerate.

> A taxi may be an option, if I was going out for a night. If I was going to town, I'd bring the car. I wouldn't take the bus and I wouldn't bring the bike because in the event I'd purchase something, I had no means of carrying it. (C27: male, 1957, 26 April 2011)

The car-based commuting practice centres on the car as the main mode of transport, while alternative transport modes, such as public transport, active commuting and carpooling, are usually not seen as viable alternatives.

With regard to public transport, the perception of its potential to serve as an alternative is largely related to practitioners' place of residence. People living in rural areas with a low population normally have to cover long distances to get to work, or to reach public services. Moreover, they often do not have frequent public transport services or a stop near their home, which limits their alternative transport options. Where public transport service is available, which is mainly in urban areas, a lot of commuters find that the public transport service does not start early enough for getting to work on time.

Infrastructural aspects, however, do not present the only barrier to interviewees considering public transport as real alternative to the car. Drivers who cherish the independence of their cars are often reluctant to use public transport because of its perceived inflexibility.

> I have no desire to get on the bus [...] because I don't like waiting. If I want to go somewhere I can immediately sit in my car and leave. (C27: male, 1957, 26 April 2011)

Many car drivers interviewed for this study had not previously considered public transportation as a viable transport mode for themselves and thus had only vague information on public transport services in their area. For example, one interviewee emphasised that he considers public transport to be a suitable option for his son but not as an acceptable transport mode for himself and his generation.

> Well apart from my son, I have to say I don't know a lot of people using it [public transport]. Even lately somebody was saying to me, that we wouldn't know what to do on a bus. We wouldn't know how much to pay; we wouldn't have a clue. And the person I was talking to, we would have been used to getting a bus. We went to school together; we used to do it all the time. We are a generation who have no connection to buses unless it is organised as part of a sports thing. On a daily basis, except for my kids, one child who's using it, I don't. (C11: male, 1964, 12 April 2011)

Similar to public transportation, active commuting does not offer real commuting options for people living in rural and urban areas respectively. Apart from factors such as existing infrastructure and individual commuters' physical ability, the viability and acceptability of active commuting also depends on the distance commuters have to cover. However, distance and infrastructure only describe the material conditions influencing practitioners' commuting routine.

Apart from the material and physical realities, practitioners' perceptions of cycling and walking as viable alternative to car use are also shaped by socio-cultural factors. First, the Irish weather is seen as key obstacle to active commuting. Most research participants shared the view that Irish weather was not conducive to walking or cycling to work. This finding is supported by the employer-based Travel Surveys and the Lifestyle Survey, where many respondents reported lengthy distances and no protection from the weather being major obstacles to active commuting. Against the background of many northern European countries with colder winters, such as the Netherlands, Denmark and Sweden, all of which are famous for their cycling cultures and people cycling all year round, this is remarkable.

Second, cycling in particular was not considered as a viable alternative to car use because it was perceived as being too dangerous. Interviewees explained that a lack of adequate cycling infrastructure prevented them from cycling. They also highlighted that heavy traffic on the road put cyclists in danger (see also descriptions of performance versions below).

In addition to all interviewees agreeing that cycling was dangerous and not viable due to distance and weather, they also shared a negative view of cyclists. Some reported that other drivers and also their friends thought that cyclists were a nuisance and that they should not be on the road. While this extreme position was only reported by a few participants, most others criticised cyclists who do not obey to the rules of the road or performed risky and dangerous manoeuvres.

> The first thing that comes to mind is that they [cyclists] don't follow traffic light and they think they have the God given right to go through red lights. (C5: male, 1975, 15 April 2011)

Many also criticised cyclists for not being well light up or not signalling when they intended to turn. Nonetheless, a few participants admitted that they were nervous with cyclists on the road when they drove and that they preferred seeing them on the footpath because they were afraid of harming them. Although some interviewees acknowledged that there were differences between cyclists, with some misbehaving and others cycling safely, drivers tended to perceive cyclists negatively. Overall, the general tone was that road infrastructure was made for cars and its purpose was to provide fast and free flowing car-based transport (see also discussion of results in Chapter Eight).

Another alternative to commuting in a single-occupied car is carpooling. It is suitable for commuters covering long or short distances to work. It was claimed to be a common mode of transport to commute in the past, especially among employees coming from rural areas. However, the situation has changed due to the increased car ownership in Ireland (Heisserer *et al.* forthcoming).

> Well, going back 25 or 30 years ago, we did it [carpooling]. I carried people in and out from work [...]. They didn't have a car, so I often brought in three and four people and even now I am giving somebody a lift in and out but not on a continuous basis, because of different starting times not that often. Then the Celtic tiger came and people got cars. Everybody seemed to have a car, and then you started at different times, and then there was over-time, and people went shopping after work or you met someone and so on. (C4: male, 1961, 11 April 2011)

While the saving aspect of carpooling was recognised in terms of fuel and money, interviewees stated that carpooling was restrictive because one had to adhere to somebody else's schedule. This observation also reflects practitioners' ideas about the freedom and flexibility of car use described previously in this chapter. Chapter eight elaborates the implications of the practitioners' perceptions of alternative transport for a transition to sustainable commuting patterns.

It is important to note that respondents considered carpooling only as an option in exceptional circumstances, for example, if their car was not available because it was being serviced.

> There are a number of people who work in TK but live in the same area as me or further out. So, it's happened a few times that I've had the car in the garage overnight, so I asked one of them for a drive. But we don't always leave at the same time. And I've come in with them at the same time, but they might leave earlier than me or later. The other option is a bus, that wouldn't get me here until 8:45 or 9 o'clock, so I would usually ask somebody else for a drive. Because I carry my laptop with me, that is quite heavy, so a bicycle wouldn't be an option with a laptop. (C33: male, 1960, 26 April 2011)

Overall, the complete lack of alternatives, as interviewees saw it, presented a major barrier to people adopting more sustainable commuting routines. The social and cultural origins of the absence of alternative visions and practices are explored in the discussion of the results (see Section 8.1).

6.2 Performances of a car-based commuting practice

Those who practice car-based commuting in Ireland do not necessarily perform the practice in the same way. Instead, different practitioners engage in a range of different practices that are related to their commute and that influence it. Their performance of the commuting practice thus differs significantly. Based on interview data collected for this study, commuting routines can be grouped into the following four performance versions of the overall car-based commuting practice: a) Commuting from the hinterland, b) Commuting in the city, c) Hybrid and d) Trip-chaining. This section gives a detailed account of these performance versions, with a focus on the social site of their practitioners and also on their field of possibilities. This commuting typology helps to expand our understanding of the current unsustainable commuting patterns because it recognises the different facets of car-based commuting. While there is ample evidence of the car being the dominant mode of transport in Ireland, there is only little knowledge on how and why people use their cars extensively. The emphasis here is on material, social and cultural aspects of commuting patterns that hamper or enhance a modal shift away from the car. The first two performance versions share central features, as their labels indicate. But their practitioners' field of possibilities varies substantively, which is mainly related to their geographical location. For that reason they are presented as two separate performance versions. The third and fourth performance versions also show some overlap with other performances, but to a lesser extent.

6.2.1 Commuting from the (semi)rural hinterland

The central feature of the commuting type 'commuting from the hinterland' is that the car is the only mode of transportation practitioners use to commute and that drivers are frequently on their own in their cars. They do not make any detours on their way to work or home and they take a direct route without any stops. Most practitioners explicitly expressed that they enjoy the idea of being independent and flexible, to go wherever they want after work or during their breaks.

Interviewees who engaged in this performance version of car-based commuting lived in rural areas, some of them in remote rural areas. Only a minority had public transport available to them for their commute. Where public transport was available the bus schedule did not suit most participants because there was no overlap with their working hours or no stop close to their home. Only one participant could take a bus to work. She called it the workers' bus because it served the classic starting and finishing times of 9 a.m. and 5 p.m.

Most of the interviewees represented in this category had children, but they were not in charge of their transport because they were either grown-ups or their partner took care of that. This gave them a certain amount of flexibility with respect to their commuting route and times. The majority of them adjusted their working practices to avoid traffic congestion by either changing their working hours or starting to work from home waiting for the rush hour to pass.

Family life, residential location and working practices in particular influenced these interviewees' commute to work. In combination with the car-based commuting practice the social site draws up the practitioners' field of possibilities. Those commuting from the hinterland faced the most restrictions along the material dimension because they lacked access to public transportation and most of them lived further than practical cycling distance.

> No, no trains, no buses. It's a very rural place where I live. (C20: male, 1954, 20 April 2011)

Another transport mode that is suitable to cover lengthy distances is carpooling. While this was generally recognised as an option, in low-density rural areas there is less chance of finding someone for a carpooling arrangement who has the same or similar destination and also a similar schedule.

> You know what I mean, we all moved out the country. We live in different places. We all work in different places. So it's very very hard to carpool. I mean, down my road there is nobody that lives beside me that works in the same area that I work. So I couldn't share a lift. (C10: female, 1965, 5 April 2011)

In addition to the unfavourable material context that offered few opportunities for a modal shift, the interviewees considered carpooling as restricting the flexibility and independence that comes with individual transport. Loosing personal flexibility by adhering to somebody else's schedule is incompatible with central themes of the car-based practice.

Active commuting was not suitable for those living far from their workplace. Distance was, however, not the only barrier to cycling that the interviewees perceived. They also regarded it as too dangerous. At the same time, some interviewees cycled to other destinations in their neighbourhood because they saw it as less dangerous, being able to choose routes with less traffic.

> I train teams in the evening. I can cycle to our local pitch. I bring my rucksack or whatever, but that's ok because I am left all the time and there is little traffic. So you're safe. (C4: male, 1961, 11 April 2011)

> I cycle to my mother's house and they [her children] come with me to my mother's. One of the girls brings her [bicycle] to the training, we have a new pitch and what she does is she cycles the back roads and then she is on the main road for a bit. But you couldn't let her go down the main road because it is too dangerous. (C2: female, 1966, 6 April 2011)

Moreover, cycling and walking were considered healthy options. The possibility to choose the timing and route of a journey on a bicycle outside people's commute, as well as the exercising effect of cycling, emerged as potential explanations for the difference in people's commuting and mobility patterns in their spare time, as demonstrated in Chapter Five (Section 5.4.4).

6.2.2 Commuting in the city

The interviewees in this category showed the same performance pattern as the previous group. The car was their main mode of transportation. They had no obligations to provide a lift to anybody on their commute which was normally direct and without any stops. While both groups, those who commuted between the (semi)rural hinterland and the city and those who commuted in the city, shared the central feature of their performance of the practice, their social site and thus the field of possibilities varied.

The interviewees performing this version of car-based commuting lived in an urban area. They had a public transport service readily available but not everyone had access to a direct route to work. These participants lived close enough to their workplace to cycle or even walk to work. Although some of them had children or a relative who relied on them for transport, none of the interviewees had obligations to provide transport to anyone on their way to work or back.

These participants generally faced the least restrictive field of possibilities for their commute. They all had public transport available and their homes were in cycling distance from work. Despite access to public transport services interviewees did not perceive it as

an attractive transport mode for four reasons. The first reason captures a real constraint whereby; the bus schedule did not suit interviewees' working hours. Second, interviewees did not like to wait for their transport and they expected the independence and flexibility that comes with individual transport. Some actually viewed walking to their destination instead of waiting for a bus as better alternative, although it might take longer to walk than to go by public transport. Third, buses were seen as unreliable because they often got caught up in traffic and therefore could not keep to the scheduled timetables. Finally, interviewees perceived public transportation to be inconvenient because buses often did not take a direct route. In addition, interviewees found the distance to the bus stop too long.

> There is [public transport], but it is not efficient. I would have to walk probably one fifth of the way. [...] There is a couple of options [stops and routes], but it doesn't always suit the times that need to be for work. (C24: male, 1974, 20 April 2011)

> There isn't, no [public transport], not within half a mile to a mile walk, and not without crossing a busy road and then there is public transport but not to where I want to go. (C26: male, 1981, 27 April 2011)

Similar to their opinions on public transport, participants also highlighted the restrictiveness of carpooling. This reflects the centrality of the themes of flexibility and independence in the car-based commuting practice. For example, one participant pointed out that carpooling was cheaper than driving and that he would be willing to do it. However, when he was asked if he was in a carpooling arrangement, he answered that it would not make sense for him personally because he lived too close to his workplace. His statement implies that he would not save enough money to compensate for the loss of his independence on such a short distance. Here, carpooling is treated as a mode of transport for long-distance commuters mostly from outside the city, which was also confirmed by the following statement of another participant.

> If somebody needs a seat I'll give him a seat. If I was living out the country it's kind of expected. One lad'll drive and the rest of them will say: I'll take my car this week and then you'll take your car next week. It's not that expensive on one lad. (C34: male, 1972, 26 April 2011)

All interviewees lived close enough to cycle to their workplace; some even close enough to walk but active commuting was not regarded as viable transport mode. Most of them identified the heavy traffic and the existing infrastructure as not conducive to active commuting.

> I've been on a bike before and it is quite frightening at times because drivers in general are not particularly courteous. And there aren't any cycle paths and people cycle on pavements and things. (C23: female, 20 April 2011)

> She [his wife] would like to cycle to work [...] none of them [routes to work] are what you'd call fully cycle-friendly. Her biggest argument about it is the roundabout at Western Motors there, getting around that on a bicycle is crazy. You're taking your life in your hands. There is an underpass there, slightly out of the way, but it's all covered with broken glasses down there, so it'd puncture the tires. (C29: male, 1966, 20 April 2011)

Similar to cycling, walking was perceived to be especially dangerous when it came to crossing roads and roundabouts. In addition to active commuting being mentioned as dangerous, most interviewees stated their commuting choices were weather-dependent. Therefore, active commuting was not considered to be a transport mode for daily commuting because it was only advisable on safe routes and in fine weather.

While most of those engaged in car-based commuting did not use any additional transport modes other than the car, there was a number of research participants who used alternative transport modes on occasion either for a specific purpose or because they had no access to a car. Despite the overarching notion of the car as a superior transport mode, these participants were aware of their alternative options. Even though they did not treat them as acceptable alternatives for their daily commute, they used them in certain specific circumstances. On occasion they left their car at home to avoid heavy traffic and parking issues, to go out and have a drink or to do something to improve their health.

All interviewees, who occasionally used the bus or a bicycle for a journey to the city centre did not take the car because they wanted to avoid traffic and parking issues. If parking had not been an issue they would have regarded the car as better option.

> Driving to work is the best option [...] because there is parking and it's the quickest option. Unless I am going into town I'd use the car, to go to the gym even, pretty much everything that's not going into traffic in the city centre. (C26: male, 1981, 27 April 2011)

It does not come as a surprise that those using public transport lived on a direct and frequent bus route into the city centre. They explained that they took the bus to avoid traffic and parking fees in the city centre. Evidently, because of their place of residence they considered public transport to be a more convenient option than taking the car for their journey. One of them stated clearly that if it was raining he would either take the car to the bus stop, which was an eight minute walk away, or else drive into town in order to be protected from weather.

> I'd use the bus most regularly on a Saturday morning. It's based on the fact that the two of us are going in, we need to find parking, park the car, pay for the parking fees, you kind of do a cost benefit analysis on it. We'll be there for four hours. Ok it's cheaper to take the bus. It's also a lot handier going in if you know there is heavy traffic, especially during the summer. You get the bus lane in and the bus lane out. Why we kind of take the car, we're against the back end of the estate, so we're a long way from the bus stop, which is about an 8 minute walk to the bus stop, which isn't too bad but if it's a wet day, we'd either drive down to the bus stop, leave the car there and take the bus or we drive the whole way in depending ... Otherwise if we're just going out for the night, we just take the bus in and take the taxi home. (C29: male, 1966, 20 April 2011)

This quote highlights again that the bus is only viewed as more convenient than the car under very specific circumstances. In such situations the practitioners consider carpooling, public transportation or active commuting as acceptable option which they do not regard as viable or acceptable for their commute on a daily basis. Overall, however, the car is regarded as superior transport mode compared to all other alternative (see also Chapter Eight).

6.2.3 Hybrid – neither fish nor fowl

Participants performing this version of the dominant car-based commuting practice stood out because they were car drivers and also active commuters. They belong to a minority of practitioners. Their car was the main mode of transport for their commute, and they made clear that their car was a necessity. However, in the summer time they cycled on a regular basis to stay healthy, increase their fitness and to integrate exercising into their daily routine. All of them lived in rural areas and they had to travel a long way to their workplace. Two of them could not complete the commute using one mode of transport as they covered parts of their journey by car and brought the bike on a carrier. They all had children and provided transport for them to some extent which prevented them from cycling on particular days of the week.

Interviewees who adopted this particular version of performance faced a similarly restrictive field of possibilities compared to commuters living in the country side. However, due to their own physical fitness and interest in health, exercising and fitness they saw cycling as viable transport mode under specific circumstances, regardless of the distance to work. First, they only cycled in the summer because it was bright enough to be seen as cyclists and thus safer on the road. Second, they all agreed that they only took the bicycle if the weather was fine and opted for the car if it was raining. They emphasised that the Irish weather was not conducive to active commuting. In contrast to practitioners of the alternative commuting practice (see Section 6.3) their transport mode depended on the

season and the weather. Third, they all agreed that cycling was dangerous due to heavy traffic and the lack of cycle-friendly road infrastructure. They also stressed that cyclists needed to feel confident to cycle long distances on busy commuter routes. However, they appreciated the shower and changing facilities provided by their company and rated these as essential to facilitating active commuting by members of the workforce. Finally, they could only commute actively if they did not have to provide transport to anybody else. They all had some sort of commitment on certain days of the week that required them to give lifts or to go someplace else after work. For those days they regarded the bicycle as not viable for their commute.

6.2.4 Trip-chaining and social obligations

The practitioners performing the trip-chaining version of the dominant car-based commuting practice also used the car as main mode of transportation. However, compared to the other three performance versions, almost all interviewees had to provide transport to relatives, primarily their children, on their way to work or home. Very few of them trip-chained in single-occupied vehicles because they regularly had to stop at other destinations regularly as part of their commute for reasons such as visiting relatives or sporting activities.

Most interviewees had children who needed transport. In most cases the two parents shared the task of providing transport. One practitioner who was interviewed was a single mother who did not share the task with a partner. She thus had to organise lifts for her children with relatives, friends or neighbours if she was not available herself. Normally, being responsible for somebody else's transport also affects other everyday practices.

> As I tell everyone, my working day starts when I pick up the children. That's when the real work starts. [...] They may have other things on after school. So it's a matter of taking them there, if that's needed. So obviously there's a schedule, and it depends on the day. (C11: male, 1964, 12 April 2011)

With regard to the geographical location, the interviewees who engaged in this commuting type did not have much in common. Some of them lived in an urban area while others lived in a rural area. Due to these differences the resulting field of possibilities varied. While both groups of practitioners faced constraints rooted in the mobility practices their families engaged in, the practitioners living in rural areas had fewer transport options (see also Section 6.2.1)

Practitioners' family life and place of residence also influence their working practice. Many interviewees reported that they changed their working hours to suit the organisation of their family life. In addition, children's transport needs also influenced their parents' overall mobility practice.

> I changed my times, my working hours. My hours used to be 8 to 5 but I now work from a quarter to 9 until 5, so that I can bring both them to school in the morning, because there is no other way of getting them into school. (C10: female, 1965, 5 April 2011)

Interviewees who previously commuted actively or shared a car with their partner reported that they bought a second car when they had their children. They also stated that they spent considerably more time on the road to satisfy their children's mobility needs. There is an increased need for car-based transport not only for the school run but also other activities their children are involved in such as sports. But parents did not see any viable alternatives for their children's transport.

> That's why I am coming and going all the time. I might take one kid swimming, and then I pick him [his son] up, and then get the other kid from swimming and bring them home. (C11: male, 1964, 12 April 2011)

These interviewees' field of possibilities was drawn up by the various practices they were involved in such as their working practice, the organisation of their family life and their place of residence. In addition, providing a ride for their children greatly influenced the interviewees' commuting routine. Their children's actual or perceived lack of transport options to reach their destinations constrained the parents' options. Carpooling to work, for example, was seen as unsuitable because the practitioners' commute did not only involve reaching their workplace but they also cover their children's destinations in the process. Therefore, parents reported that it was difficult to find someone whose schedule matched their journey to work and back home because most parents did not take a direct route.

> I'm lucky because there are about four lads starting at the same time as me, and they pass my door, so I could arrange something [in case his car broke down]. It wouldn't suit for us all to carpool every day because we all have different arrangements at half two [14:30h]. Some of them wait longer at work. If it did suit, I'd probably end up carpooling. (C13: male, 1968, 7 April 2011)

At the same time, sharing lifts with other parents for their children's commute to school or to other activities is a common practice. Many practitioners reported that their family was involved in carpooling arrangements with others for their children's transport needs. This

implies that to satisfy children's transport needs often involves a complex social network. A shift away from the car would thus have a considerable ripple effect affecting others' people's lives.

Interviewees also felt obliged to provide transport for their children because they did not see viable alternatives, mainly due to safety and health concerns and inconvenience. Many parents reported that the school bus stops and pick-up times were not suitable for their children's commute. In addition, the parents were concerned for their children's health because they were not protected from bad weather and their school bags were heavy.

> My children would have to leave the house at half 7 and be dropped to an area and wait for the bus. You are probably not familiar with the school bags these days, but they are actually extremely heavy. [...] And the school bus drops them at a point in Galway then, where they either have to walk to school 2 miles or get a second bus. [...] And again the return journey for that bus drops them at the main road N84 which again is 1.2 miles from my house. [...] So you'd have to pick them up or get somebody to do that for you because most of the days is a wet day, you know, and the bags are very very heavy. (C12: female, 1965, 5 April 2011)

Other participants let their children take the public bus, which was only an option in areas with public transport links. However, even then some practitioners considered their children's way to the bus stop as unsafe and the bus as just not suitable for transporting children.

> There is a bus schedule, but I'd have to walk a couple hundred yards, that's not convenient. It's a nice walk from my house and I'd have to cross a main road, so it wouldn't be safe. It'd be grand for me but not for my kids. (C13: male, 1968, 7 April 2011)

> There is a bus passing by the house but not for the time when I go to work and in the mornings. I have the kids. I am dropping them to the childminder, so the bus service is no good for me. With two young babies, that's no good, putting them on the bus and waiting at a bus stop. (C34: male, 1972, 26 April 2011)

Furthermore, active commuting, cycling in a particular, was also associated with health and safety concerns. All interviewees agreed that it was too dangerous for children to cycle to school due to heavy traffic and lack of cycle lanes.

> Again there are no dedicated cycle lanes. [...] I know for my own safety, for my own children safety we don't let them cycle outside the housing estate because people are, people use the road without due care to cyclist and pedestrians. (C33: male, 1960, 26 April 2011)

> I would be afraid myself and I've been cycling since I was a child, to cycle on the roads with the way traffic is, so fast. And for me to allow my kids to do it, I have to say, I'd be ... I don't feel comfortable myself; I wouldn't feel comfortable letting my kids out, without proper cycle lanes, where they have their own section, without having to go on the road, I don't think I would feel comfortable with it. (C11: male, 1964, 12 April 2011)

Overall, this group of participants made clear that they needed a car and they did not see any viable alternatives. At the same time, car-based commuting in the form of trip-chaining highlights the social nature of car use, which is further discussed in Chapter Eight.

Parents who trip-chain engage in the car-based commuting practice as the majority of Irish commuters from students to senior citizens. Only a minority of commuters engage in an alternative commuting practice.

6.3 Alternative active commuting practice

Most interviewees performing an alternative commuting practice either walked or cycled to work, and they generally commuted actively irrespective of the weather. However, similar to the car-based commuting practice, exposure to bad weather was perceived as a downside of active commuting. At the same time, these research participants did not see it as significant problem.

> The weather is a bummer at times alright, but I am putting all that stuff on [refers to waterproof gear]. That's awful, annoying, it takes me about five minutes to do that actually. In fairness, it doesn't rain that often, I know it rains a lot in Ireland but I haven't come across many mornings when I have to put my waterproofs on. (C39: male, 1962, 12 April 2011)

If they did get wet they used the shower and changing facilities at their workplace to get dry and changed.

> I've been lucky enough, there was only one day or two and I didn't get very badly wet. But what the company here has provided is phenomenal. They have given us a state of the art shower room, with four electric showers. So it doesn't matter if you get wet. Years ago you were coming in with your wet gear and you'd sit in your office, and you were getting colds and flues [...]. (C31: male, 1965, 15 April 2011)

Three themes are central to interviewees' accounts of their active commuting practice. The first two themes revolve around health and fitness, and feeling good and relaxed. The third theme describes the efficiency of active commuting. All practitioners agreed that active commuting contributed to them staying healthy and keeping fit. A number of them used their commute to integrate exercise into their daily routine, which allowed them to

maintain their work-life balance but still increase their fitness level. In addition, these practitioners described that they felt good cycling because they got fresh air, it kick-started them into their working day and on their way home they could unwind.

> I find it [cycling] therapeutic. I leave here and by the time I got to the bridge, I've forgotten about work and the thing is, on the way in in the morning I am at peace and when I hit the bridge, this wall comes up and I start thinking what do I have to do today when I go in, so I am more able to work for the simple reason that I cycle. (C42: male, 1968, 20 April 2011)

Furthermore, these participants explained that active commuting, and cycling in particular, was an efficient mode of transport for a number of reasons. First, cyclists were not hugely affected by congestion but instead they could pass traffic jams on their bicycle. Many emphasised that the efficiency of cycling freed up time for social interaction and their home life. Second, cyclists generally had fewer issues with parking. They could cycle directly to their destination and leave their bicycle in the vicinity without a time-consuming search for a parking spot. These two advantages made cycling a quick transport mode in heavy traffic and congested areas. Finally, cycling was seen as a cheap mode of transport, with respect to initial investment and the running costs.

> […] on a Thursday I go and get fish. [...]I park the bike outside the door, go in have a chat for 5 minutes and I am still out [of the city centre] before some of the guys leaving here at the same time in the car. (C42: male, 1968, 20 April 2011)

While the interviewees generally considered cycling to be the best transport mode for their commute, they highlighted that cycling was dangerous. Participants reported that the existing road infrastructure was not cycle friendly. As Chapter Five elaborates, roads are primarily geared towards car use, which is in line with the dominant car-based mobility practice. At the same time, most people have to commute during peak hours. Therefore, they are exposed to heavy traffic. Cyclists, in particular, perceived drivers as a threat because they did not believe that drivers gave them due care. Yet, they have to share the same road space. All interviewees agreed that cyclists always had to be alert while cycling and that it was a skill.

> You're constantly watching, you have to be aware of the traffic, because motorists don't give you too much care and attention, you have to watch them, rather than them watching you. [...] The second thing would be that there is not enough cycle lanes [...] I skip on the footpath [...] because there is no designated cycles lanes there. And hopping, constantly hopping on and off the bike, because the roundabouts are deadly, there are two roundabouts I have to negotiate, and I actually get off the bike at the one [roundabout]. (C31: male, 1965, 15 April 2011)

Moreover most cyclists reported that they tended to cycle on the footpath because they did not feel safe on the road.

> It's dangerous, don't trust anyone, just stay on the footpath as much as possible, stay off the roads, especially in towns where the roads are so narrow anyway. (C39: male, 1962, 12 April 2011)

Furthermore, participants also portrayed cars as dominating the road space and drivers as lacking consideration for other road users.

> Well, like I said before, I think that cars and traffic are not aware of walkers, if it comes to crossing a road, it's their territory. (C38: male, 1965, 28 April 2011)

While cyclists complained about drivers being inconsiderate, they also criticised other cyclists who did not obey the rules of the road and shared observations of cyclists doing risky manoeuvres. As the quotes above illustrate the practitioners emphasised that cyclists had to care for themselves and cycle safely. This also involved having safety gear such as high-visibility gear, lights and for some also a helmet.

The interviewees all lived in a six mile radius of their workplace. They all had access to public transportation but most made clear that they preferred cycling or walking over taking the bus. They generally shared the same perception as commuters of the car-based practice; that they found public transport restrictive and did not want to wait for the service.

With respect to car ownership and family life, those who engaged in the alternative commuting practice follow diverse patterns. Most interviewees either had a car themselves, or shared a car with their partner. Only a few of the cyclists did not own a car. Overall, the interviewees in this category also engaged in a car-based mobility practice to some extent, for example using the car for other trips than the commute. Although they were convinced that the bicycle was the superior mode of transport for commuting they also stated that occasionally there was a need for the car.

> Yea, I feel if you could cut the number of cars down, it would help, you know. But it is a necessity especially when you have, you know, active young families. If you have gymnastics, football and hurling and all that, it's hard. It'd be hard if you are used to your own independence in the car, if you are sharing the car again, you're going to miss it. (C31: male, 1965, 15 April 2011)

Research participants commuting actively perceived the car as important for other journeys and purposes, including long distances trips, going shopping or bringing their family to activities. This is in line with the dominant perception of practitioners performing the car-

based commuting practice. One respondent who thought that it was not necessary to have a car in the city and who did not own one at the time was convinced that he will be forced to buy one in the future.

> I feel I need a car, just for daily things. [...] If something's local enough, I'll hop on the bike. I don't plan on getting rid of the bike, the car is more for weekends and that. I do need it. I have a daughter there now and I need to be in the car to pick her up and so on. (C41: male, 1981, 27 April 2011)

This participant's aspiration to buy a car does not come as a surprise given that he was not the only one to report that a car was necessary to provide transport for your children.

However, while the participants of the alternative commuting practice also engaged in the car-based practice, they were also highly sceptical of and frequently criticised the dominant car culture in Ireland. They stated that there were too many cars and that often families owned even more than two cars. Their explanation for this phenomenon was that people had gotten used to the independence of individual transport and expected it now as a given.

> [There is too many cars on the road] because of the Celtic tiger. Everybody has two cars, everybody has two houses never mind two cars, so you know, you do see it some days, where there is a spill of a trend, in bad weather, where you have more cars on the road, people just don't probably use the bikes or the bus or whatever because they have to walk to the bus, so they just jump in the car. (C31:male, 1965, 15 April 2011)

Another interviewee even doubted that people living in the city needed a car and emphasised that some people were driving over walking distances.

> I think most people don't need a car if they're living in a certain area. Like some people get into the car to go to the shop instead of walking or cycling, and it could be only 100 yards down the road. I've seen people do it. (C41: male, 1981, 27 April 2011)

This understanding of active commuting being the best mode of transport for short distances for health and efficiency reasons forms the basis of practitioners' active commuting patterns despite being involved in a car-based mobility practice on some occasions.

