Care Miles

Scenarios workshop report

A report from the ESRC-funded *Technologies and Travel* project

July 2012

Chloe Cook, Andrew Curry, Christa Hubers and Glenn Lyons

Contents

Introduction

This report provides an account of the preparations for and findings from a workshop undertaken to examine future scenarios for living in later life and the role of assistive technologies.

The workshop forms part of a collaborative project involving Lancaster University's Centre for Mobilities Research[1] and the Centre for Transport & Society[2] at the University of the West of England, Bristol (UWE). The *Technologies and Travel* project is funded by the ESRC. Its purpose is to examine how technologies outside of the traditional sphere of transport policy and practice combine with social practices to in turn influence patterns of travel and travel demand. This has concerned consideration of the past, present and future with a particular interest in the latter in relation to implications for present-day policymaking.

The project team identified two particular aspects of society to focus upon in relation to undertaking a scenario planning exercise to examine how technologies and social practices might co-evolve in ways that could have significant implications for travel: (i) living in later life; and (ii) 3-D printing. The services of The Futures Company[3] were enlisted to facilitate and co-report on a one-day scenario planning workshop for each of these.

3-D printing (or additive manufacturing) involves devices which can assemble components or multi-component physical objects from the use of powdered 'feedstocks' by building up layer upon layer of material based on an input design. The future prospects for this technology remain unclear but there is potential for such forms of manufacturing to reconfigure supply chains and the geography of production and consumption with significant implications for travel. This topic has been pursued by Dr Thomas Birtchnell and Professor John Urry at Lancaster University and a separate workshop report is available.

The demographic profile of society is changing. People are living longer and there is a growing proportion of older people. Where and how older people will be living in the future is likely to have considerable influence on the nature and extent of not only their own travel but the travel of others associated with the caring for and social interaction with older people. The cost implications of supporting people living in later life are of mounting concern and there has been growing interest in the role that assistive technologies could play. Adopting the title 'Care Miles', this report offers an examination of four different scenarios of living in later life in 2030. This is work that has been pursued by Christa Hubers and Professor Glenn Lyons at UWE. The four scenarios have been based on two axes of uncertainty: the extent to which older people in society engage with healthcare technologies; and the extent to which the state provides care for people living in later life.

Scenario narratives were developed by the research team. These were then tested and further explored at a workshop in London at the Engineering Employers' Federation on 26 Mach 2012. This was attended by invited experts in ageing, assistive technologies and transport. A list of attendees, facilitators and the workshop outline are included as appendices to the report. The report structure reflects the methodology employed at the workshop itself.

---

[1] http://www.lancs.ac.uk/fass/centres/cemore/
[2] http://www1.uwe.ac.uk/et/research/cts
[3] http://www.thefuturescompany.com/

Learning from the past

Most of the infrastructure which will shape the world of 2030 is already in place. When looking at a future in which much depends on infrastructure which changes only slowly, learning from the patterns of the past is a crucial part of understanding future change. For this reason, the workshop started with the development of a timeline going back to the 1930s to reflect upon patterns of change covering key areas of society and economics, transport, building technology, construction trends, and sustainable regulation.
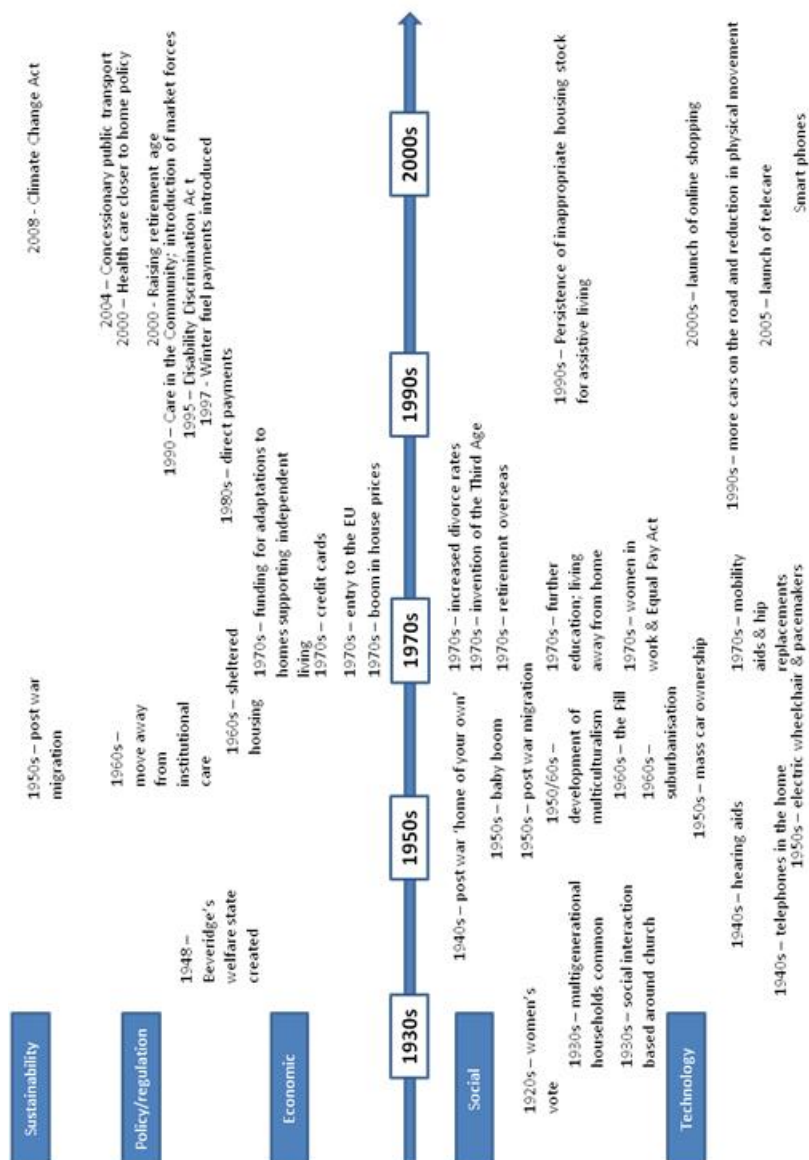

Figure 1. Care Miles timeline

Looking across the social, policy/regulatory and technological changes since the 1930s, a trend towards greater individual independence is discernible. This trend can be seen in social changes since the 1970s such as the rise in divorce rates and rising awareness about

individual rights and in policy/regulatory changes since the 1980s in the form of the Care in the Community Act and more recently the move towards individual budgets for social care. Technological developments have also facilitated this trend in the form of greater physical mobility, networked communication and rise of assistive technologies. Given this development of the trend towards greater individualism over the latter part of the 20th Century, the Care Miles scenarios represent a good opportunity to explore the consequences of uncertainties around future state provision and adoption of assistive technologies as these will have significant implications for the trend of independence.

Current operating assumptions

As well as understanding the past, good futures work requires a baseline understanding of the present, in particular of the operating assumptions which guide the present-day systems. Again, through a process of engagement with the workshop participants, we identified the current, broad, set of assumptions underpinning the 'elder care' sector at present. The assumptions identified by workshop participants included that:

- the State will continue to provide at least a baseline level of care;
- technology is an effective solution to care needs and will continue to get cheaper;
- individual choice is an inherently good thing;
- women are better at caring and will continue to provide care;
- the most important social ties are family ties;
- a longer life is a happier life;
- ageing is a cost on society; and
- independent living is valued by older people.

A note on the scenarios and methods

The scenarios used in the Care Miles project were developed by the research team at UWE.

Scenarios are a series of hypothetical stories about the future: they examine a range of plausible, alternative future environments in which decisions about the future may be played out. Scenarios are a useful way of generating strategic conversations about what can be done today to prepare for an uncertain future. The Care Miles scenario set is built from a "double uncertainty matrix" – based in this case on the two principal uncertainties of the extent to which older people in society engage with healthcare technologies and the extent to which the state provides care for people living in later life – which produced a typical 2x2 scenario matrix (see Figure 2).

