Institution: University of Aberdeen

Unit of Assessment: UoA 16: Architecture, Built Environment and Planning

Title of case study: Smarter Travel: influencing behaviour for a sustainable future

1. Summary of the impact

Research by Prof Jillian Anable and colleagues in the Centre for Transport Research (CTR) at the University of Aberdeen has made a leading international contribution to a specific approach to sustainable transport planning known as 'Smarter Choices' or 'soft measures'. These have been used to develop non-coercive transport policies that inform people of their travel choices, and seek to improve services to make these choices feasible.

These measures rely on understanding the processes and mechanisms for people to change their travel behaviour voluntarily in response to locally tailored initiatives using a combination of social marketing, travel planning, information provision and investment in alternative transport infrastructure. The research at Aberdeen has used a combination of methods to assess the potential of Smarter Choices, and has also been used to calculate the expected carbon emissions reductions that would result from different combinations of policy measures. This research has also developed a specific quantitative methodology involving segmenting the population to give a flexible interpretation of behaviour, allowing different policies and messages to be targeted to different groups.

The research has directly influenced English and Scottish transport and climate change agendas, being taken up in policy guidance, evaluation frameworks, new funding mechanisms and the inclusion of Smarter Choices in carbon reduction targets. The research has also been used by several local transport authorities in the UK and mainland Europe and as underpinning evidence by many transport and environment NGO's and community groups.

2. Underpinning research

The underpinning research has been led by Prof Jillian Anable, (Senior Lecturer from 2008, promoted to Chair in 2013), with further contributions provided by Prof John Nelson (Professor, 2007-) and Dr Steve Wright (Research Fellow, 2007-). The premise of the research is founded in earlier work by Prof Anable related to the use of a segmentation approach to measuring travel behaviour, and adapting policy measures at a local and national level towards different sectors of the population. The work also has its theoretical basis in research undertaken on behalf of the Department for Transport (DfT) on '*Soft Measures*'.

In 2008, work at the University of Aberdeen moved the research from application in theory, towards application in practice, evaluating the implementation of new travel measures on the ground. This has taken place through a series of externally funded research projects (noted below) undertaken with a number of academic and non-academic partners in England, Scotland and several European cities.

In each case, CTR's specific contribution has been the design of theoretically-informed survey instruments to assess emotional, psychological and practical motivations for travel and the potential response to policy incentives and marketing campaigns. This has involved innovations in before/after process and outcome monitoring using a combination of qualitative and quantitative survey-based techniques. Data generated by these evaluations has been analysed by CTR and has resulted in a unique approach to the segmentation of populations based on the propensity of individuals to adopt less car-oriented or carbon-intensive travel behaviour.

A key innovation in this research is the identification of a core set of survey questions that place respondents in motivational segments and can be used directly as a tool by Local Authorities wishing to promote and/or evaluate Smarter Choices. We have also been responsible in each study for the translation of traffic reduction potential into carbon savings, and benchmarking the cost-effectiveness of Smarter Choice initiatives against other transport and non-transport policy measures. This research has been used by local and national transport policy makers in the UK and beyond to identify success factors relating to the detailed design, implementation and governance of these policy initiatives, including local branding and community consultation processes.

The claimed impact has effectively been generated through four separate projects (2008-2013), with funding by the Department for Transport (DfT), The Scottish Government and the

European Union (Intelligent Energy Programme). Prof Anable has led each of these grants on behalf of the University of Aberdeen, with input from Prof Nelson, Dr Wright, and other academic and non-academic partners contributing expertise in other areas. In 2008, the DfT commissioned Prof Anable (along with Prof Phil Goodwin (UWE and UCL), Dr Sally Cairns (TRL/UCL) and Dr Lynn Sloman (Transport for Quality of Life)) to undertake an evaluation of the impacts of their investment in three '*Sustainable Travel Demonstration Towns'* (STTs) affecting a total of 300,000 people (1). Based on analysis of large sets of individual and meta-data, the Aberdeen element of the research was able to identify specific groups who had adapted their travel behaviour. Often such changes occurred at particular transition points in people's lives related to, for example, changes of jobs, redundancy, starting college, retirement etc.. Analysis tools were also developed to translate the impact of different Smarter Choice measures on carbon reduction targets at a national level.

As the evaluation of Sustainable Travel Towns (STT's) progressed, the Scottish Government (through Transport Scotland) commissioned CTR (with Derek Halden Consultancy and Integrated Planning Ltd) to undertake a similar piece of work related to seven towns across Scotland (Barrhead, Dumfries, Dundee, Glasgow East End, Kirkintilloch/Lenzie, Larbert/Stenhousemuir, Kirkwall) (2). Based on the experience of work with the English STT's, and adopting a segmentation approach, baseline data collection was undertaken in advance to inform the study, this then combined with data collected during and after the interventions themselves for analysis purposes. From the Scottish experience, the impact of the interventions as evidenced by the research was more mixed in terms of behaviour change. Nevertheless, a third project was commissioned by the Scottish Government, led by Prof Anable in partnership with Atkins, modelled the potential carbon reductions from a spectrum of devolved transport policy mechanisms in Scotland with CTR leading on the modelling of Smarter choice interventions in Scotland (3).