6.4 Concluding remarks

To gain a deeper understanding of commuting practices and their performance, the author's practice-theoretical typology makes a pioneering contribution to transport research and policy. She developed four performance categories based on focus groups

and interview data that capture the commonalities and differences between the performance versions. This practice-focused typology of commuting in Ireland validates the developed practice-approach to the research of consumption of distance and as a result offers new avenues to advance the sociological understanding of car-based mobility. Table 10 below provides an overview of the dominant car-based commuting practice and the marginalised alternative active commuting practice respectively. The typology elucidates systematic differences between car-based commuting routines that are often subsumed under the general heading of car users. It also sheds light on socio-cultural and material, influences at work and thus complements large-scale quantitative survey data that can only capture broad social trends due to their aggregate nature. At the same time, the typology draws attention to influences that either prevent or promote a change in commuting patterns that have largely been overlooked in transport behaviour research in the past.

Table 10 Overview of commuting practices and their performance

	Car-based commuting practice				Alternative commuting practice
	Commuting from the hinterland	**Commuting in the city**	**Hybrid**	**Trip chaining**	**Active commuting**
Central features of performance	Main transport mode: car Commute is direct route to workplace & back	Main transport mode: car Commute is direct route to workplace and back	Main transport mode: car & bicycle is used regularly in summer	Main transport mode: car Commute covers multiple destination	Main transport mode: active commuting or carpooling
Other trips	On occasion active commuting where it is safe & destination is close	Main transport mode: car	Car & bicycle	Main transport mode: car	Car (if available) for other trips such as shopping or bringing children
Social site	Geographical location: rural Social obligations: only need to meet their own transport needs Working practice: adjusted to traffic	Geographical location: urban Social obligations: only need to meet their own transport needs Working practice: adjusted to traffic	Geographical location: rural Social obligations: occasionally need to provide transport Health and Fitness are important	Geographical location: diverse Social obligations: need to provide transport for others Working practice: adjust to family life	Geographical location: urban Social obligations: only need to meet their own transport needs Health and Fitness are important
Field of possibilities	Car is superior to alternative transport modes	Car is superior to alternative transport modes	Car is superior except for active commuting under specific circumstances	Car is superior to alternative transport modes	Active commuting & carpooling are viable alternatives to driving

First, the commuting typology illustrates the heterogeneous nature of car-based commuting patterns. Individual types come with their respective social causes and implications that require adequate attention and customised policy responses to achieve sustainable commuting patterns. Second, the detailed accounts given by research participants clearly show that social obligations to provide a lift to carless individuals is a central feature of the car-based commuting practice but also of the wider car-centric mobility practice in Ireland. In addition, people's commuting practice is interwoven with many other areas of social life, which draws attention to the social nature of car use. To put it simply, what people do and what daily routines they engage in is reflective of their social context rather than their individual decisions. Third, interview data used in this chapter also highlight that people's life course affects their commuting and wider mobility practices. This observation supports recent research on life events that demonstrated how catalyst events such as becoming a parent can fundamentally change people's everyday practices (Schäfer *et al.* 2012; Jaeger-Erben 2011). Evidence presented in this chapter also contradicts assumptions of common lifestyle approaches that view lifestyles as stable phenomena. Finally, the commuting typology informs the qualitative evaluation of the two-tiered change initiative as presented in the following chapter.

All in all, the typology developed in this chapter provided new insights into the field of possibilities and the social site of participants. Analysing participants' success (or otherwise) in changing their commuting routine with regards their commuting type can enhance the identification of conditions and circumstances that affect the transition towards sustainable commuting patterns. This is explored in more detail in Chapter Seven.

Chapter 7

Qualitative evaluation of Earth Day and Smart Moves Initiative

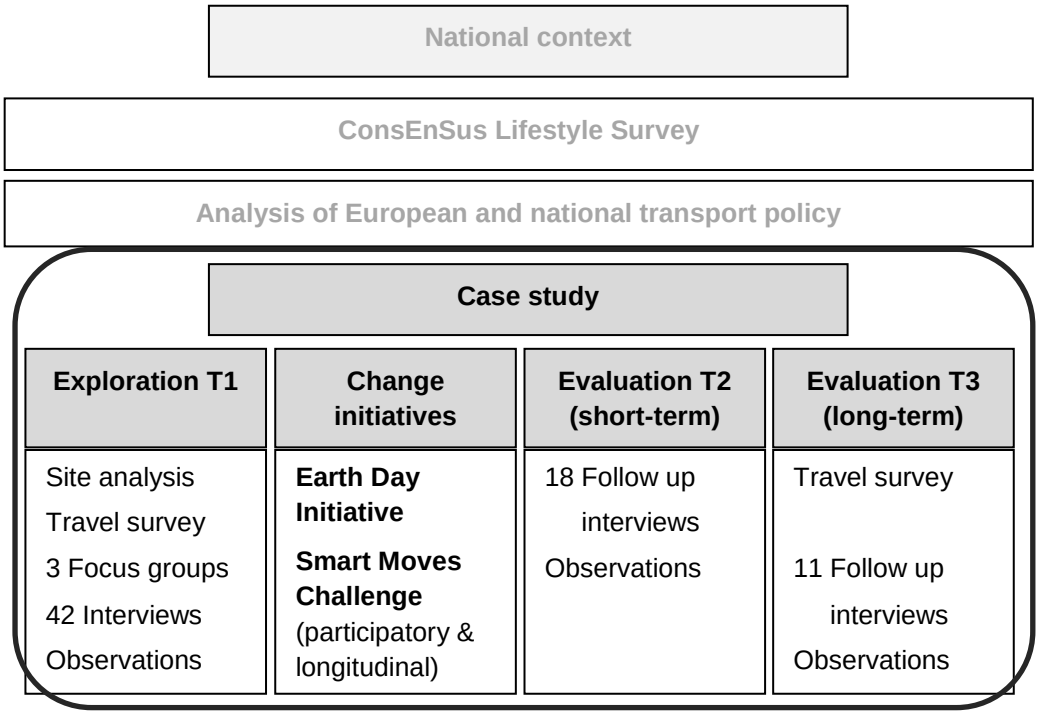
This chapter is dedicated to the qualitative outcomes of the employer-based change initiative, designed specifically for this case study. Drawing on findings on the main influences on commuting patterns and the commuting typology developed in the previous chapter (Chapter Six), it discusses aspects of participants' commuting patterns that help or hamper a transition towards sustainable commuting patterns. The resulting catalogue of influencing factors serves as a point of departure for conceptualising change processes in Chapter Eight.

The study's focus on measures introduced by employers to influence their employees' commuting routine offers insights into the potential role of employers as change agents. This focus on the meso-level of social organisation is of particular interest with respect to the transition towards more sustainable private transport patterns for two main reasons. First, the commute to work makes up the largest part of private transport, and challenging the status of the car as dominant mode of transport for commuting could impact on the wider car-based mobility practice. Second, employers can target their employees directly and implement measures that create an environment which is conducive to alternative transport modes, including significant infrastructural changes on their premises.

The two-tiered programme scrutinised here consists of two initiatives, the Earth Day Initiative and the Smart Moves Challenge. The former is a conventional mobility management plan that combines three commonly recommended soft measures to encourage modal shift among employees: information provision, incentives and employer-specific infrastructural changes (the three Is). This conventional initiative was intended to reach the company's entire workforce onsite. The second tier, the Smart Moves Challenge, is an innovative participatory initiative. It was strategically designed as a competition that ran over a period of five weeks. Participants signed up in teams of three and agreed to make their trip to and from work more sustainable by using alternative transport modes such as cycling, walking, carpooling or using public transportation once a week. Team members reported their transport mode through an online travel diary, and they competed with other teams to save the most car trips for the duration of the Challenge.

The participatory and team-based design of the Smart Moves Challenge reflects the underlying practice approach, which emphasises the social element of people's actions. In contrast to the conventional change initiative geared towards making an impact on the entire workforce, the Smart Moves Challenge targeted only its participants in an effort to change their daily commuting routine. The longitudinal element the Smart Moves Challenge implies that the researcher can empirically trace any changes (or otherwise) over time and, at the same time, assess the effectiveness of these employer-based initiatives to encourage lasting change. Measuring the effectiveness of employer-based soft measures deployed in this study involved recording any reduction in single driver car use as well as the material, social and cultural conditions that promoted the reduction. Overall, the qualitative evaluation of the two-tiered change initiative presented in this chapter rests on a combination of survey data, travel diaries, interviews and observations that were collected in three phases (see Figure 13 below).

Figure 13 Overview of data drawn on for this chapter



The first part of this chapter, Section 7.1, discusses the impact of the Earth Day Initiative. Here, the author draws on the results of the company-wide Travel Survey data which reflect rends in modal split among employees before and after its implementation. The two

waves of this survey, which were open to all employees, give an indication of the impact of the conventional change initiative which targeted all employees. The survey data, however, cannot capture the success of the small-scale participatory Smart Moves Challenge and can only give a broad overview of the impact of the conventional change initiative. The author additionally draws on 42 initial interviews conducted in T1 and also 29 follow-up interviews in T2 and T3 to get a more fine-grained picture of the three Is' impact. The interview data serves as an exploration of the reactions of the research participants to the three conventional measures. The three Is are viewed separately with respect to research participants' perception of them being useful mechanisms for changing their routine.

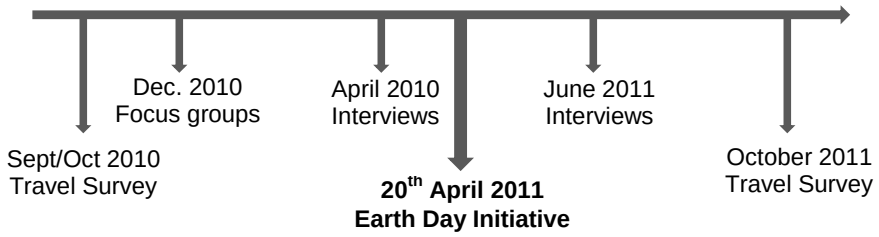
The second part of the chapter (Section 7.2) presents the findings of the impact of the Smart Moves Challenge on participants' commuting patterns. The qualitative evaluation is based on participants' success in changing their routine and considering participants' performance types of their commuting practice prior to entering the Smart Moves Challenge. The evaluation of the short-term and long-term effects of the Smart Moves Challenge is based on interviews and observations before the competition, on travel diaries and two waves of interviews after the competition. This study's longitudinal dimension allows for studying long-term developments and moves beyond a mere snapshot, which was common in research of mobility management plans in the past. In addition to this overall assessment of the impact of this participatory change initiative, the final section, Section 7.3, concentrates on issues and situations that either helped or hindered participants' efforts to change their car-based commuting routine. This section draws mainly from detailed accounts of participants' experiences and views taken in interviews that were conducted in three waves (T1, T2 and T3). It gives an insight into conditions that foster or hinder a transition to more sustainable commuting patterns. The role of their employer in bringing about (or perhaps preventing) a transition away from the car and towards alternatives receives particular attention.

7.1 Earth Day Initiative

Earth Day was strategically used to launch the Earth Day Initiative. The initiative was designed based on the results from the first wave of the Travel Survey and three focus groups conducted in the exploratory phase of this case study. The evaluation of its impact bases on the second

wave of the Travel Survey and interview data collected throughout the three phases of this case study (see Figure 14 below).

Figure 14 Earth Day Initiative Timeline



7.1.1 Travel Survey results

Before and after the change initiatives had been implemented the employer-based Travel Surveys were conducted to establish whether or not any change in the overall modal split among employees was evident (T1 and T3). The Travel Survey was originally inteded as a longitudinal survey. However, the vast majority of respondents chose not to provide any personal information that would have allowed the researcher to match the responses of individuals in the first and second wave. As a result, the Travel Survey is a simple two-waved survey based on two different samples, which meat that it was only possible to compare aggregate data.

Table 11 shows similar levels of car use in both samples. This indicates that the Earth Day Initiative either had no impact, or that the effect was too small to be picked up. However, the two samples show some differences in modal split. This, however, could be a sample effect which is common for small sample sizes. Consequently, the survey results give an overview of the modal split among employees before and after Earth Day based on averages and aggregated data. While these results give a snapshot of the modal split among employees it is not possible to ascertain whether individuals have or have not changed their routine between the first and the second wave of the survey.

Table 11 Travel Survey: main transport mode to work

Transport mode	First wave - T1 (Sep/Oct 2010)	Second wave - T3 (Sep/Oct 2011)	Direction of change
Car (driver)	**81.8%** (n=144)	**81.8%** (n=99)	**=**
Car (passenger)	**4.5%** (n=8)	**2.5%** (n=3)	**-**
Walk	**8.0%** (n=14)	**4.1%** (n=5)	**-**
Cycle	**1.1%** (n=2)	**8. 3%** (n=10)	**+**
Bus/Train	**4.0%** (n=7)	**2.5%** (n=3)	**-**
Motorbike	**0.6%** (n=1)	**0.8%** (n=1)	**=**

The second wave of the survey, which was conducted one year after the first wave and after both change initiatives had been implemented, included one additional question (see Appendix 2). Respondents were asked if they had changed their commuting behaviour recently. 34 per cent (n=41) of the respondents said yes and when they were asked for what reasons 29 per cent (n=12) said that it was for the change initiatives. Another 14 participants answered the open question of what triggered a change in their routine; almost half of them (six participants) wrote that their schedule changed. With the new schedule they have to cover other or additional destinations before, during or after work. Two participants stated that the cycle-to-work scheme made a difference to them, and also health reasons. The remaining four participants provided varying answers from the purchase of a car for rainy days to not having had a reason for changing their routine.

These results are inconclusive and do not provide any precise information on the impact of the change initiative. This also highlights the need for more more detailed information to establish if the two initiatives encouraged employees to change their commuting pattern. The following sections provide a qualitative evaluation of the two initiatives which is based on a close examination of research participants' accounts with respect to their reaction to the two change initiatives. The evaluation draws on all interviews carried out in T1, T2 and T3. The impact on the employees' commuting pattern cannot be clearly attributed to individual measures of the two-tiered change initiative, especially based on aggregate data and on the overall change achieved. However, it is valuable to examine the

response of research participants to individual measures, as expressed during the interviews after the initiatives had been implemented in T2 and T3.

7.1.2 Response to three Is

During Earth Day, on Wednesday the 20th of April 2011, the conventional workplace travel plan was promoted which encompassed a combination of three strands: the provision of information, incentives and changes of transport-related infrastructure on site to encourage a modal shift away from the car. The remainder of this section provides a detailed description of participants' reactions to the three measures.

Information provision

The Earth Day Initiative launched a specifically designed website to provide information on alternatives to car use. It offered information on walking, cycling, carpooling and public transport such as bus schedules and promoted the financial, environmental and social benefits of these alternative transport modes (see screenshots in Appendix 5). Based on findings from the focus groups carried out during the exploratory phase of the project, the website also included information on health, fitness and exercising, which focus group participants identified as a central motivational driver for active commuting. The website included a calorie calculator and suggested walking routes around the worksite (see screenshots in Appendix 6).

The majority of interviewees acknowledged that the information was generally useful and that the website was user-friendly. At the same time, most of them said that they were already adequately informed about their commuting options and therefore did not require any additional information.

> I didn't need it [the information on website], I already had made up my mind. There maybe other options, although maybe not with my schedule, but I never really considered anything else. (C36: 1969, 1 June 2011)

Many research participants stated that they only used the website for one specific feature frequently. In addition to offering information, the website also served as an online interface for the participants' travel diary. The travel diary was designed to be user-friendly. The participants could simply click onto the Smart Moves website or send a text message to the

researcher directly (see screenshots in Appendix 7). Based on participants' daily report of their transport mode, the team scores were calculated and published on the website. Many participants in the Smart Moves Challenge highlighted that they only used the website for recording their journey to work and checked on the teams' scores to compare their standing to other teams.

> I did [look at the website] I didn't really need any of the information to be honest. [...] I just looked for the competition. (C25: 1959, 8 June 2011)

> No, I didn't [look at the website] I'm not gonna lie, I just filled in the information and checked the score to see how we're doing. (C41: 1981, 8 June 2011)

These statements were confirmed by the analysis of the website using Google Analytics. It showed that from Earth Day on, when the website was launched, it was typically used as a tool facilitating the participation in the Smart Moves Challenge rather than as source of information on alternative transport modes for commuting (see Appendix 9).[66] It is striking that the website was not used for its original purpose of providing transport-related information. This observation is in line with the findings from research on the impact of information campaigns (see also Sections 2.2.1 and 2.4).

Incentivising alternatives to car use

The second measure of the conventional workplace travel plan was incentivisation. For this purpose, employees were provided with gear for active commuting and they were also encouraged to participate in two national taxes saving schemes, the cycle-to-work scheme and the employer-travel-pass scheme.

Gear for active commuting

On Earth Day employees who signed up for the Smart Moves Challenge received gear to enhance their experience of walking and cycling, and to make these modes more convenient and safe. They received a high-visibility jacket, reflective armbands, spoke reflectors, a saddle cover, an aluminium drinking bottle and a rucksack or a flap-top bag. The response of participants to these items and if they perceived them as useful in changing their routine was

[66] 88 per cent of the hits were made to log onto the online travel diary.

mostly indifferent or negative. Participants stated that they had no use for it because they already had safety and cycling gear. While participants did not regard the gadgets as useful in breaking their habit, the gadgets drew employees' attention to the stall on Earth Day where they could sign up for the Smart Moves Challenge.

Saving taxes while commuting

The cycle-to-work scheme is a government-led incentivisation programme to reduce car use and increase cycling. It is implemented by work organisations and it gives a tax rebate for buying a bicycle. The employee can avail of a bicycle and cycle gear worth up to 1000 Euros. Employers pay the bicycle for their employees and take a monthly payment out of the employees' wages before tax is withdrawn (see also Section 4.3.3 on change initiatives).

Most research participants talked about their knowledge of the scheme in their interviews without being prompted. While some had participated themselves, others shared anecdotes of colleagues and friends who bought a bicycle on the scheme. Most participants made clear that the scheme had a good uptake. Research participants described that the cycle-to-work scheme was 'creating a buzz' and the ones who had signed up for it often explained that they had been encouraged to put their own name down by others' experiences with the scheme and cycling.

> There's a lot of uptake on it [cycle-to-work scheme], so there's a good few people with bikes now, so we'll see how it goes, everyone is kind of getting into the buzz of it. (C28: 1975, 27 April 2011)

> Well, for most part it was kind of a conversation I had [...] with colleagues about biking to work and the scheme. My last bike got stolen about 10 years ago and I hadn't had one since, I had it always in the back of my mind, get a bike, get a bike, get a bike, so the bike to work scheme came on [...] I received the email [asking who was interested] and I replied yes. (C29: 1966, 20 April 2011)

All cycle-to-work scheme participants said that not only did they buy the bicycle but that they had it customised it to their needs, for example with a basket or pannier bags, and that they also purchased safety and other cycling gear.

> I suppose it is a way of paying weekly if you want to buy an expensive bike, rather than paying all at one time, you can spread it out. (C13: 1968, 7 April 2011)

A well-functioning bicycle and gear are important for a positive cycle experience to avoid unnecessary physical effort, getting wet and becoming and remaining sweaty during the cycle. The experience that cycling is a viable, legitimate and pleasant alternative transport mode can be seen as precondition to developing a cycling habit. This finding is supported by research showing that first-hand experiences help people overcome preconceived ideas about transport modes and can enhance a modal shift (see Section 2.1.1; Wickham 2006a; Fujii & Gärling 2005; Fujii *et al.* 2001).

> Irish people usually don't know how to dress for the weather. [...] Because for generations you put on a coat and you walk or you get in a car. You then get on a bike, between the bike and the car [there is a big difference.] [...] If you're cycling to work or whatever, it requires that you wear the right skins. You can buy cheap ones and all you do is sweat and then you say that was horrible. [...] Same with kids, if a kid is told to cycle to school with heavy windshield [rain jacket], they will sweat and then they will feel cold and be miserable and they will say I didn't like that experience. (C30: 1966, 21 April 2011)

Even though people had purchased a bicycle and cycling gear on the cycle-to-work scheme, some emphasised that it was hard to break the car habit and start cycling. As the quote below illustrates, research participants stressed that it was hard to change other routines, such as the time they got up in the morning, which prevented them from taking up cycling to work (see also Section 7.3).

> I got the bike there through the cycle to work scheme about three or four weeks ago and I've been meaning to cycle in since but I haven't got around to it yet. The biggest problem is getting up in the morning and I am usually running late so, the bike could make me those few minutes later. (C29: 1966, 20 April 2011)

The national employer-travel-pass scheme was also introduced to employees. It also offers a tax break to public transport users following the same logic as the cycle-to-work scheme. However, while the cycle-to-work scheme has been very popular among employees, none of the participants was interested in applying for the travel-pass scheme. The Human Resource department also found that among the entire workforce there were only few people showing interest.

Infrastructural changes

In addition to the provision of information and the incentivisation of alternatives to car use, the company agreed to improve its transport-related infrastructure on-site to facilitate active

commuting and other sports activities during lunch breaks and after work hours. First, it renovated the existing shower and changing rooms and installed additional lockers to facilitate active commuting and fitness activities. Second, the company also set up additional sheltered bicycle stands in prominent spots next to the entrance gates. Both actions showed the company's commitment to the change programme. By doing so, the company demonstrated that active commuting was considered viable and legitimate, and that it supported employees in their efforts keep fit and healthy.

Response to bicycle stands

The bicycle shed and bicycle stands that had been on-site until the Earth Day Initiative in 2011 came with various problems. The old bicycle shed was located at the main entrance at the rear of the security building but below the light of sight, and there were also two racks of small wheel grippers at the far side of the site. In contrast to the simple racks, the shed offered some protection from the weather. Overall, the bicycle parking on site did not receive any attention and the shed was neither regularly cleaned nor maintained. The old bicycle shed could only hold a small number of bicycles which matched low demand for bicycle parking. However, more and more employees bought new bicycles for commuting (partly through the cycle-to-work scheme) and thus needed adequate parking spaces. Responding to this rise in demand, the company installed new sheltered bicycle stands at the front and back entrance of the site. This was received very positively by staff.

> I do think the new bike stands made a difference, we didn't have anything good, in the back [back entrance of the site] we had a rack that was sitting there and no weather protection, so every evening the bike was wet and in front [main entrance of the site] the bike shed was never maintained, never cleaned, it wasn't on our radar. But over the last years, people have bought bikes, and now that I think about it, it's probably because people have spent a lot of money on their bikes, because of the bike scheme [cycle-to-work scheme], it's a high value item and they want to mind that bike and protect it more and want a place to keep it safe. (C30: 1966, 21 April 2011)

Also, the old shed is hidden behind a building and cannot be seen from any of the main buildings. It has a door which has been kept open at all times for practical reasons. However, being sheltered does not imply that bicycles are secure. It was reported that bicycles had been stolen from the old shed in the past, and one reason for that may have been that the shed is

located in an isolated area and out of sight. The new bicycle stands, which are sheltered and in full view of the surrounding buildings, have been received well by the participants who cycle.

> Yea, they're [the new bike stands are] great. My biggest issue with the old ones is that they're away from public sight, there is nothing wrong with it, it's a proper gate but they never lock it, so that's useless. My biggest issue is that they don't have a security camera down there and if someone wants to sneak in, go past security which you probably can, when he's off on his round nobody can see it, the other one [the new bike stand] can be seen from the office block. (C24: 1974, 2 June 2011)

Response to new changing and shower facilities

Many participants shared their concern of looking unprofessional and not presentable if they cycled or walked to work. A number of participants emphasised that the changing and shower facilities are the reasons why they could switch from driving to active commuting.

> If I didn't have the shower facilities I would probably mind doing it [cycling]. (C24: 1974, 2 June 2011)

Other participants made clear that while they saw the benefit, they personally did not need the shower facilities although they commuted actively. Some of them said that they did not live far from their workplace and others said that they made sure they did not get wet or that it did not matter if they got sweaty on their way to work because they might sweat at work anyway.

> No, [does not use shower facilities on site] when I go home I have my shower, even when I am wet, I bring my pants in my back pack. Sure, I'll be sweaty but I'll be sweaty working in here anyway so, no, I just wait to the evening. (C39: 1962, 3 June 2011)

One participant stressed that he would not take a shower at work and that he preferred his shower at home.

> I have looked at them [shower facilities], but there is no way I would take a shower here. [...] It is not far enough and I just wouldn't shower here, I like home comfort. (C23: 2 June 2011)

It is interesting to note that both quotes illustrate how existing practice around showering and personal hygiene influenced interviewees' response to the shower facilities.[67] This can also influence their perception of active commuting as being viable. While the changing facilities were welcomed as necessity by some, they do not make active commuting any easier for others.

Overall, the success of the three Is in helping people to change their commuting routine was limited. Yet, scrutinising the measures separately reveals that individual measures were helpful to people changing their routine for different reasons. The small gadgets were not much of an incentive but the national cycle-to-work scheme did give people the opportunity to make a serious attempt to switch from driving to cycling. However, many participants made clear that while having a good bicycle was the prerequisite to cycling to work, it was not motivating enough for them to actually start doing it. While infrastructural changes were small in scale, they nevertheless contributed to creating an environment that is favourable to active commuting. While the bicycle stands were very well received by all aspiring cyclists, the shower facilities made a difference to some but not to others. It is important to note that the individuals who used the shower facilities stressed that it made active commuting possible for them. Information provision via the website clearly was not perceived as encouraging a change in people's car-based commuting routine. This said, the website proved to be an important tool to facilitate the Smart Moves Challenge. The following section focuses on the effectiveness of the Smart Moves Challenge in achieving a modal shift. Initially, it gives an overview of the outcomes of the initiative. Subsequently, it discusses participants' motivation to, and anticipation of, the switch to other transport modes before it examines the outcome of the Smart Moves Challenge in detail highlighting the circumstances and conditions that participants described as hampering or fostering a modal shift away from the car.

7.2 Smart Moves Challenge

The Smart Moves Challenge was designed based on findings from the first wave of the Travel Survey and focus groups conducted in the exploratory phase of this research. The evaluation of the short-term and long-term effects of the Smart Moves Challenge are based on interviews

[67] Elizabeth Shove's (2003) work on practices and conventions around showering gives interesting insights into notions of well-being.

and observations before the competition, travel diaries collected during the initiative, interviews directly after the competition and follow-up interviews conducted three months after the end of the competition. Only one woman participated in the Smart Moves Challenge and the gender of the interviewees who are quoted in this chapter cannot be disclosed as a result. Figure 15 below gives an overview.

Figure 15 Timeline of Smart Moves Challenge

Table 12 below gives an overview of the 17 participants in the Smart Moves Challenge who took part for the duration of five weeks, and their success (or otherwise) in changing their routine. This Table does not include the four participants who dropped out within the first two weeks, or the five participants who were regular active commuters before they entered the challenge.[68] The first column, going from left to right, sorts participants by their commuting type prior to entering the Challenge. That way, the reader can assess the participants' success in fulfilling the requirements of the competition considering their existing routine, social site and field of possibilities. At the same time, it draws attention to the fact that there is a bias among the participants with respect to their social obligations and residential location. The largest group of participants live in an urban area around their workplace and most participants do not have to give a lift to anybody on their way to or from work. The second, third and fourth columns list additional information about the personal circumstances of the participants; their profession, residential location and which alternative transport mode they

[68] Out of the four participants who dropped out, three participants still completed the first interview. One of them even gave the follow-up interview after the competition had ended (T2). Out of the six active commuters, five participated in the first interview before the competition (T1) and four of them did the two follow up interviews (T2 and T3). Finally, only one participant, whose travel diary information was completed by one of his team mates, did not participate in any of the interviews. He did not succeed in fulfilling the requirements of the competition.

intended to use during the Challenge. These personal circumstances are included because they may qualify as circumstances hampering or enhancing a transition towards sustainable commuting patterns. The residential location, in terms of the distance between their home and workplace, is relevant to estimate if walking or cycling to work is viable.[69] The participants' intentions are of particular interest here because they are related to people's fields of possibilities. All employees participating in the Smart Moves Challenge intended either to carpool, walk or cycle to work at least once a week. Nobody chose to switch from driving to using public transportation, although the company offered to enrol in the employer-travel-pass scheme which allows public transport users to save taxes. The most often cited reason was that the public transport services within the city and in the (semi)rural hinterland did not suit commuters (see also Chapter Five and Six on public transport in Galway and its perception). Column 'Change in T2' defines if participants fulfilled the requirement of using an alternative transport mode at least once a week for the duration of the Challenge. Column 'Change in T3' informs if participants were still keeping up their changed routine three months after the Challenge. The last column 'No change' captures if people did not succeed in changing their routine at all.

Table 12 clearly shows that the Smart Moves Challenge had an impact on participants' commuting routines. This Table does not include the four participants who dropped out within the first two weeks, or the five participants who were regular active commuters before they entered the challenge. More than half of the remaining 17 participants (9 out of 17) used an alternative transport mode at least once a week during of the challenge and more than half of them (5 out of 9) continued this new routine after the Challenge. All nine participants changed from being a solo car driver to cycling or carpooling on a regular basis. Eight participants did not meet the requirement of the challenge of using an alternative transport mode to the car once a week. In other words, the Smart Moves Challenge was successful in achieving a shift in modal spilt, with 53 per cent of participants changing their routine for the duration of the competition and 30 per cent of the participants keeping up their changed commuting routine in the longer term (three months or more). While this result clearly demonstrates that the Smart Moves Challenge had an impact on employees' commuting routine, it does not give any indication why some people change and others did not. For example, it is striking that only

[69] In this study a distance of less than 2 miles is considered as walkable and a distance of up to 5 miles (urban in Table 12) is defined as cyclable.

participants of two commuting types, trip-chaining and commuting in the city, developed a new commuting routine that lasted at least until October 2011.

