The reshaping of activities and mobility through new technologies

Can you imagine not being able to search on the web for products, services, information, people and advice; not being able to keep in touch with friends, family and colleagues via email and/or text messaging; not being able to make and remake arrangements via a mobile phone? These are behaviours that are commonplace for a growing proportion of populations in many countries across the world. Yet the information and communications technologies (ICTs) that have made this possible only began emerging in earnest in the mid-1990s and their mainstreaming into society is continuing to take place. The art of the possible in terms of communications and the ways in which individuals organise and engage in activities and social participation both spatially and temporally continues to evolve around us.

Our transport systems have evolved to enable the movement of goods and the people – connecting origins and destinations and thereby connecting people to other people, goods, services and opportunities. Such connections fundamentally underpin the functioning of society. However, the motor age alongside presenting tremendous opportunity has also brought with it a problematic dependency of society on motorised mobility – something which has now come into sharp focus not only in the long recognized form of congestion and localised pollution but in the form of its contribution to climate change. In terms of transport and land use policy we are seeking spatial organisations that are less dependent on motorised mobility or lend themselves to more efficient use of motorised mobility. We are also concerned with opportunity to manage the demand for (motorised) travel – which in turn requires an ability to understand and influence travel behaviour. We now have the motor age joined by the information age. It
has long been suggested and hoped that the information age may offer a means of alleviating our societal dependencies of the motor age. Over the course now of many years researchers have been seeking to understand how transport and telecommunications inter-relate – how one affects the other. A notable point of reference is the early work of Salomon and Mokhtarian (Salomon 1986; Mokhtarian 1990) who identified four different kinds of relationships:

- the substitution of telecommunications use for travel (leading to a decrease in travel);
- the stimulation of more travel because of telecommunications use;
- the improvement in operational efficiency of the transport system through the use of telecommunications; and
- indirect, long-term impacts upon travel via other changes (e.g. to spatial configurations of people and activities) encouraged through telecommunications use.

To the relationships above can be added a number of others:

- telecommunications can supplement travel (increasing levels of access and social participation without increasing levels of travel – i.e. telecommunications can substitute for an increase in travel) (e.g. Kenyon et al 2002);
- telecommunications can redistribute travel – even if the amount of travel (measured in vehicle or passenger miles travelled) does not change at the level of the individual or at the aggregate, when and between which locations travel takes place can be changed (with implications for levels of traffic flow and thus congestion) (e.g. Lyons and Haddad, 2008); and
• telecommunications can enrich travel – whereby, through the support of telecommunications, travel time itself is used fruitfully, generating a ‘positive utility’ (Mokhtarian and Salomon 2001; Lyons and Urry 2005).

Further to this, new notions of time-space geography are emerging and Couclelis (2002) has identified the notion of “fragmentation” whereby activities can become ‘broken up’ because of changed (relaxed) constraints in terms of where and when they can be undertaken.

Thus a complex picture has emerged: to what extent are such relationships and phenomena at work, how do they co-exist and what are the resultant effects in terms of the nature and scale of mobility? Such complexity is compounded by the rapidly evolving nature of the information age – new dependencies are emerging and (re)shaping in terms of how we communicate and interact and the means of doing so are also continuing to change. The mobile phone has evolved to become a ‘personal digital assistant’ which enables phone calls, text messages, Internet surfing, emailing, listening to music, playing games, taking photos. Unless we opt to show no concern in transport policy and planning for the impacts of ICTs on travel then we have a pressing need to improve our level of understanding of what changes are taking place and what threats and opportunities may present themselves.

Given the dynamic nature of the phenomena under study we face an ongoing research need and a need for an evidence base that can itself evolve as it seeks to keep pace with the changes that are occurring.

With such issues in mind, three leading researchers in the field (Martin Dijst and Tim Schwanen from Utrecht University in the Netherlands and Mei-Po Kwan from The Ohio
State University in Columbia, USA) undertook to bring together an international group of specialists who could support each other in their endeavours to pursue research into ICTs and travel and to promote this research to others. As a result of this, two international workshops have taken place in the Netherlands in 2004 and 2006 hosted by Utrecht University and a website is now available for this specialist network - http://www.geo.uu.nl/mobilizingICT. Most recently, a third international meeting was hosted by the Centre for Transport & Society at the University of the West of England, Bristol, UK. This special issue of the Journal of Transport Geography includes seven papers selected from this event which have been peer reviewed and revised for publication. The papers are briefly introduced below.

