

Centre for Transport and Society, University of the West of England, Bristol

Annual Report 2011

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OVERVIEW

The mission of the Centre for Transport & Society (CTS), a research centre of the Department of Planning and Architecture at the University of the West of England, Bristol (UWE) is to *further understanding and influence on the interactions between mobility, lifestyles and society in a context of technological change.*

At the end of 2011, CTS comprised 15 staff members, 9 research students and 4 emeritus and visiting members. The team includes transport planners and social scientists with a shared interest in travel behaviour and mobility equity issues, and in relating the understanding gained from research to policy and practice. Centre members worked on research grants and contracts with a total value to UWE of around £2.5 million during the year.

Work at the Centre in 2011 was characterised by a number of large research projects moving towards their key results and analysis phases. The group also engaged strongly with the new opportunities for evaluation and dissemination posed by the UK Government's Local Sustainable Transport Fund, which for the first time emphasises 'revenue' spend on behaviour change measures, rather than capital investment in infrastructure; an initiative therefore closely aligned to CTS's interests and experience. Members also sought to influence the debate around the 'HS2' high speed rail proposal, through disseminating findings concerning time use during rail travel.

Alongside our research activities we run a successful MSc in Transport Planning which is accredited by the Chartered Institute of Logistics and Transport (CILT) and as a specialism by the Royal Town Planning Institute (RTPI). The course is

designed to provide individuals with the core skills needed in transport planning practice whilst seeking to offer a distinctive orientation in its teaching which exposes students to the challenges posed by placing transport in its socio-political and behavioural context. Whilst the focus of the course has great relevance for transport planning internationally, graduates have been successful in achieving the recently introduced 'Transport Planning Professional' qualification, affirming the UK relevance of the syllabus.

In 2011 CTS also offered its first short course aimed at transport professionals, on the topic of Intelligent Transport Systems and their application in European projects.

In July 2011 the annual MSc CILT student dissertation prize awards were held, with presentations from the three highest-scoring students and a keynote address from Mr Derek Palmer (Transport Research Laboratory). Later in the month Ms Gillian Smith was awarded an honorary MSc degree for her furtherance of social science research in transport studies, latterly as a civil servant with the Department for Transport.

Three PhD students submitted their theses during the year: Ben Clark (household car ownership changes), Caroline Bartle (use and effects of word-of-mouth traveller information), and Geoff Andrews (user benefits of concessionary bus passes).

CTS continued to engage in the dissemination of research and practice through a seminar series which included speakers from Brazil and the United States. The final seminars in the joint regional series hosted with the Centre for Sustainable Transport at the University of

Plymouth, and supported by the South West Regional Improvement and Efficiency Partnership and Plymouth City Council took place in January and March, concerning travel for tourism and rural transport policy.

In June, a one-day symposium on travel time use, value and experience was held, attracting expert presenters and participants from across Europe. In December the annual CTS Winter Conference featured a selection of the research papers that were to be presented at forthcoming conferences by CTS members, notably the 2012 Universities' Transport Study Group Conference in Aberdeen.

Looking to the future, CTS members are working towards making a core contribution to UWE's Research Evaluation Framework (REF) submission in 2014.

In total, the annual report covers 25 research studies and lists well in excess of 90 recent and forthcoming publications. The CTS website also provides two-page briefing sheets for many of its research activities.

MEMBERSHIP NEWS

At the end of August 2011 Dr Yusak Susilo left CTS to join the Royal Institute of Technology in Sweden. He continues to collaborate with former colleagues at CTS.

Prof. Phil Goodwin formally retired at the end of July, although he continues with CTS as Professor Emeritus, whilst Steve Atkins was appointed Visiting Professor in February 2011.

Three CTS PhD students joined the staff team following submission of their theses: Ben Clark to undertake a postdoc

study of the potential for expanding express coach services, and Caroline Bartle and Geoff Andrews, providing temporary assistance on research projects. Dr Owen Waygood was promoted to Research Fellow during the year.

There were two official academic visitors to the Centre in 2011: Marie Russell, for six months, from the University of Otago, New Zealand, to work on use of travel time, and Prof. Martin Watts, University of Newcastle, Australia, during the summer, to examine commuting issues from a labour market perspective.

Members of the Centre at the end of 2011 were:

Staff

Prof. Steve Atkins - Visiting Professor
 Dr Erel Avineri - Reader in Travel Behaviour
 Dr Eran Ben-Elia - Senior Research Fellow
 Dr Kiron Chatterjee - Senior Lecturer in Transport Planning
 Dr Geoff Dudley - Visiting Research Fellow
 Prof. Phil Goodwin - Emeritus Professor
 Reg Harman - Visiting Research Fellow
 Christa Hubers - Research Associate
 Dr Juliet Jain - Senior Research Fellow
 Dr Tilly Line - Research Fellow
 Prof. Glenn Lyons - Professor of Transport and Society
 Dr Steve Melia - Senior Lecturer in Transport and Planning
 Dr Charles Musselwhite - Senior Lecturer in Traffic and Transport Psychology
 Prof. Graham Parkhurst - Director and Professor of Sustainable Mobility
 Dr Miriam Ricci - Research Fellow
 Ian Shergold - Research Associate
 Dr Henrietta Sherwin - Research Fellow
 Dr Owen Waygood - Research Fellow

Research students

Geoff Andrews
 Caroline Bartle
 Helen Bowkett
 Tom Calvert
 Ben Clark
 Billy Clayton
 Anja Dalton
 Heather Jones
 Rutul Joshi
 Amy-Louise Webber

Abbreviations of organisations mentioned below:

ACIS Advanced Communication & Information Systems Ltd
 ATS Advanced Transport Systems Ltd
 AWP Avon & Wiltshire Partnership Mental Health Trust
 B&NES Bath and Northeast Somerset Council

BCC Bristol City Council
 BHCC Brighton & Hove City Council
 CSPE Centre for Sustainable Planning and Environments
 DfT Department for Transport
 DAS UWE Department of Applied Sciences
 DEDM UWE Department of Engineering, Design and Mathematics
 EC European Commission
 EPSRC Engineering and Physical Sciences Research Council
 ESRC Economic and Social Research Council
 FHLS UWE Faculty of Health & Life Sciences
 GWR Great Western Research
 IEEE Institute of Electrical and Electronics Engineers
 MRC Medical Research Council
 NHS National Health Service
 NCC Norfolk County Council
 SICE Sociedad Ibérica de Construcciones Eléctricas
 TRB United States' Transportation Research Board
 TRL Transport Research Laboratory
 TSB Technology Strategy Board
 UITP International Association of Public Transport
 UKTRC UK Transport Research Centre
 UTSG Universities' Transport Study Group
 WoE Four West of England Local Authorities

STAFF ENGAGEMENTS

Dr Erel Avineri accepted an invitation to serve on the TRB Committee on Traveler Behavior and Values (ADB10). Dr Avineri also serves as a member of the TRB Committee on Artificial Intelligence and Advanced Computing Applications (ABJ70); his appointment to this committee has been extended for another three-year term until 2014. Dr Avineri continued to serve on the ESRC Peer Review College, and remained actively involved as a member of editorial boards and as a reviewer for various international journals, conferences and research funding organisations. Dr Avineri was invited to give presentations at a workshop on Qualitative Research Methods in Transportation at the TRB's 90th Annual Meeting (Washington DC) and at the Frontiers in Transportation International Workshop (Canada) and was an invited panel speaker at the conference "Sustainable Transport Systems: Influencing Travel Behaviour" (London). In December he co-organised and hosted at UWE the final conference of the CATCH project, "Carbon Aware Cities: A

Multi-Disciplinary Approach to Low Carbon Transport Systems". He co-organised a special session on "Travel Behavior Research: Bounded Rationality and Behavioral Response" at the 14th International IEEE Conference on Intelligent Transportation Systems and served as a member of several international conferences on transport research. He co-organised a short course on Intelligent Transport Systems and their Applications in EU Projects.