Table 12 Outcomes of Smart Moves Challenge

Commuting type prior to Smart Moves Challenge	Professional group	Place of residence*	Intention	Change in T2	Change in T3	No change
Commuting in the city	Factory worker	Urban	Carpool	●	●	
	Middle ranking staff	Urban	Cycle	●	●	
	Middle ranking staff	Urban	Cycle	●		
	Middle ranking staff	Urban	Cycle			●
	Middle ranking staff	Urban	Cycle			●
	Middle ranking staff	Urban	Cycle & walk			●
	Middle management	Urban	Cycle & walk	●		
	Middle management	Urban	Cycle	●	●	
Commuting from the hinterland	Middle ranking staff	Rural	Carpool			●
	Middle management	Rural	Carpool			●
	- not known -	Peri-urban	Carpool			●
Hybrid	Middle ranking staff	Peri-urban	Cycle	●		
	Middle management	Rural	Cycle			●
Trip-chaining	Factory worker	Peri-urban	Cycle	●		
	Factory worker	Urban	Cycle	●	●	
	Factory worker	Urban	Carpool	●	●	
	Middle ranking staff	Peri-urban	Carpool			●
Participants	**17**			**9**	**5 (of 9)**	**8**

*Urban= less than 6 miles; Peri-urban 6-10miles; Rural = more than 10

At a first glance, the participants who developed a new commuting routine do not seem to have much in common, with some having social obligations while others have not. However, a closer look reveals that they all live within the urban area surrounding their

workplace, which suggests that distance is an important aspect. This still cannot explain why other people living close to their workplace did not change their routine. Merely considering participants' original commuting performance gives an unclear indication of conditions that potentially help or hamper people change their commuting routines. This observation implies that the outcomes of the Smart Moves Challenge and the wider implications need to be further examined to increase our understanding of why some people changed their routines and others did not. A closer examination of individual accounts of the conditions that either encourage or impede their transition towards sustainable commuting patterns is needed (see also Section 7.3).

7.2.1 Why leave the car at home?

All Smart Moves Challenge participants had access to a car. Most participants had their own car and only few shared their car with their partner. The two main motivational matters that emerged from the interviews were cost savings and staying healthy. Participants' motivation to switch from driving to another mode of transport mainly varied with the chosen alternative mode, carpooling or active commuting, but also with other everyday practices they were involved in, such as their housing practice.

The overall motivation for carpooling was to save money on petrol. This was the case for both the rural and urban participants. With regards to cycling, all participants agreed that they wanted to commute actively because it was healthier and that they wanted to increase their level of fitness. This observation is confirmed by findings from the focus groups and the Travel Survey on health as a motivational impetus. In the Travel Surveys 58 per cent of respondents in the first wave and 65 per cent in the second wave emphasised health benefits as biggest advantage of cycling. In the ConsEnSus Lifestyle Survey more than 30 per cent of respondents saw the biggest benefit of cycling as being good for their health. Against this background, it may be useful to target health issues as a way of enhancing the acceptance of change measures and policies. Smart Moves participants who also engaged in other sports practices, such as playing football or going to the gym, stressed that they were fond of the sportive aspect of cycling to work and that active commuting was a way of integrating additional exercise into their everyday routine without upsetting their work-home balance.

Only a few participants living in the urban area surrounding their workplace highlighted that they felt guilty about driving short distances and that not taking the car was the right thing

to do. While guilt was not the primary motivation, it enhanced their overall enthusiasm for the Smart Moves Challenge. Yet, despite being motivated to change their commuting habit, not all participants put their intention into action.

7.2.2 What does the future hold?

This section briefly elaborates participants' anticipation of the switch to another mode and their intended new commuting routine. According to the applied practice-theoretical approach, practices draw up fields of possibilities. In other words, they capture what actions are possible, viable and acceptable for practitioners. Research participants' intentions and anticipation of their future commuting routine give insight into their perceptions of the field of possibilities. Most participants were optimistic about changing their routine. This said, most employees did not set out to change their commute radically but decided to leave the car at home once or twice a week. Some stated that they had previous experiences in using their future transport mode. In particular, the participants who intended to cycle mentioned that they used to cycle, mainly when they were in school or college. Therefore, their anticipation was based on past experiences.

> I know it's going to be a lot of curb hopping, avoiding cars and all of that. I cycled for 5 or 6 years around Galway City when I was a student here. I know I'll stay dry. I know I'll get wet. I know I'll avoid traffic. I know I'll be grand. [...] It should not be too bad, once I get in on it [bicycle]. It'll be fine. The first couple of days I'll be well out of breath, so I am just trying to build myself up a bit before I start doing this, coming to work. (C29: 1966, 20 April 2011)

Participants who intended to cycle highlighted three aspects that mattered most for active commuting: physical ability, traffic and weather. Most acknowledged that they might have to get used to the particular physical effort required for their commute, but they generally regarded their physical fitness as sufficient to do it, and expected their fitness to improve quickly.

> I do know I will get a butt pain but I think I am fairly fit, so I am not worried about that aspect. The thing that concerns me about Galway is traffic. It is bumper to bumper and people do not pay attention to cyclists. [...] I am a little nervous about the safety aspect of things. You probably have seen the roundabouts, I mean in a car it's scary enough but on a bike... So, I am not bothered in terms of fitness but I am nervous about traffic. (C23: 2 June 2011)

With respect to safety and traffic, there was general consensus that cycling can be dangerous, especially due to the heavy traffic. Therefore, many participants who intended to cycle deliberately planned routes that minimised their exposure to traffic as much as possible. However, some participants still emphasised that they were concerned about their safety and traffic. While the weather was an important topic for all research participants, only a few participants who intended to cycle mentioned the weather in relation to their future commute. The ones who did, emphasised that they were not seriously concerned about it because they had rain gear and also could use the changing and shower facilities if they got wet.

7.2.3 How did it go?

People's personal assessments of how they got on in the challenge differed in relation to their success in realising their intention. Some participants were content with their own performance and that of their team because they managed to switch from the car to an alternative transport mode. This, however, was the minority of participants. The majority of participants expressed frustration and highlighted that they had personally expected to perform better.

The overriding declaration was that it was harder than they had anticipated in their interview before the Challenge. Participants gave different reasons for this. The participants, who set out to cycle to work on a regular basis emphasised three main difficulties that prevented them from cycling more often: the weather, traffic and the lack of cycle-friendly infrastructure. The people who attempted to carpool instead of driving themselves stressed that they had more difficulties in organising carpooling arrangements which suited the people involved than they originally imagined. A third and smaller group of participants who could not fulfil the requirements of the competition stressed that the competition was not as motivating for them to break their car habit as they thought it would be. Following participants' personal conclusions on their performance the next section elaborates on issues that made it harder, or easier, for participants to change their routines drawing on interviews, travel diaries and observations.

7.3 Help or Hindrance?

7.3.1 What makes it harder to change?

Participants' accounts highlighted different issues and factors that either assisted or impeded their efforts to change their habits. The following paragraphs focus on barriers to change. For this purpose, observing and listening to practitioners who succeeded in fulfilling the requirements of the competition and thus successfully changed their routine, as well as to practitioners who failed to change their routines was essential. The systematic comparison of the different accounts revealed differences between the groups of participants. Reported difficulties in relation to switching to active commuting mainly revolved around safety, cycle-unfriendly infrastructure and the weather. Another difficulty that was frequently cited in changing to new carpooling and active commuting routines was that it affected other everyday routines, and participants described that it involved more preparation than taking the car. Finally, many participants who did not change their behaviour lacked moral support from their family, work colleagues and friends for their undertaking. Such support legitimised the practice of active commuting for these particular participants.

The vast majority of participants intending to cycle reported heavy traffic and the lack of a cycle-friendly infrastructure as major obstacle to cycling because they viewed both as a threat to their safety.

> I suppose I am a bit disappointed. I thought I was a bit more mobile on the bike. [...] When I did cycle it was a bit of a revelation because you pretty much take your life in your hands. It's not a pleasant experience. (C23: 2 June 2011)

Many explained that they cycled on the footpath or took back roads to avoid traffic wherever possible. Even participants who referred to themselves as confident cyclists and who cycled on a daily basis throughout the duration of the competition stressed that cycling to work on the roads was dangerous.

> There is not enough cycle lanes around. [...] I am actually afraid to go on the road. [...] I have to use a foot path because there is no room for bicycles on the road [...] The roundabouts are deadly. [...] you see a gap and you shoot across, there's no facilities there to cross safely. (C31: 1965, 2 June 2011)

> It's not safe to go out onto the roads, I am on the paths, I used to just cycle on the path [during the competition]. It was just not safe. (C32: 1978, 3 June 2011)

People who lived within walking distance regarded walking as a safer and easier option than cycling because pedestrians were less exposed to traffic and the existing infrastructure was full of obstacles for cyclists.

> Well, walking, you're walking on the pavement and that's much safer, you know. That's the main difference, you're safer. You're not safe on a bike. Drivers don't seem to take care of cyclists. When you're cycling you're as close to the curb as you can and you're still sometimes almost getting hit. So that's the big difference. So a lot of times I'd rather walk purely for that reason. (C23: 2 June 2011)

Some cyclists made an attempt to take quieter routes off the main roads but they were put off by the poor permeability of residential areas and other public spaces.

> [The] first day on the bike wasn't hard but I found for the short route coming here it was very difficult to cycle.[...] I didn't go on the road, I went across on pavement, across by the church of Renmore and the Hospice, and they have gates and the bike didn't fit and I had to lift the bike over the gate, and the same on the far side, and then I was waiting at the lights. I think, well obviously, I was faster on the bike but it was less hassle walking. (C30: 1966, 9 June 2011)

The second issue that played a central role in practitioners' accounts was the weather. Participants regarded it as major obstacle to cycling for different reasons. Many participants stated that they needed to look presentable for work and wear their work clothes, which for a lot of them meant wearing suits. They stated that they could not afford getting drenched.

> I wouldn't want to arrive for a 9 o'clock meeting sweaty and wet. (C21: 1971, 20 April 2011)

Participants willing to cycle also stressed that it was not only the rain and getting wet that reduced the attractiveness of cycling as transport mode for the daily commute but also the wind was off-putting because it required considerably more physical effort.

> Remember the bad weather and the wind? When I was cycling it was crazy, it would take me 40 or 45 minutes cycling in and it was not even the distance but with the wind it's taken me ages. (C32: 1978, 3 June 2011)

Moreover, many participants noted that the traffic was dangerous for cyclists. Bad weather conditions simply added to that danger and worsened the situation.

> It's bad enough cycling in traffic when it's dry but when it's wet, there is more traffic on the road and people are impatient that's not a good experience. And then walking to work, yea, you could probably walk in the rain, a lot of people do. (C23: 2 June 2011)

Participants who did not change their routine, as well as people who cycled occasionally, emphasised that cycling was only a viable alternative for them under fair weather conditions. In addition, many participants, especially those commuting from the countryside, emphasised that cycling was an alternative for their commute during summer time only. The darkness and the winter weather in combination with heavy traffic and narrow roads worsened the situation for cyclists and increased their safety concerns.

In comparison, participants who switched to cycling on a daily basis and stuck to their new habit had a different perception of the weather from the rest of the participants. It is important to note that all these participants who became active commuters lived in the urban surroundings of their workplace, but they also did not perceive the weather as reason for not using the bicycle. They stated that they would put on their rain gear which prevented them from getting wet. They were all convinced that using rain gear solved the problem of getting drenched. In addition to rain gear, participants also reported that they brought their work clothes with them in a bag. In the event of them getting wet they could use the shower and changing facilities on site to make sure that they are dry and presentable for work.

> Although the weather was bad, it was ok actually because I can get all kitted out in my cycling gear and I can have a shower when I come in. If I didn't have the shower facilities here, I would probably mind doing it [cycling in the rain] [...] But the fact that we have those shower facilities here, that's a huge advantage because, I mean, I wear my cycling gear, so it doesn't bother me if I get wet because I am getting changed anyway. (C25: 1959, 8 June 2011)

The third issue that participants highlighted was that active commuting and carpooling involved more preparation than taking the car. The participants who set out to carpool and did not realise their intention showed frustration about encountering difficulties in organising a carpooling arrangement. Also, participants aspiring to cycle stressed that they had to pack a bag with their work clothes and other necessity if they wanted to take a shower on site.

> [You need to] make sure that you have your bag packed with a shirt and trousers in it and be ready to just throw that on the bike and go. (C29: 1966, 2 June 2011)

The need to find carpooling partners or bring a second set of clothes and cycling gear was different from what people were used to from their car habit and this made the transition harder.

Moreover, changing the commuting routine and switching to another mode of transport also affected other everyday routines of participants such as participants' morning routine, their work practice and their family life. For example, participants reported that they had to get up earlier, could not trip-chain as they were used to or had to organise their work differently.

> I drive, and that's purely because at the moment I am not organised enough to leave my laptop here. I work a lot from home, both in the morning and in the evening. So really, most of the time I have to have my laptop with me. It's fairly heavy to carry, I have no problem walking, and when it's dry and I am more organised, I do leave my laptop here and walk; just to get out into fresh air. (C23: 20 April 2011)

The participants who had trouble with the required changes in other areas of their life did not succeed in switching from car use to an alternative commuting routine in the long run. While some managed to fulfil the requirements of the competition, they carried on with their old routine after the competition was over and did not develop a new commuting habit. The participants, however, who changed their commute radically, reported that they did not encounter any major difficulties in integrating the new routine into their existing everyday practices.

The level of support from others (e.g. team mates or family) was another significant difference between the participants who put their intentions into practice by leaving their car at home once a week and those who did not. Teams whose members did not manage what they intended to do in the initial phase reported that they started joking about their resolutions and that the enthusiasm flagged.

> We [team mates] sit next to each other in our office; it started with good intentions but then it turned. (C27: 1957, 3 June 2011)

Instead of taking on the challenge together, the participants reinforced each other in their car habit through their opinions and actions. For example, one participant stated that colleagues agreed with him that he could not commute actively on rainy days. Such mutual understanding confirmed participants in their current perception that bad weather prevented them from cycling.

> They [colleagues] asked me why didn't you do it [cycle] more often, but then they were of the same opinion that the weather was just absolutely crap. (C29: 1966, 2 June 2011)

In addition, individual team members did not receive support and motivation from their team to adopt a new commuting routine, because none of the team members left their car at home. They all carried on 'business as usual' and retained their car-based commuting practice instead of using an alternative. This atmosphere nurtured the perception that the car was the normal mode for commuting and that other modes were not really viable.

> We are beside each other in the office, it was after week one that we knew we were not going to go anywhere on this, [team mate 1] had things that needed doing and he needed a car for it and [team mate 2] just got caught up in things as well, in the first week or two we'd be come on start cycling lads and so on, but then we all gave up. (C29: 1966, 2 June 2011)

Furthermore, participants, who initially made an attempt to commute actively but then gave up, also reported that their family members thought they were joking and did not belief that they would or could do it. Thus, they also lacked support from their families.

In contrast, teams that talked about how they got to work and motivated other team members to leave their car at home succeeded to fulfil the requirements of the competition and often exceeded the requirements. They used the competition to encourage each other and individual members did not want to let their team mates down, which served as motivation to continue.

> I didn't do it once week but I cycled three days a week. I was gonna give it up, but the lads kept asking me to do it, so I did it. (C32: 1978, 3 June 2011)

These participants also reported that family members, colleagues and friends thought that switching from driving to active commuting was a good idea and that they complimented them. Yet, despite the encouragement, a number of participants who successfully finished the competition did not carry on with their new commuting routine.

The participants who found support in their teams mates and families mostly mastered the challenge, even though not all developed a new commuting habit in the long term. Other factors such as weather and traffic may have put them off switching from the car to an alternative transport mode. While the lack of moral support hampered participants in their transition from old into new habits, the support from team mates and family helped participants to change their commuting routines.

7.3.2 What makes it easier to change?

In order to identify factors that made the changing of their commuting routines easier, the author scrutinised and compared the travel diaries and interview data with people who used an alternative transport mode either for the duration of the competition or even continued to do so after the competition. All practitioners considered in this section were highly motivated to reduce their car use. One participant had even decided to stop investing in his car, which left him without the option of using it.

> We have two cars but my car probably wouldn't have passed the NCT [National Car Test], so I didn't bother re-taxing it once I started cycling. [70] (C35: 1965, 26 April 2011)

Six participants of the Smart Moves Challenges had purchased bicycles and cycling gear on the cycle-to-work scheme before entering the challenge. Even though they were motivated to use their bicycle, they had not started cycling at that stage. After the competition four of them integrated cycling into their former car-based mobility routine, and three of them had become regular cyclists. Employees who participated in the cycle-to-work scheme and the Smart Moves Initiative used the competition to get kick-started and also to draw continuous motivation from it, which the cycle-to-work scheme alone does not provide.

> I think the challenge is a good starting point. Something for you to aim for rather than say you try yourself to cycle to work. It's too easy to say, it's raining today. But if you're doing it for a competitive reason the better. You'll say, feck [sic!], it's raining but I am still doing it. (C24: 1974, 2 June 2011)

Most participants who were successful in changing their routine experienced different forms of support from others. This relates to the previous section and the observation that lacking support made the changing of routines harder. Social support can take different forms starting from team mates encouraging each other and being good examples to each other. Also, team members can confirm each other in their opinion, even if they were not mainstream such as seeing the weather as good enough to commute actively on a daily basis. That way, individual team members do not feel isolated due to their actions or opinions. In addition, the competitive element of the Smart Moves Challenge helped many participants to keep going. The team members of successful teams supported each other to continue doing what they set

[70] The National Car Test is a compulsory test in Ireland to ensure that vehicles meet road safety and environmental standards.

out to do throughout the competition. Discussing their journey to work and if they filled in the travel diary in order for the team to get credits encouraged participants to keep up their new routine up.

> Yeah, you see, [...] you motivate each other and if you were by yourself, I would have lasted about two weeks. [...] That's why teams are good. It's not just about you. You're also responsible for other people within the same team. (C42: 1968, 2 June 2011)

> I'd ask [my team mates] how did you get in this morning and did you fill it [the travel diary] in and then, o no I forgot I have to do that. And because we were in a competition we were kind of doing ok for a while, so we said, make sure you don't take the car. (C38: 1965, 3 June 2011)

The competitive element of the Smart Moves Challenge also motivated some participants to exceed their initial goal and it fostered team spirit. At the same time, the continuous encouragement over a longer period of time was conducive to developing a new routine.

> Prior to this I was sometimes cycling, a couple of days a week maybe, and the fact that the competition was on just spurned me on and it didn't matter, even Monday morning when I had a few beers the night before, I got on my bicycle. (C31: 1965, 2 June 2011)

Some teams even built up peer pressure by discussing the score of their team and how they were doing in comparison to other teams. This implied that individual team members felt the obligation to contribute to the success of the team and did not want to let the team down. While this peer pressure kept participants going during the challenge, this did not mean that they stuck to their new routine after the Challenge.

> It was not even the distance but with the wind it's taken me ages [to cycle to work], that was crazy, but then [my team mates, names omitted] said keep going, keep going, so I did. I didn't do it [cycle] for the full week but I did it every other day and yesterday was my last day [of the challenge], I drove in today. (C32: 1978, 3 June 2011)

There were also teams with members who were active commuters before the competition. They often took on a motivational role. They were conscious of being living proof that it was achievable and wanted to encourage others who were making efforts to change their routine.

> I am not exactly the fittest and thinnest person you've ever come across and people say, well [he] has been cycling for ten years and if he can do it I can do it. And that's true. You don't have to be particularly fit or particularly anything, you need to be motivated to do it and when people see that, they say if he can do it I can do it. (C42: 1968, 2 June 2011)

In many accounts from research participants the weather emerged as a relevant factor to active commuting. It was interesting that team members belonging to the same team showed a similar perception of the weather as not being an obstacle to active commuting. They often shared their opinion that bad weather did not prevent them from cycling to work as the following statements by three members of a particularly successful team show.

> It's [cycling] pleasant and we don't get rained on an awful lot. I know we have a reputation for really wet days but you don't, you don't have to put on the rain gear all the time. (C42: 1968, 2 June 2011)

> I've been lucky enough, there was only one day or two and I didn't get very badly wet but what the company here has provided is phenomenal, they have given us a state of the art shower room, with 4 electric showers, so it doesn't matter if you get wet. (C31: 1965, 2 June 2011)

> Although the weather was bad [during the Challenge], it was ok actually, because I can get all kitted out in my cycling gear and I can have a shower when I come in. (C24: 1974, 2 June 2011)

These quotes also highlight that the infrastructural changes on site considerably improved the situation for employees who wished to commute actively (see also Section 7.1.4).

Some of the successful participants mentioned that their new commuting routine has not affected other everyday routines. Others, however, described instances where other areas of their life were impacted such as their family life. At the same time, they also explained that they adjusted to the implications of the new routine and integrated old with new routines. For example, two participants who were responsible for their children's commute integrated this into a carpooling arrangement, and another trip-chaining participant started cycling with his children. Still, one of the most frequently quoted problems they encountered was suddenly needing a car but having left it at home. The participants described different ways of dealing with such a situation. While some said they could cycle home to get their own car, others stated that their team mates and colleagues supported them and they would help out by lending them their car.

> If I had an emergency and I had to get out I could take [my team mate's] car, so that's sorted and vice versa. The keys are in the top drawer of my tool box and he can take them. It is kind of a given, that's no problem. (C34: 1972, 3 June 2011)

In other words, team mates and colleagues did not just support each other morally but also with concrete actions. In addition to such different forms of support from their team mates and colleagues a number of participants, and particularly the ones who changed their commuting routine beyond the timeline of the competition, reported that their family and friends liked their new habits.

> They [his parents] thought it was a great idea [...]my mate as I said is delighted because he's got a professional bike but he has no one to go with, so we're planning a trip. (C24: 1974, 2 June 2011)

In addition to the support by colleagues, families and friends, participants also cited factors within the company that created an environment conducive to alternatives to car use. For example, seeing colleagues switch to an alternative transport mode was perceived as encouraging by some participants.

> I've seen a few of the lads at work getting the bikes and then we they started to put in the bike rack and they promoted it a little and just to get fit maybe, I see it as a good way to start with the bike, so that was basically it. [...] (C28: 1975, 27 April 2011)

Infrastructural changes on the site were well received and seen as valorising active commuting. This was not necessarily attributed to the selective perception of people who were successful in changing their commuting routine for the duration of the challenge (or beyond). Instead, many research participants talked about an increase in the overall number of cyclists and a slight but noticeable push towards more sustainable modes at company level.

7.3.3 Wider change in favour of alternatives to car use

Participants reported that perceptions among staff with regard to cycling as a transport mode had changed since the roll-out-of the Earth Day Initiative and the Smart Moves Challenge and that more people took up cycling. This reflects a trend where by cycling emerges as an acceptable alternative to a car.

> I think people prior to this [Earth Day & Smart Moves Initiative], last spring, three or four people came in without car. But now it's become more popular. It's accepted at all ages, because years ago you'd see a guy cycle to work who hadn't a car. But now, it's more common, now you see all these guys cycling to work you know have cars, they consciously leave their car at home and cycle to work. (C30: 1966, 21 April 2011)

Others observed that the Smart Moves Challenge in particular captured people's attention and that it inspired some people who did not participate themselves to re-think their car use and to consider alternatives to car use. That way, participants received recognition for their efforts. Participants felt that they were seen as leading the way (rather than dividing from the norm).

> Other people would be asking me: are you still in that competition and how are you getting on. It's not even the people who are in the competition. People know it's on, so they'd be talking about. [...] They're looking at alternatives and there are people now that are talking about the cycle-to-work scheme and how it works here. (C42: 1968, 2 June 2011)

Overall, participants reported that there was an increased uptake of cycling to work. Some people speculated that this development was due to the cycle-to-work scheme. Others explained that people started active commuting because the summer was approaching and because of the imminent good weather. Such statements again underline the idea that alternatives to the car such as active commuting are frequently regarded as viable but only under specific circumstances such as fair weather and summer time.

> Well, there is certainly more bicycles around, what the reason behind is, I am not sure. The cycle to work scheme probably plays a big part why we see a lot of new bicycles. (C36: 1969, 1 June 2011)

> The month of May, [the weather] was a disaster, so people weren't cycling. Only the last couple of days, because the weather forecast is saying that there's a heat wave coming, people are starting to take their bikes out. (C31: 1965, 2 June 2011)

Other research participants, however, identified the recession as another reason for this trend towards cheaper more sustainable transport modes such as cycling (see also Section 5.4.6). Smart Moves Challenge data confirms this in relation to carpooling. Aspiring carpoolers within the company belonged to different commuting types as well as different professional and also socio-economic groups. The two participants who changed their habit of driving to work into a carpooling routine worked as factory workers, while the other participants who intended to carpool belonged to professional groups with higher salaries. A number of research participants, particularly the middle-ranking staff and middle management, stated that the economic downturn did not impact directly their lives through salary cuts, but that they had been affected by general measures and trends such as higher taxes and mortgage repayments. Factory workers, however, explained in their interviewees that they had been severely affected by the recession because they were on a three-day-week for almost one year.

The results of the Smart Moves Challenge thus indicate that the financial situation of participants may have contributed to the changing of their routine. This is in line with participants stating that saving money was their main motivation to start carpooling.

7.3.4 Spill-over

Five of the participants who did not change their commuting routine started using alternative transport modes for journeys outside work. They integrated alternative transport modes into their overall mobility routine. This is important to note because even though the employer-based Smart Moves Challenge did not result in a change in these participants' commuting, it nevertheless had an impact on other mobility routines. This shows that the employer can play a central role as instigator of social change at the meso-level.

Many participants who did not change their commuting pattern emphasised that they wanted to cycle to work but that it did not suit them for three main reasons. First, the weather was not conducive. Second, the physical effort was too challenging before a day's work. Third, the commuting times and routes were too busy and dangerous. Yet, under more favourable circumstances such as fair weather or quiet routes they adopted alternative transport modes.

> I've used the bike a lot going into town, I took routes that were a bit quieter and I think that's great and I enjoy doing that and I've done that a lot on a Saturday and Sunday so that was a big change because I meant to use the bike coming into work but that takes a lot to be safe; unless you cycle on the pavement but that's not right to cycle on the pavement, you run risk of hitting a pedestrian and cycling on the roads is not an enjoyable experience, I've used the bike a lot when I went to town and I've gone back roads. (C23: 2 June 2011)

At the same time, all participants who drastically changed their commuting routine considerably also started using the alternative transport mode for other trips.

> I am cycling out now to friends and my sister lives in [the peri-urban area of Galway]. So I've taken cycles out there where I would have driven before. [For] shopping not so much to be honest because generally when I go shopping, I go to the supermarket once a week and do a stock up. [...] I kind of probably thought about more, I felt more guilty about driving shorter distances. (C24: 1974, 2 June 2011)

Both examples show that the employer-based measures geared towards changing commuting patterns had a spill-over effect into other mobility routines. Participants who changed their commuting routine significantly in the longer term also used the car less for other trips. Also, even though some participants did not alter their car-based commuting routine many of them

started using alternative transport modes for other journeys. This also relates to the findings of the Travel Survey whereby respondents' mobility pattern in their leisure time was less car-dependent than their commuting pattern.

7.4 Concluding remarks

The findings on the effect of employer-based soft measures presented in this chapter combined survey data, interview data and observations to show that the two-tiered change programme had an impact on employees' commuting routines. The Smart Moves Challenge, in particular, was effective in bringing about a modal shift away from the car. With respect to the conventional Earth Day Initiative, research participants only perceived parts of it as helpful for changing their commuting routines.

In assessing the impact of the conventional workplace travel plan the research participants' response to the three measures were examined separately. First, the provision of information via the website clearly was not perceived as encouraging a change away from a car-based commuting routine. However, the website nevertheless proved to be an important tool to facilitate the Smart Moves Challenge. Second, although on-site infrastructural changes relatively small in scale, they contributed to creating an environment which was favourable to active commuting. Finally, the national cycle-to-work scheme gave people the opportunity to purchase a high quality bicycle and make a serious attempt to switch from driving to cycling. However, even though the cycle-to-work scheme helped people with the necessary equipment to start cycling, for many it did not provide enough motivation and support to break the car habit.

Regarding the Smart Moves Challenge, the participatory, team-based and longitudinal approach was effective in achieving a modal split away from the car. More than half of the participants changed their commuting routine at least for the five weeks of the Smart Moves Challenge. Five participants out of 17 changed their commuting patterns dramatically, either from driving to cycling or carpooling, and four other participants used an alternative transport mode at least once a week for the duration of the Challenge. Less than half of the participants made an attempt but could not fulfil the requirements of the Challenge. Based on a comparison between the participants' accounts of their commuting routines and experiences

changing them, the author identified circumstances and issues that either hindered or helped participants to change their routine.

Three main difficulties emerged from the longitudinal comparative analysis, which some participants could overcome while others could not. First, participants found that the car-centric infrastructure and heavy traffic were not conducive to active commuting. Cyclists felt forced onto the footpaths because they did not feel safe on the road. Their concerns for their safety prevented them from cycling to work. Second, participants saw the rain and the wind as a major barrier to active commuting. Third, participants had to integrate their old and their new routine. Participants who either found that their new commuting routines did not affect any of their other everyday routines or who could integrate them into their old routines were successful in achieving a long-term change. This was further aided by support from team mates, superiors, colleagues and friends.

The outcomes of the Smart Moves Challenge show that social circumstances are central to the transition to sustainable commuting patterns. For most participants the team-based approach was key to their change in practice. Members motivated and supported each other. They also shared the same challenges and difficulties and many of the participants said that there was a buzz around the competition. Most participants in the Challenge said that they felt a responsibility towards their team mates and did not want to let them down. Many were encouraged by the competitive nature of the challenge. In addition to the dynamics within and between teams, the wider context was also important. Many research participants confirmed that cycling had become more acceptable and they saw more people cycling to work than before. They also reported that colleagues asked for information on how they could start cycling themselves. Such change in the wider context supported them in developing and maintaining their new routine and participants received recognition for their efforts. This status as ‘trend setter’ within the company functioned as an additional motivating influence. All these aspects clearly demonstrate that the social component of the Smart Moves Challenge was vital to its success.

Yet, social interaction on its own is not enough. Instead, it was the combination of the two initiatives that encouraged participants to regularly use alternative modes of transport. The incentivisation through the cycle-to-work scheme and the infrastructural improvements created the conditions that support a modal shift while the Smart Moves Challenge provided continuous motivation and support throughout the transition phase of breaking one habitual

routine and developing a new routine. This on-going support helped participants to find ways of integrating new routines into their existing ones, which then formed basis of lasting change.

Chapter 8

Competing for sustainability? The social context of changing commuting routines

This chapter sets out to connect the practice-theoretical framework of this study with its empirical findings. It offers a critical-relational analysis of the results from the policy and site analysis (Chapter Five), the typology of performances of commuting practices developed in Chapter Six and the outcomes of the qualitative evaluation of two employer-based change initiatives at the heart of this project (Chapter Seven). Based on this analysis, the author develops her own original theoretical and interpretative contributions to the debate on sustainable transport. In addition, this chapter offers some reflections on the strengths and limitations of approaches that view human social life through the lens of practice theory and that understand mobility and the consumption of distance as socially and materially contingent, complex practices that cannot be reduced to the actions of individual consumers.

