Future mobility in an ageing society – Where are we heading?

Ian Shergold [a], Glenn Lyons [a,*], Christa Hubers [b,1]

[a] Centre for Transport & Society, University of the West of England, Bristol, UK
[b] OTB Research Institute for the Built Environment, Delft University of Technology, The Netherlands

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ABSTRACT

The demographic profile of UK society is changing as people live longer. Maintaining the wellbeing and quality of life of an ageing society is set to be extremely challenging. To what extent can the state afford to meet a potentially burgeoning demand for social care? What expectations will be placed upon informal carers to enable the system to cope? In what ways and to what extent might assistive technologies have a part to play in supporting people both in terms of active ageing and in relation to coping with failing health? Beyond these questions is one which is more explicitly pertinent to transport policy: how and where will older people live and how will this affect patterns of mobility and levels of travel demand? This paper reports on a scenario planning exercise which has examined four different futures for living in later life, defined by considering two critical uncertainties: the extent to which older people in society engage with new healthcare technologies; and the extent to which the state provides care for people living in later life. The scenarios, explored with transport, ageing and assistive technology experts, serve to highlight how social practices may be shaped in very different ways both for older people and for those with whom they interact. The paper goes on to examine the implications for future mobility – such as the role of the home as a trip attractor as well as a trip generator – as well as to explore the extent to which transport policymakers are equipped to address the uncertainties for the transport system of an ageing society.

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1. Introduction

There are technologies beyond the apparent realm of transport studies that can and do shape social practices which indirectly affect the nature and extent of travel. Assistive technologies, with the potential to prolong independent living in later life, may significantly affect where and how older people live. There could be substantial implications for patterns of travel. This is the subject of this paper.

There is a growing concern that innovations in 'non-transport technologies' are not considered in projections of future travel demand and formulation of transport policy (Hubers and Lyons, 2013a, 2013b). There are three domains of technology that influence travel: (i) 'transport technologies'—those which can improve the management and performance of transport systems or enhance guidance and support to travellers; (ii) 'substitution technologies'—those that enable practices such as teleworking and e-shopping (Lyons et al., 2008) that may replace travel or enhance economic and social activity without the need for (more) travel; and (iii) 'non-transport technologies'—those not necessarily intended to influence travel at all but which nevertheless, indirectly, can do and perhaps significantly. It is the third domain that receives least attention in transport policy or investment decisions. In order to examine this, the matter of how technologies could affect the future social practices of older people and with what travel consequences is considered.

Like many developed nations, the UK is ageing (UN, 2009). Whilst the population is forecast to grow from around 62 million in 2010 to over 71 million in 2030, those aged 60 and above will increase from 30% to 39% and those 75 and above from 16% to 23% of the total (ONS, 2011). This growth brings with it concerns over the cost of supporting people in later life, and a consequent interest in the role of 'assistive technologies'. Such technologies are 'any product or service designed to enable independence for disabled and older people' (http://www.fastuk.org/about/definitionofat.php). They can potentially support and prolong active ageing as well as helping to accommodate and address disability and illness. One can only speculate about the different manifestations of assistive technologies in the future, given the

* Corresponding author. Tel.: +44 117 32 83219.
E-mail addresses: glenn.lyons@uwe.ac.uk (G. Lyons), C.G.T.M.Hubers@uvt.nl (C. Hubers).
[1] Current address: Department of Sociology, Tilburg University, PO Box 90153, 5000 LE Tilburg, The Netherlands.

ever broadening array seen today, but in a review commissioned by the UK (Tele)communications regulator it was suggested that there were three likely areas of development over the coming decades (Plum Consulting, 2010). These were: (i) constant monitoring of health (physical and mental) as opposed to alert-based systems; (ii) extended 'virtual' engagement in networks, community and society; and (iii) tools which would facilitate continued employment for older people. There is also an enduring interest in home automation and robots (albeit against uncertain timescales for substantial realisation). Many of these technologies already exist, and will be further developed into the future. For example, telecare devices such as alarms and movement detectors that support personal safety and independence are already commonly available in the UK (Robinson et al., 2013). Telehealth solutions such as providing remote exchange of data between patients and healthcare professionals are also being successfully deployed through trials such as the UK Department of Health Whole System Demonstrator programme. This said, at present there are still seen to be barriers to wider adoption of these latter technologies (Goodwin, 2010). Over coming decades it seems likely that these barriers will be addressed, and that sensors and interconnectivity among people, devices and systems will be increasingly pervasive. Technologies will develop further to: monitor where older people are located, monitor their state of health (and mood); provide alerts and guidance; remotely administer medication; support movement indoors and outside the home; provide increasingly fulfilling remote/virtual interactions with others to enhance social contact; and enable remote access to goods, services and employment. The availability and take-up of such technologies are likely to play an important part in shaping where and how older people live and the support provided to them by other people. Through influence on these and other social practice (s), technologies will indirectly affect the nature and extent of travel—not just for older people, but also for those supporting their physical, mental and social wellbeing.