Dr Eran Ben-Elia continues his position as Senior Research Fellow. Eran served on the Effects of Information-Communication Technologies (ICT) on Travel Choices (ADB20) Committee for the US TRB, as a member of the Modelling Innovations Committee for the European Transport Conference and co-chaired the Special Interest Group on Transportation and ICT for the World Conference on Transportation Research Society. He has presented at the 90th Annual meeting of the TRB and the 7th workshop on discrete choice modelling (EPFL, Switzerland). He continues to be a reviewer for several leading journals and international conferences.

Dr Kiron Chatterjee presented two papers utilising the lifecourse perspective for understanding travel behaviour at the 91st TRB Annual Meeting in January 2012. He gave presentations at seminars at DfT on 'Cycling and Behaviour Change' in March 2011 and on 'Longitudinal Research' in February 2012. He is a member of the Study Steering Committee for a project led by University of Bristol on 'Employer schemes to encourage walking to work'. He continues to serve as Programme Leader of postgraduate transport planning courses at UWE. He is also an assessor for the Transport Planning Professional Qualification.

Professor Glenn Lyons remains an active member of CTS in parallel with his role as Associate Dean (Research and Knowledge Exchange) in UWE's Faculty of Environment and Technology. He continues his role on the editorial boards of two journals - Transport Reviews and Mobilities - and as a member of the TRB Telecommunications and Travel Behavior Committee. In 2011 he concluded his role as External Examiner for Cardiff University's MSc in Transport & Planning. Glenn is a member of the EPSRC and ESRC Peer Review Colleges. During 2011 he examined PhDs in Stockholm, Twente and Southampton; he gave invited presentations in Stockholm and Lyon. He submitted evidence to the Government Consultation on HS2 and, by invitation, to

the 2011 Transport Select Committee enquiry on high speed rail. Glenn continues as a Trustee of London Transport Museum Limited.

Dr Steve Melia continued to extend his research and teaching interests during the year. He was also invited to advise the Olympic Park Legacy Company on the sustainable transport planning of the London Olympics site after the games, and the RAC Foundation on their forthcoming report on parking policy. He has been leading the research project described below on alternatives to private car use by NHS staff. He presented a paper on the Paradox of Intensification at the 2011 UTSG Conference in Milton Keynes, and chaired a session on 'A Future Beyond the Car' at the UK & Ireland Planning Research Conference in Birmingham. This led to a special edition of the journal *World Transport Policy & Practice*, which Steve will be editing during 2012. Amongst his teaching responsibilities, he led the transport section of a module in the new programme on Climate Change and Energy Conservation, run by the Department of Geography and Environmental Management.

Dr Charles Musselwhite has continued to build on his research interests primarily in ageing and travel behaviour and road user safety. In addition to being an advisor Parliamentary Advisory Committee on Transport Safety on older people's road user safety he was invited by the International Longevity Centre, UK to write a thinkpiece on how older people can 'successfully' give up driving. This was subsequently launched at the House of Lords to an audience of practitioners and policymakers including the DfT, Royal Society for the Prevention of Accidents, AGE UK and the Driving Standards Agency. He is a member of the International Association of Applied Psychology, the British Sociology Association and British Society of Gerontology and he is a reviewer for ESRC and NIHR research proposals and for articles submitted to the journals *European Journal of Ageing*, *Transportation Part F: Traffic and Transport Psychology*, and *Ageing and Society*.

Professor Graham Parkhurst provided presentations at the British Society of Gerontology conference in Plymouth, UK and the Gerontological Society of America conference in Boston, USA. He also provided a public lecture at UWE on the emerging 'collective mobility' and was an invited lecturer for an EU training

course on local mobility management policy in Treviso, Italy. He represented the CTS team working on the Civitas Renaissance project at consortium meetings in the Bath, Brussels and Skopje, and hosted academic and professional visits by groups from China and Taiwan. He was interviewed on local radio stations on the topics of fuel prices, parking charges, motorway management and the effectiveness of park and ride. In July he acted as orator at the planning and architecture degree ceremony.

Dr Henrietta Sherwin developed her research interest in mapping as a tool for promoting cycling prompted by the direct experience of using walking and cycling maps in unfamiliar places as part of the research associated with the Evaluation of Investment in Cycling in the Cycling City and Towns Programme (CCTs). In September she presented a paper based on the data collected at the Cycling and Society Symposium in Glasgow titled 'What counts as 'Social Influence'? Pondering the complexities of social influence and cycling.

Dr Yusak Susilo continued to serve as a Universities' Transport Study Group (UTSG) Executive Committee member, as a US Transport and Land Development (ADD30) Committee member and also as a member of the International Scientific Committee of the Eastern Asia Society of Transportation Studies (EASTS). He remains actively involved as a reviewer for various international journals and conferences.

Dr Owen Waygood continued to serve as a member of the TRB committees: Transportation and Sustainability (ADD40), and Women's Issues in Transportation (ABE70). Owen remained an active reviewer of journal and conference papers.

ACKNOWLEDGEMENTS

We acknowledge with thanks the support of all the funding bodies named in the project descriptions below, and the cooperation of our partners.

STRATEGIC THEMES

The following summaries identify projects in progress during 2011 grouped in seven strategic themes of application:

- car dependence;
- experience of the travel environment;
- mobility and the ageing population;
- promoting inclusive, low carbon, active travel;

- supporting and evaluating sustainable mobility strategies;
- technologies and travel;
- understanding and influencing attitudes and behaviours.

Three broad aims underlie these themes:

- improving our understanding of travel behaviour,
- promoting more equity in mobility, and
- developing innovative transport research methodologies.

CAR DEPENDENCE

Driving Hands: an Investigation of Factors Influencing the Resumption of Driving Following Immobilisation in a Below-Elbow Cast

(British Association of Hand Therapists, March 2010 to September 2011). *Charles Musselwhite. Partners: Melissa Calcraft, Annette Swinkels, Pat Turton (FHLS) and Rebecca Fox (Frenchay Hospital).*

Returning to driving after injury can be complicated by the presence of cast immobilisation. Patients who seek medical advice about when to recommence driving often receive conflicting advice. The research is undertaking a questionnaire survey with a sample of patients who have broken their wrists exploring how a broken arm disrupts travel behaviour, whether people drive with their arms in plaster and how soon they resume their driving. The research examines how far a short-scale disability might impact on travel behaviour and how long-term this is. The research also involves interviewing in-depth a further sample of those completing the questionnaire.