Drawing on the commuting typology developed in Chapter Six, this chapter offers a new perspective on the practice of commuting that stresses its contextual dependence and that demonstrates the heterogeneity of commuters and their respective car-based commuting routines. This translates into a critique of actor-centric approaches and lifestyle typologies that view the actions of individuals as central to their model of human behaviour and that focus on individuals' characteristics such as their attitudes and socio-demographics as key determinants of behaviour. In contrast, the practice-theoretical typology developed in this study rests on a concept of human behaviour that is highly sensitive to its material and social contexts and that views commuting as a shared social practice rather than the pursuit of individuals. It thereby draws attention to the ways in which the social embeddedness of particular commuting types affects efforts to bring about a transition towards more sustainable commuting patterns. It is argued that this has been largely overlooked in transport research and policy.

Following on from this, the author argues that to recognise the centrality of people's shared practices and their contextual embeddedness also means to shift attention to the meso-level of social organisation and to make explicit its significance for sustainability transitions. This also implies a parallel shift towards policy decisions that seek to change the contextual conditions for shared practices rather than the practitioners themselves. The two

employer-based initiatives rolled out as part of this study set out to create infrastructural and organisational environments that favour alternatives to car use and that take seriously the social dimensions of commuting and its complex connections with other social practices, such as parenting and neighbourly assistance. This study clearly shows that social organisations located at the meso-level can play an important role for sustainable development, partly because they connect individuals (micro-level) and societal and material structures (macro-level) thereby exerting influence in both directions.

The practice-theoretical approach developed for this study clearly lends itself to forms of social inquiry that focus on the dynamic and recursive relationship between people's actions and wider structures. At the same time, it represents a viable alternative to dominant individualistic and actor-centric perspectives in transport behaviour and consumption research. By connecting key theoretical concepts from the realm of practice theory with current mobility and consumption research, this study re-frames commuting as a consumption practice – the consumption of distance. This novel concept serves the study of everyday activities such as those connected with mobility. At the same time, it offers a different perspective on the causes and consequences of car-based commuting.

Conceptualising people's daily commute as consumption of distance also opens up new avenues for integrating a material dimension into a practice-theoretical understanding of human behaviour. The consumption-focused approach can significantly advance the analysis of infrastructure-dependent mobility patterns. At the same time, it recognises that production are consumption inextricably integrating the act of covering distance with the need for to be mobile and thereby reveals opportunities and difficulties that affect the transition towards more sustainable transport patterns such as walking, cycling, carpooling and public transport use.

Undoubtedly, practice theories provide a valuable alternative to the dominant individualistic perspective on human behaviour and offer a suitable theoretical starting point for researching behavioural change. However, they neither form a coherent body of theory nor do they offer easily applicable heuristics for the empirical analysis of people's actions. After synthesising the highly abstract theoretical accounts of different practice theorists, mainly Schatzki and Reckwitz, the author translated them into an empirically testable framework of 'middle range' concepts to guide the empirical investigation of everyday travel practices. It remains to be seen whether the successful use of a practice-theoretical framework for

empirical analysis demonstrated in this study could be replicated in other areas of consumption research. However, it introduces a very interesting point of departure in terms of both theory development and empirical research that could be further pursued in future research.

Interestingly, the empirical findings from the qualitative evaluation of the employer-based change initiatives as well as the practice-theoretical typology of commuting reveal tensions between environmental and social goals of sustainability in car-dependent societies such as Ireland. Depending on the commuting type, a shift away from the car and towards low-carbon transport modes involves various actual and perceived risks, including (real or imagined) threats of cultural marginalisation and social exclusion. This potential incompatibility of environmental and social criteria is magnified in the context of day-to-day mobility and commuting. These findings not only raise questions about what sustainable mobility patterns in general and sustainable commuting patterns in particular are. They demonstrate how narrow carbon-centric understandings of sustainable mobility that dominate the transport policy arena in Ireland and Europe urgently require broadening to allow for the inclusion of social and cultural considerations. The author argues that the practice-theoretical approach applied in this study detects these tensions between different sustainability goals. Moreover, it has the potential to serve as theoretical foundation for the conceptual and empirical integration of environmental, economic and social sustainability criteria. On the other hand, a practice-centred approach to policy making and implementation could potentially foster a shift in how people in Ireland and elsewhere in Europe imagine a sustainable transport future.

This study also reveals that it requires the adoption of a more holistic, practice-theoretical approach to societal change in order to advance our understanding Ireland's dominant car culture and its resistance to change. This implies that shared practices which culminate in the over-consumption of distance are identified first before attending to potential pathways for change. So far, the transformation of practices and people changing their performance of a practice has attracted limited attention from social theorists. However, the author argues that a practice-theoretical understanding of human behaviour that emphasises the recursive nature and reproductive dynamics of practices offers an excellent starting point for conceptualising their transformation. She addresses this main weakness of practice approaches in consumption studies and offers her own original contribution to the wider debate on changing practices, which is grounded in the empirical findings of this study.

The remainder of this chapter is divided into four principal parts. The first section of this chapter, Section 8.1, discusses the specific opportunities and difficulties that shape the practices of each of the five commuting types identified in Chapter Six and that may or may not aide their transition towards more sustainable commuting practices. Here, the application of a consumption-focused practice approach to everyday travel serves to reveal the centrality and complexity of different material, social and cultural conditions for type-specific commuting patterns, which in turn affect their resistance to change. It is argued that the need to adopt a targeted approach that suits the different commuting types is of vital importance to any successful policy-led transition towards greater sustainability in private transport. Essentially, there is a need to move away from viewing commuters as a homogeneous group or as individuals, and to shift attention to more tailored approaches that suit the specific options and constraints that these groups experience. However, there are many opportunities that can be seized, including people's growing awareness of the impacts of physical immobility on human health or the implications of car dependency for the fabric of society. Interestingly, the current recession may provide some opportunities for addressing the overconsumption of resources in many Western societies (and, increasingly, in parts of the developing world). Here, the growing consumption of distance and its resource implications provide an ideal test case.

In the second section, 8.2, the author offers her own contribution to the debate on the appropriate societal level for instigating a change in commuting patterns. Drawing on an integrated approach to data analysis that connects and interweaves all three strands of empirical research conducted for this study, she presents strong arguments for change initiatives for a modal shift to be located at the meso-level of social organisation. This section highlights the role of employers in the transition towards more sustainable commuting and mobility patterns and contributes to current debates on the benefits and limitations of employer-based change programmes.

Section 8.3 critically examines the merits and drawbacks of adopting a practice-theoretical perspective to analysing commuting and transport patterns more generally. In contrast to dominant individualistic approaches to everyday travel, the practice approach reveals the complexity of material and socio-cultural influences on commuting patterns, which also shape the perceived and actual lack of alternatives to the car. Both influences require adequate attention in current plans for a more sustainable transport future that relies on a radical reduction of the distance that people consume on a daily basis. At the same time, it

shows that the practice-theoretical perspective developed in this study draws attention to strong tensions between environmental sustainability targets and social justice goals in car-dependent societies such as Ireland. It is argued that a practice–theoretical perspective offers a valuable approach that can force social concerns such as justice and equality onto the current narrow low-carbon agenda that features predominantly in sustainable transport debates. Finally, the author draws on her empirical findings to develop her own perspective on the shift from unsustainable to more sustainable commuting practices.

In the concluding section, Section 8.4, the author further develops her critique of individualistic approaches that dominate social-scientific transport research and policy-making and that fail to take seriously the social and environmental context of human behaviour. Overall, this chapter shows that change campaigns that are underpinned by actor-centric approaches fail to bring about lasting change. The results of this study clearly raise questions about the current dominance in academic and political circles of such measures for achieving a sustainable future. In the light of this study's results, Chapter Nine then sets out to provide a range of suggestions for a more practice-centred approach to transport policy.

8.1 The social and material construction of car-dependency

The practice-theoretically informed analysis of commuting patterns developed in this study clearly reveals that the practice of car-based commuting comes in many variants. Similarly, people who engage in the dominant car-based commuting practice do not form a homogeneous group. Overall, it was possible to identify four different types of car-based commuting as well as an alternative practice that relied on more sustainable modes of transport. Observed differences between these types related to both their material conditions as well as practitioners' socio-cultural circumstances.

The distinction between different types of (car-based) commuting made in this thesis raises interesting questions. First, it draws attention to questions of inequality. For example, do practitioners experience unequal levels of access to material conditions associated with the alternative practice? If so, would it not be advisable to expand current debates about the causes of transport-related inequality to include possible interactions between economic, material and socio-cultural conditions? The typology in Chapter Six clearly demonstrates that location alone (rural versus urban) does not suffice in explaining patterns of car-dependency.

Secondly, the typology could also be used to question the wisdom of adopting a 'one-fits-all'-approach to sustainable transport initiatives. This is not to suggest that current discourses around the identification of 'target groups' are the most suitable way to address the issue of heterogeneity. Instead, results from this thesis clearly show that different variants of a practice (as well as those who perform it) need to be considered.

Initially, Subsection 8.1.1 outlines the policy-related material conditions and constraints influencing commuting patterns. Subsequently, Subsection 8.1.2 focuses on the social nature of car use, thereby showing that commuting as a practice is interwoven with many other social practices that shape each other. In addition, dominant socio-cultural meanings attached to car use can help explain the reluctance among many members of society, including those in decision-making positions, to see alternative transport modes as viable options (Section 8.1.3).

The complex interplay of material and socio-cultural influences on everyday travel practices also produces different opportunities for a transition to more sustainable commuting. Cultural understandings of what is a good way of getting from one destination to another play a crucial role in this context. They translate into a mix of actual and perceived benefits and drawbacks of different transport modes as well as perceptions of their (un)availability that are specific to the different commuting types in Ireland. These are presented in the final part of this section, 8.1.4.

8.1.1 Catering for the car: The construction of car-centred urban and rural environments in Ireland

Commuting is not simply about getting to and from work; it constitutes a social activity that depends on complex (infra)structural arrangements and favourable material conditions. As shown in this thesis, in the last two decades in Ireland there has been a strong emphasis on developing car-friendly infrastructure, with conditions for cycling and walking frequently deteriorating as a result. This coincided with a cultural shift towards a dominant car culture which tied car use to concepts of progress, economic development and social status.[71] Investment patterns at national and supranational level reflected this, at least until the onset of the recession in 2008. For example, until recently the Republic of Ireland, along with Spain

[71] The slogan of the Irish policy document Transport 21 is 'progress in motion'.

and Portugal, was among the main beneficiaries of European Union transport infrastructure investment, most notably in the area of road construction. Even today, this pro-car bias remains firmly in place across many sections of society. Road construction continues to be seen as a panacea for soaring unemployment rates in the construction sector that proves popular in times of crisis.[72]

This study identified four key aspects that form the cornerstones of commuting patterns in Ireland and that contribute directly to car-dependence and social exclusion: increased car ownership, issues around land use policies and planning, availability of public transport services and existing transport-related infrastructure (see also Chapter Five). During the 'Celtic Tiger' economic boom (1995-2007) there was a steep increase in both car ownership and car use in Ireland. Following the introduction of a new emissions-based motor vehicle tax system in 2008, there has been a noticeable shift towards more efficient cars and a reduction in car ownership. This said, it has been almost impossible to disaggregate the effects of this policy from the impacts of the economic recession which started only a few months later (Heisserer *et al.* forthcoming). Nevertheless, car-based private transport remains an essential part of people's everyday lives.

Second, a lack of joint-up thinking in the areas of land use and planning created highly car-dependent workplaces, residential areas, services and amenities. Increased distances between destinations influenced people's modal choice and promoted car ownership, with many households depending on two or more cars. Third, increasing car-dependency is also due to insufficient public transport services. Investment in public transport has been mainly driven by profitability, which served to further widen an already existing gap between urban and rural areas regarding the availability of public transport. Many rural areas are excluded from a public transport system that serves main arteries but does not penetrate areas off these major routes. Finally, it can be shown that a pro-car bias in infrastructure development also shapes the quality and availability of alternatives. Overall, Ireland's existing infrastructure is largely unfavourable to alternatives to the car. To use the example of Galway City and County, it is often dangerous to walk or cycle on roads outside the city where cars tend to drive fast. Within Galway city, roundabouts often do not provide any infrastructural support for carless road

[72] A prime example is the headline "Stimulus roads programme to give Galway a 5,000- job boost" on the title page of a regional newspaper, which uncritically repeats the mantra that road construction increases competitiveness and creates jobs (*The Galway Advertiser*, 19 July 2012).

users who wish to cross them, which poses substantial risks to pedestrians and cyclists on the road (see also Section 5.3).

To summarise, commuting practices in Ireland today are shaped by a material and (infra)structural environment that fosters car-dependency. Urban sprawl and the lack of adequate infrastructure that can support sustainable transport patterns produce actual physical constraints that influence all five types of commuting practices identified in this thesis, albeit in very different ways. The (infra)structural facilitation of car ownership and use in Ireland, which is often to the detriment of other modes, is further enhanced by various social constraints, including shared perceptions of a lack of alternatives. These are discussed in the next subsection.

8.1.2 Commuting: A node in a complex web of social practices

Commuting constitutes a social activity that is suspended in a complex web of social practices. In this study the practice-theoretical analysis of commuting shed light on how people engage in a network of practices, a social site, which sets the parameters for the organisation of their daily lives, including their commuting routines. In other words, commuting cannot be treated as a standalone activity but needs to be viewed as inextricably linked to other everyday practices which influence its performance. Changing the performance of one practice thus affects the performance of others, a fact that has significant implications for any transition towards greater sustainability.

Car use is often described in the literature as individualised transport. However, as this study has shown, commuting in Ireland is often an intrinsically social activity, a fact which has been captured in the typology in Chapter Six. For example, the performance of a commuting routine in terms of timing and route is often influenced by the transport needs of other family members. As a result, some commuters engage in trip-chaining to provide transport to others. In fact, providing lifts to others and connecting different trips to cater for different people's transport need is a central feature of the dominant car culture in Ireland. Depending on their residential location, their family circumstances and their social engagement in the wider community, drivers in Ireland meet many social obligations by providing transport to others. Parents in particular give lifts to their children. Others look after the transport needs of their relatives, friends or neighbours. Yet others participate in complex carpooling arrangements to satisfy their own and other people's transport needs. In other words, people's commuting

patterns are rarely the result of their own individual decisions; instead, they are intended to fulfil a plethora of social obligations which may also limit alternative options. In fact, a person's decision to attempt a modal shift away from the car not only affects them but their entire social network.

To summarise, the social nature of car-based commuting and its interrelatedness with other everyday practices present a number of challenges, as well as opportunities, with regard to a transition towards more sustainable commuting patterns. It is argued that practitioners' social circumstances can potentially either impede or enhance their decision to switch to a more sustainable mode and that practitioners engaged in different commuting types experience very different openings and barriers. In contrast to the individualist and structuralist perspectives, the practice-theoretical analysis adopted in this study is much more sensitive to the social nature of people's actions, which is crucial for understanding commuting patterns and their potential transformation.

8.1.3 Myths related to car use and the dominant car culture

The material conditions and the social interrelatedness of commuting are not the only issues impeding a shift towards alternative transport modes. The practice-theoretical approach also detects the cultural dimensions of people's actions. In this study, its application as a framework for data analysis revealed cultural influences on car-based commuting. For example, the dominant commuting practice cultivates perceptions of the car as superior mode of transport, and of alternatives as inferior. Moreover, many of these positive perceptions of car ownership and car use have also influenced official policy discourse. This partly explains the continued dominance of car-based commuting and its relatively high resistance to change. The practice-theoretical framework that underpins this study clearly points towards a cultural shift (as well as a change in material and social conditions) to achieve a modal shift away from the car.

The following subsection presents some common myths around car use that reflect and further strengthen the dominant position of the car in Irish society and hamper a transition to a more sustainable transport system. It also points towards significant tensions between people's perceptions and the realities of everyday mobility that may serve as opportunities to challenge such views of cars as superior transport mode. While some of these views are particular to Ireland, others are also common elsewhere (cf. Cahill 2010).

Car tales – social meanings of car use

One of the overriding meanings attributed to car use is that it provides the flexibility to go whenever and wherever one wants, thereby serving the requirements of a modern, individualistic lifestyle. Data collected for this study reveals that many participants view public transport and carpooling as backward and mainly for people who do not have access to a car. Overall, research participants frequently did not see alternatives to car-based transportation as viable or acceptable options.

The car, on the other hand, is often viewed as an absolute necessity as well as being an achievement of human ingenuity that greatly enhances people's capacity in terms of speed and strength. It serves to cover long distances, to provide transport to others and to carry heavy and bulky objects. Undoubtedly, for many participants in this study there is a need for car-based transportation to meet the mobility requirements of everyday life in a car-dependent society. In contrast, awareness of the negative side effects of "hypermobility" (Adams 2001), that is, of a globally expanding socio-economic and cultural system that rewards high levels of mobility over ever greater distances regardless of the social and environmental consequences, remains limited.

It is important to note that evidence of the many social obligations to provide transport to members of the family and/or local community who do not have access to a car detailed in this thesis (especially in Chapters Six and Seven) contradict the notion of car use offering unlimited flexibility and independence. Drivers who give a lift to somebody else also give up their own independence and flexibility by synchronising their own activities with other people's schedules. For example, many parents who participated in this study frequently viewed the car as the only viable mode of transport for meeting their children's mobility needs in a safe and convenient manner. While many of them used to take the bus or cycle, most parents reported that the birth of their children changed their life and their mobility practice (see also Schäfer *et al.* 2012; Jaeger-Erben 2011: on life events).

In addition to being protected from traffic, the car is also seen as protecting its driver and passengers from the elements, whereas other transport modes such as public transport and active commuting leave their users exposed to the weather. Research participants argued that they did not want their children or themselves to get caught in the rain on their way to school or work because being in wet clothing all day increased the chances of getting sick. Most participants justified their decision to take the car (even for short distances) in this way.

Regardless of the realities of Irish weather conditions, this line of argument reflects a very dominant cultural understanding that strongly influences people's perception of alternative transport mode and their viability for daily commuting.

As stated in Chapter One of this thesis, other positive properties attributed to the car include being fast, direct and convenient. Drivers who buy into the ideal of the car as flexible and fast mode of transport frequently do not tolerate waiting for other modes of transport such as public transport. At the same time, the car is perceived as convenient because it involves neither waiting at a designated stop nor walking to and from such stops. However, driving can incur significant time losses due to congestion and parking restrictions but these negative features are often overlooked. Instead, the car is often seen as a time saving device, despite people's experiences of congestion and bottlenecks that prolong journey times. This said, while many motorists accept congestion as part of their daily commute, they are much less likely to embrace other transport modes, including walking and cycling, even if they promise higher travel speeds in congested urban areas. The myth of the car as fast and efficient mode of transport appears highly resilient even in the face of overwhelming evidence to the contrary.

Car culture in Ireland: Framing the motorist as only legitimate road user

A common perception in Ireland (and elsewhere) is that the purpose of road infrastructure is to ensure free-flowing traffic for motorists. Among research participants this was often translated into demands for more and wider roads as a measure against congestion. Bottlenecks and traffic jams were frequently highlighted as prime examples of inadequate infrastructure and were portrayed as a major transport problem in Ireland (see Chapter Five for details). This demand for free-flowing traffic goes hand in hand with cars dominating the public and road space in Ireland. Most research participants walking or cycling for their commute or in their leisure time expressed the view that roads are made for cars. They also recalled their negative experiences crossing roads and roundabouts as pedestrians because existing car-centred infrastructure was hostile to slower transport modes. This competition for narrow road space was also reflected in statements by drivers who said that they did not like seeing cyclists on the road but preferred them to remain on the footpath. Some research participants even quoted other drivers saying that cyclists do not belong on the road at all. Furthermore, some drivers

felt that cyclists had a reputation for not complying with the rules of the roads and that this disqualified them from being legitimate road users.

This perceived lack of legitimacy was in turn reflected in most cyclists' actions and views. Most cyclists opted for taking the footpath because they did not feel safe on the road. They stated that the road infrastructure was not conducive to safe cycling and that drivers did not pay adequate attention to cyclists. Some participants did not feel confident enough to compete with heavy traffic on the road. Both regular cyclists and participants who took up cycling during the Smart Moves Challenge complained that drivers lacked consideration. They emphasised that they could not rely on other road users and that they were solely responsible for their own safety. Moreover, most research participants, irrespective of their transport mode, expressed the view that cyclists needed a helmet and high-visibility gear. Some also stressed that good cycling skills and confidence were essential for cycling on busy roads.

Overall, the dominant car culture in Ireland was not only translated into material realities, with a prevailing infrastructure geared towards car use. It is also reflected in the prevailing cultural views that drivers prefer cyclists on footpaths and cyclists feel almost solely responsible for their own safety while cycling. This clearly demonstrates that there is not only a dominant car culture but also a lack of a cycling culture that establishes cyclists as legitimate road users. Transport policies and investment patterns on the national and supranational level foster this dominant car culture which marginalises other transport modes.

The overriding discourse that links car use to positive aspects such as progress, development and wealth also creates shared cultural meanings that are highly resistant to change. This pro-car discourse is well established while there is insufficient public debate about the use of public space and obvious negative side effects of car use such as obesity, pollution and social justice. However, challenging the hegemonic position of cars in our societies is crucial for paving the way for a cultural shift. The positive views, emotions and social meanings that underpin Ireland's dominant car culture nurture perceptions of a lack of alternatives that are often further exacerbated by policy decisions that favour motorised road-based transport. Interestingly, these perceptions of a complete lack of alternatives are often repeated and reinforced through public debate and policy decisions that undermine the legitimacy of other modes as real commuting options. Tackling this misconception is the key to people accepting and adopting new and existing alternatives to car use. This requires broad social and cultural

changes to modify already established networks of practices and create new ones and that go well beyond current efforts to persuade individuals to modify their behaviour.

8.1.4 Actual constraints, or barriers in the eye of the beholder?

The previous sections described in detail the material, social and cultural influences on commuting patterns and how these can translate into an actual or perceived lack of alternatives to the car. Most importantly, the practice approach deployed throughout this study was able to detect differences with respect to the particular mix of influences that practitioners experience and how these vary with personal circumstances and commuting type. These influences can act as barriers or opportunities for a modal shift to more sustainable forms of transport. Consequently, policies and measures need to address to these differences in people's circumstance in order to be effective. The following Table 13 provides a summary of the material, social and cultural barriers for each commuting type identified in Chapter Six, including how practitioners in each category perceive alternatives to the car (or the lack thereof). The content of this table could be deployed to develop targeted policies for a transition towards sustainable commuting patterns that address any (infra)structural deficiencies and promote viable alternatives at the same time. It is argued that the latter requires policy-led efforts that address both the actual and perceived lack of alternatives to car use.

Some of the barriers to modal shift are common to all four car-based performance types. As regards material conditions, the two most prominent ones are that existing infrastructure is not suitable for alternative transport modes and that the current public transport system fails to provide adequate services that meet the needs of commuters. Perceptions of poor weather conditions and safety concerns with respect to cycling also feature prominently. While both of them are related to actual constraints such as strong winds or missing cycle paths, they also contain a socio-cultural element which frames them as obstacles to active commuting. In addition to these common material conditions and socio-cultural barriers, the social nature of car use in general, and social obligations to trip-chain to provide transport to others can also pose difficulties to a modal shift away from the car.

Table 13 Overview of material, social and cultural barriers sorted by commuting type

Performance of commuting practice	Constraints and barriers
Commuting in the city	**Material constraints:** Public transport available, but no direct route, services not early enough; Good cycling distance, but cycling is too dangerous due to a lack of infrastructure;
	Social and socio-cultural barriers: Good cycling distance, but cycling seen as dangerous; Weather perceived as obstacle to active commuting; Carpooling perceived as too restrictive & only reasonable for long distances;
Commuting from the hinterland	**Material constraints:** Lack of public transport; Live further than walking or cycling distance;
	Social and socio-cultural barriers: Carpooling seen as restrictive & carpooling arrangements are hard to organise;
Hybrid	**Material constraints:** Lack of public transport;
	Social and socio-cultural barriers: Cycling is only viable under specific conditions (summer & good weather) Carpooling seen as restrictive & arrangements are hard to organise;
Trip-chaining	**Material constraints:** Public transport unsuitable for trip-chaining; not an option for carless;
	Social and socio-cultural barriers: Social obligation to provide transport Carpooling doesn't suit because journeys with more than one destination; Active commuting doesn't suit for providing a lift;
	Alternatives for carless: Public transport routes do not suit, public transport use involves waiting and being exposed to weather; Active commuting is dangerous due to heavy traffic & lacking cycle lanes; Safety issues & Irish weather rule out active commuting; Carpooling and lift-sharing arrangements are perceived as good options to satisfy carless people's transport needs;
Alternative commuting practice	**Material and infrastructural conditions:** Public transport available, but no direct route, services not early enough; Live within walking/cycling distance;
	Views on alternatives: Public transport is restricting, prefer individual transport (e.g. bicycle); Active commuting is viable alternative to car use; it is convenient & healthy; Weather is not an obstacle to active commuting; Cycling is dangerous, but with the right gear and skills, it is doable

While Table 13 focuses on the barriers to sustainable commuting, there are also opportunities that could be seized. The current recession and rising fuel prices have raised

awareness in Ireland (and many other parts of the world) of the high economic costs of motoring as well as some of its social and environmental consequences. This requires urgent attention from policy-makers, in particular because these costs are unequally distributed in society, with vulnerable groups such as low-income households facing the risk of transport-related fuel poverty (see also Section 8.3.2; Rau & Hennessy 2009; McDonagh 2006). Many research participants stated that they were more inclined to switch to low-cost transport options such as carpooling or active commuting because of the economic downturn (see also Section 5.4.6). There is also growing interest in integrating more physical activities into everyday routines. Many people associate active commuting with greater levels of fitness and improved health. Interestingly, greater attention to the cost of motoring and expressed willingness to commute more actively for health reasons can be found across all commuting types and offer avenues for challenging the powerful myth of the superiority of the car. This could increase acceptance of alternative transport modes as viable alternatives.

In sum, the practice-theoretical analysis of commuting patterns developed in this thesis serves to highlight a range of material, social and cultural aspects of every day travel that vary in their impact. It also reveals that different commuting types face specific barriers to more sustainable commuting. Targeted policy approaches that recognise the circumstances and implications of each commuting type and that address the actual and also the perceived lack of alternatives need to seize current opportunities to accelerate the transformation of unsustainable routines. These include people's growing awareness of the cost of motoring as well as increasing health consciousness. In addition, the author calls for policy approaches that are sensitive to the social nature of people's everyday travel routines (see Chapter 9). Finally, the findings presented in this section also demonstrate that actor-centric perspectives are entirely unsuitable as a framework for transforming commuting patterns because they view commuting practices as standalone behaviour carried out by individual actors while ignoring their embeddedness in a much wider network of people, material objects and related practices.

8.2 Competing for sustainability? Meso-level initiatives for sustainable transport

In an effort to draw attention to the social aspects of consumption practices, including the consumption of distance, this study focused on the meso-level of social organisation. This

decision is underpinned by the belief that commuting practices are deeply rooted in social life and societal structures and that large organisations such employers contribute significantly to the social embedding of different temporal and spatial practices, including how people travel to and from work. Social organisations can also play an important role in instigating and accelerating cultural change. An emphasis on the meso-level thus moves the analysis of changing practices away from individual consumers making the 'right' choices and behaving sustainably and towards organisations as major change agents.

The results of this study clearly show that employer-based change initiatives can influence their employees' commuting patterns as well as their wider mobility routines. The author argues that work organisations can promote change more effectively because they can create favourable material and social conditions that enable employees to modify their everyday actions and practices. They can incentivise and enhance sustainable ways of acting and make new discourses and affective associations part of their organisational culture. By focusing on the meso-level, this study was able to shed some light on the relations between individuals, organisations and society.

With respect to commuting, an employer can shape both the transport-related infrastructure on site and the cultural and social context. Firms have their specific organisational culture and practices which prescribe certain rules and ways of acting. For example, specific workplace-based policies have the potential to strengthen the acceptance of alternatives to the car. In this study, the participating company had a strong culture of good practice in the areas of health and safety. The emphasis of the mobility management plan on active commuting thus tied into the company's organisational culture. As part of the Earth Day Initiative, the company not only facilitated active commuting by installing new sheltered bike stands and shower facilities but demonstrated that it supported employees' initiatives who keep fit. Furthermore, the company offered options for their employees to participate in existing national tax saving schemes, namely the cycle-to-work scheme and the employer-travel-pass scheme. Both schemes effectively alter the incentive structure in relation to cycling and public transport use.

In addition to adjusting on-site infrastructure and promoting two national incentivisation schemes, the company supported a company-wide change initiative, the Smart Moves Challenge, which was designed as a competition and which framed the use of alternative transport modes as worthwhile and viable. Promoting alternatives in this way also

challenged employees' perceptions of the car as superior transport mode. As the qualitative evaluation outlined in Chapter Seven shows, the Smart Moves Challenge succeeded in inducing a change in commuting routines. It is argued that this can be traced back to at least four key features of the participatory, team-based Smart Moves Challenge. First, the Challenge as well as the Earth Day Initiative were actively supported by the company's management team. Second, the Smart Moves Challenge combined incentives with a team-based approach that facilitated strategic social interaction between participants. Participants were able to support each other in their transition from old to new routines. It is important to note that some team members also mutually reinforced each other in maintaining their old commuting routine. Third, the Smart Moves Challenge served as on-going motivation for participants and the prospect of winning represented an important incentive for some participants. On the other hand, it may have enticed particularly competitive individuals to take part in the competition. Also, the ethical implications of encouraging people to compete for sustainability deserve further reflection. Finally, the Smart Moves Challenge tapped into existing and newly emerging networks of social interaction to support team members in their attempts to change their commuting routines.

The findings of the case study presented in this thesis clearly demonstrate the intrinsically social nature of people's actions. To understand what people do, why they do it and what may encourage them to change their practices thus requires an acute awareness on the part of the researcher of the social context within which they occur. The Smart Moves Challenge revealed that the social context of people's actions can both help and constrain efforts to change their routines. The participatory, team-centred nature of the Smart Moves Challenge brought people together who acted in ways that were mutually intelligible and that rested on a shared understanding of different practices. The Smart Moves Challenge thus created a social environment which encouraged participants to try out new ways of doing things. All teams set out to depart from their established daily routines.