There are a number of social and economic changes which will inform the world of 2030 regardless of which scenarios emerge, including that:

- population levels will not shrink, and they are more likely to grow than to remain stable;
- demographic change will mean that the population will continue to age;
- energy prices will rise because of increasing pressure on supply of fossil fuel, particularly oil, and also increased demand from emerging economies; and
- climate change is real - initially, our experience of this will mostly be in the form of more frequent extreme weather events, but wider climate change effects will start to be seen as we approach 2030.
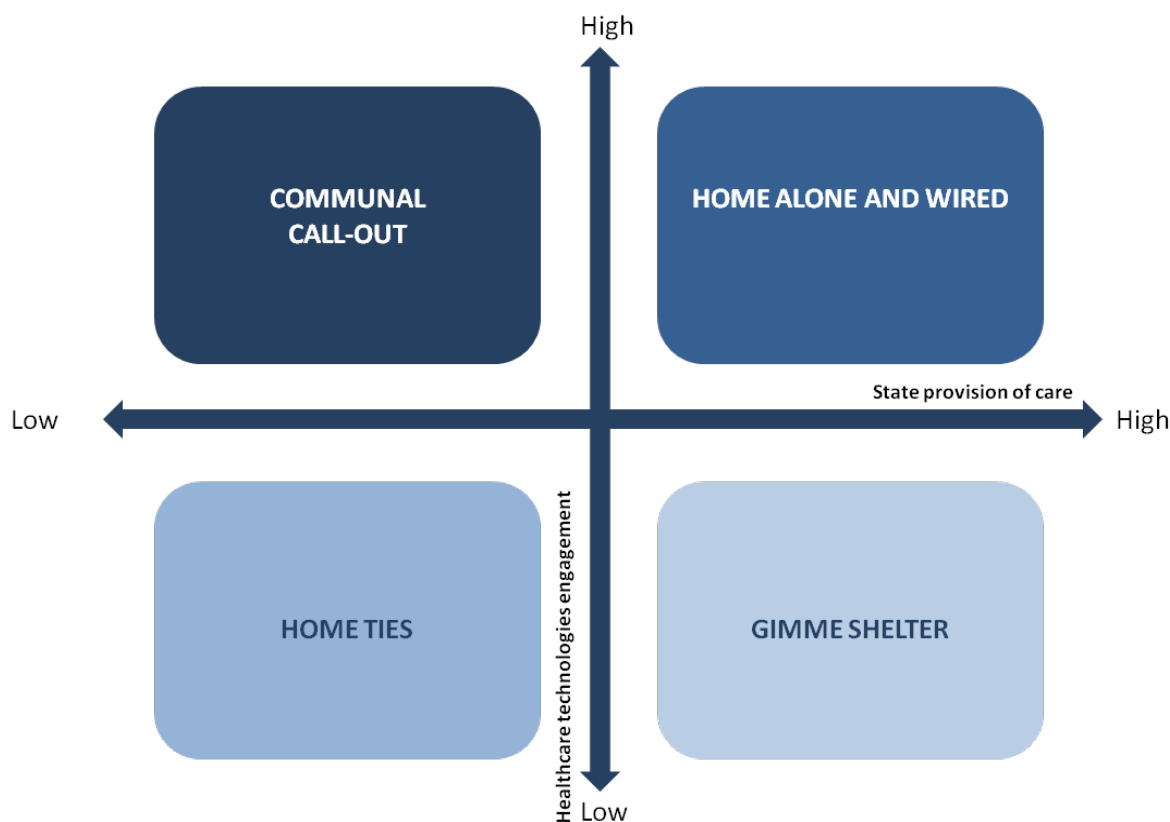
High

COMMUNAL
CALL-OUT

HOME ALONE AND WIRED

State provision of care

Low ———————————————————— High

Healthcare technologies engagement

HOME TIES

GIMME SHELTER

Low

Figure 2. A visual representation of the scenarios

The 'x' axis represents the extent of state provision of care. It prompts consideration of the extent to which people are expected to pay for care themselves and is therefore likely to affect the provision and amount of formal and informal care. The extent of state provision of care is also related to the housing of older people. In scenarios with low state provision of care where people have to pay for care themselves, homes might become assets that are sold when care needs and costs increase in order to finance these. In addition, it is also expected to be associated to the types of assistive technologies that are available to people. State governed bodies providing assistive technologies tend to have a much more limited selection of assistive technologies on offer than the commercial marketplace. Therefore, the wider range of technologies available via the private market is more likely to meet the hugely varied care needs of older people than the usually much more limited range offered by the state.

The 'y' axis represents the extent of healthcare technologies engagement (and by implication prior availability of technologies). At one end of the axis technology developers have succeeded in dealing with issues that surround the use of assistive technologies. These include privacy issues related to monitoring and surveillance technologies, user friendliness, personalisation and the level to which technologies manage to meet the needs of the very heterogeneous population of older people and their carers, the development of appropriate response systems when technologies set of an alarm, affordability, and the management of the huge amounts of data generated by these technologies. As a result of this, engagement with healthcare technologies is high. At the other end of the continuum, developments in one or more of these areas have been unsuccessful, resulting in only minimal use of assistive technologies and greater reliance on personal care provided by formal and/or informal care providers.

To explore these, and further develop the implications for transport, participants divided into four groups, each of which worked on one scenario, using the Ethnographic Futures Framework, developed by Michele Bowman and Kaipo Lum[4]. Groups explored how in each world people's needs might be different, according to a holistic framework characterised by six descriptors:

- *Create*: What is produced in this scenario? How is it produced? Why is it produced?
- *Consume*: What do people consume? Where? Why? How do they think about resources?
- *Destroy*: How do we dispose of materials when we have finished with them?
- *Connect*: How do we connect to people at a distance? What communications technologies and networks are important? What transport systems do we depend on?
- *Relate*: How do we live together? What are our (physical) communities like? What are the most important social relationships? What sorts of organisations express our social values?
- *Define*: What concepts, ideas, and paradigms inform the way we understand the world in this scenario?

After a plenary review of outcomes, the groups used a second tool to deepen their understanding of potential points of disruption within each scenario. The Three Horizons model was initially developed for Foresight UK by Bill Sharpe and Tony Hodgson, and is described more fully in a paper in the Journal of Futures Studies[5].
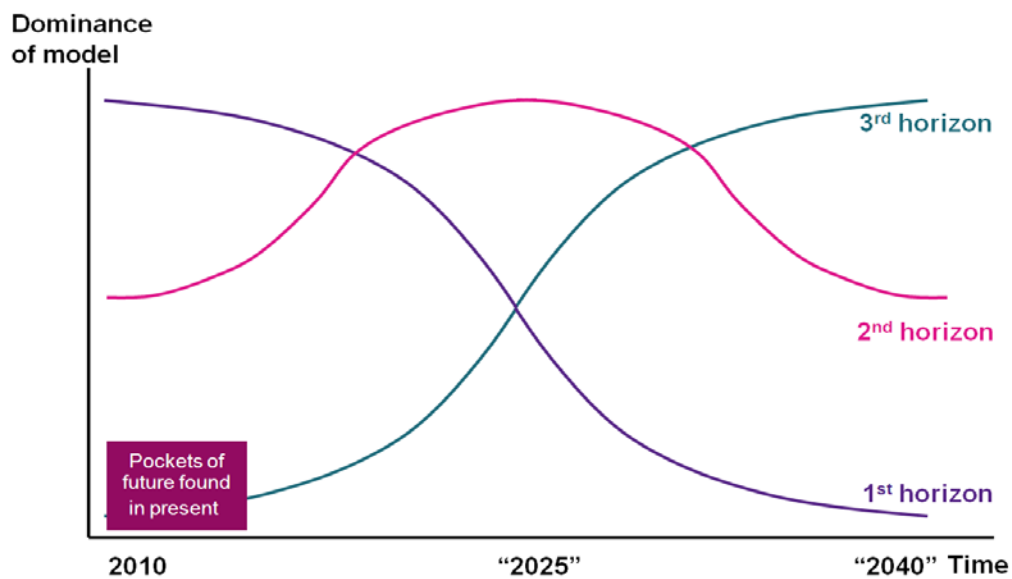
Figure 3. Three Horizons Model

The model is a means to discuss the ways in which systems evolve over time. The 'first horizon' (representing present day assumptions) declines in 'fitness' over time as the

---
[4] http://www.slideshare.net/wendyinfutures/summary-of-verge-ethnographic-futures-framework-devised-by-richard-lum-and-michele-bowman
[5] Curry, A. and Hodgson, A. (2008). Seeing in Multiple Horizons: Connecting Futures to Strategy. *Journal of Futures Studies*, 13(1): 1 – 20.

external environment changes. The third horizon, representing new thinking, gains in importance over time as it becomes increasingly 'fitted' to the external landscape. The short-run interaction between the current mainstream behaviour in the first horizon and the emerging ideas of the third is captured in the 'second horizon', which represents the way the overall system adapts to the pressures of change (in this case, in the period between 2015 and 2025, approximately). For the purposes of the workshop, each scenario was regarded as representing a different 'third horizon' future, and break-out groups identified disruption points in each possible future.