As a result of ongoing research findings related to Smarter Choices and segmentation approaches, Prof Anable was invited to deliver the keynote address at a major European conference (ASTUTE December 2008). This subsequently led to an invitation to join a consortium of EU local authorities as the sole academic partner in an EU project 'SEGMENT' - *SEGmented Marketing for ENergy efficient Transport* (2010), as part of the Intelligent Energy Europe programme, with the cities of London (Borough of Hounslow), Munich (Germany), Utrecht (Netherlands), Almada (Portugal), Gdynia (Poland), Sofia (Bulgaria) and Athens (Greece) (4). CTR led the technical design of the research and analysis of the results. This project, completed in 2013, comprised an evaluation and monitoring of Smarter Choice interventions in these seven European cities using the segmentation approach specifically to inform the design of the intervention mechanisms and evaluate behavioural outcomes. An interactive survey tool has been developed that can be used by local authorities to learn about and inform travel choices and behaviour and to evaluate and monitor responses. This tool has recently been adopted by Utrecht (July 2013) and Cornwall Council (August 2013) although its impact in these locations is yet to be measured.

3. References to the research (indicative maximum of six references)

(1) *The Effects of Smarter Choice Programmes in the Sustainable Travel Towns. Full Report. Final Report to the Department for Transport, March 2010 submitted by Sloman, L.; Cairns, S., Newson, C.,* ***Anable, J****.; Pridmore, A. & Goodwin, P.* Final report and summary report available on the DfT's website.

(2) *Going Smarter. Monitoring and Evaluation of the Smarter Choices, Smarter Places Programme*. Final Report to the Scottish Government, March 2013, submitted by Halden, D., **Anable**, J., Bradley, J., Ayland, N., & Parker, J. Baseline and interim reports are also available on the Scottish Government's website.

(3) *Mitigating Transport's Climate Change Impact in Scotland: Assessment of Policy Options. F*inal Report for the Scottish Government, August 2009, submitted by Atkins on behalf **of the** project team, co-authored by Prof Anable. Available on the Scottish Government's website.

(4) SEGMENT WP6 – Evaluation. Final report produced in June 2013 by **Anable, J**. & Ishfaq, S.. All deliverables(including the segmentation 'tool') are available on the project website.

4. Details of the impact

This programme of underpinning research at Aberdeen has elevated the role of Smarter travel choice interventions on the agenda of local authorities, the UK & Scottish Governments and within the European Union. The key to the impact generated from this programme of research has been the delivery of multiple, scientifically robust studies which have identified a significant potential to reduce car use in towns and regions under certain conditions. The results have been disseminated through a multitude of non-academic routes including engagement in policy debates, responses to requests by policy makers to comment on draft policy guidance, provision of evidence to government inquiries on climate change and transport, and publication of reports by sponsors on websites. These reports have been picked up by numerous non-academic user groups such as local authority planners, companies and transport campaign groups.

The impact has been achieved not only through the findings of individual research projects, but is elevated in reach and significance by the cumulative learning resulting from the series of inter-linked research projects considering different aspects related to influencing behaviour and providing sustainable transport services. Consequently, Smarter Choices and calculations of potential impact resulting from the work of CTR is now quoted or used in UK sustainable transport policy documents at national and the local level, together with many climate change strategy documents. In summary, the impacts can be summarised in the following categories:

Impact on climate change policy*.*

- *The Effects of Smarter Choice Programmes in the Sustainable Travel Towns* directly informed the Fourth Budget of the UK Committee on Climate Change's recommendations that Smarter Choices should contribute to carbon reduction targets from the transport sector. Citing our research (1), the CCC's 2010 report to Parliament (a) said: "Based on evidence from the Sustainable Travel Towns, we propose that the rolling out of Smarter choices initiatives across all urban areas in the UK would result in cost effective emissions reductions and wider economic benefits (e.g. reduced congestion)...could reduce emissions in 2020 by almost 3MtCO2." (p120).
- Similarly, *Mitigating Transport's Climate Change Impact in Scotland (MTCCI)* (3) directly informed Scottish Government climate change policy. Their report *Low Carbon Scotland: Meeting the Emissions Reduction Targets 2010-2022* (b) said*: "*The Scottish Government's proposals for significant further reduction of transport emissions are based largely on the findings of commissioned research on potential devolved policy options, published in 2009 [citing (3)]" (p88). As a result, their policy review set out specific targets relating to smarter Choices across Scotland including "all workplaces with more than 30 employees to have an effective travel plan by 2022" and "personalised travel planning advice provided to all households in Scotland by 2022" (p91).