There is ample evidence from the Smart Moves Challenge to show how social interaction exposed participants to new ways of acting and influenced what they did and how they did it. The author found that a number of research participants changed their views on transport modes throughout the competition and that opinions converged among members of a team. For instance, employees belonging to the same team tended to have similar

perceptions of the merits and demerits of active commuting, for example in relation to its viability as a real alternative to a car.

Social interaction also proved to be major sources of motivation and support. Research participants who received moral support from family, friends and colleagues throughout the competition more frequently succeeded to change their routine, at least over the period of the competition. Here, the team-based approach to the competition proved to be particularly useful because most teams morphed into small entities where members found support to change their routine or confirmation for their newly established routines. It was striking that all teams whose members changed their commuting routine featured at least one team member who was an alternative commuter before the competition and who acted as 'change agent'. These change agents were employees who demonstrated to their colleagues that engagement in a more sustainable commuting routine makes sense. They disseminated their own understandings by either deliberately and actively by promoting their views or simply acting the way they did. However, two aspects proved essential for research participants to adopt these alternative understandings and to translate them into a new commuting routine. First, the colleague who introduced the alternative had to be someone they respected and recognised as someone who acts intelligibly. Second, the new commuting routine had to fit into people's existing practices, at least to some degree. This second aspect was also the precondition for people to develop lasting alternative commuting routines.

Interestingly, it can be shown that meso-level organisations such as the large firm at the centre of the case study often act as a microcosm of wider society, including structures of social support and hierarchies of social control. As a result, they may be ideally placed to instigate and facilitate a change in practices. The results of the Smart Moves Challenge indicate that companies can create a structural and cultural environment that is conducive to changing practices but that it is people's social networks such as their team mates and families that greatly enhance the chance of a successful transformation.

The role of meso-level organisations as important connectors between individuals and wider society can also create unexpected spill-over effects. Although the Smart Moves Initiative was geared towards commuting, it also affected participants' mobility practices more generally, creating a spill-over into other areas of life outside the workplace. For example, many Smart Moves participants took up walking and cycling in their leisure time.

Meso-level organisations can also play a crucial role in the implementation of national transport policy geared towards greater sustainability, though this option is generally under-utilised. For example, the two national tax-saving schemes covered in this study – the cycle-to-work and the employer-travel-pass scheme – offer ways to increase private investment in sustainable transport modes. Employers essentially administer a state-subsidised loan scheme that enables employees to purchase a bicycle or an annual travel pass and to pay back the costs through monthly instalments that are taken out of their pre-tax wages. At the same time, employers' engagement in the incentivisation of alternative transport modes is likely to transform organisational culture, at least to some degree, and thus the context of their employees' commuting patterns. All in all, evidence from the case study shows the potential of meso-level organisations such as large employers to act as promoters of social and cultural change across the wider community.

While employer-based initiatives have many merits, they also suffer from very significant limitations. Undoubtedly, most large companies are in a position to realise small-scale infrastructural changes at the local level, such as the installation of new bicycle stands and shower facilities for active commuters. However, as the commuting typology outlined in Chapter Six demonstrates, a successful transition towards sustainable commuting patterns would require structural conditions that are conducive to such as change. While employers initiatives can lead to a change in organisational culture and subsequent spill-over effects into the wider community, both positive and negative ones, most companies are forced to operate within a given policy environment. In other words, they can create a transport environment within the organisation that favours alternatives to the car but they have only few opportunities to influence the wider social and cultural context. This suggests that employers can be valuable players at the local or regional level but that a successful transition towards sustainability in the transport sector requires strategic and targeted policies that create favourable material, (infra)structural, social and cultural conditions.

In sum, meso-level organisations have the capacity to create (infra)structural, social and cultural conditions that favour alternative transport modes. The employer-based change initiative carried out in this study revealed that employees' commuting routines change in response to transport-related material, social and cultural changes in the workplace and that this can create significant spill-over effects into the wider community. The conventional mobility management approach used in the Earth Day Initiative transformed some of the

(infra)structural conditions on site but paid very limited attention to the social and cultural aspects of commuting. The Smart Moves Challenge, on the other hand, set out to tackle 'soft' barriers to a modal shift away from the car through on-going motivation and social support. Additionally, it explicitly demonstrated that using alternative transport modes is feasible and viable. By encouraging participants to try out a new mode of transport as part of a team, they were able to both test a new commuting practice hands-on and observe others doing the same, thereby encouraged lasting change. The Smart Moves Challenge also created a cultural context within the organisation that sought to promote alternatives to the car and that recognised their viability for commuting. All in all, the results of the two change initiatives capture the capacity of large employers to bring about significant cultural change and to challenge the hegemony of the car in the process by promoting alternatives. This highlights their vital role in the push for greater sustainability in the transport sector.

8.3 Researching the consumption of distance and its transformation

8.3.1 What are the merits and drawbacks of a practice-theoretical approach to the study of commuting?

Earlier parts of this thesis presented a plethora of arguments for a re-conceptualisation of commuting practices as consumption of distance (see especially Chapter One). Based on the findings of this study of commuting practices in (the West of) Ireland, it is evident that this practice-theoretical approach offers a clear alternative to predominantly individualistic and structuralist understandings of people's actions. Its emphasis on material and social conditions of daily travel as well as individuals' values and shared understandings makes this concept ideally suited for the investigation of commuting practices at the meso-level of social organisation. In addition, adopting this novel concept of the consumption of distance also opens up new avenues for exploring the production of distance in society, for example through policies that promote urban sprawl or emphasise the need to be mobile (see also Section 1.3 and Chapter Five). At the same time, this recognises the significance of creating a policy environment that challenges the material and socio-cultural dominance of car-based mobility.

Following on from this, this thesis made a strong case for the adoption of a practice approach to identify social conditions that either promote or prevent the (over)consumption of distance. As could be shown throughout this study, practice theory offers a highly adaptive

analytical framework for the social scientific investigation of people's daily travel patterns in terms of both what people do and why they act in a certain way. Chapter Three revealed that a consumption-focused view of everyday travel can open up fruitful avenues for a (re)materialisation of practice theory. This in turn can advance the analysis of infrastructure-dependent mobility patterns while, at the same time, illuminating opportunities and difficulties that affect the transition towards more sustainable transport patterns such as walking, cycling, car-pooling and public transport use. Three central features characterise the practice-theoretical approach adopted in this study of everyday travel patterns. First, it set out to demonstrate the intrinsically social nature of daily routines, including how people commute to and from work. For example, the commuting type of trip-chaining that was outlined in Chapter Six and discussed in Section 8.1 above clearly shows that people meet many social obligations when driving their car. The analysis of people's actions through the practice lens acknowledges that they cannot be properly understood without paying adequate attention to the social interactions that underpin them.

Second, a practice-approach shifts the attention from individuals' behaviour to shared practices. It recognises that practices both enable and constrain people's actions by laying down formal and informal rules, such as policies and customary ways of doing things, to name but a few. These rules and shared understandings establish certain actions as appropriate or desirable while others may be seen as unacceptable. Practices flourish in an environment which is favourable to their performance.

Third, practice theory is well suited to capture interactions between practices. For example, commuting is inextricably intertwined with many other practices such as work, parenting, caring for neighbours and family members, or shopping, all of which have their own specific social and material characteristics. In other words, commuting is not a standalone routine but it is interwoven with other everyday routines such as school runs and leisure activities. Efforts to better understand and potentially remove the causes of unsustainable mobility patterns are likely to remain ineffective as long as they fail to recognise and address the interrelatedness of practices.

Combining the concept of the consumption of distance with a practice approach to social theory and research can help fill some existing gaps in mainstream transport research identified in Chapter Two. Practice-theoretical work has the capacity to link macro-level phenomena such as transport policies and infrastructure to individual people's performance of

practices that are observable at the micro-level. In addition, re-conceptualising daily travel as consumption practice also opens up new opportunities for capturing the complexity of human action in a more holistic fashion.

For example, this study clearly identified the role of time as a key feature of practices. Being involved in a range of practices also involves negotiating between them. People's everyday routines are interwoven; they carry out actions in a certain order and allocate a certain time frame to everyday routines. For example, parents take their children to school before going to work and buy groceries after work. However, these temporal aspects of people's doings and sayings have been largely neglected in previous research. Studying action patterns in isolation, as is commonly done in behaviour research, clearly ignores these temporal interrelations that are crucial to understanding what people do and why.

Practices not only occur in a certain order, they also frequently compete for people's limited temporal resources. Their timing is also tied to the rhythms of society, including those brought about by working time regulations and school timetables (Rau 2004). Interestingly, the social synchronisation of people's travel routines may actually result in congestion and immobility. Such temporal aspects play an important role in the transition towards sustainability and are important for strategic policy making. This warrants further investigation in the future (see Chapter Nine for a more detailed discussion).

Another aspect which deserves further attention is the role of power relations and the potential insertion of key ideas from prominent theories of power and conflict into practice-theoretical debates. While the practice-theoretical framework applied in this thesis more or less explicitly recognises the positions of particular practices vis-a-vis other practices as important reflections of complex power relations in society, it is nevertheless less sensitive to questions of power and social conflict than would perhaps be desirable. The author argues that the issue of power was an important element of first-wave practice theories but that it lost its prominence in the second wave of practice accounts. It thus seems appropriate to call for renewed efforts to 'bring power back into the picture' and for forging the missing link between practice theories and theories of power. Prominent practice theorists of the first wave as well as power theories may serve as useful starting points for promoting a 'new' sensitivity towards power among practice theorists and for developing additional capacity to explore social conflict and power within the realm of practice theory.

In sum, studying the consumption of distance through the lens of practice requires the adoption of a broad analytical perspective that accounts for complexity of human behaviour and its material, socio-cultural and temporal context. Arguably, Ireland's dominant car culture and related car-centric commuting patterns need to be understood as a set of interrelated practices. New pathways towards more sustainable travel patterns need to be sensitive to these multiple connections between practices.

8.3.2 Consuming less or consuming differently? Pathways towards a sustainable transport sector

Low-carbon solutions brought about by technological improvements and behavioural change are frequently hailed as a key method for curbing greenhouse gas emissions from the transport sector. For example, substituting single-occupied cars with other transport modes such as walking, cycling, carpooling, or public transport forms an integral part of many sustainable transport policies and initiatives throughout Europe (see also Chapter Five). This closely resembles calls in other areas of everyday life that urge people to consume differently (Davies *et al.* 2011). These low-carbon substitutes frequently offer low(er)-cost alternatives to driving, which can help address some of the social problems related to car use such as excessive cost and exposure to the risk of transport-related fuel poverty. However, low-carbon alternatives primarily serve to counteract environmental degradation and enhance environmental sustainability.

An overall reduction in how much distance people consume is less frequently offered as a solution. This partly relates to the fact that any efforts to curb the consumption of distance in a society that is increasingly geared towards hypermobilility cannot but produce tensions between economic, environmental and social sustainability goals. In car-dependent societies such as Ireland, pre-conditions such as the dispersed nature of housing dictate the necessity for a car to fulfil people's basic mobility needs. Carless households and people without access to a car are systematically disadvantaged, which affects their quality of life. Due to the on-going recession and increasing fuel prices, transport-related fuel poverty is a likely scenario weakening social cohesion. Social inequalities arise between the "mobility rich" and "mobility poor" (Cahill 2010: 136). For example, people living in rural and semi-rural areas without access to public transport and people with social obligations to provide a lift to somebody else, generally need to rely on their car to go to work or to reach public services. Depending on the

material and social circumstances, people cannot easily shift to low-carbon transport modes without risking social exclusion.

Can a practice-theoretical perspective shed light on the inevitable tension between the need to curb the excessive consumption of distance for environmental reasons and people's desire for economic and social development that demands the further spatial mobilisation of society? The author argues that the analysis of commuting patterns through the lens of practice not only detects potential incompatibilities between these goals but also serves as theoretical foundation for a concept of the sustainable consumption of distance that aims to reconcile and consolidate them. The practice-theoretical approach to everyday travel adopted in this study clearly recognises the centrality of material, social and cultural conditions that shape people's mobility patterns. While this study does not explicitly cover the economic dimension of sustainability in the transport sector, it nevertheless captures how transport-related policies and infrastructural realities shape the financial incentive structure for commuters. The study also covered people's social circumstances such as family status, professional background and employment situation, all of which affect their socio-economic standing (see also Section 5.4). Overall, the practice-theoretical focus of this thesis clearly points towards adopting a new, alternative way of addressing question of what sustainable commuting patterns actually are.

The practice-theoretical approach applied in this study is also highly valuable because it draws attention to the importance of adopting social criteria for measuring the success or otherwise of a transition towards more sustainable everyday travel. Socially sustainable transport requires changes in material and socio-cultural conditions that influence people's commuting patterns. This implies a cultural shift away from the car as superior mode of transport and also a reform of the existing transport sector. More importantly, it requires solutions that offer universal access to all transport systems for all sections of society.

Public transport could potentially contribute to a new sustainable transport system for Ireland, especially for long distances. Wickham (2006b) proposes that housing and public transport development need to go hand in hand to avoid the need for car-based travel. Even though the highly dispersed housing situation in Ireland is not conducive to public transport solutions, a multi-modal approach which sees people drive to collection points and then switch to buses or trains would certainly be worth investigating. Also, innovative solutions involving information and computer technologies deserve more attention to establish their potential for

increasing accessibility and social inclusion without the need for corporeal travel (see also Hynes forthcoming: on teleworking; Kenyon *et al.* 2002: on virtual mobility and social exclusion).

In sum, the practice-theoretical perspective applied throughout this study highlights the need to move concepts of sustainable mobility beyond a narrow focus on environmentally-friendly and economically viable solutions to include social sustainability goals. Transport policy in the twenty-first century needs to prioritise citizens without a car, to afford them the full range of possibilities in relation to accessibility and mobility. At the same time, car drivers will also benefit from the introduction of alternatives. A transition to sustainable commuting patterns needs to respect economic, environmental and social criteria of sustainability.

8.3.3 How can commuting patterns change?

Questions relating to how practices change and how practitioners change their performances of a practice have not been adequately dealt with in the transport literature to date. A practice-theoretical understanding of human behaviour emphasises the recursive and reproductive dynamics of practices and lends itself as point of departure here. In this section the author offers her theoretical considerations in relation to questions of changing practices and relates them to her empirical findings on the transformation of practices brought about by the two change initiatives developed specifically for this study.

Modest modification or radical shift? – Two scenarios of change

As stated previously, the two notions of practice deployed in this thesis – practice as performance and practice as entity – offers a valuable starting point for a conceptualisation of change that goes beyond conventional approaches. Building on this distinction between performance and entity, the author developed a two-fold concept of change which combines 1) the change of a practice as entity and 2) the change of the performance of a practice (see also Section 3.3.6). The former describes the transformation of a practice as a change of its constituting elements, which in turn results in the modification or destruction of the practice. The latter captures how practitioners change their performance of a practice. Case study material detailing the circumstances and conditions under which people adopt new routines and change their views of what makes sense to them to do (practical intelligibility) illustrate the two proposed scenarios of change.

As stated previously, Schatzki (2002) offers theoretical ideas on the change of practices as entities, that is, the transformation of elements that belong to a particular practice. This may involve a change in rules, understandings, material conditions and/or the teleoaffective structure of a practice. According to Schatzki, there are two types of change: reorganisation and recomposition. The former occurs occasionally and changes are made intentionally while the latter reflects an incremental shift in understandings. The author agrees with Schatzki that some drastic changes can be intentional and based on strategic decisions such as a change in transport policy. At the same time, she questions the implicit assumption that radical change is always the outcome of intentional human agency; instead it could also result from unintended side-effects, non-human agency, or rapid changes in the natural environment. The need to respond to an unexpected natural disaster exemplifies this point.

While Schatzki's types describe reasons for a change in the elements that make up a practice, which may then result in a changed performance of a practice, he does not explicitly incorporate the performance of a practice in his theoretical considerations. In other words, his ideas on change capture only one side of the coin. It is a central idea of practice theory that practitioners establish practices through their actions. Thus, a change in the performance of a practice is rooted in practitioners performing actions differently. Different actions can in turn modify practices or render them obsolete. It is therefore crucial to examine performance-related processes that constitute and transform practices.

Drawing on the empirical findings of this study, the author proposes two scenarios that involve practitioners changing their performance of a practice. Table 14 provides an overview.

Table 14 Scenarios of change

Modest modification	Radical shift
Practitioners adopt varied understandings and perform a practice differently	Practitioners adopt new understandings, abandon their old practice and start performing a competing practice
Example: Research participants who engaged in a 'hybrid' practice (modification of Practice A with input from Practice B).	Example: Research participants who switched completely from car-based commuting (Practice A) to active commuting (Practice B)

The first scenario describes how practitioners adopt a varied understand of doing things in relation to one particular practice and how this changes their way of performing this practice ('modest modification'). For example, participants in the Smart Moves Challenge who originally performed a purely car-based commuting routine also started using alternative transport modes. While they adopted new ways of commuting, they did not completely abandon their established car-based routine, which resulted in the emergence of a 'hybrid' practice. They commuted either by bicycle or by car depending on circumstances (e.g. weather, need to provide a lift). In other words, research participants changed their performance of the car-based commuting practice in the hybridisation process, but they did not abandon it completely; it was still dominant.

The second scenario describes a completely shift away from one practice and towards another, competing practice; here, people adopt new understandings, abandon the performance of their old routines and start performing actions that belong to a competing practice (radical shift). A number of Smart Moves participants radically changed their commuting routine from commuting by car and developed a new alternative commuting habit. In some cases these new understandings spilled over into their overall mobility practice and they stopped using the car for other journeys than their commute as well. One research participant even got rid of his car and bought a bicycle and a trailer instead to cycle to work and collect his children on his way home. These switched from the dominant car-based practice to the marginalised alternative.

This second scenario is also significant because it allows for a classification of practices according to their assumed role in society, culminating in a complex hierarchy of practices. For example, some practices may be dominant, thus taking up a central position in the 'practice landscape' of a given society. Yet others may feature less prominently and/or become increasingly marginalised. The second scenario of change – the radical shift scenario – broadens the analytical perspective by highlighting that a transition away from unsustainable action patterns and towards more sustainable ones often does not require the emergence of a completely new practice. Instead, what is required is a strengthening of already existing sustainable practices and a parallel weakening of unsustainable ones. This perspective opens up fruitful avenues for future research. For instance, it allows for a comparison of different 'landscapes of practices' across different countries. Chapter Nine will further expand on this point.

It is important to note here that these two notions of change are distinct yet interrelated. A change in the performance of a practice always relates to a change in the linkages that hold together a practice (and vice versa). However, this differentiation serves to explicate the recursive dynamics of practices and allows for more detailed explorations of these two aspects in isolation from one another. Overall, the two-fold concept of change developed in this thesis offers as a suitable theoretically basis for future investigations into how or why practitioners change their performance of practice or adopt a new one.

In sum, the two-fold concept of change draws attention to the fact that practitioners changing their performance of practices can either lead to a modification of an existing practice or induce a radical shift from one practice to another. The findings from the longitudinal case study show the centrality of social interaction for changing the performance of a practice. First, it is central to the spreading and enhancing of new customary ways of acting as well as the confirmation of people's current ways of acting. Second, adopting new ways of acting as a group enhances the adoption of new views and ideas by individual participants. While the findings of the longitudinal and participatory case study can be used as a point of departure, the process of how people's practical intelligibility changes and new ideas spread needs to be further explored in future research.

8.4 Concluding remarks

The findings of the practice-theoretical analysis of commuting patterns presented in this chapter clearly demonstrate the capacity of practice theory to capture the multi-facetted nature of human actions, the existence of close and complex connections between practices and the social nature of commuting routines and their transformation. The last point is particularly significant because it allows for the identification of potential material, social and cultural barriers to a transition towards sustainable transport that have frequently been overlooked in the past. Depending on the type of commuting practice, practitioners face different combinations of opportunities and barriers.

The qualitative evaluation of the Earth Day Initiative and the Smart Moves Challenge demonstrated that initiatives at the meso-level can bring about a change in people's commuting practices. Two major findings emerged from the analysis of the Smart Moves Challenge data. First, change initiatives need to take seriously the social dimension of human

behaviour and use social interaction strategically. The Smart Moves Challenge demonstrates that a team-based competition can offer on-going motivation and social support that act as catalyst for the adoption of a new practice. Second, organisations at the meso-level of social organisation such as large employers can act as influential change agents. The employer-based initiative brought together members of an organisation who already shared a number of work-related practices. While they did not necessarily all carry out the same practices all the time, their actions and views made sense to each other because they tied in with existing organisational practices. People were thus more likely to take up new ways of doing things supposing that they generally fitted in with their existing practices and routines and that their team mates supported them.

To summarise, this chapter synthesised the empirical findings of this study to show that the consumption of distance forms a complex network of socially and materially contingent practices that cannot be reduced to the actions of individual consumers. This casts doubt on the effectiveness of individualistic approaches to human behaviour in informing measures to curb the current overconsumption of distance in Ireland and elsewhere. This implies that new policy measures are needed that focus on webs of practices rather than individual routines and actions. Also, in the light of the findings of this study, policy efforts need to focus on contextual conditions of shared practices rather than putting responsibility onto individual consumers to make 'the right choices'. The concluding chapter – Chapter Nine – outlines some suggestions for the design of practice-oriented policies.

Chapter 9

Conclusions, future research and policy recommendations

This study investigated current commuting patterns in Ireland and their connections with diverse social, cultural and material conditions. In addition, it assessed the effectiveness or otherwise of employer-based change initiatives for a modal shift away from the car and towards more sustainable commuting patterns. By adopting an innovative qualitative approach to evaluate two change initiatives designed exclusively for this study, the research went beyond a mere assessment of their impact to identify factors and conditions that could either promote or prevent a shift towards sustainability in the private transport sector. Adopting a practice-theoretical approach to frame the integrated analysis of large-scale transport data, policy documents and evidence from a longitudinal case-study, this thesis sought to advance the theoretical and empirical understanding of commuting practices and the role of meso-level organisations in their establishment and transformation.

This chapter – Chapter Nine – presents the main conclusions of this study before providing recommendations for future research and policy development. The first section of this chapter, 9.1, summarises the central arguments and findings outlined in this thesis. The second section, 9.2, revisits key arguments made in Chapter Eight to reflect on their contribution to the study of sustainable consumption and mobility. This is followed by some suggestions for future research (Section 9.3) and reflections on future transport policies and policy-making based on the findings of this study (Section 9.4).

9.1 Summary of the main arguments and findings

Car-based mobility is deeply rooted in everyday life in many societies, including Ireland. As laid out in **Chapter One,** social and economic developments over the past 150 years have given rise to new patterns of spatial mobility and consumerism. At the same time, the car itself became a socially and culturally important consumer item that had the capacity to bestow significant benefits onto its owner. On the other hand, there is ample evidence of disruptive developments that have accompanied the rise of the motorcar during the twentieth and twenty-first centuries and that influence society and the environment in equal measure. It was

argued in Chapter One that their investigation requires a broad analytical perspective to capture the different facets of contemporary mobility practices.

Dominant approaches in transport behaviour research are often both actor-centric and cognitive-rationalistic in orientation. **Chapter Two** critically examined prominent theoretical models to capture and assess their underlying assumptions about what people do, why they do it and how their actions are connected with wider structural opportunities and constraints. The review revealed the dominance of individualistic explanations of human behaviour that largely disregard contextual conditions of people's actions such as transport-related infrastructure, policy background and socio-cultural circumstances. While there are some examples in social-scientific transport research of approaches that deliberately depart from the actor-centric, cognitive-rationalistic perspective, many of them tend to veer towards the other extreme by adopting a structural-deterministic approach to human behaviour. This said, recommendations for change strategies in policy and practice that have emerged from social-scientific transport research also tend to reflect a strong individualistic perspective. Given the limitations of most (if not all) models of human travel behaviour to date, the author presents arguments for an alternative theoretical approach that seeks to advance the sociological understanding of current travel patterns and their potential transformation by taking seriously people's material and social circumstances.

Chapter Three offered an in-depth assessment of prominent practice theories to establish their suitability as an alternative to more conventional actor-centric and structuralist models of human behaviour. In this chapter the author expanded on and modified Theodore R. Schatzki's practice-theoretical approach to fit the aims and objectives of this study, namely to theorise and empirically investigate commuting patterns and their potential transformation. In addition, she re-conceptualised travel as 'consumption of distance'. In other words, this study adopted an innovative analytical approach which combined a practice-theoretical perspective with a focus on consumption. This was done in recognition of the fact that every day travel patterns are contingent upon wider (infra)structural and social conditions that largely determine how mobile people need to be to fulfil their roles and obligations as members of society. The integrative nature of the materialised practice approach developed by the author also draws attention to some of the difficulties in curbing car use in Ireland (and elsewhere) and in shifting people towards more sustainable, low-carbon transport options. Chapter Three showed that change processes have not yet been comprehensively theorised in the field of

practice theory. That is why the author decided to further develop Schatzki's theoretical considerations on change and to empirically test them as part of the empirical part of this study.

The practice-theoretical perspective adopted for this study shifts attention away from individuals supposedly making deliberate behavioural choices and towards shared practices that underpin widely observable patterns of (over) consumption, including the consumption of distance that is the focus of this thesis. This recognises that the meso-level of social organisation, that is, the structures and organisations such as large employers which produce and maintain linkages between individuals' everyday activities (micro-level) and wider societal structures (macro-level) deserve more attention. The investigation of two employer-based change initiatives that lies at the heart of the empirical part of this study recognises the capacity of meso-level organisations to instigate, promote, or even prevent change at the micro- and the macro-level. The research design developed in **Chapter Four** combines quantitative and qualitative methods to capture both general trends in society with regard to commuting and in-depth insights into people's commuting practices at the local level. This is complemented with a longitudinal, multi-method case study of a participatory, team-based change initiative that empirically tests the key features of the practice approach adopted for this study. The longitudinal aspect of the case study captures the trajectory of change. Here, the adoption of a time-sensitive research design was intended to elucidate the conditions that either help or hinder the transformation of unsustainable commuting patterns. Overall, the multi-pronged research design developed for this study proved highly suitable for the investigation of changing practices at the meso-level.

The practice-theoretical investigation of commuting patterns requires a wide-ranging analysis of the diverse material and policy-related conditions that underpin them. **Chapter Five** described the national and local context of the case study which both shapes and reflects respondents' commuting patterns. The results of a sociological institutionalist analysis of Irish transport policy showed that a dominant car-centric approach prevails among many policy-makers, which is reflected in transport infrastructure development that systematically disregards more sustainable transport modes. This trend went hand in hand with a cultural shift during the late twentieth and early twenty-first centuries towards a pro-car culture that completely marginalised previously common low-carbon alternatives such as cycling and carpooling and that lead to the deterioration of conditions for alternative transport modes,

thereby paving the way for car-dependency. One of the biggest challenges for creating a sustainable future for Ireland will be to reverse these (infra)structural trends and to find ways to mitigate Ireland's car-dependency.

In **Chapter Six** the author set out to answer the first research question about the current commuting practices and their key influences. Her practice-theoretically informed typology of commuting distinguishes between two types: car-based commuting and alternative commuting. In addition, the typology captures different performance types of the same practice (car-based commuting) that develop in response to variations in practitioners' material and social circumstances. This also provided insights into the type-specific field of possibilities in terms of actual and perceived lack of alternatives to driving a car. These type-specific conditions can act as both catalysts and barriers with regard to emerging sustainable commuting patterns. This makes them highly relevant to policy makers.

To address the second research question about changing commuting patterns, **Chapter Seven** assessed the effectiveness of the two change initiatives – Earth Day Initiative and Smart Moves Challenge – that were implemented in a company in the West of Ireland. The findings revealed that a combination of conventional incentive structures and ample opportunities for positive social interaction encouraged a modal shift away from the car among some of the firm's employees. The qualitative evaluation of the Smart Moves Challenge revealed that social interaction and on-going motivation clearly encouraged people to change their practices. However, financial incentives, infrastructural improvements and the possibility of integrating the new commuting routine into people's existing everyday practices proved equally decisive in breaking up old routines and establishing new ones.

Chapter Eight linked the empirical findings in Chapters Five, Six and Seven to the practice-theoretical framework of this thesis to find possible explanations for changes in commuting practices that could be observed during fieldwork. In addition, it was the author's intention to develop her own practice-theoretical change model that built on existing work by Schatzki and others and that could inform future research on the transformation of (commuting) practices. Chapter Eight revolved around three key findings that emerged from the theoretical and empirical work carried out by the author. First, she used the context-sensitive commuting typology presented in Chapter Six to identify type-specific material and social factors that affect practitioners' ability to change their routines. These were subsequently categorised into a unique set of perceived and actual barriers for each practice

and performance type. Interestingly, the identification of these sets also revealed strong tensions between environmental and social sustainability goals. For example, it is clear that the adoption of environmentally sustainable commuting options such as walking or cycling could potentially undermine people's ability to meet their various social obligations (e.g. giving a lift to an elderly neighbour), or to avail of opportunities for social interaction (e.g. parents talking to their children while driving them to school). This has significant implications for sustainable transport policy and practice in Ireland as well as for sustainability debates more generally.

Secondly, the effectiveness of employer-based change initiatives clearly demonstrated the potential of organisations at the meso-level (e.g. companies, educational institutions) to act as instigators or 'change agents' for a transition towards sustainability. Transport behaviour research has largely ignored these issues thus far, despite their importance for sustainable transport policies and debates. Finally, the author presented her theoretical contributions to the field of practice-theoretically informed consumption research, which she grounded in her empirical findings. Here, she was able to show how the adoption of a materialised practice concept can provide new insights into what, how and why people travel the way they do. Moreover, the author extended Schatzki's two notions of practices – practice as performance and practice as entity – to develop her own two-pronged change model. Focusing on the notion of practice as performance, the model distinguishes between modest modifications *within* a single practice and radical transformation culminating in a switch *between* practices. This also helps explain observable changes in commuting patterns which were recorded during the empirical phase of this study.

9.2 Contributions to existing and emerging areas of sustainability research

9.2.1 Relevance to current sustainable transport and mobility research

This study built on a synthesis of selected approaches to social theory and research rather than a single approach. The selection of approaches followed a detailed review of the literature in the areas of practice theory, transport and mobilities and consumption. As a result, the research presented in this thesis can add to a number of key debates in social-scientific sustainability research more generally, and sustainable consumption studies in particular. For example, the investigation of practitioners' commuting routines through the practice lens enhanced the author's understanding of practices and their potential transformation. This in

turn culminated in the development of a number of theoretical and heuristic tools throughout the project that could be utilised for future research on changing practices.