The next section of the report sets out the scenarios themselves.

The scenarios

For each of the scenarios the report now provides:

- a brief summary of the scenario
- the original scenario narrative developed by the research team
- the workshop discussion about the scenario
- insights from applying the ethnographic futures framework
- insights from examining the three horizons model

Scenario A: Communal Call-out

low state provision of care ● high engagement with healthcare technologies

Scenario summary

- In this scenario, the trend towards **individual choice and responsibility** has continued. Most people manage to remain living in their homes as they age through a **complex combination** of assistive technologies and formal and informal care.

- Means-testing has resulted in people being unwilling to pay for the unhealthy behaviours of others. **Care is now largely paid for through private insurance**. Insurance companies use **monitoring technologies to track people's behaviour** and those with unhealthier lifestyles pay higher insurance rates.

- Although the number of people needing care has increased, the number of **formal care workers has remained stable**. Assistive technologies have taken over simple but time-consuming tasks, enabling care workers to focus on providing **face-to-face care**.

- In order to afford good healthcare, **many people now work well into their 70s**. ICT has increased **workplace flexibility** and informal carers no longer have to give up paid work.

- Although the number of older people commuting has increased, **telecommuting and part-time working** means that travelling for work is not as substantial as it could have been.
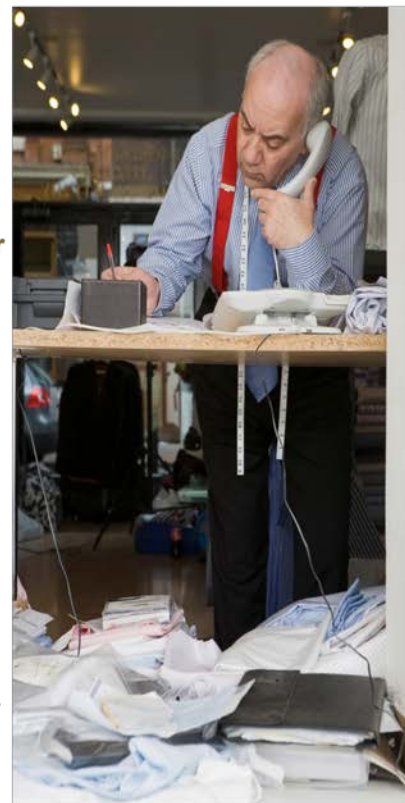
Scenario narrative – pre-workshop

The trend towards individual choice and responsibility rather than public sector provision of care and collective responsibility has continued. Whereas some people experience the increased emphasis on self-care as empowering and feel that it has increased their sense of self-efficacy, others argue that the purpose of policies aimed at personal responsibility and self-care is not to empower, but to shift blame and responsibility onto the individual. Both health and social care are means-tested as people were no longer willing to pay for the unhealthy behaviour of others, such as smoking and obesity. Instead, care is now largely

paid for through private insurances. However, insurance rates are not based on people's health status, but on their behaviour. Through various types of monitoring technologies insurance companies keep track of people's behaviour, and the more unhealthy people live, the higher their insurance rates become. So even if people have a pre-existing condition, as long as they manage their condition in a responsible manner and avoid risky, unhealthy behaviour, they do not pay a higher insurance rate than other people. However, inequalities between financial and technological haves and have not's have increased since risky behaviour is more prevalent among people from lower-economic classes. This is exacerbated by the fact that they also tend to have less access to, and to make less use of self-monitoring and other assistive technologies.

Although the number of older people needing care has increased immensely over the past decades, the number of formal care workers has remained stable. However, the fact that many simple but time consuming tasks that used to be performed by care workers have been taken over by assistive technologies has meant that care workers are still capable of meeting the demand for Face-to-Face care work. Experiments with 'care-robots' providing care work failed miserably. People figured that if they have to pay for care out of their own pockets anyway, they would rather pay for a real person than a robot. Health care comparison websites assist people in finding the best value for money for care services.

The increase in the number of older people combined with the fact that they expect to age actively and in good health have, however, resulted in a rising demand for healthcare and hence costs. To be able to afford good healthcare, many people now work well into their 70s. Increased workplace flexibility, both through new regulations as through the use of Information and Communication Technologies (ICTs) have enabled more and more people to be employed part-time. This workplace flexibility was also greatly welcomed by informal carers who no longer have to give up paid work in order to care for older friends or relatives. ICTs are also frequently used to stay in touch with people's wider social networks and combat loneliness, but also increasingly for distance learning to keep one's employability up to date.

Through a complex combination of assistive technologies, formal and informal care provision, most people manage to remain living in their own homes when they age. After an initial increase in the number of 'care miles' that resulted from the greater number of older people living in their own homes rather than in residential care homes, the mileage has remained the same over the past decades. However, the number of commute trips made by people over the age of 65 has witnessed substantial increases though. Still, since many older people only work part-time, and tend to telecommute where possible, the increase in trip rates for work purposes is not as substantial as it could have been.

Summary of workshop discussion

The overall feeling was that this is a rather depressing scenario. This feeling was exacerbated by the image that accompanied the summary description of the scenario (see above), showing an older man working in the middle of an unattractive chaotic mess.

What people generally found most undesirable about this particular scenario though, was the negative impact of the developments described in this scenario on **inequality**. It was felt that class inequalities were almost certain to increase in this scenario due to the withdrawal of state provided health and social care. Questions were raised as to what would happen to people who cannot work, for example, due to disability? Or who otherwise lack the financial resources to pay for care and insurance, either because they do not have assets to trade in for care, such as houses, or who lost the money reserved for care in the stock market? What

will happen in this scenario with people who are unable to pay for care, or who lack supportive social networks that can provide informal care? It is expected that people who have not had secure employment throughout their lives will suffer enormously by having to live with very minimal care available to them, entrenching existing social and health inequalities. This lead some to believe that this scenario might lead to **social unrest and revolt.**

In this scenario, many people are expected to **work** well into their 70s to be able to pay for good healthcare. The workshop participants, however, questioned in how far the assumption that anyone who wants to work for longer will be able to do so, is a valid one. And so is the question whether the types of jobs that will be available will suit them. There is an **emphasis on non-physical labour** in this scenario, as this is the type of labour that can more easily be performed even at a more advanced age. This could mean that some people might have to change professions to find work that meets their current and changing abilities. **Retraining** will be a continuous aspect of life if people need to work for longer.

On the positive side, a **renaissance of local connections** was expected now that people spend less time in far away offices, and more time working from home in the community. Another potential positive aspect of this scenario is that it might remove the **distinction between health care and social care** and make the system as a whole more efficient, effective and potentially more preventative. In this scenario both health and social care will be financed in a similar way, thereby removing one of the main causes in the current gap between health and social care: the way in which they are funded. Removing this gap between health and social care might also improve the pay and status of social care workers.

Although the new private insurance system based on behaviour change supported by technology at face value appears quite sensible, several issues were raised regarding its functioning in a real-world setting. On the one hand a system in which people have to pay for things themselves might result in more prevention. Nevertheless there was considerable scepticism around the ability to accomplish the required behavior change through technologies and insurance. And what is **healthy behaviour**? The definition seems to change over time. This also raised the question of whether people will be actively **managing their identities** (e.g. making themselves appear to behave more responsibly than they really are) since not doing so may have financial consequences. And will some people have a **willingness** to pay for unhealthy behaviour?

Some practicalities surrounding **the implementation issues of a new insurance system** were also noted. For example, is it fair for people who have lived in an unhealthy way before the start of the private insurance to pay the same as people who have always lived healthy lives? And what about the differences between people who will be monitored from an early age versus current generations who won't be paying for **past bad behaviour**? Failure to deal with this issue could have implications for the relations between the different generations. And more generally, there is likely to be a **time lag** between behaviour and paying for the results of earlier behaviour through changing insurance rates. The question is how this will affect the ability to accomplish the desired behaviour change.

Privacy issues related to the tracking and monitoring of people's health and behaviour via assistive technologies were felt to be of great importance for the feasibility of this scenario. In addition to this, the participants also noted that in a world in which so much depends on technology, technological systems have to be very **reliable and resilient**. What if everything depends on technology and there is a breakdown? The participants therefore saw a need for more **legislation** defining who is responsible for bad and malfunctioning technology. On the

other hand, the **failure of systems and technologies** could become more common and 'normal'.