Understanding how household car ownership changes over time

(EPSRC/Ito World Ltd CASE PhD Studentship, October 2007 to March 2011). *Ben Clark. Supervisors: Glenn Lyons, Kiron Chatterjee and Peter Miller (Ito World Ltd).*

This PhD study, completed in July 2011, set out to address the question: How and why does household car ownership change over time?

The study employed a two-stage research design. Stage One involved 15 in-depth biographical interviews with members of zero, one and two car-owning households. An inductive thematic analysis led to the development of a new dynamic framework for understanding the general process of household car ownership change. Car ownership changes are triggered by life events which alter

roles/relationships, spatial contexts and lifestyle preferences. Life events lead to travel behaviour adaptation and consideration of whether the current car ownership state is satisfactory. This can create a latent propensity to change car ownership state. Given the 'costs' and effort involved in taking action, households tend to resist changes to their car ownership state. In some cases, action may be prompted by another external stimulus such as the receipt of a maintenance bill, or the opportunity to acquire a car from a trusted friend or family member.

The dynamic framework was tested in a neighbourhood survey involving a self-completion questionnaire and follow-up telephone call to establish a wider set of accounts of car ownership level changes. The life event-driven nature of car ownership level changes is confirmed and it is found that car ownership level changes are also strongly dependent on life stage. Younger households have a tendency to increase car ownership level from zero to one or more cars as they move towards middle age. Vehicle relinquishments are more likely to occur in older age, following retirement in association with health and income constraints. Over 70 percent of car ownership level changes recorded by the survey were associated with either a change in working circumstances, cohabitation, an adult joining or leaving the household, residential relocation, child birth or offspring reaching driving age.

The findings of the study support the proposition that transport policies and interventions concerned with changing the number and type of vehicles owned should consider life events as significant opportunities for change.

Alternatives to Personal Car Use for Mobile NHS Professionals
(UWE SPUR, August 2011 to July 2012).
Steve Melia.

This project aims to explore the potential for NHS trusts to reduce carbon emissions by providing alternatives to personal car use for mobile NHS professionals. The first phase will evaluate the experience of a scheme involving pool cars (one of them electric) and electric bicycles recently introduced by AWP. It aims to explain the participation or non-participation of staff in the scheme, and its effects on their non-work travel, and in some cases, car ownership.

The project will consist of four elements, some of which will run concurrently: an

online survey of all staff, a focus group of a team which exclusively uses electric bikes and a series of telephone interviewees with staff and managers.

The project aims to draw lessons from the AWP pilot scheme for sustainable transport initiatives in other NHS trusts.

EXPERIENCE OF THE TRAVEL ENVIRONMENT

Bus Tales: Travel-time use, technologies, and journey experiences on the bus

(DfT/EPsrc PhD Studentship, October 2008 to March 2012). *William Clayton.*
Supervisors: Graham Parkhurst, Juliet Jain and Tilly Line.

This studentship is associated with the Ideas in Transit project. The focus of the research is firmly on the subjective experience of the bus environment; the part travel-time activity plays in the creation of this experience; and how passengers' current positive experiences and perceptions of time in this unique environment might be 're-framed' to sustain, promote and expand patronage on public bus services. The variation in journey experience between different age groups on the bus is of particular interest; in specific relation to passengers' use of mobile technologies and ICTs, and the role that these play in creating and mediating subjective journey experience.

This studentship is now nearing completion, with the thesis being in the final stages of revision before full submission for the viva. The research has generated a number of significant findings related to the relationship between travel-time activities and journey experiences on the bus. The public nature of the bus and the physical space of the vehicle are of particular importance in dictating what travel-time on the bus can be put to use for. Time on the bus is used for a variety of reasons: some passengers use this time to relax and enjoy a precious slice of free time, some passengers enjoy the opportunity to socialise, and yet others spend it blotting out the intensity of the social space and distracting themselves from the boredom they experience on the journey.

The findings demonstrate a number of important implications for service providers and policymakers concerned with improving the passenger experience and increasing the attractiveness of bus travel. These implications are being developed in more depth in a piece of post-doctoral research which follows

from the PhD.

Life on the Buses: Investigating Community Transport and Older Users.
(UWE PhD Studentship, October 2010 to October 2013). *Amy-Louise Webber.*
Supervisors: Charles Musselwhite and Graham Parkhurst

This project investigates older people's perceptions, use and experiences of community transport (CT) and its role in meeting the needs of older people in order to create better provision and use of CT throughout the UK.

The number of people aged 65 years and over is expected to rise by nearly 60% in the next 25 years, with older people expected to account for 20% of the total population. CT provides specialist services for those travellers who cannot use public transport, either due to their particular individual needs or the limited extent of service provision. This study seeks to identify and address knowledge gaps within transport research on this topic, through the examination of the experience of the older users in relation to how community transport enables them to negotiate social and emotional connection with themselves and others and how this contributes to older peoples' understandings of self identity, providing different experiences, performances and affordances.

Other themes which may be revealed through this research are the relationship between passengers and drivers, mobility, physical movement and power and the significance of the gap between those who embrace the increasing expanding and speeding up of network sociality and those who cannot or choose not to do so.

Exploring Pedestrians' Subjective Experience of Motor Traffic within the Road Environment.

(UWE PhD Studentship, October 2010 to October 2013). *Tom Calvert.* *Supervisors: Erel Avineri, and Charles Musselwhite.*

The research examines the subjective experiences that pedestrians have of motor traffic when walking in the city. Example experiences may be the aesthetic impacts of motor traffic or perceptions of danger imparted by proximity of traffic. The justification of the research is partly experiential: that is to say that it is important because our experience of motor traffic is highly salient, both in its quality and in its extent. Many of us experience being a pedestrian near motor traffic every day. Justification of the project also includes

its aim of showing in which ways understanding the subjectivity of pedestrian experience is important: i.e. in which ways an understanding of the pedestrian environment based solely on objective measures is inadequate.

The study is in its second year, and data collection was being designed at the time of writing. The data collection and analysis will be largely qualitative in nature, with some phenomenological commitments. The main method of collecting data will be 'walk-along' interviews where participants will be asked for their impressions of motor traffic as we walk through the city centre of Bristol. There may also be a second phase of data collection, more quantitative in nature, which will pick up on some of the themes arising in the qualitative analysis.

Revisiting rail passengers' travel time use.

(UWE, June 2010 to September 2011).
Lead: Glenn Lyons with Juliet Jain, Yusak Susilo and Steve Atkins

CTS secured agreement with Passenger Focus for inclusion of questions in the autumn 2010 wave of its National Passenger Survey of rail travellers. The questions repeated some of those included in 2004 on passengers' travel time use. The research provides a unique insight into aspects of stability and change regarding how rail passengers spend their time, how worthwhile they consider their time use to be, the extent of advance planning of their time use and how equipped for time use they are in terms of the items they have to hand when they travel. The results reveal a consistent dominance of reading for leisure, window gazing and working/studying as favoured travel time activities. Over the six-year period the availability and use of mobile technologies has increased. Listening to music in particular has doubled in its incidence suggesting an increasing capacity for travellers to personalise the public space of the railway carriage. Most notably the analysis reveals a substantial increase in the proportion of travellers overall making very worthwhile use of their time. The findings add to the ongoing debate concerning how travel time savings are valued in preparing advice on transport investment decisions - currently pertinent in the UK in the context of the high speed rail debate.