Similarly, the commuting typology used throughout this thesis sheds new light on potential pathways towards sustainable mobility. While existing actor-centric and lifestyle typologies focus on behaviour of individuals, the practice-theoretical typology developed here concentrates on shared commuting patterns and their material and social context. It draws attention to the implications of particular commuting types for practitioners and their social networks. It also identifies specific conditions that present difficulties or offer opportunities for a transition towards sustainability and that have hitherto remained under-explored. These include practitioners' social obligations as well as macro-level structures such as transport policy, the built environment and land use patterns that affect their consumption of distance. Overall, the materialised practice-theoretical approach deployed in this study effectively demonstrates the need for a shift in analytical focus away from changing individuals' behaviour towards the modification or transformation of shared practices. This study thus added weight to recent calls by members of the sustainable consumption research community to 'move beyond the ABC'[73] and to pay greater attention to the institutional and organisational linkages between individuals' agency and wider structural constraints.

The explicit focus of this research on the meso-level of social organisations helped to draw attention to the potential role of employers as instigators of a sustainability transition. It showed that the employers can contribute to a cultural shift towards greater sustainability by creating an environment that is favourable to sustainable transport modes. The employer-level initiatives carried out in this project impacted on employees' commuting patterns. Moreover, these employees carried their new routines and practices into their families and the wider community, thereby creating spill-over effects.

Detailed analyses of commuting patterns as well as the long-term evaluation of the Smart Moves Challenge point towards the significance of complex patterns of social interaction for the stability and change of existing action patterns. For example, the results of the Smart Moves Challenge clearly demonstrated how change initiatives that are sensitive to people's (infra)structural and socio-cultural conditions and that strategically leverage the effects of social interaction can successfully transform practices both in the short term and across longer

[73] Attitudes, Behaviour and Choice; see for example Elizabeth Shove's (2010) critique in her recent work.

periods of time. This also casts doubt over the appropriateness of many change initiatives that build on actor-centric and cognitive-rationalistic views of human behaviour and that currently dominate the policy landscape. Finally, the findings of this study raise questions about the conceptualisation of sustainable consumption targets and policies for Ireland (as well as other countries and regions). While low-carbon travel has been hailed as the solution to unsustainable levels of car-dependent mobility, this study detects potentially insurmountable tensions and contradictions between environmental sustainability goals on the one hand and social justice goals on the other. This calls for the development of a broader notion of sustainable transport that takes seriously the social dimensions of people's travel practices, including their commitments towards those with unmet transport needs.

This thesis put forward a proposal for the re-conceptualisation of travel as consumption of distance. To do so could add an entirely new dimension to current research on private corporeal travel, thereby enhancing its analytical and explanatory strengths as well as its appeal to the policy community. The consumption of distance concept has the potential to bring together key ideas from consumption research and mobility research. At the same time, it opens up opportunities to reconnect work on the political and social production of distance and explanations for the increasing 'mobilisation' of society to questions about the nature and causes of consumption. Finally, highlighting the production and consumption of distance helps to challenge commonly held views of travel patterns as behaviour choices. Instead, it reveals the social nature of (auto)mobility and its dependence upon large-scale social structures, including economic conditions and the transport policy environment.

9.2.2 Contribution to the practice-theoretical research

Practice-theoretical concepts developed by Theodore R. Schatzki, Andreas Reckwitz, Elizabeth Shove and others have informed a significant body of consumption and mobility research to date. In this study the author translated highly abstract practice-theoretical concepts put forward by different theorists into empirically researchable propositions. These propositions were then used to guide the collection and analysis of data on current commuting patterns in Ireland and their transformation through employer-centred mobility management plans. In addition, the author devised an original scheme for linking practice theory and empirical data and combined this with empirically grounded considerations on the change of practices. This

study is thus uniquely placed to contribute to ongoing debates about the merits and drawbacks of practice theories in consumption research.

People's actions are shaped by the material realities that surround them. While this holds true for most human activities, it is particularly important for everyday travel which is highly infrastructure-dependent. In this thesis the author followed calls for the 'materialisation' of practice theory put forward by distinguished theorists like Reckwitz (2002a) and Shove and Pantzar (2005) who have integrated material objects into their practice approach. This study extended their valuable contributions and argued for an even broader understanding of the material aspects of practices. While objects and human and non-human bodies are essential to the performance of a practice, this study also incorporated aspects of the built and the natural environment, given that these provide the material foundations of human practices. While the materialised practice concept used in this research was developed to facilitate the investigation of commuting practices, it has the potential to be applied in many other areas of sustainability research.

While an all-encompassing theory of how practices change has hitherto remained elusive, Theodore R. Schatzki's work provides important points of departure for the advancement of our understanding of change. Schatzki's two types of change – reorganisation and recomposition –, both concentrate on practices as entities and the linkages that hold them together. In this thesis the author extended Schatzki's ideas to include how and why practitioners change their performance of a practice (see also Section 8.3.3 for details). Drawing on her own empirical findings, the author differentiated between two scenarios of change: modest modification and radical transition. The first scenario captures the ways in which practitioners modify the performance of a particular practice, for example when participants move from one performance type to another (e.g. from trip-chaining to hybrid) while staying within the same practice (e.g. car-based commuting). The second scenario describes a complete shift from one practice to another; people adopt new understandings, abandon the performance of their old routines and start carrying out actions that belong to a competing practice. The latter scenario was observed on a number of occasions in this study, for example when participants in the Smart Moves Challenge developed a new commuting routine and started engaging in active commuting. The second scenario – the shift from one practice to another – is particularly interesting because it draws attention to the existence of competing practices whose position within society may vary considerably. Some practices may

be dominant (e.g. car-based commuting) while others remain marginalised (e.g. walking to work). Overall, this study has revealed that a shift towards greater sustainability may or may not require the emergence of an entirely new practice. Instead, it may be more promising to strengthen an already existing sustainable practice while, at the same time, weakening or even eliminating unsustainable ones. The author's concept of change, which she developed specifically for this study, helps to make sense of these subtle, yet significant nuances.

9.3 Potential Avenues for Future Research

Increasing scope and scale

This study investigated commuting practices and their transformation by focusing on a single case. Future research could broaden the scope and scale of inquiry by increasing the number of cases and/or participants. For example, a larger number of participants could offer opportunities to include additional alternative commuting practices, such as working from home. Increasing sample size could also lead to the identification of new performance types within the car-based practice, such as informal car-sharing between different households. Instead of changing the sample size, future research could also increase the number of companies who take part in the change initiative. This would allow for the investigation of employers in diverse geographical settings that feature different organisational cultures and that vary in their influence on their employees, the wider community and society at large. The framework of the study could also be opened up in the future to include other social organisations at the meso-level such as schools and universities. Finally, it would be interesting to compare organisations in different countries to investigate the cultural distinctiveness of mobility practices and to critically examine the potential transferability of good practice models from one country to another. In addition to increasing the size of the sample or the number of cases, there are other options for expanding the scope of this study in the future. These are discussed next.

Comparing mobility patterns

Is people's leisure travel more sustainable than their commute to work? The employer-based Travel Surveys rolled out during this study brought to the fore considerable difference between

people's work-related and non-work-related mobility patterns. In both waves of the survey approximately 20 per cent of people reported using mostly alternative transport modes for trips other than their commute to work; many said that they walk instead of driving a car (see also Section 5.4.4). Similarly, many interviewees in this study found that alternative transport modes may be viable options during their leisure time but that they are not suitable for their commute. In addition, there was a work-to-leisure spill-over effect emerging from the Smart Moves Challenge. Participants who stopped cycling to work after the competition often continued to cycle in their leisure time. These findings could be a starting point for a qualitative exploration of differences in mobility practices that compares different spatial settings (e.g. workplace, own residential area) and temporal conditions (e.g. highly regulated working hours, less regulated leisure time, holidays).

Time and the performance of practices

The practice-theoretical investigation of current commuting practices in Ireland pursued in this thesis made visible the interrelatedness of everyday practices in relation to their timing. Practices are performed in a certain order but they also compete for temporal resources. For example, their timing may be contingent upon various socio-temporal factors such as opening and service hours of shops and civic offices or school starting times. However, this is only one aspect of the temporal dimension of practices; the performance of particular practices can also be related to people's life course. For example, young adults who used to cycle when they were students may start driving a car once they start working. Moreover, critical life events have been shown to influence how people perform practices and whether or not they abandon old ones and adopt new ones (cf. Schäfer *et al.* 2012; Jaeger-Erben 2011; Schäfer *et al.* 2010; Schäfer & Bamberg 2008: on life events). While this study recognised the importance of time to the performance of different transport-related practices, there is clearly a need for further research to elucidate and compare the temporal fabric of different practices and to establish how various issues to do with time affect their potential transformation (cf. Rau & Edmondson 2013: for a more general discussion of the role of time in sustainability research).

Is social interaction the key?

A key finding of this thesis is that social interactions exert a crucial influence on people's commuting routines and their transformation over time. This raises interesting questions about how and why people start performing practices differently or why they decide to switch from one practice to another. While this study identified circumstances that can either promote or hamper change, it was not possible to research the process of change itself, that is, how people (in their role as practitioners) adopt new ways of acting and how this transforms a practice. While it was beyond the remit of this study to investigate the dissemination of new ideas and practices, future research could produce interesting insights by drawing on the new social movements literature and theories of (social) learning to further examine the processes that underpin the two change scenarios (modest modification and radical transformation) presented in this thesis.

Overall, it seems important to move towards more integrated practice approaches that have the capacity to capture complex networks of distinct but interrelated practices. As this thesis demonstrates, practices are interrelated and people's actions are never independent of their social context. These core findings need to be integrated into future sustainability research and policy-making.

9.4 Policy recommendations

Material, social and cultural influences shape people's commuting practices in diverse and oftentimes complex ways and they can either hinder or enhance a modal shift away from the car. The typology of commuting practices developed in this thesis demonstrates that there are different car-based commuting types whose practitioners face a mix of actual and perceived barriers to changing their travel patterns, including a (perceived) lack of alternatives to the car. Any efforts to bring about a transition towards sustainable mobility thus needs to incorporate changes in the material and (infra)structural environment so that people can avail of actual alternatives. However, changing infrastructure is not enough; it also takes a cultural shift in favour of alternative transport modes for sustainability efforts to succeed. Ireland not only features a very strong car culture but lacks a viable cycling culture. The construction of more favourable material conditions thus needs to go hand in hand with a cultural shift that embraces sustainable transport modes as real alternatives to the car.

Consequently, transport policy cannot be seen as mere framework for regulation and infrastructure provision, as has been the case in Ireland for many years. Instead, the scope of transport policy needs to be widened to incorporate a much broader range of issues, including complex social influences on people's travel practices as well as the interrelatedness of different practices. The latter seems particularly important because it points towards a more holistic approach to policy that spans different sectors and activities, including transport, land use, health and education. To build a more sustainable transport system, transport policy thus has to be about the creation of an (infra)structural, social and cultural environment that provides citizens with equal access to mobility opportunities, including low-cost alternatives to the car, and that takes seriously the challenge of curbing the consumption of distance, that is, to put in place measures that reduce people's need to be mobile.

With respect to the material and structural environment, a shift towards more sustainable commuting patterns requires both a built environment and a system of incentives that clearly favour active commuting, public transport use and carpooling. Prominent scholars in the field such as Newman and Kenworthy (1999) and Banister (2008) have put forward policy recommendations to this end. These include changes in land use policies to reverse urban sprawl, mixing workplaces and residential areas, fiscal measures that lead to an internalisation of costs, improvements to the public transport system (e.g. integration, real-time information) and the reclamation of public space, such as through the pedestrianisation of urban centres. While this is by no means an exhaustive list of available policy options, it illustrates the breath of measures that are commonly proposed to tilt existing transport systems towards alternative transport modes.

Many conventional policy measures only address part of the current transport problem. For example, the analysis of transport policy in Ireland presented in Chapter Five of this thesis showed that the creation of a socio-cultural environment conducive to non-car-based travel received little or no attention from policy makers in the past. Instead, there has been an almost exclusive focus on facilitating car use and motorised transport which rests on large-scale infrastructural development. This study provided ample evidence for the role of transport as an integral part of everyday social life. This calls for more integrated approaches to transport policy-making which rest on a nuanced understanding of human practices. As regards concrete policy solutions, what is needed is a suite of novel and innovative programmes that prioritise 'soft' measures to transform how people view transport and what types of practices

are available to them. These programmes should be delivered in a coordinated and synchronised fashion and rolled out in communities and work places to ensure maximum 'buy-in' from as many people as possible at the same time.

The practice-focused research work carried out for this project could help design such measures. For example, one of the core messages of the practical-theoretical analysis of commuting patterns is that people's practices and routines cannot be dealt with in isolation because they are part of a highly complex web of practices. People's travel patterns and mobility needs are related to many different areas of social life and thus touch on all key policy areas. For example, increasing obesity levels among children caused by physical inactivity, including exclusively car-based mobility, call for the integration of health and transport policies. An integrated, cross-sectoral approach would help to ensure that many of the social aspects of transport practices more generally, and commuting in particular, that have been covered in this thesis are given a much more prominent role in transport policy.

Modal choice is also frequently tied to people's position along the life-course. For example, research participants who engaged in 'trip-chaining' were mostly parents who covered multiple destinations on their way to work or home to meet their children's transport needs. Similarly, interview data presented in this thesis revealed that most respondents used to walk, cycle or take the bus when they were in school or college. However, most of them stopped using sustainable transport modes and bought a car as soon as they entered the next life stage. Sustainable transport initiatives could try to encourage people to keep using more sustainable transport modes. This implies that such initiatives need to be sensitive to people's mobility requirements at different stages in their lives (cf. Schäfer *et al.* 2012; Schäfer *et al.* 2010; Schäfer & Bamberg 2008: on life events). Designing policies that aim at particular groups of people who are engaged in the same practice (rather than simply targeting certain socio-demographic groups) could be beneficial in this context.

Finally, transport policy also needs to be time-sensitive. People perform practices in a certain order and to a particular pace, and their performance may also adhere to a particular time line. For example, parents may have to adjust their working hours to accommodate their children's care and education. Accordingly, routines and the performance of certain practices are dependent on so-called framing parameters that influence the time-related characteristics of their performance including their dependence on societal time-givers or 'pacers' such as school starting times, working hours and shop closing times. Transport policy thus needs to be

time policy as well. Examples could be more coordinated starting times of schools and public services or 'round-the-clock', multifunctional uses of buildings and facilities (e.g. use of school sporting facilities by local groups during evenings). The synchonisation and de-sychronisation of certain practices to avoid negative side-effects such as traffic congestion would also need to be part of future strategic transport policy-making (see also Mückenberger 2011: on time policies).

All in all, people's commuting patterns can be shown to be related to a wide range of other everyday practices such as parenting or working. These combinations of practices also reflect people's position along the life-course; they may change dramatically in response to critical life events such as a new job or the arrival of a child. Transport policy aimed at making people's commuting patterns more sustainable thus needs to be tailored to different groups of practitioners who are engaged in the same practice. This marks a clear departure from established policy approaches that target particular socio-demographic or lifestyle groups.

Bibliography

Aarts, H., & Dijksterhuis, A. (2000). The Automatic Activation of Goal-Directed Behaviour: The Case of Travel Habit. *Journal of Environmental Psychology,* 20: 1: 75-82.

Aarts, H., Verplanken, B., & van Knippenberg, A. (1997). Habit and information use in travel mode choices. *Acta Psychologica,* 96: 1–14.

Aarts, H., Verplanken, B., & van Knippenberg, A. (1998). Predicting Behavior From Actions in the Past: Repeated Decision Making or a Matter of Habit? *Journal of Applied Social Psychology,* 28: 15: 1355–1374.

Abrahamse, W., Stega, L., Gifford, R., & Vlek, C. (2009). Factors influencing car use for commuting and the intention to reduce it: A question of self-interest or morality? *Transportation Research Part F,* 12: 4: 317-324.

Ackroyd, S., & Hughes, J. (1992). *Data collection in context.* Harlow: Longman.

Adams, J. (1999). *The economic and social implications of sustainable transport*. OECD. Paris. http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=ENV/EPOC/PPC/T(99)3/FINAL/REV1&docLanguage=En

Adams, J. (2001). *Hypermobility: Too Much of a Good Thing* Royal Society for the Arts Lecture, University College London, 21 November 2001. http://john-adams.co.uk/wp-content/uploads/2006/hypermobilityforRSA.pdf

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes,* 50: 2: 179-211.

Ajzen, I. (2002). Residual Effects of Past on Later Behavior: Habituation and Reasoned Action Perspectives. *Personality and Social Psychology Review,* 6: 2: 107-122.

Ajzen, I., & Fishbein, M. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading: Addison-Wesley.

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs: Prentice Hall.

Anable, J. (2005). 'Complacent Car Addicts' or 'Aspiring Environmentalists'? Identifying travel behaviour segments using attitude theory *Transport Policy,* 12: 1: 65-78.

Anable, J., & Gatersleben, B. (2005). All work and no play? The positive utility of travel for work compared to leisure journeys. *Transportation Research Part A,* 39: 163-181.

Appleyard, D., Gerson, S., & Lintell, M. (1981). *Livable Streets*. Berkeley: University of California Press.

Bamberg, S., Ajzen, I., & Schmidt, P. (2003). Choice of Travel Mode in the Theory of Planned Behavior: The Role of Past Behavior, Habit, and Reasoned Action. *Basic and Applied Social Psychology,* 25: 3: 175–187.

Bamberg, S., & Rölle, D. (2003). Determinants of people's acceptability of pricing measures — Replication and extension of a causal model. In J. Schade & B. Schlag (Eds.), *Acceptability of transport pricing strategies.* (235–248). Oxford: Elsevier.

Bamberg, S., & Schmidt, P. (2001). Theory-Driven Subgroup-Specific Evaluation of an Intervention to Reduce Private Car Use. *Journal of Applied Social Psychology,* 31: 6: 1300–1329.

Bamberg, S., & Schmidt, P. (2003). Incentives, morality, or habit? Predicting students' car use for University routes with the models of Ajzen, Schwartz, and Triandis. *Environment and Behavior,* 35: 2: 264-285.

Banister, D. (2008). The sustainable mobility paradigm. *Transport Policy,* 15: 2: 73-80.

Barker, J. (2009). 'Driven to Distraction?': Children's Experiences of Car Travel. *Mobilities,* 4: 1: 59-76.

Baron, R. A., Branscombe, N. R., & Byrne, D. (2009). *Social Psychology*. Boston: Pearson/Allyn and Bacon.

Barr, S. (2003). Strategies for sustainability: citizens and responsible environmental behaviour. *Area,* 35: 3: 227–240.

Barr, S. (2013). Household Analysis: Researching 'green' lifestyles, a survey approach. In F. Fahy & H. Rau (Eds.), *Methods of Sustainability Research in the Social Sciences.* London: Sage (forthcoming).

Barzeley, P. (2007). *Qualitative Data Analysis with NVivo*. London: Sage.

Baslington, H. (2008). Travel socialization: A social theory of travel mode behavior. *International Journal of Sustainable Transportation,* 2: 91–114.

Beck, U. (1986). *Risk society: towards a new modernity*. London: Sage.

Beck, U., & Beck-Gernsheim, E. (2011). *Fernliebe: Lebensformen im globalen Zeitalter*. Frankfurt am Main: Suhrkamp Verlag.

Behrens, R., & Del Mistro, R. (2010). Shocking Habits: Methodological Issues in Analyzing Changing Personal Travel Behaviour Over Time. *International Journal of Sustainable Transportation,* 4: 253-271.

Blake, J. (1999). Overcoming the 'value–action gap' in environmental policy: tensions between national policy and local experience *Local Environment,* 4: 3: 257–278.

Block, J., Scribner, R., & DeSalvo, K. (2004). Fast food, race/ethnicity, and income: a geographic analysis. *American Journal Preventive Medicine,* 27: 3: 211-217.

Böhm, S., Jones, C., Land, C., & Paterson, M. (2006). *Against Automobility*. Cowley: Blackwell.

Booz Allen Hamilton. (2007). *Galway Strategic Bus Study*. Galway City Council. http://www.galwaycity.ie/AllServices/RoadsandTraffic/Publications/FileEnglish,3721,en.pdf

Boschmann, E., & Kwan, M.-P. (2008). Toward Socially Sustainable Urban Transportation: Progress and Potentials. *International Journal of Sustainable Transportation* 2: 3: 138-157.

Brand, K.-W. (1997). Environmental Consciousness and behavior: the greening of lifestyle. In M. Redclift & G. Woodgate (Eds.), *The International Handbook of Environmental Sociology.* (204-217). Massachusetts: Edward Elgar.

Brand, K.-W. (2008). Konsum im Kontext. Der ‚verantwortliche Konsument' - ein Motor nachhaltigen Konsums? In H. Lange (Ed.), *Nachhaltigkeit als radikaler Wandel. Die Quadratur des Kreises?* (71 - 93). Wiesbaden: VS Verlag.

Brand, K.-W. (2010). Social Practices and Sustainable Consumption. Benefits and Limitations of a New Theoretical Approach. In M. Gross & H. Heinrichs (Eds.), *Environmental Sociology: European Perspectives and Interdisciplinary Challenges.* (217-235). Dordrecht: Springer.

Brown, B., Werner, C., & Kim, N. (2003). Personal and contextual factors supporting the switch to transit use: evaluating a natural transit intervention. *Analyses of Social Issues and Public Policy,* 3: 1: 139–160.

Bryman, A. (2008). *Social Research Methods*. Oxford: Oxford University Press.

Buehler, R. (2010). Transport Policies, Automobile Use, and Sustainable Transportation: A Comparison of Germany and the USA. *Journal of Planning Education and Research,* 30: 76-93.

Bull, M. (2004). Automobility and the Power of Sound. *Theory, Culture & Society,* 21: 4-5: 243-259.

Büscher, M., & Urry, J. (2009). Mobile Methods and the Empirical. *European Journal of Social Theory,* 12: 1: 99-116.

Cahill, M. (2010). *Transport, Environment and Society*. Maidenhead: McGraw Hill.

Cahill, M., Ruben, T., & Winn, S. (1996). *Children and transport: Travel patterns, attitudes, and leisure activities of children in the Brighton area: Health and social policy research centre, report 96/4*. Faculty of Health, Department of Community Studies. University of Brighton, England.

Cairns, S., Davies, A., Newson, C., & Swiderska, C. (2002). *Making travel plans work: research report*. UK Department for Transport, Local Government and the Regions. London.

Cairns, S., Newson, C., & Davis, A. (2010). Understanding successful workplace travel initiatives in the UK. *Transportation Research Part A,* 44: 473-494.

Cairns, S., Sloman, L., Newson, C., Anable, J., Kirkbride, A., et al. (2004). *Smarter choices—changing the way we travel. Final report of the research project: the influence of soft factor interventions.* UK Department of Transportation. London. http://eprints.ucl.ac.uk/1224/

Cameron, I., Kenworthy, J., & Lyons, T. (2003). Understanding and Predicting Private Motorised Urban Mobility. *Transportation Research D,* 8: 267–283.

Campaign for Better Transport. (2011). *Car Dependency Scorecard 2011: The Top European Cities for Sustainable Transport*. Campaign for Better Transport. http://www.bettertransport.org.uk/system/files/european-car-dependency-scorecard-2011.pdf

Cass, N., & Shove, E. (2003). *Changing Infrastructures: Measuring Socio-Spatial Inclusion/Exclusion*. UK Department for Transport. London.

Central Statistics Office. (2007). *Census Report 2006: Volume 12: Travel to Work, School and College*. Central Statistics Office. Cork. http://www.cso.ie/en/media/csoie/census/census2006results/volume12/volume_12.pdf

Central Statistics Office. (2011). *Population Classified by Area*. Dublin: Stationery Office.

Cheng, S.-L., Olsen, W., Southerton, D., & Warde, A. (2007). The changing practice of eating: evidence from UK time diaries, 1975 and 2000. *The British Journal of Sociology,* 58: 1: 39-61.

Clancy, P., & Murphy, G. (2006). *Outsourcing Government: Public Bodies and Accountability: Research paper for TASC*. Dublin: New Island.

Coakley, J., & Gallagher, M. (1999). *Politics in the Republic of Ireland*. New York: Routledge.

Collins, N., & Quinlivan, A. (2010). Multi-level governance. In J. Coakley & M. Gallagher (Eds.), *Politics in the Republic of Ireland.* (359-381). London: Routledge.

Commins, N., & Nolan, A. (2010). Car Ownership and Mode of Transport to Work in Ireland. *The Economic and Social Review,* 41: 1: 43-75.

Corbin, J., & Strauss, A. (2008). *Basics of qualitative research: techniques and procedures for developing grounded theory*. Thousand Oaks: Sage.

Cresswell, T. (2006). *On the move: Mobility in the Modern Western World*. New York: Routledge.

Daniels, R., & Hensher, D. (2000). Valuation of environmental impacts of transportation projects: the challenge of self-interest proximity. *Journal of Transport Economics and Policy,* 34: 2: 189-214.

Dant, T. (2004). The Driver-Car. *Theory, Culture & Society,* 21: 4/5: 61-79.

De Groot, J. I. M., & Steg, L. (2009). Morality and Prosocial Behavior: The Role of Awareness, Responsibility, and Norms in the Norm Activation Model. *The Journal of Social Psychology,* 149: 4: 425 - 449.

Deas, M., & Nix, J. (2011). *Plan Better: Transport for a better future: Policies that can change Ireland. Briefing document for the incoming government.* PlanBetter. Dublin. http://planbetter.ie/files/2011/03/2011-3_1-Future-Transport-Policies-in-Ireland-Final.pdf

Department for the Environment. (2010). *Implementing the National Spatial Strategy 2010 Update and Outlook: Harnessing Potential, Delivering Competitiveness, Achieving Sustainability*. Department for the Environment, Heritage and Local Government. Dublin.

Department of Transport. (2005). Transport 21: Progress in Motion. accessed 17 August 2012 http://www.transport21.ie/

Department of Transport. (2009). *Smarter Travel: A Sustainable Transport Future. A New Transport Policy for Ireland 2009-2020*. Government Publications. Dublin.

Diekman, A., & Preisendoerfer, P. (2003). Green and greenback: the behavioral effects of environmental attitudes in low-cost and high-cost situations. *Rationality and Society,* 15: 441-472.

Domarchi, C., Tudela, A., & Gonzalez, A. (2008). Effect of attitudes, habit and affective appraisal on mode choice: an application to university workers. *Transportation,* 35: 585–599.

Dublin Transportation Office. (2001). *The Route to Sustainable Commuting - Employer's Guide to Mobility Management Plans* Dublin Transportation Office. Dublin. http://www.nationaltransport.ie/downloads/travel_planning_guidance_for_employers.pdf

Dunlap, R. E., & Van Liere, K. D. (1978). The New Environmental Paradigm. *Journal of Environmental Education,* 9: 4: 10–19.

Ellaway, A., Macintyre, S., Hiscock, R., & A., K. (2003). In the driving seat: psychosocial benefits from private motor vehicle transport compared to public transport. *Transportation Research Part F,* 6: 217-231.

Engwicht, D. (1996). *Towards an Eco-city: Calming the Traffic*. Sussex: Envirobooks.

Engwicht, D. (2005). *Mental Speed Bumps: The smarter way to tame traffic*. Sussex: Envirobooks.

Eriksson, L. (2008). *Pro-environmental travel behavior: The importance of attitudinal factors, habits, and transport policy measures.* PhD thesis, Umeå University, Umeå, Sweden.

Eriksson, L., Garvill, J., & Nordlund, A. (2008). Interrupting habitual car use: The importance of car habit strength and moral motivation for personal car use reduction. *Transportation Research Part F,* 11: 1: 10-23.

European Commision. (2010). *European Transport Policy for 2010: Time to Decide*. European Commision. Brussels.

European Environmental Agency. (2008). *Climate for a Transport Change TERM 2007: indicators tracking transport and environment in the European Union*. European Environment Agency. Copenhagen.

Ewing, R., Schmid, T., Killingsworth, R., Zlot , A., & Raudenbush, S. (2008). Relationship Between Urban Sprawl and Physical Activity, Obesity, and Morbidity. *Urban Ecology,* Section V: 567-582.

Eyerman, R., & Löfgren, O. (1995). Romancing the road: road movies and images of mobility. *Theory, Culture and Society,* 12: 1: 53-79.

Fahy, F., & Rau, H. (2013). *Methods of Sustainability Research in the Social Sciences*. London: Sage (forthcoming).

Fine, B. (2002). *The World of Consumption. The material and cultural revisited*. London: Routledge.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading: Addison-Wesley.

Flynn, B. (2007). *The Blame Game: Rethinking Ireland's Sustainable Development and Environmental Performance*. Dublin: Irish Academic Press.

Flyvbjerg, B. (2004). Five misunderstandings about case-study research. In C. Seale, G. Gobo, J. F. Gubrium & D. Silverman (Eds.), *Qualitative Research Practice.* (420-434). London: Sage.

Freund, P., & Martin, G. (1993). *The Ecology of the Automobile*. Montreal: Black Rose Books.

Freund, P., & Martin, G. (2004). Motoring and walking: Fitness and the social organization of movement. *Sociology of Health and Illness,* 26: 679-690.

Freund, P., & Martin, G. (2007). Hyperautomobility, the Social Organization of Space, and Health. *Mobilities,* 2: 1: 37-49.

Fujii, S., Gaerling, T., & Kitamura, R. (2001). Changes in Drivers' Perceptions and Use of Public Transport During a Freeway Closure: Effects of Temporary Structural Change on Cooperation in a Real-Life Social Dilemma. *Environment and Behavior,* 33: 6: 796-808.

Fujii, S., & Gärling, T. (2005). Temporary structural change: A strategy to break car-use habit and promote public transport. In G. Underwood (Ed.), *Traffic and Transport Psychology.* (585-592). Amsterdam: Elsevier.

Galway Healthy Cities Project. (2007). *Factsheet 10: Transport*. Galway City. http://www.galwayhealthycities.ie/pdfs/fs10.pdf

Gardner, B., & Abraham, C. (2007). What drives car use? A grounded theory analysis of commuters' reasons for driving. *Transportation Research Part F,* 10: 187–200.

Gardner, B., & Abraham, C. (2008). Psychological correlates of car use: A meta-analysis. *Transportation Research Part F,* 11: 300–311.

Gärling, T. (2004). *Keynote lecture: Changes of Private Car Use in Response to Travel Demand Management.* 3rd international conference on traffic & transport psychology (ICTTP), Nottingham, 5-9 September 2004.

Gärling, T., & Axhausen, K. W. (2003). Introduction: Habitual travel choice. *Transportation,* 30: 1: 1-11.