Ethnographic Futures Framework

Create: Besides a strong growth in the production of assistive technologies, the use of these technologies for the care of older people has produced two other things: new jobs and a lot of data. Despite the initial fear that the introduction of telecare would reduce the number of jobs, in reality they have merely resulted in changes in the types of jobs that are available. Call-centre operators responding to the calls sent by personal alarms by making sure the appropriate care is deployed, but also providing a lot of emotional care work, now make up a considerable share of social and healthcare workers. Similarly, a lot of new jobs have been created in the insurance sector due to the move to private healthcare insurances. Besides these market-based insurance providers, some social enterprises have also surfaced from communities of people, with similar health conditions who have chosen to (locally) produce and provide their own care as they noticed that the for-profit sector was unwilling to do so because it was not lucrative enough. This is stimulated by the creation of the so-called "expert patient". In addition, a lot of advocacy groups have emerged fighting to improve the situation of people that for one reason or the other have been refused healthcare insurance by for-profit insurance companies.

2030 newspaper headline

Every widow for herself

Independent research has shown that the average widow receives at least five offers of new assistive technologies per day, mainly via targeted billboards and automatic telecare top-ups. Many have therefore resorted to taking mental self-defence classes to learn to resist what they call the "telecare tyranny".

The assistive technologies monitoring people's every moves are producing incredible amounts of data. As for the assistive technologies themselves, continuing advances in the miniaturisation of these technologies and their ever-growing capacities are not only creating smaller devices, but also a high turnaround of these technologies as they become out of date almost by the time they enter the market. Therefore the technological developments are resulting in the production of huge amounts of junk.

Consume: Society in this world consumes a lot of technologies. As the acquisition of these technologies largely relies on self-funding, people tend to be as efficient as possible when purchasing new technologies.

Destroy: Now that people have to pay for a lot of healthcare technologies themselves, instead of throwing them away once people no longer have a need for them, they are either sold on to other people in need of it, or if the technology was produced via 3D-printing, it is shredded and reused to print something else. Less affluent people usually can only afford second hand assistive technologies. However, whether they will be able to pay for the service provided by call centres without which many assistive technologies are useless, is another matter.

Interestingly, people's identities are also saved from destruction after they have passed away since new IT systems such as Deathbook keep people's identities alive even after death.
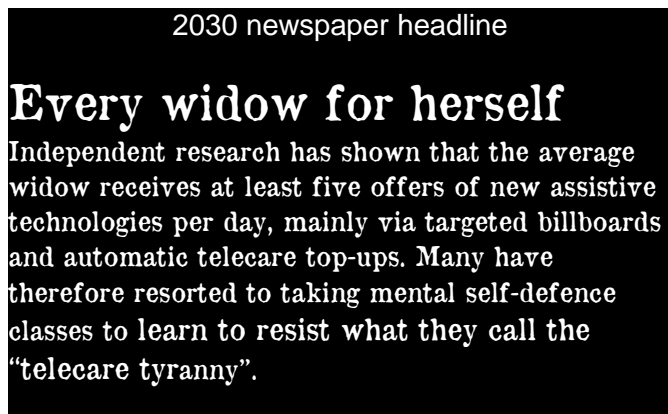
Connect: Regardless the purpose of communication, whether it be to discuss one's health with a GP or just a brief chat with a friend, without doubt the main way to connect to other people at a distance is via Skype or another type of video-conferencing technology. This however has not meant that people make fewer trips; they just tend to make fewer long-distance and more short-distance ones. As the private health insurance stimulates most people to choose healthier travel options such as walking and cycling, people prefer to make use of local service providers resulting in a strong preference for local care provision. Bike hire schemes have also been put in place in every medium-sized and major city.

Relate: The demise of the NHS has meant that people have become more dependent on other types of relations. Family, friends and neighbours take on an even larger share of caring tasks than they already did at the beginning of the 21st century. Work relationships also seem to have become even more important, since having paid work ensures the ability to pay for one's present and future healthcare needs. Since ICTs enable people to reduce their commuting time by working from home, time spent working does not necessarily reduce the time available to provide informal care. Not having a long commute has also enabled a lot of people to spend more time in the community.

The trend towards older people relocating to rural areas after retirement has not continued as they prefer to live close to the infrastructure and their social networks who provide care to them. Suburban areas, close enough to the facilities offered in the cities are the most popular residential locations for people after retirement.

Those people lacking adequate work and social relations can sometimes receive support from religious organisations and assistive technology charity shops. Another side effect of people working more from home and spending more time in the community has been that there has been an increase in environmental engineering, as more people find it important to sustain the places they spend so much time in living and working.

Define: Capitalism is the main leitmotiv in this world, along with related concepts like privatisation, libertarianism, individualism, competitiveness and politics of choice. Lack of support from the state forces people to take responsibility for their own situation. Although this has had some positive effects such as an increase in innovation and stronger ties to the locality, there have also been more negative effects such as people becoming more judgemental about, and having a general lack of empathy for people who fail to manage their health or are less well off as well as high levels of obsolescence of technologies and products due to increases in innovation.

Three Horizons: Negotiating the future

Glimpses of the future today	Critical Stage: Challenges	Future operating assumptions
- Debates on euthanasia - Debates on self-inflicted harm - Ban on smoking - Changing retirement age - Doubling of research budget on dementia - Changes in inheritance patterns (because people are getting older). Determines in how far you're able to pay for future care - NHS reform - Companies making technologies - Return to paid care (e.g. provided by migrants) - Feminized care industry	- Changing ethno-racial backgrounds of older people - Keeping things the same means doing things/making changes - Expectation of mobility (e.g. for leisure) - Cosmopolitan element to ageing. Assumptions similar all over the world - Rise of the city state - Transition towns becoming more influential - Does technology deliver its promise? - Changing allocation of work to people in a personalized / ICT-enabled way. Task A gets sent around to person B, C and D who may be able to perform the task - Involvement of laypeople in design - Role of neuroscience and genetics. Right to die-debate - Pass legislation saying that it is people's own responsibility - Encouraging private businesses	Assumptions similar to those of today: - Ageing 'in place' - Gendered care - Independent living is valued - Technology is an effective solution Assumptions different to those of today: - Dominance of family care/attitude towards ageing due to migration - State doesn't provide - Ethics becoming less affordable - People may want to end their life - Changing conceptions of longevity - Ageing is a market - No abrupt retirement

Reflections from the group

Although initially participants were quite sceptical about the world depicted in this scenario, some positive aspects were identified during the discussions such as the emergence of stronger local ties. The main challenge identified was around the expected increase in inequality resulting from a care system based on private insurance and personal responsibility. In addition, technological breakdowns could also form a great threat to society in this scenario, were daily life seems so dependent on technologies. Some participants struggled to conceive of what was 'communal' about this scenario as depicted by its title. The title had originally been intended to reflect people ageing in place, i.e. in their communities, with a reliance on technologies to both provide and also connect with ('call out') healthcare support.

Scenario B: Home Alone and Wired

high state provision of care ● high engagement with healthcare technologies

Scenario summary

- In the scenario, the **shortage of care workers** coupled with the ageing population have made **both residential care homes and personal care at home unaffordable**.

- High divorce rates mean **single households are most common**. Informal care provided by spouses and children has been replaced by **technology enabled self-care**.

- The lack of care workers means **most care is provided remotely or via care-robots**. Most people live in **smart homes** equipped with monitoring technologies and the **state provides all people with a base level of technology**.

- The **need to travel for practical reasons has diminished** as people no longer need to make trips to GPs for routine check-ups, **3D printing** enables drugs to be printed at home and **online shopping** means most goods and services are delivered.

- However this has not resulted in a sharp decline in overall trip frequencies, as more active lifestyles in older age has **increased leisure travel**. There has been a shift to more sustainable forms of transport such as **public transport and cycling,** as these are seen as more healthy and efficient.

Scenario narrative – pre-workshop

The great shortage of care workers and simultaneous increase of older people have made both residential care homes and personal care at home unaffordable. Fortunately a huge selection of assistive technologies was developed and adopted just in time to meet the increased demand for care. The lack of care workers means that most care is now provided either remotely, or via care-robots. The vast majority of homes that people live in nowadays are smart homes equipped with various types of monitoring technologies such as fall detectors, climate control systems and various types of vital signs monitoring (depending on which chronic disease a person has). These vital signs also include people's state of mind such as feelings of depression and loneliness. Although there are considerable differences between people, with some homes being much smarter than others, the state provides all people with a base level of technology. All homes, for example, have smart meters and other devices to manage energy use. This was mainly done to make sure that the UK meets its CO_2 targets by reducing its energy consumption.