The transport technologies domain may also see change. For example there is significant current interest in the potential for 'driverless' vehicles, with older people seen as a key markets (KPMG and CAR, 2012) as well as 'drivers' of demand for such vehicles (Zmud et al., 2013). Whilst such innovation could be seen to contribute to and overlap with the field of assistive technologies, it is primarily a transport innovation and thus not a direct focus of this current paper.

There are significant unknowns concerning the pathways of future technology development and uptake as well as the lifestyle choices and preferences of older people alongside uncertainty concerning what capability the state will have to financially support the needs of an ageing society. When examining areas of considerable future uncertainty a methodology which is increasingly used is that of scenario planning. This has been deployed on topics as diverse as post-apartheid South Africa (Rhydderch, 2009), developing nations and the effects of climate change (Addison and Ibrahim, 2013) and UK food security in a world subject to geo-political and environmental change (Steedman and Schultz, 2009). In all of these contexts scenario planning allowed uncertainty to be embraced. It enabled an appreciation to be developed of the need to consider and accommodate plausible yet divergent alternative futures when examining present day strategies, policies and investment plans.

A scenario planning approach was adopted involving the development of four future scenarios for living in later life. The next section of the paper briefly outlines some insights into living in older age and related issues of mobility. This is followed by an explanation of the scenario planning approach and an introduction to the four future scenarios. Implications for social practices and in turn travel are considered. The article concludes by outlining the implications for (transport) planning and policy.

2. Older age and mobility

The UK Government has regularly published two key reports reflecting data from surveys about UK society and its travel—*Social Trends* and *Transport Trends*. Recent editions (ONS, 2010; DfT, 2009) have highlighted a series of trends (set out in the paragraph below) which have helped to inform the scenario planning process.

There is a narrrowing of the life-expectancy gap between men and women. This could reverse growth in older single-person households driven by women living longer (and perhaps by high divorce rates), offering more self-care and support between couples and less external dependency. An increasing number of women hold driving licences, which may make it more likely that at least one partner will remain able to drive (for longer). There is a convergence in employment rates between the sexes (although still biased towards part-time for women). Added to the gradual increase in the retirement age and gender alignment, older people will be working (and commuting) later in life with part-time employment potentially a significant element of their work. Work itself is also changing; manufacturing decline and growth in the service economy and knowledge working may make it easier for older people to extend their working lives. Health trends are also increasingly important, not least in respect of dementia. The Alzheimer's Society (2010, p. 1) suggests that "[o]*ne in three people over 65 will end their lives with a form of dementia*". There is a growth in obesity (in tandem with a decline in the number of walking trips on average undertaken) which portends potential health and mobility problems later in life for parts of our ageing population. Allied to such trends are advances in information age developments and challenges posed in looking to future scenarios of living in later life in terms of the lifestyles and technology engagement of future older people compared to older people today.

Further complexity arises from the fact that 'older people' are not a single homogeneous group, in fact they are '*extremely heterogeneous, only joined by their age*' (GOAL, 2012, p. 2). Such hetoregenity is evidenced in the most recent (2011) population census of England and Wales, which identified some 9 million residents aged 65 and over in the population. Nearly 60% co-habited, whilst around a third lived alone and 4% in communal establishments. Importantly only 50% reported very good, or good health. Nine out of 10 were economically inactive, with 14% providing unpaid care (ONS, 2013). Finances are an issue for a significant minority of older people (Hill et al., 2011), with 16% living in poverty (DWP, 2011). There are also links between many of these factors, with for example income and wealth strongly correlated with health and well-being of the elderly (MEA, 2005).

This heterogeneity can be seen to be critically important in respect of influences on the mobility of older people. Levels of mobility have been linked with health and well being (Banister and Bowling, 2004), significantly in respect of physical health (Mollenkopf et al., 2005), with health changes over time seen as key (GOAL, 2012). Variation in social networks can play a role (Mollenkopf et al., 2005; Haustein, 2011), and there is evidence of period and cohort effects on mobility amongst older people, for example in respect of driving licence holding (Siren and Hakamies-Blomqvist, 2005; Hjorthol et al., 2010). Social (and financial) factors can contribute to the decision to stop driving (Rabbit et al., 1996), particularly for older women (Hakamies-Blomqvist and Wahlström, 1998), whilst variation in lifestyles (including the use of technology) and different expectations across cohorts can also play a crucial role in respect of mobility (GOAL, 2012).