Gärling, T., Grillholm, R., & Gärling, A. (1998). Reintroducing attitude theory in travel behavior research. *Transportation,* 25: 129–146.

Gärling, T., & Schuitema, G. (2007). Travel Demand Management Targeting Reduced Private Car Use: Effectiveness, Public Acceptability and Political Feasibility. *Journal of Social Issues,* 63: 1: 139–153.

Garvill, J., Marell, A., & Nordlund, A. (2003). Effects of Decreased Awareness on Choice of Travel Mode. *Transportation,* 30: 1: 63–79.

Gatersleben, B., & Uzzell, D. (2007). Affective appraisals of the daily commute – comparing perceptions of drivers, cyclists, walkers, and users of public transport. *Environment and Behavior,* 39: 3: 416–431.

Giddens, A. (1976). *New Rules of Sociological Method*. London: Hutchinson.

Giddens, A. (1984). *The constitution of society: outline of the theory of structuration*. Berkeley: University of California Press.

Giddens, A. (1986). *Sociology: A Brief but Critical Introduction*. London: Macmillan.

Giddens, A. (1987). *Social Theory and Modern Sociology*. Stanford: Standford University Press.

Giddens, A. (1991). *Modernity and Self-Identity: Self and Society in the Late Modern Age*. Cambridge: Polity Press.

Götz, K. (2003). *Moving through nets: Physical and social dimension of travel.* 10th International Conference on Travel Behaviour, Lucerne, Switzerland, 10 - 15 August 2003.

Götz, K., Deffner, J., & Stiess, I. (2008). *Does the social-ecological lifestyle concept show paths towards more sustainable consumption patterns? Virulent aspects of lifestyle research for sustainable change management.* 2nd International Sustainability Conference, University of Basel, Switzerland, 21-22 August 2008.

Götz, K., Loose, W., Schmied, M., & Schubert, S. (2003). *Mobilitätsstile in der Freizeit. Minderung der Umweltbelastungen des Freizeit- und Tourismusverkehrs*. Berlin: Erich Schmidt Verlag.

Götz, K., & Schubert, S. (2004). Mobilitätsstile: Ein sozial-ökologisches Analyse-, Integrations- und Zielgruppenkonzept. In C. Zanger, S. Habscheid & H. Gaus (Eds.), *Bleibt das Auto mobil? Mobilität und Automobil im interdisziplinären Diskurs.* (224-239). Frankfurt am Main: Peter Lang.

Gram-Hanssen, K. (2008). Consuming technologies - developing routines. *Journal of Cleaner Production,* 16: 11: 1181-1189.

Gram-Hanssen, K. (2010). Standby Consumption in Households Analyzed With a Practice Theory Approach. *Journal of Industrial Ecology,* 14: 1: 150-165.

Gram-Hanssen, K. (2011). Understanding change and continuity in residential energy consumption. *Journal of Consumer Culture,* 11: 1: 61-78.

Guagnano, G. A., Stern, P. C., & Dietz, T. (1995). Influences on Attitude-Behavior Relationships: A Natural Experiment with Curbside Recycling. *Environment and Behavior,* 27: 5: 699-718.

Gudmundsson, H. (2003). Making concepts matter: sustainable mobility and indicator systems in transport policy. *International Social Science Journal,* 55: 176: 199-217.

Hagman, O. (2003). Mobilizing meanings of mobility: car users' constructions of the goods and bads of car use. *Transportation Research Part D,* 8: 1-9.

Hagman, O. (2010). Driving Pleasure: A Key Concept in Swedish Car Culture *Mobilities,* 5: 1: 25-39.

Halkier, B., Katz-Gerro, T., & Martens, L. (2011). Applying practice theory to the study of consumption: Theoretical and methodological considerations. *Journal of Consumer Culture,* 11: 1: 3-13.

Handy, S., Cao, X., & Mokhatarian, P. (2005). Correlation or causality between the built environment and travel behavior? Evidence from Northern California. *Transportation Research Part D,* 10: 6: 427-444.

Hannam, K., Sheller, M., & Urry, J. (2006). Mobilities, immobilities and moorings. *Mobilities,* 1: 1: 1-22.

Hargreaves, T. (2010). Towards a phronetic approach to proenvironmental behaviour: Seeking context, interaction and power in behaviour change processes. CSERGE Working Paper EDM 10-03. accessed 29 June 2012, available at http://www.cserge.ac.uk/sites/default/files/edm_2010_03.pdf

Hargreaves, T. (2011). Practice-ing behaviour change: Applying social practice theory to pro-environmental behaviour change. *Journal of Consumer Culture,* 11: 1: 79-99.

Harland, P., Staats, H., & Wilke, H. A. M. (1999). Explaining pro-environmental intention and behavior by personal norms and the theory of planned behavior. *Journal of Applied Social Psychology,* 29: 2505–2528.

Harland, P., Staats, H., & Wilke, H. A. M. (2007). Situational and Personality Factors as Direct or Personal Norm Mediated Predictors of Pro-environmental Behavior: Questions Derived From Norm-activation Theory. *Basic and Applied Social Psychology,* 29: 4: 323-334.

Harrington, J., Perry, I., Lutomski, J., Morgan, K., McGee, H., et al. (2008). *SLÁN 2007: Survey of Lifestyle, Attitudes and Nutrition in Ireland. Dietary Habits of the Irish Population*. Department of Health and Children. Dublin. http://www.dohc.ie/publications/pdf/slan_summary.pdf?direct=1

Haustein, S., Klöckner, C. A., & Blöbaum, A. (2008). Car use of young adults: The role of travel socialization. *Transportation Research Part F,* 12 168–178.

Heath, Y., & Gifford, R. (2002). Extending the theory of planned behavior: Predicting the use of public transportation. *Journal of Applied Social Psychology,* 32: 10: 2154-2189.

Heisserer, B., Hynes, M., & Rau, H. (forthcoming). Decision-making in turbulent times: Transport policy and governance in Ireland during and after the 'Celtic Tiger'.

Held, M. (2007). Nachhaltige Mobilität. In O. Schoeller, W. Canzler & A. Knie (Eds.), *Handbuch der Verkehrspolitik.* (851-876). Heidelberg: VS Verlag.

Hermann, D. (2004). Bilanz der empirischen Lebensstilforschung. *Kölner Zeitschrift fuer Soziologie und Sozialpsychologie,* 56: 153-179.

Hines, J. M., Hungerford, H. R., & Tomera, A. N. (1986/87). Analysis and synthesis of research on responsible environmental behavior: A meta-analysis. *Journal of Environmental Education,* 18: 2: 1–8.

Hinton, E. D., & Goodman, M. K. (2010). Sustainable Consumption: Developments, Considerations and New Directions. In M. Redclift & G. Woodgate (Eds.), *International Handbook of Environmental Sociology.* Cheltenham: Edward Elgar.

Hiscock, R., Macintyre, S., Kearns, A., & Ellaway, A. (2002). Means of transport and ontological security: Do cars provide psycho-social benefits to their users? *Transportation Research Part D,* 7: 2: 119-135.

Hopwood, B., Mellor, M., & O'Brien, G. (2005). Sustainable Development: mapping different approaches. *Sustainable Development,* 13: 38–52.

Howley, M., O'Leary, F., & Ó Gallachóir, B. (2007). *Energy in Ireland 1990 to 2006, 2007 Report published by Sustainable Energy Ireland*. Sustainable Energy Agency Ireland. Dublin. http://www.sei.ie/Publications/Statistics_Publications/Energy_in_Ireland/Energy_in_Irl_1990-2006_Fnl_07_rpt.pdf

Hynes, M. (forthcoming). *Towards a clearer understanding of society, technology and environment interactions: A review and exploration of concerns and problems with the development and adoption of telework in Ireland.* PhD thesis, National University of Ireland, Galway, Ireland.

Illge, L., & Schwarze, R. (2009). A matter of opinion—How ecological and neoclassical environmental economists and think about sustainability and economics. *Ecological Economics,* 68: 594-604.

Irish Environmental Protection Agency. (2011). EPA: Greenhouse Gas emissions and the Transport Secot, Presentation by Laura Burke. *EPA Transport Series*. accessed 4 April 2012, http://www.slideshare.net/EPAIreland/epa-greenhouse-gas-emissions-and-the-transport-sector-laura-burke?from=share_email

Jackson, T. (2005). *Motivating Sustainable Consumption: a review of evidence on consumer behaviour and behavioural change*. Sustainable Development Research Network. http://www.c2p2online.com/documents/MotivatingSC.pdf

Jackson, T. (2009). *Prosperity without Growth - Economics for a finite Planet*. London: Earthscan.

Jaeger-Erben, M. (2011). *Zwischen Routine, Reflektion und Transformation – die Veränderung von alltäglichem Konsum durch Lebensereignisse und die Rolle von Nachhaltigkeit eine empirische Untersuchung unter Berücksichtigung praxistheoretischer Konzepte.* PhD thesis, Technische Universität Berlin, Berlin.

Jain, S. J. (2006). Urban Violence: Luxury in Made Space. In M. Sheller & J. Urry (Eds.), *Mobile Technologies of the City.* (61-76). London: Routledge.

Jakobsson, C., Fujii, S., & Gärling, T. (2002). Effects of economic disincentives on private car use. *Transportation,* 29: 349–370.

Jensen, M. (1999). Passion and heart in transport. A sociological analysis of transport behaviour. *Transportation Policy,* 6: 19–33.

Jetter, K. M., & Cassady, D. L. (2006). The Availability and Cost of Healthier Food Alternatives. *American Journal of Preventive Medicine,* 30: 1: 38-44.

Jetter, K. M., & Cassady, D. L. (2010). Increasing Fresh Fruit and Vegetable Availability in a Low-Income Neighborhood Convenience Store: A pilot study. *Health Promotion Practice,* 11: 694-702.

Judge, R., & Becker, A. (1993). Motivating Recycling: A Marginal Cost Analysis. *Contemporary Economic Policy,* 11: 3: 58-68.

Kaspersen, L. B. (2000). *Anthony Giddens: An Introduction to a Social Theorist*. Oxford: Blackwell.

Kenworthy, J., & Laube, F. (1999). Patterns of Automobile Dependency in Cities. *Transportation Research A,* 33: 7/8: 691-723.

Kenyon, S., Lyons, G., & Rafferty, J. (2002). Transport and social exclusion: investigating the possibility of promoting inclusion through virtual mobility. *Journal of Transport Geography,* 10: 3: 207-219.

Kingham, S., & Donohoe, S. (2002). Children's perception of transport. *World Transport Policy and Practice,* 8: 1: 6–10.

Klöckner, C. A., & Matthies, E. (2004). How habits interfere with norm-directed behaviour: A normative decision-making model for travel mode choice *Journal of Environmental Psychology,* 24: 3: 319-327.

Kollmuss, A., & Agyeman, J. (2002). Mind the Gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research,* 8: 3: 239 - 260.

Lahire, B. (2008). The individual and the mixing of genres: Cultural dissonance and self-distinction. *Poetics,* 36: 166-188.

Lane, B., & Potter, S. (2007). The adoption of cleaner vehicles in the UK: exploring the consumer attitudeeaction gap. *Journal of Cleaner Production,* 15: 1085-1092.

Latour, B. (2004). *Politics of Nature: How to Bring the Sciences Into Democracy*. Cambridge: Harvard University Press.

Laurier, E. (2004). Doing Office Work on the Motorway. *Theory, Culture & Society,* 21: 4-5: 261-277.

Laurier, E., Lorimer, H., Brown, B., Jones, O., Juhlin, O., et al. (2008). Driving and 'Passengering': Notes on the Ordinary Organization of Car Travel. *Mobilities,* 3: 1: 1-23.

Lavelle, M. J., & Fahy, F. (2012). *Factsheet: Background and Methodology*. National University of Ireland, Galway. Ireland. http://www.consensus.ie/documents/factsheet_1_background_and_methodology.pdf

Lavelle, M. J., Rau, H., Heisserer, B., & Hynes, M. (2012). *Factsheet 3: Transport*. National University of Ireland, Galway. Ireland. http://www.consensus.ie/documents/factsheet_3_transport.pdf

Leyden, K. M. (2003). Social Capital and the Built Environment: The Importance of Walkable Neighborhoods. *American Journal of Public Health,* 93: 9: 1546-1551.

Lopez-Zetina, J., Leeb, H., & Friisa, R. (2006). The link between obesity and the built environment. Evidence from an ecological analysis of obesity and vehicle miles of travel in California. *Health & Place,* 12: 4: 656–664.

Lucas, K., Blumenberg, E., & Weinberger, R. (2011). *Auto Motives: Understanding Car Use Behaviours*. Bingley: Emerald

Lüdtke, H. (1996). Methodenprobleme der Lebensstilforschung. In O. G. Schwenk (Ed.), *Lebensstile zwischen Sozialstrukturanalyse und Kulturwissenschaft.* (139-163). Opladen: Leske & Budrich.

Lyons, G., & Urry, J. (2005). Travel time use in the information age *Transportation Research Part A: Policy and Practice,* 39: 2-3: 257-276.

Mann, E., & Abraham, C. (2006). The role of affect in UK commuters' travel mode choices: An interpretive phenomenological analysis. *British Journal of Psychology,* 97: 155-176.

Martinsson, J., & Lundqvist, L. J. (2010). Ecological citizenship: coming out 'clean' without turning 'green'? *Environmental Politics,* 19: 4: 518-537.

Maslow, A. (1943). A Theory of Human Motivation. *Psychological Review,* 50: 4: 370-396.

Matthies, E., Klöckner, C. A., & Preißner, C. L. (2006). Applying a Modified Moral Decision Making Model to Change Habitual Car Use: How Can Commitment be Effective? *Applied Psychology,* 55: 1: 91-106.

McClenaghan, A. (2008). Ecological modernisation in the UK: Northern Ireland's sustainable development strategy in context. *Environmental Politics,* 17: 5: 804-814.

McDonagh, J. (2006). Transport policy instruments and transport-related social exclusion in rural Republic of Ireland. *Journal of Transport Geography,* 14: 355-366.

McDonald, F., & Nix, J. (2005). *Chaos at the crossroads*. Dublin: Gandon.

Meyer, M. D. (1999). Demand management as an element of transportation policy: using carrots and sticks to influence travel behavior. *Transportation Research Part A,* 33: 575–599.

Miles, M. B., & Huberman, M. A. (1994). *Qualitative Data Analysis*. Thousand Oaks: Sage.

Moriarty, P., & Honnery, D. (2008). The prospects for global green car mobility. *Journal of Cleaner Production,* 16: 1717-1726.

Mückenberger, U. (2011). Local time policies in Europe. *Time & Society,* 20: 2: 241-273.

Murphy, G. (2010). Interest groups in the policy-making process. In J. Coakley & M. Gallagher (Eds.), *Politics in the Republic of Ireland.* (327-358). London: Routledge.
Nairne, J. S. (2003). *Psychology: The Adaptative Mind*. Thomas Learning Inc.
Newman, P., & Kenworthy, J. (1996). The land use—transport connection : An overview *Land Use Policy,* 13: 1: 1-22.
Newman, P., & Kenworthy, J. (1999). *Sustainability and cities: overcoming automobile dependence*. Washington: Island Press.
Nilsson, M., & Küller, R. (2000). Travel behaviour and environmental concern. *Transportation Research Part D,* 5: 211–234.
Nordlund, A. M., & Garvill, J. (2003). Effects of values, problem awareness, and personal norm on willingness to reduce personal car use. *Journal of Environmental Psychology,* 23: 339–347.
O'Halpin, E. (1993). Policy-making. In J. Coakley & M. Gallagher (Eds.), *Politics in the Republic of Ireland.* (190–206). Limerick: PSAI Press.
OECD. (2008). *Ireland - Towards an Integrated Public Service*. OECD. Paris.
Ory, D., & Mokhtarian, P. (2009). Modeling the structural relationships among short-distance travel amounts, perceptions, affections, and desires. *Transportation Research Part A,* 43: 1: 26–43.
Ory, D. T., & Mokhtarian, P. L. (2005). When is getting there half the fun? Modeling the liking for travel. *Transportation Research Part A: Policy and Practice,* 39: 2-3: 97-123.
Otte, G. (2005). Hat die Lebensstilforschung eine Zukunft? Eine Auseinandersetzung mit aktuellen Bilanzierungsversuchen. *Kölner Zeitschrift fuer Soziologie und Sozialpsychologie,* 57: 1: 1-31.
Otte, G., & Rössel, J. (2011). Lebensstile in der Soziologie. In J. Rössel & G. Otte (Eds.), *Sonderzeitschrift der Kölner Zeitschrift für Soziologie: Lebensstilforschung.* (7-34). Wiesbaden: VS Verlag.
Owens, S. (2000). Engaging the public: information and deliberation in environmental policy. *Environment and Planning A,* 32: 7: 1141 – 1148.
Páez, A., & Whalen, K. (2010). Enjoyment of commute: A comparison of different transportation modes. *Transportation Research Part A,* 44: 7: 537–549.
Pape, J., & Heisserer, B. (2011). *Sustainable Consumption: conceptualisation and Evaluation of Measurement Tools.* 5th International Consumer Sciences Research Conference, Bonn, Germany, 18-20 June 2011. http://www.lwf.uni-n.de/institute/ilt/icsrc/press/full-papers
Patton, M. Q. (2002). *Qualitative research and evaluation methods*. Thousand Oaks: Sage.
Peel, M. C., Finlayson, B. L., & McMahon, T. A. (2007). Updated world map of the Köppen-Geiger climate classification. *Hydrology and Earth System Sciences,* 11: 1633-1644.
Platt, J. (1999). *A History of Sociological Research Methods in America: 1920-1960*. Cambridge: Cambridge University Press.
Postill, J. (2010). Introduction: Theorising media and practice. In B. Bräuchler & J. Postill (Eds.), *Theorising Media and Practice.* Oxford: Berghahn.
Potter, S., Lane, B., Parkhurst, G., Cairns, S., & Enoch, M. (2004). *Evaluation of School and Mobility management plan SSA Programme - Final Report*. http://eprints.ucl.ac.uk/1215
Putnam, R. D. (2000). *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon and Schuster.
Quinlivan, A., & Schoen-Quinlivan, E. (2009). *Innovation and best practice in Irish local government*. Dublin: Chambers Ireland and SIPTU.
Rau, H. (2004). *Time Perspectives and Temporal Practices: A Cross-Cultural, Comparative Study of Time Cultures in Ireland and Germnay.* National University of Ireland, Galway.
Rau, H. (2010). *Draft paper: Researching the 'consumption of distance': Some initial considertaions and research notes, 2nd International Seminar Methodologies for Mobilities Research: Challenges and Innovations*. University of Limerick.
Rau, H. (2011). Das 'neue' Mobilitätsparadigma als Regulierungsansatz für die Wechselbeziehungen von Umwelt, Politik und Gesellschaft. In B. Bärlocher & S. Kruse (Eds.), *Natur und Gesellschaft: Gestaltung und Regulation der Natur-Gesellschaftsbeziehungen, Proceedings of the 6th NGU Conference 2009.* (93-128). Basel: Gesowip.
Rau, H., & Edmondson, R. (2013). Time and Sustainability. In F. Fahy & H. Rau (Eds.), *Methods of Sustainability Research in the Social Sciences.* London: Sage (forthcoming).

Rau, H., & Fahy, F. (2013). Researching complex sustainability issues: Reflections on current challenges and future developments. In F. Fahy & H. Rau (Eds.), *Methods of Sustainability Research in the Social Sciences.* London: Sage (forthcoming).

Rau, H., & Hennessy, C. (2009). The Road to Sustainable Transport? Rural Transport Programmes and Policies in Ireland. In J. McDonagh, T. Varley & S. Shortall (Eds.), *A Living Countryside? The Politics of Sustainable Development in Rural Ireland.* (361-378). Aldershot: Ashgate.

Rau, H., & Vega, A. (2012). Spatial (Im)mobility and Accessibility in Ireland: Implications for Transport Policy. *Growth and Change,* (forthcoming).

Reckwitz, A. (2002a). The Status of the ‚Material' in Theories of Culture: From ‚Social Structure' to ‚Artefacts'. *Journal for the Theory of Social Behaviour,* 32: 2: 195-217.

Reckwitz, A. (2002b). Toward a Theory of Social Practices. *European Journal of Social Theory,* 5: 2: 243–263.

Reckwitz, A. (2004). Die Reproduktion und die Subversion sozialer Praktiken. Zugleich ein Kommentar zu Pierre Bourdieu und Judith Butler. In K. H. Hörning & J. Reuter (Eds.), *Doing culture: neue Positionen zum Verhältnis von Kultur und sozialer Praxis.* (40-54). Bielefeld: transcript Verlag.

Ritchie, J., & Spencer, L. (1994). Qualitative data analysis for applied policy research. In A. Bryman & R. G. Burgess (Eds.), *Analysing Qualitative Data.* (173-194). London: Routledge.

Røpke, I. (2009). Theories of practice — New inspiration for ecological economic studies on consumption. *Ecological Economics,* 68: 10: 2490-2497.

Ross, J. (1998). *Linking Europe: Transport Policies and Politics in the European Union*. Westport: Praeger Publishers.

Ross, N., Renold, E., Holland, S., & Hillman, A. (2009). Moving stories: using mobile methods to explore the everyday lives of young people in public care. *Qualitative Research,* 9: 605-623.

Rössel, J. (2008). Conditions for the explanatory power of life styles. *European Sociological Review,* 24: 231-241.

Rye, T. (1999). Employer attitudes to employer transport plans: a comparison of UK and Dutch experience. *Transport Policy,* 6: 183-196.

Sandqvist, K., & Kriström, S. (2001). *Getting along without a family car. The role of automobile in adolescents' experience and attitudes. Part I Inner city Stockholm.* Stockholm.

Sanne, C. (2002). Willing consumers—or locked-in? Policies for a sustainable consumption. *Ecological Economics,* 42: 1-2: 273 - 287.

Schäfer, M., & Bamberg, S. (2008). *Breaking habits: Linking sustainable consumption to sensitive life events.* Proceedings of Sustainable consumption and Production: Framework for action, Brussels, 10-11 March 2008.

Schäfer, M., Herde, A., & Kropp, C. (2010). Life events as turning point for sustainable nutrition. In U. Tischner, E. Stø, U. Kjærnes & A. Tukker (Eds.), *Case Studies in Sustainable Consumption and Production — Food and Agriculture.* (210–226). Sheffield: Greenleaf Publishing.

Schäfer, M., Jaeger-Erben, M., & Bamberg, S. (2012). Life Events as Windows of Opportunity for Changing Towards Sustainable Consumption Patterns? *Journal of Consumer Policy,* 35: 65–84.

Schatzki, T. R. (1996). *Social practices: a Wittgensteinian approach to human activity and the social*. Cambridge: Cambridge University Press.

Schatzki, T. R. (2001). Introduction: Practice theories. In T. R. Schatzki, K. Knorr Cetina & E. von Savigny (Eds.), *The practice turn in contemporary theory.* (1-13). London: Routledge.

Schatzki, T. R. (2002). *The site of the social: A Philosophical Account of the Constitution of Social Life and Change*. University Park: Pennsylvania State University Press.

Schatzki, T. R., Knorr Cetina, K., & von Savigny, E. (2001). *The practice turn in contemporary theory*. London: Routledge.

Scheiner, J., & Kasper, B. (2003). Lifestyles, Choice of Housing Location and Daily Mobility: The Lifestyle Approach in the Context of Spatial Mobility and Planning. *International Social Science Journal,* 55: 176: 319-332.

Schwartz, S. H. (1977). Normative influences on altruism. In L. Berkowitz (Ed.), *Advances in experimental social psychology.* (221–279). New York: Academic Press.

Seyfang, G. (2008). *The New Economics Of Sustainable Consumption: Seeds Of Change*. Basingstoke: Palgrave Macmillan.
Sheller, M. (2004). Automotive Emotions: Feeling the car. *Theory, Culture & Society,* 21: 4-5: 221-242.
Sheller, M., & Urry, J. (2000). The city and the car. *International Journal of Urban and Regional Research,* 24: 737-757:
Shergold, I., & Parkhurst, G. (2010). Operationalising 'sustainable mobility': the case of transport policy for older citizens in rural areas. *Journal of Transport Geography,* 18: 336–339.
Shove, E. (1998). *Consuming Autombility,* available at http://www.tcd.ie/ERC/pastprojects/carsdownloads/Consuming%20Automobility.pdf Department of Sociology, Trinity College Dublin, Ireland.
Shove, E. (2003). Converging Conventions of Comfort, Cleanliness and Convenience. *Journal of Consumer Policy,* 26: 395–418.
Shove, E. (2010). Beyond the ABC: climate change policy and theories of social change. *Environment and Planning A,* 42: 1273-1285.
Shove, E., & Pantzar, M. (2005). Consumers, producers and practices. Understanding the invention and reinvention of Nordic walking. *Journal of Consumer Culture,* 5: 43-64.
Shove, E., Pantzar, M., & Watson, M. (2012). *The Dynamics of Social Practice: Everyday Life and how it Changes*. Thousand Oaks: Sage.
Shove, E., Watson, M., Hand, M., & Ingram, J. (2007). *The design of every day live*. Oxford: Berg.
Southerton, D., Chappells, H., & Van Vliet, B. (2004). *Sustainable Consumption - The Implicaitons of Changing Infrastructures of Provision*. Cheltenham: Edward Elgar.
Spaargaren, G. (2003). Sustainable consumption: a theoretical and environmental policy perspective. *Society and Natural Resources,* 16: 687–701.
Spaargaren, G., & van Vliet, B. (2000). Lifestyles, consumption and the environment: the ecological modernisation of domestic consumption. In A. Mol & D. Sonnenfeld (Eds.), *Ecological Modernisation around the World: Perspectives and Critical Debates.* (50–77). London: Frank Cass.
Spinney, J. (2009). Cycling the City. *Geography Compass,* 3: 2: 586-599.
Staats, H., Harland, P., & Wilke, H. A. M. (2004). Effecting Durable Change: A Team Approach to Improve Environmental Behavior in the Household. *Environment and Behavior,* 36: 3: 341-367.
Staats, H. J., Wit, A. P., & Midden, C. (1996). Communicating the Greenhouse Effect to the Public: Evaluation of a Mass Media Campaign from a Social Dilemma Perspective. *Journal of Environmental Management,* 45: 189-203.
Steg, L. (2003). Can public transport compete with the private car? *International Association of Traffic and Safety Sciences Research,* 27: 2: 27-35.
Steg, L. (2005). Car use: lust and must. Instrumental, symbolic and affective motives for car use. *Transportation Research Part A: Policy and Practice,* 39: 2-3: 147-162.
Steg, L., & Giffords, R. (2005). Sustainable transportation and quality of life. *Journal of Transport Geography,* 13: 1: 59-69.
Steg, L., Vlek, C., & Slotegraaf, G. (2001). Instrumental-reasoned and symbolic-affective motives for using a motor car. *Transportation Research F,* 4: 3: 151-169.
Stern, P. (1999). Information, Incentives, and Proenvironmental Consumer Behavior. *Journal of Consumer Policy,* 22: 461-478.
Stern, P. (2000). Toward a Coherent Theory of Environmentally Significant Behavior. *Journal of Social Issues,* 56: 3: 407-442.
Stern, P., Dietz, T., Abel, T., Guagnano, G. A., & Kalof, L. (1999). Values, Beliefs, Norms and Environmentalism. *Human Ecology Review,* 6: 2: 81-98.
Stradling, S. G., Meadows, M. L., & Beatty, S. (1999). *Factors affecting car use choices*. Department of the Environment, Transport and the Regions. London.
Sustainable Energy Agency Ireland. (2009). *Energy in Transport*. Sustainable Energy Ireland. Dublin.
Taniguchi, A., Hara, F., Takano, S., Kagaya, S., & Fujii, S. (2003). Psychological and Behavioral Effects of Travel Feedback Program for Travel Behavior Modification. *Transportation Research Record: Journal of the Transportation Research Board,* 1839: 182-190.

Tertoolen, G., van Kreveld, D., & Verstraten, B. (1998). Psychological resistance against attempts to reduce private car use. *Transportation Research Part A: Policy and Practice,* 32: 3: 171-181.

Thøgersen, J. (2006). Understanding repetitive travel mode choices in a stable context: A panel study approach. *Transportation Research Part A,* 40: 621–638.

Triandis, H. C. (1977). *Interpersonal behavior*. Monterey: Brooks/Cole.

Urry, J. (1999). *Automobility, Car Culture and Weightless Travel: A discussion paper,* available at http://www.tcd.ie/ERC/pastprojects/carsdownloads/Weightless%20Travel.pdf Department of Sociology, Trinity College Dublin, Ireland.

Urry, J. (2000). *Sociology beyond Societies: mobilities for the twenty-first century*. London: Routledge.

Urry, J. (2004). The 'System' of Automobility. *Theory, Culture & Society,* 21: 4-5: 25 - 39.

Urry, J. (2007). *Mobilities*. Cambridge: Polity Press.

van Vugt, M., Meertens, R. M., & van Lange, P. A. M. (1995). Car or public transportation? The role of social orientations in a real-life social dilemma. *Journal of Applied Social Psychology,* 25: 258-278.

Veblen, T. ((1899) 2005). *The theory of the leisure class: An Economic Study of Institutions*. Dehli: Aakar Books.

Verplanken, B., Aarts, H., & van Knippenberg, A. (1997). Habit, information acquisition, and the process of making travel mode choices. *European Journal of Social Psychology,* 27: 539–560.

Verplanken, B., Aarts, H., van Knippenberg, A., & Knippenberg, C. (1994). Attitude versus general habit: antecedents of travel mode choice. *Journal of Applied Social Psychology,* 24: 285–300.

Verplanken, B., & Wood, W. (2006). Interventions to break and create consumer habits. *Journal of Public Policy and Marketing,* 25: 90 - 103.

Vigar, G. (2002). *The Politics of Mobility: Transport, the environment and public policy*. London: Spon Press.

Vredin Johansson, M. (1999). *Economics without markets: four papers on the contingent valuation and stated preference methods.* PhD thesis, Umea˚ University, Sweden.

Vredin Johansson, M., Heldt, T., & Johansson, P. (2006). The effects of attitudes and personality traits on mode choice. *Transportation Research Part A,* 40: 6: 507-525.

Wall, R., Devine-Wright, P., & Mill, G. A. (2007). Comparing and Combining Theories to Explain Proenvironmental Intentions The Case of Commuting-Mode Choice. *Environment and Behaviour,* 39: 6: 731-753.