MOBILITY AND THE AGEING POPULATION

Grey and Pleasant Land?: an Interdisciplinary Exploration of the

Connectivity of Older People in Rural Civic Society

(UK Research Councils' New Dynamics of Ageing programme, January 2009 to April 2012). *CTS grantholder and lead: Graham Parkhurst with Charles Musselwhite, Ian Shergold. Workpackage Co-investigators: Kate Galvin, Les Todres (University of Bournemouth), Judith Philips University of Swansea). Project Principal Investigator: Catherine Hennessy (University of Plymouth).*

The overall project is examining how older people's 'connectedness' in rural areas improves both their own quality of life and that of their communities. The third work package concerns the ways that mobility supports connectivity, and is lead by CTS. Hence the work package is examining the various ways that mobility facilitates or constrains connectivity and quality of life amongst the rural elderly, and the implications for their mobility choices for the future sustainability of their communities.

In 2011, following the completion of quantitative data analysis and the conduct of 55 qualitative interviews in 2010, the focus of work became qualitative data analysis and overall reporting and dissemination. The year began with a presentation in January 2011 at the UTSG annual conference. The paper was subsequently submitted and revised for a special issue linked to the conference, and was subsequently published (as Shergold, Parkhurst and Musselwhite, 2012). The paper closely based on this article was presented in November 2011 as part of a project-based symposium at the Gerontological Society of America conference in Boston. A presentation developed on the theme of this paper was given in June at a seminar at Bristol University concerning the built environment. In February a second journal article was accepted to a special issue on ageing in rural areas (Shergold and Parkhurst, 2012).

Exploring How Older People Contemplate and Experience Giving-Up Driving

(UWE Early Career Research Grant, January 2010 to January 2011). *Charles Musselwhite.*

Previous research is limited in studying the effects of giving-up driving on older people who have already given-up or will do so in the future. Little is therefore understood about the actual process of giving-up driving and how this affects life beyond the car. The process is known to be important as it contains efforts to

seek out further information of alternative travel with varying degrees of success in effecting quality of life beyond the car. This study followed a group of 21 older people through the process of giving-up driving, from contemplation to the ultimate cessation. Findings suggest some of the problems encountered by those who give-up driving may in fact be mitigated by the level of pre-planning that they undertake. Other factors including flexibility in travel destinations, the role of family and friends, and wider support networks are also seen as important. The importance of pre-planning means that it is recommended that more should be done to promote contemplation of driving cessation coupled with encouraging multi-modality at a younger age.

The Grey Escape: Understanding the impact of Concessionary Fares policy in England.

(GWR/Stagecoach Devon Research Studentship, October 2008 to September 2011). *Geoff Andrews. Supervisors: Graham Parkhurst, Yusak Susilo and Jon Shaw (University of Plymouth).*

At a time of major change in the UK bus industry, this research sought to deepen existing understanding of how and why concessionary bus pass holders have altered their travel behaviour since the provision of England-wide free bus travel, and the benefits accrued to pass holders as a result of the policy intervention. A survey of 487 pass holders in the Exeter area offered some insights into modifications in the trip patterns of pass holders, in terms of the length, distance and frequency of trips being made, but also with evidence emerging of previously unconsidered changes. These include some pass holders spreading out their trips, and some considering that their trips have become less purpose-driven since the provision of free travel.

Qualitative focus groups revealed the importance of the journey experience to many pass holders, with the bus constituting a third social space for social interaction, advice and providing access to informal networks of support. In addition, it was found that many pass holders reported making trips by bus they would not have made before, on the grounds that they can now justify what they may deem to be 'trivial trips' such as getting out of the house, but which arguably in fact are the most crucial in terms of maintaining quality of later life.

The research argued that the current criteria for measuring the success of

England's Concessionary Fares policy tend to undervalue the wider social benefits of the scheme and its vital role in the prevention of the onset of isolation and loneliness in older age. Furthermore, the pass was found to provide far more than simply additional travel, representing in some cases a plastic embodiment of the very values of freedom and independence that some respondents reported losing when they decided to give up their cars. The research challenges policy makers to reflect on both the wider social benefits of the scheme, but in addition the wider costs that could be incurred if these benefits were not being provided by the scheme.

Research into the social and health value of Community Transport in Norfolk

(NCC, October 2011 to June 2012). *CTS Project Manager Ian Shergold; with Charles Musselwhite, Graham Parkhurst, Richard Kimberlee (UWE FHLS)*

This project aim is to better understand the health and wellbeing benefits of CT in Norfolk, drawing on expertise from both transport and health perspectives.

The project is carrying out a 'return on investment' exercise using proven tools and methods from the social investment appraisal discipline, and to support this work, the team is deploying a range of data collection approaches, including interviews, questionnaires and focus groups. Both the smaller parish-based community car schemes, as well as at least one of the larger CT operators in the county will be reviewed. The intention is to also work with residents in an area that doesn't currently have such transport available, to further illuminate what impacts regular use of community transport might have on health and wellbeing. Although this is a relatively small project in terms of resourcing and timespan, the team endeavours to develop an appraisal mechanism that will be robust, and credible (with the caveat that it will be less extensive than the full 'Social Return on Investment' methodology). This 'lighter touch' process will use established, valid, and reliable health and wellbeing indicators alongside financial data from the schemes themselves. Financial proxies for indicators will be utilised in order to include the values of those benefits excluded from markets on the same terms as those used in markets.

The findings from the various data collection exercises and from the return on investment calculations will be

written up in a project report to be delivered in the summer of 2012. It is intended that the methods used, particularly in respect of the return on investment calculations will be clearly identified, to allow the exercise to be repeatable and transferable. The research team will also disseminate results through the newly-formed Norfolk CT Forum, and if possible engage with an appropriate forum of health professionals in Norfolk to disseminate material on health and well-being benefits, and the 'return on investment' methodology and outcome.

Stakeholder interviews were completed in the autumn of 2011, and provided some specific themes for the project team to concentrate their investigation on. These themes were further explored in a workshop with over twenty CT scheme operators and eight users held in Norfolk in mid-January 2012. The main 'user' questionnaire and a concurrent operator data collection exercise will be deployed in spring 2012.

PROMOTING INCLUSIVE, LOW CARBON, ACTIVE TRAVEL

Cycling Experiences: Exploring Social Influences and Gender Perspectives (EPSRC Research Studentship, December 2008 to November 2012). *Anja Dalton (CTS & FHLS). Supervisors: Jane Powell, Paul Pilkington (FHLS) and Graham Parkhurst.*

In recent years, cycling has received increased political interest in the UK. High profile projects, such as Sustrans' Connect2, DfT's CCT and the development and success of the London Cycle Network have all contributed towards a greater prominence and credibility for cycling. However, this is set against a background in which levels of cycling are still very low, at 2% of all transport trips nationally. Another significant factor in increasing cycling levels is that current uptake of cycling is unequally distributed, with only half as many 'utility' trips being taken by British women, compared to men.