Increased emphasis on self-care through people closely monitoring their physical and mental health and fitness have enabled early detection of illnesses and a shift from curing to prevention. Although this has resulted in an improvement in health for the overall population, it has not resulted in as extensive a reduction in healthcare costs as expected. This is because the strong emphasis on prevention and active ageing have created expectations among people of staying active and feeling good into old age which has driven up demand for health services as people no longer accept the infirmities of old age.

Although widowhood has declined as a result of the decreased gap between men and women's life expectancy, high divorce rates have continued. Single households are therefore now the most common household type. The informal care that used to be provided by co-resident spouses, for many people has been replaced by technology enabled self-care. So instead of one's husband or wife reminding you to take your medicine, your smartphone reminds you to. As for navigation systems, it has become very popular to personalise these devices by selecting and downloading a certain celebrity's voice to give you these prompts. High divorce rates have gone hand in hand with increases in second marriages and in the number of people with stepchildren. These complex family structures have had a negative impact on informal care provided by children.

Due to the close monitoring of people's conditions, trips to GPs and hospitals for routine checkups are now a thing of the past. And so are trips to the pharmacy as the latest developments in 3D-printing enable people to print their own drugs at home (but only after this has been authorized by their GPs via Facebook). The immense growth in online shopping has also meant that most goods and services are now delivered to people's doorsteps, instead of people going out to the shops to get them themselves. However, this has not resulted in a very sharp decline in overall trip frequencies, as the active lifestyles of people nowadays have meant that many of these trips have been replaced by trips for leisure purposes. Nevertheless, the CO_2 emissions related to transport have declined as people have shifted to using more sustainable transport modes such as using public transport, walking and cycling. Both because new technologies such as improved journey planning apps have made it much easier to determine what the most efficient transport modes are for a certain trip, and because active modes are seen to be beneficial to people's health.

Summary of workshop discussion

There was significant difference in opinion among the participants as to whether this represented a 'horror' scenario or was actually a positive future. There was however general agreement that the scenario seems most relevant for **professional, wealthier people** who can afford personalised assistive technologies, but does have considerable benefits for people without children to care for them in later life, including LGBT childless families.

The main point of feedback on the scenario was that while it sounds positive for older people with lower care needs who have the ability to age actively, it is unclear what happens to those with **greater levels of care need**. For example, participants noted that it is difficult to imagine care robots as capable of providing adequate care for those with fluctuating needs or who have acute care needs. Similarly, it was noted that the scenario seems to be more about the optimization of health through fitness and self-monitoring rather than about care per se. It paints a world where preventative self-care delays the need for care; but what happens when the physical health of people in this scenario deteriorates beyond the point of self-care?

One of the indicators the scenario is based on was question by participants; the scenario makes the assumption that high divorce rates have led to single households being the most common type. But high **divorce rates** might actually be leading to more flexible, splintered households – not necessarily people living on their own.

Moving onto the implications that the participants saw coming out of the scenario, participants highlighted that older people in this scenario will need higher **levels of technological skills** – e.g. using the equipment, knowing how to do basic repairs etc; but it

was acknowledged that this will be a generation of older people who have grown up with domestic technologies, so making this scenario more plausible.

In addition, as the state will provide a baseline of assistive technologies, it was noted that there will be a **large monetary cost for the state** in this scenario to retrofit people's homes with assistive technologies. The technologies will have to be personalized otherwise people will not feel like they are in their own homes anymore.

Overall it was felt that this scenario feels potentially very **isolating** – older people have to go out to get social contact; accessible and affordable transport will be even more important in this scenario than it is today. Digital divides still important in this scenario – there'll just be new forms of division.

In terms of the assistive technologies, it was agreed that there needs to be greater understanding of technology use within the contextual environment of the home – due to concern that assistive technologies won't be smart enough to pick up on contextual issues and will miss subtle indicators of care.

Ethnographic Futures Framework

Create: There is less creating in this scenario than the others – it's more about retrofitting existing stock and ensuring that there is legislation to make housing stock suitable. However as there will be considerable commercial interest in providing assistive technologies to private homes in the scenario, companies will be key creators.

Consume: Participants felt that there would be a likely increase in demand in this scenario and consequently greater levels of consumption than there is currently. This is due to older people having higher expectations of active ageing, resulting from the focus on the self borne out of self-monitoring. Therefore, rather than driving cost efficiencies – preventative monitoring and assistive technologies actually generates more demand for care.

Destroy: Participants thought that the increasingly high expectations for quality of life in older age predicated in this scenario might speed up the 'right to die' debate. If people increasingly expect to control their own care, then won't they also want to control the decision over when to die?

Connect: The question arose as to whether this scenario portrays a paradox – namely that this could be the most connected society, but simultaneously the least socially interactive. However it was also thought possible that offline communication could actually increase in this scenario, despite the social isolation that first seems apparent. This was thought possible due to older people having more reasons to talk to their families because they have more information about themselves to share. For example, it was imagined that older people would share personal data streams on social networks.

However, the 'always on' nature of digital monitoring and communication in this scenario led participants to think that it was likely that there would be an increasing desire among older people to 'unplug and tune out' occasionally – disconnecting themselves from their monitoring systems.

Relate: The main relationships considered in this scenario by participants were those between parents and adult children. If older people are self-caring, then will children be less inclined to visit as they won't feel the need to visit and check that everything is ok? There could also be potential breakdowns in trust between older people and their relatives if older people felt they were being forced into being under surveillance via monitoring technologies.

However, more positively, if the burden to care was removed from relatives and placed instead on care robots, then it might improve the quality of relationships and time spent with each other.

The other set of relations considered were between older people and robots (or more general human-computer interactions) – with participants noting that interaction design would become increasingly important in relationships, both between humans and also assistive technologies.

2030 newspaper headline

Suzi Mills taken to court for refusing to wear chocolate consumption monitoring bracelet

The greater expectations and pressure to be healthy and active means that there is significant social stigma attached to those who refuse to self-monitor. This attitude is helpful for insurance companies, who are also monitoring people's lifestyle behaviours.

Define: Participants described this scenario as being simultaneously the Age of Hypochondria, Surveillance and Empowerment. It was suggested that it would be remembered by future generations as the first connected older generation, but also as the most exclusive/exclusionary generation.

Three Horizons: Negotiating the future

Glimpses of the future today	Critical Stage: Challenges	Future operating assumptions
- Independent living movement - Individual Budgets - Korea's development of domestic robots	Behaviour change tensions – will have to shift towards people making healthy/responsible decisions in order for this scenario to work. Will need to come from peer pressure rather than top down?	Assumptions similar to those of today: - The individual is not a recipient of care - Prevention is less costly - Technology is an effective solution & it will continue getting cheaper - Choice is good – and that people are able to make the best choice for themselves - Assumption that state will continue to care for those with acute needs – state will still be having to respond to people's bad decisions/choices - A longer life is a happier life Assumptions different to those of today: - Technology is valuable because it enables early detection - Individual older person is not a recipient – more proactive role - State's role will be about encouraging/enabling healthy behaviours - Does not assume that family care is better – assumes that there is no family to do the caring - Ageing is a positive process – although assumes that active ageing will be achievable for all - Investment in assistive technologies will continue - Pro-business – there is a lot of money to be made in this scenario

Reflections from the group

Overall workshop participants saw this as a fairly utopic scenario – a 'shiny' vision of independent living in older age where people have the resources and health to look after themselves with little or no state intervention. However when participants looked under the surface of this scenario, they felt that there were significant holes and unanswered questions – particularly around what would happen to those who had high levels of care needs that assistive technologies simply could not fully support.

Scenario C: Gimme Shelter
high state provision of care ● low engagement with healthcare technologies

Scenario summary

- In this scenario, **informal care is in short supply**. Growing up in a society based on individualism means older people don't want to be a burden. Multigenerational housing is not a viable option anyway, given small housing sizes and geographical distance.

- Due to the lack of informal care, **formal care services are stretched to their limits**. As a result, only the bare minimum of care is provided and mainly to high need households.

- A **middle ground** between independent living and residential care homes was therefore sought – and found - in **sheltered housing**. Living close together but in their own purpose built flats, enables a **single carer to look after a greater number of people**.