Impact on national sustainable transport policy and associated government funding

- The 2010 Spending Review announced £560 million (later increased to £600m) for a Local Sustainable Transport Fund which is now supporting 96 projects in 77 Local Authorities across England. In the associated guidance by the DfT (c), research by CTR was directly cited: "This recommendation draws heavily on the secondary data sources analysed during the evaluation of the Sustainable Travel Towns [citing (1)]" (p25). This impact is further corroborated by Dr Lynn Sloman who says "As a member of the DfT Expert Panel for assessment of local authority bids to the Local Sustainable Travel Fund, I reviewed more than 60 of the 155 local authority proposals for funding for Smarter Choice programmes. A large proportion showed evidence that the local authority developing the bid had drawn upon the Sustainable Travel Towns evaluation in designing their intervention programme." (e)

Impact on transport policy and investment at Local Authority level in the UK and Europe

- At a local authority level, impact on practitioners is evident. Research involving the STT evaluation (1) and the SCSP evaluation (2) is included in Local Authority Transport Plans, too numerous to mention. Owen Wilson, leader of the STT demonstrator project for Darlington Borough Council has stated that the STT evaluation "provided an academically rigorous independent evaluation including comparison with changes in travel behaviour over the same time period in other towns. Since publication, Darlington is leading on delivering smarter travel measures in the Tees Valley and the southern part of Durham County." (f)

Impact on campaigns and guidance produced by NGOs and public transport operators

- NGOs have taken on the evidence from the research and used it to build the case for certain

packages of interventions to improve health and quality of life and reduce carbon. As clarified by Stephen Joseph of the Campaign for Better Transport (to which Prof Anable was invited to become a Policy Advisor in 2010) "through the work by Prof Anable and colleagues it can be said that this area of transport policy now has a better evidence based underpinning it than many much larger transport investment programmes. Prof Anable's work on behaviour change has also been used more widely, including in specific projects funded by the LSTF and other sources, to segment local populations and target interventions at groups and areas where change in travel behaviour is most likely." (g)

Impact on the policy debate

- Prof Anable gets invited to advise local and national government on Smarter Choices policy, segmentation and evaluation. For example, in May 2011, The DfT wrote to Prof Anable saying: "I know you have made extremely valuable contributions to this area of work [Smarter Choices]. The department is also extremely grateful for the advice you have provided on Smarter Choices in the past. Given your expertise, the DfT is keen to receive your thoughts on a proposed approach to quantifying the impact of Smarter Choices over the next 15-20 years." The project manager for the STT evaluation at the DfT has also provided a corroborating statement. (h)
- Based on her research findings, Prof Anable was further invited in January 2011 to provide the opening presentation to the House of Lords Science and Technology Committee inquiry on behaviour change and a further invitation to provide oral evidence to the committee (d).

In summary, our work in Aberdeen provided evidence that went on to inform a national roll out of Smarter Choices initiatives with associated funding and policy guidance. Impact continues to expand in terms of reach and significance, as can be testified by Lynn Sloman (e) who has built up a consultancy specialising in Smarter Choices advice and evaluation. The findings and segmentation tool from the EU SEGMENT project are about to be implemented by the city of Utrecht who said "The participation in SEGMENT, and especially the segmentation developed by Jillian Anable, has had a bit influence on the mobility management policy of the City of Utrecht" (i), with further uptake by other European cities over the coming 12-24 months. Interest is also being expressed by local authorities further afield including Australia and New Zealand.

5. Sources to corroborate the impact

Written citations in Government reports etc

(a) Committee on Climate Change (2010) *Meeting Carbon Budgets – ensuring a low carbon recovery. 2nd Progress Report to Parliament*. June 2010. (see especially p24, p109, p116, p120)

(b) The Scottish Government (2011) *Low Carbon Scotland: Meeting the Emissions Reduction Targets 2010-2022. The report on policies and proposals*. March 2011. (see Section 6)

(c) DfT (2012) *Local Sustainable Transport Fund – Monitoring and Evaluation Framework.* December 2012. (See p25)

(d) Science and Technology Select Committee (2011) *Behaviour Change. 2nd Report of Session 2010-12.* The House of Lords. HL Paper 179. TSO. (see especially para 7.38 and Box 17)

Corroborating statements available from the research users

(e) *Transport for Quality of Life*: Lead the recent DfT project (1) and has provide evidence on the contribution made by Prof Anable to the STT evaluation and the development of Smarter Choices in local and national policy.

(f) *Principal Transport Officer, Darlington Borough Council:* Leader of one of the STT demonstration town pilots and worked closely with Dr J Anable to provide evidence as input to the evaluation study. He has provided a corroborating statement.

(g) *Chief Executive, Campaign for Better Transport:* Leading UK Transport NGO which has produced guidance for Local Authorities and campaign reports drawing upon CTR's research on Smarter Choices. He has provided a corroborating statement.

(h) *Department for Transport, Sustainable Accessible Travel* – manager of the STT evaluation project. He has provided a corroborating statement.

(i) *Utrecht Transport Authority, Netherlands:* Lead Utrecht's involvement in SEGMENT (4) and was the first authority to devise a follow-on programme to apply the SEGMENT toolkit devised by Prof Anable. He has provided a corroborating statement.