The aims of this research project are to investigate gender differences in cycling, as well as exploring whether social influence is a significant factor in persuading more people, and especially more women, to cycle. The research also is part of the iConnect (Impact of Constructing Non-motorised Networks and Evaluating Changes in Travel) consortium (www.iconnect.ac.uk) which seeks to provide a comprehensive evaluation of Sustrans' Connect2 programme.

The project uses a flexible and novel qualitative research design and has a focus on social influence and social network analysis. Nearly 50 individual and group interviews were undertaken in both Bristol and Cardiff, which examined many aspects of cycling, including the similarities and differences in men's and women's conceptions of cycling. The barriers to increased female participation in utility and leisure cycling are currently being analysed and written up. The results of this study will help to inform future policy efforts aimed at encouraging greater levels of cycling in the UK, in order to help produce a more equitable and inclusive cycling culture.

Applying the Life Course Approach to Walking and Cycling

(ESRC/MRC studentship, October 2009 to September 2012). *Heather Jones. Supervisors: Kiron Chatterjee and Selena Gray (FHLS).*

Increasing lifelong levels of walking and cycling in the general population is a shared transport and health policy objective for the benefits this will have on reducing the disease burden from physical inactivity and reducing congestion and carbon emissions in the transport sector. However, fulfilling this objective requires knowledge of the lifecourse patterns of walking and cycling and this cannot be gained from cross-sectional data from population surveys. Studies in both travel behaviour and physical activity research have been led by the hypothesis that behaviour change is associated with life events; however this is a small body of work that has not addressed walking and cycling directly and has been limited by the paucity of longitudinal data. The purpose of this project is to take both a whole-life view on the development of walking and cycling and understand how it changes across individual life events and transitions.

The lifecourse perspective conceives the individual life as a set of interwoven trajectories that together chart the development of the person through life. This project conceives of the development of walking and cycling over the life course as a trajectory. These trajectories are accessed through in-depth qualitative interviews using life history calendars to facilitate recall and reconstruction. The trajectories of over 30 individuals (15 born 1945-1955 and 15 born 1975-1985) have been collected and are in the process of being analysed. The dataset simultaneously provides the trajectories of 20 intergenerational

parent-child dyads. Emerging findings include gender differences in trajectories that are underpinned by gender differences in family, employment and car ownership trajectories; there are inter-cohort differences in the transition to adulthood which mean the younger cohort are experiencing more life events that present opportunities for walking and cycling behaviours to change in early adulthood and in some cases seem to delay the emergence of stable motorised mobility.

Exploring Poverty-transport Linkages: Mobility Practices of the Urban Poor in Ahmedabad (India).

(UWE PhD studentship, February 2010 to February 2013). *Rutul Joshi*.

Supervisors: Graham Parkhurst, Charles Musselwhite and Yusak Susilo.

The research aims to explore through a specific city case-study how the poor in developing countries negotiate their mobility practices and travel choices.

One of the crucial aspects of urban poverty in India and elsewhere in the developing world is the role that the transport system plays in preventing or enabling the poor to access resources for their everyday life. Transport-based mobility can be seen as negotiating practices and weighing consequences within the marginalized socio-economic context and informal housing and job markets. The idea of ‘mobility practices’ is to examine the context of travel behaviour and link it with notions of poverty. The city of Ahmedabad in India is selected as a case study, which has some typical characteristics of urbanization in south Asia such as rapid population growth followed by industrialization, depleting urban infrastructure and swelling slum quarters. This is coupled with a high growth rate of private motor vehicle use and the building of big transport infrastructure projects to ‘ease congestion’.

The study combines quantitative and qualitative methods; first to specify what are the mobility practices and secondly exploring why these practices occur in the given context. As part of the study, about 580 households were surveyed in 15 settlements distributed in different geographical locations of the city. The travel characteristics captured as part of the surveys were frequency of trips for various purposes, mode use, destination, routes and cost and time taken, which

are being analyzed by gender, income, employment and the location characteristics of the various settlements. Furthermore, about 30 individual interviews were conducted in the settlements including interviewees with varying employment and housing scenarios. The study has reached a stage of preliminary data analysis and presentation of the same.

Making the Case for Investment in the Walking Environment

(Living Streets, February 2011 to May 2011). *Kiran Chatterjee. Partners: Katie Williams, Danni Sinnett (CSPE) and Nick Cavill Associates.*

Living Streets commissioned the research team to produce a report evaluating the health, economic, social and environmental benefits of investment in walking-friendly public spaces.

The project involved a comprehensive literature review of evidence on the impacts of investing in the walking environment. It drew on evidence from both academic and ‘grey’ literature: before and after studies evaluating effects of interventions and cross-sectional studies identifying built environment characteristics associated with higher walking levels. The evidence is illustrated through a number of case studies of schemes which have resulted in safer and more attractive public places in neighbourhoods and city centres in the UK and elsewhere. The review also identified examples where value for money estimates have been carried out of investment in the walking environment and compared these to value for money of other transport projects.

The review demonstrates the importance of high-quality walking environments in creating the opportunities for people to walk for transport or pleasure. Urban environments with greater population densities, a mixture of land uses, good connectivity for pedestrians and a well-maintained, good quality public realm are associated with increased levels of walking, social interaction, and health and well-being. Interventions to retrofit poor-quality walking environments to create high-quality public spaces, improve road safety or encourage the sharing of spaces are successful in supporting walking. These interventions are also good value for money and are liked by the users of the walking environment and local residents.

Exploring the Usability of Cycle Maps

(BCC, December 2011 to March 2012). *Henrietta Sherwin and Caroline Bartle.*

Partner: CycleCity Guides.

Local authorities produce a wide range of local maps every year, intended to facilitate cycling, walking and the use of public transport. However, the design and style of such maps varies substantially across the UK (unlike road maps designed for driving, which follow a more standard format). There has been no comprehensive evaluation of the ‘usability’ of different styles of map from a user’s perspective. Consequently, there is a risk that public resources may be being wasted on the production of maps which do not serve their intended purposes as well as they might.

CTS was commissioned by BCC to undertake this study of the usability of different styles of map from the perspective of different types of map-user, particularly those who are contemplating cycling to work. The research involved focus groups comprising mainly non-cyclists and occasional cyclists, to obtain their views on four styles of map, each covering the same area of North Bristol. The maps were produced especially for the research by CycleCity Guides and BCC.

Express coach feasibility study

(Ito World Ltd). *Ben Clark.*

This project is providing staffing support to Ito World Ltd in conducting a wide ranging examination of the potential for motorway-based express coach services to play a greater role in serving the UK’s inter-urban transport needs. The study has to date entailed: 1. a review of the national and (previous) regional policy contexts for the provision of inter-urban coach services; 2. the identification of coach schemes in progress, and coach scheme proposals for the English regions; 3. a desk audit of potential coach interchange locations on the English motorway network; 4. the development of 13 coach interchange designs produced by a group of undergraduate architecture students and 5. a small-scale study to determine the impact of a new out of town coach interchange (the UWE Megabus stop) on inter-urban trip making.

