Climate Change, Energy and Transport: The Interviews

What can the social sciences contribute to thinking about climate change and energy in transport research and beyond?

Introduction

This briefing presents results from part of a one-year scanning study aimed at identifying major knowledge gaps in the energy security and climate change mitigation agendas as related to the UK transport sector. It summarises results from interviews with 20 senior UK academics that work in areas with an affinity to transport but do not necessarily consider themselves to be transport specialists. These included those working in sociology, human geography, psychology, behavioural economics, business studies, urban studies, political science, innovation studies and climate science.

The aim was to **open up the horizons of research into climate change and energy**. In particular, we wanted to **understand the role that social science is currently perceived to play** in researching and developing interventions aimed at reducing energy use and carbon emissions from local and global transport. We also wanted to **identify the potential for closer integration between different approaches and sectors**, so that the contributions of social scientists to the study of climate change, energy and transport can be enhanced.

What role is social science currently perceived to play in issues of transport, climate change and energy?

In summary, transport and climate change research is seen as polarised into 'technical versus behaviour' perspectives. Social science is perceived to struggle to find a critical entry point among the rational and technological oriented approaches that prevail. Where social science commands any attention, it tends to be narrowly applied by focusing on behaviour and choice at the individual level despite wider interdisciplinary debates which apply sociological, cultural and political theory to understand how people live their lives and the societal level responses that are required.

Five main observations repeated themselves across the interviews. The transport research and policy communities are perceived to be technocratic, economistic, individualistic, insular and lacking in profile with respect to the climate change agenda. These observations are illustrated in Figure 1.

Figure 1: Perceptions of the climate change research in the transport community

1. **Technocratic:** – transport technologies are generally treated as separate from their behavioural and psychological complexities and solutions are generally classed as 'either/or'. The contribution of technology to transport's decarbonisation is perceived to be treated as relatively certain and reliable.

> *There is this sort of **inherent optimism** that says we can find ways around resource shortages without fundamentally changing the structure of the system.*

> *Long history of ...**advocating pricing measures** ..that is being reinvigorated with the whole debate about carbon taxes, carbon budgets.*

> *A lot of work has a very **weak theoretical underpinning**.*

2. **Economistic** – there is a perceived pre-occupation with modelling and looking at the contribution of transport to emissions inventories. This approach is seen as based largely on unreliable survey methodologies and weak micro-economic theory.

3. **Individualistic** – there is perceived to be increasing interest in 'behaviour' and the demand for fuel and mobility. Recent attention to behavioural economics is seen as a more 'realistic' view of human behaviour. However, thinking in research and policy is regarded as almost exclusively based on individuals and personal choices that respond to information and incentives. Yet the complexities of travel and the transport system require social responses that require a wider perspective using sociological, cultural and governance approaches.

> *..it is ... very much individual, or psychology, how individual people make decisions, so **not that much about the broader sociological approaches or governance approaches or cultural studies**.*

4. **Insular** – transport professionals are believed to regard their area as sufficiently big enough on its own. This leads to (i) a lack of learning from broader interdisciplinary debates (ii) a failure to address the lack of consistency across other policy domains and the fact that major transitions to travel are likely to come from outside the transport sector.

> **There's too much transport in transport research.**

5. **Lacking profile** with regard to climate change – transport is seen to be the 'poor relation' in that it is given less attention *vis a vis* other sectors in the economy in terms of research and policy into decarbonisation, efficiency, fuel poverty and demand reduction.

> *... most of the work would be around housing, energy and even biodiversity and carbon sequestration before it is around transport.*
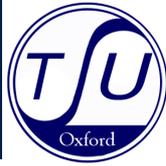
What contribution could the social sciences play?

There was consensus among the interviewees that social science applications in transport have been largely confined to psychology, behavioural economics and human geography. Here we take a wider definition of social science to include disciplines as diverse as political theory, philosophy, complexity science, sociology, etc.

Overall, the application of a broader set of disciplinary 'lenses' to the transport, carbon and energy challenge would ultimately "*lead to new questions*" and new answers and render "*thinkable some of the bigger picture*" beyond the transport sector itself.

Once again, common themes emerged from the interviews and four broad areas were identified where wider attention to social science could unlock new understanding and ultimately lead to the development of new policy interventions.

1. The interdependence of society and transport

Forecasting and scenario planning exercises related to transport are perceived to acknowledge the radical changes, including to behaviour, which will be required to decarbonise the sector. However, these exercises are seen to fail to include an understanding of the radical changes to the "*norms, values and wider practices which govern behaviour*". The application of social science could open up the debate about what mobility means to society, who are the 'users' of the transport system, how people live their everyday lives and where 'individual attitudes' come from in the first place. "*Behaviour is governed by a much wider range of factors and understanding how those factors work and how they take effect and up to what point transport hasn't grappled with that yet and maybe that's where the frontiers of the debate are.*"

2. Transitions and the dynamics of change

Given the emphasis on the need for radical change, social science could contribute understanding in relation to the *process* of system-level change, how expectations change among different societal actors, how debates are framed and innovations cascade, and the significance of shocks and crisis. Understanding transitions and the dynamics of change would lead to thinking "*in a more systemic way about different and competing social, commercial, regulatory and public interests who are trying to mediate between production and consumption in terms of trying to organise some sort of system change.*"

This would involve examining the technical structure of the transport system as well as the political, commercial and cultural aspects. The interviews identified a number of concepts and theories that could be usefully applied such as transitions theory, process dynamics, social movement theory and dimensional framing. "*[T]hese are not just abstract concepts but if you apply them, they show you something new.*"
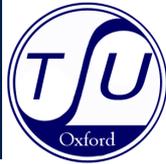
3. Governance

An overwhelming recommendation from the interviews was the need for research to be undertaken in transport which captures the full extent of governance processes, policy networks and the politics of infrastructure and place which "*moves beyond the slightly naive view of policy is something the public authorities do*" to understand all the actors involved at multiple geographical scales.