In the last few years, dramatic increases in the popularity of e-commerce have been witnessed and there is continued interest in how e-commerce impacts upon mobility with the potential to see trips for in-store shopping and purchasing reduced and yet possibilities for increased transport requirements for goods delivery from e-commerce. The first paper by Jesse Weltevreden and Orit Rotem-Mindali examines evidence from the Netherlands concerning both business-to-consumer and consumer-to-consumer e-commerce and assesses their potential impacts for personal and freight travel. This provides what may be one of the first examinations of b2b e-commerce and mobility – something particularly welcome given the popularity in the exchange of second-hand goods between consumers through such services as eBay.

The next paper by Claudia Nobis and Barbara Lenz draws upon panel data collected in Germany for 2004 and 2007 and uses this, with a particular focus upon the mobile phone, to examine how telecommunications and travel interact with one another at the
level of the individual – moving beyond the more commonly discussed aggregate effects observed in populations. Importantly the paper highlights that many analyses have presumed a direction of influence principally from telecommunications to travel; it goes on to address the importance of considering the existence of a bi-directional influence.

Martin Lee-Gosselin and Luis Miranda-Moreno continue a focus upon mobile phone use in their paper which uses data from Quebec City in Canada. The paper centres upon what it considers to be the two most ubiquitous recent ICTs – the mobile phone and the Internet. Access to Internet at home and being a mobile phone user are considered in terms of the relation with out-of-home activity frequencies and trip frequencies. Different associations are found for Internet access and mobile phone use. The paper also distinguishes between activities that are ‘routine’, ‘pre-arranged’ and ‘impulsive and considers how the two different ICTs associate with the organisation of these different activities.

In the next paper, Randi Hjorthol and Mattias Gripsrud emphasise the fact that the home is well suited for being able to undertake a number of ICT-based activities. They use a sub-sample of Norwegian Passenger Travel Survey respondents who are asked about ICT-use in their home thus bringing together behavioural information concerning physical and virtual mobility. The paper notably considers that some ‘traditional’ travel activities have a virtual twin (e.g. the virtual twin of a personal meeting being a telephone conversation) while we are now faced with ICT-based activities for which it is difficult to identify clear-cut physical equivalents. Attention is given to the notion of fragmentation with examination of how work activity can now fragment temporally and spatially. The occurrence of part-day homeworking is considered.
Part-day homeworking is also the focus of the following paper by Hebbah Haddad, Glenn Lyons and Kiron Chatterjee. In this paper, the authors build upon earlier work highlighting the greater prevalence of part-day than whole-day homeworking amongst full-time paid employees. The paper draws upon national survey data for Great Britain and examines factors that influence individuals’ desire to homework or to homework more than they already do; it also considers factors associated with observed frequencies of homeworking. The paper highlights that while a number of factors are common in their relevance to both part-day and whole-day homeworking, part-day homeworking has distinctively different characteristics suggesting other factors are also at play.

The paper by Suzanne Foss and Helen Couclelis offers a distinct departure from what might be deemed ‘mainstream’ consideration of telecommunications and travel. Its motivation arises from the case of southern Indian fishermen and their use of mobile phones. Use of mobile phones have allowed the fishermen to better target the markets for their daily catch – trading off distances travelled to reach the markets against the pricing levels offered at the markets. Building from this specific case study, the authors explore, as they say in their own words, “the likely behavioural adaptations of ICT-using, utility-oriented travelers in different spatio-temporal contexts”. The suggestion is that microeconomic theory can comes to the fore in being able to explain ICT-enabled behaviours where economic activity involves travel, such as is the case for the Karala fish markets.

Key challenges to the study of ICTs and travel include the means by which it is possible to conceptualise and represent the complexities of interaction in time and space that are involved. The last paper by Shih-Lung Shaw and Hongbo-Yu considers the
relaxation of spatial and temporal constraints on activity participation that the information age can bring about alongside the new opportunities offered to undertake activities in physical or virtual space or some combination of the two. The paper presents a time-geographic framework in which spatio-temporal analysis of activities performed in physical and virtual space can be undertaken. Presentation of a space-time GIS is given “that implements some of the extended time-geographic concepts for representation, analysis, and visualization of individual activities in a hybrid physical-virtual space”.

As a whole, this special issue reflects the diversity and complexity of issues that are at play and under study as we continue to embrace the information age and explore the challenges and opportunities it presents.

References