‘Student+Bike=Better Together’: Motivating cycling through positive experience

(HEAT@UWE, August 2011 to July 2012). *Eran Ben-Elia (lead), Sarah Burgess (DPA), Saad Liaquat Kiani (DEDM), Karina Stewart, Helen Featherstone (DAS).*

The main goals of this project are to investigate in a pilot field study whether a positive experience in using a bike

would contribute to a change of behaviour towards more active travelling; changes in attitudes towards cycling and perceptions regarding health and fitness compared to objective physical and physiological measures. A small group of students and staff who did not already cycle were provided with a rent-free bicycle for the duration of 6 weeks. Ex-ante and ex-post fitness and health checks were conducted and parallel interviews were run to assess participants' attitudes and perceptions towards cycling. Participants were also asked to cycle with a GPS logger and fill in a short travel diary. Currently, the data collection phase has been completed and the project will now focus on analysis of results.

SUPPORTING AND EVALUATING SUSTAINABLE MOBILITY STRATEGIES

Evaluation of the Cycling City and Towns Programme

(DfT, February 2009 to October 2012). *Kiron Chatterjee, Graham Parkhurst, Henrietta Sherwin and Juliet Jain. Partners: AECOM (lead) and Tavistock Institute.*

Between 2008 and 2011, the DfT, Cycling England and the Department of Health invested over £43m (plus local match funding) to create twelve Cycling City and Towns (CCTs): Greater Bristol, Blackpool, Cambridge, Chester, Colchester, Leighton-Linslade, Shrewsbury, Stoke-on-Trent, Southend, Southport, Woking and York. The aim of the programme was to explore whether and how increased investment in cycling, as part of a whole-town strategy, could lead to a significant and sustained increase in the number of cyclists and frequency of cycling. UWE is contributing to the evaluation of the programme. A main objective is to obtain robust evidence about programme impacts in terms of cycling and other travel behaviour, physical activity and wider impacts such as carbon emissions.

A baseline survey was conducted in 2009 and involved a random sample of 16,343 households across the 12 CCTs. It identified that under a third of adult respondents aged 16 and over across the CCTs (28%) had cycled in the previous twelve months. One in five adults (19%) said they cycled at least once a week. Men, younger adults, adults in employment, adults from higher socioeconomic groups and adults with children were more likely to have cycled in the previous 12 months. A repeat household survey is proposed for 2012,

one year after the CCT programme funding period ended.

Qualitative research was undertaken with residents of the CCTs in 2010 and 2011 to explore their cycling behaviours and how and why these changed during the short-run period during and after investment. Twelve face-to-face interviews were conducted in each CCT, 144 in total, so that insights could be gained for the different CCT contexts. The research has shown how CCT investment, alongside other factors, influenced the cycling of residents in the context of their evolving lives and how viewing travel behaviour in this way assists in understanding behavioural change. It has demonstrated that life events lead to reconsideration of travel and turning points in travel behaviour. The research also showed that whether or not a person cycles at all, or cycles for particular kinds of journeys, is determined by a mix of contextual factors. This suggests that interventions which tackle only one of the potential barriers in this mix are less likely to succeed than interventions which address the most salient barriers across the different levels.

RENAISSANCE: Testing Innovative Strategies for Clean Urban Transport

(EC Civitas Plus, September 2008 to September 2012). *Graham Parkhurst (CTS lead), Miriam Ricci, Ian Shergold, Kiron Chatterjee, Erel Avineri, Yusak Susilo, Charles Musselwhite, Neil Larsen (DEDM). Bath Partners: B&NES (Bath site lead), First Group plc, ATS Ltd, City Car Club, Comunicare srl, ACIS Ltd.*

CTS is one of eight partners involved in designing, implementing and evaluating a €7 million package of policies for more sustainable mobility in Bath, with €4 million provided in support by the EC's Civitas Plus initiative. The Bath measures consist of: (i) two feasibility studies, which are now completed - Personal Rapid Transit and Galileo applications for innovative telematic systems; (ii) four trials that use new technologies for new or existing transport options - a diesel electric hybrid bus trialled on the Park & Ride (P&R) service, hybrid cars (Toyota Prius) included in the fleet of the Bath City Car Club, pedal bike share and an electric delivery vehicle used to serve the Bristol and Bath Freight Consolidation Centre; (iii) two pedestrian movement and environmental improvement demonstrations in selected areas of Bath city centre; and (iv) a novel Heavy Goods Vehicle restraint demonstration, involving a vehicle-activated sign coupled with number plate recognition cameras.

During 2011 the CTS evaluation team has been involved in collecting data for impact evaluation and in process evaluation. In particular, CTS undertook a major on-street survey in Bath in May post-implementation, to capture residents' and visitors' attitudes towards the new wayfinding and information system trialled in central Bath and the quality of the public realm in the re-designed demonstration area of St. James Rampire, in order to compare perceptions before and after the two demonstrations. Other issues covered by the survey were attitudes to cycling and bike sharing, car clubs and public transport, and other aspects of Bath city centre, such as air pollution, noise and congestion. CTS also conducted a bus passenger survey on the P&R service and a survey of car park users in central Bath, to gather and compare attitudes of users and non-users of the P&R towards the hybrid bus trial. Other evaluation work included an online survey of Bath City Car Club (CCC) members, followed by a series of in-depth qualitative interviews, to collect members' opinions on their experience of using hybrid cars in the Bath CCC fleet; and a survey of users and non-users of the Bath Consolidation Centre, aimed at understanding the perceived benefits of the freight consolidation scheme and barriers to join.

The evaluation work carried out so far has identified that the new wayfinding elements introduced by the demonstration seem to be better than the old ones at providing city centre users with public transport information. Improved information provision about walking times and routes was also particularly favoured. Likewise, the re-design of the St James Rampire, involving the creation of a larger pedestrian area, appears to be favoured by the public. Public perceptions of the hybrid bus trial were also positive, with users of the hybrid bus reporting lower levels of noise and a better quality of ride than those on the diesel counterpart. Interim results from the CCC members' survey indicate overall satisfaction with the performance and accessibility of the new hybrid cars, and support for the demonstration.

Carbon-Aware Travel Choice in the City, Region and World of Tomorrow (CATCH) (EC, August 2009 to February 2012). *UWE grantholder and lead: Erel Avineri, with Owen Waygood, Glenn Lyons and Tim Chatterton. Lead organisation: MRC McLean Hazel. Partners: Polis (Belgium), UITP Belgium), the Federal University of Rio de Janeiro (Brazil), TRL (UK),*

municipality of Handan (China), Q-Sphere (UK), SICE (Spain), E-Forum (UK) and Systematica (Italy).