Whilst the transport community is seen to engage with issues of public acceptability and engagement, this is not deemed to be the same as a wider inter-disciplinary perspective which would take account of the politicised nature of changes to 'the system', look at who is excluded and where the capacity and capability to affect change really sits. "*The sites and sources of power are multiple, decentered and cumulative*". Such research would offer insight into "*how to configure the world around people so that they become self governing*" as opposed to behavioural responses being merely about levers and driving factors determined by Government. This is not the same as experimenting with different forms of engagement and policy instruments, but considers new type of actors and a whole array of governance techniques and under what conditions they might work. It also involves understanding inertia and inaction and paying attention to the creation of "*affective atmospheres*", visions and meanings to allow radical as opposed to incremental change to take place.

4. Social equity and environmental justice

There was a common concern among the academic interviewees that <u>social</u> sustainability (and other forms of environmental sustainability other than climate change) and the whole social equity question has become very much marginalised. The concern is summed up by the notion that "*you can have a carbon neutral city that is socially unjust*" and the unequal distribution of costs and benefits of climate change across social groups was often ignored in the attempt to identify sources of carbon reduction and energy diversification. It was felt that environmental justice was discussed in many fields outside of transport yet if applied to this sector, would usefully help to identify "*what a socially just transport system would look like*". Again, the insularity of the transport profession was identified as a problem here as environmental justice has to be thought about more broadly than access to the transport system and direct exposure to risks from transport: "*Is transport and climate change ever going to be enough to change those big decisions [school choice, housing choice, choice and freedom]? It needs to be coupled with a fundamental belief that we ought to have a fairer society or a more equal society or more liveable cities.*"

The potential for closer integration between different approaches and sectors

Integration across sectors and analytical approaches is inevitable

The interviews identified not so much the *potential* for integration so much as its *necessity* and *inevitability*. The necessity comes from the idea that it is ultimately not possible to draw a boundary around the transport system for reasons identified above. The inevitability comes from the notion
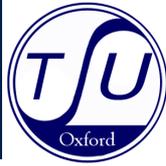
that "*most transitions in transport will not just come from innovation in the transport domain but probably from developments outside so indeed energy but maybe also agriculture and urban planning*". This requires an open approach as to who and what is involved in the delivery of mobility and accessibility at any given time and place.

The closer alignment of the transport and energy systems will be a force for integration

The inevitability of integration also comes from the introduction of new actors in the delivery of mobility services. This is particularly evident as the transport and energy sectors become more closely integrated through electrification and biofuels. *An EV effectively links [users] back into other systems of energy use, and then that sort of works across socio-technical systems. I mean, it may certainly make a whole set of energy relationships across the home more visible [and it] may make you kind of subject to other forms of demand management.*

New analytical perspectives are required to capture the increased interlocking of these multiple systems and the new policy and power networks that this implies. These transitions also bring with them new identities, meanings and experiences which will alter the role of transport infrastructure and mobility in society.

Integration should apply to policy objectives as well as sectors and analytical approaches

Integration was not only seen to apply to sectors and analytical approaches, but also across policy objectives. Across the interviews, transport was consistently seen as part of a much wider set of social concerns which included:

- Links between transport and economic development
- Energy security and peak oil
- Health and wellbeing
- The organisation of product systems
- Tourism, leisure and entertainment
- Information communication technology

This is not to say that these objectives are more important than transport and climate change, but that they could "*allow piggy-backing of climate change mitigation and adaption interventions on to other interventions*". Importantly, all of these cross-cutting objectives involve taking non-disciplinary perspectives.

Integration is hindered by the 'prejudices' against social science and interdisciplinarity

It was generally believed that the potential contribution of social science to take forward the transport and climate change agenda is undervalued among other scientists but particularly among non-academic stakeholders. Social science tends to be "*in the background*" and seen as 'end of pipe' to address the "*annoying complexity*" of behaviour. Social scientists can be viewed as being "*better at explaining why other people are wrong rather having concrete ways forward*" and "*policy makers can find the outputs of social science quite difficult to interpret into concrete policies*". Within social
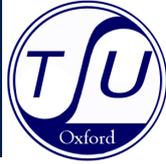
sciences there are also tensions between sub-disciplines and a tradition of undervaluing policy relevant research.

Conclusions

Multiple frameworks exist for thinking about climate change mitigation, adaptation and transport. These include system level theories about socio-technical transitions, complexity science, practice theories and multi-level governance approaches. The greater application of such perspectives to the transport and climate change agenda would ensure that the dynamics of change over time as well as the uncertainty and complexity in outcomes become better understood. Overall, an inter-disciplinary perspective whereby social science is central to research and policy will lead to different questions being asked and new solutions identified. This is summed up by the thoughts of one interviewee: "*There's no good reason why [government] shouldn't have a cadre of sociological advisors as opposed to having economic advisors or scientific advisors or all the other groups of specialists who inform government*".

Acknowledgements