- **Assistive technologies are housed in a communal building**, rather than provided in individual houses.

- Despite the communal provision, **social isolation remains widespread** as close proximity with others has not counter-balanced the decreased contact with formal carers and family.

- **Some reductions in overall transport** seem to have resulted from sheltered housing – due to fewer trips by care providers and more joint trips by residents.

Scenario narrative – pre-workshop

Growing up in a society based on individualism has meant that older people don't want to be a burden to their friends and families. Besides, there are many practical reasons why most older people cannot count on informal care. Often they only have one or two children who in general tend to live both far away and in houses that barely have enough space for their own nuclear families. Multigenerational housing is therefore not a viable option for the vast majority of people. For a long time it was hoped that emerging assistive technologies would be able to meet the increased demand for care. However, in the deployment phase of these technologies it was soon realised that they relied too heavily on the availability of informal carers to respond to alarms.

As the supply of informal care has not been able to keep up with the ever growing demand for care, ageing in one's own house which relies heavily on the support of friends and family turned out not to be a realistic option for many people either. A middle ground between independent living and residential care homes was sought and found in sheltered housing. In these purpose built service flats, older people live independently but close to one another. This close proximity enables a single carer to look after a greater number of older people then when they lived all over town. And instead of each individual house being equipped with assistive technologies, there is a communal building where such technologies can be used. The downside of such communal provision of assistive technologies is that as they need to cater for the needs of a large and varied group of users, there is less personalisation and they do not meet the specific and complex needs of all people.

Communal provision does have other benefits though, as it has the potential to decrease the level of isolation experienced by many older people living independently. In order to use the technology people need to get out of their houses which consequently creates opportunities for interaction with other people. Despite this, the experience of social isolation is still widespread, especially amongst those people who do not use Information and Communication Technologies. Other residents of sheltered housing projects do not necessarily share similar interests and simply living close to one another does not guarantee fulfilling social contact to counterbalance the decreased contact with formal carers, friends and family.

Formal care services are stretched to their limits due to the lack of informal care. As a result, only the bare minimum of care is provided and mainly to high need households. Lack of financial resources mean that care is mainly focussed on curing existing illnesses, rather than preventing minor ailments from developing into more serious conditions. Although people are encouraged to live active lifestyles, without the help of technologies with which people can monitor their progress most people fail to stay motivated.

Some reductions in overall transport seem to have resulted from sheltered housing. Not only because compared care providers no longer have to visit individual addresses all over town, but also because the people living in sheltered housing tend to make joint trips, both because it is less expensive and because they simply enjoy the company.

Summary of workshop discussion

The first reactions of workshop participants to this scenario was that it represented the **privatisation of community**; taking communal forms of living that have potential to reinvigorate social ties between people but failing to realise these benefits due to an overarching focus on cost efficiencies – with the unintended consequence of further reducing older people's equality. It was felt therefore that this scenario represented a world of **missed opportunity**.

There were a number of questions about this scenario that participants wanted further clarification on. Firstly, how do people gain entry into these communal care homes – is entry eligibility based solely on local ties? Linked to this is the question of what happens to the people who need support but who aren't eligible for support? Secondly was the issue of how housing stock would be freed up in this scenario and what incentives would help facilitate this.

In terms of transport implications, although the scenario described reductions in overall transport, workshop participants wondered whether older people will be **mobile in other ways**. In some instances these could completely new ways – e.g. using technologies to 'time travel' and relive their past lives through watching video, accessing stored memories etc.

Ethnographic Futures Framework

Create: There is not as much creation in this scenario as you might initially expect; instead there is **reuse and 'making do'**. The care sector is badly paid and deregulated, meaning that carers change frequently and there are frequent gaps in care provision. There is therefore the informal 'production' of care to make up for these gaps through friends, family and the voluntary sector.

Consume: In terms of care provision, older people **consume whatever they can get**. Consumption of care is often not a pleasurable experience as care is mainly given "through gritted teeth"- i.e. care is provided unwillingly and there is limited choice and poor quality in the care that is provided**.** This is not a scenario where the consumer is king.

Destroy: (not discussed)

Connect: Connections in this scenario are **limited** due to low resources and reduced transportation options; in this scenario how connected you are depends on how independent you are. The social connections that do exist in the communal care homes have become formalised e.g. to allocated time slots, which is problematic as people prefer informal connections.

Relate: The communal nature of care in this scenario – within the context of cost-efficiency – is at risk of leading to the perception of **forced relationships** between older people, on the basis that people are only living communally because 'you're old and need support' rather than out of choice. The formalisation of relationships – between carer and service users – could also lead people to rating their relationships like of Trip Advisor.

Define: This scenario is characterised by the dominant perception that care for older people is an **expensive problem**, and this colours people's attitudes towards older people. This leads to a self-fulfilling prophecy where the gap between care provider and receiver widens even further.

Three Horizons: Negotiating the future

Glimpses of the future today	Critical Stage: Challenges	Future operating assumptions
- Current care home model seen as unattractive - Victorian work-house model – people work longer but receive care from their employers - Low care models based on economies of scale	- Requires redesign of the housing market – freed housing valued - Home = inheritance - Fundamental shift in language needed (communal / place) - Unintended outcome of failure of 'financialisation' of care model – southern UK sees loss as care moves northwards where it is cheaper to operate	- Technology is a cost effective solutions (at the expense of considering whole systems costs) - Communal living is better care "Place comes with you" (Langer and Rudin, 1976) - NHS role is that of a safety net – provides minimal provision and basic standards only - Parity in quality of care (regardless of life choices) - Cohort ties are more important than family ties - School type choice where care is rated with stars etc (as on Trip Advisor) - Older people are helpless and vulnerable - Ageing is still a cost - The state will provide

Reflections from the group

Overall, workshop participants regarded this scenario as a missed opportunity – communal living has the potential to positively increase older people's social relationships and wellbeing, while simultaneously reaping benefits of more efficient care provision and reduced transport needs. It was felt that it would be important to assess what steps could be taken before this scenario arises to ensure that the positive opportunities are not missed.

Scenario summary

- In this scenario, the ageing population means that **the state can no longer afford to care for the elderly in residential homes** and state care is reserved for those with the highest care needs.

- Contrary to expectations at the beginning of the 21st Century **uptake of assistive technologies in the home is low**. The technology is perceived to be too costly, too invasive and not sufficient to meet personal care needs.

- As a result, **most older people depend on informal care** provided by their social networks. **Multigenerational homes** have become the norm and **social ties are strong**.

- For older people without social networks, shared **cohousing** is preferred – with groups of older people **pooling their resources**.

- With more older people living together – either with their own families or in cohousing schemes – **joint trip making has increased substantially**.

- **Sustainable modes of transport** have been stimulated by the **reduced need for travel.** This is because families live closer together in order to care for each other and grandparents have taken on a greater role in the household.

Scenario narrative – pre-workshop

Due to the ageing of the population, it is no longer affordable to care for the elderly in residential care homes. Out of necessity, the care provided by the state is strongly focused on high-need care recipients and people with lower level needs are left to provide for these themselves. Although it has been acknowledged that in addition to physical needs, people's quality of life also crucially depends on whether or not their social needs are being met, budget constraints mean that state care provision is solely aimed at meeting physical needs. Contrary to the high expectations at the beginning of the 21st century, assistive technologies have failed to accompany the growing trend towards elderly people living independently for longer. Although many prototypes were developed, hardly any made a successful market entry. Many assistive technologies were judged to be either too expensive, too invasive, or simply did not meet the greatly varied personal needs and capabilities of the older consumers.

As a result, most older people depend on the informal care provided by their social networks. Those who have children or other family members or friends living nearby, often manage to remain living in their own homes and are visited frequently by their informal carers. Others whose children or other potential informal carers lived too far away to enable them to visit them on a regular basis have seen themselves forced to move closer to their carers. Multigenerational homes have become the main housing type. Where possible, people move closer to their social networks while they are still fit and healthy enough to help out friends and family who might be future carers, all in the hope that they return the favour once their health starts to decline. An added benefit of this trend is that by doing so, people still feel like

they remain active members of society for longer. In addition, picking up grandchildren from school, for example, also brings them in touch with other grandparents which makes it easier for them to build new friendships after moving sometimes over considerable distances to go and live with their children.