This two-and-a-half-year collaborative project to develop an open knowledge platform from which to disseminate information and advice on the reduction of mobility-related greenhouse gas emissions was coming close to its end at the time of writing. During 2011 the CTS research team led the monitoring and evaluation activities. Targeting travellers and mobility stakeholders, and applying research methods developed by behavioural scientists, CTS explored how different presentation formats and measures of CO₂ information affect perception and understanding of the environmental impact of travel. Also explored was the incorporation of 'nudges' in the design of information on travel behaviour and its environmental impact, to influence behavioural change.

Additional responsibilities of the CTS research team were in leading the work package on developing the transport and emissions database covering nearly 150 cities across Europe and used by the platform's tools. The work used GIS data from the European Pollutant Release and Transfer Registry (E-PRTR) along with political city boundaries and Eurostat's Large Urban Zone.

The CATCH project held its final conference "Carbon Aware Cities" on 13 December 2011 in the University of West of England in Bristol, UK. The final conference presented research from the project, and presented the CATCH knowledge platform in the context of a variety of co-benefits that a low carbon transport will bring to health, safety, the economy and to planning. It was demonstrated how the CATCH knowledge platform links to these different areas by providing information and improving communication between the general public and transport professionals. Presentations from experts from different fields detailed the wider benefits of a low carbon transport future.

Bringing smarter choices into multi-modal models

(UWE PhD Studentship, October 2009 to December 2012). *Helen Bowkett. Supervisors: Kiron Chatterjee and Graham Parkhurst.*

This study is exploring methods to incorporate the modelling of smarter choices into a consistent and integrated approach to the modelling of transport demand by all modes. There is a growing awareness that transport problems often

need to be tackled by a multi-modal response. The emphasis now in transport appraisal is to analyse the problems facing an area and to set out a selection of possible solutions, drawing on potential contributions from all modes and smarter choices measures.

Interviews were conducted with modellers involved in bids to the UK Transport Innovation Fund to compare their experiences of modelling smarter choices. Following a review of sketch-plan methods, hybrid logit models which encompass latent choices and latent variables, activity based models and agent based models, a proto-type agent based model of the journey to work was built. The next stage of the research is to empirically ground the model in observed data.

Peer Review of Personalised Travel Planning in Brighton

(Peter Brett Associates LLP on behalf of BHCC, April 2009 to March 2011). *Kiron Chatterjee and Erel Avineri.*

BHCC has been pursuing a programme of Personalised Travel Planning (PTP) since being awarded Cycling Demonstration Town status in October 2005. Additional EU CIVITAS funding enabled the PTP programme to be expanded in 2009/10 and for innovative ideas to be tested to see if they enhanced the effectiveness of PTP. An area covering 15,000 households in north Brighton & Hove was chosen as the focus for the 2009/10 project. With a new approach to PTP being taken in 2009/10 an independent peer review was commissioned to advise on the PTP project during its implementation phase and assess its effectiveness after completion. The approach to PTP in 2009/10 was inspired by increasing awareness that the behaviour of individuals is significantly influenced by their social context and the social networks to which they belong. It involved an enhanced version of the doorstep PTP delivered in previous years, a community participation element and an online social media element.

The peer review concluded that the theoretical case for incorporating social network elements into PTP is well founded. The social network elements of the project achieved strong levels of reach and popularity. Greater engagement was achieved with older adults in the community participation element and with younger adults in the online social media element, highlighting that the two different social networking approaches are complementary. To fulfil

the promise of the social network approach it needs to be integrated into the overall initiative and to be designed to meet the same goals.

WoE Local Sustainable Transport Fund: Key Component Evaluation

(BCC on behalf of WoE, October 2011 to March 2013). *Kiron Chatterjee, Graham Parkhurst and Ian Shergold.*

WoE was successful in gaining funding from the DfT's Local Sustainable Travel Fund (LSTF) to deliver the Key Commuter Routes (KCR) project in 2011/12-2012/13. CTS was commissioned to evaluate the KCR project. This involves establishing an evaluation framework and plan, reviewing existing and new data collection requirements, assisting with overseeing of data collection, assisting with analysing information and assisting with reporting and dissemination.

WoE LSTF: Audit of Existing Academic Research

(BCC on behalf of WoE, October 2011 to March 2013). *Kiron Chatterjee, Caroline Bartle and Erel Avineri.*

To assist the delivery of the KCR project, WoE undertook market research to gain an understanding of the target market (single occupancy car commuters) and messages and activities that can motivate behavioural change. CTS was commissioned to audit existing academic research relevant to this objective.

TECHNOLOGIES AND TRAVEL

The Impact of Non-Transport Technologies on Travel Demand

(UKTRC, October 2009 to October 2012). *Christa Hubers. UWE Grantholder: Glenn Lyons. Lead Partner: Centre for Mobilities Research, Lancaster University.*

Travel is derived from a need or desire to participate in a huge array of activities. People's schedules of activities in turn are derived from and have interdependency with social practices; and social practices are shaped, in part, by and facilitated through the emergence of various kinds of technology. This project's starting contention is that non-transport technologies have significantly been shaping - and will continue to shape - patterns of, and the extent of, travel demand and yet such shaping remains far from fully understood in a context of a rapid and changing penetration of technologies into modern society. There has been considerable recent work on the substitution of communications technology for travel. The focus of this

project is different, however. Here attention centres on technologies that do not directly substitute for travel, but have an indirect effect through shaping different social and business practices. The impacts of such technologies are not normally taken into account in long-term travel demand forecasting. This research will thus chart past and present and especially future non-transport technologies and their (potential) impacts upon social practices and patterns of transport and mobility.

In the first part of the project a non-comprehensive cross-disciplinary literature review was performed to gain an initial understanding of the processes through which non-transport technologies can have an indirect impact on travel demand through changing social practices. Studies of the mechanisms through which the actual use of technologies can result in unintended consequences were found to be particularly helpful: these mechanisms describe the indirect effects of past (the freezer), present (illegal downloading) and possible future (shared ownership websites) non-transport technologies on transport.

In another piece of work, we studied the possible connections between social and transport trends as described in the UK National Trend reports. The resulting report describes how, although in theory it is possible to think of examples of how social trends have influenced transport trends, in practice it is difficult to provide sound empirical evidence for such connections. This showed that already existing data sources that can be used to study the connections between non-transport technologies, social practices and travel, are scarce.

Consequently a case study was conducted of emerging assistive technologies for older people, how these relate to changing social practices and the implications of this for travel demand. Interviews were done with experts on ageing and on transport to examine in how far the mobility effects of technological developments (outside transport) are being considered within the transport sector; how important or relevant it is for such consideration to be given; and ways in which such impacts can be accounted for in travel demand analysis and policy decisions. What emerged was that such indirect impacts are considered very important but rarely are they examined.

Ideas in Transit

(EPSRC/DfT/TSB, October 2007 to September 2012). *Juliet Jain and Tilly Line. Grantholder: Glenn Lyons. Partners: Ito World Limited; Ergonomics and Safety Research Institute, Loughborough University; and Ordnance Survey.*

This project is one of three funded under the 'Future Intelligent Transport Systems' initiative. Developments taking place in the field of intelligent transport systems have tended to involve 'top-down' innovation. However, the connectivity of the Internet has now opened up tremendous potential for 'bottom-up' innovation to emerge. The project is trying to develop an understanding of the factors that give rise to 'user innovations' and the barriers and enablers that affect how ideas make the transition from 'pipe dream' to an innovation that is used to support and influence travel.