Warde, A. (2004). *Practices and field: revising Bourdieusian concepts,* available at http://www.cric.ac.uk/cric/pdfs/dp65.pdf Centre for Research on Innovation & Competition, University of Manchester.

Warde, A. (2005). Consumption and Theories of Practice. *Journal of Consumer Culture,* 5: 2: 131-153.

Wardman, M., Tight, M., & Page, M. (2007). Factors influencing the propensity to cycle to work. *Transportation Research Part A: Policy and Practice,* 41: 4: 339-350.

Washbrook, K., Haider, W., & M., J. (2006). Estimating commuter mode choice: A discrete choice analysis of the impact of road pricing and parking. *Transportation,* 33: 621-639.

Watson, M., & Shove, E. (2008). Product, Competence, Project and Practice. *Journal of Consumer Culture,* 8: 1: 69–89.

Whitelegg, J. (1997). *Critical Mass*. London: Pluto.

Wickham, J. (2006a). *Gridlock: Dublin's Transport Crisis and the Future of the City*. Dublin: New Island Press.

Wickham, J. (2006b). Public Transport Systems: The Sinews of European Urban Citizenship? *European Societies,* 8: 1: 3-26.

World Commission on Environment and Development. (1987). *Our Common Future*. Oxford: Oxford University Press.

Appendices

Appendix 1: Transport section of ConsEnSus Lifestyle Survey questionnaire

Part B: Transport Questions:

Q15. How far do you have to travel (one way) to work/college/school on a daily basis? *(Please tick one option)*

1. Less than 1 mile	
2. Less than 2 miles	
3. Less than 3 miles	
4. Less than 5 miles	
5. Less than 10 miles	
6. Less than 20 miles	
7. Over 20 miles	
8. Not applicable	
9. Don't know/Not applicable	

Q16. Which method of transport do you most frequently use to travel to work/school/college?*(Please tick one option)*

1. Walk	
2. Cycle	
3. Bus/train	
4. Taxi	
5. Car (*driver*)	
6. Car (*passenger*)	
7. Motorbike	
8. Not applicable	

Q17A. Is there public transport (or a private bus service) available for this commute to work/college/school? *(Please tick one option)*

1. Yes	
2. No	
3. I don't know	

Q17B. If yes, then what is your main reason for not using this public transport? **(***Please tick one response)*

1. It's too expensive	
2. It's unreliable	
3. It's very restrictive (*I can't go when and where I want*)	
4. It's unsafe	
5. Buses can be very unhygienic	
6. I need to carry heavy/bulky things	

7. I need to give lifts to others	
8. I need the car for work	
9. Never considered it/I don't know	
10. Other (*please specify*)	
11. Non applicable (*I take the bus*)	

Q18. In your opinion, which one of the following would encourage people to reduce their journeys by car? *(Please tick one option)* ***(SHOWCARD)***

1. An increase in the cost of fuel/parking/toll charges	
2. Improved/more affordable public transport	
3. Improved bike lanes, footpaths and pedestrian crossings	
4. More financial incentives to encourage people to walk or cycle	
5. Easier online transactions such as banking, shopping, e-government	
6. I don't believe there is any encouragement that would make people leave their car at home	
7. Never considered it/I don't know	
8. Other (*please specify)*	

Q21C. Can you walk to the following places without too much trouble, if you wanted to *(Please answer yes or no or don't know)*

	Yes	No	Don't know
1. A local corner shop/newsagent			
2. A church			
3. A park or playing pitch			
4. A local school			
5. A community or recreation centre			
6. A crèche (*or a childcare facilitate*)			
7. A pharmacy			
8. A pub			
9. The place I work/study			

Appendix 2: Travel Survey Questionnaire – first and second wave

The employer-based Travel Survey was carried out in two waves. The questionnaires for the first and the second wave are almost identical; merely two questions (16 and 17) were changed in the second wave (see below). The questionnaire has been edited here for brevity, but no words have been changed.

1. How far do you have to travel (one way) to work on a daily basis?

***1*. Less than 1 mile**	
***2*. Less than 2 miles**	
***3*. Less than 3 miles**	
***4*. Less than 5 miles**	
***5*. Less than 10 miles**	
***6*. Less than 20 miles**	
***7*. Over 20 miles**	
***8*. Not Applicable/Don't know**	

2. Which method of transport do you most frequently use to travel to work?

***1*. Walk**	
***2*. Cycle**	
***3*. Bus/Train**	
***4*. Taxi**	
***5*. Car (driver)**	
***6*. Car (passenger)**	
***7*. Motorbike**	
***8*. Not Applicable**	

3. Which method of transport do you most frequently use for recreation & leisure?

***1*. Walk**	
***2*. Cycle**	
***3*. Bus/Train**	
***4*. Taxi**	
***5*. Car (driver)**	
***6*. Car (passenger)**	
***7*. Motorbike**	
***8*. Not Applicable**	

4. Is there public transport (or a private bus service) available for your commute to work?

***1*. Yes**	
***2*. No**	
***3*. I don't know**	

5. What, in your opinion, would be the main reason for not using public transport?

***1*. It's too expensive**	
***2*. It's unreliable**	
***3*. It's very restrictive (I can't go when and where I want)**	
***4*. It's unsafe**	
***5*. Buses are very dirty & unhygienic**	
***6*. I need to carry heavy/bulky items**	
***7*. I need to give others a lift**	
***8*. I need my car for work**	
***9*. I never really considered this/I don't know**	
***10*. Other (please specify)**	

6. In your opinion, which one of the following would encourage people to reduce their journeys by car?

***1*. An increase in the cost of fuel/parking/toll charges/etc**	
***2*. Improved/more affordable public transport**	
***3*. Improved cycle lanes, footpaths & pedestrian crossing**	
***4*. More financial incentives to encourage people to walk & cycle**	
***5*. Easier online transactions such as banking, shopping, e-government, etc**	
***6*. I don't believe there is any encouragement that will make people leave their car at home**	
***7*. I never really considered this/I don't know**	
***8*. Other (please specify)**	

7. In your opinion, what is the <u>biggest benefit</u> of driving a car?

***1*. It's very flexible (the freedom to travel)**	
***2*. I can carry heavy/bulky items**	
***3*. I can give other people a lift**	
***4*. I'm protected from bad weather**	
***5*. It's safer (less chance of an accident or injury)**	
***6*. I never really considered this/I don't know**	
***7*. Other (please specify)**	

8. In your opinion, what is the <u>biggest obstacle</u> to driving a car?

1. **It's too expensive (cost of fuel/insurance/parking/etc)**	
2. **There is too many traffic jams & congestion**	
3. **It's bad for the environment**	
4. **I don't get enough physical exercise**	
5. **I never really considered this/I don't know**	
6. **Other (please specify)**	

9. Do you own a car at present?

1. **Yes**	
2. **No**	

10. In your opinion, what is the <u>biggest benefit</u> of cycling?

1. **It's a cheaper option**	
2. **It's good for the environment**	
3. **It's good for my health**	
4. **No trouble with parking or traffic jams**	
5. **It's very flexible & convenient**	
6. **I never really considered this/I don't know**	
7. **Other (please specify)**	

11. In your opinion, what is the <u>biggest obstacle</u> to cycling?

1. **I have to travel some distance**	
2. **It's costly to buy a bike/equipment/gear/etc**	
3. **I have to carry heavy/bulky items**	
4. **I have to give others a lift**	
5. **Cycling is dangerous**	
6. **There's a lack of secure cycle paths**	
7. **I'm not protected from bad weather**	
8. **I'm physically unable to cycle**	
9. **I never really considered this/I don't know**	
10. **Other (please specify)**	

12. Do you own a bicycle at present?

1. **Yes**	
2. **No**	

13. In your opinion, what is the <u>biggest benefit</u> of walking?

1. **It's a cheaper option**	
2. **It's good for the environment**	
3. **It's good for my health**	
4. **No trouble with parking or traffic jams**	
5. **It's very flexible & convenient**	
6. **I never really considered this/I don't know**	
7. **Other (please specify)**	

14. In your opinion, what is the <u>biggest obstacle</u> to walking?

1. **I have to travel some distance**	
2. **I have to carry heavy/bulky items**	
3. **I have give others a lift**	
4. **There is an increased risk of accident/injury**	
5. **I'm not protected from bad weather**	
6. **I'm physically unable to walk**	
7. **I never really considered this/I don't know**	
8. **Other (please specify)**	

15. Have you ever considered a carpooling or car sharing arrangement to get to work?

1. **Yes**	
2. **No**	
3. **I can't remember**	

15a. If you have answered yes, are you currently in a carpooling or car sharing arrangement?

1. **Yes**	
2. **No**	

<u>Question 16 and 17 in first wave of Travel Survey</u>

16. Which one of the following statements best describes how you feel about environmental issues?

1. **I'm very concerned**	
2. **I'm somewhat concerned**	
3. **I'm not concerned**	
4. **I'm not at all concerned**	
5. **I've no opinion/Don't know**	

17. In your opinion, who is most responsible for protecting the environment?

1. **Government agencies (*if you answer yes here then go to question 19a*)**	
2. **Businesses & manufacturers**	
3. **Communities (i.e. people working together in communities)**	
4. **Individuals themselves**	
5. **All of the above**	
6. **I don't know**	
7. **Other (please specify)**	

Question 16 and 17 in second wave of Travel Survey

16. Have you made any change to your travel-to-work routine in the past year?

1. **Yes**	
2. **No**	

17. If so, what prompted the change to your travel-to-work rountine?

1. **Earth Day/The Smart Moves Competition**	
2. **Economic reasons (the downturn)**	
3. **I moved house/residence**	
4. **Circumstances changed for me at home**	
5. **Other (please specify)**	

18. Which one of the following statements best describes how you feel about environmental issues?

1. **I'm very concerned**	
2. **I'm somewhat concerned**	
3. **I'm not concerned**	
4. **I'm not at all concerned**	
5. **I've no opinion/Don't know**	

19. In your opinion, who is most responsible for protecting the environment?

1. **Government agencies (*if you answer yes here then go to question 19a*)**	
2. **Businesses & manufacturers**	
3. **Communities (i.e. people working together in communities)**	
4. **Individuals themselves**	
5. **All of the above**	
6. **I don't know**	
7. **Other (please specify)**	

19a. In your opinion, what level of government is most responsible for protecting the environment?

***1*. European Government**	
***2*. National Government**	
***3*. Local government (*i.e. Local Authorities/City &County Councils*)**	
***4*. Environmental Protection Agency (EPA)**	

20. Are you….

1. Female	
2. Male	

21. What category below best describes your occupation?

***1*. Professional**	
***2*. Service Industry**	
***3*. Managerial**	
***4*. Technical**	
***5*. Manual/Factory worker**	
***6*. Government/Civil Service**	
***7*. Self-employed**	
***8*. Other (please specify)**	

22. What year were you born?

23. Do you work for '*name of company under investigation*'?

***1*. Yes**	
***2*. No**	

24. Please enter the last four digits of your mobile number!
(N.B. This is required for matching purposes but WILL NOT be used to identify any individual)

25. If you would like to participate further in the project or require any additional information, please enter your email address or phone number below!

Appendix 3: Interview guides for T1, T2 and T3

Interviewer guide T1:

I. General Section:

1) Where do you live?
2) How are might that be from here?
3) Is there PT available in the area, what kind of PT?
4) Size of household: Do you have kids? Living at home – age, school or college?
5) How many cars and bicycles available?
6) Does everyone know how to ride a bike – including you?

Journey to Work: (current mobility practice)

7) How do you get to work? Are you on your own? How long does it take you?

8) Do you mind asking me, can you just tell me what your typical morning routine is like until you get to work?
   Example: I'll just give you an example, my friend gets up in the morning at 6:30, wakes up the kids and gets them ready to school, the youngest is 5 and he hates going to school and she needs to basically drag him out of bed, which makes them late every morning. Still she manages to get everything done, she takes 2 travel mugs with tea, – drops them off at school that when they discuss school stuff and who needs to be picked up when and so on, then once the kids are off – she enjoys the quietness, listens to music she likes. Actually I made a new CD for her...anyway then she comes to my home to pick me up and by the time she gets there she's had enough of the quietness and we enjoy a chat...)

9) What would happen, if your car broke down and you needed to get it fixed and you didn't have it for a week?

II. Background of mobility practices:

10) How did you get around before you had a licence and a car?
    How did you get to school when you were a kid or to your cousins and friends?
11) For how long have you had your licence/ how old were you when you took the licence?
12) Did you then have a car available straight away?
13) Have you ever had a car or a bicycle accident?

III. Hypothetical case/Recommendation

14) Let's just assume you have a new colleague at work and she lives in the same area as you do and she three kids. She just moved to Galway and she asks for your advice on how getting to commute to work. What would you recommend her to do?

15) What would you tell her, if she asks about the **kids'** way to school, if there is a way to have them cycle to school or walk?

16) She had spent a long time in Holland, she used to cycle to school herself **growing up** in county Clare, now she is wondering if it is **safe for her kids** to cycle.

17) What can you tell her about the **public transportation** available? Is that a viable option?

IV. Opinion on Change and the three I's

18) Now, we talked about travelling to work a lot.
Would you say there is a transport problem in Ireland – in Galway, if so, can you describe it?

19) Do you think people there is a need for people to reduce their car use? - Elaborate
For whatever reasons...what might be reasons for the need to change

20) **If you were a politician** – Galway City Council or on the national level:
what would you do to reduce the amount of cars on the roads?

21) Are there viable alternative options to car use? What may be good ways of encouraging people to leave their car at home?

22) What about promoting public transportation by making monthly ticket very cheap and if you buy a monthly tickets for a year you get 2 months for free?

23) What about building nice, well light, secure cycle paths, would that encourage people to cycle?

24) Have you ever notice the digital boards in Dublin that tell you how many minutes you have to wait until a bus stops? Do you think those are good for PT users? Enough to encourage new PT users to take the bus?

25) Getting high-visibility gear, can that seen as an incentive to start commuting actively to increase health?

Interviewer guide T2:

I. Easing in…

1) How did you get on in the competition?
2) Did you enjoy it?
3) What was your intention to do throughout the competition when it started 5 weeks ago?
4) How did it turn out?
5) What did you end up doing?

II. 'New Commute' – New practice

6) How do you get on cycling, walking, carpooling?
7) Can you please tell me in detail **what it was like**, about your experience?
8) Was it the way you expected it to be?
9) Is - *cycling, walking, carpooling* - a **viable alternative** to take your car?
10) If it is viable, under what circumstances is it viable?
11) Is it only viable for you or for others as well?
12) What is **different** about cycling, walking, carpooling **compared to taking your car**?

13) What is **different about your** morning **routine**?
    What did you do differently? Anything you did before and don't do know or can't do now? What did you have to change about your routine?
14) And what about your evening routine?
15) Has your cycling, walking, carpooling (new routine) **affected any one**?
    For instance, does your wife now stop at the shop on her way home instead of you or something like that?
16) Has it affected someone else in the sense that you someone else got interested in cycling or was **inspired by your new habit**? Did your new routine inspire others?
17) Did it become a habit? A new routine?

III. Transition – changing routine

18) What was **difficult about changing** your routine?
19) What was easy or what made it easy/easier about changing?
20) **What helps** to make it easier to change your routine?
    What motivated you?
21) Any **recommendations** for a similar project? E.g. next year at TK or something that could be done in other companies? Or even on a larger scale?

IV. Competition

22) What about the competition – did it encourage you to change your routine?
23) If so, in what respect?
24) Was the competitive aspect important? Or maybe more the fact that you knew you could just give it a go for a set period of time, with other people trying to do the same thing at the same time?
25) Did you talk to other team members of the team about the competition? Other teams? What would you talk about? Was it a team experience, or did everyone his bit separately?
26) Did you get excited about the competition?
27) How did the reporting work, did you remind each other? Who reminded whom?
28) Would you say that there is a buzz around the place since Earth Day and so on?

V. 3 I's

29) What about Earth Day? And the website? Did you have a look at the website? Did you find any information useful? Did you miss any information?
30) Have you tried the new bike stand? What do you think about them?
31) If you think about the competition, and trying something new and you have to think about what were the things that helped you to realise your intention to do something differently, and what are things you were missing that would have made it easier?
32) Was the starter kit useful in any shape or form?

VI. Feedback on the competition

33) What did you like about it, what needs improvement?

Interviewer guide T3:

Casual conversation if …

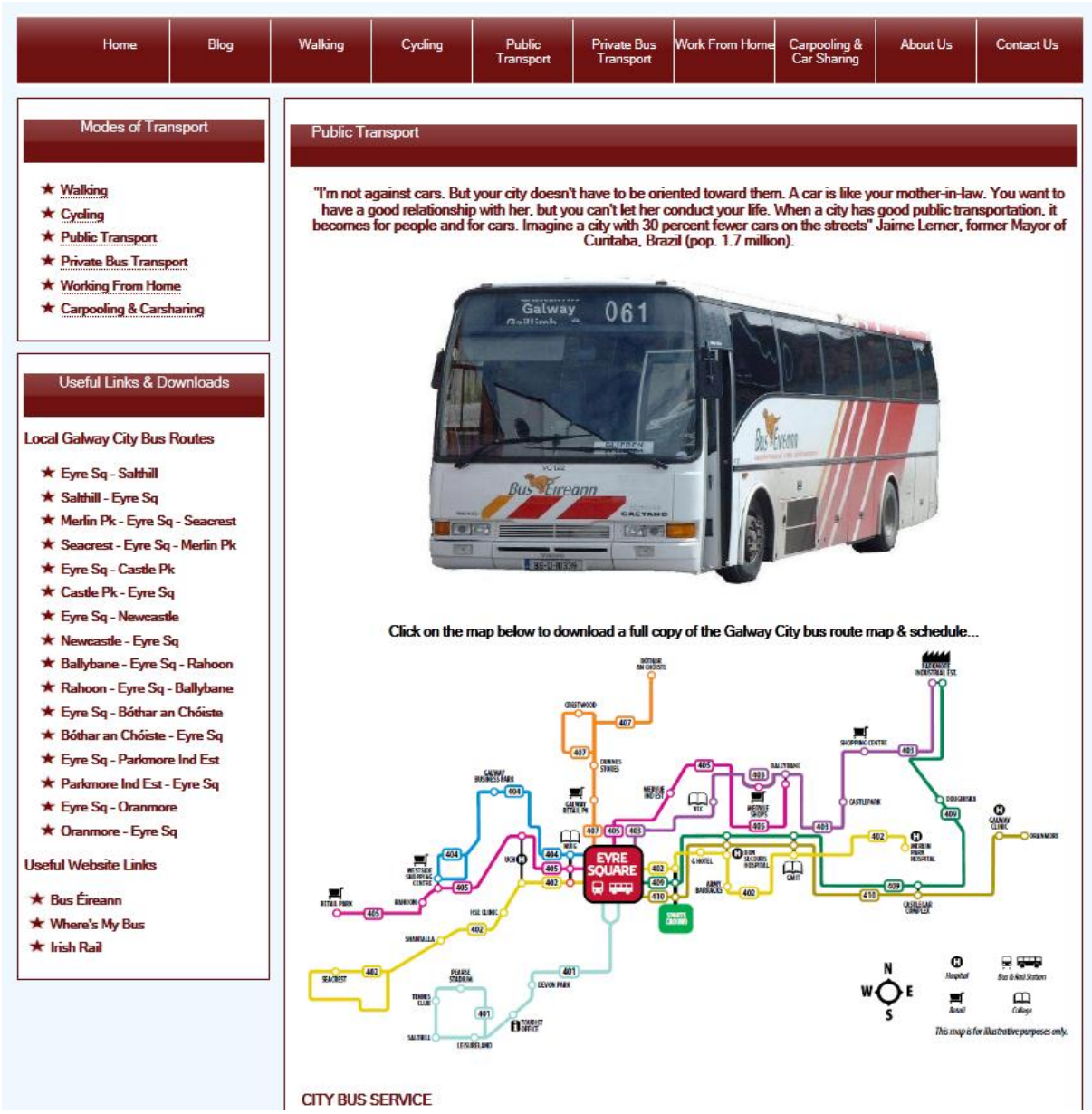
1) What is your current commuting routine?
2) What helped/hindered you to keep it up?
3) What's different about the new commuting routine?
4) What is your plan for the winter?
5) What are other team members doing?
6) What are reactions – if any – from colleagues and family?
7) Did you change anything your general mobility pattern? If so, what?
8) Did change to a new routine affect anyone else?

Appendix 4: Screenshot of website designed for Earth Day Initiative

This website (smartermovement.org) was specifically developed for the Earth Day Initiative to inform about alternatives to the car for the daily commute. At the same time, it served the Smart Moves Challenge as interface for the online travel diary and also to publish the weekly scores (see also Appendix 7). The screenshot below shows the front page of the website advertising the information available.

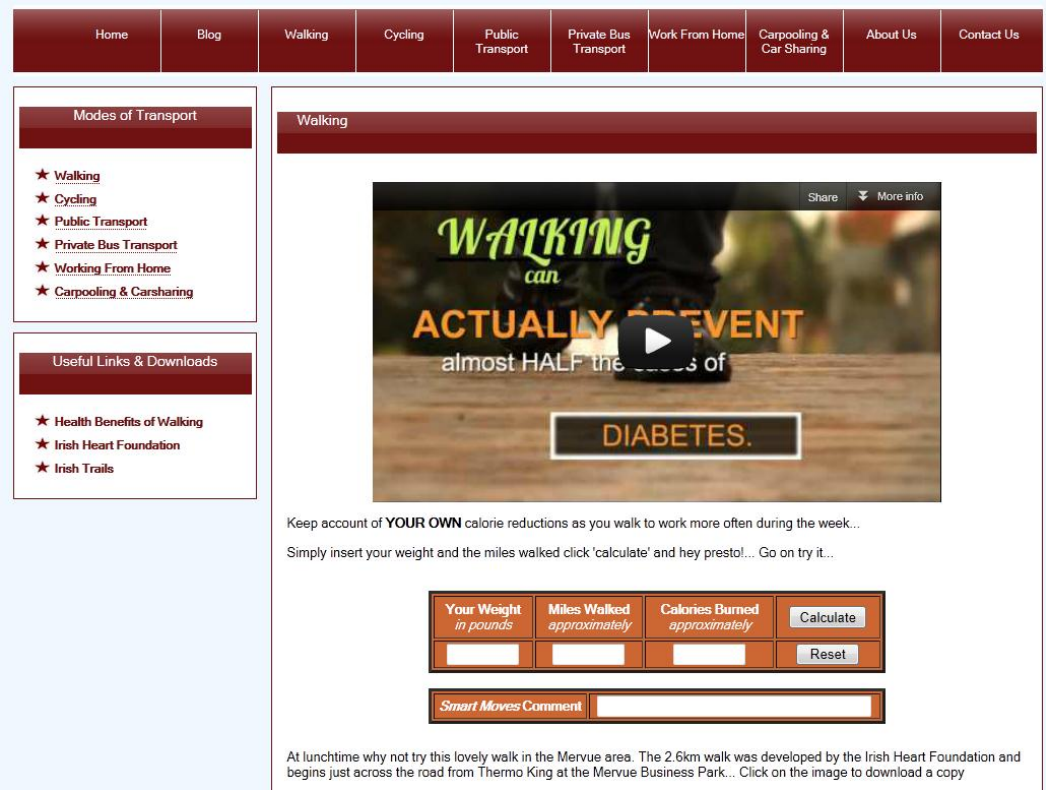
Appendix 5: Screenshot of public transport information

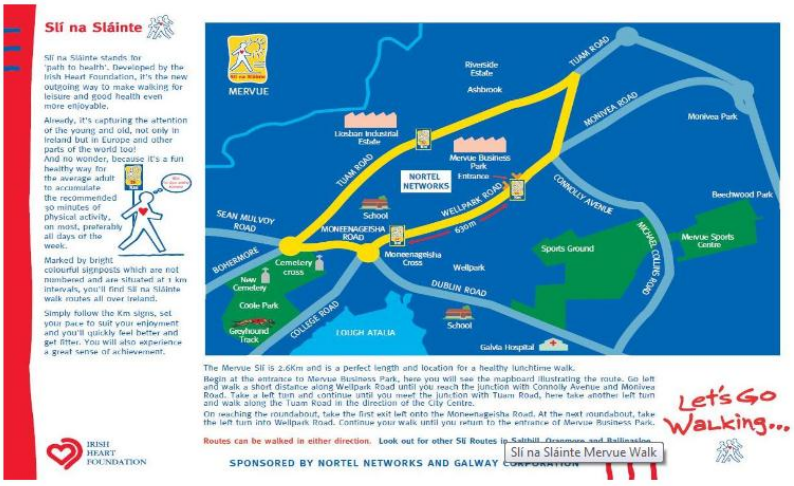
This website (smartermovement.org) was specifically developed for the Earth Day Initiative to inform about alternatives to the car for the daily commute. The figure below shows a screenshot of a information page on public transport.



Appendix 6: Screenshot of information on benefits of walking

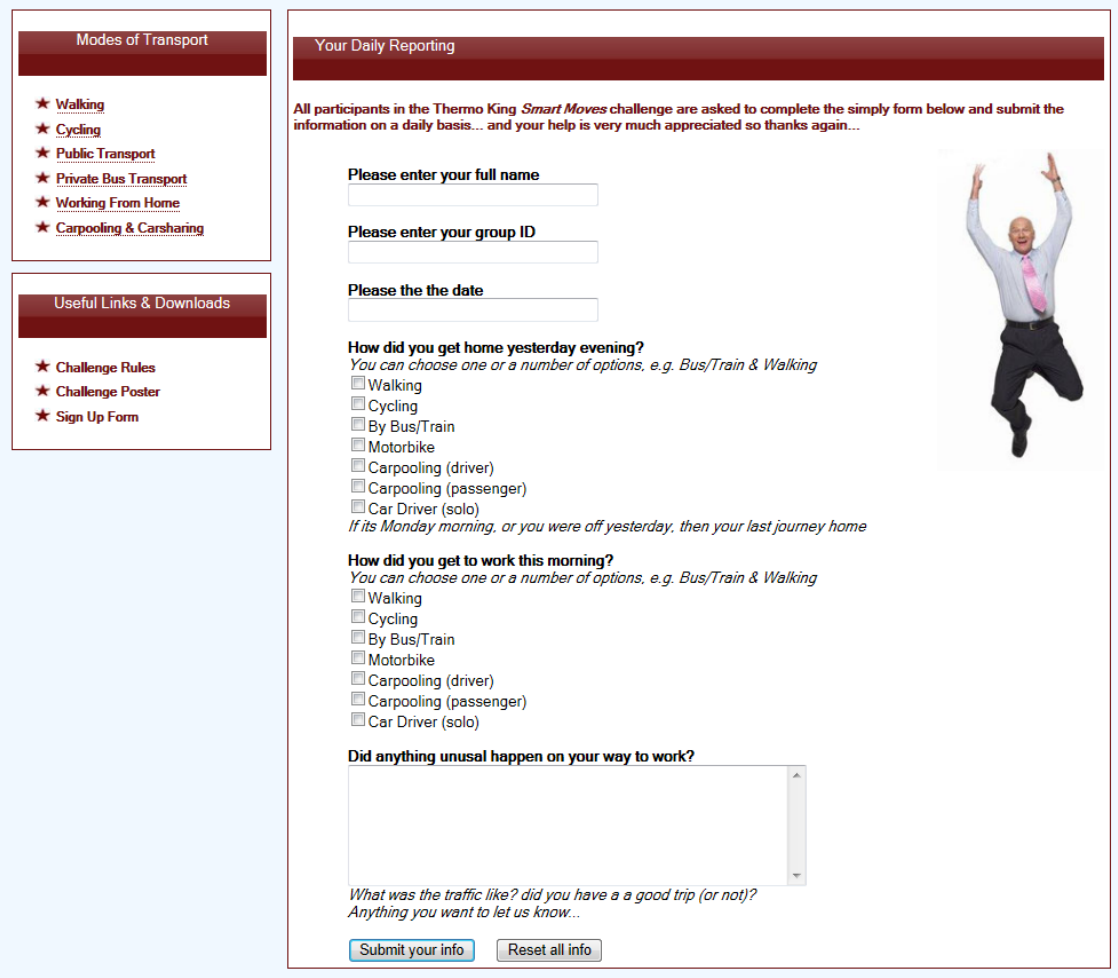
The website (smartermovement.org) was specifically developed for the Earth Day Initiative to inform about alternatives to the car for the daily commute. Among other information on alternatives, it offers health related information on active commuting. The website contains a video on the benefits of walking, a calorie counter and also a walking route around the company's site for lunch time exercising, which is shown on the screenshot below.





Appendix 7: Screenshot of online travel diary for Smart Moves Challenge

This website (smartermovement.org) was specifically developed for the Earth Day Initiative. In addition, it served as online interface for the Smart Moves Challenge. Challenge participants could use it to fill in their travel diaries and also the weekly scores were published on this website (see screenshot below).



Appendix 8: Socio-demographics of research participants

Characteristics	Interviewees of T1		Participants of Competition (27 of 42 entered competition) (23 of 27 agreed to interview)	
Gender	**Male**	**Female**	**Male**	**Female**
Total	33	9	22	1
Age brackets	**Age**		**Age**	
20 to 25	0	1	0	0
26 to 30	4	2	3	0
31 to 35	5	0	3	0
36 to 40	4	0	3	0
41 to 45	5	3	2	0
46 to 50	7	1	5	0
51 to 55	4	0	2	0
56 to 60	2	1	2	0
61 to 65	1	0	1	0
refused	1	1	1	1
Positions	**Occupation**		**Occupation**	
Manufacturing staff	17	0	9	
Administration staff	1	5	1	
Managing staff	12	3	11	
Middle Management	2	1	1	1
Senior Management	1	0	0	0
Description	**Residential location**		**Residential location**	
Urban	20	4	15	1
Rural	10	5	5	
Suburb	3		2	

Appendix 9: Analysis of website usage – Google Analytics

The analysis of the usage of the website and the popularity of individual webpages of this website using the software Google Analytics clearly revealed that after Earth Day, 20th of April and throughout the Smart Moves Challenge, the large majority of people who used the website went straight to the webpages that facilitated the Challenge. The screenshot below shows that the website was clicked on 499 times and out of those 437 clicked onto the webpage with the score of the competition and the interface of the online travel diary.

Pages on this site were viewed a total of 1,151 times

1,151 Pageviews

714 Unique Views

19.82% Bounce Rate

Top Content

Pages	Pageviews	% Pageviews
/	499	43.35%
/challenge.html	437	37.97%
/index.html	39	3.39%
/privatetransport.html	30	2.61%
/cycling.html	29	2.52%