Shared ownership of housing has become the preferred option for the considerable number of people without family or friends they can count on for support with caring tasks, but with some financial means. In these so-called cohousing schemes a group of people combine their resources to develop their own collective housing. The economies of scale and community feel this generates make sharing the most affordable and desirable option for people who don't want to be a burden on their families and can afford not to. Those who cannot fall back on their social networks for help and who have only very limited financial means, there are still some residential care homes available, but the quality of life in those homes tends to be rated as low.

Because more and more older people are living together with either their own families in multigenerational homes, or in cohousing schemes, joint trip making has increased substantially. Where household tasks are divided between more people, this has stimulated the use of sustainable modes of transport as parents don't need to chain trips to work, the grocery store and their children's schools anymore since some of these trips are now made by their grandparents.

Summary of workshop discussion

Participants noted that the scenario would constitute **a reversal of today's trends** towards individualised/independent living with a move back to greater inter-dependence with others and co-habitation.

With the implications of residential relocation or reconfiguration for many older people in this scenario it was felt that the scenario relied upon or would find many people **needing to forward plan** to a greater extent in their planning for older age. As distinct from ageing in place, many people would face the need for **residential mobility**.

The scenario had implications for **flexibility** – particularly in relation to the nature and use of housing stock. **Infrastructure adaptation** would be required with potentially related legislation. However, flexibility or inflexibility would arise in economic and geographic terms in relation to intergenerational interdependencies – employment catchments potentially restricted for informal carers yet employment mobility potentially stemming from the role performed by older people in looking after their grandchildren to a larger extent. There may be implications here for how employers acknowledge the changed needs of their workforce.

The scenario suggests the possibility for **increased altruism** beyond or emerging from inter-dependencies as older people help and are helped by those from younger generations around them. At the same time **questions of self-worth** would prevail as people acknowledge the need for dependency. There was a strong sense that while older people living in multi-generational households would have a dependence on others they would also be potentially **significant contributors to the household**. The scenario risks depicting a world of harmonious communal collaborative living. In practice it is envisaged that for some

this existence will be tense. When multi-generational households are working there could be appreciable benefits but **internal pressures and strains on social relations** could cause fracturing of such arrangements. This then connects with the role in the scenario for co-housing.

Co-housing would have its own social challenges. There would be **need for trust and mutual respect** with the prospects of accommodating different ethnic preferences/norms. It is assumed that there would be a diversity of co-housing communities, reflecting the diversity of social types in the population at large. Within co-housing there would be significant **trust relations between the younger-older people and the older-older people** with the latter more reliant on the former for support but with the former eventually becoming the latter, dependent upon a new generation of younger older people to support them. It was considered that whether as co-housing or shared households, there would be a likelihood of more community ties outside the family and **a role for younger people** in such shared living whereby this would make economic sense for them in terms of affordability but with an expectation of reciprocity in terms of the support they might provide to the older people they were living with. The scenario would see it being quite common for **strangers becoming friends** as mutual support is sought and engaged in. The discussion also recognised the prospect for there being **a significant proportion of 'outsiders'** – i.e. those who find themselves unable to integrate effectively in multi-person dwellings and this would have implications for what limited state provision of care exists.

Ethnographic Futures Framework

Create: Multi-generational homes have been created after older people started to open up their under-occupied homes to younger people who were unable to find affordable accommodation for themselves due to the lack of housing stock. Overall therefore, greater efficiency has been created in the existing housing stock, with more cases of over-crowding rather than under-occupation. This is because the building stock has not been able to keep up with the changes in household sizes due to the growth in multi-generational living. The houses that have been built in the past decades have mostly been co-housing complexes funded by the state. In addition, many Victorian houses that were converted into separate flats and apartments in the past, have been reconverted into the original houses to accomodate multi-generational households.

2030 newspaper headline

Back to the future, forward to the past. A stranger is simply a friend you haven't got to know yet!

With 50% of the population now living in multi-generational familial households (M-GFH) and a further 30% in multi-generational stranger households (M-GSH) it seems that the 2030s are the new 1960s. Economic hardship and an ageing population together have achieved what many of the hippie-generation in the 1960s aspired to: communal living in which everything is shared from care to cars, utilities and above all, each other's company!

New regulations have been created to enable this new type of (partly) non-monetary renting. Planning regulations have also been relaxed so that older people can rent out their houses

that have become too big for them without having to sell them, and rent a smaller home themselves. But also to make sure that the care that is being provided in this way meets certain standards. To improve levels of care, home care training has been included in the school curriculum so that every person at the age of 14 learns how to perform basic care tasks (e.g. how to transfer someone into a wheelchair). In areas badly affected by ongoing droughts, these centres now also function as community bath houses, as water supplies to individual households could no longer be maintained.

Matching agencies have been created which help people with choosing their new housemates. Similarly, there has been a revival of community centres that facilitate people in getting people from different generations together centred around their mutual desires to improve the local communities in which they live. Community centres also function as communal hubs from which people can share and rent certain key technologies such as wheelchairs or blood pressure monitors, instead of having to purchase them themselves.

A booming black market in 'bolt-holes' has surfaced, where people can temporarily escape the hustle and bustle of the large multi-generational households in which they live. These bolt-holes provide a quiet, peaceful and serene environment allowing people on the verge of a mental breakdown to get back to their senses. Those households who can afford it, have special virtual reality rooms in their houses where they can go on 'virtual awaydays', for example to a lovely beach, to escape from their hectic everyday lives.

Consume: Trading rented accommodation for provision of informal care. So people can move in somewhere, provided they help one or more of the other residents with their care needs. This type of arrangement is especially popular amongst students, who have the time to provide low paid, untrained care, and are attracted by the low rents. Larger households sizes also mean that more food and other products are bought in bulk quantities, rather than individual portions.

Co-housing is another popular living arrangement, but mainly so amongst groups of friends, and only for as long as they are able-bodied. With state provided care severely cut, there has also been a huge growth in privatised formal care.

Destroy: The smaller number of households resulting from the decrease in single-person households and increase in multi-generational households, has meant that overall there are fewer appliances per person. Each household has the same number of appliances as before but they are being used more intensively as there are now more household members. It is not that people tend to dispose of things less, it is more that they tend to buy fewer of certain things. For example, instead of buying two cars per household, they only buy one. The goods that people do decide to get rid off are most often recycled. Part of this increase has come from higher recycling rates among especially older people who in the past although wanting to recycle, found it physically very demanding to have to take sometimes up to 5 separate bins out to the sidewalk for collection. This last part of the recycling process is now done by their more able-bodied co-habitants. In addition, living in larger households also means that more people buy products in bulk, resulting in less wrapping and overall waste.

Connect: Skype is used by the majority of people and both for work and non-work purposes. It has for a large part replaced long commutes and long distance travel for business

meetings, as people who are providing informal care simply cannot afford to be separated from those receiving their care for so long. Telecommunications are commonplace, feeding into the flexible working. In fact, working and caring in the same home has resulted in an even stronger digitisation of paid work as most households simply do not have the spare space required for storing paper documents. This has given rise to paperless household-office.

The transport system is now based on sharing cars, rather than owning them. This is because it was found to be the most low-cost solution for older people who do not use their cars on a daily basis. Likewise, most multi-generational households have also found that they can get by fine with just the one car, by distributing tasks between household members in a very efficient way. There is now much more negotiation around activity schedules and how these can be organised in such a way that there is less demand for a car. And car sharing does not just occur within households, but also between multiple households, e.g. with people sharing a car with their neighbours.

Relate: We have seen a return to everyone having a 'granny' in the front room, something which also was a very common phenomenon after the Second World War As back then, some people find this new living situation rather inhibiting. However, nowadays there is not always necessarily a blood-tie between the older and younger residents as some people have 'adopted' a granny to whom they are either indirectly related (e.g. the mother-in-law and grandmother from a previous marriage of one's new partner and his or her children) or not at all related. In cases where household members are related in a familial way, due to the often complex family relations resulting from divorces and second marriages, there is scope for internal conflicts of commitments and obligations. The 21st century granny's, however, are less dependent and more engaged as a player in the household (collecting children from school, for example).

Initially it was feared that living in multi-generational households would constrain the employment mobility of informal carers. However these fears turned out to be unfounded as older, non-working generations in the households help out with some of the unpaid work and also because both working hours and locations (e.g. working from home) have become more flexible. Whereas in the past going to the university often meant that students moved to a new city to live on their own, the massive increase in student fees in the year 2012 resulted in more students opting to go to a local university and continue to live in their parents' house, as they simply could not or were unwilling to pay to move out. As a result of both of these developments, people tend to "live locally" throughout their lives, rather than relocating at different life stages.