Initial exploratory research by CTS involved: qualitative, exploratory interviews (alongside creative diaries) with people interested in technologies and identified as likely to experience particular transport problems; and focus groups with the public aimed at establishing whether transport is an issue likely to create problem/challenge spaces where user innovation could thrive. Overall this work illustrated that ICTs are now embedded in people's everyday lives and travel behaviour - particularly via the use of mobile (or more recently 'smart') phones. It was also found that, although they did display creative use of ICTs when mitigating the transport challenges they face on an individual basis, the participants were often unaware that their practices can be viewed in this way and hence showed little motivation to take their ideas forward into innovations that may be used by other people.

Following this, a study was undertaken in order to gain a deeper understanding of bottom-up innovation through an investigation of the experiences and motivations of a sample of already established innovations and their users. This also involved qualitative, exploratory research and four web-based innovators and five of their users were interviewed. This research illustrated a number of key findings, relating to: the users relationship with the innovations, their relationships with technology (in particular with smart phones), their needs, wants, and willingness to provide feedback to the innovators; and the innovators' understanding of their users' experiences and motivations, as well as their experiences and plans in relation to

promotion and development of their innovations.

The purpose of the research being undertaken presently by CTS is to test the extent to which these findings are representative of the wider population - who already use bottom-up innovations and/or who are internet users, but do not engage with such methods of transport information provision. Thus two surveys are currently being developed and piloted. We plan to complete data collection by May 2012, and analysis and reporting by Sept 2012.

Spreading the Word: a Social-Psychological Exploration of Word-of-Mouth Traveller Information in the Digital Age

(ESRC/DfT Research Studentship, January 2007 to May 2011). *Caroline Bartle. Supervisors: Erel Avineri and Kiron Chatterjee.*

Research into the use and behavioural effects of travel information has concentrated on top-down information from transport providers, but little is known about the role of informal information, shared through word-of-mouth, in everyday travel behaviour. Similarly, advanced traveller information services - such as online journey planners - deliver top-down information in sophisticated electronic formats, but are less likely to incorporate features which allow information-sharing, through 'digital word-of-mouth', amongst the travelling public (although this now is a growing field).

Qualitative research for this thesis explored the content and influence of informal travel information, within a framework of social psychological theories of behaviour. Following exploratory interviews and focus groups, a case-study was undertaken in which a small group of commuter cyclists interacted with one another through a specially designed, map-based website (*Cycology*) over six weeks, sharing their routes and other cycling-related information. Interactions on the website were found to: influence participants' behaviour in the form of using cycle routes suggested by others; to strengthen pro-cycling attitudes; and to enhance the experience of the cycle commute. A key finding was the role which *Cycology* played in building a sense of 'community' (group identification), linked to high levels of trust and pro-social behaviour amongst group members, which both reinforced positive views of cycling as a commuter mode, and increased people's

propensity to act on information from others within the group. The exploration of social-psychological factors underlying the social transfer of traveller information led to an expansion of existing theory, whilst the research also generated practical recommendations for the wider incorporation of 'social design features' into certain forms of traveller information system.

Re-imagining the bus: Road Public Transport Services in a World of Falling Subsidies and More Complex Demand (UWE SPUR, from Sept 2011 to August 2012). *Ian Shergold, academic mentor: Graham Parkhurst. External partners: Passenger Focus, Forum for the Future*

The most significant *reduction* in public transport capacity in fifty years has begun, and will take effect over the next few years. Bus services face unprecedented cuts in subsidies for fuel and fares at a time in which fuel and other costs are rising. Already, very significant service cuts are emerging. There is the very real potential that reductions in subsidised public transport could put a range of vulnerable groups in society (and their communities) at risk of being excluded, whilst also undermining policy for more sustainable mobility across all social groups. Paradoxically, the ageing of the population combined with reduced affordability of car ownership are at the same time creating opportunities for road public transport. However, the current inflexible 'big-box' model emerges as a poor technical solution for delivering mobility in a financially and environmentally-sustainable way.

The project will explore why attempts since the 1970s to introduce more flexible public transport services have failed to develop beyond limited, subsidy-dependent niches, and whether new technologies might offer an alternative model (perhaps for specific market niches)? The project will respond to such questions through a literature review following a Rapid Evidence Assessment approach - informed in part by the project's external partners. UK and international evidence will be explored, and attempts will be made to uncover emerging trends in provision.

The literature review has begun, and material is being collected and assessed. The CTS Winter Conference (2011) was used to air some of the strands that are starting to emerge from the review, although more detailed analysis will be undertaken in early 2012. It is intended

to pursue wider dissemination through an article and conference presentation, leading in due course to a more detailed proposal for further research.

UNDERSTANDING AND INFLUENCING ATTITUDES AND BEHAVIOURS

Peer Review of DfT Enabling Behaviour Change Toolkit (DfT, July 2011). *Erel Avineri.*

In November 2011 DfT published a *Behavioural Insights Toolkit* to support the design and development of effective transport initiatives. The toolkit provides "a readily digestible and user-friendly guide to those responsible for transport policy and delivery initiatives, both within the Department and externally." During 2011 Erel Avineri was invited by DfT to provide an expert review of the toolkit, with a view to assist the shaping and improving of its contents.

Interdisciplinary Study of Crowd Behaviour

(HEAT@UWE, from August 2010 to August 2011). *Erel Avineri, E. Owen D. Waygood. Partners: Ana Sendova-Franks (lead), Alison Hooper, Jan Van Lent (DEDM).*

The main goals of this project were to consider existing literature on manipulative experiments of social insects and modelling of social interactions. The intention was to draw out relevance for the design of public spaces.

The literature review considered crowd flow from the perspectives of travel behaviour, collective animal behaviour and complex systems theory, and concentrated on identifying testable hypotheses and investigated the feasibility of a multidisciplinary research project.

RECENT PUBLICATIONS

Papers and publications for 2011 onwards are listed below.

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AVINERI, E. (2011). *Driving licences.* In: Button, K. Vega, H., and Nijkamp, P. (Eds.), *A Dictionary of Transport Analysis*, Edward Elgar Publishers, Cheltenham, UK, pp.116-117.

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- BINSTED, A., CLARK, A., WAYGOOD, E.O.D. AND AVINERI, E. (2012).** *Carbon aware travel choice for sustainable mobility.* In: TRL Annual Research Report, TRL ARR 2011 (re-published from TPM Conference Proceedings, 2011). TRL, UK.
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- CALVERT, T. AND AVINERI, E. (2011).** *Who wants to commute more and why? Exploring the positive utility of the commute.* PROJECT 3, 68-69. *Journal of the Department of Planning and Architecture, University of the West of England, Bristol.*
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- DALTON, A., POWELL, J. AND PARKHURST, G. (2011).** *Who encourages us to cycle? A novel approach to researching social influence in UK cycling.* 43rd UTSG Annual Conference, 5-7 January, Milton Keynes, UK.
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