Government campaigns have been successful in making people more open and trustful of strangers. Greater inter-generational trust has been created by having school children and adolescents visiting older people and vice versa through various inter-generational schemes. Trust issues related to taking strangers into one's house, and even letting them take care of you turned out to be less of hurdle than expected, as many people in some stage of their lives have had experience with this sort of living, e.g. when they were students.

Those people who are unable to live in multi-generational familial households, either because they have too few family ties, or too many as a result of multiple divorces and

remarriages, tend to opt for co-housing schemes. These schemes are almost identical to familial multi-generational households, with the main difference being that household members are not related in the traditional sense of the word. These co-housing schemes are therefore often referred to as multi-generational stranger households, or M-GSH's.

Define: Whereas the notion of the "me-me generation" and individualism promoted by Margaret Thatcher in the 1980s focused on 'my needs' and 'my rights' remained influential until well into the 21st century, the last couple of decades have witnessed a move towards more collective values and practices and more of a " you-and-me generation". As people found it hard to associate themselves to the notion of a nation-wide 'big society', this idea has been replaced by a large number of 'smaller big societies' at the local level. Ties with neighbours have become stronger, and volunteering in the local community has also increased. People also no longer see strangers merely as a threat, but as a resource.

Ethnic diversity has diminished as the ethnic minorities who traditionally always tended to hold more collective values have become a bit more individualistic, while at the same time other members of society replaced the emphasis on the individual with concepts more strongly aimed at the collective good. However, small isolated groups of people exist on both sides of people who got caught in the transition and have been unable to keep up with the changes. Social values have undergone considerable changes to make this world happen. Younger people for example have had to learn to value the capital that older people have to offer to them, not only in the shape of the comprehensive knowledge they have on lots of different topics, but also in the shape as simple things like helping with child care.

Whereas at the beginning of the 21st century the government policy on ageing was very much focused on independent living, actual developments have resulted in a world in which interdependent living is now the norm. Most people see this as a plus, rather than a compromise, as for many people it has removed anxieties about a future in which they might end up living all alone, without any support.

It is important to note though, that this notion of collectivism is not necessarily reflected in the state funding of care. As the state only provides care for people with the highest needs, and lowest incomes, there has been a huge increase in privatised formal care to assist with the care being provided in multi-generational households. The quality of care that people receive is therefore highly dependent on their ability to pay for it, resulting in growing inequalities between people.

Three Horizons: Negotiating the future

Glimpses of the future today	Critical Stage: Challenges	Future operating assumptions
- Big society political opportunity - <u>More</u> pressure on women in care provision 2nd homes as care homes - Reintroduction of local - Difference in South-East -> high prices encourage shared living already - Attending local university - Co-housing, environmental building of our own homes	- Re-defining 'household' in tax incetives – e.g. multi-person discount - Social education - <u>Owning</u> <u>my</u> house and not sharing it with others - Re-engineering tenancy agreements and insurance - From "I am what I own" to "I am how I behave" - Transitioning through global recession (e.g. pensions collapse) - Reshaping self-identity and trust relations - Inheritance and disposable incomes translate to paying for care - New businesses: brokers/property portfolio managers - Social services as renter-enabler (+CRB checks). Bring housing and social care together "senior co-housing" book. Co-housing literature – building up social capital and trust relations	Assumptions similar to those of today: - Ageing in place may endure - Hope rather than experience that technology will help - Choice is still good (and possibly increased), but it is a different kind of choice - Longer, happier life (more a reality than an aspiration) Assumptions different to those of today: - The state provides less - Men will become better practiced carers - Family ties are good, but so are equivalents (with a bit of work) - If you can pay you should - Older people as a resource - Inter-dependence is even better "Old and vulnerable" is a diminished stereotype

Reflections from the group

During the workshop this had at first appeared to be a challenging scenario in which to imagine social practices operating in a credible way. However, as participants immersed themselves in the possibilities for different forms of where and how older people would live it became both credible and to some extent compelling. The significant departure from some of the social norms seen today was apparent with important implications for how economic activity and social practices would reshape and the consequences for tripmaking and overall patterns of travel.

Implications for transport

Transport's increasing role in older people's quality of life (most relevant for Home Alone and Wired scenario)
- When people feel isolated, transport/travel is an opportunity to socialize
- Reductions in commuting offset by leisure travel – maintaining quality of life
- People will still want to be getting out of their homes in order to interact with other people; reasons to use transport stay

Provision and mode of transport diversifying
- Could be less transport provision as a result of more active ageing travel
- For those who are not mobile, services could be provided through living arrangements or the Internet
- Opportunity for motorized bicycles – e.g. in Home Alone and Wired there will be more walking/cycling as people wish to age actively; motorized bicycles for those with mobility problems

Future importance of shared forms of transport (most relevant for Home Ties and Communal Callout)
- Potential for mainstreaming leasable transportation for use by older people and/or carers – with varying sizes/capacity and central hire facilities providing transport support services such as picking up/carrying goods
- Shared journeys much more likely in communal accommodation
- Incentive/reward for shared transport in co-housing – caring role leads also to a tax break (as a reward)
- Increased levels of informal and formal car-sharing
- Home carers' visits – agencies could own Smart Cars instead of relying on carers' cars

Increasing importance of networks and joined up policy making
- Considering unit of analysis (i.e. mobility and ageing): not only look at individual or household but at the networks they are enmeshed in and that sustain older people
- Think about infrastructures and implications of increasing heterogeneity i.e. ageing and lifestyles in later life
- Changing balance between cohorts and generations regarding car access and ownership

Personalisation of transport (Communal Call out)
- Could become isolated; specialized personalized transportation needed
- Facilities for longer journeys – toilet, changing devices

The implications summarised above are those identified by workshop participants. The principal focus of the workshop was to test and explore the scenarios in terms of the role of technologies in where and how older people live and relations with those around them. This report is seen as providing an important window into possible futures of living in later life and offering a richness of thinking and context that could subsequently shape views of what this might mean for future travel demand and in turn what present day policymaking should seek to accommodate.

About the authors

Chloe Cook is an analyst in the Trends and Futures team of The Futures Company with a background in social research and a specialism in digital anthropology. **Andrew Curry** jointly leads the Public Sector team in The Futures Company and specialises in futures and scenarios projects with a prior background in financial journalism and new media.
Christa Hubers was a research associate in the Centre for Transport & Society (CTS) at the University of the West of England, Bristol (UWE) between 2009 and 2012. With backgrounds in sociology and human geography, Christa has been the UWE principal researcher on the Technologies and Travel project. **Glenn Lyons** is the founder and was the first director of CTS drawing upon his specialism in the coming together of new technologies and human behaviours. Glenn is Professor of Transport and Society and UWE's principal investigator on the project.

For further information about this report please contact Glenn Lyons: Glenn.Lyons@uwe.ac.uk, or +44 (0)117 32 83219.

Appendix I: Attendees and Facilitators

Attendees

Arlene Astell, University of St Andrews

Thomas Birtchnell, Lancaster University

Judith Brown, Bristol Older People's Forum

Rosanne Brown, Occupational Therapy For You

Praminda Caleb-Solly, University of the West of England, Bristol

Brian Collins, University College London

Karl Cunion, Department for Communities and Local Government

Roger Mackett, University College London

Catherine Max, Catherine Max Consulting

Charles Musslewhite, University of the West of England, Bristol

Adam Oliver, BT

Sheila Peace, Open University

Celia Roberts, Lancaster University

Tim Schwanen, Oxford University

Sara Tilley, St. Andrews University

Helena Titheridge, University College London

John Urry, Lancaster University

Facilitators

Chloe Cook, The Futures Company

Andrew Curry, The Futures Company

Christa Hubers, University of the West of England, Bristol

Glenn Lyons, University of the West of England, Bristol

Appendix II: Workshop outline

Time	Activity
10.00 am	Introduction to process, building timeline, meeting the scenarios
11.15 am	Break for refreshments
11.30 am	Group work 1: Developing the scenarios
12.30 pm	Feedback and review
1.15 pm	Lunch
1.45 pm	Plenary: shared understanding of where we are today
2.00 pm	Group work 2: Identifying issues and opportunities
2.45 pm	Break for refreshments
3.00 pm	Review outcomes
3.30 pm	Discuss themes and issues
4.05pm - 4.15 pm	Next steps and close